ABB

Annual report

2020

ABB AT A GLANCE

ABB (ABBN: SIX Swiss Ex) is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries.

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CHAIRMAN AND CEO LETTER

Dear shareholders, customers, partners and employees,

The year 2020 is not one that we are likely to forget. Never in living memory has the world faced a challenge matching the scope and impact of the COVID-19 pandemic. The economic costs were high, as lockdowns dampened business activity across much of the world. But the human costs were far higher. At ABB, some of us lost family members, friends and colleagues, as did millions of others around the world.

Leading ABB through the COVID-19 pandemic

But the COVID-19 pandemic also brought out the best in ABB. Across the world, our people came together to take care of each other, while continuing to support our customers and to help in their communities. Our first priority, as always, was health and safety – we took every precaution to safeguard our people, ensuring that we were fully aligned with local government and World Health Organization guidelines and making appropriate arrangements for employees to work from home.

Many of our leaders donated part of their compensation or salary to help affected employees, and many employees took leave to do volunteer work in their communities. Our main fundraising effort, for the COVID-19 relief program of the International Committee of the Red Cross, raised CHF 2 million in employee and company donations. In December, we made another donation of $1 million to support the World Childhood Foundation's work with vulnerable children.

Thanks to our global footprint, well-established crisis management processes, and strong technological expertise, we were able to keep our operations running, which was crucial as we are recognized as a critical supplier for power and essential infrastructure to nations and industries. Our technologies also helped us and our customers overcome many of the obstacles created by the lockdowns. One way we supported our customers was by making some of our software services available free to ensure uninterrupted power supplies to critical healthcare applications and to support commercial and industrial facilities in better managing their facilities.

Thanks to our strong focus on safety, the number of serious work injuries among employees and contractors was stable compared with 2019 and fell compared with previous years. Tragically, we had two fatalities in 2020, and two in 2019, compared with four in each of the two previous years. In our 2030 sustainability strategy (see below), we are targeting a yearly reduction in lost time from injuries.

Financial performance

Thanks to the commitment, ingenuity and hard work of our people, in 2020 we delivered a solid financial performance in what was an extremely challenging year. As expected, our markets were impacted by COVID-19 pandemic: For the full-year 2020, orders declined by 7 percent to $26.5 billion and revenues were down by 7 percent. However, our operational EBITA margin – our main measure of profitability – was stable at 11.1 percent, showing that we took the right and necessary actions in response to the pandemic.

In line with our policy of paying a sustainable dividend over time, we will be proposing a dividend of CHF 0.80 per share to our shareholders to be voted on at the annual general meeting on March 25, 2021.

Strongly positioned for growth

The challenges posed by the COVID-19 pandemic accelerated several megatrends and none more so than the shift to digital connectivity and automation, as industries sought ways to maintain operations with fewer people on site. At the same time, growing public awareness of the need for action on climate change and the over-use of natural resources has driven sustainability to the top of the agenda for governments, investors, corporations and multilateral organizations. A related megatrend is urbanization, which is placing cities under huge pressure to expand sustainably, reduce energy consumption and traffic congestion, and improve air and water quality.

For ABB, these megatrends represent compelling business opportunities. Our market and technology leadership in electrification position us strongly in a market where demand is growing at twice the pace of other energy sources. Our leadership in automation, robotics and motion means we are ideally placed to help industries improve energy efficiency and productivity. And our solutions for the transport sector gives us commanding positions in marine, rail and electric mobility on the road.

COVID-19 information:
For health and safety reasons, each person was photographed individually to ensure physical distancing.

The COVID-19 pandemic accelerated several megatrends and none more so than the shift to digital connectivity and automation, as industries sought ways to maintain operations with fewer people on site.

Finally, our domain knowledge in all of these areas has allowed us build up a strong portfolio of digital solutions and services under the ABB Ability™ brand. As demand for digitally enabled solutions increases, we see tremendous opportunities for our remote monitoring, preventive maintenance and other connected solutions for industry, cities and transport.

Continuing our transformation

To position ABB to take full advantage of these emerging megatrends, we embarked on an ambitious transformation program in 2019. Our aim was to simplify our organizational structure to foster a high-performance culture and to focus on complementary businesses in which ABB can maintain and strengthen its market leadership. In 2020, we completed our organizational transformation with the divestment of Power Grids, which was successfully handed over to Hitachi on July 1, 2020, and by implementing our new operating model called the "ABB Way".

Today, under Hitachi's majority ownership, the Hitachi ABB Power Grids joint venture is a successful company that is continuing to win impressive orders and to develop pioneering and digital technologies. In line with our commitment to ABB shareholders, we intend to return cash proceeds of $7.6-7.8 billion from the divestment of Power Grids through a share buyback program. The first part of the program will end on the day of our annual general meeting, when shareholders will be asked to approve the cancellation of shares bought back.

Our Purpose

During the summer of 2020, we formulated our Purpose, representing the "why" we are in business. Our Purpose was developed in consultation with key stakeholder groups: employees, customers, shareholders, partners and multilateral organizations. First and foremost, our Purpose is to create superior value for our stakeholders. We do so by continuously pushing the boundaries of technology, and by helping to transform industries and society to achieve a more productive, sustainable future.

Sustainability

A key part of our company Purpose and the value that we create for stakeholders is sustainability. We believe that sustainable development means progress towards a healthier and more prosperous world for future generations. This means balancing the needs of society, the environment and the economy.

Having delivered a good performance against all of our environmental, social and governance targets for 2020, and exceeded most of them, we launched our 2030 sustainability strategy, focusing on those areas where we can make the biggest impact – reducing carbon emissions, preserving resources and promoting social progress. Our key targets for 2030 include: achieving carbon neutrality in our own operations; helping our customers reduce their annual CO_2e (carbon dioxide equivalent) emissions by at least 100 megatons, equivalent to the annual emissions of 30 million combustion cars; and embedding circularity across our value chain (see page 16).

We will achieve these targets by transitioning to renewable sources of energy, converting our vehicle fleet to electric or other non-emitting alternatives, and by improving energy efficiency in our own and our customers' operations.

Last year, we also introduced our global diversity and inclusion strategy 2030, with the clear goal of increasing diversity across all dimensions, including: gender, LGBTQ+, abilities, ethnicity and generations. By 2030, we are targeting a doubling of the number of women in senior management roles to 25 percent.

To ensure progress on our targets, we have developed a new sustainability governance framework. We will also link ABB's remuneration policies to the achievement of our sustainability targets. The Board of Directors will be responsible for overseeing the sustainability strategy and monitors progress and target achievements, as part of its overall responsibility for the company's strategy and targets.

Decentralized business model

In parallel to our Purpose, we introduced the ABB Way operating model, which covers “how” we do business in order to create success. We drive performance through a decentralized business model that moves accountability for strategy, operations and performance to our individual Divisions. This enables decisions to be made closer to the customer, meaning that our Divisions can be more entrepreneurial – fast, innovative and responsive to customer needs.

The ABB Way also serves as the common framework that defines how our Divisions, Business Areas and lean corporate center operate – it is the “glue” that unites our decentralized Group (see page 12).

The ABB Way is an evolution from our previous operating system ABB-OS, which discontinued our matrix structure. In further simplifying our organization, the ABB Way enabled the ABB-OS savings target of $500 million net savings to be reached one year ahead of plan.

Active portfolio management

In 2020, we carried out a thorough review of our business portfolio, assessing each Division on its strategic attractiveness, value-creation potential, and fit within ABB. We concluded that there are three Divisions for which ABB is not the best owner going forward.

The Divisions in question – Turbocharging, Mechanical Power Transmission and Power Conversion – are all high-quality businesses that are performing well. But we believe that they would be better off under different ownership. We therefore intend to exit these businesses, either by selling them outright or spinning them off on the stock exchange. Together, they represent roughly $1.6 billion of combined annual revenues or approximately six percent of ABB’s total revenues. Going forward, portfolio management will be a continuous process.

People, governance and brand

As well as a decentralized business model, the ABB Way covers people management, governance and our brand. To create superior value, we need to attract and retain the best people, while cultivating a high-performance culture. Through our values of Courage, Care, Curiosity and Collaboration, we create safe, fair, equitable and inclusive working environments in which our people can succeed and develop.

Under the ABB Way, we safeguard our company from financial and reputational harm through a comprehensive governance framework, based on integrity and transparency. The framework is underpinned by our Code of Conduct, which guides our employees to do the right thing and contains a commitment against retaliation. Our Code commits us and our suppliers to behave ethically, follow safe and healthy work routines, adopt sustainable and environmentally sound business practices, and respect human rights.

The fourth element of the ABB Way is our brand – an important part of the “glue” that unites us as a company. With our ABB brand, we occupy a far stronger position in the market and are able to better attract talent and investors. To maintain and strengthen our brand, we will speak consistently with a single voice and ensure that what we say matches what we do.

Confident in future performance

We are confident that running ABB under the umbrellas of our Purpose and the ABB Way will sustainably improve the performance of our company and enable us to achieve both our financial and sustainability targets.

On behalf of the Board of Directors and the Executive Committee, we would like to thank our employees for their remarkable achievements, commitment and efforts in an exceptionally challenging year. They truly went above and beyond the call of duty to look after each other, serve our customers, and support their communities and vulnerable people.

Thank you also to our shareholders for your continued trust in ABB. You have been a pillar of stability during a year of crisis, and we intend to ensure that your steadfastness is rewarded. We look forward to an exciting future for ABB, for the communities in which we live and work, and for the world.

Best regards,

Peter Voser
Chairman of the Board of Directors

Björn Rosengren
Chief Executive Officer

The ABB Way

The "glue" that unites our decentralized company

In June 2020, we introduced a new operating model, the ABB Way. Designed to further improve our performance in a rapidly changing, unpredictable world, the ABB Way represents an evolution from our previous operating system, ABB-OS.

Under ABB-OS, we discontinued our matrix structure and shifted greater responsibility and accountability to our businesses. The ABB Way builds on that progress by empowering our businesses, now called "Divisions", with full ownership and accountability for their respective strategies, performance and resources.

By shifting operational responsibility to the Divisions – of which there are currently 20 – the ABB Way enables decisions to be made quickly and close to the customer. Speed and agility are critical in our competitive, fast-changing environment. With their greater empowerment, our Divisions are free and encouraged to collaborate with each other as required for success.

Our four Business Areas evolve their portfolios and steer the performance of their respective Divisions. They also manage selected shared resources on behalf of the Divisions such as parts of R&D and our ABB Ability™ digital platform. Under the ABB Way, the corporate center has been further streamlined to focus on portfolio evolution, capital allocation, common policies and our brand.

Creating value

As the common and mandatory framework in which our Divisions, Business Areas and lean corporate center operate, the ABB Way serves as the "glue" in our decentralized Group.

The ABB Way consists of two parts. At its core is our company Purpose – the "why" we are in business. Our Purpose is to create success for all our stakeholders. We do so through our leading technologies, which address the world's energy challenges, transform industries and, along with our responsible business practices, embed sustainability in everything we do (see page 14).

The ABB Way also covers "how" we create value: how we drive performance, how we ensure that we have the right people in the right place at the right time, how we create a strong culture of governance and integrity, and how we build and protect our brand and reputation.

Decentralized business model

With the ABB Way, we drive performance through a decentralized business model in which our Divisions create value with the clear aim of being no. 1 or 2 in their respective market segments. Their performance is managed through a scorecard system, which provides full transparency on key metrics, including orders, operational EBITA, capital expenditures and return on capital employed. Our Divisions operate under different strategic mandates: they need to reach stability and profitability before investing into organic and acquisitive growth.

By shifting operational responsibility to the Divisions, the ABB Way enables decisions to be made quickly and close to the customer.

A key aspect of the ABB Way is active portfolio management, also based on a clear and transparent framework. In 2020, we assessed each Division on its strategic attractiveness, future value-creation potential, and fit within ABB. We concluded that there were three Divisions we needed to exit as ABB was not the best owner for these businesses going forward. The Divisions in question are Turbocharging, Mechanical Power Transmission, and Power Conversion. All three are high-quality businesses that are performing well, and we will consider all options for these businesses with the clear objective of maximizing value for all concerned.

Excellence in people

The ABB Way emphasizes excellence in our people as the key to value creation. To become an even better company, we are fostering a performance culture through our values, good leadership, and strong performance and review processes.

A culture of diversity, inclusion and equal opportunity is critical to our business success and makes us stronger. To help our people succeed, we provide opportunities for learning and personal development, while our open job market empowers our employees to manage their own careers.

Governance based on integrity and transparency

To safeguard our company from financial and reputational harm, we have a comprehensive governance framework underpinned by our Code of Conduct, which was revised and simplified in 2020, making it more accessible and easier to use. The Code now contains five integrity principles and 16 integrity focus areas to guide and support us in our everyday work. By always following our Code, we will ensure that ABB is an exemplary corporate citizen and a champion of ethical behavior and human rights.

Strengthening the ABB brand

Our ABB brand is essential to building trust in our company. When we are trusted, customers rely on us, people feel empowered, and all our stakeholders reap the benefits. With a strong ABB brand, we can occupy a far stronger position in the market and with that support our businesses to succeed. Whatever we say, do, write and publish is part of our reputation and we manage it carefully for example by speaking consistently with “one voice” and ensuring that what we say matches what we do.

Proceeding towards a sustainable future

The ABB Way is an operating model designed for a global company in a rapidly changing world. By empowering our Divisions to be entrepreneurs that prioritize stability, profitability and growth – in that order – we create sustainable value, based on a culture of continuous improvement, and in doing so we contribute to a more sustainable society.

Our Purpose and values

ABB has gone through a series of profound changes in recent years, among them the divestment of our Power Grids business, our transformation into a decentralized organization, and our shift toward digital solutions. These and other changes have raised questions about what we stand for as a company, what we should aspire to be in the future and what role we should play in society.

In late 2019, we initiated a project to articulate a clear Purpose for ABB. In doing so, we were also acting on significant empirical evidence from other companies that a strong, lived purpose has a positive impact on business performance and value creation. Over a six-month period, we conducted extensive interviews and listening sessions with all stakeholder groups, including employees, customers, investors, suppliers and multilateral organizations. Our aim was to build up a holistic picture of how ABB is perceived by its stakeholders and to articulate an overall strategic direction for the company.

In total, we interviewed more than 300 employees from front-line personnel to executive management as well as 30 customers and 30 other external stakeholders, ranging from NGOs and academic institutions to international organizations.

By the end of that process, we had identified and articulated five clear Purpose “themes” that described our identity and the impact we make. In capturing the themes, we made sure questions for our key stakeholders were answered. For customers, our Purpose needed to answer the question: How does ABB help us win? For employees: Why should we dedicate our passion and skills to ABB? For investors: Why should we invest in ABB? For society and the planet: How does ABB make the world a better place? For partners and suppliers: Why should we join forces with ABB?

Our five Purpose themes are:

1. Creating success
   At ABB, we are passionate about creating success. This starts with our customers – we enable them to reach new levels of performance. Their success translates into success for all our stakeholders: employees, partners and shareholders. Our people make the difference. Their domain knowledge and experience are why customers come to us with their biggest challenges.
2. Addressing the world’s energy challenges
   As pioneers in electricity and automation, we help to address the world’s energy challenges. We are enabling the world’s data growth, mobility expansion and urbanization while preserving the environment. Our solutions make homes, offices, factories and transport more energy-efficient and safer, and energy more affordable.
3. Transforming industries
   We envision a future where the physical and digital worlds merge. Together with our customers, we are turning this vision into reality. We provide automation, electrification and motion solutions that fulfil today’s needs while bringing the physical and digital worlds together. We make operations safer, more intelligent and more productive, and work towards a more prosperous and sustainable future.
4. Embedding sustainability
   For us, sustainability is both the right thing to do and a business opportunity. We lead by example by embedding sustainability in everything we do. Our solutions reduce harmful emissions and preserve natural resources. We champion ethical behavior and human rights to contribute to better lives for people across the globe.
5. Leading with technology
   If there is one thing that ABB is recognized for, it’s leading with technology. Innovation has been in our DNA since we were founded more than 130 years ago to take advantage of a new technology called electricity. This is one of the main reasons why customers and others turn to us for help with their biggest challenges. Together, we continuously push the frontiers of technology to make things possible that were not possible before.

From these Purpose themes, we crafted a clear statement of Purpose:

- **We succeed by creating superior value.**
- **We push the boundaries of technology to drive performance to new levels.**
- **And we energize the transformation of society and industry to achieve a more productive, sustainable future and to create superior value for our stakeholders**.

Today, we can say that our Purpose is at the core of everything we do – our operating model, our strategy, our governance and our values.

Our values

Along with our Purpose, which is “why” we are in business, we developed a set of four values that reflect “how” we behave to be successful and to realize our Purpose: **Courage, Care, Curiosity** and **Collaboration**. Developed in much the same way as our Purpose – through listening to our leaders and people and using their ideas and input to capture the essence of our culture – our values are the cornerstone of our culture. They guide and shape our behavior and interactions with each other, our customers, partners and society as a whole.

Our values empower and encourage our employees to have the **courage** to take action and manage consequences, speak up and ask for help, and take calculated risks to create success. They keep them focused on taking **care** of our customers, our people and the environment, on respecting and valuing differences, and doing what is right while acting with integrity. By **curiosity**, we impart that there is always a better way to do things, and to learn from failures and successes. Finally, we live **collaboration** because we believe that smart people collaborate, we build on each other’s strengths and success, and we partner with our customers.

Sustainability strategy 2030

Embedding sustainability in everything we do

Sustainability is a key part of ABB's company Purpose and of the value that we create for all of our stakeholders.

At ABB, we believe that sustainable development means progress toward a healthier and more prosperous world for future generations. This means balancing the needs of society, the environment and the economy. To achieve this, we embed a sustainable approach to business across our value chain, creating superior value for all of our stakeholders.

With leading technologies and responsible business practices, ABB also contributes to the United Nations' Sustainable Development Goals, of which we have always been a strong advocate.

A new strategy for a new decade

The year 2020 marked the last year of ABB's sustainability strategy for the previous decade. We delivered a good performance against all of our environmental, social and governance (ESG) targets, and exceeded the majority of them, including the reduction of our own greenhouse gas (GHG) emissions by 58 percent compared with a 2013 baseline. We are proud to have reached 13.5 percent representation of women in senior management. Over the past few years, we have made solid progress in attracting and recruiting women for both early talent and senior leadership positions, providing a strong foundation for our 2030 diversity and inclusion ambitions.

To determine our sustainability targets for the next decade, we conducted a thorough materiality analysis of the expectations and requirements of key stakeholder groups, including customers, government and civil society representatives, analysts, suppliers, local communities and others. Some 300 stakeholders of our Business Areas were consulted, providing more than 400 hours of interviews. In addition, more than 30,000 comments from our annual employee Engagement Survey were analyzed.

Sustainability strategy 2030

As a technology leader, we elected to focus on areas where we can make the biggest impact – enabling a low-carbon society by reducing emissions, preserving resources and promoting social progress, while also complying with local rules and regulations wherever we operate. In all of these areas, we are taking action across the value chain because we can have a much greater impact by partnering with our customers and suppliers, and other stakeholders.

At ABB, we are committed to responsible business practices, which are at the center of our comprehensive governance framework, based on respect for human rights, integrity and transparency. This governance framework is underpinned by our five integrity principles in our Code of Conduct, which guides our employees to do the right thing. Our suppliers are bound by our Supplier Code of Conduct.

To ensure that we are focused on achieving our goals, our sustainability targets are integrated into our decision-making processes and we have accountabilities and incentive plans in place to drive action.

Enabling a low-carbon society

A key goal of our sustainability strategy is to contribute actively to a low-carbon society, in line with the 1.5°C scenario of the Paris Agreement and following the guidelines of the Science Based Targets initiative.

58%

Reduction in carbon dioxide equivalent emissions, excluding Power Grids and GEIS[1] in 2020, compared with 2013 baseline

13.5%

Representation of women in senior management positions reached in 2020

Through the products and solutions we sell between now and 2030, we will enable our customers to reduce their annual CO_2e (carbon dioxide equivalent) emissions by at least 100 megatons, equivalent to the annual emissions of 30 million combustion cars. As ABB, our target is to reach carbon neutrality by 2030. We have currently identified areas that can reduce our CO_2e emissions by at least 80 percent and we will continuously seek opportunities to do more. Key actions will be to continue to transition to renewable sources of energy, improve energy efficiency across our factories and sites, and convert our vehicle fleet to electric or other non-emitting alternatives.

(1) GE Industrial Solutions

ABB entered the e-mobility market back in 2010, and today has sold more than 400,000 electric vehicle chargers across more than 85 markets; including more than 20,000 DC fast chargers and 380,000 AC chargers, including those sold through Chargedot. As of 2022, ABB will become the official charging supplier for the ABB FIA Formula E World Championship's next generation of electric racing cars. The all-electric motorsport series, of which ABB has been title partner since 2018, provides a competitive test-bed for e-mobility technologies, ultimately helping to drive progress towards a more sustainable future.

Preserving resources

To preserve resources for future generations, by 2030, at least 80 percent of ABB products and solutions will be covered by our circularity approach, reducing waste, increasing recycling and reusability, and making our products more durable. We will also make sure that zero waste from our own operations is disposed of in landfills, wherever this is compatible with local conditions and regulations. Today, close to 40 percent of our sites have already stopped sending waste to landfills. And we will systematically improve circularity in our supply chain through our supplier sustainability framework, which focuses on environmental, social and governance performance.

Promoting social progress

We promote social progress, by creating safe, fair, equitable and inclusive working environments in which our people can succeed and develop, as well as by providing impactful support for community building initiatives and through our supplier sustainability framework. To ensure continuous progress on health and safety within ABB, we are aiming for, and will track, a yearly reduction in lost time from injuries. We also have a comprehensive diversity and inclusion framework in place, with the clear goal of increasing diversity across all dimensions, including: gender, LGBTQ+ , abilities, ethnicity and generations. By 2030, we are targeting a doubling of the number of women in senior management roles to 25 percent. In 2020, we signed the United Nations Standards of Conduct for Business to tackle discrimination against lesbian, gay, bisexual, trans and intersex people. We are also working with Europe's largest LGBT rights organization, Stonewall, to help develop a roadmap on LGBTQ+ for employees.

As part of our commitment to social progress, we are targeting a top-tier employee engagement score in our industry with an ambitious people strategy, covering: leadership, learning & personal development, career opportunities and an open job market, diversity and inclusion, and healthy and inspiring workplaces.

We believe that sustainable development means progress towards a healthier and more prosperous world for future generations.

In our 2020 Engagement Survey, our engagement score rose four points to 75, a significant improvement over the previous year. The response rate was also higher – 73 percent compared to 65 percent in 2019 – and the large number of comments, 280,000 in all, provided a rich source of information for continuous improvement across the company. Based on these encouraging results, we are confident that employees support the direction in which we are going and want to be part of the journey we have embarked on. Our people strategy will be the vehicle to ensure progress across ABB in the years to come and to make us a leading employer in terms of people and culture.

In our communities around the world, we will provide impactful support for community-building initiatives in three areas: education, diversity and inclusion, and care in the community and we will systematically drive improvement in our supply chain through our expanded supplier sustainability framework.

Sustainability governance

As part of its overall responsibility for the company's strategy and targets, ABB's Board of Directors has ultimate oversight of the sustainability strategy, and monitors progress and target achievements. Sustainability has been added to the responsibilities of the Board's Governance and Nomination Committee, while the Compensation Committee will ensure that ABB's remuneration policies are linked to the achievement of its sustainability targets.

A new sustainability governance framework will be operational in 2021 to support the implementation of our 2030 sustainability ambition across our four Business Areas and reflect our change of operating model. The Sustainability Board, comprising the Group Executive Committee, oversees sustainability policies and programs, reviews developments, and monitors progress towards our targets.

With our ambitious targets, strong action plans and comprehensive governance framework, we are confident that by 2030, we will have reached all of our targets and be a leading contributor to sustainable development.


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ELECTRIFICATION

A leader in a rapidly expanding market

Electricity is growing twice as fast as other energy sources worldwide, driven by increased urbanization, digitalization and new points of consumption, as well as the expanding role of distributed generation. As the #2-ranked business in a $160 billion market, we see an exciting future for our Business Area in addressing the world's energy challenges. Current global macroeconomic trends are expected to continue, and the overall market for electrification is projected to grow 4 percent annually from 2020-2023.

At ABB, we are pushing the boundaries of technology with safe, smart and sustainable electrification solutions, powered by our people, to meet the changing needs of society. We offer our customers a full range of low- and medium-voltage products and solutions, along with pre-engineered packaged services and tailored solutions for intelligent protection and connection. We are committed to protecting our planet by innovating how we work, live and move; reducing the carbon footprint of our facilities and supporting our customers to reduce their environmental impact.

Serving the needs of our customers

With 50,500 employees and $11.9 billion in revenue in 2020, we operate in more than 100 countries, creating success by delivering superior value for customers. We have aligned our five market-leading Divisions – Smart Power, Smart Buildings, Installation Products, Distribution Solutions and Power Conversion – to our customer needs.

Our common sales and marketing organization is responsible for the go-to-market strategy, demand generation and profitable growth of the Electrification business. Through a range of activities including sales management, commercial operations and digital engagement our 10,000 colleagues in our commercial team represent the entire Electrification portfolio. We serve a wide range of customer segments including buildings, electrical utilities, oil and gas, chemicals, data centers, e-mobility, renewables and food and beverage. With unmatched domain expertise across key industry verticals and channels, we support our customers and partners with solutions which address current needs while considering emerging trends such as urbanization, digitalization and the shift to electricity and sustainable energy. Our sales are predominately made through a global network of channel partners and end customers.

Driving growth through differentiation

We are driving growth and performance by differentiating our business through technological and digital innovation, as well as operational excellence that produces an outstanding customer experience.

This strategy led to a string of successful launches in 2020. This includes PrimeGear ZX0, the world's first switchgear that allows users to switch to an eco-efficient insulation gas, which reduces the impact on global warming by 99.99 percent, at any point in its lifecycle. In addition, ABB Tenton®, is a range of high-quality, easy-to-use sensors which simplifies the implementation of intelligent automation in modern buildings, while MegaFlex DPA IEC is the most compact uninterruptible power supply on the market.

We received several awards for our solutions, including a Red Dot Award for both our ABB RoomTouch® wall-mounted touchscreen control and the IP touch 7" visualization panel, which help make buildings more livable and sustainable. We were also awarded a Frost & Sullivan Innovation Award for our TruONE automatic transfer switch.

As the #2-ranked business in a $160 billion market, we see an exciting future for our Business Area in addressing the world's energy challenges.

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CASE STUDIES

Returning power to the grid

The number of electric vehicles (EVs) is estimated to rise to around 600 million worldwide by 2040, accounting for 33 percent of all vehicles on the road. While many EV drivers already rely on ABB chargers, through our new bidirectional charging technology, they will soon be able to export surplus power back into the grid.

In 2020, we provided our new bidirectional charging technology to Dreev's vehicle-to-grid (V2G) project, a joint venture between Électricité de France and Nuvve Corporation. Our light and compact 11 kW bidirectional charging solution, specially designed for the project, strengthens our technology leadership in e-mobility.

Dreev CEO Eric Mevellec said: "V2G is a technology that requires both innovation and industrial capabilities. This cooperation with ABB is key to bringing our solutions to the next level. We are now ready to accelerate commercial development."

With the potential to generate up to €20 per EV a month by exporting surplus power back to the grid, our V2G solution reduces the total cost of ownership, further boosting the adoption of EVs. The charger meets the most stringent grid compliance requirements and is designed to set a global benchmark for V2G charging. Under the agreement, ABB is supplying bidirectional kiosks in France, the United Kingdom, Italy, Belgium and Germany.

Power infrastructure solution

The data-center colocation market is expected to double in size over the next five years, as companies increasingly use hosting services for their computer server, storage and networking needs. In meeting this skyrocketing demand, NEXTDC, a leading Australia-based data center operator, is promising its customers a 100 percent uptime guarantee.

ABB Electrification's integrated power distribution and critical services monitoring system (CSMS) solutions have been helping NEXTDC meet that promise. Our solutions are delivering the highest level of flexibility and reliability, while at the same time achieving energy efficiency, cost and time savings in the data centers that the company designs and builds. The 33kV Gas Insulated Switchgear for example was pre-commissioned offsite by ABB, reducing commissioning time by more than 20 percent.

"We see ABB as an innovator in electrical engineering – in the data center space, and power distribution and generation, as well as automation," said NEXTDC Chief Operating Officer, Simon Cooper. "These are materially important aspects as NEXTDC continues to look for new ways to innovative and evolve."

ABB Electrification's comprehensive solution allows faster and better operational decisions, resulting in more effective and efficient data center operations. The highly versatile system integrates data from IT, power, cooling and building systems from multiple vendors and eliminates the need for manual data entry when calculating utilization metrics and other KPIs. Meanwhile, our critical services monitoring solution alerts NEXTDC and ABB to any early indications of equipment deterioration, allowing us to work together to proactively isolate and resolve potential issues before they arise.

INDUSTRIAL AUTOMATION

Effecting change through leadership in automation, electrification and digitalization

Industries are reshaping the way they do business, and looking to new solutions that boost productivity, optimize performance and quality, lower costs and reduce emissions. Automation, electrification and digitalization are central to this ongoing transformation in the process and maritime industries. They play an essential role in all aspects of life: from producing energy to supplying water, from manufacturing goods to enabling their transportation.

With 21,500 employees and $5.8 billion in revenue in 2020, ABB's Industrial Automation Business Area enables efficient operations that are safer, smarter and more sustainable over the lifecycle of its customers' investments. Through its five Divisions – Energy Industries, Process Industries, Marine & Ports, Turbocharging, and Measurement & Analytics – Industrial Automation delivers an extensive portfolio of solutions. They are based on ABB's leading technologies such as distributed control systems, deep domain expertise, global footprint and industry-specific products, like mine hoists, gearless mill drives, Azipod® marine propulsion, turbochargers and quality control systems. Each solution is supported by a range of increasingly remote services throughout the long life of assets.

Harnessing technology, digital and deep domain expertise to drive industry transformation

Industry 4.0 technologies, big data, machine learning and artificial intelligence are essential to solving the dual challenge of driving higher productivity while lowering environmental impact. Data plays a pivotal role in achieving this goal. Today, less than 20 percent of the data that industrial companies produce is used, and only a fraction of that is analyzed. A key milestone to unlock the power of data was reached in 2020 with the launch of ABB Ability™ Genix, a new industrial analytics and artificial intelligence suite developed by ABB Industrial Automation software specialists. Genix will help industries to create value by combining and contextualizing data from multiple sources – real-time operations data, engineering design parameters, commercial data, and locational information from geospatial systems – providing actionable insights to boost productivity and asset performance, while improving sustainability, safety and reliability.

As industrial customers worldwide adapt to the new normal, Industrial Automation's digital services, expertise in remote operations, and ability to collaborate across multiple locations contributes to keeping critical infrastructure and production running, while protecting lives and livelihoods. ABB Ability™ Collaborative Operations remotely supports more than 1,000 industrial plants, 70+ mines, and around 1,200 vessels at sea. With 24/7 access, ABB's experts are helping customers to identify potential issues in their operations through advanced data analytics, and prioritize actions that enable predictive maintenance and better business decisions.

ABB Industrial Automation enables efficient operations that are safer, smarter and more sustainable over the complete lifecycle of its customers' investments.

Making the case for large capital investments to fuel the energy transition

To meet some of the pressing challenges of industry and society – such as access to power, water and other important resources, while lowering environmental impact – major capital investments will be needed. In the current environment, the stakes are even higher for such investments. In October 2020, ABB unveiled a fresh approach to meet this challenge:

As of January 1, 2021, the Business Area Industrial Automation was renamed Process Automation.

ABB Adaptive Execution™ combines four decades of project experience with ABB expertise, advanced technologies and new agile methodologies to make major capital investments more feasible. Harnessing digitalization, virtual setups and collaboration, Adaptive Execution can lower capex requirements for automation by up to 40 percent, shorten project schedules by up to 30 percent, and reduce start-up hours by up to 40 percent.

With the accelerated transformation triggered by the unprecedented challenges of 2020, ABB Industrial Automation is driving toward more autonomous operations that promise even greater potential to reduce emissions, increase the safety of people, and nurture prosperity globally.

CASE STUDIES

Digital solutions making a difference during lockdown

The COVID-19 pandemic drastically altered business dynamics in 2020. The start-up of a new control system for a European energy company's offshore platform was scheduled in March, coinciding with lockdown restrictions. By leveraging its digital technologies and remote engineering services, ABB was able to conduct a virtual Factory Acceptance Test, the critical last step before the customer could commence production. This new approach was so successful that the customer presented ABB with a Quality Recognition Award. Virtual commissioning has since become integral to ABB's portfolio.

Supply of personal safety and hygiene equipment was a serious concern, especially at the start of the pandemic. In the midst of peak demand, a leading global hygiene and health company experienced production outages. Travel restrictions made it impossible for ABB experts to go onsite to fix the problem. The team swiftly shifted to supporting the customer with a remote solution: remote monitoring and analytics technology was installed, with the customer handling onsite setup and ABB remotely configuring the software. The problem was identified and ABB could remotely tune the assets. Moreover, the ABB team supported the local personnel through eLearning. To be ready for the next time, the customer signed a contract for remote service.

Improving access to clean water

Personal sustenance took on new focus in 2020. A local water authority in Karnataka, India, can now track, measure and optimize water usage in a drought-prone region thanks to ABB's digital water management. The district faced regular water shortages, and needed to improve water availability to its customers. ABB designed automation from the pumping station to water treatment, covering 620 tanks and 16 reservoirs, all monitored from a central control room. Clean water is assured to nearly a million people now.

A faster way to reduce emissions

A leading Asian oil company set out to improve the monitoring of its extensive pipeline network. ABB's MobileGuard gas leak detection was the solution of choice. Featuring wheel- and new drone-mounted options, this solution significantly expanded the speed and range of leakage detection at lower monitoring costs, while reducing emissions. This helped achieve other important business objectives for the customer in a difficult year. Similarly, more than 30 cities in China are using MobileGuard to monitor their pipelines to increase health and safety for their populations.

Cleaner air for Korean ferry

The world also looks to improve air quality. ABB is contributing by providing electric power and propulsion for Busan Port Authority's first all-electric passenger ferry, part of South Korea's plan to achieve net-zero emissions by 2050. The 40-meter catamaran will ferry 100 passengers and five crew between Busan's North and South ports, taking about an hour per round trip. Two battery packs power the ferry for four round trips before charging. ABB's Onboard DC Grid™ optimizes power output, and ABB's Power and Energy Management System controls power distribution. Safety and reliability is supported through remote monitoring by experts in ABB Ability™ Collaborative Operations Centers.

MOTION

A market leader with a reputation for innovation

ABB Motion creates value for customers with its innovative drives, motors and digital services that increase energy efficiency, improve safety and reliability, and enable precise control of industrial processes. Deep domain expertise, the most comprehensive offering in the industry and unmatched global presence makes ABB Motion the partner of choice for customers seeking the best experience, service and support.

In 2020, ABB Motion employed 20,900 people around the world and generated $6.4 billion in revenue. With the highest research and development (R&D) investment in the industry, it continuously pushes the boundaries and sets new standards in motor and drive technology.

For example, in 2011 we introduced synchronous reluctance (SynRM) motors that offer the performance advantages of permanent magnet technology without using rare earth materials. Today, these motors meet new IE5 ultra-premium energy efficiency standards, offering up to 50 percent lower energy losses and significantly lower energy consumption when compared with commonly used IE2 induction motors.

ABB ultra-low harmonic drives feature state-of-the-art technology that mitigates harmful disturbances in electrical networks. This drive reduces the harmonic pollution that can cause serious operational issues. And because the solution is compact, it easily fits into many environments where space is limited. By keeping the power network clean and stable, ultra-low harmonic drives help ensure more reliable operations with less maintenance and improved energy efficiency.

Addressing the world’s energy challenges

The imperative for industry and infrastructure to reduce energy consumption and lower carbon emissions has never been greater. Researchers estimate that 45 percent of the world’s electricity is used to power electric motors in buildings and industrial applications. ABB’s highly energy efficient motors, as well as the variable speed drives that can be used to run them, will have a significant impact on the ongoing effort to meet climate change goals.

Our advanced motor technology significantly reduces power consumption compared with older systems, which means there is an enormous opportunity to save energy by modernizing aging infrastructure. Adding variable speed drives, particularly in pump, fan or compressor applications that are widespread across all industries and buildings, can typically reduce power consumption by an additional 25 percent.

ABB is also leading the way in the transition to zero-emission mobility. Our state-of-the-art traction technology, energy storage systems, and e-drivetrain solutions enable energy efficient and emission-free mobility for rail, e-buses, heavy vehicles and marine vessels.

With ABB Ability™ digital solutions and services, ABB Motion is transforming industries by connecting products to deliver customer value. Our Condition Monitoring service for powertrains helps to optimize the performance and efficiency of rotating equipment. Combining smart technology, data analytics and service expertise helps to ensure reliable and profitable customer operations.

As ABB Motion, we keep the world turning while saving energy every day. Our most important contribution to sustainability is made possible by the energy efficiency improvement customers achieve by using our products. Increasing the use of this technology can have enormous environmental benefits.

As ABB Motion, we keep the world turning while saving energy every day.

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CASE STUDIES

ABB helps to enable Switzerland's first digital hydropower plant

As Switzerland's largest producer of renewable energy, Axpo is taking a modern approach to the way energy is created and delivered. Its Hydro 4.0 initiative is a pilot project designed to create the country's first digital hydropower plant at its Mapragg facility to increase efficiency and minimize downtime.

In partnership with Hewlett Packard Enterprise (HPE), ABB worked with Axpo to install ABB Ability™ Smart Sensors to capture valuable condition indicators and performance data from the plant's rotating equipment. These sensors, through the ABB Ability™ Condition Monitoring service, deliver accurate, real-time information about motor events to ensure equipment is available, reliable and maintainable. By gaining this insight, engineers can discover anomalies and anticipate maintenance needs.

ABB Ability™ Smart Sensors operating over Aruba infrastructure helped Axpo gain the secure, scalable connectivity required to execute its vision of Hydro 4.0. "When we first heard about this joint ABB-Aruba solution we knew that it would be a perfect fit for the 360° approach of our digital power plant," said Emil Bieri, Axpo's Head of Digital Transformation Hydro.

By harnessing the flow of innovation, Axpo is better able to provide sustainable power for its customers.

ABB's energy-saving motor and drive technology helps Campbell's Australia reach sustainability target

Campbell's Shepparton plant in Victoria, Australia, has produced the company's famous range of soups, stocks and meals for almost 60 years. As part of its effort to reduce energy consumption by 20 percent by 2025, Campbell's installed ABB's synchronous reluctance motor (SynRM) and variable speed drive package as a test case in Shepparton's refrigeration plant. After a year of close monitoring, the results surprised Mark Hyland, Environmental and Safety Manager at Campbell's Australia.

"The numbers clearly showed a 14 percent reduction in energy consumption whereas I had expected savings around the 6 to 7 percent mark." Energy costs were cut by nearly $15,000 AUD, leading to an annual reduction of approximately 131 tons of CO_2 emissions.

With results like that, Hyland said it was a straightforward decision to upgrade three other refrigeration compressors with SynRM motors and drives. "After the initial project success, it was a 'no-brainer' to add further SynRM installations, given the rising energy prices, our increased ability to meet our sustainability target and the fact that we could now rely on a critical piece of infrastructure."

ROBOTICS & DISCRETE AUTOMATION

Strongly positioned in high-growth segments

ABB's Robotics & Discrete Automation Business Area has excellent growth prospects as a leader in a $60 billion market that is expected to grow annually by 10 percent from 2020 to 2023.

Four key megatrends are transforming the manufacturing sector and driving demand for robotics and automation. As consumers request more personalization, product variants are expanding and lifecycles are becoming shorter. At the same time, an aging population is shrinking the workforce and people are less willing to perform "dull, dirty and dangerous" jobs. Manufacturing is increasingly powered by machine learning, and Artificial Intelligence (AI) is enabling new digital solutions to help improve operations. Finally, uncertainty – caused by trade disputes, geopolitical shifts and the COVID-19 pandemic – is impacting manufacturers globally.

These megatrends are challenging manufacturers to think differently: while productivity and quality improvements remain a priority, two new requirements are becoming increasingly important: flexibility of operations, and simplicity from design to installation to operation and maintenance.

The COVID-19 pandemic that swept the world in 2020 has accelerated the shift to automation, as manufacturers seek to shorten their supply chains and move their operations closer to customer markets.

For manufacturers, the solution lies in greater automation and robotization, as well as software-driven processes that enable them to produce different types of products in the same factory and in any batch size.

As a market and technology leader, our Robotics & Discrete Automation Business Area is strongly positioned in heavily automated industries such as automotive, and we are rapidly increasing our offering in key, high-growth segments, including healthcare, logistics, retail and food & beverage.

Creating value for customers

With 10,300 employees and $2.9 billion in revenue in 2020, ABB Robotics & Discrete Automation creates value for customers with our technologically advanced robotics portfolio serving automotive OEMs, automotive tier 1 suppliers, electronics, general industry, consumer segments and service robotics, and our machine automation solutions for machine builders.

Our robotics portfolio covers the entire spectrum of products, solutions and services from robots and product software, to functional modules, application cells and smart systems that capture our deep industry expertise, ensuring flexibility and simplicity in operations, while increasing quality and accelerating productivity. The value of this offering is enhanced through a digital portfolio that supports customers in design, commissioning, control and optimization as well as the most advanced service portfolio and the largest global service network.

Our Machine Automation Division creates value with integrated automation solutions that help machine builders develop high-performing machines. Its product portfolio includes PLCs, industrial PCs, servo motion, industrial transport, vision-guided systems and software.

The COVID-19 pandemic has accelerated the shift to automation as manufacturers seek to shorten their supply chains and move their operations closer to customer markets.

Through a partnership ecosystem with leading software providers, universities and research institutions like the Texas Medical Center, we are continuously developing our offering technologically and for new market segments. Today, 90 percent of our robotics portfolio has embedded software. We also have an active M&A strategy to expand our portfolio and expertise. In 2020, we acquired Codian Robotics, a leading provider of delta robots, which are used primarily for high-precision, pick-and-place applications for industries like food and beverage and pharmaceuticals.

With our broad portfolio and domain expertise, we are helping our customers improve productivity, extend the lifecycle of their equipment and reduce waste, and in doing so helping to transform industries to achieve a more prosperous, sustainable future.

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CASE STUDIES

ABB robots engaged in COVID-19 testing

Fifty of our high-precision robots were deployed in Singapore's new automated laboratory to accelerate virus testing to 50,000 tests per day during the COVID-19 pandemic. The system, known as a Rapid Automated Volume Enhancer (RAVE), automates steps in sample processing, increasing Singapore's testing capacity by automating key laboratory processes. Our IRB 910 SCARA units, along with simulation and programming support, undertake a range of repetitive and dangerous tasks to improve laboratory conditions for employees, reducing the risk of contamination and fatigue. ABB's RobotStudio® simulation software was also used to help create, simulate and test the robot installation in a virtual 3D environment, enabling a successful project that could be ramped up quickly.

Groundbreaking customized painting solution

To meet increasing demand for customized vehicle paint schemes, we introduced our new PixelPaint solution, which incorporates a high dot-per-inch painting inkjet head, dosing control package and easy-to-use RobotStudio® programming software for two-tone and decorative painting applications. PixelPaint is available as a cell using two ABB IRB 5500 robots. Its non-overspray technology prints paint directly on to a target area using a printing nozzle head instead of spraying with a conventional atomizer, resulting in 100 percent transfer efficiency. Not only does this reduce operating costs and improve environmental performance by ensuring that no paint is wasted, PixelPaint also eliminates the process of masking and de-masking each car, helping to reduce cycle times in automotive paint shops by around 50 percent.

Revolutionizing adaptive manufacturing

ABB's ACOPOStrak, a revolution in adaptive connective manufacturing, enabled a leading bottling machine manufacturer to bring a next-generation smart offering to market. Thanks to this highly flexible transport system, our customer's bottling machine achieves economies of scale all the way down to batches of just one. The first module of the new machine consists of a bottle storage system that can be loaded with different bottle sizes. Once a specific size has been selected, the bottle is moved to the printing module, which can then print and apply anywhere from one to 12 different labels. The filling module can switch on the fly and top off each bottle with the appropriate product. The final cap closure module then applies one of four different caps. The equipment relies on ABB's ACOPOStrak system, which enables parts and products to be transported quickly and flexibly from one processing station to another on independently controlled shuttles. Customers who deploy this solution reap the decisive technological advantages associated with adaptive, connected manufacturing.

Highlights 2020

Strategy highlights

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Focus on industrial customers and simplification of business model

- Power Grids divestment completed July 1, 2020 recording a book gain of $5.1 billion
- Started the share buyback program to return cash proceeds of $7.6 to 7.8 billion to shareholders from the divestment of the Power Grids business
- Reached $500 million per annum net savings target one year ahead of plan under the ABB-OS program

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The ABB Purpose launched during summer 2020: What we stand for today and what we aspire to be in the future

- We succeed by creating superior value
- We push the boundaries of technology to drive performance to new levels
- We energize the transformation of society and industry to achieve a more productive, sustainable future

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Decentralized setup under the ABB Way: Increase accountability, transparency and speed

- Introduced the ABB Way operating model with a clear focus on value creation for customers, employees and shareholders
- Implemented a fully decentralized business model with Divisions as the highest operational level in ABB
- Embedded new scorecard-based performance management process
- Conducted active portfolio review resulting in the decision to explore all options for the exit of the Power Conversion, Turbocharging and Mechanical Power Transmission Divisions

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Financial and sustainability targets

- Updated financial framework aligned with the ABB Way and a focus on stability and profitability before growth
- Introduced 2030 sustainability targets with the goal to enable a low-carbon society, preserve resources and promote social progress

Performance highlights

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- Solid financial performance in a challenging year impacted by the COVID-19 pandemic
- Empowered Divisions took mitigating actions through execution of efficiency measures, reduction of discretionary spend and postponement of non-critical investments
- Actions taken towards improving the quality of revenues through focus on high-growth segments, expansion in digital and continued ramp down of engineering, procurement and construction (EPC) business including settlement of legacy issues
- Capital structure optimization program to strengthen financial profile and support de-risking of balance sheet for the long term largely concluded

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Key performance indicators:

- Orders -7% (-6% comparable(1)), with all Business Areas feeling impacts from reduced output related to COVID-19; order backlog +5%(1) at year end
- Revenues -7% (-5% comparable(1)), subdued in all Business Areas; book-to-bill ratio(2) at 1.01x
- Income from operations $1,593 million, -18%, also impacted by restructuring, Power Grids related transaction and separation costs and divestment charges, goodwill impairment and charges due to changes in obligations related to divested businesses
- Operational EBITA margin 11.1%(2), stable with the prior year, impacted by a combined 105 basis points due to stranded costs, non-core activities and the full and final Kusile settlement with Eskom in South Africa
- Basic EPS $2.44, +261%(3) including gain from Power Grids sale; operational EPS(1) $0.98, -21%(3)
- Cash flow from operating activities $1.7 billion; cash flow from operating activities in continuing operations $1.9 billion after approximately $1 billion in combined outflows for pension plan transfers, Power Grids carve-out and ABB-OS and other restructuring and project related items. Adjusted to exclude the above outflows in both 2020 and 2019 periods, cash flow from operating activities in continuing operations improved by close to $550 million year-on-year

The Board of Directors is proposing a CHF 0.80 dividend per share at the 2021 Annual General Meeting.

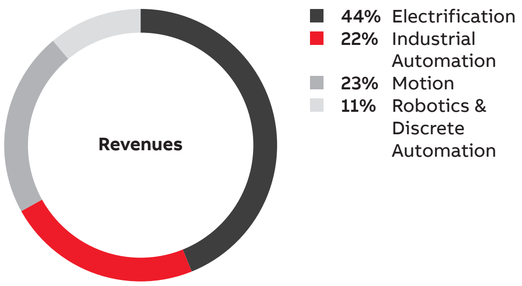
(1) On a comparable basis, see the "Supplemental information" section of this annual report.
(2) For non-GAAP measures, see the "Supplemental information" section of this annual report.
(3) EPS growth rates are computed using unrounded amounts. Comparable operational earnings per share is in constant currency (2019 exchange rates not adjusted for changes in the business portfolio).

Financial overview

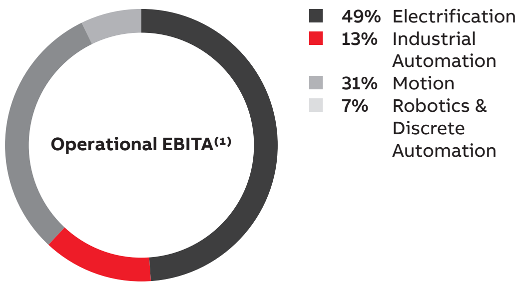
Key figures

$ in millions, unless otherwise indicated	FY 2020	FY 2019	US$	Comparable[4]
Orders	26,512	28,588	-7%	-6%
Order backlog (end December)	14,303	13,324	+7%	+5%
Revenues	26,134	27,978	-7%	-5%
Income from operations	1,593	1,938	-18%	
Operational EBITA[1]	2,899	3,107	-7%	-8%[5]
as % of operational revenues	11.1%	11.1%	0.0 pts	
Income from continuing operations, net of tax	345	1,090	-68%	
Net income attributable to ABB	5,146	1,439	+258%	
Basic Earnings per share ($)	2.44	0.67	+261%[2]	
Operational Earnings per share ($)[1]	0.98	1.24	-21%[2]	-22%[2]
Dividend per share	0.80	0.80		
Cash flow from operating activities[3]	1,693	2,325	-27%	
Cash flow from operating activities in continuing operations	1,875	1,899	-1%	
Net debt (end December)	112	4,949		

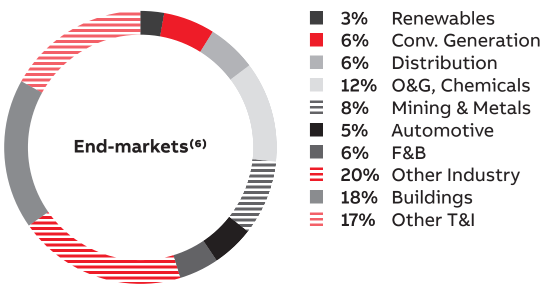
% of FY 2020 third party revenues excl. Corporate and Other



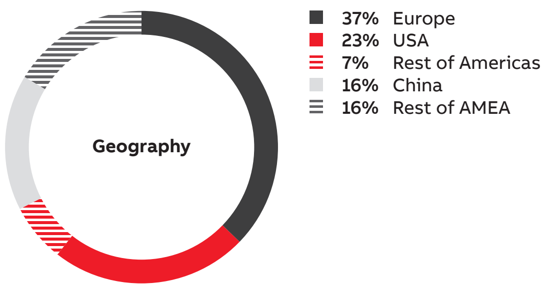
% of FY 2020 Operational EBITA excl. Corporate and Other



% of FY 2020 third party revenues



% of FY 2020 third party revenues



(1) For non-GAAP measures, see the “Supplemental information” section of this annual report.
(2) EPS growth rates are computed using unrounded amounts. Comparable operational earnings per share is in constant currency (2019 exchange rates not adjusted for changes in the business portfolio).
(3) Amount represents total for both continuing and discontinued operations.
(4) Growth rates for orders, order backlog and revenues are on a comparable basis (local currency adjusted for acquisitions and divestitures).
(5) Constant currency (not adjusted for portfolio changes).
(6) Management estimates.

Electrification

REVENUES: $11.9 BILLION
EMPLOYEES: ~50K

The Business Area offers a broad portfolio of electrification and building management solutions, products and services for utilities, industry, transport and infrastructure. Typical customers include electrical distributors, panel builders and end users.

Market growth is driven by megatrends such as urbanization, population growth and accelerating digitalization all increasing demand for electricity.

The Business Area consists of the following five Divisions:

Distribution Solutions, GLOBAL NO. 1 IN MEDIUM-VOLTAGE
Medium- and low-voltage control & protection products, systems & switchgear, automation & services

Smart Power, GLOBAL NO. 2 IN LOW-VOLTAGE
Low-voltage breakers & switches, enclosures, motor starter application, power protection, electric vehicle charging infrastructure & service

Smart Buildings, GLOBAL NO. 3, NO. 1-2 IN DISTRIBUTION ENCLOSURES AND DIN-RAIL PRODUCTS
Miniature breakers, distribution enclosures, wiring accessories, building automation

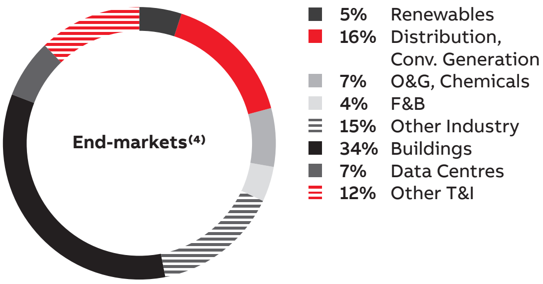
Installation Products, GLOBAL NO. 2, NORTH AMERICA NO. 1
Wire & cable management, termination, fittings & other accessories

Power Conversion, NO. 4 IN DC POWER SOLUTIONS
Power conversion products including embedded power products, DC power solutions and services
To be exited

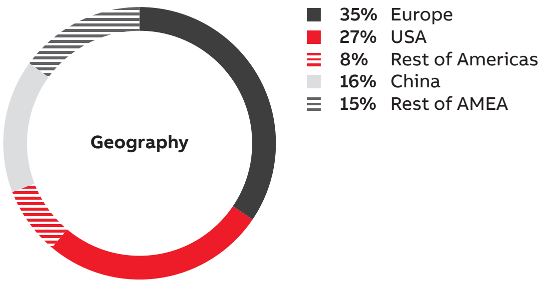
Key figures

$ in millions, unless otherwise indicated	FY 2020	FY 2019	US$	Comparable[2]
Orders	**11,884**	13,050	-9%	-6%
Order backlog (end December)	**4,358**	4,488	-3%	-1%
Revenues	**11,924**	12,728	-6%	-3%
Income from operations	**1,335**	1,049	+27%	
Operational EBITA[1]	**1,681**	1,688	0%	-1%[3]
as % of operational revenues	**14.1%**	13.3%	+0.8 pts	

% of FY 2020 third party revenues



% of FY 2020 third party revenues



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(2) Growth rates for orders, order backlog and revenues are on a comparable basis (local currency adjusted for acquisitions and divestitures).
(3) Constant currency (not adjusted for portfolio changes).
(4) Management estimates.

Industrial Automation

REVENUES: $5.8 BILLION
EMPLOYEES: ~22K

The Business Area specializes in process control, measurement and analytics and other industry specific solutions. Customers are concentrated in process industries.

Market growth is driven by increasing demand for end-to-end integrated, connected solutions and advanced services as well as increasing demand for applications towards autonomous operations.

As of January 1, 2021, the Business Area was renamed **Process Automation**.

The Business Area consists of the following five Divisions:

Energy Industries, NO. 1 CONVENTIONAL POWER, NO. 3-5 IN OIL AND GAS, CHEMICALS
Integrated solutions, control platforms, safety, service & digital solutions

Process Industries, NO. 1–2 MINING, NO. 1 PULP & PAPER
Control platforms, mine hoists, gearless mill drives, quality control systems, digital

Marine & Ports, NO. 1 ELECTRICAL PROPULSION, NO. 1 TERMINAL AUTOMATION
Azipod propulsion, ship and port electrification & automation, digital

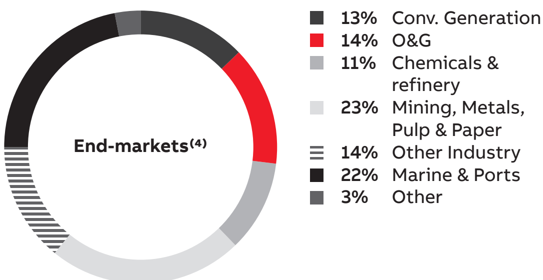
Turbocharging, NO. 1 LOW AND MEDIUM SPEED SEGMENTS
Low, medium and high speed turbochargers, service, digital solutions
To be exited

Measurement & Analytics, NO. 1 ANALYTICAL, FORCE, NO. 3-5 INSTRUMENTATION
Field instrumentation, flow, analytical and force

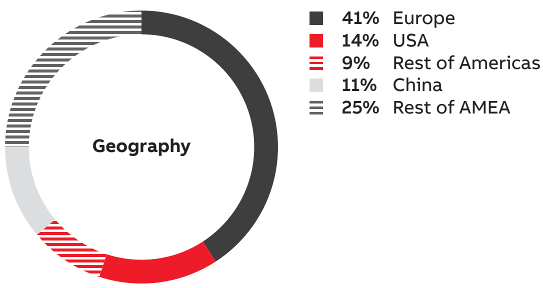
Key figures

$ in millions, unless otherwise indicated	FY 2020	FY 2019	US$	Comparable[2]
Orders	**6,144**	6,432	-4%	-4%
Order backlog (end December)	**5,805**	5,077	+14%	+9%
Revenues	**5,792**	6,273	-8%	-7%
Income from operations	**344**	700	-51%	
Operational EBITA[1]	**451**	732	-38%	-39%[3]
as % of operational revenues	**7.8%**	11.7%	-3.9 pts	

% of FY 2020 third party revenues



% of FY 2020 third party revenues



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(3) Constant currency (not adjusted for portfolio changes).
(4) Management estimates.

Motion

REVENUES: $6.4 BILLION
EMPLOYEES: ~21K

The Business Area designs and manufactures electrical motors, generators, drives, and services, as well as offering integrated digital powertrain solutions.

Market growth is driven by megatrends such as growing population, electrification, urbanization and digitalization. This requires further automation of industrial processes, energy efficiency and electric mobility.

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The Business Area consisted of the following six Divisions in 2020:

Motors & Generators, GLOBAL NO. 1
Comprehensive product portfolio of low, medium and high-voltage electric motors and synchronous generators

Drive Products, GLOBAL NO. 1
Comprehensive product portfolio of low-voltage AC drives and soft starters

System Drives, GLOBAL NO. 1
Low- and medium-voltage AC drives and modules, wind converters

Service, GLOBAL NO. 1
Base services and spare parts, upgrades & replacements, smart solutions

Traction, GLOBAL NO. 2
Traction systems incl. converters and motors, battery energy storage systems, auxiliary converters

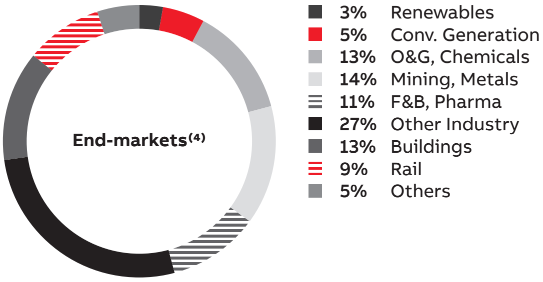
Mechanical Power Transmission, GLOBAL NO. 5, NORTH AMERICA NO. 2
Mounted bearings, enclosed gearing, conveyor components, power transmission components
To be exited

As of January 1, 2021, Motors & Generators Division was split into the three separate Divisions: **IEC LV Motors, Large Motors and Generators, NEMA Motors**

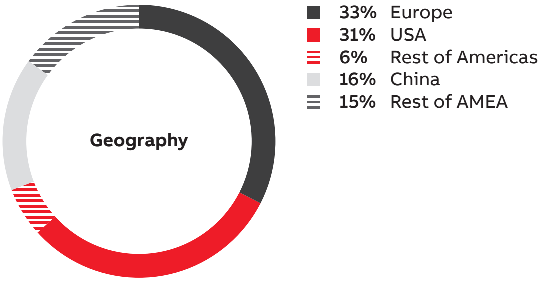
Key figures

$ in millions, unless otherwise indicated	FY 2020	FY 2019	US$	Comparable[2]
Orders	**6,574**	6,782	-3%	-2%
Order backlog (end December)	**3,320**	2,967	+12%	+6%
Revenues	**6,409**	6,533	-2%	-2%
Income from operations	**989**	1,009	-2%	
Operational EBITA[1]	**1,075**	1,082	-1%	-1%[3]
as % of operational revenues	**16.8%**	16.6%	+0.2 pts	

% of FY 2020 third party revenues



% of FY 2020 third party revenues



(1) For non-GAAP measures, see the “Supplemental information” section of this annual report.
(2) Growth rates for orders, order backlog and revenues are on a comparable basis (local currency adjusted for acquisitions and divestitures).
(3) Constant currency (not adjusted for portfolio changes).
(4) Management estimates.

Robotics & Discrete Automation

REVENUES: $2.9 BILLION
EMPLOYEES: ~10K

The Business Area offering provides flexibility and productivity for operations through the combination of robotics and machine automation. Customers are concentrated in discrete industries.

Market growth driven by megatrends of individualized consumers, labor shortage, digitalization and uncertainty. Resulting in need for automation solutions for increased productivity, highest flexibility, improved quality and maximum simplicity.

The Business Area consists of the following two Divisions:

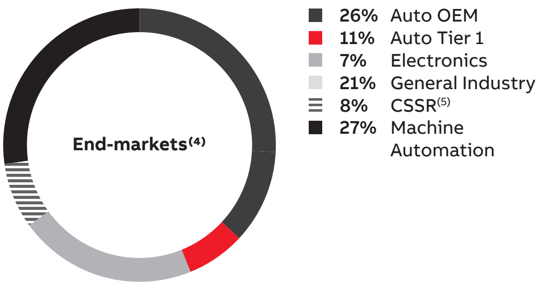
Robotics, GLOBAL NO. 2
Robots, robotics application cells and smart systems, field services, spare parts, digital services and software

Machine Automation, GLOBAL NO. 5, NO. 2 IN HIGH-END SEGMENT
Solutions based on Programmable Logic Controllers (PLCs), Industrial PCs (IPCs), servo motion, industrial transport systems and vision, software

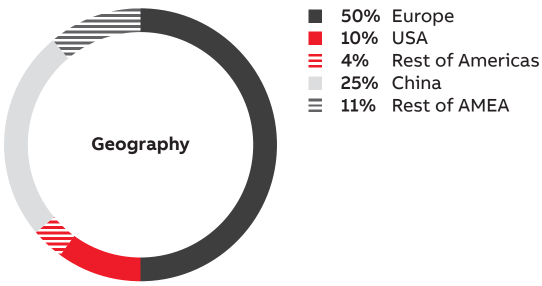
Key figures

$ in millions, unless otherwise indicated	FY 2020	FY 2019	US$	Comparable[2]
Orders	**2,868**	3,260	-12%	-12%
Order backlog (end December)	**1,403**	1,356	+3%	-2%
Revenues	**2,907**	3,314	-12%	-13%
Income from operations	**-163**	298	n.a.	
Operational EBITA[1]	**237**	393	-40%	-40%[3]
as % of operational revenues	**8.2%**	11.9%	-3.7 pts	

% of FY 2020 third party revenues



% of FY 2020 third party revenues



(1) For non-GAAP measures, see the "Supplemental information" section of this annual report.
(2) Growth rates for orders, order backlog and revenues are on a comparable basis (local currency adjusted for acquisitions and divestitures).
(3) Constant currency (not adjusted for portfolio changes).
(4) Management estimates
(5) Consumer Segments and Service Robotics

Cash generation and capital allocation

—

During 2020, ABB delivered resilient cash flow for the full year. Cash flow from operating activities[1] was $1.7 billion, 27 percent lower year-on-year, driven by lower cash flow from discontinued operations, with the Power Grids business divested on July 1, 2020. Cash flow from continuing operating activities was $1.9 billion, 1 percent lower year-on-year. The 2020 result includes a total of approximately $1 billion outflows incurred from ABB's transformation efforts, namely the carve-out of the Power Grids business and the implementation of the ABB-OS simplification program and other restructuring programs, plus costs to transfer certain pension plans as well as outflows to settle with Eskom in South Africa. If these impacts are excluded in both periods, the year-on-year cash flow development would have been stronger by close to $550 million. Cash flow developments also reflect lower business activities over the year, while net working capital movements developed favorably.

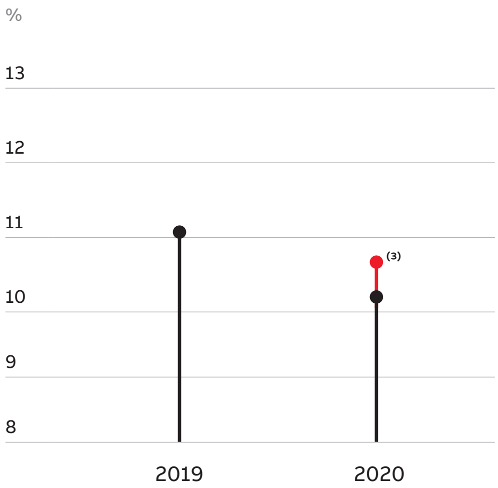
—

Free cash flow (FCF)[2] was $1.0 billion, 32 percent lower on a year-on-year basis, and FCF conversion to net income[2] 210 percent. FCF from continuing operations[2] was $1.3 billion, 6 percent higher on a year-on-year basis.

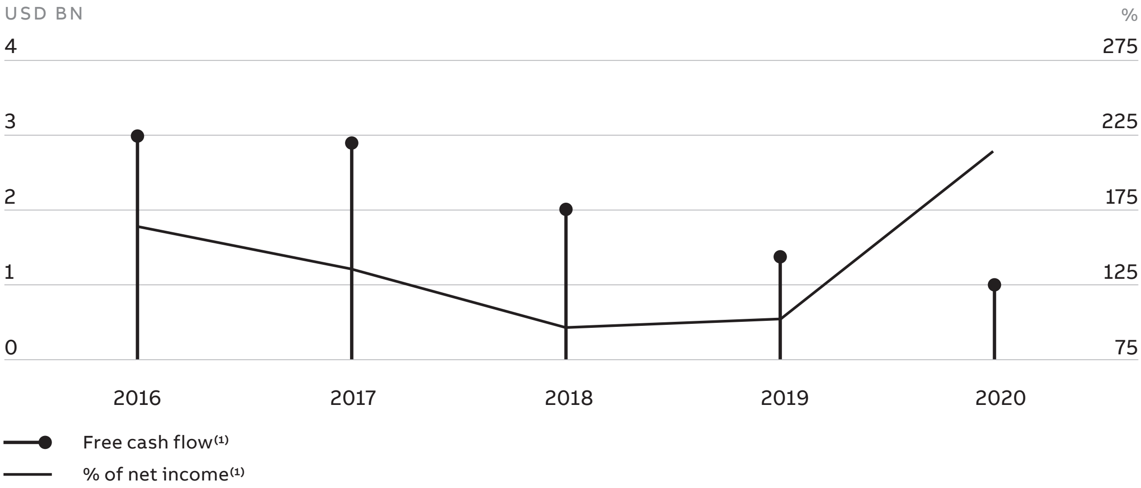
—

The Group's benchmark for the measurement of returns is return on capital employed (ROCE)[2]. The Group's ROCE was 10.3 percent, from 11.1 percent in 2019, reflecting the acquisition of 19.9 percent interest in the Hitachi ABB Power Grids business (0.4 percent impact) as well as lower business activity.

Return on Capital Employed



Free cash flow and conversion rate



(1) Amount represents total for both continuing and discontinued operations.
(2) For non-GAAP measures, see the "Supplemental information" section of this annual report.
(3) Negative impact of 19.9 percent ownership interest in Hitachi ABB Power Grids Ltd.

—

ABB's capital allocation priorities are:

- Fund organic growth, research and development (R&D), capex at attractive returns
- Rising, sustainable dividend per share over time
- Value-creating acquisitions
- Returning additional cash to shareholders

—

ABB invested $694 million in capex[(1)]. Non-order related R&D investment was $1.1 billion in 2020 or 4.3 percent of revenues for the year.

—

ABB paid $1.7 billion in dividends during 2020. The Board of Directors is proposing a CHF 0.80 dividend per share at the 2021 Annual General Meeting. The proposal is in line with ABB's dividend policy of paying a rising, sustainable dividend per share over time.

—

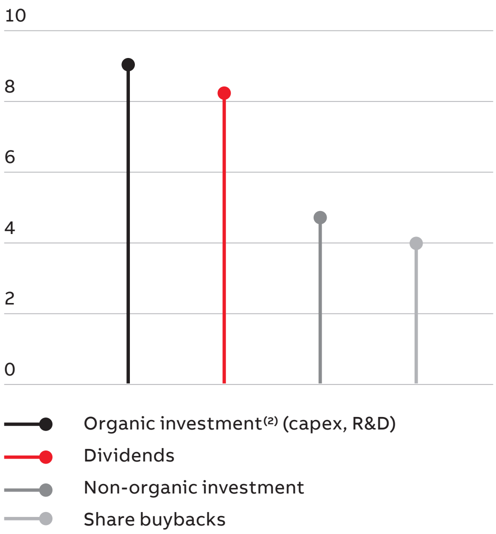
A number of acquisitions were completed in 2020, strengthening ABB's portfolio. In March 2020, the Electrification Business Area acquired a majority stake in Shanghai Chargedot New Energy Technology Co., Ltd, a leading Chinese e-mobility solution provider, and bought Cylon Controls Ltd, enhancing its Smart Buildings portfolio in the commercial buildings segment. In October 2020, the Robotics & Discrete Automation Business Area acquired Codian Robotics B.V., a leading provider of delta robots.

—

Following the completion of the sale of 80.1 percent of the Power Grids business to Hitachi, ABB intends to return to shareholders cash proceeds of $7.6 to 7.8 billion from the divestment. During 2020, ABB spent $2.7 billion under a share buyback program, in which the company intends to buy 10 percent of its share capital until its Annual General Meeting on March 25, 2021.

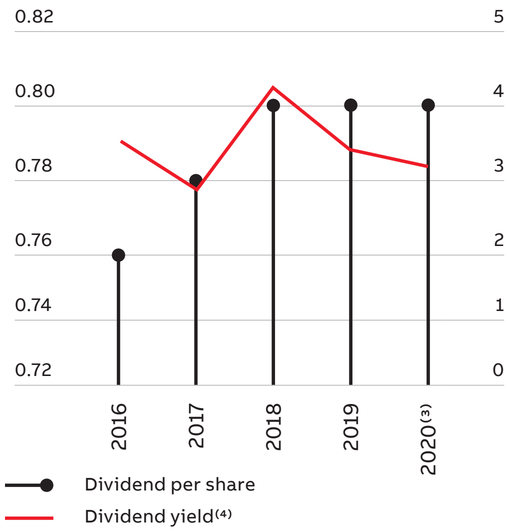
Allocation of Capital

2016–2020 USD BN



Dividends

CHF %



(1) Continuing operations only: A further $108 million capex investment was made in discontinued operations.
(2) Continuing operations only.
(3) Proposed.
(4) Calculated based on the share price at December 31.

Executive Committee
As of January 1, 2021

PETER TERWIESCH
President
Process Automation

SAMI ATIYA
President
Robotics & Discrete Automation

THEODOR SWEDJEMARK
Chief Communications Officer

MARIA VARSELLONA
General Counsel &
Company Secretary

COVID-19 information:
For health and safety reasons, each person was photographed individually to ensure physical distancing.

BJÖRN ROSENGREN
Chief Executive Officer

TARAK MEHTA
President
Electrification

CAROLINA GRANAT
Chief Human Resources
Officer

MORTEN WIEROD
President
Motion

TIMO IHAMUOTILA
Chief Financial Officer

02 Corporate governance report

Chairman’s letter

Dear Shareholders,

The year 2020 was one of rapid and sweeping change for the world and for ABB. In the midst of a wide-ranging company transformation and a CEO transition, we were confronted with a global pandemic and a succession of lockdowns that would fundamentally alter our economy, the way we do business and our way of life.

For ABB, the COVID-19 pandemic was never an existential crisis. Thanks to our financial resilience, global footprint, well-established processes and, most importantly, our dedicated people and advanced technologies, we have been managing through the crisis and also helping our customers and many others through it. As a gesture of solidarity, our Board of Directors, the CEO and many other senior managers donated part of their compensation to help employees affected by the pandemic.

Once we had secured the health and safety of our people and business continuity, we were able to press ahead with our transformation, started in 2019. Today, we are stronger and better positioned than we were before the pandemic.

Power Grids

One project that kept us busy for nearly 18 months was the carve-out of our Power Grids business, which was successfully handed over to Hitachi on July 1, 2020. This was a tremendous achievement because Power Grids had been part of ABB since its earliest beginnings in 19th century. Today, Hitachi ABB Power Grids, of which we still own a 19.9 percent stake, is a highly successful business within the Hitachi Group, with better prospects than it would have had as part of ABB.

The separation with Power Grids meant that we could focus on those businesses where ABB truly has the edge: electrification, robotics, automation and motion. With our superior domain knowledge, we are ideally positioned to strengthen our market position in these areas with software-driven technologies that help our customers drive productivity and transform their operations.

Our Purpose

As part of our transformation, we set out to define ABB’s Purpose, in consultation with representatives of all our stakeholder groups. Our aim was to better understand how ABB is perceived by its employees, leaders, customers, suppliers, shareholders and civil society. From their feedback, we articulated a clear statement of Purpose (see page 14), including what we stand for as a company and what we should aspire to be in the future.

By providing a common and shared understanding of why we exist, our Purpose is a key driver of performance and culture. It is at the core of our new “ABB Way” operating model (see page 12) and informs our approach to business, innovation, people management, governance, sustainability and our brand.

Corporate governance

Following the decision of Matti Alahuhta not to stand for re-election to the Board of Directors,

a detailed review of the Board’s composition was carried out. We concluded that the Board has a very good mix of CEO, CFO, industry, geographic/regional, sustainability and technology experience (see also skills matrix table on page 44), but recognize that we need to strengthen the gender diversity of the Board within the next two years, preferably at the Annual General Meeting in March 2022. For the forthcoming AGM on March 25, 2021, we will not be proposing any new members, meaning that the number of Board members will be reduced from 11 to 10. All other Board members will stand for re-election.

In the first quarter of 2021, the Board of Directors will subject itself to an external assessment, the findings of which will be presented in next year’s annual report. Each year, the Board and its respective committees conduct self-evaluations.

Since March 2020, all meetings of the Board of Directors and its committees have been virtual for reasons of health and safety and in order to respect travel restrictions. Over the course of 2020, the Board worked closely with the CEO and the executive management to develop ABB’s long-term strategy, which was presented to shareholders in November 2020. Other milestones in 2020 were the implementation of a new structure for the Executive Committee, including the new position of Chief Communications Officer, to support our new ABB Way operating model, which was also reviewed and approved by the Board.

Our values

Last year, we also revisited and revised our company values in much the same way as we developed our Purpose – through listening to our leaders and people and using their ideas and input to capture the essence of our culture. Our values reflect the attitudes and behaviors we need to be successful, and they guide and shape our interactions with each other, our customers, partners and society as a whole.

To work at ABB today, you are expected to live our values of Courage, Care, Curiosity and Collaboration (see page 14). We expect our people to take action and to speak up; to take care of themselves, colleagues and customers; to seek better ways of doing things; and to work together and build on each other's strengths and successes. In this way, we are making ABB an even more successful company and a better place to work.

Sustainability strategy 2030

Our Purpose and values led directly to our 2030 sustainability strategy, launched at our capital markets day in November. Our new strategy aims to create superior value for all of our stakeholders by focusing on those areas where we, as a global technology leader, can have the biggest impact – reducing carbon emissions, preserving resources and promoting social progress (see page 16). Our key targets for 2030 include: achieving carbon neutrality in our own operations; helping our customers reduce their annual CO_2e (carbon dioxide equivalent) emissions by at least 100 megatonnes, equivalent to the annual emissions of 30 million combustion cars; and embedding circularity across our value chain. We will also aim to double the number of women in senior management roles to 25 percent, as part of our comprehensive diversity and inclusion framework.

As part of its overall responsibility for the company's strategy and targets, the Board of Directors oversees ABB's sustainability strategy and monitors progress and target achievements. For the 2030 strategy, sustainability will specifically be added to the responsibilities of the Board's Governance and Nomination Committee, while the Compensation Committee will ensure that ABB's remuneration policies are linked to the achievement of its sustainability targets. With sustainability being a core part of our value proposition and our overall strategy, we are confident of meeting our ambitious targets and making a meaningful contribution to a more prosperous, sustainable future.

On behalf on the Board of Directors, I would like to thank you for your trust and support.

Peter Voser
Chairman of the Board of Directors

Zurich, February 25, 2021

Summary of corporate governance approach

Corporate governance – general principles

ABB is committed to the highest international standards of corporate governance and this is reinforced in its structure, processes and rules as outlined in this section of the Annual Report. In line with this, ABB complies with the general principles as set forth in the Swiss Code of Best Practice for Corporate Governance, as well as those of the capital markets where its shares are listed and traded. In addition to the provisions of the Swiss Code of Obligations, ABB's key principles and rules on corporate governance are laid down in ABB's Articles of Incorporation, the ABB Ltd Board Regulations & Corporate Governance Guidelines (which includes the regulations of ABB's Board committees and the ABB Ltd Related Party Transaction Policy, which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange), and the ABB Code of Conduct. These documents are available on ABB's website at https://new.abb.com/about/corporate-governance. It is the duty of ABB's Board of Directors (the Board) to review and amend or propose amendments to those documents from time to time to reflect the most recent developments and practices, as well as to ensure compliance with applicable laws and regulations. Shareholders and other interested parties may communicate with the Chairman of the Board or the independent directors by writing to ABB Ltd (Attn: Chairman of the Board / independent directors), at Affolternstrasse 44, CH-8050 Zurich, Switzerland.

Compensation governance and Board and EC compensation

Information about ABB's compensation governance as well as Board and Executive Committee (EC) compensation and shareholdings is provided in the Compensation Report that can be found on pages 62 to 93 of this Annual Report.

Board of Directors

Board and Board committees (2020–2021 board term)

	Board of Directors	
Chairman: Peter R. Voser	Matti Alahuhta	Jennifer Xin-Zhe Li
Vice-Chairman: Jacob Wallenberg	Gunnar Brock	Geraldine Matchett
	David Constable	David Meline
	Frederico Fleury Curado	Satish Pai
	Lars Förberg	

Finance, Audit and Compliance Committee	Governance and Nomination Committee	Compensation Committee
David Meline (chairman)	Jacob Wallenberg (chairman)	David Constable (chairman)
Gunnar Brock	Matti Alahuhta	Frederico Fleury Curado
Geraldine Matchett	Lars Förberg	Jennifer Xin-Zhe Li
Satish Pai		

Board governance

The Board

The Board defines the ultimate direction of the business of ABB and issues the necessary instructions. It determines the organization of the ABB Group and appoints, removes and supervises the persons entrusted with the executive management and representation of ABB. The internal organizational structure and the definition of the areas of responsibility of the Board, as well as the information and control instruments vis-à-vis the Executive Committee are set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at https://new.abb.com/about/corporate-governance).

The Board takes decisions as a whole, supported by its three committees: the Finance, Audit and Compliance Committee (FACC), the Governance and Nomination Committee (GNC), and the Compensation Committee (CC). These committees assist the Board in its tasks and report regularly to the Board. The members of the Board committees either are required to be independent or are elected directly by the shareholders. The Board and its committees meet regularly throughout the year.

The directors and officers of a Swiss corporation are bound, as specified in the Swiss Code of Obligations, to perform their duties with all due care, to safeguard the interests of the corporation in good faith and to extend equal treatment to shareholders in like circumstances.

The Swiss Code of Obligations does not specify what standard of due care is required of the directors of a corporate board. However, it is generally held by Swiss legal scholars and jurisprudence that the directors must have the requisite capability and skill to fulfill their function, and must devote the necessary time to the discharge of their duties. Moreover, the directors must exercise all due care that a prudent and diligent director would have taken in like circumstances. Finally, the directors are required to take actions in the best interests of the corporation and may not take any actions that may be harmful to the corporation.

Although the Swiss Code of Obligations does not discuss specifically conflicts of interest for board members, the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at https://new.abb.com/about/corporate-governance) state that board members shall avoid entering into any situation in which their personal or financial interest may conflict with the interests of ABB.

Chairman of the Board

The Chairman is elected by the shareholders to represent their interests in creating sustainable value through effective governance. In addition, the Chairman (1) takes provisional decisions on behalf of the Board on urgent matters where a regular Board decision cannot be obtained, (2) calls for Board meetings and sets the related agendas, (3) interacts with the CEO and other EC members on a more frequent basis outside of Board meetings and (4) represents the Board internally and in the public sphere.

Vice-Chairman of the Board

The Vice-Chairman is elected by the Board and handles the responsibilities of the Chairman to the extent the Chairman is unable to do so or would have a conflict of interest in doing so. He also acts as counselor/advisor to the Chairman on any matters that are Company or Board relevant and as appropriate or as the Chairman may require and with a particular focus on strategic aspects related to the Company and its business in general. In addition, the Vice-Chairman takes such other actions as may be decided by the Board or requested by the Chairman.

Finance, Audit and Compliance Committee

The FACC is responsible for overseeing (1) the integrity of ABB's financial statements, (2) ABB's compliance with legal, tax and regulatory requirements, (3) the independent auditors' qualifications and independence, (4) the performance of ABB's internal audit function and external auditors, and (5) ABB's capital structure, funding requirements and financial risk and policies.

The FACC must comprise three or more independent directors who have a thorough understanding of finance and accounting. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained. In addition, the chief integrity officer, the head of internal audit and the external auditors participate in the meetings as appropriate. The Board has determined that each member of the FACC is an audit committee financial expert as such term is defined in Form 20-F.

Governance and Nomination Committee

The GNC is responsible for (1) overseeing corporate governance practices within ABB, (2) overseeing corporate social responsibility (including health, safety and environment as well as sustainability), (3) nominating candidates for the Board, the role of CEO and other positions on the Executive Committee, and (4) succession planning and employment matters relating to the Board and the Executive Committee. The GNC is also responsible for maintaining an orientation program for new Board members and an ongoing education program for existing Board members.

The GNC must comprise three or more independent directors. The Chairman of the Board (unless he is already a member) and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Compensation Committee

The CC is responsible for compensation matters relating to the Board and the Executive Committee.

The CC must comprise three or more directors who are elected by the shareholders. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Board membership

Board composition

In proposing individuals to be elected to the Board, the Board seeks to align the composition and skills of the Board with the Company's strategic needs, business portfolio, geographic reach and culture. The Board must be diverse in all aspects including gender, nationalities, geographic/regional experience and business experience. In addition, the average tenure of the members of the Board should be well-balanced. The Board also considers the number of other mandates of each Board member to ensure that he/she will have sufficient time to dedicate to his/her role as an ABB Board member.

Elections and term of office

The members of the Board of Directors and the Chairman of the Board as well as the members of the Compensation Committee are elected by shareholders at the general meeting of shareholders for a term of office extending until completion of the next ordinary general meeting of shareholders. Members whose terms of office have expired shall be immediately eligible for re-election. Our Articles of Incorporation (available at https://new.abb.com/about/corporate-governance) do not provide for the retirement of directors based on their age. However, an age limit for members of the Board is set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines (although waivers are possible and subject to Board discretion) (available at https://new.abb.com/about/corporate-governance). If the office of the Chairman of the Board of Directors or any position on the Compensation Committee becomes vacant during a Board term, the Board of Directors may appoint (shall appoint in the case of the Chairman of the Board) another individual from among its members to that position for the remainder of that term. The Board of Directors shall consist of no less than 7 and no more than 13 members.

Members of the Board (2020–2021 board term)

	Board Experience		Corporate Officer Experience		Other Business Experience								
Board Member	ABB Board Tenure (years)	Other Public Board Experience	CEO	CFO	Operations	Risk Management	Sustainability	Digital / Technology	Global Experience	Country of Origin / Nationality	Gender	Non-Executive	Independent
Peter R. Voser	6	●	●	●	●	●	●	●	●	CH	M	Yes	Yes
Jacob Wallenberg	22	●	●		●	●	●	●	●	SE	M	Yes	Yes
Matti Alahuhta	7	●	●		●	●	●	●	●	FI	M	Yes	Yes
Gunnar Brock	3	●	●		●	●	●		●	SE	M	Yes	Yes
David Constable	6	●	●		●	●	●		●	CA, US	M	Yes	Yes
Frederico Fleury Curado	5	●	●		●	●	●	●	●	BR, PT	M	Yes	Yes
Lars Förberg	4	●	●			●	●		●	SE, CH	M	Yes	Yes
Jennifer Xin-Zhe Li	3	●		●	●	●	●	●	●	CN, CA	F	Yes	Yes
Geraldine Matchett	3		●	●		●	●		●	CH, UK, FR	F	Yes	Yes
David Meline	5	●		●		●			●	US, CH	M	Yes	Yes
Satish Pai	5	●	●		●	●	●	●	●	IN	M	Yes	Yes

Members of the Board (2020–2021 board term)

Peter R. Voser has been a member and Chairman of ABB's Board of Directors since April 2015. He was also ABB's Chief Executive Officer from April 2019 to February 2020. He is a member of the board of directors of IBM Corporation (U.S.). He is also a member of the board of directors of Temasek Holdings (Private) Limited (Singapore) as well as chairman of the board of PSA International Pte Ltd (Singapore), one of its subsidiaries. In addition, he is the chairman of the board of trustees of the St. Gallen Foundation for International Studies. He was previously the chief executive officer of Royal Dutch Shell plc (The Netherlands). Mr. Voser was born in 1958 and is a Swiss citizen.

Jacob Wallenberg has been a member of ABB's Board of Directors since June 1999 and Vice-Chairman since April 2015. He is the chairman of the board of Investor AB (Sweden). He is vice-chairman of the boards of Telefonaktiebolaget LM Ericsson, FAM AB and Patricia Industries (all Sweden). He is also a member of the boards of directors of Nasdaq, Inc. (U.S.) and the Knut and Alice Wallenberg Foundation (Sweden) as well as a member of the nomination committee of SAS AB (Sweden). Mr. Wallenberg was born in 1956 and is a Swedish citizen.

Matti Alahuhta has been a member of ABB's Board of Directors since April 2014. He is the chairman of the board of DevCo Partners Oy and vice-chairman of the board of Metso Outotec Corporation (both Finland). He is also a member of the boards of directors of KONE Corporation (Finland) and AB Volvo (Sweden). He was previously the president and chief executive officer of KONE Corporation and he served in several executive positions at Nokia Corporation (Finland). Mr. Alahuhta was born in 1952 and is a Finnish citizen.

Gunnar Brock has been a member of ABB's Board of Directors since March 2018. He is currently chairman of the boards of Neptunia Invest AB, Mölnlycke Health Care AB and Stena AB (all Sweden). He is a member of the boards of directors of Investor AB and Patricia Industries (both Sweden). He was formerly president and chief executive officer of Atlas Copco AB (Sweden). Mr. Brock was born in 1950 and is a Swedish citizen.

David Constable has been a member of ABB's Board of Directors since April 2015. Effective January 2021, he was appointed chief executive officer of Fluor Corporation (U.S.), for which he continues to serve as a member of the board of directors. He was a member of the boards of directors of Rio Tinto plc (U.K.) and Rio Tinto Limited (Australia) until the end of 2020. He was formerly the chief executive officer and president as well as a member of the board of directors of Sasol Limited (South Africa). He joined Sasol after more than 29 years with Fluor Corporation (U.S.). Mr. Constable was born in 1961 and is a Canadian and U.S. citizen.

Frederico Fleury Curado has been a member of ABB's Board of Directors since April 2016. He is the chief executive officer of Ultrapar Participações S.A. (Brazil), the holding company of the Ultra Group of companies. Mr. Curado is a member of the board of directors of Transocean Ltd. (Switzerland). He was formerly the chief executive officer of Embraer S.A. (Brazil). Mr. Curado was born in 1961 and is a Brazilian and Portuguese citizen.

Lars Förberg has been a member of ABB's Board of Directors since April 2017. He is co-founder and managing partner of Cevian Capital. Mr. Förberg was born in 1965 and is a Swedish and Swiss citizen.

Jennifer Xin-Zhe Li has been a member of ABB's Board of Directors since March 2018. She is a member of the board of directors of Flex Ltd (Singapore/U.S.) as well as, through May 2021, of the boards of directors of Philip Morris International Inc. (U.S.) and The Hongkong and Shanghai Banking Corporation Limited (Hong Kong). Ms. Li is a founder and general partner of Changcheng Investment Partners (P.R.C.), a private investment fund. From 2008 to 2018, she served as chief financial officer of Baidu Inc. (P.R.C.) and chief executive officer of Baidu Capital (P.R.C.). Prior to that, Ms. Li spent 14 years with General Motors, holding various senior finance positions, including chief financial officer of GM China and corporate controller for GMAC North American Operations. Ms. Li was born in 1967 and is a Canadian citizen.

Geraldine Matchett has been a member of ABB's Board of Directors since March 2018. She is the co-chief executive officer (since February 2020), the chief financial officer and a member of the managing board of

Royal DSM N.V. (The Netherlands). She was previously chief financial officer of SGS Ltd (Switzerland). Prior to joining SGS she worked as an auditor at Deloitte Ltd (Switzerland) and KPMG LLP (U.K.). Ms. Matchett was born in 1972 and is a Swiss, British and French citizen.

David Meline has been a member of ABB's Board of Directors since April 2016. He is the chief financial officer of Moderna Inc. (U.S.). From 2014 through 2019, Mr. Meline was the chief financial officer of Amgen Inc. (U.S.). He was formerly with the 3M Company (U.S.), where he served as chief financial officer. Prior to joining 3M, Mr. Meline worked for more than 20 years for General Motors Company (U.S.). Mr. Meline was born in 1957 and is a U.S. and Swiss citizen.

Satish Pai has been a member of ABB's Board of Directors since April 2016. He is the managing director and a member of the board of directors of Hindalco Industries Ltd. (India). He joined Hindalco in 2013 after 28 years with Schlumberger Limited (U.S.). Mr. Pai was born in 1961 and is an Indian citizen.

As of December 31, 2020, none of the Board members held any official functions or political posts. Further information on ABB's Board members can be found by clicking on the ABB Board of Directors link (available at https://new.abb.com/about/corporate-governance).

Board meetings and attendance

The Board and its committees have regularly scheduled meetings throughout the year. These meetings are supplemented by additional meetings (either in person or by conference call), as necessary. Board meetings are convened by the Chairman or upon request by any other board member or the CEO. Documentation covering the various items of the agenda for each Board meeting is sent out in advance to each Board member in order to allow each member time to study the covered matters prior to the meetings. Each board meeting has a private session without management or others being present. Decisions made at the Board meetings are recorded in written minutes of the meetings. Some decisions are also taken by circular resolution.

2020 was an intensive year for the Board and its committees. The table below shows the number of meetings held during 2020 by the Board and its committees, their average duration, as well as the attendance of the individual Board members. The Board meetings shown include a strategic retreat attended by the members of the Board and the EC.

Mandates of Board members outside the ABB Group

No member of the Board may hold more than ten additional mandates of which no more than four may be in listed companies. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation (available at https://new.abb.com/about/corporate-governance).

2020 Board and Board Committee Meetings

	Pre annual general meeting 2020					Post annual general meeting 2020				
	Board					Board				
Meetings and attendance	Mtg.	Conf. Call	FACC	GNC	CC	Mtg.	Conf. Call	FACC	GNC	CC
Average duration (hours)	10	1	2.75	1.5	1.75	8.5	1	3.25	1.5	1.6
Number of meetings	1	1	2	2	2	4	3	5	3	6
Meetings attended:										
Peter R. Voser	1	1				4	3			
Jacob Wallenberg	1	1		2		4	3		3	
Matti Alahuhta	1	1		2		4	3		3	
Gunnar Brock	1	1	2			4	3	5		
David Constable	1	1			2	4	3			6
Frederico Fleury Curado	1	1			2	4	3			6
Lars Förberg	1	1		2		4	3		3	
Jennifer Xin-Zhe Li	1	1			2	4	3			6
Geraldine Matchett	1	1	2			4	2	5		
David Meline	1	1	2			4	3	5		
Satish Pai	1	1	2			4	3	5		

Business relationships between ABB and its Board members

This section describes important business relationships between ABB and its Board members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at https://new.abb.com/about/corporate-governance).

IBM Corporation (IBM) is an important supplier to ABB. IBM supplies ABB primarily with IT related hardware, software and services. Peter Voser is a director of IBM.

After reviewing the level of purchases from IBM, the Board has determined that ABB's business relationship with IBM is not unusual in its nature or conditions and does not constitute a material business relationship. As a result, the Board concluded that all members of the Board are considered to be independent directors. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Information and control systems of the Board vis-à-vis the Executive Committee

Information from the Executive Committee

In accordance with the ABB Board Regulations and Corporate Governance Guidelines (available at https://new.abb.com/about/corporate-governance), the CEO reports regularly to the Board about ABB's overall business and when circumstances require on any extraordinary events that may arise. This includes:

- Reports on financial results (including profit and loss, balance sheet and cash flows);
- Changes in key members of management;
- Information that may affect the supervisory or monitoring function of the Board (including on matters of strategy and compliance); and
- Significant developments in legal matters.

At each Board meeting, Board members are briefed by the Chairman, CEO, CFO and other EC members on ABB's business performance and on material developments affecting ABB. Outside of Board meetings, Board members generally channel any requests for information through the Chairman. Board members also obtain information through offsite retreats with the Executive Committee and visits to ABB sites. In addition, Board members obtain information through the Board committees in which they participate and which are also attended by relevant EC members and management representatives from human resources, finance, legal and the business.

Internal Audit

ABB has an Internal Audit team that provides independent objective assurance and other services to help ensure that ABB operates in accordance with applicable laws as well as internal policies and procedures. Internal Audit reports to the FACC and to the CFO. The FACC reviews and approves the internal audit plan, and material changes to the plan. Investigations of potential fraud and inappropriate business conduct are an integral part of the internal audit process. Depending on circumstances, Internal Audit may act together with ABB's Office of Special Investigations, which is part of ABB's integrity function. Internal Audit reports on a regular basis its main observations and recommendations to the relevant members of the EC and to the FACC as appropriate.

Risk Management

ABB has an enterprise risk management program (ERM) in place which takes into account ABB's size and complexity. ERM provides the EC and the Board with a comprehensive and holistic view of the risks facing the business. ERM involves managing the acceptance of risk to achieve the objectives of the business. The ERM process is typically cyclical in nature, conveying the idea of continuous refinement of the risk management approach in a dynamic business environment. Furthermore, ABB runs a mitigation process for the identified risks that is key to the success of this process. ERM assessments are both top down and bottom up. They cover strategic, financial, and operational risks, both current and long term. Key risks identified and managed in 2020 were those related to the COVID-19 pandemic, as well as those related to the finalization of both the transformation of the Group and the separation of the Power Grids business. ERM results are reported to the FACC and the entire Board. This information becomes part of the overall strategic and risk discussions by the Board to help create value for stakeholders.

Executive Committee

Composition of the Executive Committee (at December 31, 2020)

Björn Rosengren
Chief Executive Officer

CORPORATE OFFICERS	BUSINESS AREA PRESIDENTS
Timo Ihamuotila Chief Financial Officer	**Tarak Mehta** Electrification
Sylvia Hill Chief Human Resources Officer	**Peter Terwiesch** Industrial Automation
Maria Varsellona General Counsel	**Morten Wierod** Motion
Theodor Swedjemark Chief Communications Officer	**Sami Atiya** Robotics & Discrete Automation

Executive Committee responsibilities and organization

The Board has delegated the executive management of ABB to the CEO. The CEO and, under his direction, the other members of the Executive Committee are responsible for ABB's overall business and affairs and day-to-day management. The CEO reports to the Board regularly, and whenever extraordinary circumstances so require, on the course of ABB's business and financial performance and on all organizational and personnel matters, transactions and other issues material to the Group. Each member of the Executive Committee is appointed and discharged by the Board.

Members of the Executive Committee (at December 31, 2020)

Björn Rosengren was appointed Chief Executive Officer and member of the Executive Committee effective March 2020. Before joining ABB, he was the president and chief executive officer of Sandvik AB (Sweden) since 2015. Prior to that, Mr. Rosengren was the chief executive officer of Wärtsilä Corporation (Finland) from 2011 to 2015. He held a variety of management roles at Atlas Copco AB (Sweden) from 1998 to 2011. Mr. Rosengren was born in 1959 and is a Swedish citizen.

Timo Ihamuotila was appointed Chief Financial Officer and member of the Executive Committee effective April 2017. He is a member of the board of directors of SoftwareONE Holding AG (Switzerland). From 2009 to 2016, Mr. Ihamuotila was chief financial officer and an executive vice president of the Nokia Corporation (Finland). From 1999 to 2009, he held various senior roles with Nokia. Mr. Ihamuotila was born in 1966 and is a Finnish citizen.

Sylvia Hill was appointed Chief Human Resources Officer and member of the Executive Committee effective June 2019. From 2014 until June 2019 she was ABB's Head of Global HR Services and HR Transformation. From 2011 to 2014 Ms. Hill was the Head of HR for ABB's Discrete Automation division. During 2005 to 2010 she was the Head of HR and Organization Health & Safety for ABB in France and for part of that time she was also the Head of HR for the Mediterranean region. From 1993 through 2005 she held various HR roles with ABB. Ms. Hill was born in 1960 and is a German citizen.

Maria Varsellona was appointed General Counsel and member of the Executive Committee effective November 2019. She was a member of the board of directors of Nordea Bank Abp (Finland) through May 2020. From 2014 to 2019 she was the Chief Legal Officer of Nokia Corporation and from 2018 to 2019 she was also the president of Nokia Technologies. From 2013 to 2014 she was the General Counsel of Nokia Siemens Networks. During the period from 2011 to 2013 Ms. Varsellona was the Group General Counsel of Tetra Pak and from 2009 to 2010 she was the Group General Counsel of Sidel, both part of the Tetra Laval Group. From 2001 to 2009 she held various senior legal roles mainly with GE Oil & Gas. Ms. Varsellona was born in 1970 and is an Italian citizen.

Theodor Swedjemark was appointed Chief Communications Officer and member of the Executive Committee effective August 2020. He is a member of the board of directors of the Swedish Swiss Chamber of Commerce. Mr. Swedjemark assumed the role of Chief of Staff in 2017, later adding group responsibility for government relations and public affairs. During 2016, he managed the Strategic Portfolio Review of the Power Grids project. From 2006 to 2015, he held various management positions at ABB in different functions and businesses. Mr. Swedjemark was born in 1980 and is a Swedish citizen.

Tarak Mehta was appointed President of the Electrification Business effective April 2019 and has been a member of the Executive Committee since October 2010. He had previously been President of the Electrification Products division since January 2016. From October 2010 through December 2015, he was President of the Low Voltage Products division. From 2007 to 2010, he was Head of ABB's transformers business. Between 1998 and 2006, he held several management positions with ABB. Mr. Mehta was born in 1966 and is a U.S. citizen.

Peter Terwiesch was appointed President of the Industrial Automation Business effective January 2017 and has been a member of the Executive Committee since January 2015. He is a member of the board of directors of Metall Zug AG (Switzerland). He was the President of the Process Automation division from 2015 to 2016. From 2011 to 2014, Mr. Terwiesch was Head of ABB's Central Europe region. He was ABB's Chief Technology Officer from 2005 to 2011. From 1994 to 2005, he held several positions with ABB. Mr. Terwiesch was born in 1966 and is a Swiss and German citizen.

Morten Wierod was appointed President of the Motion Business and member of the Executive Committee effective April 2019. From 2015 until April 2019 he was the Managing Director of the drives business unit in the Robotics and Motion division. During 2011 to 2015, Mr. Wierod was the Managing Director of the control products business unit in the Low Voltage Products division. Between 1998 to 2011, Mr. Wierod held various management roles with ABB. Mr. Wierod was born in 1972 and is a Norwegian citizen.

Sami Atiya was appointed President of the Robotics & Discrete Automation Business effective April 2019 and has been a member of the Executive Committee since June 2016. He is a member of the board of directors of SGS SA (Switzerland). He had previously been President of the Robotics and Motion division since January 2017. From June to December 2016 he was President of the Discrete Automation and Motion division. Prior to joining ABB, Mr. Atiya held senior roles at Siemens in Germany from 1997 to 2015, including as chief executive officer of the mobility and logistics division in the infrastructure and cities sector from 2011. Mr. Atiya was born in 1964 and is a German citizen.

Effective as of January 1, 2021, Carolina Granat has been appointed as Chief Human Resources Officer and member of the Executive Committee of ABB (press release available at https://new.abb.com/news/detail/71950/abb-appoints-carolina-granat-as-chief-human-resources-officer). Ms. Granat was previously ABB's Global Head of People Development and prior to that she was globally responsible for Human Resources at Sandvik's Machining Solutions business area.

Further information about the members of the Executive Committee can be found by clicking on the Executive Committee link (available at https://new.abb.com/about/corporate-governance).

Mandates of EC members outside the ABB Group

No member of the EC may hold more than five additional mandates of which no more than one may be in a listed company. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation (available at https://new.abb.com/about/corporate-governance).

Business relationships between ABB and its EC members

This section describes important business relationships between ABB and its EC members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at https://new.abb.com/about/corporate-governance).

ABB has an unsecured syndicated $2 billion, revolving credit facility. As of December 31, 2020, Nordea Bank Abp (Nordea) had committed to approximately $105.7 million out of the $2 billion total. In addition, ABB has regular banking business with Nordea. Maria Varsellona was a director of Nordea through May 2020.

After reviewing the banking commitments of Nordea, the Board has determined that ABB's business relationship with Nordea is not unusual in its nature or conditions and does not constitute a material business relationship. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Shares

Share capital of ABB

At December 31, 2020, ABB's ordinary share capital (including treasury shares) as registered with the Commercial Register amounted to CHF 260,177,791.68, divided into 2,168,148,264 fully paid registered shares with a par value of CHF 0.12 per share.

ABB Ltd's shares are listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (where its shares are traded in the form of American depositary shares (ADS) – each ADS representing one registered ABB share). At December 31, 2020, ABB Ltd had a market capitalization based on outstanding shares (total number of outstanding shares: 2,030,834,169) of approximately CHF 50 billion ($57 billion, SEK 465 billion). The only consolidated subsidiary in the ABB Group with listed shares is ABB India Limited, Bangalore, India, which is listed on the BSE Ltd. (Bombay Stock Exchange) and the National Stock Exchange of India. At December 31, 2020, ABB Ltd, Switzerland, directly or indirectly owned 75 percent of ABB India Limited, Bangalore, India, which at that time had a market capitalization of approximately INR 257 billion.

Stock exchange listings (at December 31, 2020)

Stock exchange	Security	Ticker symbol	ISIN code
SIX Swiss Exchange	ABB Ltd, Zurich, share	ABBN	CH0012221716
SIX Swiss Exchange	ABB Ltd, Zurich, share buyback (second trading line)	ABBNE	CH0357679619
NASDAQ OMX Stockholm Exchange	ABB Ltd, Zurich, share	ABB	CH0012221716
New York Stock Exchange	ABB Ltd, Zurich, ADS	ABB	US0003752047
BSE Ltd. (Bombay Stock Exchange)	ABB India Limited, Bangalore, share	ABB(1)	INE117A01022
National Stock Exchange of India	ABB India Limited, Bangalore, share	ABB	INE117A01022

(1) Also called Scrip ID.

Share repurchases and cancellation

Under the share buyback program announced in July 2020, ABB repurchased a total of 108,829,359 shares as per December 31, 2020, and a total of 117,012,859 shares as per February 15, 2021. ABB intends to ask the shareholders at the Annual General Meeting 2021 to approve the cancellation of 115,000,000 shares that were repurchased. In addition, ABB repurchased a total of 13,046,013 shares as per December 31, 2020, primarily for use in connection with employee share programs. Further information can be found at https://www.abb.com/investorrelations.

Changes to the ordinary share capital

In 2020, ABB paid a dividend of 0.80 Swiss francs per share relating to the year 2019. In 2019, ABB paid a dividend of 0.80 Swiss francs per share relating to the year 2018. In 2018, ABB paid a dividend of 0.78 Swiss francs per share relating to the year 2017.

There were no changes to ABB's ordinary share capital during 2020, 2019 and 2018.

Convertible bonds and options

ABB does not have any bonds outstanding that are convertible into ABB shares. For information about options on shares issued by ABB, please refer to "Note 19 - Stockholders' equity" to ABB's Consolidated Financial Statements.

Contingent share capital

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of conversion rights and/or warrants granted in connection with the issuance on national or international capital markets of newly or already issued bonds or other financial market instruments. If this contingent share capital were fully issued this would increase the existing share capital by approximately 9.2 percent. The contingent share capital has not changed during the last three years.

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 1,200,000 through the issuance of up to 10,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of warrant rights granted to its shareholders. If this contingent share capital were fully issued this would increase the existing share capital by approximately 0.5 percent. This contingent share capital has not changed during the last three years. The Board may grant warrant rights not taken up by shareholders for other purposes in the interest of ABB.

The pre-emptive rights of the shareholders are excluded in connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments or the grant of warrant rights. The then current owners of conversion rights and/or warrants will be entitled to subscribe for new shares. The conditions of the conversion rights and/or warrants will be determined by the Board.

The acquisition of shares through the exercise of warrants and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in the Shareholders section below) (available at https://new.abb.com/about/corporate-governance).

In connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments, the Board is authorized to restrict or deny the advance subscription rights of shareholders if such bonds or other financial market instruments are for the purpose of financing or refinancing the acquisition of an enterprise, parts of an enterprise, participations or new investments or an issuance on national or international capital markets. If the Board denies advance subscription rights, the convertible or warrant-bearing bonds or other financial market instruments will be issued at the relevant market conditions and the new shares will be issued pursuant to the relevant market conditions taking into account the share price and/or other comparable instruments having a market price. Conversion rights may be exercised during a maximum ten-year period, and warrants may be exercised during a maximum seven-year period, in each case from the date of the respective issuance. The advance subscription rights of the shareholders may be granted indirectly.

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 11,284,656 through the issuance of up to 94,038,800 fully paid shares with a par value of CHF 0.12 per share to employees. If this contingent share capital were fully issued this would increase the existing share capital by approximately 4.3 percent. This contingent share capital has not changed during the last three years. The pre-emptive and advance subscription rights of ABB's shareholders are excluded. The shares or rights to subscribe for shares will be issued to employees pursuant to one or more regulations to be issued by the Board, taking into account performance, functions, level of responsibility and profitability criteria. ABB may issue shares or subscription rights to employees at a price lower than that quoted on a stock exchange. The acquisition of shares within the context of employee share ownership and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in the Shareholders section below).

Authorized share capital

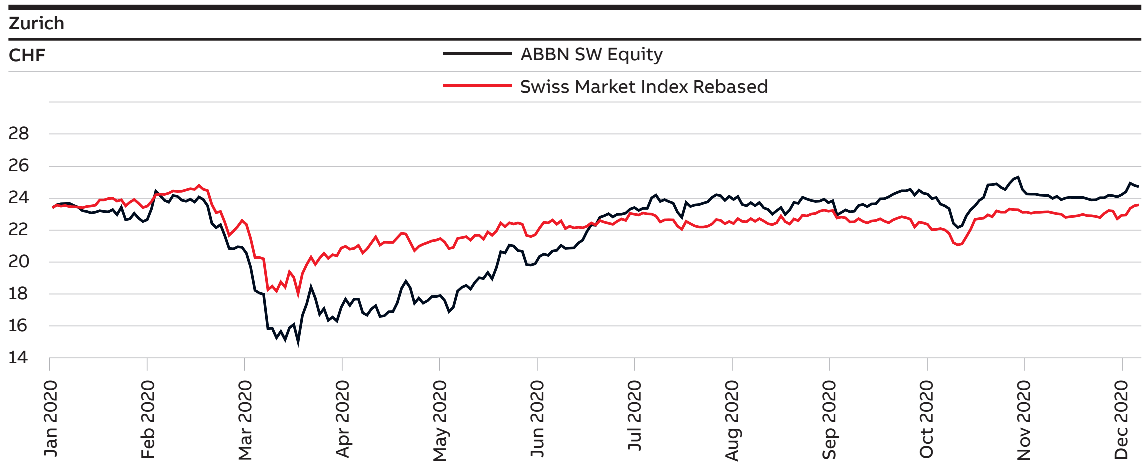
At December 31, 2020, ABB had an authorized share capital in the amount of up to CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 each, which is valid through May 2, 2021. If the authorized share capital were fully issued, this would increase the existing share capital by approximately 9.2 percent. Aside from renewal at the 2019 AGM, the authorized share capital has not changed during the last three years. The Board is authorized to determine the date of issue of new shares, the issue price, the type of payment, the conditions for the exercise of pre-emptive rights and the beginning date for dividend entitlement. In this regard, the Board may issue new shares by means of a firm underwriting through a banking institution, a syndicate or another third party with a subsequent offer of these shares to the shareholders. The Board may permit pre-emptive rights that have not been exercised by shareholders to expire or it may place these rights and/or shares as to which pre-emptive rights have been granted but not exercised at market conditions or use them for other purposes in the interest of the Company. Furthermore, the Board is authorized to restrict or deny the pre-emptive rights of shareholders and allocate such rights to third parties if the shares are used (1) for the acquisition of an enterprise, parts of an enterprise, or participations, or for new investments, or in case of a share placement, for the financing or refinancing of such transactions; or (2) for the purpose of broadening the shareholder constituency in connection with a listing of shares on domestic or foreign stock exchanges. The subscription and the acquisition of the new shares, as well as each subsequent transfer of the shares, will be subject to the restrictions of ABB's Articles of Incorporation (available at https://new.abb.com/about/corporate-governance).

Share Developments

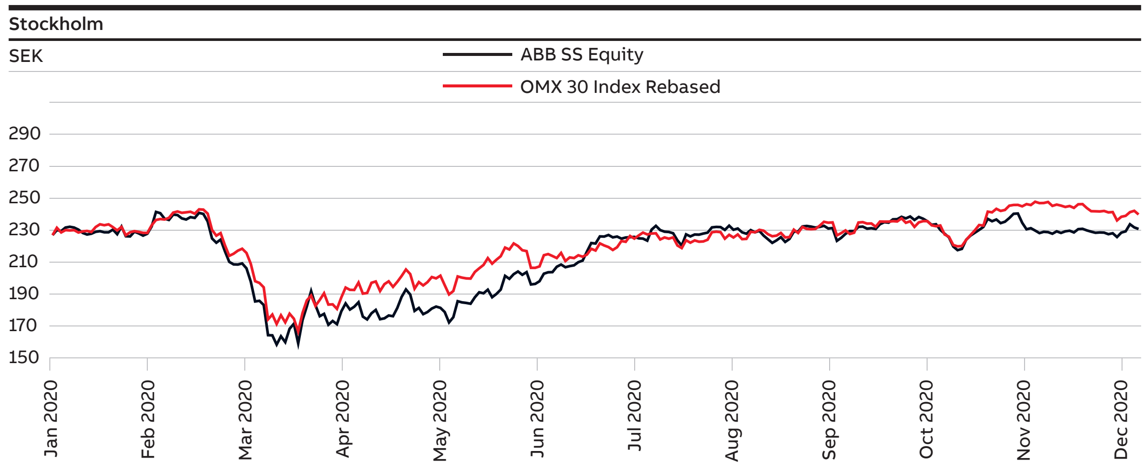
ABB Ltd share price trend during 2020

During 2020, the price of ABB Ltd shares listed on the SIX Swiss Exchange increased 6 percent, while the Swiss Market Index increased 1 percent. The price of ABB Ltd shares on NASDAQ OMX Stockholm increased 2 percent, compared to the OMX 30 Index, which increased 6 percent. The price of ABB Ltd American Depositary Shares traded on the New York Stock Exchange increased 16 percent, compared to the S&P 500 Index, which also increased 16 percent.

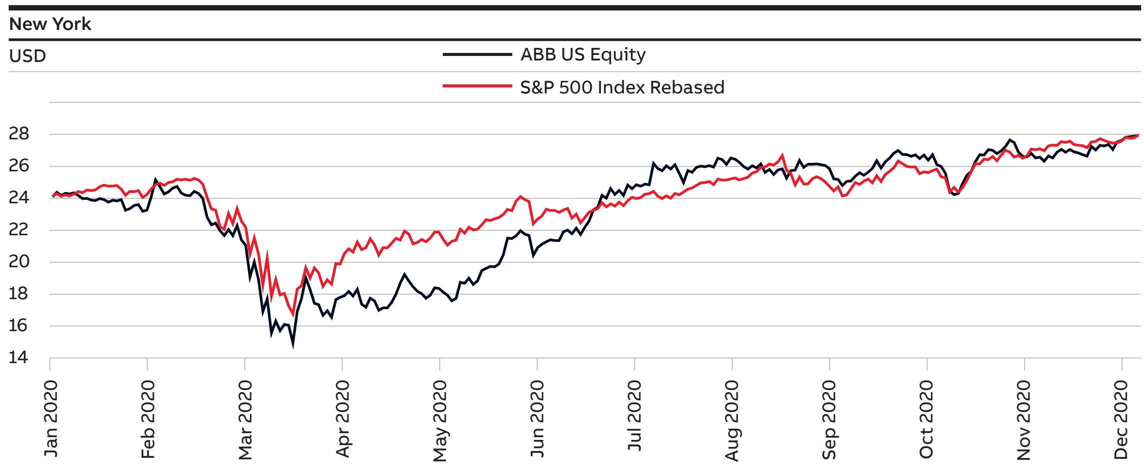
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

2020	SIX Swiss Exchange (CHF)	NASDAQ OMX Stockholm (SEK)	New York Stock Exchange (USD)
High	25.31	239.80	27.96
Low	14.93	155.85	14.85
Year-end	24.71	229.00	27.96
Average daily traded number of shares, in millions	9.00	1.78	2.05

Dividends

With respect to the year ended December 31, 2020, ABB Ltd's Board of Directors has proposed to distribute a dividend to shareholders in the amount of CHF 0.80 per share. This is subject to approval by shareholders at ABB Ltd's 2021 Annual General Meeting. The proposal is in line with the Company's dividend policy to pay a rising, sustainable dividend per share over time.

Key data

	2020	2019	2018
Dividend per share (CHF)	0.80(1)	0.80	0.80
Par value per share (CHF)	0.12	0.12	0.12
Votes per share	1	1	1
Basic earnings per share (USD)(2)	2.44	0.67	1.02
Total ABB stockholders' equity per share (USD)(3)	7.72	6.34	6.54
Cash flow from operations per share (USD)(2),(5)	0.80	1.09	1.37
Dividend payout ratio (%)(4)	37%	123%	80%
Weighted-average number of shares outstanding (in millions)	2,111	2,133	2,132

(1) Proposed by the Board of Directors and subject to approval by shareholders at the Annual General Meeting on March 25, 2021, in Zurich, Switzerland.
(2) Calculation based on weighted-average number of shares outstanding.
(3) Calculation based on the number of shares outstanding at December 31.
(4) Dividend per share (converted to U.S. dollars at year-end exchange rates) divided by basic earnings per share.
(5) Includes cash flow from operations for both continuing and discontinued operations.

Shareholders

Shareholder structure

As of December 31, 2020, the total number of shareholders directly registered with ABB Ltd was approximately 102,000 and another 397,000 shareholders held shares indirectly through nominees. In total as of that date, ABB had approximately 499,000 shareholders.

Significant shareholders

Investor AB, Sweden, held 265,385,142 ABB shares as of December 31, 2020 (refer to Investor's year-end 2020 report available at https://www.investorab.com/investors-media/reports-presentations). This holding represents approximately 12.2 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020. The number of shares held by Investor AB does not include shares held by Mr. Jacob Wallenberg, the chairman of Investor AB and a director of ABB, in his individual capacity.

Cevian Capital II GP Limited, Jersey, disclosed that as of August 3, 2020, it held 105,988,662 ABB shares (refer to https://www.sec.gov/Archives/edgar/data/1091587/000090266420002862/p20-1467sc13da.htm). This holding represents approximately 4.89 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

BlackRock Inc., U.S., disclosed that as of August 31, 2017, it, together with its direct and indirect subsidiaries, held 72,900,737 ABB shares (refer to https://www.ser-ag.com/en/resources/notifications-market-participants/significant-shareholders.html#/shareholder-details/TAH91000F4). This holding represents 3.36 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

The Capital Group Companies Inc., USA, disclosed that as of November 4, 2020, it, together with its direct and indirect affiliates, held 65,680,803 ABB shares (refer to https://www.ser-ag.com/en/resources/notifications-market-participants/significant-shareholders.html#/shareholder-details/TAKB900033). This holding represents 3.03 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

At December 31, 2020, to the best of ABB's knowledge, no other shareholder held 3 percent or more of ABB's total share capital and voting rights as registered in the Commercial Register on that date.

ABB Ltd has no cross shareholdings in excess of 5 percent of capital, or voting rights with any other company.

Announcements related to disclosure notifications made by shareholders during 2020 can be found via the search facility on the platform of the Disclosure Office of the SIX Swiss Exchange: https://www.ser-ag.com/en/resources/notifications-market-participants/significant-shareholders.html#/.

Under ABB's Articles of Incorporation (available at https://new.abb.com/about/corporate-governance), each registered share represents one vote. Significant shareholders do not have different voting rights. To our knowledge, we are not directly or indirectly owned or controlled by any government or by any other corporation or person.

Shareholders' rights

Shareholders have the right to receive dividends, to vote and to execute such other rights as granted under Swiss law and the Articles of Incorporation (available at https://new.abb.com/about/corporate-governance).

Right to vote

ABB has one class of shares and each registered share carries one vote at the general meeting. Voting rights may be exercised only after a shareholder has been registered in the share register of ABB as a shareholder with the right to vote, or with Euroclear Sweden AB (Euroclear), which maintains a subregister of the share register of ABB.

A shareholder may be represented at the Annual General Meeting by its legal representative, by another shareholder with the right to vote or by the independent proxy elected by the shareholders (unabhängiger Stimmrechtsvertreter). If the Company does not have an independent proxy, the Board of Directors shall appoint the independent proxy for the next General Meeting of Shareholders. All shares held by one shareholder may be represented by one representative only.

For practical reasons shareholders must be registered in the share register no later than 6 business days before the general meeting in order to be entitled to vote. Except for the cases described under "Limitations on transferability of shares and nominee registration" below, there are no voting rights restrictions limiting ABB's shareholders' rights.

Annual General Meeting/COVID-19

ABB's top priority is protecting the health of its shareholders and employees. Therefore, due to the extraordinary circumstances and in accordance with applicable Swiss COVID-19 legislation, shareholders were not able to attend ABB's Annual General Meeting 2020 in person, but could exercise their shareholder rights via the independent proxy only. The Board of Directors has resolved that for ABB's Annual General Meeting 2021, in accordance with applicable Swiss COVID-19 legislation, the same procedures shall apply.

Powers of General Meeting

The Ordinary General Meeting of Shareholders must be held each year within 6 months after the close of the fiscal year of the Company; the business report, the compensation report and the Auditors' reports must be made available for inspection by the shareholders at the place of incorporation of the Company by no later than 20 days prior to the meeting. Each shareholder is entitled to request immediate delivery of a copy of these documents.

The following powers shall be vested exclusively in the General Meeting of Shareholders:

- Adoption and amendment of the Articles of Incorporation;
- Election of the members of the Board of Directors, the Chairman of the Board of Directors, the members of the Compensation Committee, the Auditors and the independent proxy;
- Approval of the annual management report and consolidated financial statements;
- Approval of the annual financial statements and decision on the allocation of profits shown on the balance sheet, in particular with regard to dividends;
- Approval of the maximum compensation of the Board of Directors and of the Executive Committee pursuant to Article 34 of the Articles of Incorporation;
- Granting discharge to the members of the Board of Directors and the persons entrusted with management;
- Passing resolutions as to all matters reserved to the authority of the General Meeting by law or under the Articles of Incorporation or that are submitted to the General Meeting by the Board of Directors, subject to Article 716a of the Swiss Code of Obligations.

Resolutions and elections at General Meetings

Shareholders' resolutions at general meetings are approved with an absolute majority of the votes represented at the meeting, except for those matters described in Article 704 of the Swiss Code of Obligations and for resolutions with respect to restrictions on the exercise of the right to vote and the removal of such restrictions, which all require the approval of two-thirds of the votes represented at the meeting.

At December 31, 2020, shareholders representing shares of a par value totaling at least CHF 48,000 may require items to be included in the agenda of a general meeting. Any such request must be made in writing at least 40 days prior to the date of the general meeting and specify the items and the motions of such shareholder(s).

ABB's Articles of Incorporation do not contain provisions on the convocation of the general meeting of shareholders that differ from the applicable legal provisions.

Shareholders' dividend rights

The unconsolidated statutory financial statements of ABB Ltd are prepared in accordance with Swiss law. Based on these financial statements, dividends may be paid only if ABB Ltd has sufficient distributable profits from previous years or sufficient free reserves to allow the distribution of a dividend. Swiss law requires that ABB Ltd retain at least 5 percent of its annual net profits as legal reserves until these reserves amount to at least 20 percent of ABB Ltd's share capital. Any net profits remaining in excess of those reserves are at the disposal of the shareholders' meeting.

Under Swiss law, ABB Ltd may only pay out a dividend if it has been proposed by a shareholder or the Board of Directors and approved at a general meeting of shareholders, and the auditors confirm that the dividend conforms to statutory law and ABB's Articles of Incorporation. In practice, the shareholders' meeting usually approves dividends as proposed by the Board of Directors.

Dividends are usually due and payable no earlier than 2 trading days after the shareholders' resolution and the ex-date for dividends is normally 2 trading days after the shareholders' resolution approving the dividend. Dividends are paid out to the holders that are registered on the record date. Euroclear administers the payment of those shares registered with it. Under Swiss law, dividends not collected within 5 years after the due date accrue to ABB Ltd and are allocated to its other reserves. As ABB Ltd pays cash dividends, if any, in Swiss francs (subject to the exception for certain shareholders in Sweden described below), exchange rate fluctuations will affect the U.S. dollar amounts received by holders of ADSs upon conversion of those cash dividends by Citibank, N.A., the depositary, in accordance with the Amended and Restated Deposit Agreement dated May 7, 2001.

For shareholders who are residents of Sweden, ABB has established a dividend access facility (for up to 600,004,716 shares). With respect to any annual dividend payment for which this facility is made available, shareholders who register with Euroclear may elect to receive the dividend from ABB Norden Holding AB in Swedish krona (in an amount equivalent to the dividend paid in Swiss francs) without deduction of Swiss withholding tax. For further information on the dividend access facility, see ABB's Articles of Incorporation.

Limitations on transferability of shares and nominee registration

ABB may decline a registration with voting rights if a shareholder does not declare that it has acquired the shares in its own name and for its own account. If the shareholder refuses to make such declaration, it will be registered as a shareholder without voting rights. A person failing to expressly declare in its registration/application that it holds the shares for its own account (a nominee), will be entered in the share register with voting rights, provided that such nominee has entered into an agreement with ABB concerning its status, and further provided that the nominee is subject to recognized bank or financial market supervision. In special cases the Board may grant exemptions. There were no exemptions granted in 2020. The limitation on the transferability of shares may be removed by an amendment of ABB's Articles of Incorporation by a shareholders' resolution requiring two thirds of the votes represented at the meeting.

No restriction on trading of shares

No restrictions are imposed on the transferability of ABB shares. The registration of shareholders in the ABB Share register, Euroclear and the ADS register kept by Citibank does not affect transferability of ABB shares or ADSs. Registered ABB shareholders or ADR holders may therefore purchase or sell their ABB shares or ADRs at any time, including before a General Meeting regardless of the record date. The record date serves only to determine the right to vote at a General Meeting.

Duty to make a public tender offer

ABB's Articles of Incorporation do not contain any provisions raising the threshold (opting up) or waiving the duty (opting out) to make a public tender offer pursuant to Article 135 of the Swiss Act on Financial Market Infrastructures and Market Conduct in Securities and Derivatives Trading.

Independent external auditors

Duration of the mandate and term of office of the auditor

On March 26, 2020, shareholders at the Annual General Meeting of ABB Ltd, approved the appointment of KPMG AG (KPMG) to be the auditors of the Company for the 2020 financial year.

KPMG are the auditors of ABB's statutory and consolidated financial statements. KPMG, Switzerland, assumed the sole auditing mandate of the consolidated financial statements of the ABB Group beginning in the year ended December 31, 2018. The auditor in charge and responsible for the mandate, Hans-Dieter Krauss, began serving in this capacity in respect of the financial year ended December 31, 2018. Pursuant to ABB's Articles of Incorporation (available at https://new.abb.com/about/corporate-governance), the term of office of ABB's auditors is one year.

Information to the Board and the Finance, Audit and Compliance Committee

Supervisory and control instruments vis-à-vis the auditors

Our auditors, KPMG, attend each meeting of the FACC and each meeting includes a private session between the auditors and the FACC without the management being present. In 2020, the FACC had 7 meetings (either in person or via telephone call). On at least an annual basis, the FACC reviews and discusses with the external auditors all significant relationships that the auditors have with the Company that could impair their independence. The FACC reviews the auditor engagement letter and the audit plan including discussion of scope, staffing, locations and general audit approach. The FACC also reviews and evaluates the auditors' judgment on the quality and appropriateness of the Company's accounting principles as applied in the financial reporting. In addition, the FACC approves in advance any non-audit services to be performed by the auditors.

At least annually, the FACC obtains and reviews a report by the auditors that includes discussion on:

- The Company's internal control procedures;
- Material issues, if any, raised by the most recent internal quality control review;
- Critical accounting policies and practices of the Company;
- All alternative accounting treatments of financial information that were discussed between the auditors and management as well as the related ramifications; and
- Material communications between the auditors and management such as any management letter or schedule of audit differences.

Taking into account the opinions of management the FACC evaluates the qualifications, independence and performance of the auditors. The FACC reports the material elements of its supervision of the auditors to the Board and on an annual basis recommends to the Board the auditors to be proposed for election at the shareholders meeting.

Audit and additional fees paid to the auditor

The audit fees charged by KPMG for the legally prescribed audit amounted to $40.6 million in 2020. Audit services are defined as the standard audit work performed each fiscal year necessary to allow the auditors to issue an opinion on the consolidated financial statements of ABB and to issue an opinion on the local statutory financial statements.

This classification may also include services that can be provided only by the auditors, such as pre-issuance reviews of quarterly financial results and comfort letters delivered to underwriters in connection with debt and equity offerings. Included in the 2020 audit fees were approximately $4.5 million related to audits from 2019 and earlier, which were not agreed until after the Company had filed its annual report on Form 20-F with the SEC on February 26, 2020.

In addition, KPMG charged $3.5 million for non-audit services during 2020. Non-audit services include primarily agreed-upon procedure reports, accounting consultations, audits of pension and benefit plans, accounting advisory services, other attest services related to financial reporting that are not required by statute or regulation, income tax and indirect tax compliance services and tax advisory services. In accordance with the requirements of the U.S. Sarbanes-Oxley Act of 2002 and rules issued by the SEC, ABB has, on a global basis, a process for the review and pre-approval of audit and non-audit services to be performed by KPMG.

Other governance information

ABB Group organizational structure

ABB Ltd, Switzerland is the ultimate parent company of the ABB Group. It is the sole shareholder of ABB Asea Brown Boveri Ltd which directly or indirectly owns the other companies in the ABB Group. The table in the appendix to this Corporate governance report sets forth, as of December 31, 2020, the name, place of incorporation, ownership interest and share capital of the significant direct and indirect subsidiaries of ABB Ltd. In addition, ABB Ltd also owns 19.9 percent of Hitachi ABB Power Grids Ltd. ABB's operational group structure is described in the "Financial review of ABB Group" section of this Annual Report under "Operating and financial review and prospects – Organizational structure".

Management contracts

There are no management contracts between ABB and companies or natural persons not belonging to the ABB Group.

Change of control clauses

Board members, Executive Committee members, and other members of senior management do not receive any special benefits in the event of a change of control. However, the conditional grants under the Long Term Incentive Plan (LTIP) and the Management Incentive Plan (MIP) may be subject to accelerated vesting in the event of a change of control. From 2021, the rules for the LTIP will be amended to no longer provide for accelerated vesting upon a change in control. This amendment will apply to future grants made under the LTIP. No further grants are made under the MIP.

Employee participation programs

In order to align its employees' interests with the business goals and financial results of the Company, ABB operates a number of incentive plans, linked to ABB's shares, such as the Employee Share Acquisition Plan, the Management Incentive Plan and the Long Term Incentive Plan. For a more detailed description of these incentive plans, please refer to "Note 18 - Share-based payment arrangements" to ABB's Consolidated Financial Statements.

Governance differences from NYSE Standards

According to the New York Stock Exchange's corporate governance standards (the Standards), ABB is required to disclose significant ways in which its corporate governance practices differ from the Standards. ABB has reviewed the Standards and concluded that its corporate governance practices are generally consistent with the Standards, with the following significant exceptions:

- Swiss law requires that the external auditors be elected by the shareholders at the Annual General Meeting rather than by the audit committee or the board of directors.
- The Standards require that all equity compensation plans and material revisions thereto be approved by the shareholders. Consistent with Swiss law such matters are decided by our Board. However, the shareholders decide about the creation of new share capital that can be used in connection with equity compensation plans.
- Swiss law requires that the members of the compensation committee are elected by the shareholders rather than appointed by our Board.

- Swiss law requires shareholders to approve the maximum aggregate Board compensation and the maximum aggregate Executive Committee compensation.

Information policy

ABB, as a publicly traded company, is committed to communicating in a timely and consistent way to shareholders, potential investors, financial analysts, customers, suppliers, the media and other interested parties. ABB is required to disseminate material information pertaining to its businesses in a manner that complies with its obligations under the rules of the stock exchanges where its shares are listed and traded.

ABB publishes an annual report that provides audited financial statements and information about ABB including our business results, strategy, products and services, corporate governance and executive compensation. ABB also submits an annual report on Form 20-F to the Securities and Exchange Commission (SEC). In addition, ABB publishes its results on a quarterly basis as press releases, distributed pursuant to the rules and regulations of the stock exchanges on which its shares are listed and traded. Press releases relating to financial results and material events are also filed with the SEC on Form 6-K. An archive containing Annual Reports, Form 20-F reports, quarterly results releases and related presentations can be found in the "Financial results and presentations" section at https://www.abb.com/investorrelations. The quarterly results press releases contain unaudited financial information prepared in accordance with or reconciled to U.S. GAAP. To subscribe to important press releases, please click on the "Contacts and Services" and choose "Subscribe to updates" at https://www.abb.com/investorrelations. Ad-hoc notices can also be found in the press releases section at https://www.abb.com/news.

ABB's official means of communication is the Swiss Official Gazette of Commerce (https://www.shab.ch). The invitation to the Company's Annual General Meeting is sent to registered shareholders by mail.

Inquiries may also be made to ABB Investor Relations:

Affolternstrasse 44
CH-8050 Zurich, Switzerland
Telephone: +41 43 317 7111
E-Mail: investor.relations@ch.abb.com
ABB's website is: www.abb.com

Further information on corporate governance

The list below contains references to additional information concerning the corporate governance of ABB (available at https://new.abb.com/about/corporate-governance).

- Articles of Incorporation
- ABB Ltd Board Regulations & Corporate Governance Guidelines which includes:
  - Regulations of the Finance, Audit and Compliance Committee
  - Regulations of the Governance and Nomination Committee
  - Regulations of the Compensation Committee
  - Related Party Transaction Policy
- ABB Code of Conduct
- Comparison of ABB's corporate governance practices to the New York Stock Exchange rules
- Summary of differences of shareholder rights under Swedish and Swiss law applicable to ABB
- CVs of the Board members
- CVs of the Executive Committee members

ABB's corporate calendar can be found at https://new.abb.com/investorrelations/calendar-events-and-publications/financial-calendar.

Appendix – ABB Ltd's significant subsidiaries

Company name/location	Country	ABB interest %	Share capital in thousands	Currency
ABB S.A., Buenos Aires	Argentina	100.00	278,860	ARS
ABB Australia Pty Limited, Moorebank, NSW	Australia	100.00	131,218	AUD
ABB Group Investment Management Pty. Ltd., Moorebank, NSW	Australia	100.00	505,312	AUD
ABB AG, Wiener Neudorf	Austria	100.00	15,000	EUR
B&R Holding GmbH, Eggelsberg	Austria	100.00	35	EUR
B&R Industrial Automation GmbH, Eggelsberg	Austria	100.00	1,240	EUR
ABB N.V., Zaventem	Belgium	100.00	34,308	EUR
ABB Automacao Ltda., Sorocaba	Brazil	100.00	196,554	BRL
ABB Eletrificacao Ltda., Sorocaba	Brazil	100.00	268,759	BRL
ABB Bulgaria EOOD, Sofia	Bulgaria	100.00	65,110	BGN
ABB Electrification Canada ULC, Edmonton, Alberta	Canada	100.00	– (1)	CAD
ABB Inc., Saint-Laurent, Quebec	Canada	100.00	– (1)	CAD
ABB S.A., Santiago	Chile	100.00	5,484,348	CLP
ABB (China) Investment Limited, Beijing	China	100.00	95,000	USD
ABB (China) Ltd., Beijing	China	100.00	140,000	USD
ABB Beijing Drive Systems Co. Ltd., Beijing	China	90.00	5,000	USD
ABB Beijing Switchgear Limited, Beijing	China	60.00	16,500	USD
ABB Electrical Machines Ltd., Shanghai	China	100.00	14,400	USD
ABB Engineering (Shanghai) Ltd., Shanghai	China	100.00	40,000	USD
ABB Shanghai Free Trade Zone Industrial Co., Ltd., Shanghai	China	100.00	6,500	CNY
ABB Shanghai Motors Co. Ltd., Shanghai	China	75.00	11,217	USD
ABB Xiamen Low Voltage Equipment Co. Ltd., Xiamen	China	100.00	15,800	USD
ABB Xiamen Switchgear Co. Ltd., Xiamen	China	66.52	29,500	USD
ABB Xinhui Low Voltage Switchgear Co. Ltd., Xinhui	China	90.00	6,200	USD
ABB s.r.o., Prague	Czech Republic	100.00	400,000	CZK
ABB A/S, Skovlunde	Denmark	100.00	100,000	DKK
ABB for Electrical Industries (ABB ARAB) S.A.E., Cairo	Egypt	100.00	353,479	EGP
Asea Brown Boveri S.A.E., Cairo	Egypt	100.00	166,000	USD
ABB AS, Jüri	Estonia	100.00	1,663	EUR
ABB Oy, Helsinki	Finland	100.00	10,003	EUR
ABB France, Cergy Pontoise	France	99.83	25,778	EUR
ABB SAS, Cergy Pontoise	France	100.00	45,921	EUR
ABB AG, Mannheim	Germany	100.00	167,500	EUR
ABB Automation GmbH, Mannheim	Germany	100.00	15,000	EUR
ABB Automation Products GmbH, Ladenburg	Germany	100.00	10,620	EUR
ABB Beteiligungs- und Verwaltungsges. mbH, Mannheim	Germany	100.00	61,355	EUR
ABB Stotz-Kontakt GmbH, Heidelberg	Germany	100.00	7,500	EUR
B + R Industrie-Elektronik GmbH, Bad Homburg	Germany	100.00	358	EUR
Busch-Jaeger Elektro GmbH, Lüdenscheid	Germany	100.00	1,535	EUR
ABB Engineering Trading and Service Ltd., Budapest	Hungary	100.00	26,436,281	HUF
Industrial C&S Hungary Kft., Budapest	Hungary	100.00	3,000	HUF
ABB Global Industries and Services Private Limited, Bangalore	India	100.00	366,923	INR
ABB India Limited, Bangalore	India	75.00	423,817	INR
ABB S.p.A., Milan	Italy	100.00	110,000	EUR
ABB K.K., Tokyo	Japan	100.00	1,000,000	JPY
ABB Ltd., Seoul	Korea, Republic of	100.00	23,670,000	KRW
ABB Electrical Control Systems S. de R.L. de C.V., Monterrey	Mexico	100.00	315,134	MXN
ABB Mexico S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	638,418	MXN
Asea Brown Boveri S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	667,686	MXN
ABB B.V., Rotterdam	Netherlands	100.00	9,200	EUR
ABB Finance B.V., Rotterdam	Netherlands	100.00	20	EUR
ABB Holdings B.V., Rotterdam	Netherlands	100.00	119	EUR
ABB AS, Fornebu	Norway	100.00	134,550	NOK
ABB Electrification Norway AS, Skien	Norway	100.00	60,450	NOK
ABB Holding AS, Fornebu	Norway	100.00	240,000	NOK
ABB Business Services Sp. z o.o., Warsaw	Poland	99.93	24	PLN

Company name/location	Country	ABB interest %	Share capital in thousands	Currency
ABB Industrial Solutions (Bielsko-Biala) Sp. z o.o., Bielsko-Biala	Poland	99.93	328,125	PLN
ABB Industrial Solutions (Klodzko) Sp.z o.o., Klodzko	Poland	99.93	50	PLN
ABB Sp. z o.o., Warsaw	Poland	99.93	245,461	PLN
Industrial C&S of P.R. LLC, San Juan	Puerto Rico	100.00	–	USD
ABB Ltd., Moscow	Russian Federation	100.00	5,686	RUB
ABB Electrical Industries Co. Ltd., Riyadh	Saudi Arabia	65.00	181,000	SAR
ABB Pte. Ltd., Singapore	Singapore	100.00	32,797	SGD
ABB Holdings (Pty) Ltd., Modderfontein	South Africa	100.00	4,050	ZAR
ABB South Africa (Pty) Ltd., Modderfontein	South Africa	74.91	1	ZAR
Asea Brown Boveri S.A., Madrid	Spain	100.00	33,318	EUR
ABB AB, Västerås	Sweden	100.00	200,000	SEK
ABB Norden Holding AB, Västerås	Sweden	100.00	2,344,783	SEK
ABB Asea Brown Boveri Ltd, Zurich	Switzerland	100.00	2,768,000	CHF
ABB Canada EL Holding GmbH, Zurich	Switzerland	100.00	1000	CHF
ABB Capital AG, Zurich	Switzerland	100.00	100	CHF
ABB Information Systems Ltd., Zurich	Switzerland	100.00	500	CHF
ABB Investment Holding 2 GmbH, Zurich	Switzerland	100.00	20	CHF
ABB Management Services Ltd., Zurich	Switzerland	100.00	571	CHF
ABB Schweiz AG, Baden	Switzerland	100.00	55,000	CHF
ABB Ltd., Taipei	Taiwan (Chinese Taipei)	100.00	195,000	TWD
ABB Elektrik Sanayi A.S., Istanbul	Turkey	99.99	13,410	TRY
ABB Industries (L.L.C.), Dubai	United Arab Emirates	49.00[2]	5,000	AED
ABB Holdings Limited, Warrington	United Kingdom	100.00	226,014	GBP
ABB Limited, Warrington	United Kingdom	100.00	120,000	GBP
ABB Finance (USA) Inc., Wilmington, DE	United States	100.00	1	USD
ABB Holdings Inc., Cary, NC	United States	100.00	2	USD
ABB Inc., Cary, NC	United States	100.00	1	USD
ABB Installation Products Inc, Memphis, TN	United States	100.00	1	USD
ABB Installation Products International LLC., Wilmington, DE	United States	100.00	–	USD
ABB Motors and Mechanical Inc, Fort Smith, AR	United States	100.00	–	USD
ABB Treasury Center (USA), Inc., Wilmington, DE	United States	100.00	1	USD
Edison Holding Corporation, Wilmington, DE	United States	100.00	–	USD
Industrial Connections & Solutions LLC, Cary, NC	United States	100.00	–	USD

(1) Shares without par value.
(2) Company consolidated as ABB exercises full management control.

03

Compensation report

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Letter from the Chairman of the Compensation Committee

Dear Shareholders,

On behalf of the Board of Directors (Board) and the Compensation Committee (CC), I am pleased to present the Compensation Report ('the Report') for 2020.

Our Committee's focus remains to ensure that the compensation structure at ABB drives value creation for our shareholders, a motivating package for our executives and meets best-practice corporate governance standards.

I appreciated the opportunity to meet with many of our shareholders to discuss compensation matters last year as part of our annual engagement process. During these meetings, we discussed our response to the challenges brought upon us by the Coronavirus (COVID-19) pandemic, our approach to linking progress on environmental, social and corporate governance (ESG) matters to compensation outcomes, and any changes that could be made to our compensation policy and structure to increase its shareholder alignment, market competitiveness and performance driven culture. Furthermore, we discussed ways in which we could improve disclosures in the Report to create greater clarity for you, our stakeholders.

Response to the COVID-19 pandemic

You will have seen in this Annual Report the way in which our organization and our people have been affected by the social and economic impacts of the COVID-19 pandemic.

I was proud to see the response from the Board, members of the Executive Committee (EC), and over 200 senior managers, in voluntarily donating 10 percent of their fees or salaries for a six month period during 2020, and thereby raising over $3 million to support their ABB colleagues to fight the impacts of the COVID-19 crisis. In a number of cases, this donation was in addition to participating in business or country programs, such as furlough schemes. To date, assistance has been provided to support ABB employees in 19 countries and will continue in the year ahead.

In terms of the impact on incentives, the 2020 Annual Incentive Plan (AIP) targets, which were set before the Coronavirus crisis, were not adjusted for the impact of COVID-19. In addition, caps were placed on the outcomes for Corporate Officers to ensure there were not unintended windfalls for those with cost or other qualitative measures. This, together with the impact of the voluntary salary donation, has had a material negative impact on AIP awards for 2020.

The EPS targets for outstanding Long-Term Incentive Plan (LTIP) grants, which were set before the COVID-19 crisis occurred, have also not been changed for the impact of COVID-19. The reference price set for the 2020 LTIP grant was set using the 2019 price, given the high level of market volatility at the time of making the grant in March.

Linking ESG to compensation outcomes

ABB ('the Company') presented its refreshed Sustainability Strategy, and associated ambitious and challenging targets for 2030, at the last Capital Markets Day.

I appreciated the discussion with shareholders, who hold a wide range of views on whether and how to best link ESG with compensation outcomes. The CC discussed the matter and agreed that, in future, progress against defined ESG targets will be a 'boundary condition' for making AIP awards. Under this approach, the Board will, each year, agree specific ESG target(s) and review whether the Company had made sufficient progress at the end of the year to justify making the indicated AIP award. If, in the opinion of the Board, insufficient progress has been made, the AIP award may be reduced on a discretionary basis. This approach will apply to the Executive Committee and our top 100 senior leaders.

For 2021, the 'boundary condition' will be the setting of plans in each ABB Division to mitigate for ABB scope 1 and 2 emissions. Further details of the relevant targets, and the progress made against them, will be disclosed in future Compensation Reports. This new feature of the AIP complements the focus on safety which has been a long-standing feature of short-term incentive measures for senior executives. From 2021, the safety goal under the AIP for EC members will be the percentage improvement in the Lost Time Incident Frequency Rate (LTIFR). LTIFR is seen as a clear indicator of the effectiveness of incident prevention programs in ABB.

Compensation policy and structure

The change in approach to ESG is the main change to the compensation policy for 2021. In addition, in direct response to feedback from shareholders, there will be a change to the LTIP rules to remove the automatic accelerated vesting of awards in the unlikely event of a change of control, which will apply to LTIP grants made from 2021.

The compensation structure for the EC, its purpose and links to our Company strategy, and associated performance measures, valid as of 2021, are set out in the table below.

Compensation structure	Fixed compensation-annual base salary and benefits	Short-term incentive (AIP)	Long-term incentive (LTIP)	Wealth at Risk/ Share Ownership
Purpose and link to strategy	Compensates EC members for the role	Rewards annual company and individual performance. Drives annual strategy implementation	Encourages creation of long-term, sustainable value for shareholders, and delivery of long term strategic goals	Aligns individual's personal wealth at risk directly to the ABB share price
Operation	Cash salary, benefits in kind, and pension contribution	Annual awards, payable in cash after a 1-year performance period	Annual awards in shares which may vest after 3 years subject to performance conditions	Individuals required to hold ABB shares
Opportunity level (as % of annual base salary)	Based on scope of responsibilities, individual experience and skillset	Target: 100% Maximum: 150%	CEO Target at grant: 150% Vesting: 0-300% EC Target at grant: 100% Vesting: 0-200%	CEO wealth at risk: 500% (net) EC wealth at risk: 400% (net)
Time period	Delivered in year	1 year	3 years	Total EC tenure
Performance measures	Changes to annual base salary takes into account the Executive's performance in the preceding year and potential for the future	All: ABB Op EBITA margin % (20-25%); Business measures, which may include, for example: ROCE, Business Area Op EBITA margin (%), productivity, OFCF (55-60%); All: individual objectives (20%); All: ESG boundary condition for awards	Relative TSR[1] (50%) Average EPS[2] (50%)	Direct link to ABB share price

(1) Total Shareholder Return.
(2) Earnings Per Share.

Note that the common AIP measure for 2021, which applies to all EC members and the top 100 senior leaders, will be Operational EBITA margin (%), to reflect the strategic focus on ambitious longer-term margin targets. A return measure – ROCE – will be retained for the CEO and the majority of the EC to continue the focus on profitability and the efficiency with which capital is used. Corporate Officers will be aligned to the CEO's business measures, to increase alignment with operational business outcomes, with any functional imperatives included in the relevant individual objectives.

The LTIP will be reviewed during 2021 to ensure that it continues to align with business strategy and the needs of stakeholders. Shareholders will be consulted on any proposed changes before they are tabled as resolutions for approval at the next AGM.

Compensation policy outcomes

A review of Board fees was undertaken during 2020, which was informed by a benchmarking study of comparable Swiss corporations. Following this review, there were no changes in the fees for Board members for the roles they perform.

The aggregate Board compensation for the 2019-2020 term was in line with the amount approved at the 2019 Annual General Meeting. Board compensation for 2020 was lower than in 2019 due to Board members voluntarily donating 10 percent of their fees to fight the impacts of the COVID-19 crisis for a six-month period during 2020.

EC members received total compensation of CHF 35.4 million in 2020, compared to CHF 51.4 million in 2019, as summarized in Exhibit 12 and presented in detail in Exhibits 27 and 28. This 31 percent decrease in total compensation was influenced by the reduction in the number of active EC members, lower payments to former EC members, EC members voluntarily donating 10 percent of their salary to fight the impacts of the COVID-19 pandemic for a six-month period during 2020, and much lower short-term incentive awards due to the impact of COVID-19.

Three of the nine EC members in place in March 2020, received a salary adjustment, which ranged from 4.3 to 7.1 percent, the latter being for an exceptional performance and market adjustment. This corresponded to a 1.6 percent increase on annual base salaries for the EC members in post in March, 2020.

The average award for the EC under the AIP for 2020 was 72.4 percent (out of a maximum 150 percent), compared to 94.7 percent in 2019. This significant drop in outcomes from the prior year was heavily influenced by the impact on the business from COVID-19.

The vesting of the 2017 LTIP grant in 2020 was determined with reference to Net income and EPS targets. The average achievement level of the two performance measures under the 2017 LTIP was 73.0 percent (out of a maximum 175 percent), with the actual vesting varying by individual EC member, from 69.4 percent to 75.4 percent. Note that the performance period for determining the value of the award, from 2017 to 2019, was not affected by the impact of COVID-19.

Disclosure

During the reporting year, the CC listened carefully to ideas and suggestions to increase the clarity of disclosures in the Report. As such, we provide an overview of the compensation structure and its links to our strategy in this letter and continue to structure the Report to clearly differentiate between our compensation policies and their implementation.

The key changes to the Report this year include an update to the benchmarking section to reflect the changes to the benchmarking peer groups for the EC, an enhanced description and Exhibit to illustrate short-term incentive outcomes, the retrospective disclosure of EPS targets under the long-term incentive and an additional table with a simplified way to show realized compensation.

Governance

During 2020, the CC completed a benchmarking review for the Board and EC and reviewed the Swiss gender pay regulatory and disclosure requirements. It also performed its regular activities, including recommending performance measures and targets for the EC to the Board which impact variable compensation, recommending the compensation of ABB's Board, CEO and EC members, formulating the Compensation Report, preparing the "say-on-pay" vote at the Annual General Meeting (AGM), and reviewing the terms of appointment and departure for members of the EC. You will find further information on our activities and on ABB´s compensation system and governance in the following pages.

At the AGM in March 2021, you will be asked to vote on the maximum aggregate compensation for the Board for its 2021–2022 term and on the maximum aggregate compensation for the EC for 2022. This Compensation Report will also be submitted for a non-binding, consultative vote by shareholders.

We encourage and pursue an open and regular dialogue with all of our stakeholders. Your constructive input is highly valued and appreciated as we continue to improve the compensation system. On behalf of ABB, the Compensation Committee and the Board, I thank you for your continued trust in ABB and for your consistently supportive feedback regarding our compensation framework.

David E. Constable
Chairman of the Compensation Committee

Zurich, February 25, 2021

Compensation report

Compensation governance

Shareholder engagement

ABB's Articles of Incorporation, approved by its shareholders, contain provisions on compensation which govern and outline the principles of compensation relating to our Board of Directors (Board) and Executive Committee (EC). They can be found on ABB's Corporate governance Web site new.abb.com/about/corporate-governance and are summarized below:

- **Compensation Committee** (Articles 28 to 31): The Compensation Committee (CC) is composed of a minimum of three members of the Board of Directors who are elected individually by the shareholders at the Annual General Meeting (AGM) for a period of one year. The CC supports the Board in establishing and reviewing the compensation strategy, principles and programs, in preparing the proposals to the AGM on compensation matters and in determining the compensation of the Board and of the EC. The responsibilities of the CC are defined in more detail in the Board Regulations and Corporate Governance guidelines, which are available on ABB's Corporate governance Web site.
- **Compensation principles** (Article 33): Compensation of the members of the Board consists of fixed compensation only, which is delivered in cash and shares (with an option to elect for shares only). Compensation of the members of the EC consists of fixed and variable compensation. Variable compensation may comprise short-term and long-term elements. Compensation may be paid in cash, shares or other benefits.
- **"Say-on-pay" vote** (Article 34): Shareholders approve the maximum aggregate amount of compensation of the Board for the following Board term and of the EC for the following financial year.
- **Supplementary amount for new EC members** (Article 35): If the maximum approved aggregate compensation amount is not sufficient to also cover the compensation of newly promoted/hired EC members, up to 30 percent of the last maximum approved aggregate amount shall be available as a supplementary amount to cover the compensation of such new EC members.
- **Loans** (Article 37): Loans may not be granted to members of the Board or of the EC.

Shareholders also have a consultative vote on the prior year's Compensation Report at the AGM. The Compensation Policy sections of this Report describe the compensation policies and programs as well as the governance framework related to the compensation of the Board and EC. The Compensation Implementation sections of this Report provide details of the compensation paid to the members of the Board and of the EC in the prior calendar year.

The Compensation Report is prepared in accordance with the Ordinance against Excessive Remuneration in Listed Stock Corporations (Ordinance), the Directive on Information relating to Corporate Governance of the SIX Exchange Regulation, the rules of the stock markets of Sweden and the United States where ABB's shares are also listed, and the principles of the Swiss Code of Best Practice for Corporate Governance of economiesuisse.

Exhibit 1: Authority levels in compensation matters

	CEO	CC	Board	AGM
Compensation policy including incentive plans	Proposal	Recommendation	Approval	
Maximum aggregate compensation amount EC members		Proposal	Recommendation	Approval
CEO compensation		Recommendation	Approval	
Individual compensation EC members	Proposal	Recommendation	Approval	
Performance target setting and assessment CEO		Recommendation	Approval	
Performance target setting and assessment EC members	Proposal	Recommendation	Approval	
Shareholding requirements CEO and EC members		Recommendation	Approval	
Maximum aggregate compensation amount Board members		Proposal	Recommendation	Approval
Individual compensation Board members		Recommendation	Approval	
Compensation report		Recommendation	Approval	Consultative vote

Proposal Recommendation Approval

Authority levels in compensation matters

The CC acts in an advisory capacity while the Board retains the decision authority on compensation matters, except for the maximum aggregate compensation amounts of the Board and of the EC, which are subject to the approval of shareholders at the AGM. The authority levels of the different bodies on compensation matters are detailed in Exhibit 1.

Activities of the CC in 2020

The CC meets as often as business requires but at least four times a year. In 2020, the CC held seven meetings and performed the activities described in Exhibit 2. Details on meeting attendance of the individual CC members are provided in the section titled "Board of Directors – Meetings and attendance" of the Corporate Governance Report.

The Chairman of the CC reports to the full Board after each CC meeting. The minutes of the meetings are available to the members of the Board.

The CC retains independent, external advisors for compensation matters. PricewaterhouseCoopers (PwC) are currently mandated to provide services related to executive compensation matters. Apart from its CC advisory role, PwC also provides human resources, tax and advisory services to ABB.

The CEO, the Chief Human Resources Officer (CHRO) and the Head of Performance and Reward also attend all or part of the CC meetings in an advisory capacity. The Chairman of the CC may decide to invite other executives upon consultation with the CEO, as appropriate. Executives do not attend the meetings or the parts of the meetings in which their own compensation and/or performance are being discussed.

Exhibit 2: CC activities during 2020

Board Compensation
Review of approach to benchmarking
Review of benchmark data
EC Compensation
Review of approach to benchmarking
Review of benchmark data and recommendations on individual compensation for EC members
Review of the share ownership of EC members
Review and approval of compensation for new and departing EC members
Performance – relating to past performance cycle
Assessment of short-term incentive awards for 2019
Assessment of achievement of performance targets for Long-Term Incentive Plan (LTIP) awards vesting in 2020
Performance – relating to forthcoming performance cycle
Setting of preliminary Annual Incentive Plan (AIP) targets for 2021
Setting of performance targets for LTIP awards granted in 2020
Review impact of Power Grids (PG) joint venture on LTIP targets
Updates on achievement against performance targets for 2020 AIP and unvested LTIP awards
Compliance
Review of the Swiss gender pay regulatory and disclosure requirements
Review of the LTIP rules
Review of feedback from Investor Engagement meetings
Regulatory and market updates
Review of the compensation report for publication
Preparation of maximum aggregate compensation for Board to be submitted for AGM vote
Preparation of maximum aggregate compensation for EC to be submitted for AGM vote

Board compensation policy

Overview

The compensation system for the members of the Board is designed to attract and retain experienced people on the Board. Compensation of Board members takes into account the responsibilities, time and effort required to fulfill their roles on the Board and its committees. A fixed fee is payable for the Chairman, Vice-Chairman and members of the Board, and additional fees are payable for chairing or membership of a Board Committee, except for the Chairman and Vice-Chairman.

Board members do not receive variable compensation or pension benefits, underscoring their focus on corporate strategy, supervision and governance. In accordance with Swiss law, Board members may not receive ‘golden parachutes’ or other special benefits in the event of a change of control. Board members are paid for their service over a 12-month period that starts with their election at the AGM. Payment of fees is made in semi-annual installments in arrears.

In order to further align the interests of the Board members with those of ABB’s shareholders, half of their fee must be paid in ABB shares, although Board members may choose to receive all of their fee in shares. The number of shares delivered is calculated prior to each semi-annual payment by dividing the monetary amount to which the Board members are entitled by the average closing price of the ABB share over a predefined 30-day period. The shares are subject to a three-year restriction period during which they cannot be sold, transferred or pledged. Any restricted shares are unblocked when the Board member leaves the Board.

Implementation of Board compensation policy

From time to time, the levels and mix of compensation of Board members are compared against the compensation of non-executive board members from a cross section of publicly traded companies in Switzerland that are part of the Swiss Market Index (i.e. Adecco, Alcon, Geberit, Givaudan, LafargeHolcim, Lonza, Richemont, SGS, Sika, Swisscom, Swiss Life, Zurich Insurance). Such a review was undertaken in 2020, and there was no adjustment made to Board fees for the term of office from the 2020 AGM to the 2021 AGM, as set out in Exhibit 3 below.

Exhibit 3: Current Board fees

	Board term fee (CHF)(1)
Chairman of the Board(2)	1,200,000
Vice-Chairman of the Board(2)	450,000
Member of the Board	290,000
Additional committee fees:	
Chairman of FACC(3)	110,000
Chairman of CC or GNC(3)	60,000
Member of FACC(3)	40,000
Member of CC or GNC(3)	30,000

(1) The Chairman and the Vice-Chairman do not receive any additional committee fees for their roles on the GNC.
(2) CC: Compensation Committee,
FACC: Finance, Audit and Compliance Committee,
GNC: Governance and Nomination Committee
(3) These fees do not reflect the 10 percent COVID-19 related voluntary donation in fees for the first half of the 2020-2021 Board term.

The compensation paid to the Board members for the calendar year 2020 and for the term of office from the 2020 AGM to the 2021 AGM are disclosed in Exhibits 24 and 25, respectively, in the section “Compensation and share ownership tables”.

At the 2020 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 4.70 million for the 2020-2021 Board term, the same as was approved for the previous Board term. The compensation actually paid was five percent lower than the prior term due to the voluntary donation of 10 percent of fees for a six-month period during 2020 to fight the impacts of the COVID-19 crisis. The Board compensation is therefore within the amount approved by the shareholders.

See Exhibit 4 below and Exhibit 25 in the section “Compensation and share ownership tables”.

Exhibit 4: Board compensation (in CHF)

	Board term	
Board of Directors	**2020–2021**	**2019–2020**
Number of members	11	11
Total compensation	4,436,500	4,670,000
Maximum aggregate compensation amount approved at AGM	4,700,000	4,700,000

Shareholdings of Board members

The members of the Board collectively owned less than one percent of ABB’s total shares outstanding at December 31, 2020.

Exhibit 26 in the section “Compensation and share ownership tables” shows the number of ABB shares held by each Board member at December 31, 2020 and 2019. Except as described in this Exhibit, no member of the Board and no person closely linked to a member of the Board held any shares of ABB or options in ABB shares.

In 2020, ABB did not pay any fees or compensation to the members of the Board for services rendered to ABB other than those disclosed in this Compensation Report.

Compensation of former Board members

In 2020, no payment was made to any former Board member.

Executive Committee compensation policy

Overview

ABB's compensation system reflects its commitment to attract, motivate and retain people with the talent necessary to strengthen ABB's position as a leading global technology company, connecting software to its electrification, robotics, automation and motion portfolio to drive performance to new levels.

The compensation system is designed to provide competitive compensation and to encourage executives to deliver outstanding results and create sustainable shareholder value without taking excessive risks. The compensation system balances:

- fixed and variable compensation;
- short-term and long-term incentives;
- the recognition of Group, business and individual performance.

Compensation structure – overview

The structure for EC members consists of an annual base salary, a short-term incentive plan (AIP) based on annual performance targets, a long-term incentive plan (LTIP) based on three-year performance targets, and benefits.

This structure is linked to our strategy and, as illustrated in Exhibits 5 and 6, a significant portion of total compensation depends on variable pay components which require the achievement of challenging performance targets.

Competitive positioning of compensation

The Board considers competitive market data when setting the compensation policy for the EC. It is also one of several factors in positioning the target compensation for individual EC members which include:

- market value of the role (external benchmarking);
- individual profile of the incumbent in terms of experience and skills;
- individual performance and potential;
- affordability for the Company.

The CC conducted a comprehensive review of its approach to competitive benchmarking, in the light of the new operating model, the 'ABB Way', the consequential change in responsibilities on the EC and the divestment of the Power Grids (PG) business.

As a result of this review, the number of competitive benchmarking peer groups has been reduced from four to three – a Global Industry peer group, a Pan-European Market peer group and a Swiss Market peer group. In all cases, these peer groups have been designed to match the size, scope and complexity of ABB. Companies from the financial services sector have been removed. The U.S. peer group was considered to be less relevant and was therefore removed.

The Global Industry peer group has been redesigned to a specifically tailored group of 16 peers/competitors matching the size, scope and complexity of ABB, selected from ABB's competitive landscape. It now includes companies in Asia, has a reduced number of companies in North America and excludes companies from the financial services sector.

The Pan-European Market peer group has been streamlined from its original 400 companies to a robust panel of 50 cross-industry organizations matching the size, scope and complexity of ABB, excluding companies from the financial services sector.

The Swiss Market peer group, included to reflect ABB's headquarters and listing location in Switzerland, consists of a panel of 16 cross-industry companies matching the size, scope and complexity of ABB, and excludes companies from the financial services sector.

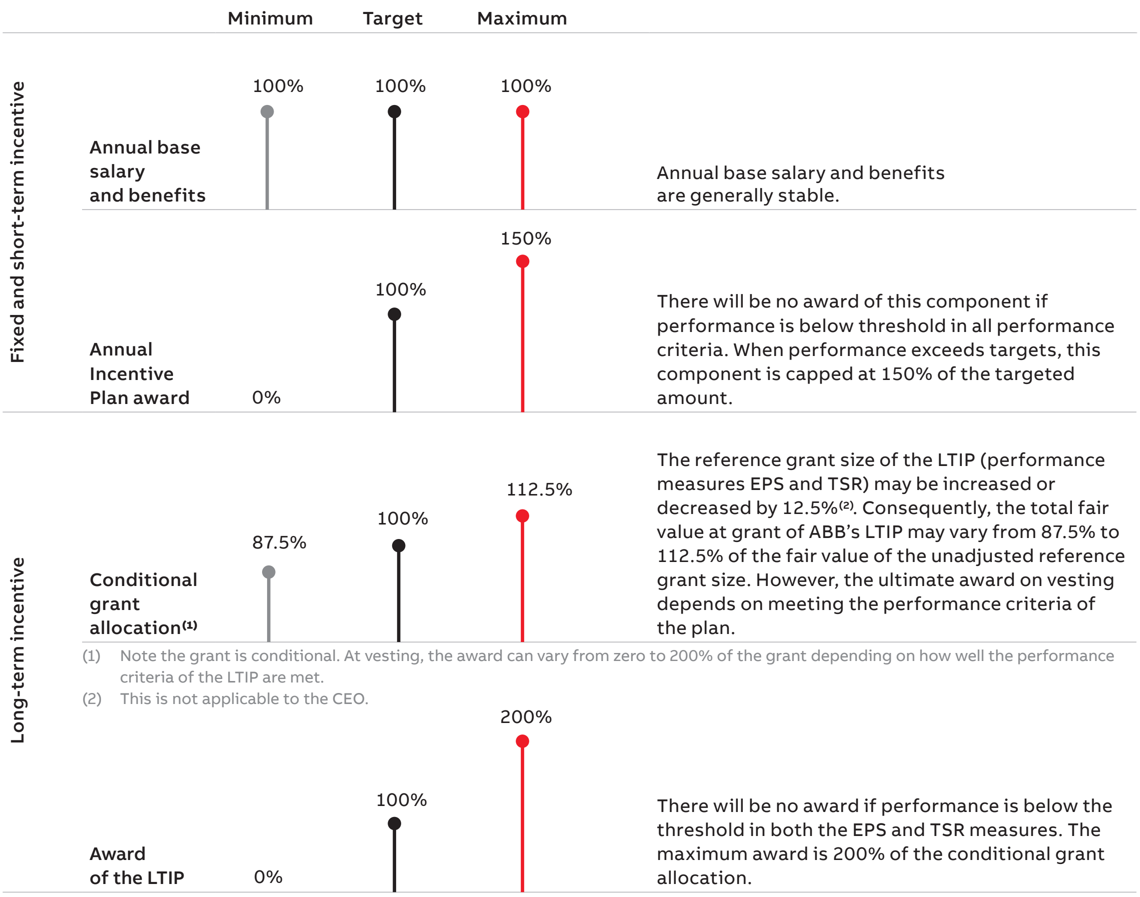
The use of these peer groups will depend on the nature of the role and the source of relevance. For example, a stronger emphasis will be placed on the Global Industry peer group for operational roles and in compensation design, and on the Pan-European Market peer group for functional roles. In all cases, the other two peer groups will be used to stress test the findings of the primary peer group (see the summary in Exhibit 7).

Exhibit 5: Structure of EC compensation as from 2021

Compensation structure	Fixed compensation – annual base salary and benefits	Short-term incentive (AIP)	Long-term incentive (LTIP)	Wealth at Risk/ Share Ownership
Purpose and link to strategy	Compensates EC members for the role	Rewards annual company and individual performance. Drives annual strategy implementation	Encourages creation of long-term, sustainable value for shareholders, and delivery of long term strategic goals	Aligns individual's personal wealth at risk directly to the ABB share price
Operation	Cash salary, benefits in kind, and pension contribution	Annual awards, payable in cash after a 1-year performance period	Annual awards in shares which may vest after 3 years subject to performance conditions	Individuals required to hold ABB shares
Opportunity level (as % of annual base salary)	Based on scope of responsibilities, individual experience and skillset	Target: 100% Maximum: 150%	CEO Target at grant: 150% Vesting: 0-300% EC Target at grant: 100% Vesting: 0-200%	CEO wealth at risk: 500% (net) EC wealth at risk: 400% (net)
Time period	Delivered in year	1 year	3 years	Total EC tenure
Performance measures	Changes to annual base salary takes into account the Executive's performance in the preceding year and potential for the future	All: ABB Op EBITA margin % (20-25%); Business measures, which may include, for example: ROCE, Business Area Op EBITA margin (%), productivity, OFCF (55-60%); All: individual objectives (20%); All: ESG boundary condition for awards	Relative TSR(1) (50%) Average EPS(2) (50%)	Direct link to ABB share price

(1) Total Shareholder Return.
(2) Earnings Per Share.

Exhibit 6: Compensation components under various scenarios



It is the intention to position target compensation for individual EC members between median and upper quartile of the relevant peer group(s) considering the other factors referenced above (e.g. skills, experience, performance, potential).

Exhibit 7: Compensation benchmarking peer groups

Reference	Composition	Rationale
Global Industry	A tailored group of 16 global industry peer companies[(1)], matching the scale and complexity of ABB	Focus for operational roles and benchmarking compensation design
Pan-European Market	A panel of 50 cross-industry European companies[(2)], matching the scale and complexity of ABB	Focus for functional roles; continuity and stability of data points
Swiss Market	A panel of 16 SMI and SMIM companies[(3)], matching the scale and complexity of ABB	Swiss listing and location of headquarters

(1) AB SKF, Alstom, Airbus, Atlas Copco, Denso, Eaton, Emerson Electric, Honeywell, Mitsubishi Electric, Mitsubishi Heavy Industries, Schneider Electric, Schindler, Siemens, Thermo Fisher Scientific, Toshiba and Traton.
(2) AB InBev, Adidas, Air Liquide, Associated British Foods, AstraZeneca, BAE Systems, Bayer, Bouygues, British American Tobacco, Compass Group, Continental, CRH, Danone, Endesa, EssilorLuxottica, Fresenius, Fresenius Medical Care, GlaxoSmith-Kline, HeidelbergCement, Heineken, Henkel, Hennes & Mauritz, Iberdrola, Imperial Brands, Industria de Diseno Textil, Jeronimo Martins SGPS, Kuehne & Nagel, LafargeHolcim, Linde, L'Oreal, Michelin, National Grid, Naturgy Energy Group, Nokia, Novartis, Novo Nordisk, OMV, Philips, Rio Tinto, Safran, Saint Gobain, Sanofi, SAP, Schneider Electric, Telefonaktiebolaget LM Ericsson, Thales, Umicore, Veolia Environment, Vinci, Vodafone.
(3) SMI: Swiss Market Index; SMIM: Swiss Market Index MID; Companies include: Adecco, Geberit, Givaudan, Glencore, Kuehne & Nagel, Lafarge Holcim, Nestle, Novartis, Richemont, Roche, Schindler, SGS, Sika, STMicroelectronics, Swatch, and Swisscom.

ABB is typically at the median of key comparator indicators (market capitalization, revenues, number of employees) against the Global Industry and Pan-European Market peer groups, and at the upper quartile of the Swiss Market peer group. See Exhibit 8.

Exhibit 8: Comparison of ABB to compensation benchmarking peer groups[(1)]

	Market capitalization[(2)(3)(4)]	Revenues[(2)(4)(5)]	Number of employees[(5)(6)]
ABB	**45.6**	**27.0**	**110,000**
Global Industry			
Upper Quartile	54.6	37.8	137,828
Median	31.1	29.2	94,500
Lower Quartile	12.4	16.5	72,827
Pan-European Market			
Upper Quartile	68.9	38.4	126,994
Median	37.4	26.9	95,331
Lower Quartile	18.2	22.2	61,450
Swiss Market			
Upper Quartile	31.6	31.7	93,930
Median	25.9	13.4	55,930
Lower Quartile	18.0	8.2	31,785

(1) Data sources for market capitalization, revenues and number of employees are Thomson Reuters or Annual Reports.
(2) Market capitalization and revenues are in CHF millions.
(3) Market capitalization is averaged over a period of three months (May 3, 2020 until August 3, 2020).
(4) Amounts have been translated to CHF using the one-year average rate from July 1, 2019 until June 30, 2020.
(5) Revenues and number of employees as per last financial year prior to October 2020.
(6) Number of employees in full-time equivalent (FTE) unless FTE information was not available, then in total number of employees.

Compensation elements

Fixed compensation – annual base salary and benefits

Purpose and link to strategy

- Compensates the EC members for the role.

Operation

- Fixed annual base salary and benefits.
- Benefits consist mainly of retirement, insurance and healthcare plans that are designed to provide a reasonable level of support for the employees and their dependents in case of retirement, disability or death. Benefit plans are in line with the local competitive and legal environment and are, at a minimum, in accordance with the legal requirements of the respective country.

Opportunity level

- Annual base salary based on the scope of responsibilities, individual experience and skill set.
- The monetary value of benefits is disclosed in Exhibit 27: EC compensation in 2020.

Performance measures

- When considering changes in annual base salary, the executive's performance during the preceding year against individual objectives as well as potential for the future are taken into account.

Annual Incentive Plan (AIP)

Purpose and link to strategy

The AIP is designed to reward EC members for the Group's results, the results of their business or function and their individual performance over a time horizon of one year.

Operation

- Annual cash award based on performance assessment over the given year.

Opportunity levels

- 100 percent of annual base salary at target, with a maximum opportunity of 150 percent.

Performance measures

- The AIP structure was revised for 2020 in the light of feedback from shareholders and other stakeholders, the new ABB operating model, and to further increase the focus on operational delivery and underpin our performance culture.
- It is designed to create focus on key priorities, with a maximum of five measures.
- In 2021, all EC members will have a common measure with a minimum 20 percent weighting.
- Up to three measures will be linked to specific Business Area needs, which have a total 60 percent weighting.
- All EC members will also have personal measures for the remaining total 20 percent weighting. This individual component is informed by up to three objectives which may include a combination of quantitative and qualitative goals.
  - One of these objectives will include a common safety measure – the percentage improvement in the Lost Time Incident Frequency Rate (LTIFR), underpinned by at least two sustainability observation tours.
  - The CC has a discretionary authority to adjust the AIP results based on safety performance, including fatalities.
  - The final outcome against this measure will be a discretionary judgment based on the combined performance against all objectives.
- For each performance measure, a target will be set corresponding to the expected level of performance that will generate a target (100 percent) award. Further, a minimum level of performance, below which there is no award (threshold) and a maximum level of performance, above which the award is capped at 150 percent of the target (cap), will also be defined. For qualitative Group and business measures, the award percentage achievements between threshold, target and the cap will be

Exhibit 9: 2021 Annual Incentive Plan for CEO – Measures and Weightings

Measure	Weighting (total 100%)	Description	Link to Strategy
Group Operational EBITA % (Common measure)	**25.00%**	Operational EBITA margin is Operational EBITA (as defined in "Note 23 – Operating segment and geographic data" to the Consolidated Financial Statements) as a percentage of Operational revenues, which is total revenues adjusted for foreign exchange/commodity timing differences in total revenues	Increased weighting on Group Operational EBITA to focus on strategic execution and improving margin, resulting in a strong bottom line
Group ROCE %	**25.00%**	ROCE is calculated as Operational EBITA after tax divided by the average of the period's opening and closing Capital employed, adjusted to reflect impacts from significant acquisitions/ divestments occurring during the same period. Capital employed is calculated as the sum of Adjusted total fixed assets and Net working capital	ROCE reflects the strong focus on delivering high return on capital employed in both business operations and corporate portfolio management
Group Productivity	**10.00%**	Calculation is based on the 12-month rolling revenues over the average number of total workforce in the last three months. Productivity growth is the change of productivity over the same period a year earlier, represented in percentage change	An increase in productivity will lead to an improvement in margin and drive overall performance
Group FCF (Free cash flow)	**20.00%**	Free cash flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, and (ii) proceeds from sales of property, plant and equipment	Operating cash flow has been replaced by free cash flow to better focus on cash available to return to shareholders
Individual Measure	**20.00%**	Linked to a maximum of three KPIs, which will include safety targets related to the Lost Time Incident Frequency Rate (LTIFR). LTIFR is seen as a clear indicator of the effectiveness of incident prevention programs in ABB	Reflecting importance of safety agenda in keeping it with the sustainability strategy and commitment to achieve excellence in health, safety and the environment at ABB
ESG Boundary Condition for awards		Setting of plans in each ABB Division to mitigate for ABB scope 1 and 2 emissions	Aligned to ABB's sustainability strategy and associated targets

determined by linear interpolations from target to threshold and target to cap.
- Outcomes may be subject to appropriate discretionary upward or downward adjustments for non-operational items and other adjustment principles agreed with the Board.
  - For example, in 2020, this included caps on outcomes for Corporate Officers to ensure there were not unintended windfalls due to the impact of the COVID-19 crisis on cost or other qualitative measures.
- From 2021, progress against defined ESG target(s) will be a 'boundary condition' for making AIP awards. Under this approach, the Board will, each year, agree specific ESG target(s) and review whether the Company had made sufficient progress at the end of the year to justify making the indicated AIP award. If, in the opinion of the Board, insufficient progress has been made, the AIP award may be reduced on a discretionary basis. For 2021, the 'boundary condition' will be the setting of plans in each ABB Division to mitigate for ABB scope 1 and 2 emissions.
- An illustration of the measures to be applied to the CEO for 2021 is set out in Exhibit 9.

Long-term incentive Plan (LTIP)

Purpose and link to strategy

- Aimed at driving long-term shareholder value creation in a sustainable manner. It rewards the achievement of predefined performance goals over a three-year period.

Operation

- Annual Conditional Grant.
- Target LTIP grant values are defined as a percentage of annual base salary (see Exhibit 10 below).

Exhibit 10: Target LTIP grant value (% of annual base salary)

	EPS measure	TSR measure	Total
CEO	75%	75%	150%
EC[1]	40-50%	40-50%	80-100%

(1) The target grant value for the Chief Communications Officer (CCO) is set at 80 percent of annual base salary.

- The total value of the grant size for EC members as a pool may be increased or decreased by the Board by up to 12.5 percent. This does not apply to the CEO.
- The number of shares to be granted is determined by dividing the grant value by the average share price over the period 20 trading days prior, and 20 trading days after, the date of publication of ABB's full year financial results. Settlement of the LTIP is three years after grant, subject to achievement of performance conditions, defined prior to grant.
- The actual settlement value of awards will vary between zero and 200 percent of the grant value according to achievement against two equally weighted performance measures, one tied to ABB's EPS and one to ABB's TSR (see performance measures section).
- Default settlement of the final LTIP award is 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes.
- LTIP shares are subject to malus and clawback rules, which include illegal activities and any financial misstatement that has a material impact on any Group company. This means that the Board of Directors may decide not to pay any unpaid or unvested incentive compensation (malus), or may seek to recover incentive compensation that has been paid in the past (clawback).
- The CC also has the ability to suspend the payment of awards if it is likely that the Board determines that the malus or clawback provisions may potentially apply (e.g. if the employee is subject to an external investigation), in line with leading market practice.
- For awards from 2021, the LTIP rules will be amended to remove the automatic accelerated vesting of awards in the event of a change of control.

Performance measures

TSR

- Achievement against this measure is determined by ABB's relative TSR performance against a defined peer group.
- The constituents of the peer group and the appropriate threshold (zero), target (100 percent) and maximum (200 percent) award points are reviewed by the CC on an annual basis.
- The TSR calculations are made for the reference period beginning in the year of the conditional grant of the shares and ending three years later. The evaluation is performed by an independent third party.

EPS

- Achievement against this measure is determined by ABB's average EPS over a three-year period.
- The average EPS result is calculated from the sum of EPS for each of the three relevant years, divided by three.
- EPS is defined as 'Diluted earnings per share attributable to ABB shareholders, calculated using Income from continuing operations, net of tax, unless the Board elects to calculate using Net income for a particular year'.
- Appropriate threshold (zero), target (100 percent) and maximum (200 percent) award points are reviewed by the CC on an annual basis.

- Performance target points are set using an 'outside-in' view, taking into account the growth expectations, risk profile, investment levels and profitability levels that are typical for the industry.
- This 'outside-in' approach is provided by external advisors and assumes that investors expect a risk-adjusted return on their investment, which is based on market value (and not on book value) and translates such expected returns over a three-year period into EPS targets.
- Adjustments to the outcome of the EPS may be considered for items which are not part or the result of the normal course of business operation and/or which were not considered, either by way of inclusion or exclusion, for the target setting of a specific LTIP launch. Only the net impact of such adjustments over the vesting period of the respective LTIP grant will be considered.

Total wealth at risk

Purpose and link to strategy

- To align EC members' interests with those of shareholders in order to maintain focus on the long-term success of the Company.
- Wealth at risk is broadly defined as two components – namely personal share ownership and unvested shares arising from the Company's share grants (e.g. LTIP grants).

Share ownership program

- EC members are required to retain all shares vested from the Company's LTIP and any other share-based compensation until his or her share ownership requirement is met. In circumstances where there is a withholding tax obligation, the number of shares received will be considered to be the number of shares vested minus the shares sold under the default sell-to-cover facility.
- The share ownership requirement is equivalent to a multiple of the EC member's annual base salary, net of tax (see Exhibit 11).
- These shareholding requirements are significantly above market practice and result in a wealth at risk for each EC member which is aligned with shareholder interests.

Exhibit 11: Share ownership requirement

CEO	5 × annual base salary, net of tax
Other EC members	4 × annual base salary, net of tax

- Only vested shares owned by an EC member and the member's spouse are included in the share ownership calculation. Vested but unexercised and unvested stock options under the "Management Incentive Plan" MIP are not considered for this purpose.
- The CC reviews the status of EC share ownership on an annual basis. It also reviews the required shareholding amounts annually, based on salary and expected share price developments.

Notice period, severance provisions and non-competition clauses

Operation

- Employment contracts for EC members include a notice period of 12 months, during which they are entitled to their annual base salary, benefits and short-term incentive. In accordance with Swiss law and ABB's Articles of Incorporation, the contracts for the EC members do not allow for any severance payment.
- Non-compete agreements have been entered into with the CEO and all EC members for a period of 12 months after their employment. Compensation for such agreements, if any, may not exceed the EC member's last total annual compensation (annual base salary, short-term incentive and benefits).

Implementation of executive compensation policy

Overview

EC members received total compensation of CHF 35.4 million in 2020 compared with CHF 51.4 million in 2019, as summarized in Exhibit 12 below and presented in detail in Exhibits 27 and 28.

Exhibit 12: Total compensation of EC members (in CHF millions)(1)

	2020	2019
Base salaries	8.4	12.1
Pension benefits	4.5	5.5
Other benefits	5.9	6.9
Total fixed compensation	**18.8**	**24.5**
Short-term incentives	6.8	12.7
Long-term incentives (fair value at grant)	6.5	12.6
Replacement share grants	3.3	1.6
Total variable compensation	**16.6**	**26.9**
Total compensation	**35.4**	**51.4**

(1) Has been adjusted for rounding where appropriate.
For an overview of compensation by individual and component, please refer to Exhibit 27 and Exhibit 28 in "Compensation and share ownership tables". An overview of 2020 realized compensation by individual is in Exhibit 33.

This 31 percent decrease in total compensation was influenced by the reduction in the number of active EC members, lower payments to former EC members, EC members voluntarily donating 10 percent of their salary to fight the impacts of the COVID-19 pandemic for a six-month period during

2020, and much lower short-term incentive awards due to the impact of COVID-19.

At the 2019 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 55.5 million for the EC for the year 2020. The EC compensation for 2020 amounted to CHF 35.4 million and is within the approved amount. See Exhibit 13 below.

Exhibit 13: EC compensation (in CHF)

	Calendar year	
Executive Committee	**2020**	**2019**
Number of members	9	11
Total compensation	35,448,118(1)	51,355,121
Maximum aggregate compensation amount approved at AGM	55,500,000	52,000,000

(1) Total compensation for 2020 compared to 2019 was lower mainly due to the reduction in the number of active EC members, lower payments to former EC members, and lower short-term incentive awards due to the impact of COVID-19.

Overall ratio of compensation components

The ratio of fixed to variable components in any given year depends on the performance of the Company and individual EC members against predefined performance objectives.

In 2020, the variable compensation of the new CEO was 51 percent of his total annual compensation (previous year: 52 percent applicable to the previous interim CEO). The total annual compensation for the new CEO excludes the value of the one-time replacement share grant to compensate for foregone benefits with the previous employer. For the other EC members, the variable compensation represented an average of 41 percent (previous year: 45 percent).

Terms of appointment for new Executive Committee members

The new Chief Human Resources Officer (CHRO), Carolina Granat, was appointed to the EC effective from January 1, 2021 with an annual base salary of CHF 700,000, a target short-term and long-term incentive of 100 percent of annual base salary. This represents a reduction in total target direct compensation (TTDC) compared to the prior incumbent. She is eligible for standard EC benefits and, where appropriate legacy relocation benefits.

The Chief Communications Officer (CCO), Theodor Swedjemark, was appointed to a new EC position on August 1, 2020, with an annual base salary of CHF 500,000, a target short-term incentive of 100 percent of annual base salary and a target long-term incentive of 80 percent of annual base salary, leading to a TTDC of CHF 1,400,000. He is eligible for standard EC benefits.

Compensation elements – 2020 highlights

Annual base salary

Three of the nine EC members in place in March 2020 received a salary adjustment, which ranged from 4.3 to 7.1 percent, the latter being for an exceptional performance and market adjustment. This corresponded to a 1.6 percent increase on annual base salaries for the EC members in post in March 2020.

Short-term incentive - design

As disclosed in the 2019 Compensation Report, ABB’s short-term incentive, the Annual Incentive Plan (AIP), was redesigned in 2020 to create focus on key priorities, with a maximum of five performance measures.

Under the AIP, all members of the EC have a common measure, with a 20 to 25 percent weighting. In 2020, this was Group ROCE - designed to create a greater focus on profitability and the efficiency with which capital is used.

In line with the new ABB operating model, up to three measures were linked to specific Business Area or Function needs, rather than having largely common measures for all EC members. Together, these Business Area or Functional measures had a total of 55 to 60 percent weighting.

- For the CEO and CCO, the measures were Group Operational EBITA margin (%), Group Revenue and Group Free Cash Flow.
- For Business Area Presidents, measures were tailored to business imperatives and included their respective Business Area Operational EBITA (absolute), Operational EBITA margin (%), Net Working Capital, Operational Free Cash Flow (OFCF), Orders received, and absolute Gross Profit on orders.
- For other Corporate Officers, measures included Group financial measures, corporate function cost and progress against functional imperatives such as functional effectiveness and the completion of the divestment of the PG business. As a reminder, in 2021 all Corporate Officers will move to the same Group quantitative measures as the CEO.

Definitions of the quantitative measures for EC members used above are set out in the Exhibit 14.

Exhibit 14: Business Area and Function specific quantitative objectives in 2020

Objective	Description
ROCE %	ROCE is calculated as Operational EBITA after tax divided by the average of the period's opening and closing Capital employed, adjusted to reflect impacts from significant acquisitions/divestments occurring during the same period. Capital employed is calculated as the sum of Adjusted total fixed assets and Net Working Capital
Operational EBITA (absolute)(1)	Operational EBITA (as defined in "Note 23 – Operating segment and geographic data" to the Consolidated Financial Statements) is a profit measure before interest, tax and amortization expenses. It excludes non-operational items such as restructuring, foreign exchange/commodity timing differences, M&A transaction and integration costs and certain other non-operational items
Operational EBITA margin (%)	Operational EBITA margin is Operational EBITA as a percentage of Operational revenues, which is total revenues adjusted for foreign exchange/commodity timing differences in total revenues
Free Cash Flow (FCF)	Free Cash Flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, and (ii) proceeds from sales of property, plant and equipment
Operational Free Cash Flow (OFCF)	Cash generated by business operations after paying expenditures but before paying interests and taxes (OCF(2) minus Capital expenditures)
Function Cost	Total operating costs of the function that include the personnel costs and other operating expenses such as rent, travel, consultancy, communication, office administration and other related expenses to run the function
Net Working Capital(1)	Net Working Capital is the sum of (i) receivables, net, (ii) contract assets, (iii) inventories, net, and (iv) prepaid expenses; less (v) accounts payable, trade, (vi) contract liabilities, and (vii) other current liabilities (excluding primarily: (a) income taxes payable, (b) current derivative liabilities, (c) pension and other employee benefits, (d) payables under the share buyback program and (e) liabilities related to the divestment of the Power Grids business); and including the amounts related to these accounts which have been presented as either assets or liabilities held for sale but excluding any amounts included in discontinued operations
Orders received	Represents the values of goods and services contracted and ordered by customers within a given accounting period net of cancellations
Gross Profit on orders (absolute)(1)	Gross profit on orders is calculated by deducting the total costs to complete the order from the total revenue value of the order
Revenues	Revenues realized from executing and fulfilling customer orders, before any costs or expenses are deducted

(1) Applied to Industrial Automation Business Area only.
(2) Cash flow from operating activities excluding payments for interest and income taxes.

All EC members also had an individual measure with a 20 percent weighting. This individual component was informed by up to three objectives, which included a combination of quantitative and qualitative objectives. The final outcome against this measure was based on a discretionary judgment of the combined performance against all objectives.

- In 2020, all the EC had a common safety objective – namely relevant improvement targets for the Total Recordable Incident Frequency Rate (TRIFR) – for the CEO and Corporate Officers, these related to Group targets, and for Business Area Presidents their respective Business Areas targets.
- For the CEO, the other two objectives were linked to the delivery of the long-term Group strategy and of the Group sustainability strategy and targets.
- For other EC members, objectives included qualitative and/or quantitative objectives such as establishing robust internal controls, delivery of digital goals and business transformation.

The relative weighting and composition of Group, Business Area, Functional and Individual measures for EC members for 2020 are summarized in Exhibit 15.

Exhibit 15: Weighting and composition of objectives for EC members for 2020

	CEO(1)	Business Area Presidents	Corporate Officers(2)
Group measures	80%	20%	20%
Business Area/ Functional measures	n.a.	60%	60%
Individual measures	20%	20%	20%
Overall composition of AIP measures:			
- Quantitative	80%	80%+	40-80%
- Qualitative	20%	Up to 20%	20-60%

(1) Chief Communications Officer (CCO) replicated CEO measures in 2020 (targets in individual measure varied).
(2) Chief Financial Officer (CFO), Chief Human Resources Officer (CHRO) and General Counsel (GC).

For each measure, a target was set corresponding to the expected level of performance that would generate a target (100 percent) award. Further, a minimum level of performance, below which there is no award (threshold) and a maximum level of performance, above which the award is capped at 150 percent of the target (cap), were also defined. For qualitative Group, Business Area and Functional measures, the award percentage achievements between threshold and target, as well as between target and cap were determined by linear interpolations between these points.

Outcomes were subject to appropriate discretionary upward or downward adjustments for some non-operational items and other adjustment principles agreed with the Board.

2020 Annual Incentive Plan (AIP) – outcomes

In summary, the average award for the EC under the AIP for 2020 was 72.4 percent (out of a maximum 150 percent), compared to 94.7 percent in 2019. This significant drop in outcomes from the prior year was heavily influenced by the impact on the business from COVID-19.

The 2020 AIP outcomes were net of the application of adjustments for some non-operational items and other adjustment principles agreed with the Board, specifically including balance sheet risk mitigation actions, where the benefits will be factored into the settling of future AIP targets. It also included caps on outcomes for Corporate Officers to ensure there were not unintended windfalls due to the impact of the COVID-19 crisis on cost or other qualitative measures. The average outcome for the EC without the application of these adjustments would have been nine percent lower.

Common measure

Achievement against the 2020 Group ROCE measure, which applied to all EC members, with a weighting of 20-25 percentage, was zero percent (2019: n.a.). The Group's ROCE was 10.3 percent compared to 11.1 percent in 2019, reflecting the recognition of the investment in the Power Grids business joint venture as well as lower business activity.

Group measures

The outcome related to the other Group measures, which were applied to the CEO and CCO, with weightings of 10 to 25 percent, ranged from zero to 109 percent and the weighted achievement related to all Group measures, including the common measure is 35 percent.

Exhibit 16: 'At a Glance' STI 2020 outcomes (rounded, with 2019 comparisons)

	2020 (% of target) Group[(1)]	2020 (% of target) Business Area Presidents	2020 (% of target) Corporate Officers	2019 (% of target)
Common Measure				
Group ROCE	0%	0%	0%	n.a.
Group Measures				
Cost Savings	n.a.			149%
Free Cash Flow	109%			n.a.
Operational Net Income	n.a.			79%
Operational EBITA margin (%)	53%			83%
Operational Cash Flow	n.a.			93%
Revenues	0%			89%
Weighted Group results (Common + Group measures)	**35%**			**97%**
Business Area Measures[(2)]				
Gross Profit on orders (absolute)		0%		
Operational EBITA margin (%)		0 - 95%		
Orders received		0 - 83%		
Operational Free Cash Flow		106 - 150%		
Operational EBITA (absolute)		0%		
Net Working Capital		105%		
Range of results		**0 - 150%**		
Weighted Business Area results (Common + Business Area measures)		**21 - 66%**		**n.a.**
Functional Measures				
Range of results[(2)(3)]			53 - 125%	n.a.
Weighted Functional results (Common + Functional measures)			**47 - 61%**	**n.a.**
Individual Measures				
Range of results[(4)]		100 - 150%		59 - 111%
Combined AIP results from Common, Group, Business Area/Functional and Individual Measures				
Range of outcomes[(4)]		51 - 96%		72 - 106%
Overall Average[(4)]		**72%**		**95%**

(1) Applied to CEO and CCO in 2020. Therefore CCO is excluded from Corporate Officers data.
(2) Up to three business measures were applied to each Business Area President and Corporate Officer.
(3) May include Group measures and after the application of relevant caps.
(4) Applies to all Executive Committee members.

Exhibit 17: Overview of targeted and realized AIP 2020 values

	Target AIP award (in % of base salary)	Target AIP award (in CHF)[1]	Actual AIP award (in % of target)	Actual AIP award (in CHF)[2]
Björn Rosengren[3]	100%	1,504,131	65.0%	977,685
Timo Ihamuotila	100%	902,500	77.4%	698,535
Sylvia Hill	100%	730,000	75.0%	547,500
Maria Varsellona	100%	760,000	86.3%	655,880
Theodor Swedjemark[4]	100%	200,000	65.0%	130,000
Sami Atiya	100%	760,000	55.0%	418,000
Tarak Mehta	100%	855,000	81.3%	695,115
Peter Terwiesch	100%	760,000	51.0%	387,600
Morten Wierod	100%	712,500	95.6%	681,150
Total		**7,184,131**		**5,191,465**

(1) Inclusive of adjustments for the COVID-19 salary donation program and pro-rating for time served on the EC.
(2) Represents accrued AIP award for the year 2020, which will be paid in 2021, after the publication of ABB's financial results.
(3) Björn Rosengren joined the EC on January 27, 2020.
(4) Theodor Swedjemark joined the EC on August 1, 2020.

Business Area and Functional measures

Up to three quantitative business measures were applied to Business Area Presidents, with weightings from 15 to 40 percent, and the outcomes ranged from zero to 150 percent of target.

Up to three qualitative or quantitative business measures were applied to the CFO, CHRO and GC ('Corporate Officers'), with weightings from 15 to 25 percent, and the outcomes ranged from 53 to 125 percent of target.

Individual Measures

Thanks to the Company's strong focus on safety, in 2020 the target set for the Total Recordable Incident Frequency Rate (TRIFR) – has been over-achieved at the Group level, resulting from the majority of Business Areas and Functions having overachieved their targets.

In summary, for EC members the assessed achievement of objectives representing the personal component, inclusive of the safety outcomes described, which has a weighting of 20 percent, ranged from 100 to 150 percent of target for 2020. This compared to a range of 59 to 111 percent in 2019.

Overall outcomes

The overall average award under the AIP for the entire EC was 72.4 percent of target (2019: 94.7 percent) with a range from 51.0 percent (lowest achievement) to 95.6 percent of target (highest achievement). This compared to a range of 72.0 to 106.2 percent in 2019.

These outcomes are summarized in Exhibit 16 on the previous page.

The table above (Exhibit 17) provides information related to the actual 2020 AIP achievement, in comparison to the target for all active EC members.

2020 Long-term incentive plan outcomes

The estimated value at grant of the share-based grants to EC members under the 2020 LTIP award was CHF 6.5 million, compared with CHF 12.6 million in 2019. This deviation is primarily driven from the reduction in the numbers of EC members between 2019 (11 EC members) and 2020 (9 EC members).

The companies approved by the Board to determine ABB's relative TSR performance for the 2020 LTIP were: 3M, Danaher, Eaton, Emerson Electric, General Electric, Honeywell Intl., LafargeHolcim, Legrand, Mitsubishi Electric, Raytheon Technologies, Rockwell, Rolls Royce, Schneider Electric, Siemens and Yokogawa. Note that LafargeHolcim replaced ThyssenKrupp, which had been previously included in the peer group. These were selected to provide an appropriate and very challenging set of peers, and influenced the payment point setting accordingly (see Exhibit 18).

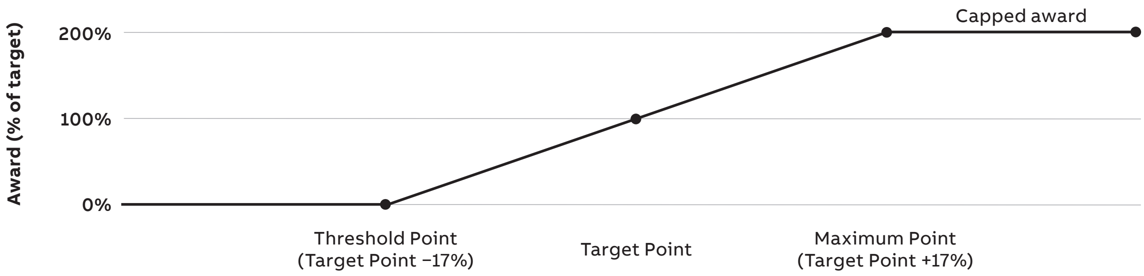
The EPS targets for the 2020 LTIP, which were set before the COVID-19 crisis occurred, were not changed for the impact of COVID-19. This may have a materially negative impact on the final amount which may be delivered under the award.

The reference price for the 2020 LTIP grant which is used to determine the number of shares granted to participants was set in March, during a time of high market volatility due to the COVID-19 crisis. Given the high variability between the formulaic outcome of the reference price under the LTIP rules, of CHF 23.00, and the share price near the date of grant, in the region of CHF 16.00, it was decided to use the prior year's reference price of CHF 19.36.

Also note that, from 2020, for the top 100 senior leaders outside the EC, future grants under the "Management Incentive Plan" (MIP) – a stock

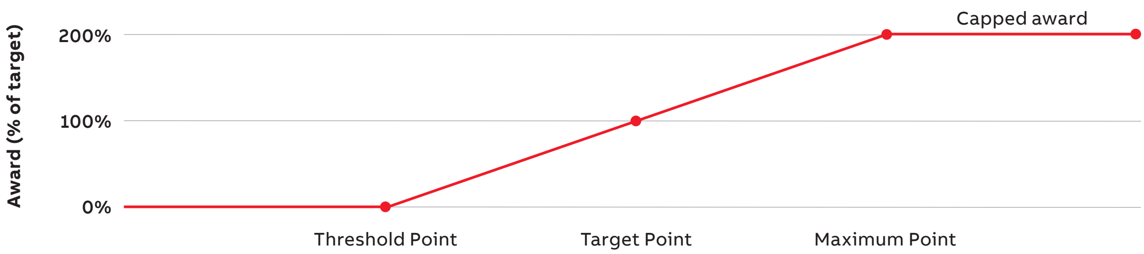
Exhibit 18: 2020 LTIP Targets

EPS award curve for the 2020 LTIP



Threshold point: no award; target point: 100% award; maximum point: capped at 200% award; linear award between points.
The actual EPS target is not prospectively disclosed for reasons of commercial sensitivity.

TSR award curve for the 2020 LTIP



Threshold point: TSR performance within the lower (0–25%) quartile: no award.
Target point: TSR performance at the median performing company: 100% award.
Maximum point: TSR performance within the upper (75–100%) quartile: 200% award.
Linear award between points.

option plan, without performance conditions – were discontinued and replaced by the LTIP. Other employees previously eligible to receive grants under the MIP received grants under a restricted share plan.

The 2020 LTIP award curves are also illustrated in Exhibit 18 above.

The change in the EPS award curve for the 2020 LTIP (range cut from plus/minus 25 percent of target to plus/minus 17 percent of target) is a reflection of the perceived EPS volatility during the performance period, and also serves to make the achievement of a threshold award under the plan more demanding.

2017 LTIP outcome

The final number of shares vesting under the 2017 LTIP grant in 2020 was determined based on the achievement level against the defined Net income and EPS targets. The Net income measure was achieved at 105 percent (2016 grant 100 percent) out of a potential of 150 percent.

The CC exercised its discretion to apply Net income to determine EPS rather than income from continuing operations, net of tax, given the move of the Power Grids business into discontinued operations. The average EPS measure vested at 41 percent (previous year: 85 percent) out of a potential 200 percent, net of adjustments for items considered outside the normal course of business operation and/or which were not considered in the target setting of the 2017 LTIP. On this occasion, adjustments were made for the impact of divestments, integration and restructuring costs. Without the impact of the approved adjustments the vesting level would have been 21 percent.

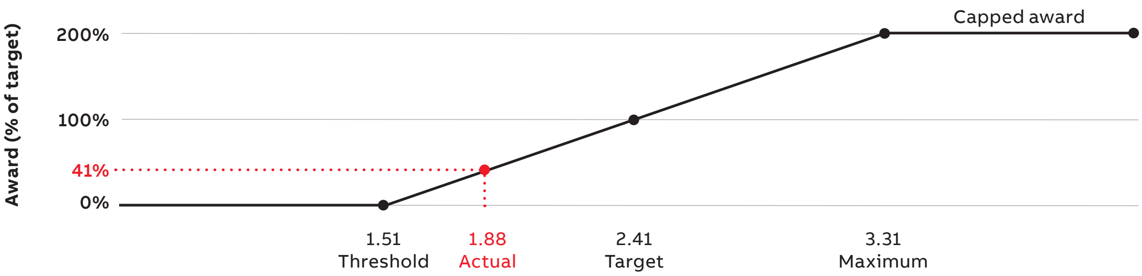
The average achievement level of the two performance measures under the 2017 LTIP was 73.0 percent (out of a maximum 175 percent), with the actual level varying by individual EC member, from 69.4 to 75.4 percent, as specified in Exhibit 20.

Since the performance period for determining the value of the award was from 2017 to 2019, the outcome was not affected by the impact of COVID-19.

As announced in our 2019 Compensation Report, the EPS performance targets for vested LTIP awards will be retrospectively disclosed in our Compensation Reports. The three target points (threshold, target and maximum) and the actual achievement for the 2017 EPS performance measure are shown in Exhibit 19.

Exhibit 19: 2017 LTIP EPS performance measure

LTIP 2017: Actual 3 year average EPS achievement



Target points and actual achievement in USD

(1) Net income used to determine EPS rather than income from continuing operations, net of tax, given the move of the Power Grids business into discontinued operations.
(2) Actual value shown net of adjustments for items considered outside the normal course of business operation and/or which were not considered in the target setting of the LTIP. Please note that as a result of the adjustments applied, the EPS number shown above will not reconcile with EPS calculated based on Net income only.

Overview of disclosed and realized LTIP 2017 value

A new table (Exhibit 20), requested by stakeholders, provides information related to the LTIP 2017 grant, showing the previously disclosed 'fair value' of the grant to each EC member and the actual value of the grant at the time of delivery in 2020. Values are gross, e.g. before payment of any applicable taxes. This indicates the gross realized value was 65.4 percent of the disclosed grant fair value.

Exhibit 20: Realized value of 2017 LTIP grant

	2017 LTIP grant date	Shares granted related to the Net income measure(1)	Shares granted related to the EPS measure(2)	Total number of shares granted	Disclosed grant fair value(3)	2017 LTIP vesting date	Vesting percentage	Number of vested shares	Realized value(4)
Björn Rosengren	n.a.								
Timo Ihamuotila	June 13, 2017	20,500	20,500	41,000	998,965	June 13, 2020	73.0%	29,930	593,811
Sylvia Hill	n.a.								
Maria Varsellona	n.a.								
Theodor Swedjemark	n.a.								
Sami Atiya	June 13, 2017	18,691	16,044	34,735	845,147	June 13, 2020	75.4%	26,205	519,907
Tarak Mehta	June 13, 2017	15,331	19,163	34,494	842,145	June 13, 2020	69.4%	23,955	475,267
Peter Terwiesch	June 13, 2017	19,989	17,158	37,147	903,833	June 13, 2020	75.4%	28,024	555,996
Morten Wierod	June 13, 2017	7,029	7,029	14,058	n.a.	June 13, 2020	73.0%	10,263	203,618
Total					**3,590,090**				**2,348,599**

(1) Actual achievement level of the Net income measure was 105 percent.
(2) Actual achievement level of the EPS measure was 41 percent.
(3) At the time of disclosure Morten Wierod was not member of the EC.
(4) Valued at CHF 19.84, the closing price of the ABB share on the day of vesting

Historical vesting outcomes

The historical vesting percentages for the prior five years are shown in Exhibit 21 below. Over the last five years vesting has averaged at 79.6 percent of target and 53.1 percent of the maximum award.

Exhibit 21: LTIP historical actual vesting percentages(1)

	Plan Year of Award				
	2013	2014	2015	2016	2017
Vesting in % of target award	77.2%	74.8%	80.5%	92.5%	73.0%
Vesting in % of maximum potential award	55.1%	53.4%	53.7%	61.7%	41.7%

(1) Average of relevant performance measures.

Shareholdings of EC members

Three out of nine EC members have achieved or exceeded their share ownership requirement. A further five members have been newly appointed to the EC in the last two years. The EC members collectively owned less than 1 percent of ABB's total shares outstanding at December 31, 2020.

At December 31, 2020, members of the EC held ABB shares and conditional rights to receive shares, as shown in Exhibit 31 in the section "Compensation and share ownership tables". Their holdings at December 31, 2019, are shown in Exhibit 32 in the section "Compensation and share ownership tables".

As previously stated, no further grants will be made under the Management Incentive Plan (MIP), a stock option plan without performance conditions. Any MIP instruments held by EC members were awarded prior to their appointment as EC members. For a more detailed description of MIP, please refer to "Note 18 – Share-based payment arrangements" in our Consolidated Financial Statements.

Except as described in Exhibits 29 and 30, no member of the EC and no person closely linked to a member of the EC held any shares of ABB or options on ABB shares at December 31, 2020 and 2019.

Other compensation

Members of the EC are eligible to participate in the Employee Share Acquisition Plan (ESAP), a savings plan based on stock options, which is open to employees around the world. Five members of the EC participated in the 17th annual launch of the plan in 2020. EC members who participated will, upon vesting, each be entitled to acquire up to 440 ABB shares at CHF 22.87 per share, the market share price at the start of the 2020 launch.

For a more detailed description of the ESAP, please refer to "Note 18 – Share-based payment arrangements" in our Consolidated Financial Statements.

In 2020, ABB did not pay any fees or compensation to the members of the EC for services rendered to ABB other than those disclosed in this Compensation Report. Except as disclosed in the section titled "Executive Committee – Business relationships between ABB and its EC members" in the Corporate Governance Report, ABB did not pay any additional fees or compensation in 2020 to persons closely linked to a member of the EC for services rendered to ABB.

Terms of departure for former EC members

The former CHRO, Sylvia Hill, will continue to receive her annual base salary and benefits during her notice period, until her termination date, on December 31, 2021. She will receive a short-term incentive payment for 2021, based on the average short-term incentive award percentages achieved in 2019 and 2020, at the termination date. Outstanding LTIP grants made for the years 2019 and 2020 will be settled according to the plan-related vesting schedule, subject to achievement against the relevant performance conditions. Legacy MIP awards may be exercised up to one year following the termination date. She withdrew from the voluntary 10 percent salary donation program.

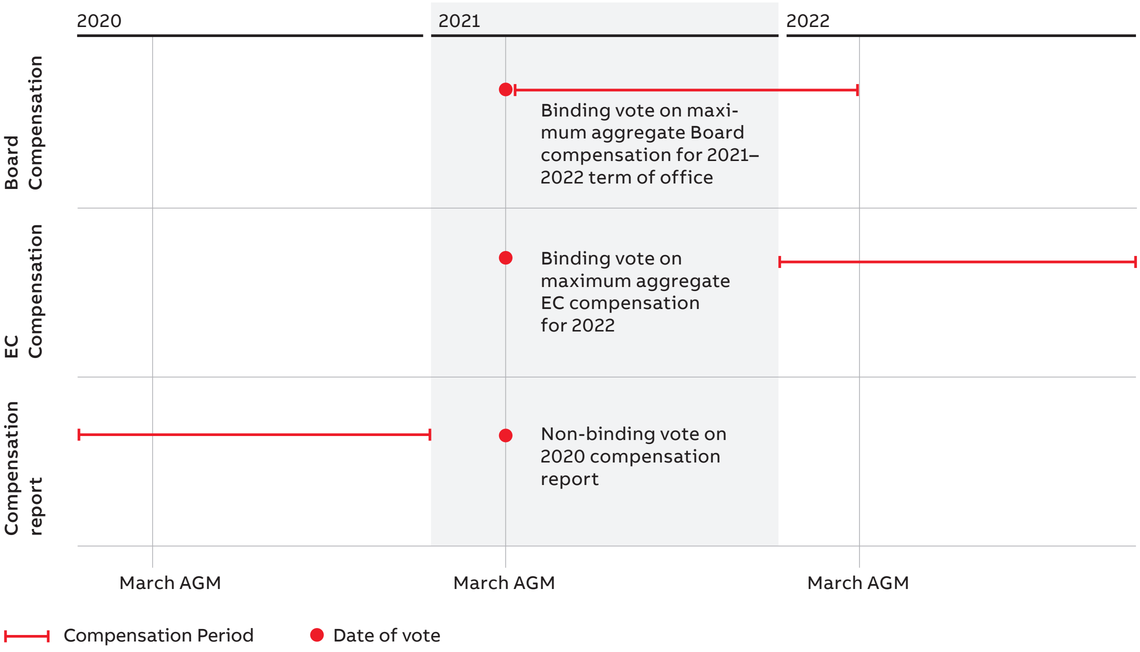
Compensation of former EC members

In 2020, certain former EC members received contractual compensation for the period after leaving the EC, as shown in Exhibit 27, footnotes (6) and (7).

Votes on compensation at the 2021 AGM

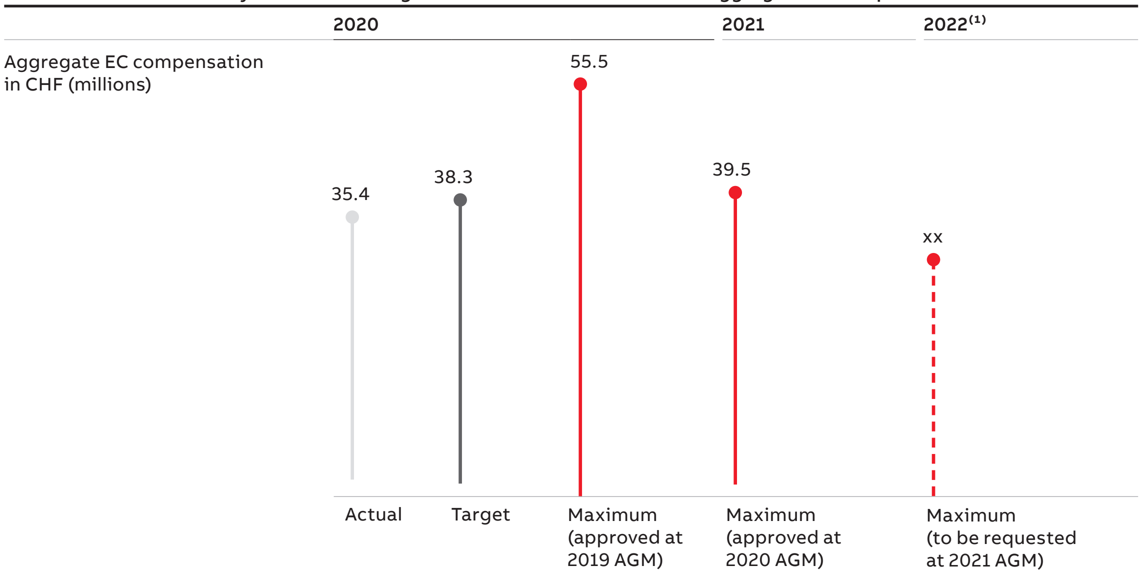
As illustrated in Exhibit 22, the Board's proposals to shareholders at the 2021 AGM will relate to Board compensation for the 2021–2022 term of office and EC compensation for the calendar year 2022. There will also be a non-binding vote on the 2020 Compensation Report.

Exhibit 22: Shareholders will have three separate votes on compensation at the 2021 AGM



In determining the proposed maximum aggregate EC compensation, the Board takes into consideration the criteria illustrated in Exhibit 23. Given the variable nature of a major portion of the compensation components, the proposed maximum aggregate EC compensation will almost always be higher than the actual compensation paid or awarded, as it must cover the potential maximum value of each component of compensation.

Exhibit 23: Overview of key factors affecting the determination of maximum aggregate EC compensation



Assumptions					
AIP award percentage	72%[2]	100%	150%	150%	150%
Adjustment of LTIP grant size[3]	0%	0%	+12.5%	+12.5%	+12.5%
Number of EC members	13	13	12	9	9

(1) Numbers will be provided in the AGM invitation.
(2) Outcome without the allocation of former EC members. For full description, see section Compensation elements – 2020 highlights.
(3) This 12.5 percent applied on the entire LTIP for EC members only and is not applicable to the CEO.

Compensation and share ownership tables

Exhibit 24: Board compensation in 2020 and 2019 (audited)

	Paid in 2020					Paid in 2019				
	November Board term 2020–2021		May Board term 2019–2020			November Board term 2019–2020		May Board term 2018–2019		
Name	Settled in cash[1]	Settled in shares – number of shares received[2]	Settled in cash[1]	Settled in shares – number of shares received[2]	Total compensation paid in 2020[3]	Settled in cash[1]	Settled in shares – number of shares received[2]	Settled in cash[1]	Settled in shares – number of shares received[2]	Total compensation paid in 2019[3]
	CHF		CHF		CHF	CHF		CHF		CHF
Peter Voser, Chairman[4]	—	21,831	—	32,642	**1,140,000**	—	29,156	—	29,943	**1,200,000**
Jacob Wallenberg[5]	101,250	3,297	112,500	4,928	**427,500**	112,500	4,397	112,500	4,515	**450,000**
Matti Alahuhta[6]	—	4,787	—	7,155	**304,000**	—	6,384	80,000	3,210	**320,000**
Gunnar Brock[7]	—	4,937	—	7,379	**313,500**	—	6,584	82,500	3,311	**330,000**
David Constable[8]	78,750	2,564	87,500	3,833	**332,500**	87,500	3,420	87,500	3,511	**350,000**
Frederico Curado[9]	—	4,438	—	6,646	**304,000**	—	5,934	80,000	2,973	**320,000**
Lars Förberg[10]	—	5,805	—	8,688	**304,000**	—	7,755	—	7,970	**320,000**
Jennifer Xin-Zhe Li[11]	72,000	2,163	80,000	3,239	**304,000**	80,000	2,892	80,000	2,973	**320,000**
Geraldine Matchett[12]	74,250	3,159	82,500	4,722	**313,500**	82,500	4,213	82,500	4,326	**330,000**
David Meline[13]	90,000	2,931	100,000	4,380	**380,000**	100,000	3,908	100,000	4,013	**400,000**
Satish Pai[14]	74,520	2,231	82,500	3,340	**313,500**	82,500	2,983	82,500	3,066	**330,000**
Total	**490,770**	**58,143**	**545,000**	**86,952**	**4,436,500**	**545,000**	**77,626**	**787,500**	**69,811**	**4,670,000**

(1) Represents gross amounts paid, prior to deductions for social security, withholding tax etc.
(2) Number of shares per Board member is calculated based on net amount due after deductions for social security, withholding tax etc.
(3) In addition to the Board remuneration stated in the above table, in 2020 and 2019 the Company paid CHF 272,312 and CHF 270,933, respectively, in related mandatory social security payments.
(4) Chairman of the ABB Ltd Board for the 2018-2019, 2019-2020 and 2020-2021 board terms and Chairman of the Governance and Nomination Committee for the 2018-2019 board term; is receiving 100 percent of his compensation in the form of ABB shares.
(5) Vice-Chairman of the ABB Ltd Board for the 2018-2019, 2019-2020 and 2020-2021 board terms; Chairman of the Governance and Nomination Committee for the 2019-2020 and 2020-2021 board terms and member of that committee for the 2018-2019 board term; is receiving 50 percent of his compensation in the form of ABB shares.
(6) Member of the Governance and Nomination Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in the form of ABB shares for the 2018-2019 board term and is receiving 100 percent of his compensation in shares for the 2019-2020 and 2020-2021 board terms.
(7) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in shares for the 2018-2019 board term and is receiving 100 percent of his compensation in the form of ABB shares for the 2019-2020 and 2020-2021 board terms.
(8) Chairman of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.
(9) Member of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in the form of ABB shares for the 2018-2019 board term and is receiving 100 percent of his compensation in shares for the 2019-2020 and 2020-2021 board terms.
(10) Member of the Governance and Nomination Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 100 percent of his compensation in the form of ABB shares.
(11) Member of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of her compensation in the form of ABB shares.
(12) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of her compensation in the form of ABB shares.
(13) Chairman of the Finance, Audit and Compliance Committee for 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.
(14) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.

Exhibit 25: Board compensation for the Board terms 2020-2021 and 2019-2020 (audited)

Name	Specific Board Roles	Board term 2020-2021[1]	Board term 2019-2020
		CHF	CHF
Peter Voser	Chairman of the Board	1,140,000	1,200,000
Jacob Wallenberg	Vice-Chairman of the Board and Chairman GNC	427,500	450,000
Matti Alahuhta	Member GNC	304,000	320,000
Gunnar Brock	Member FACC	313,500	330,000
David Constable	Chairman CC	332,500	350,000
Frederico Curado	Member CC	304,000	320,000
Lars Förberg	Member GNC	304,000	320,000
Jennifer Xin-Zhe Li	Member CC	304,000	320,000
Geraldine Matchett	Member FACC	313,500	330,000
David Meline	Chairman of FACC	380,000	400,000
Satish Pai	Member FACC	313,500	330,000
Total		**4,436,500**	**4,670,000**

(1) This reflects a 10 percent COVID-19 related voluntary donation in Board fees for the first half of the 2020-2021 Board term.

Key:
CC: Compensation Committee
FACC: Finance, Audit and Compliance Committee
GNC: Governance and Nomination Committee

Exhibit 26: Board ownership of ABB shares (audited as part of the financial statement stand-alone audit)

	Total number of shares held	
Name	**December 31, 2020**	**December 31, 2019**
Peter Voser[1]	314,648	260,175
Jacob Wallenberg	234,246	226,021
Matti Alahuhta	93,408	51,466
Gunnar Brock	26,951	14,635
David Constable	33,978	27,581
Frederico Curado	32,382	21,298
Lars Förberg	49,992	35,499
Jennifer Xin-Zhe Li	33,721	8,319
Geraldine Matchett	19,800	11,919
David Meline[2]	33,774	25,463
Satish Pai	24,618	19,047
Total	**897,518**	**701,423**

(1) Includes 2,000 shares held by spouse.
(2) Includes 3,150 shares held by spouse.

Exhibit 27: EC compensation in 2020 (audited)

Name	Cash Compensation							
	Base salary[1]	Short-term incentive[1][2]	Pension benefits	Other benefits[3]	2020 Total cash-based compensation[4]	Estimated value of share-based grants under the LTIP in 2020[5]	Estimated value of replacement share-based grant in 2020	2020 Total (incl. conditional share-based grants)[6]
	CHF	CHF	CHF	CHF	CHF	CHF	CHF	CHF
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	1,504,141	977,685	666,175	688,685	**3,836,686**	1,970,457	3,308,781	**9,115,924**
Timo Ihamuotila	902,508	698,535	494,360	646,278	**2,741,681**	734,103	—	**3,475,784**
Sylvia Hill	725,004	547,500	471,925	290,108	**2,034,537**	564,097	—	**2,598,634**
Maria Varsellona	760,008	655,880	471,538	818,288	**2,705,714**	618,193	—	**3,323,907**
Theodor Swedjemark (EC member as of August 1, 2020)	200,002	130,000	118,951	75,259	**524,212**	92,887	—	**617,099**
Sami Atiya	760,008	418,000	465,509	423,787	**2,067,304**	618,193	—	**2,685,497**
Tarak Mehta	848,339	695,115	479,932	390,681	**2,414,067**	695,462	—	**3,109,529**
Peter Terwiesch	760,008	387,600	456,374	334,575	**1,938,557**	618,193	—	**2,556,750**
Morten Wierod	704,171	681,150	413,120	346,080	**2,144,521**	579,552	—	**2,724,073**
Total current Executive Committee members at December 31, 2020	**7,164,189**	**5,191,465**	**4,037,884**	**4,013,741**	**20,407,279**	**6,491,137**	**3,308,781**	**30,207,197**
Peter Voser (EC member until February 29, 2020)	280,835	421,250	37,443	48,160	**787,688**	—	—	**787,688**
Ulrich Spiesshofer (EC member until April 16, 2019)	561,670	749,825	214,588	820,421	**2,346,504**	—	—	**2,346,504**
Jean-Christophe Deslarzes (EC member until May 31, 2019)	156,668	158,939	86,309	169,099	**571,015**	—	—	**571,015**
Diane de Saint Victor (EC member until October 31, 2019)	250,001	260,750	74,561	950,402	**1,535,714**	—	—	**1,535,714**
Total departing Executive Committee members	**1,249,174**	**1,590,764**	**412,901**	**1,988,082**	**5,240,921**	**—**	**—**	**5,240,921**
Total	**8,413,363**	**6,782,229**	**4,450,785**	**6,001,823**	**25,648,200**	**6,491,137**	**3,308,781**	**35,448,118**

(1) Base salary as well as the target short-term incentive were adjusted where appropriate for EC members who voluntarily donated 10 percent of their salary to fight the impacts of the COVID-19 crisis for a six-month period during 2020.

(2) Represents accrued short-term variable compensation for the year 2020, which will be paid in 2021, after the publication of ABB's financial results. Short-term variable compensation is linked to the objectives defined in each EC member's annual incentive plan. Upon full achievement of these objectives, the short-term variable compensation of the EC members represents 100 percent of their respective base salary. The short-term variable compensation of the former CEO, Ulrich Spiesshofer, corresponds to the contractually agreed average of the year 2017 and 2018 short-term variable compensation award. Peter Voser received his short-term variable compensation payment monthly at target achievement level. Diane de Saint Victor and Jean-Christophe Deslarzes received a pro-rata short-term variable compensation payment for their period of service as an EC member, in accordance with the contractual obligations of ABB.

(3) Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items like compensation for unused vacation balances at the time of departure from ABB.

(4) Prepared on an accrual basis.

(5) The estimated value of the share-based LTIP grants are based on the price of ABB shares on the grant date, adjusted for expected foregone dividends during the vesting period. On the day of vesting (April 27, 2023), the value of the share-based awards granted under the LTIP may vary from the above amounts due to changes in ABB's share price and the outcome of the performance factors.

(6) Payments totaling CHF 161,274 were made in 2020 on behalf of certain other former EC members, representing social security premium payments.

(7) ABB paid Ulrich Spiesshofer in addition to the compensation related to the termination period, non-compete payments for the period May 1, 2020, to December 31, 2020, and related social security payments totaling CHF 2,806,111.

Exhibit 28: EC compensation in 2019 (audited)

Name	Cash Compensation							
	Base salary	Short-term incentive(1)	Pension benefits	Other benefits(2)	2019 Total cash-based compensation(3)	Estimated value of share-based grants under the LTIP in 2019(4)	Estimated value of replacement share-based grant in 2019	2019 Total (incl. conditional share-based grants)(5)
	CHF	CHF	CHF	CHF	CHF	CHF	CHF	CHF
Peter Voser (CEO as of April 17, 2019)	1,187,167	1,780,739	149,772	320,688	**3,438,366**	—	—	**3,438,366**
Timo Ihamuotila	945,005	960,450	500,830	581,983	**2,988,268**	836,661	—	**3,824,929**
Sylvia Hill (EC member as of June 1, 2019)	408,334	433,650	268,643	198,236	**1,308,863**	616,494	—	**1,925,357**
Maria Varsellona (EC member as of November 1, 2019)(6)	133,335	133,333	40,619	472,088	**779,375**	822,328	1,624,386	**3,226,089**
Frank Duggan(7)	667,708	707,103	363,173	552,220	**2,290,204**	704,559	—	**2,994,763**
Chunyuan Gu(8)	685,847	685,963	263,125	708,252	**2,343,187**	616,494	—	**2,959,681**
Sami Atiya	786,676	602,400	467,214	528,033	**2,384,323**	845,459	—	**3,229,782**
Tarak Mehta	860,004	747,340	478,990	570,644	**2,656,978**	757,396	—	**3,414,374**
Claudio Facchin	810,006	583,200	469,271	404,865	**2,267,342**	713,355	—	**2,980,697**
Peter Terwiesch	795,009	668,800	460,453	389,694	**2,313,956**	704,559	—	**3,018,515**
Morten Wierod (EC member as of April 1, 2019)	**525,000**	**516,600**	**304,632**	**200,336**	**1,546,568**	**616,494**	**—**	**2,163,062**
Total Executive Committee members at December 31, 2019	**7,804,091**	**7,819,578**	**3,766,722**	**4,927,039**	**24,317,430**	**7,233,799**	**1,624,386**	**33,175,615**
Ulrich Spiesshofer (EC member until April 16, 2019)	1,685,010	2,249,475	639,222	979,554	**5,553,261**	2,967,911	—	**8,521,172**
Jean-Christophe Deslarzes (EC member until May 31, 2019)	940,007	998,280	513,258	522,119	**2,973,664**	827,846	—	**3,801,510**
Diane de Saint Victor (EC member until October 31, 2019)	1,000,001	1,062,000	298,242	246,441	**2,606,684**	880,685	—	**3,487,369**
Greg Scheu (EC member until October 31, 2019)(9)	661,604	557,123	228,298	199,474	**1,646,499**	722,956	—	**2,369,455**
Total departing Executive Committee members	**4,286,622**	**4,866,878**	**1,679,020**	**1,947,588**	**12,780,108**	**5,399,398**	**—**	**18,179,506**
Total	**12,090,713**	**12,686,456**	**5,445,742**	**6,874,627**	**37,097,538**	**12,633,197**	**1,624,386**	**51,355,121**

(1) Represents accrued STI for the year 2019, which will be paid in 2020, after the publication of ABB's financial results. The STI is linked to the objectives defined in each EC member's scorecard. Upon full achievement of these objectives, the STI of the EC members represents 100 percent of their respective annual base salary. The STI of the former CEO, Ulrich Spiesshofer, corresponds to the contractually agreed average of the year 2017 and 2018 STI award. Peter Voser received his STI payment monthly at target achievement level. Greg Scheu received a pro-rata STI payment for his period of service as an EC member, in accordance with the contractual obligations of ABB.

(2) Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items. Other benefits for Peter Voser include mandatory social security payments only.

(3) Prepared on an accrual basis.

(4) On the day of vesting (May 16, 2022), the value of the share-based awards granted under the LTIP may vary from the above amounts due to changes in ABB's share price and the outcome of the performance factors. The estimated value of the share-based grants is based on the price of ABB shares on the grant date, adjusted for expected foregone dividends during the vesting period.

(5) Payments totaling CHF 216,069 were made in 2019 on behalf of certain other former EC members, mainly representing mandatory social security payments.

(6) In addition to the replacement share grant, Maria Varsellona will receive compensation in the amount of CHF 445,939 for 10 months of foregone STI payments from her previous employer, which is shown under other benefits.

(7) Frank Duggan received 20 percent of his base salary in AED and 80 percent in EUR. The Company purchased EUR with AED to meet this obligation. All AED amounts were converted into Swiss francs using a rate of CHF 0.2635992 per AED.

(8) Chunyuan Gu received for the period January to February 2019, 100 percent of his compensation in CNY and for the period March to December 2019, 100 percent of his base salary in HKD. All CNY amounts were converted into Swiss francs using a rate of CHF 0.1391052 per CNY and all HKD amounts were converted into Swiss francs using a rate of CHF 0.12434741 per HKD.

(9) Greg Scheu received 100 percent of his base salary in USD. All USD amounts were converted into Swiss francs using a rate of CHF 0.9682 per USD.

Exhibit 29: LTIP grants in 2020 (audited)

Name	Reference number of shares under the EPS performance factor of the 2020 launch of the LTIP(1)	Total estimated value of share-based grants under the EPS performance factor of the 2020 launch of the LTIP(2)(3)	Reference number of shares under the TSR performance factor of the 2020 launch of the LTIP(1)	Total estimated value of share-based grants under the TSR performance factor of the 2020 launch of the LTIP(2)(3)	Total number of shares granted under the 2020 launch of the LTIP(1)(2)	Total estimated value of share-based grants under the LTIP in 2020(2)(3)
		CHF		CHF		CHF
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	65,857	985,221	65,858	985,236	**131,715**	**1,970,457**
Timo Ihamuotila(4)	24,535	367,044	24,536	367,059	**49,071**	**734,103**
Sylvia Hill	18,853	282,041	18,854	282,056	**37,707**	**564,097**
Maria Varsellona	20,661	309,089	20,662	309,104	**41,323**	**618,193**
Theodor Swedjemark (EC member as of August 1, 2020)(4)	3,104	46,436	3,105	46,451	**6,209**	**92,887**
Sami Atiya	20,661	309,089	20,662	309,104	**41,323**	**618,193**
Tarak Mehta(4)	23,244	347,731	23,244	347,731	**46,488**	**695,462**
Peter Terwiesch(4)	20,661	309,089	20,662	309,104	**41,323**	**618,193**
Morten Wierod(4)	19,370	289,776	19,370	289,776	**38,740**	**579,552**
Total current Executive Committee members at December 31, 2020	**216,946**	**3,245,516**	**216,953**	**3,245,621**	**433,899**	**6,491,137**

(1) Vesting date April 27, 2023.
(2) The reference number of shares of the EPS and TSR performance factors are valued using the fair value of the ABB shares on the grant date adjusted for expected foregone dividends during the vesting period.
(3) Default settlement of the final LTIP award is 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes. The plan foresees a maximum payout of 200 percent of the number of reference shares granted based on the achievement against the pre-defined average EPS and relative TSR targets.
(4) In addition to the above awards, five members of the EC participated in the 17th launch of the ESAP in 2020, which will allow them to save over a 12-month period and, in November 2021, use their savings to acquire ABB shares under the ESAP. Each EC member who participated in ESAP will be entitled to acquire up to 440 ABB shares at an exercise price of CHF 22.87 per share.

Exhibit 30: LTIP grants in 2019 (audited)

Name	Reference number of shares under the EPS performance factor of the 2019 launch of the LTIP(1)	Total estimated value of share-based grants under the EPS performance factor of the 2019 launch of the LTIP(2)(3)	Reference number of shares under the TSR performance factor of the 2019 launch of the LTIP(1)	Total estimated value of share-based grants under the TSR performance factor of the 2019 launch of the LTIP(2)(3)	Total number of shares granted under the 2019 launch of the LTIP(1)(2)	Total estimated value of share-based grants under the LTIP in 2019(2)(3)
		CHF		CHF		CHF
Timo Ihamuotila(4)	24,535	418,322	24,536	418,339	**49,071**	**836,661**
Sylvia Hill (EC member as of June 1, 2019)	18,079	308,247	18,079	308,247	**36,158**	**616,494**
Maria Varsellona (EC member as of November 1, 2019)	20,661	411,154	20,662	411,174	**41,323**	**822,328**
Frank Duggan(4)	20,661	352,271	20,662	352,288	**41,323**	**704,559**
Chunyuan Gu	18,079	308,247	18,079	308,247	**36,158**	**616,494**
Sami Atiya	24,793	422,721	24,794	422,738	**49,587**	**845,459**
Tarak Mehta	22,211	378,698	22,211	378,698	**44,422**	**757,396**
Claudio Facchin	20,919	356,669	20,920	356,686	**41,839**	**713,355**
Peter Terwiesch(4)	20,661	352,271	20,662	352,288	**41,323**	**704,559**
Morten Wierod (EC member as of April 1, 2019)(4)	18,079	308,247	18,079	308,247	**36,158**	**616,494**
Total Executive Committee members at December 31, 2019	**208,678**	**3,616,847**	**208,684**	**3,616,952**	**417,362**	**7,233,799**
Ulrich Spiesshofer (EC member until April 16, 2019)	87,035	1,483,947	87,036	1,483,964	**174,071**	**2,967,911**
Jean-Christophe Deslarzes (EC member until May 31, 2019)	24,277	413,923	24,277	413,923	**48,554**	**827,846**
Diane de Saint Victor (EC member until October 31, 2019)	25,826	440,334	25,827	440,351	**51,653**	**880,685**
Greg Scheu (EC member until October 31, 2019)	21,201	361,478	21,201	361,478	**42,402**	**722,956**
Total departing Executive Committee members	**158,339**	**2,699,682**	**158,341**	**2,699,716**	**316,680**	**5,399,398**
Total	**367,017**	**6,316,529**	**367,025**	**6,316,668**	**734,042**	**12,633,197**

(1) Vesting date May 16, 2022.
(2) The valuation method of the share grant has been adjusted to reflect best practice, according to which, it is not recommended to use a Monte Carlo simulation at the time of grant to determine the fair value of a share grant. In response to that, the reference number of shares of the EPS and TSR performance factors are valued using the fair value of the ABB shares on the grant date adjusted for expected foregone dividends during the vesting period.
(3) The LTIP foresees delivering 65 percent of the value of vested performance shares (both performance factors EPS and TSR), if any, in shares and the remainder in cash. However, upon vesting participants have the possibility to elect to receive 100 percent of the vested award in shares. The plan foresees a maximum payout of 200 percent of the number of reference shares granted based on the achievement against the pre-defined average EPS and relative TSR targets.
(4) In addition to the above awards, four members of the EC participated in the 16th launch of the ESAP in 2019, which allowed them to save over a 12-month period and, in November 2020, use their savings to acquire ABB shares under the ESAP. Each EC member who participated in ESAP was entitled to acquire up to 480 ABB shares at an exercise price of CHF 20.78 per share.

Exhibit 31: EC shareholding overview at December 31, 2020 (audited as part of the financial statement stand-alone audit)

Name	Total number of shares held at December 31, 2020	Vested at December 31, 2020: Number of vested options held under the MIP	Unvested at December 31, 2020: Number of unvested options held under the MIP (vesting 2021/2022)	Reference number of shares deliverable under the 2018 performance components (EPS and TSR) of the LTIP[1] (vesting 2021)	Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP[1] (vesting 2022)	Reference number of shares deliverable under the 2020 performance factors (EPS and TSR) of the LTIP[1] (vesting 2023)	Replacement share grant for foregone benefits from former employer[2] (vesting 2021)	Replacement share grant for foregone benefits from former employer[2] (vesting 2022)	Replacement share grant for foregone benefits from former employer[2] (vesting 2023)
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	5,000	—	—	—	—	131,715	—	130,150	18,904
Timo Ihamuotila	171,610	—	—	37,217	49,071	49,071	—	—	—
Sylvia Hill	2,265	796,875	318,750	—	36,158	37,707	—	—	—
Maria Varsellona	—	—	—	—	41,323	41,323	40,010	40,009	—
Theodor Swedjemark (EC member as of August 1, 2020)[3]	480	102,000	250,750	—	—	6,209	—	—	—
Sami Atiya	42,778	—	—	23,301	49,587	41,323	—	—	—
Tarak Mehta	179,636	—	—	34,790	44,422	46,488	—	—	—
Peter Terwiesch	142,338	—	—	37,379	41,323	41,323	—	—	—
Morten Wierod	1,544	—	—	15,292	36,158	38,740	—	—	—
Total Executive Committee members at December 31, 2020	**545,651**	**898,875**	**569,500**	**147,979**	**298,042**	**433,899**	**40,010**	**170,159**	**18,904**

(1) The final LTIP 2018 award and LTIP 2019 award will be settled 65 percent in shares and 35 percent in cash. This applies to both performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares. The final LTIP 2020 award will be settled 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes.

(2) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.

(3) In addition, his spouse holds unvested shares and options granted in connection with her role in the company.

Exhibit 32: EC shareholding overview at December 31, 2019 (audited as part of the financial statement stand-alone audit)

Name	Total number of shares held at December 31, 2019	Vested at December 31, 2019	Unvested at December 31, 2019					
		Number of vested options held under the MIP	Number of unvested options held under the MIP	Reference number of shares deliverable under the 2017 performance components (P1 and P2) of the LTIP[1]	Reference number of shares deliverable under the 2018 performance factors (EPS and TSR) of the LTIP[2]	Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP[2]	Replacement share grant for foregone benefits from former employer[3]	Replacement share grant for foregone benefits from former employer[4]
			(vesting 2020/2021)	(vesting 2020)	(vesting 2021)	(vesting 2022)	(vesting 2020)	(vesting 2021/2022)
Timo Ihamuotila	64,572	—	—	41,000	37,217	49,071	76,628	—
Sylvia Hill (EC member as of June 1, 2019)	2,265	743,750	584,375	—	—	36,158	—	—
Maria Varsellona (EC member as of November 1, 2019)	—	—	—	—	—	41,323	—	80,019
Frank Duggan	269,846	—	—	34,984	31,756	41,323	—	—
Chunyuan Gu	45,577	—	—	31,196	33,981	36,158	—	—
Sami Atiya	24,435	—	—	34,735	23,301	49,587	—	—
Tarak Mehta	212,869	—	—	34,494	34,790	44,422	—	—
Claudio Facchin	163,219	—	—	39,076	26,214	41,839	—	—
Peter Terwiesch	122,242	—	—	37,147	37,379	41,323	—	—
Morten Wierod (EC member as of April 1, 2019)	1,064	398,440	—	—	15,292	36,158	—	—
Total Executive Committee members at December 31, 2019[5]	**906,089**	**1,142,190**	**584,375**	**252,632**	**239,930**	**417,362**	**76,628**	**80,019**

(1) The LTIP 2017 foresees that 70 percent are settled in shares and 30 percent in cash for the performance components (P1 and P2). However, participants have the possibility to elect to receive 100 percent of the vested award in shares.
(2) It is expected that the LTIP 2018 and 2019 will be settled 65 percent in shares and 35 percent in cash for the performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.
(3) The replacement share grant was settled 100 percent in shares.
(4) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participant has the possibility to elect to receive 100 percent of the vested award in shares.
(5) Departing Executive Committee members are not included in this table.

Exhibit 33: Targeted and realized EC Total Compensation in 2020

Target Compensation (in CHF)	Base salary	Pension benefits	Other benefits(1)	Target short-term incentive(2)	LTIP Grant Fair Value 2017(3)	Target total variable compensation	Target Total Compensation
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	1,504,141	666,175	688,685	1,504,131	n.a.	**1,504,131**	**4,363,132**
Timo Ihamuotila	902,508	494,360	646,278	902,500	998,965	**1,901,465**	**3,944,611**
Sylvia Hill	725,004	471,925	290,108	730,000	n.a.	**730,000**	**2,217,037**
Maria Varsellona	760,008	471,538	818,288	760,000	n.a.	**760,000**	**2,809,834**
Theodor Swedjemark (EC member as of August 1, 2020)	200,002	118,951	75,259	200,000	n.a.	**200,000**	**594,212**
Sami Atiya	760,008	465,509	423,787	760,000	845,147	**1,605,147**	**3,254,451**
Tarak Mehta	848,339	479,932	390,681	855,000	842,145	**1,697,145**	**3,416,097**
Peter Terwiesch	760,008	456,374	334,575	760,000	903,833	**1,663,833**	**3,214,790**
Morten Wierod	704,171	413,120	346,080	712,500	377,781	**1,090,281**	**2,553,652**
Total	**7,164,189**	**4,037,884**	**4,013,741**	**7,184,131**	**3,967,871**	**11,152,002**	**26,367,816**

Realized Compensation (in CHF)	Base salary	Pension benefits	Other benefits(1)	Short-term incentive(4)	Realized Value LTIP 2017(5)	Total variable compensation	Total Compensation
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	1,504,141	666,175	688,685	977,685	n.a.	**977,685**	**3,836,686**
Timo Ihamuotila	902,508	494,360	646,278	698,535	593,811	**1,292,346**	**3,335,492**
Sylvia Hill	725,004	471,925	290,108	547,500	n.a.	**547,500**	**2,034,537**
Maria Varsellona	760,008	471,538	818,288	655,880	n.a.	**655,880**	**2,705,714**
Theodor Swedjemark (EC member as of August 1, 2020)	200,002	118,951	75,259	130,000	n.a.	**130,000**	**524,212**
Sami Atiya	760,008	465,509	423,787	418,000	519,907	**937,907**	**2,587,211**
Tarak Mehta	848,339	479,932	390,681	695,115	475,267	**1,170,382**	**2,889,334**
Peter Terwiesch	760,008	456,374	334,575	387,600	555,996	**943,596**	**2,494,553**
Morten Wierod	704,171	413,120	346,080	681,150	203,618	**884,768**	**2,348,139**
Total	**7,164,189**	**4,037,884**	**4,013,741**	**5,191,465**	**2,348,599**	**7,540,064**	**22,755,878**

Realized achievement level (in %)	Base salary	Pension benefits	Other benefits(1)	Short-term incentive(4)	Realized Value LTIP 2017(5)	Total variable compensation	Total Compensation
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	100%	100%	100%	65%	n.a.	65%	88%
Timo Ihamuotila	100%	100%	100%	77%	59%	68%	85%
Sylvia Hill	100%	100%	100%	75%	n.a.	75%	92%
Maria Varsellona	100%	100%	100%	86%	n.a.	86%	96%
Theodor Swedjemark (EC member as of August 1, 2020)	100%	100%	100%	65%	n.a.	65%	88%
Sami Atiya	100%	100%	100%	55%	62%	58%	79%
Tarak Mehta	100%	100%	100%	81%	56%	69%	85%
Peter Terwiesch	100%	100%	100%	51%	62%	57%	78%
Morten Wierod	100%	100%	100%	96%	54%	81%	92%
Total	**100%**	**100%**	**100%**	**72%**	**59%**	**68%**	**86%**

(1) Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items.
(2) Target short-term incentive corresponds to 100 percent of the latest applicable annual base salary adjusted for the voluntary COVID-19 donation and pro-rated for the EC members who joined the EC during the year 2020.
(3) Represents the LTIP 2017 grant date fair value as per June 13, 2017, as disclosed in our annual report 2017.
(4) Represents accrued STI for the year 2020, which will be paid in 2021, after the publication of ABB's financial results. STI is linked to the objectives defined in each EC member's annual incentive plan.
(5) Valued at CHF 19.84, the closing price of the ABB share on the day of vesting.

Report of the Statutory Auditor

To the General Meeting of ABB Ltd, Zurich

We have audited the accompanying compensation report of ABB Ltd for the year ended December 31, 2020. The audit was limited to the information according to articles 14 – 16 of the Ordinance Against Excessive Compensation in Stock Exchange Listed Companies (Ordinance) contained in the tables labeled "audited" on pages 84 to 89 of the compensation report.

Responsibility of the Board of Directors

The Board of Directors is responsible for the preparation and overall fair presentation of the compensation report in accordance with Swiss law and the Ordinance against Excessive compensation in Stock Exchange Listed Companies (Ordinance). The Board of Directors is also responsible for designing the compensation system and defining individual compensation packages.

Auditor's Responsibility

Our responsibility is to express an opinion on the accompanying compensation report. We conducted our audit in accordance with Swiss Auditing Standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the compensation report complies with Swiss law and articles 14 – 16 of the Ordinance.

An audit involves performing procedures to obtain audit evidence on the disclosures made in the compensation report with regard to compensation, loans and credits in accordance with articles 14 – 16 of the Ordinance. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatements in the compensation report, whether due to fraud or error. This audit also includes evaluating the reasonableness of the methods applied to value components of compensation, as well as assessing the overall presentation of the compensation report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion, the compensation report for the year ended December 31, 2020 of ABB Ltd complies with Swiss law and articles 14 – 16 of the Ordinance.

KPMG AG

Hans-Dieter Krauss
Licensed Audit Expert
Auditor in Charge

Mohammad Nafeie

Zurich, February 25, 2021

04

2020 Financial review of ABB Group

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About ABB

ABB is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion product portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 106,000 employees.

History of the ABB Group

The ABB Group was formed in 1988 through a merger between Asea AB and BBC Brown Boveri AG. Initially founded in 1883, Asea AB was a major participant in the introduction of electricity into Swedish homes and businesses and in the development of Sweden's railway network. In the 1940s and 1950s, Asea AB expanded into the power, mining and steel industries. Brown Boveri and Cie. (later renamed BBC Brown Boveri AG) was formed in Switzerland in 1891 and initially specialized in power generation and turbines. In the early to mid-1900s, it expanded its operations throughout Europe and broadened its business operations to include a wide range of electrical engineering activities.

In January 1988, Asea AB and BBC Brown Boveri AG each contributed almost all of their businesses to the newly formed ABB Asea Brown Boveri Ltd, of which they each owned 50 percent. In 1996, Asea AB was renamed ABB AB and BBC Brown Boveri AG was renamed ABB AG. In February 1999, the ABB Group announced a group reconfiguration designed to establish a single parent holding company and a single class of shares. ABB Ltd was incorporated on March 5, 1999, under the laws of Switzerland. In June 1999, ABB Ltd became the holding company for the entire ABB Group. This was accomplished by having ABB Ltd issue shares to the shareholders of ABB AG and ABB AB, the two companies that formerly owned the ABB Group. The ABB Ltd shares were exchanged for the shares of those two companies, which, as a result of the share exchange and certain related transactions, became wholly-owned subsidiaries of ABB Ltd.

As described above, on July 1, 2020, we divested 80.1 percent of our ownership in the Power Grids business to Hitachi Ltd (Hitachi).

ABB Ltd shares are currently listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (in the form of American Depositary Shares).

Organizational structure

Our business is international in scope and we generate revenues in numerous currencies. We operate in over 100 countries across three regions: Europe, the Americas, and Asia, Middle East and Africa. We are headquartered in Zurich, Switzerland.

We manage our company through our four Business Areas: Electrification, Industrial Automation, Motion and Robotics & Discrete Automation. For a breakdown of our consolidated revenues (i) by Business Area, (ii) by geographic region, and (iii) by product type, see "Analysis of results of operations—Revenues" and "Note 23 - Operating segment and geographic data" to our Consolidated Financial Statements. Until June 30, 2020, we also operated the Power Grids business, which is reported as discontinued operations in the Consolidated Financial Statements (see "Discontinued operations" section below). On July 1, 2020, ABB we completed the divestment of 80.1 percent of the Power Grids business to Hitachi. We retain a 19.9 percent ownership interest through our investment in Hitachi ABB

Power Grids Ltd (Hitachi ABB Power Grids) which beneficially owns or controls all the subsidiaries of the Power Grids business.

Our principal corporate offices are located at Affolternstrasse 44, CH 8050 Zurich, Switzerland, telephone number +41 43 317 7111. Our agent for U.S. federal securities law purposes is ABB Holdings Inc., located at 305 Gregson Drive, Cary, North Carolina 27511. Our internet address is https://www.abb.com. The United States Securities and Exchange Commission (SEC) maintains a website at https://www.sec.gov which contains in electronic form each of the reports and other information that we have filed electronically with the SEC.

Employees

A breakdown of our employees by geographic region is as follows:

December 31,	2020	2019	2018
Europe	49,200	68,400	68,300
The Americas	27,600	35,200	35,600
Asia, Middle East and Africa	28,800	40,800	42,700
Total	**105,600**	**144,400**	**146,600**

The proportion of our employees that are represented by labor unions or are subject to collective bargaining agreements varies based on the labor practices of each country in which we operate.

Our markets

ABB is a leading global technology company with a comprehensive and increasingly digitalized offering of electrification, motion and automation solutions. ABB's exposure to customers is geographically balanced while catering to multiple end-markets and segments. Through a full business cycle, we estimate that our end-markets combined grow at around two percent per annum. We believe that our portfolio is well positioned to benefit from secular growth drivers, including urbanization, labor shortage, shift to electrification, automation and robotization, as well as other data and digitalization trends.

The majority of our businesses are market leaders within their respective segments with approximately two-thirds of revenues coming from our Divisions where we hold a number one or two position in the relevant market. We believe market leadership is critical, as it provides an opportunity for us to be a cost leader in our markets and to also have the ability to invest more than competitors in research and development to sustain our technological leadership. For a discussion of the geographic distribution of our total revenues, see "Analysis of results of operations—Revenues."

Industry Market

Approximately half of our customers are industrial customers. We serve production facilities and factories all around the world from process industries such as oil and gas, pulp and paper as well as mining, to discrete industries including automotive, food and beverage and consumer electronics. Automation, software and digital services that help customers achieve improved safety, uptime, energy efficiency and productivity are key to the success of our offerings in this market. The COVID-19 pandemic has served as a prominent reminder for companies of the importance of simplicity and flexibility in automated production and has accelerated customer demand for the digital services and solutions we offer.

Industrial end-markets were materially impacted by the COVID-19 pandemic resulting in lower demand for our products and services worldwide. Global travel restrictions hindered our capability to execute our project and service businesses even while customer acceptance of remote digital services and solutions increased. In process industries, oil and gas customers, faced with a substantial decrease in commodity prices, reduced planned capital expenditures, which impacted our order levels. Other process industries, such as pulp and paper or mining were resilient in 2020.

In discrete industries, end-markets such as food and beverage, and logistics were robust. Conversely, investments in robotics by the automotive industry continued to be challenged by weak customer demand as well as uncertainty around the timing and pace of transition from traditional to electric vehicles.

Transport & Infrastructure Market

Approximately one-third of our customers operate in the transport & infrastructure market. Our expertise provides efficient, reliable and sustainable solutions for these customers, with a focus on energy efficiency and reduced operating costs.

Transport & infrastructure markets were resilient in 2020. Demand in rail for electrification and traction solutions was strong over the year. Data center markets continued to expand with ABB successful in offering bundled solutions to hyperscale and co-location customers in particular. Buildings activity was impacted by COVID-19 lockdowns. In the marine sector, we saw continued strong order demand for our market-leading electric propulsion systems, while the services business particularly suffered after the shutdown of the global cruise industry due to the COVID-19 pandemic.

EV charging markets continued to expand during the period. We received multiple orders from customers for EV charging infrastructure, including for our high-voltage direct-current (DC) fast-charging station, the Terra HP. As of December 31, 2020, we have sold more than 17,000 ABB DC fast-chargers across 80 countries.

Utilities Market

ABB delivers solutions mainly for distribution utilities and renewables customers, while continuing to service conventional power generation customers with our control and automation solutions. Following the divestment of our Power Grids business to Hitachi on July 1, 2020, our exposure to the utilities market has decreased significantly.

During 2020, business levels in the conventional power generation and renewables markets were challenged by global travel restrictions during the COVID-19 pandemic as well as a lower general demand environment, particularly for fossil fuels. Demand from electrical distribution utilities was resilient, with ongoing investments to increase grid reliability and resilience with integrating increased renewables.

We serve industry, transport & infrastructure and utilities through our operating Divisions which are included in our Business Areas. Developments in these Business Areas are discussed in more detail below. Revenue figures presented in the Businesses section below are before intersegment eliminations.

Businesses

Electrification Business Area

Overview

The products of the Electrification Business Area portfolio are designed to enable safe, smart, and sustainable electrification, with a full range of low- and medium-voltage products and solutions, along with pre-engineered packaged services and tailored solutions for intelligent protection and connection.

The Electrification Business Area delivers products through a global network of channel partners and end customers. Most of the Business Area's revenue is derived from distributors and approximately a quarter is derived from direct sales to end-users. The remaining revenues are generated from original equipment manufacturers (OEMs), engineering, procurement, construction (EPC) contracting companies, system integrators, utilities and panel builders. The proportion of direct compared to channel partner sales varies by segment, product technology and geographic markets.

The Electrification Business Area had approximately 50,500 employees on December 31, 2020, and generated $11.9 billion of revenues in 2020.

Customers

The Electrification Business Area serves a wide range of customer segments, including residential, commercial, and industrial buildings, electric utilities, oil and gas, chemicals, data centers, e-mobility, renewables, food and beverage, and other industries and infrastructure.

Products and Services

The Electrification Business Area's products and services are delivered through five operating Divisions.

The Distribution Solutions Division helps utility, industry and transport & infrastructure customers improve power quality and control, reduce outage time and enhance operational reliability and efficiency. The Division offers products, solutions and services that largely serve the power distribution sector, often providing the requisite medium-voltage link between high-voltage transmission systems and low-voltage users. With ABB Ability™ enabled digital solutions at its core, the offering includes low-voltage switchgear (up to 1 kilovolt) and medium-voltage equipment (1 to 66 kilovolts), indoor and outdoor circuit breakers, reclosers, fuses, contactors, relays, instrument transformers, sensors, motor control centers, as well as a wide range of air- and gas-insulated switchgear. The Division also produces indoor and outdoor modular systems and other segment-specific solutions to facilitate efficient and reliable distribution, protection and control of power, adding value through design, engineering, project management and service. The service offering spans the entire value chain, from the moment a customer makes the first inquiry to disposal and recycling of the product, enriched by advanced digital services for asset management. Throughout the value chain, the Division provides training, technical support and customized contracts.

The Smart Power Division helps protect, control, and connect people, plants, and systems with a portfolio of low-voltage products and systems. The product offering includes electric vehicle charging infrastructure from AC wall boxes to DC fast charging, molded-case and air-circuit breakers, safety products including sensors, switches, contactors, relays, and power protection solutions such as uninterruptible power supply (UPS) solutions, status transfer switches and power distribution units.

The Smart Buildings Division helps optimize efficiency, safety, security, and comfort in homes and other buildings. The Division offers digitally enabled controls for HVAC, lighting, shutters, and security in addition to low-voltage products including conventional wiring accessories, industrial plugs and sockets, emergency lighting, DIN-rail products, and enclosures ideal for single family homes, multiple dwellings, commercial buildings, infrastructure and industrial applications.

The Installation Products Division helps manage the connection, protection and distribution of electrical power. The Division's products are engineered to provide ease of installation and perform in demanding and harsh conditions, helping to ensure safety and continuous operation for our customers and people around the world. The commercial essentials product segment includes electrical junction boxes, commercial fittings, strut and cable tray metal framing systems for commercial and residential construction. The premier industrial product segment includes multiple product lines, such as Ty-Rap®, T&B Liquidtight Systems®, PVC coated and nylon conduit systems, power connection and grounding systems, cable protection systems of conduits and fittings for harsh and industrial applications. The Division also produces cable accessories and apparatus solutions for medium-voltage applications including reclosers, switchgear, capacitor switches, current limiting fuses, faulted current indicators and distribution connectors, with products for overhead and underground distribution.

The Power Conversion Division supplies innovative critical power solutions to infrastructure customers and manufacturers of a wide range of equipment. The Division supports its customers in telecom/5G, networking, data centers, and industrial applications (such as oil and gas, utility, power generation, and robotics) in rapidly changing, disruptive environments where information, access and response times are redefining the markets. The Power Conversion Division also provides customers with reliable and efficient power that supports increasing infrastructure requirement, ensuring that data flows 24/7, while optimizing footprint, energy costs and operations. The Division supports customers by providing the latest industry insights and technology, partnering to co-develop solutions to tackle evolving challenges.

Sales and Marketing

The Electrification Business Area's global markets common sales and marketing organization creates demand across all channels and products, with a range of promotional activities and support services including account, channel, and segment sales management, commercial operations, and digital expertise.

Competition

The Electrification Business Area's principal competitors vary by product group and include Chint, Eaton, Hubbell, Legrand, LS Electric, Panasonic, Rittal, Schneider Electric and Siemens.

Capital Expenditures

The Electrification Business Area's capital expenditures for property, plant and equipment totaled $276 million in 2020, compared to $279 million in 2019. Investments in 2020 were primarily related to footprint changes, equipment replacement and upgrades. Geographically, in 2020, Europe represented 48 percent of the capital expenditures, followed by the Americas (41 percent) and Asia, Middle East and Africa (11 percent).

Industrial Automation Business Area

Overview

The Industrial Automation Business Area offers customers in process and maritime industries, a broad range of industry-specific integrated automation, electrification and digital solutions that are designed to optimize the productivity, energy efficiency and safety of industrial processes and operations, based on the Business Area's deep domain knowledge and expertise of each end market. The solutions include turnkey engineering, control technologies, software and lifecycle services, measurement and analytics products, marine and turbocharging offerings, Human Machine Interfaces (HMI) and integrated safety technology. The systems can link various process and information flows allowing customers to manage and control their entire business process based on real-time information. Additionally, the systems and solutions enable customers to increase production efficiency, optimize assets and reduce environmental impact.

The Industrial Automation Business Area's offerings are available as separately sold products or as part of an automation, electrification and/or instrumentation solution. For overall solutions, Industrial Automation integrates products and solutions from the Electrification, Motion and Robotics & Discrete Automation Business Areas. The Business Area's offerings are sold primarily through its direct sales force as well as third-party channels.

The Business Area had approximately 21,500 employees as of December 31, 2020, and generated revenues of $5.8 billion in 2020.

Customers

The Industrial Automation Business Area's end customers include companies in the oil and gas, minerals and mining, metals, pulp and paper, chemicals, plastics, pharmaceuticals, food and beverage, power generation and maritime industries. These customers are looking for automation, electrification, instrumentation and digitalization offerings that deliver value mainly through lower capital costs, increased plant availability, lower life-cycle costs and lower project risks.

Products and Services

Industrial Automation offers an extensive portfolio of products, solutions, digital applications and services. These offerings can be standalone basic control to integrated collaborative systems for complex or critical processes. Solutions, such as Distributed Control System (DCS) 800Xa, provide a scalable extended automation system for process and production control, safety and production monitoring. Freelance, another solution, is a full-fledged, easy-to-use DCS for small to medium-size applications. Components for basic automation solutions, process and safety controllers, field interfaces, panels, process recorders and HMI are available through our Compact Product Suite offering. The product portfolio is complemented by services such as Automation Sentinel, a subscription-based life cycle management program that provides services to maintain and continually advance and enhance ABB Ability™control systems (e.g. cyber security patches) and thus allows it to manage a customer's life-cycle costs. The ABB Ability™ Advanced Services offering portfolio provides individual software-based services to continuously improve automation and processes. ABB Ability™ Genix supports industries to unlock value by contextualizing and integrating data from a variety of systems, further utilizing artificial intelligence and analytics to provide deep meaningful actionable insights. In addition, ABB Ability™ Edgenius, a cloud-managed edge platform, makes real time operations data from a large number of systems and devices at the point of production available for visualization, analysis and action.

The Industrial Automation Business Area has five operating Divisions selling their offerings into the energy, process and maritime industries.

The Energy Industries Division serves the energy market with leading automation solutions for oil, gas, chemicals, pharmaceuticals, and all types of power generation. Oil, gas and chemicals solutions cover the entire hydrocarbon value chain, from exploration and production to supply, transport and distribution, as well as refining, chemicals and petrochemicals. The Division brings deep industry domain expertise coupled with the ability to integrate both automation and electrical, resulting in faster start-up times, increased facility productivity and reduced overall capital and operating costs for customers. ABB specializes in mastering the control loop and transforming client operations through actionable insights that optimize performance in real time. From the well head to the refinery, ABB Ability™ solutions aim to connect people with data to optimize performance, improve reliability, enhance efficiency and minimize environmental impact from project start-up throughout the entire plant life cycle. For the power generation market, the offering includes instrumentation, excitation and control systems. Its technologies are designed to help optimize performance, improve reliability, enhance efficiency and minimize environmental impact throughout the plant life cycle. In the pharmaceuticals and fine chemicals areas, the Division offers applications to support manufacturing, packaging, quality control and compliance with regulatory agencies. The Division also serves the water industry, including applications such as pumping stations and desalination plants.

The Process Industries Division serves the mining, minerals processing, metals, aluminum, cement, pulp and paper, and food and beverage, as well as their associated service industries. The Division brings deep industry domain expertise coupled with the ability to integrate both automation and electrical increased productivity and reduced overall capital and operating costs for customers. For mining, metals and cement customers, solutions include specialized products and services, as well as total production systems. The Division designs, plans, engineers, supplies, erects and commissions integrated electric equipment, drives, motors, high power rectifiers and equipment for automation and supervisory control within a variety of areas including mineral handling, mining operations, aluminum smelting, hot and cold steel applications and cement production. The offering for the pulp and paper industries includes control systems, quality control systems, drive systems, on-line sensors, actuators and field instruments. Digitalization solutions, including collaborative operations and augmented reality, help improve plant and enterprise productivity, and reduce maintenance and energy costs.

The Marine & Ports Division serves the marine and ports industry through its leading solutions for specialty vessels, as well as container and bulk cargo handling. For the shipping industry, the Division offers an extensive portfolio of integrated marine systems and solutions that improve the flexibility, reliability and energy efficiency of vessels. By coupling power, automation and marine software, proven fuel-efficient technologies and services that ensure maximum vessel uptime, ABB is well positioned to help improve the profitability of a customer's business throughout the entire life cycle of a fleet. The Division designs, engineers, builds, supplies and commissions automation and electrical systems for marine power generation, power distribution and electric propulsion, as well as turbochargers to improve efficiency. With ABB Ability™ Collaborative Operations Centers around the world and marine software solutions, owners and operators can run their fleets at lower fuel and maintenance cost, while improving crew, passenger, and cargo safety and overall productivity of their operations. In addition, the Division delivers automation and electrical systems for container and bulk cargo handling, from ship to gate. These systems and services help terminal operators meet the challenge of larger ships, taller cranes and bigger volumes per call, and make terminal operations safer, greener and more productive.

The Turbocharging Division manufactures and maintains turbochargers for diesel and gas engines having power levels ranging from 500 kilowatts to over 80 megawatts. The Division provides engine builders and application operators with advanced turbocharging solutions and services for efficient and flexible application operations and in compliance with the most stringent environmental requirements.

The Measurement & Analytics Division portfolio is designed to measure product properties, such as weight, thickness, color, brightness, moisture content and additive content, and includes a full line of instrumentation and analytical products to analyze, measure and record industrial and power processes. Actuators allow the customer to make automatic adjustments during the production process to improve the quality and consistency of the product. Field instruments measure properties of the process, such as flow rate, chemical content and temperature.

Sales and Marketing

The Industrial Automation Business Area's sales are primarily made through its direct sales force as well as third-party channel partners, such as distributors, system integrators and OEMs. The majority of revenues are derived through the Business Area's own direct sales channels.

Competition

The Industrial Automation Business Area's principal competitors vary by industry or product group. Competitors include: Emerson, Honeywell, Schneider Electric, Siemens, Yokogawa, General Electric, Endress + Hauser, Kongsberg, Valmet and Garrett.

Capital Expenditures

The Industrial Automation Business Area's capital expenditures for property, plant and equipment totaled $56 million in 2020, compared to $64 million in 2019. Principal investments in 2020 were in Turbocharging and the Measurement & Analytics Divisions. Geographically, in 2020, Europe represented 70 percent of the capital expenditures, followed by Asia, Middle East and Africa (19 percent) and the Americas (11 percent).

Motion Business Area

Overview

The Motion Business Area provides pioneering technology, products, solutions and related services to industrial customers to increase energy efficiency, improve safety and reliability, and maintain precise control over processes. The portfolio includes motors, generators and drives for a wide range of applications in all industrial sectors.

The Motion Business Area had approximately 20,900 employees as of December 31, 2020, and generated around $6.4 billion of revenues in 2020.

Products and Services

Motion manufactures and sells drives, motors, generators, traction converters and mechanical power transmission products. Building on long-standing experience in electric powertrains, the Business Area combines domain expertise and technology to deliver the optimum solution for a wide range of applications for a comprehensive range of industrial segments. In addition, the Business Area, along with its channel partners, has an industry-leading global service presence.

The Motion Business Area's products and services are delivered through six operating Divisions.

The Motors & Generators Division offers a comprehensive product portfolio of large AC motors and generators, and IEC low-voltage (LV) and NEMA motors. The Division provides a large range of motors, from general purpose, to highly customized designs, large AC synchronous motors and high-voltage induction motors to support high efficiency, reliability and availability across all major industries and applications. The Division offers a full range of energy efficient low-voltage IEC motors, including SynRM (synchronous reluctance) motors to support customers to reduce power bills and cut emissions. The Division also provides IEC LV motor solutions that are designed to improve reliability and productivity in severe applications. Baldor-Reliance® NEMA industrial electric motors offer customers quality, reliability and efficiency. Our investments in technology, tools and processes aim to ensure the broad NEMA offering of general purpose and application-specific solutions perform as expected, every time. The Division designs and builds generators for a wide range of industries, including power generation, marine, oil and gas, mining, and data centers.

The Drive Products Division serves industries, infrastructure and machine builders with state-of-the-art drives and softstarters. With products, global scale and local presence, the Division helps customers to improve energy efficiency, productivity and safety.

The System Drives Division provides global supplies of high-power, high-performance drives, drive systems and packages for industrial process and large infrastructure applications. In addition, the Division offers global support to help customers, partners and equipment manufacturers with asset reliability, performance improvement and energy efficiency in mission critical applications.

The Service Division serves customers worldwide and aims to help customers by maximizing uptime, extending life cycle and enhancing the performance and energy efficiency of their electrical motion solutions. The Division is leading the way in digitalization by securely connecting motors and drives to help customers prevent expensive downtime while also optimizing operations' profitably, safety and reliably.

The Traction Division is a recognized leader in traction technologies that drive innovation in rail and e-mobility. A comprehensive range of high performance propulsion, auxiliary and energy storage solutions help improve energy efficiency and contributes to making transportation more sustainable.

The Mechanical Power Transmission Division offers the Dodge® brand of mounted bearings, enclosed gearing and power transmission components to help customers in robust industries increase the safety, productivity and profitability of their operations. The Division offers customized innovative solutions and advanced technologies that improve output, increase uptime, and enhance system value.

Customers

The Motion Business Area serves a wide range of customers in different industrial segments such as pulp and paper, oil and gas, metals and mining, food and beverage, transportation, power generation, marine and offshore.

Sales and Marketing

Sales are made both through direct sales forces and through channel partners, such as distributors and wholesalers, as well as installers, OEMs and system integrators. The proportion of direct sales to end users compared to channel partner sales varies among the different industries, products and geographic markets.

Competition

The principal competitors of the Motion Business Area include Schneider, Siemens, Toshiba, WEG Industries, SEW EURODRIVE and Danfoss.

Capital Expenditures

Capital expenditures in the Motion Business Area for property, plant and equipment totaled $93 million in 2020, compared to $110 million in 2019. Principal investments in 2020 were primarily related to equipment replacement, footprint adjustments and automation upgrades. Geographically, in 2020, Europe represented 45 percent of the capital expenditures, followed by the Americas (40 percent) and Asia, Middle East and Africa (15 percent).

Robotics & Discrete Automation Business Area

Overview

The Robotics & Discrete Automation Business Area provides robotics, and machine and factory automation including products, software, solutions and services. Revenues are generated both from direct sales to end users as well as from indirect sales mainly through system integrators and machine builders.

The Robotics & Discrete Automation Business Area had approximately 10,300 employees as of December 31, 2020 and generated $2.9 billion of revenues in 2020.

Products and Services

The Robotics & Discrete Automation Business Area's products and services are delivered through two operating Divisions.

The Robotics Division offers a wide range of products, solutions and services such as robots, robotics application cells and smart systems, field services, spare parts, digital services, engineering and operations software. This offering provides productivity, quality, flexibility and simplicity for operations, e.g. to meet the challenge of making smaller lots of a larger number of specific products in shorter cycles for today's dynamic global markets and coping with increasing uncertainty. Robots are also used in activities or environments which may be hazardous to employee health and safety, such as repetitive or strenuous lifting, dusty, hot or cold rooms, or painting booths and can help customers overcome labor shortages. Robotics solutions are used in a wide range of segments from automotive OEMs, automotive suppliers, electronics, general industry, consumer goods, food and beverage, and warehouse/logistics center automation. They are increasingly deployed in service applications for health care, restaurants and retail. Typical robotic applications include welding, material handling, machine tending, machining, painting, picking, packing, palletizing and assembly.

The Machine Automation Division offers integrated automation solutions based on programmable logical controllers, industrial PCs, servo motion, industrial transport systems and machine vision. It also provides software for engineering and optimization. The range of solutions are mainly used by machine builders for various types of series machines, e.g. for plastics, metals, printing and packaging.

Customers

Robotics & Discrete Automation serves a wide range of customers. The main customers are active in industries such as automotive, machine building, metalworking, electronics, food and beverage and logistics. They include end-users such as manufacturers, system integrators and machine builders.

Sales and Marketing

Sales are made both through direct sales forces as well as through third-party channel partners, such as system integrators and machine builders. The proportion of direct sales compared to channel partner sales varies among the different industries, product technologies and geographic markets.

Competition

Competitors of the Robotics & Discrete Automation Business Area vary by offering. They include companies such as Fanuc, Kuka, Yaskawa, Epson, Dürr, Stäubli, Universal Robots, Rockwell Automation, Siemens Digital Factory, Mitsubishi Electric and Beckhoff.

Capital Expenditures

The Robotics & Discrete Automation Business Area's capital expenditures for property, plant and equipment totaled $64 million in 2020, compared to $59 million in 2019. Principal investments in 2020 were primarily related to production capacity, upgrades and equipment replacement. Geographically, in 2020, Europe represented 81 percent of the capital expenditures, followed by Asia, Middle East and Africa (16 percent) and the Americas (3 percent).

Corporate and Other

Corporate and Other includes headquarters, central research and development, real estate activities, Corporate Treasury Operations, Global Business Services (GBS), the investment in Hitachi ABB Power Grids and other minor business activities. The remaining activities of certain EPC projects which we are completing and are in a wind-down phase are also reported in Corporate and Other. In addition, the historical business activities of certain divested businesses are presented in Corporate and Other. These include the high-voltage cables business, steel structures and certain EPC contracts relating to the oil and gas industry.

Corporate headquarters and stewardship activities include the operations of our corporate headquarters in Zurich, Switzerland, as well as limited corporate-related activities in some countries. These activities cover staff functions with group-wide responsibilities, such as accounting and financial reporting, corporate finance and corporate treasury, taxes, financial planning and analysis, internal audit, legal and integrity, compliance, risk management and insurance, corporate communications, information systems and investor relations.

GBS operates shared service centers globally through a network of five hubs and consists of both expert and transactional services in the areas of human resources, finance, information services, legal, real estate, procurement and logistics, customer contact centers, global travel services and other ancillary activities. GBS also staffs and maintains front offices in most countries. The costs in GBS are incurred primarily for the benefit of the Business Areas, who are charged for their use of the services.

A significant portion of the costs for GBS and other shared corporate overhead costs are charged to the operating businesses. Up until the divestment of the Power Grids business on July 1, 2020, overhead and other management costs, including GBS costs, which would have been allocated or charged to our Power Grids business, and which were not directly attributable to this business, have not been allocated to the discontinued operation and are included in Corporate and Other as "stranded costs".

Corporate and Other had approximately 1,600 employees at December 31, 2020.

Discontinued operations

In July 2020, we divested 80.1 percent of our Power Grids business to Hitachi Ltd. As a result, the Power Grids business is reported as discontinued operations in the Consolidated Financial Statements for all years presented. See "Note 3 - Discontinued operations" to our Consolidated Financial Statements.

Power Grids business

The former Power Grids business of ABB delivered products, systems, software and service solutions across the power value chain for utility, industry and transport & infrastructure customers.

The Power Grids business operated worldwide with a globally diversified manufacturing, engineering, and research and development footprint. Direct sales accounted for the majority of total revenues generated by the business while external channel partners such as EPCs, wholesalers, distributors and OEMs accounted for the rest.

Products and Services

The Grid Automation operation supplied substation automation products, systems and services. It also provided Supervisory Control and Data Acquisition (SCADA) systems for transmission and distribution networks as well as a range of wireless, fiber optic and powerline carrier-based telecommunication technologies for mission-critical applications and also offered grid-edge and microgrid solutions. Its enterprise software portfolio provided solutions for managing and optimizing assets, operations, logistics, financials and HR, reducing operating costs and improving productivity for customers.

The Grid Integration operation was a leading provider of integration and transmission solutions such as High Voltage Direct Current (HVDC). Another key part of the portfolio was the Flexible Alternating Current Transmission Systems (FACTS) business, which comprises Static Var Compensation (SVC) and static compensator (STATCOM) technologies to address stability and power quality issues. The Grid Integration operation's portfolio also included a range of high-power semiconductors, a core technology for power electronics deployed in HVDC, FACTS and rail applications. The Grid Integration operation also provided transmission and distribution substations and associated lifecycle services. These substations are used in utility and non-utility applications including rail, data centers and various industries. Battery energy storage solutions and shore-to-ship power supply were also part of the customer offering.

The High Voltage products operation was a provider of high voltage switchgear up to 1200 kV AC and 1100 kV DC with a portfolio spanning air-insulated, gas-insulated and hybrid technologies. It also manufactured generator circuit breakers, a key product for integrating large power plants into the grid. The portfolio also included a broad range of capacitors and filters that facilitate power quality, instrument transformers and other substation components.

The Transformers operation supplied transformers that are an integral component found across the power value chain, enabling the reliable, efficient and safe conversion of voltage levels. The product range included dry- and liquid-distribution transformers, traction transformers for rail applications and special application transformers plus related components, for example, insulation kits, bushings and other transformer accessories.

The Power Grids business also had an extensive portfolio of service offerings across the value chain. The portfolio included spare parts, condition monitoring and maintenance services, on- and off-site repairs as well as retrofits and upgrades. Advanced software-based monitoring and advisory services further enhanced the portfolio.

Capital expenditures

Total capital expenditures for property, plant and equipment and intangible assets (excluding intangibles acquired through business combinations) amounted to $694 million, $762 million and $772 million in 2020, 2019 and 2018, respectively. In 2020 and 2019, capital expenditures were 24 percent and 21 percent lower, respectively, than depreciation and amortization. Excluding acquisition-related amortization, capital expenditures were 6 percent higher in 2020 and 9 percent higher in 2019, respectively, than depreciation and amortization.

Capital expenditures in 2020 remained primarily focused in mature markets, reflecting the geographic distribution of our existing production facilities. Capital expenditures in Europe and North America in 2020 were driven primarily by upgrades and maintenance of existing production facilities, mainly in the U.S., Switzerland, Germany, Italy, Finland, Sweden and Austria. Capital expenditure in the U.S. was primarily driven by GEIS-related footprint changes and product conversions in the Electrification Business Area and upgrades of existing production facilities in the Motion Business Area. Expenditures in Austria included continued investment in the state-of-the-art innovation and training campus, which is planned to become one of our largest research and development centers for new automation technologies. Additionally, we started the construction of an upgraded facility in Switzerland for our Motion Business Area. This investment aims to expand our existing global center of excellence for power electronics and also expand related innovation capabilities. Capital expenditures in emerging markets continued to remain primarily concentrated in China, India and Poland, and focus on increasing existing production capacity. The construction of an advanced, automated and flexible robotics factory in China continued and is expected to be completed in 2021. This factory is designed to combine our connected digital technologies, state-of-the-art collaborative robotics and innovative artificial intelligence research. The share of emerging markets capital expenditures as a percentage of total capital expenditures in 2020 and 2019 was 22 percent and 27 percent, respectively.

At December 31, 2020, construction in progress for property, plant and equipment was $505 million, mainly in the U.S., Switzerland, Austria, Germany and China while at December 31, 2019, construction in progress for property, plant and equipment was $500 million, mainly in the U.S., Switzerland, Finland, Germany, Austria and Sweden.

Our capital expenditures relate primarily to property, plant and equipment. For 2021, we estimate the expenditures for property, plant and equipment will be lower than our annual depreciation and amortization charge, excluding acquisition-related amortization.

Supplies and raw materials

We purchase a variety of supplies and products which contain raw materials for use in our production and project execution processes. The primary materials used in our products, by weight, are copper, aluminum, steel, mineral oil and various plastics. We also purchase a wide variety of fabricated products, electronic components and systems. We operate a worldwide supply chain management network with employees dedicated to this function in our Business Areas, Divisions and in key countries. Our supply chain operations consists of a number of teams, each focusing on different product categories. These category teams take advantage of opportunities to leverage the scale of ABB on a global, Business Area and/or Division level, as appropriate, to optimize the efficiency of our supply networks in a sustainable manner.

Our supply chain management organization's activities and objectives include:

- pool and leverage procurement of materials and services,
- provide transparency of ABB's global spending through a comprehensive performance and reporting system linked to our enterprise resource planning (ERP) systems,
- strengthen ABB's supply chain network by implementing an effective product category management structure and extensive competency-based training, and
- monitor and develop our supply base to ensure sustainability, both in terms of materials and processes used.

We buy many categories of products which contain steel, copper, aluminum, crude oil and other commodities. Continuing global economic growth in many emerging economies, coupled with the volatility in foreign currency exchange rates, has led to significant fluctuations in these raw material costs over the last few years. While we expect global commodity prices to remain highly volatile, we expect to offset some market volatility through the use of long-term contracts and global sourcing.

We seek to mitigate the majority of our exposure to commodity price risk by entering into derivative contracts. For example, we manage copper, silver and aluminum price risk using principally swap contracts based on prices for these commodities quoted on leading exchanges. ABB's hedging policy is designed to safeguard margins by minimizing price volatility and providing a stable cost base during order execution.
In addition to using derivatives to reduce our exposure to fluctuations in raw materials prices, in some cases we can reduce this risk by incorporating changes in raw materials prices into the prices of our end products (through price escalation clauses).

Overall, during 2020, supply chain management personnel in our businesses, and in the countries in which we operate, along with the category teams, continued to focus on value chain optimization efforts in all areas, while maintaining and improving quality and delivery performance. Each Business Area quickly implemented a COVID-19 task force both in operations and supply chain management. The Business Areas experienced some delays and shortages with suppliers due to the global pandemic, however we responded to these shortages and took mitigating actions such as building up larger buffer stocks, approving new suppliers, changing supplier splits, combined with daily, weekly and monthly task force project follow up. We have been able to operate without significant disruption and support business growth while maintaining delivery schedules to our customers.

In August 2012, the SEC issued its final rules regarding "Conflict Minerals", as required by section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. We initiated conflict minerals processes in 2013 and have continuously aimed at improving and tailoring the processes to our value chain. We continue to work with our suppliers and customers, to enable us to comply with the rules and disclosure obligations. Further information on ABB's Conflict Minerals policy and supplier requirements can be found under "Material Compliance" at global.abb/group/en/about.supplying.

Patents and trademarks

While we are not materially dependent on any one of our intellectual properties, as a technology-driven company, we believe that intellectual property rights are crucial to protect the assets of our business. Over the past ten years, we have continued to substantially add new applications to our existing first patent filings, and we intend to continue our aggressive approach to seeking patent protection. As of December 31, 2020, we have approximately 23,900 patent applications and registrations, of which approximately 5,300 are pending applications. These patents include more than 3,100 utility model and design applications and registrations, of which approximately 250 are pending applications. In 2020, we filed more than 1,600 patents, utility model and design applications for more than 600 new inventions. Based on our existing intellectual property strategy, we believe that we have adequate control over our core technologies. The "ABB" trademarks and logo are protected in all of the countries in which we operate. We aggressively defend our intellectual property rights to safeguard the reputation associated with the ABB technology and brand. While these intellectual property rights are fundamental to all of our businesses, there is no dependency of the business on any single patent, utility model or design application.

Management overview

The year 2020 was unprecedented due to the COVID 19 pandemic. ABB prioritized the health and safety of its employees while ensuring business continuity where possible. ABB responded to the challenges, adapting its operations to keep the vast majority running during various levels of government restrictions. This response allowed ABB to stay close to customers and to keep, where possible, to order delivery deadlines, particularly for critical infrastructure applications. Going forward we look to retain some portion of the more beneficial learnings from COVID-19, for example, by enhancing flexible working arrangements and encouraging more virtual meetings with customers.

During 2020, additional steps were taken to sustainably improve ABB's future operating performance. Some of the key actions include the launch of the ABB Purpose, implementing the operating model the ABB Way, which increases accountability, transparency and speed by transferring operating decisions closer to customers, a review of the business portfolio as well as a review of the digital strategy.

The ABB Purpose

The ABB Purpose was launched mid-year in 2020 and captures what we stand for today and what we aspire to be in the future. We believe that ABB's technologies and products are well aligned to key market trends and customer needs such as the electrification of transport, automated manufacturing, digital solutions and increased sustainable productivity. The Group is trusted by customers, holding number 1 or number 2 market share positions in most of the segments in which we operate. With our Purpose at the core, ABB strives to create superior value for customers, employees and shareholders. The ABB Purpose is summarized as:

- We succeed by creating superior value.
- We push the boundaries of technology to drive performance to new levels.
- We energize the transformation of society and industry to achieve a more productive, sustainable future.

The ABB Way

Under the ABB Way, we further evolve our decentralized business model in order that the mandate and accountability lie in our Divisions, strengthening performance management, consistently putting stability and profitability before growth, and driving active portfolio management.

The ABB Way comprises of a select number of common processes covering our business model, our people and culture, the ABB brand and our governance framework. It sets the stage for accountability, transparency and speed at ABB.

Closeness to customers and domain expertise sit in the Divisions, hence under the ABB Way the Divisions have been made the highest level at which operating decisions are made, prioritizing stability and profitability before growth.
A Division should not focus fully on growth before having achieved a structurally stable business platform and a profitability level contributing to the Group's targeted financial framework.

Each Division within the four Business Areas of Electrification, Industrial Automation, Motion and Robotics & Discrete Automation, now has full accountability for its results of operations and operating balance sheet. Each Division carries the responsibility for business development and research and development for leading technology to secure a number 1 or 2 market position.

The Divisions are free to collaborate where it adds efficiency, for example by sharing select business services or administrative functions. In line with this accountability, commencing in 2021 there will no longer be any shared services or functions operated centrally at a corporate level requiring cost allocations to the Business Areas. The corporate area will focus on necessary financial, strategic and governance activities, with a reduced headcount of less than 1,300 employees. Over the past two years, simplification efforts have delivered meaningful cost benefits to the Group such that by the end of 2020, we achieved net annual run rate cost savings exceeding $500 million.

Strong performance management is key in a decentralized business model. In the middle of 2020, a new scorecard system for the Divisions and Business Areas was introduced, based on a standardized set of Key Performance Indicators. The system aids continuous improvement by increasing transparency and accountability. It is accompanied by a mandatory target to make annual productivity improvements of at least 3 percent each year.

Starting in 2021, the Annual Incentive Plans (AIPs) will be aligned to Business Area and Divisional mandates for stability and profitability before growth. For example, AIP targets in a growth Division will have a higher weighting toward the delivery of targeted orders or revenues growth, as well as the mandatory 3 percent productivity improvement.

Business portfolio review

We have further strengthened our portfolio review process to ascertain whether ultimately ABB is the best owner of businesses. Our systematic approach is based on multiple factors within the three evaluation categories: strategic attractiveness, value creation potential and fit within ABB. During 2020, the Group's continuous portfolio review process resulted in a decision to sell the businesses operated by three Divisions: Turbocharging in Industrial Automation, Mechanical Power Transmission in Motion, and Power Conversion in Electrification. Combined, these Divisions generated approximately $1.6 billion revenues in 2020, or about 6 percent of total revenues. The divestment process will focus on seeking the best value-accretive solution for ABB and those businesses with time being a critical factor.

In addition, ABB's active portfolio management process will drive decisions within the Divisions to improve or exit areas of underperformance, supporting improved performance ambitions. Further, the Group intends to pursue strategic partnerships as well as bolt-on acquisitions, and plans to complete five or more such transactions each year, mainly in our Divisions with growth mandates.

Digital strategy

In line with our Purpose, the Group's digital strategy is focused on creating superior customer value. Our digital offering is comprised of software-enabled products and systems, as well as software and digital services, and is differentiated through our domain expertise. Our deep understanding of customers' needs and operations is based on decades-long history in a sector-focused approach, our large installed base and the global leadership position we have in many sectors.

We intend to accelerate the expansion of our digital offering that is tailored to specific sectors or applications. In line with the ABB Way this will be led by our businesses that have already successfully developed a comprehensive digital offering.

Our digital strategy drives new revenues in software and digital services that generally have a higher gross margin and additionally pull-through some of our traditional offering. Overall, this results in higher quality of revenues for the Group with improved margins and superior returns.

We continue to right-size our investments in technology according to the need of each Division. In 2020, we spent 4.3 percent of our revenues on non-order related research and development. Within our research and development spend, we expect the focus on digitalization will grow. Already, out of approximately 7,000 employees in research and development, more than 60 percent are focused on software and digitalization. Our ambition is to grow revenues derived from software and digital services at a double-digit rate going forward.

Business progress

During 2020, our financial performance was impacted by challenging general market conditions, influenced by the effects of the COVID-19 pandemic. At the same time, we focused on accelerating cost mitigation efforts, which aided profitability and cash flow generation during a tough period. Throughout the COVID-19 pandemic, our top priority has been the health and safety of our people. Substantially all of our production facilities have remained fully or partly operational and operations have been adapted as necessary for the new environment.

Orders and revenues declined in all Business Areas driven by pandemic induced headwinds and the steep drop in the oil price. Demand decreased year-on-year in all regions with the Americas seeing the largest declines, while AMEA was almost flat due to strength in China particularly towards the end of the year. While short-cycle product demand recovered relatively quickly from the sharp downturn seen at the onset of the pandemic, project and service activities continued through the year to be impacted by various travel restrictions implemented by countries around the world. As a result, the Electrification and Motion Business Areas, which are both more product-focused, showed a relatively resilient performance with annual orders in 2020 declining 9 and 3 percent respectively. Portfolio changes adversely affected Electrification by about 3 percent. Industrial Automation and Robotics & Discrete Automation faced greater challenges in end-markets such as oil and gas, conventional power generation, marine and automotive. As a result, annual orders in Robotics & Discrete Automation declined 12 percent, while Industrial Automation, benefiting from a few significant large orders in Marine, declined 4 percent in 2020. Despite the market challenges faced by the Group during 2020, our order backlog increased 7 percent.

Group profitability showed good resilience, reflecting cost reductions in all Business Areas, strong progress in Electrification with the integration of the GEIS business and turnaround of the Installation Products Division, and cost savings achieved through the ABB OS program, particularly corporate costs declining, as well as the elimination of stranded costs. A significant amount of our cost reductions were due to COVID-19 restrictions, especially for discretionary travel and certain marketing costs. The Motion Business Area maintained its track record of solid performance benefitting from a change in product mix as well as cost savings efforts. Conversely, in the Industrial Automation Business Area, the segment profit was negatively impacted by the amount recorded relating to the settlement in South Africa with Eskom in relation to the Kusile power generation project, as well as by an adverse change in product mix due to reduced service revenues. Profitability in the Robotics & Discrete Automation Business Area was impacted by lower volumes and an adverse change in product mix stemming from the continued downturn in its key end-markets such as automotive.

Within the Electrification Business Area, the integration of GEIS progressed well. Since the acquisition in 2018, we aim to deliver approximately $200 million of cumulative annual cost synergies by 2022, of which approximately 80 percent is anticipated to come from product and technology portfolio harmonization and footprint optimization. To support this transformation, we plan to expend approximately $410 million for the GEIS business from the acquisition date through 2022 and have, to date, spent approximately $300 million. By the end of 2020, more than $140 million of cost synergies have been achieved including the effects from a closure of 18 sites, primarily production plants as well as certain service facilities. Product substitutions were on track with 52 new products introduced to the market in 2020.

Several acquisitions and divestments were completed in 2020, strengthening our portfolio. In March 2020, the Electrification Business Area acquired a majority stake in Shanghai Chargedot New Energy Technology Co., Ltd, a leading Chinese e-mobility solution provider, and acquired Cylon Controls Ltd, enhancing its Smart Buildings portfolio in the commercial buildings segment. In October 2020, the Robotics & Discrete Automation Business Area acquired Codian Robotics B.V., a leading provider of delta robots, which are used primarily for high-precision pick and place applications. Codian Robotics' offering includes
a hygienic design line, ideal for hygiene-sensitive industries including food and beverage and pharmaceuticals. Additionally, we completed the previously announced divestment of the solar inverters business to FIMER S.p.A (Italy) in February 2020.

We continued to make organic growth investments in a disciplined manner, prioritizing research and development while reducing administrative costs. Total non-order related research and development was $1.1 billion in 2020, or 4.3 percent of revenues.

Capital allocation

The Board of Directors is proposing a dividend of 0.80 Swiss francs per share at the 2021 Annual General Meeting (AGM).

Our sustained capital allocation priorities are unchanged:

- funding organic growth, research and development, and capital expenditures at attractive returns,
- paying a rising, sustainable dividend per share over time,
- investing in value-creating acquisitions, and
- returning additional cash to shareholders.

Following the completion of the divestment of our Power Grids business to Hitachi on July 1, 2020, and consistent with our overall capital structure optimization program, we launched a share buyback program on July 23, 2020. As part of our plan to return cash proceeds of $7.6 – 7.8 billion from the sale of the Power Grids business we initially intend to buy up to 10 percent of our issued share capital. This initial program is planned to continue until our AGM on March 25, 2021. At the AGM, we intend to request shareholder approval to cancel the shares purchased through this initial program and to announce the next steps.

As part of a capital structure optimization program, we have also been reviewing our outstanding debt and defined benefit pension structures during 2020. As a result, we executed public tenders on two outstanding bonds and redeemed and repaid outstanding amounts on two other debt obligations. During 2020, we reduced our total debt by approximately $2.9 billion and completed the transfer of certain of the Group's defined benefit pension plan obligations to third parties, which contributed to a reduction in pension underfunding by approximately $1.1 billion. In connection with these transactions we recorded losses on extinguishment of debt of $162 million and non-operational pension costs of $520 million. These transactions are an efficient way to deleverage, significantly reducing the underfunding of our pension liabilities while reducing potential negative future cash flow and income statement impacts, and improve our financial flexibility.

Short-term outlook

Market uncertainty due to COVID-19 increased through the fourth quarter of 2020. The outlook remains muted for segments such as oil and gas, conventional power generation and marine, while raw materials costs are rising. That said, there are signs of positive development in general industry and machine builders' segments, while end-markets including buildings, distribution utilities, data centers, consumer electronics and food and beverage are expected to grow robustly.

Financial framework mirrors ambition for improved performance

During 2020, we have taken resourceful action to sustainably improve the performance of ABB. We look to improve the quality of revenues, investing to expand the Group's exposure to high-growth segments and the distributor channel, as well as to expand our digital offering, while continuing to exit high-risk EPC activities. We have increased accountability, transparency and speed in decision making by transferring responsibilities to our Divisions. This is reflected in the targets within our financial framework, which guides to:

- 3 to 5 percent annual average revenues growth through economic cycle, of which approximately two-thirds is anticipated to come from organic growth, and approximately one-third from acquired growth,
- Operational EBITA margin of 13 to 16 percent,
- Return on Capital Employed (ROCE) of 15 to 20 percent,
- Cash conversion to net income of approximately 100 percent, and
- Basic EPS growth above revenue growth.

Application of critical accounting policies

General

We prepare our Consolidated Financial Statements in accordance with U.S. GAAP and present these in U.S. dollars unless otherwise stated.

The preparation of our financial statements requires us to make assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis (see "Note 2 - Significant accounting policies" to our Consolidated Financial Statements for a listing of our most significant accounting estimates). Where appropriate, we base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from our estimates and assumptions.

We deem an accounting policy to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made and if different estimates that reasonably could have been used, or if changes in the accounting estimates that are reasonably likely to occur periodically, could materially impact our Consolidated Financial Statements. We also deem an accounting policy to be critical when the application of such policy is essential to our ongoing operations. We believe the following critical accounting policies require us to make subjective judgments, often as a result of the need to make estimates regarding matters that are inherently uncertain and material to our Consolidated Financial Statements. These policies should be considered when reading our Consolidated Financial Statements.

Revenue recognition

A customer contract exists if collectability under the contract is considered probable, the contract has commercial substance, contains payment terms, the rights and commitments of both parties, and has been approved. By analyzing the type, terms and conditions of each contract or arrangement with a customer, we determine which revenue recognition method applies.

We recognize revenues when control of goods or services is transferred to customers in an amount that reflects the consideration we expect to be entitled to in exchange for these goods or services. Control is transferred when the customer has the ability to direct the use and obtain the benefits from the goods or services.

The percentage-of-completion method of accounting involves the use of assumptions and projections, principally relating to future material, labor, subcontractor and project-related overhead costs as well as estimates of the amount of variable consideration to which we expect to be entitled. As a consequence, there is a risk that total contract costs or the amount of variable consideration will, respectively, either exceed or be lower than those we originally estimated (based on all information reasonably available to us) and the margin will decrease or the contract may become unprofitable. This risk increases if the duration of a contract increases because there is a higher probability that the circumstances upon which we originally developed our estimates will change, resulting in increased costs that we may not recover. Factors that could cause costs to increase include:

- unanticipated technical problems with equipment supplied or developed by us which may require us to incur additional costs to remedy,
- changes in the cost of components, materials or labor,
- difficulties in obtaining required governmental permits or approvals,
- project modifications creating unanticipated costs,
- suppliers' or subcontractors' failure to perform, and
- delays caused by unexpected conditions or events.

Changes in our initial assumptions, which we review on a regular basis between balance sheet dates, may result in revisions to estimated costs, current earnings and anticipated earnings. We recognize these changes in the period in which the changes in estimates are determined. By recognizing changes in estimates cumulatively, recorded revenue and costs to date reflect the current estimates of the stage of completion of each project. Additionally, losses on such contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Pension and other postretirement benefits

As more fully described in "Note 17 - Employee benefits" to our Consolidated Financial Statements, we have a number of defined benefit pension and other postretirement plans and recognize an asset for a plan's overfunded status or a liability for a plan's underfunded status in our Consolidated Balance Sheets. We measure such a plan's assets and obligations that determine its funded status as of the end of the year.

Significant differences between assumptions and actual experience, or significant changes in assumptions, may materially affect the pension obligations. The effects of actual results differing from assumptions and the changing of assumptions are included in net actuarial loss within "Accumulated other comprehensive loss".

We recognize actuarial gains and losses gradually over time. Any cumulative unrecognized actuarial gain or loss that exceeds 10 percent of the greater of the present value of the projected benefit obligation (PBO) and the fair value of plan assets is recognized in earnings over the expected average remaining working lives of the employees participating in the plan, or the expected average remaining lifetime of the inactive plan participants if the plan is comprised of all or almost all inactive participants. Otherwise, the actuarial gain or loss is not recognized in the Consolidated Income Statements.

We use actuarial valuations to determine our pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates, mortality rates and expected return on plan assets. Under U.S. GAAP, we are required to consider current market conditions in making these assumptions. In particular, the discount rates are reviewed annually based on changes in long-term, highly-rated corporate bond yields. Decreases in the discount rates result in an increase in the PBO and in pension costs. Conversely, an increase in the discount rates results in a decrease in the PBO and in pension costs. The mortality assumptions are reviewed annually by management. Decreases in mortality rates result in an increase in the PBO and in pension costs. Conversely, an increase in mortality rates results in a decrease in the PBO and in pension costs.

Holding all other assumptions constant, a 0.25 percentage point decrease in the discount rate would have increased the PBO related to our defined benefit pension plans by $300 million while a 0.25 percentage point increase in the discount rate would have decreased the PBO related to our defined benefit pension plans by $289 million.

The expected return on plan assets is reviewed regularly and considered for adjustment annually based upon the target asset allocations and represents the long-term return expected to be achieved. Decreases in the expected return on plan assets result in an increase to pension costs. Holding all other assumptions constant, an increase or decrease of 0.25 percentage points in the expected long-term rate of asset return would have decreased or increased, respectively, the net periodic benefit cost in 2020 by $24 million.

The funded status, which can increase or decrease based on the performance of the financial markets or changes in our assumptions, does not represent a mandatory short-term cash obligation. Instead, the funded status of a defined benefit pension plan is the difference between the PBO and the fair value of the plan assets. At December 31, 2020, our defined benefit pension plans were $656 million underfunded compared to an underfunding of $1,751 million at December 31, 2019. Our other postretirement plans were underfunded by $98 million and $110 million at December 31, 2020 and 2019, respectively.

We have multiple non-pension postretirement benefit plans. Our health care plans are generally contributory with participants' contributions adjusted annually. For purposes of estimating our health care costs, we have assumed health care cost increases to be 5.9 percent per annum for 2021, gradually declining to 4.9 percent per annum by 2028 and to remain at that level thereafter.

Income taxes

In preparing our Consolidated Financial Statements, we are required to estimate income taxes in each of the jurisdictions in which we operate. Tax expense from continuing operations is reconciled from the weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate). As the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland, income which has been generated in jurisdictions outside of Switzerland (hereafter "foreign jurisdictions") and has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. Therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries. There is no requirement in Switzerland for a parent company of a group to file a tax return of the group determining domestic and foreign pre-tax income and as our consolidated income from continuing operations is predominantly earned outside of Switzerland, corporate income tax in foreign jurisdictions largely determines our global weighted-average tax rate.

We account for deferred taxes by using the asset and liability method. Under this method, we determine deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. We recognize a deferred tax asset when it is more likely than not that the asset will be realized. We regularly review our deferred tax assets for recoverability and establish a valuation allowance based upon historical losses, projected future taxable income and the expected timing of the reversals of existing temporary differences. To the extent we increase or decrease this allowance in a period, we recognize the change in the allowance within "Income tax expense" in the Consolidated Income Statements unless the change relates to discontinued operations, in which case the change is recorded in "Income from discontinued operations, net of tax".

Unforeseen changes in tax rates and tax laws, as well as differences in the projected taxable income as compared to the actual taxable income, may affect these estimates.

Certain countries levy withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter "withholding taxes") on dividend distributions. Such taxes cannot always be fully reclaimed by the shareholder, although they have to be declared and withheld by the subsidiary. Switzerland has concluded double taxation treaties with many countries in which we operate. These treaties either eliminate or reduce such withholding taxes on dividend distributions. It is our policy to distribute retained earnings of subsidiaries, insofar as such earnings are not permanently reinvested or no other reasons exist that would prevent the subsidiary from distributing them. No deferred tax liability is set up, if retained earnings are considered as indefinitely reinvested, and used for financing current operations as well as business growth through working capital and capital expenditure in those countries.

We operate in numerous tax jurisdictions and, as a result, are regularly subject to audit by tax authorities. We provide for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred for events such as tax claims or changes in tax laws. Contingency provisions are recorded based on the technical merits of our filing position, considering the applicable tax laws and OECD guidelines and are based on our evaluations of the facts and circumstances as of the end of each reporting period. Changes in the facts and circumstances could result in a material change to the tax accruals. Although we believe that our tax estimates are reasonable and that appropriate tax reserves have been made, the final determination of tax audits and any related litigation could be different than that which is reflected in our income tax provisions and accruals.

An estimated loss from a tax contingency must be accrued as a charge to income if it is more likely than not that a tax asset has been impaired or a tax liability has been incurred and the amount of the loss can be reasonably estimated. We apply a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. The required amount of provisions for contingencies of any type may change in the future due to new developments.

Business combinations

The amount of goodwill initially recognized in a business combination is based on the excess of the purchase price of the acquired company over the fair value of the assets acquired and liabilities assumed. The determination of these fair values requires us to make significant estimates and assumptions. For instance, when assumptions with respect to the timing and amount of future revenues and expenses associated with an asset are used to determine its fair value, but the actual timing and amount differ materially, the asset could become impaired. In some cases, particularly for large acquisitions, we may engage independent third-party appraisal firms to assist in determining the fair values.

Critical estimates in valuing certain intangible assets include but are not limited to: future expected cash flows of the acquired business, brand awareness, customer retention, technology obsolescence and discount rates.

In addition, uncertain tax positions and tax-related valuation allowances assumed in connection with a business combination are initially estimated at the acquisition date. We re-evaluate these items quarterly, based upon facts and circumstances that existed at the acquisition date with any adjustments to our preliminary estimates being recorded to goodwill provided that we are within the twelve-month measurement period. Subsequent to the measurement period or our final determination of the tax allowance's or contingency's estimated value, whichever comes first, changes to these uncertain tax positions and tax-related valuation allowances will affect our income tax expense in our Consolidated Income Statements and could have a material impact on our results of operations and financial position. The fair values assigned to the intangible assets acquired are described in "Note 4 - Acquisitions, divestments and equity-accounted companies" as well as "Note 11 - Goodwill and intangible assets", to our Consolidated Financial Statements.

Investments in equity-accounted companies

We account for investments where we have the ability to exercise significant influence, but not control, under the equity method of accounting. Income from equity-accounted companies represents our proportionate share of net income generated by the equity-accounted investees. Differences in the basis of the investments and the separate net asset value of the investees, if any, are amortized into net income over the remaining useful lives of the underlying assets. Similar to the "Business combinations" section above, in determining the fair value of these investments, judgements and assumptions are inherent in our estimates of (i) future revenues, expenses and cash flows, (ii) discount rates, and (iii) the valuation of certain intangible assets, etc. Investments in equity-accounted companies are assessed for impairment whenever changes in the facts and circumstances indicate a loss in value has occurred, if the loss is deemed to be other than temporary. When the loss is deemed to be other than temporary, the carrying value of the equity method investment is written down to fair value. See "Note 4 - Acquisitions, divestments and equity-accounted companies", to our Consolidated Financial Statements for details of our investments in equity-accounted companies.

Goodwill and intangible assets

We review goodwill for impairment annually as of October 1, or more frequently if events or circumstances indicate the carrying value may not be recoverable. We use either a qualitative or quantitative assessment method for each reporting unit.

When performing the qualitative assessment, we first determine, for a reporting unit, factors which would affect the fair value of the reporting unit including: (i) macroeconomic conditions related to the business, (ii) industry and market trends and (iii) the overall future financial performance and future opportunities in the markets in which the business operates. We then consider how these factors would impact the most recent quantitative analysis of the reporting unit's fair value. Key assumptions in determining the fair value of the reporting unit include the projected level of business operations, the reporting unit's weighted-average cost of capital, the income tax rate and the terminal growth rate.

We adopted ABB's new operating model, the ABB Way, on July 1 2020, which resulted in a change to the composition of reporting units. Previously, the reporting units were the same as the operating segments for Electrification, Motion and Robotics & Discrete Automation, while for the Industrial Automation operating segment the reporting units were determined to be at the Division level, which is one level below the operating segment. The ABB Way provides the Divisions with full ownership and accountability for their respective strategies, performance and resources and as a result we concluded that our reporting units would then be the 18 Divisions. This change resulted only in an allocation of goodwill within the operating segments and thus there was no change to segment level goodwill.

As a result of the new composition of the reporting units and reallocation of goodwill, an interim quantitative impairment test was conducted before and after the change as of July 1, 2020. In the "before" test, it was concluded that the fair value of our reporting units exceeded the carrying value under the historical reporting unit structure.

We then performed the impairment test immediately after the change in reporting units and the fair value of each was determined using a discounted cash flow fair value estimate based on objective information at the measurement date. The significant assumptions used to develop the estimates of fair value for each reporting unit included our best estimates of the expected future results and discount rates specific to the reporting unit. Determining the projected future cash flows required significant judgments and estimates involving variables such as future sales volumes, sales prices, production and other operating costs, capital expenditures, net working capital requirements and other economic factors such as the continued impact of the COVID-19 pandemic. The fair value estimates were based on assumptions that we believed to be reasonable, but which were inherently uncertain and thus, actual results may differ from those estimates. Sensitivity analyses were performed around certain of these assumptions in order to assess the reasonableness of the assumptions and the resulting estimated fair values.

The interim quantitative impairment test indicated that, with the exception of the Machine Automation reporting unit within the Robotics & Discrete Automation operating segment, the estimated fair values of our reporting units were substantially in excess of their carrying value. The contraction of the global economy in 2020, particularly in end-customer industries and considerable uncertainty around the continued pace of macroeconomic recovery generally led to a reduction in the fair values of the reporting units, thus also affecting the Machine Automation reporting unit. At the Division level, this reporting unit does not benefit from shared cash flows generated within an entire operating segment. In addition, the book value of the Machine Automation Division includes a significant amount of intangible assets recognized in past acquisitions, resulting in a proportionately higher book value than the other reporting unit within the Robotics & Discrete Automation Business Area. These factors led to the carrying value of the Machine Automation reporting unit exceeding its fair value. During 2020, a goodwill impairment charge of $290 million was recorded to reduce the carrying value of this reporting unit to its implied fair value. The remaining goodwill for the Machine Automation reporting unit was $554 million as of December 31, 2020. Since the carrying value of this reporting unit was reduced to its fair value as of July 1, 2020, any material adverse changes such as market deterioration or changes in the competitive landscape could result in future impairment charges.

At October 1, 2020 and 2019, respectively, we performed qualitative assessments and determined that it was not more likely than not that the fair value for each of these reporting units was below the carrying value. As a result, we concluded that it was not necessary to perform the quantitative impairment test.

Intangible assets are reviewed for recoverability upon the occurrence of certain triggering events (such as a decision to divest a business or projected losses of an entity) or whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We record impairment charges other than impairments of goodwill in "Other income (expense), net" in our Consolidated Income Statements, unless they relate to a discontinued operation, in which case the charges are recorded in "Income from discontinued operations, net of tax".

New accounting pronouncements

For a description of accounting changes and recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on our Consolidated Financial Statements, see "Note 2 - Significant accounting policies" to our Consolidated Financial Statements.

Research and development

Each year, we invest significantly in research and development. Our research and development focuses on developing and commercializing the technologies, products and solutions of our businesses that are of strategic importance to our future growth. In 2020, we invested $1,127 million, or approximately 4.3 percent of our 2020 consolidated revenues, on research and development activities in our continuing operations. We also had expenditures of $46 million, or approximately 0.2 percent of our 2020 consolidated revenues, on order-related development activities. These are customer- and project-specific development efforts that we undertake to develop or adapt equipment and systems to the unique needs of our customers in connection with specific orders or projects.

In addition to continuous product development, and order-related engineering work, we develop platforms for technology applications in our businesses in our research and development laboratories, which operate on a global basis, such as our ABB Ability™ platform. Through active management of our investment in research and development, we seek to maintain a balance between short-term and long-term research and development programs and optimize our return on investment. We protect these results by holding patents, copyrights and other appropriate intellectual property protection.

To complement our business-focused product development, our businesses invest together in collaborative research activities covering topics such as artificial intelligence, software, sensors, control and optimization, mechatronics and robotics, power electronics, communication technologies, material and manufacturing, electrodynamics or electrical switching technologies. This results in advancing the state-of-the-art technologies used in our products and in common technology platforms that can be applied in multiple product lines.

Universities are incubators of future technology, and one task of our research and development teams is to transform university research into industry-ready technology platforms. We collaborate with multiple universities and research institutions to build research networks and foster new technologies. We believe these collaborations shorten the amount of time required to turn basic ideas into viable products, and they additionally help us to recruit and train new personnel. We have built numerous university collaborations in several continents, including long-term, strategic relationships with a number of leading institutions in the U.S., the United Kingdom, Sweden, Germany, Switzerland, Poland, India and China.

We are also leveraging our ecosystem to enhance our innovation efforts and gain speed with strategic partners with complementary competencies. In addition, we invest and collaborate with start-ups worldwide via our corporate venture arm ABB Technology Ventures and our start-up collaboration arm SynerLeap.

The result of our investment in research and development is that ABB is widely recognized for its world-class technology. Technology has been deeply embedded in our DNA since our founding and has carried us through our century-long history. It is one of the main reasons why customers and partners turn to us for help on their biggest challenges. Together with them, we continuously push technology frontiers to make things possible that were not possible before. We are committed to stay ahead to help our customers address the world's energy challenges, transform industries to reach new levels of performance and embed sustainability, all to leave behind a world for future generations that is at least as healthy and prosperous as the one we inherited.

Acquisitions and divestments

Acquisitions

There were no significant acquisitions in 2020 or 2019.

Divestments

Divestment of Power Grids

On July 1, 2020, ABB completed the divestment of 80.1 percent of its former Power Grids business to Hitachi. As this divestment represented a strategic shift that had a major effect on the Company's operations and financial results, the results of operations for this business are presented as discontinued operations and the assets and liabilities are reflected as held for sale for all periods presented. For more information on the divestment of the Power Grids business see "Note 3 - Discontinued operations" to our Consolidated Financial Statements.

Divestment of solar inverters

In February 2020, ABB completed the sale of its solar inverters business to FIMER S.p.A. (Italy) for no consideration. Under the agreement, which was reached in July 2019, ABB was obligated to transfer $143 million of cash to the buyer on the closing date. In addition, further payments totaling EUR 132 million ($145 million at the divestment date) are required to be transferred to the buyer from 2020 through 2025. In connection with this divestment, in 2019, we recorded a loss of $421 million, representing the excess of the carrying value over the estimated fair value of this business. In 2020, a further $33 million was recorded for additional changes in fair value occurring prior to the date of sale. Both amounts, in the respective years are reported in "Other income (expense), net". The assets and liabilities of this business are included within assets and liabilities held for sale in our Consolidated Balance Sheet as at December 31, 2019. For more information on assets held for sale, see "Note 4 - Acquisitions, divestments and equity-accounted companies" to our Consolidated Financial Statements.

Other

In 2019, we recorded net gains (including transaction costs) of $55 million, primarily due to the divestment of two businesses in China.

Exchange rates

We report our financial results in U.S. dollars. Due to our global operations, a significant amount of our revenues, expenses, assets and liabilities are denominated in other currencies. As a consequence, movements in exchange rates between currencies may affect: (i) our profitability, (ii) the comparability of our results between periods and (iii) the reported carrying value of our assets and liabilities.

We translate non-USD denominated results of operations, assets and liabilities to USD in our Consolidated Financial Statements. Balance sheet items are translated to USD using year-end currency exchange rates. Income statement and cash flow items are translated to USD using the relevant monthly average currency exchange rate. Increases and decreases in the value of the USD against other currencies will affect the reported results of operations in our Consolidated Income Statements and the value of certain of our assets and liabilities in our Consolidated Balance Sheets, even if our results of operations or the value of those assets and liabilities have not changed in their original currency. As foreign exchange rates impact our reported results of operations and the reported value of our assets and liabilities, changes in foreign exchange rates could significantly affect the comparability of our reported results of operations between periods and result in significant changes to the reported value of our assets, liabilities and stockholders' equity.

While we operate globally and report our financial results in USD, exchange rate movements between the USD and the EUR, the CNY and the CHF are of particular importance to us due to (i) the location of our significant operations and (ii) our corporate headquarters being in Switzerland.

The exchange rates between the USD and the EUR, the USD and the CHF and the USD and the

CNY at December 31, 2020, 2019 and 2018, were as follows:

Exchange rates into $	2020	2019	2018
EUR 1.00	1.23	1.12	1.15
CHF 1.00	1.14	1.03	1.02
CNY 1.00	0.15	0.14	0.15

The average exchange rates between the USD and the EUR, the USD and the CHF and the USD and the CNY for the years ended December 31, 2020, 2019 and 2018, were as follows:

Exchange rates into $	2020	2019	2018
EUR 1.00	1.14	1.12	1.18
CHF 1.00	1.07	1.01	1.02
CNY 1.00	0.14	0.14	0.15

When we incur expenses that are not denominated in the same currency as the related revenues, foreign exchange rate fluctuations could affect our profitability. To mitigate the impact of exchange rate movements on our profitability, it is our policy to enter into forward foreign exchange contracts to manage the foreign exchange transaction risk of our operations.

In 2020, approximately 76 percent of our consolidated revenues were reported in currencies other than the USD. The following percentages of consolidated revenues were reported in the following currencies:

- Euro, approximately 23 percent, and
- Chinese renminbi, approximately 15 percent.

In 2020, approximately 74 percent of our cost of sales and selling, general and administrative expenses were reported in currencies other than the USD. The following percentages of consolidated cost of sales and selling, general and administrative expenses were reported in the following currencies:

- Euro, approximately 22 percent, and
- Chinese renminbi, approximately 13 percent.

We also incur expenses other than cost of sales and selling, general and administrative expenses in various currencies.

The results of operations and financial position of our subsidiaries outside of the U.S. are generally accounted for in the currencies of the countries in which those subsidiaries are located. We refer to these currencies as “local currencies”. Local currency financial information is then translated into USD at applicable exchange rates for inclusion in our Consolidated Financial Statements.

The discussion of our results of operations below provides certain information with respect to orders, revenues, income from operations and other measures as reported in USD (as well as in local currencies). We measure period-to-period variations in local currency results by using a constant foreign exchange rate for all periods under comparison. Differences in our results of operations in local currencies as compared to our results of operations in USD are caused exclusively by changes in currency exchange rates.

While we consider our results of operations as measured in local currencies to be a significant indicator of business performance, local currency information should not be relied upon to the exclusion of U.S. GAAP financial measures. Instead, local currencies reflect an additional measure of comparability and provide a means of viewing aspects of our operations that, when viewed together with the U.S. GAAP results, provide a more complete understanding of factors and trends affecting the business. As local currency information is not standardized, it may not be possible to compare our local currency information to other companies’ financial measures that have the same or a similar title. We encourage investors to review our financial statements and publicly filed reports in their entirety and not to rely on any single financial measure.

Orders

Our policy is to book and report an order when a binding contractual agreement has been concluded with a customer covering, at a minimum, the price and scope of products or services to be supplied, the delivery schedule and the payment terms. The reported value of an order corresponds to the undiscounted value of revenues that we expect to recognize following delivery of the goods or services subject to the order, less any trade discounts and excluding any value added or sales tax. The value of orders received during a given period of time represents the sum of the value of all orders received during the period, adjusted to reflect the aggregate value of any changes to the value of orders received during the period and orders existing at the beginning of the period. These adjustments, which may in the aggregate increase or decrease the orders reported during the period, may include changes in the estimated order price up to the date of contractual performance, changes in the scope of products or services ordered and cancellations of orders. The undiscounted value of future revenues we expect to generate from our orders at any point in time is represented by our order backlog.

The level of orders fluctuates from year to year. Portions of our business involve orders for long-term projects that can take months or years to complete and many larger orders result in revenues in periods after the order is booked. Consequently, the level of orders generally cannot be used to accurately predict future revenues or operating performance. Orders that have been placed can often be cancelled, delayed or modified by the customer. These actions can reduce or delay any future revenues from the order or may result in the elimination of the order.

Transactions with affiliates and associates

In the normal course of our business, we purchase products from, sell products to and engage in other transactions with entities in which we hold an equity interest. The amounts involved in these transactions are not material to ABB Ltd. Also, in the normal course of our business, we engage in transactions with businesses that we have divested. We believe that the terms of the transactions we conduct with these companies are negotiated on an arm's length basis.

Performance measures

We evaluate the performance of our operating segments based on orders received, revenues and Operational EBITA.

Operational EBITA represents income from operations excluding:

- amortization expense on intangibles arising upon acquisitions (acquisition-related amortization),
- restructuring, related and implementation costs,
- changes in the amount recorded for obligations related to divested businesses occurring after the divestment date (changes in obligations related to divested businesses),
- changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates),
- gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale),
- acquisition- and divestment-related expenses and integration costs,
- other income/expense relating to the Power Grids joint venture,
- certain other non-operational items, as well as
- foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/ liabilities).

Certain other non-operational items generally includes: certain regulatory, compliance and legal costs, certain asset write downs/impairments (including impairment of goodwill) and certain other fair value changes, as well as other items which are determined by management on a case-by-case basis.

See "Note 23 - Operating segment and geographic data" to our Consolidated Financial Statements for a reconciliation of the total Operational EBITA to income from continuing operations before taxes.

Analysis of results of operations

The discussion in the following sections below provides a comparative analysis between 2020 and 2019. See the sections under “Operating and financial review and prospects” in our 2019 Annual Report for a comparative discussion and analysis between 2019 and 2018.

Our consolidated results from operations were as follows:

Income statement data:

($ in millions, except per share data in $)	**2020**	**2019**	**2018**
Revenues	26,134	27,978	27,662
Cost of sales	(18,256)	(19,072)	(19,118)
Gross profit	**7,878**	**8,906**	**8,544**
Selling, general and administrative expenses	(4,895)	(5,447)	(5,295)
Non-order related research and development expenses	(1,127)	(1,198)	(1,147)
Impairment of goodwill	(311)	—	—
Other income (expense), net	48	(323)	124
Income from operations	**1,593**	**1,938**	**2,226**
Interest and dividend income	51	67	72
Interest and other finance expense	(240)	(215)	(262)
Losses from extinguishment of debt	(162)	—	—
Non-operational pension (cost) credit	(401)	72	83
Income tax expense	(496)	(772)	(544)
Income from continuing operations, net of tax	**345**	**1,090**	**1,575**
Income from discontinued operations, net of tax	4,860	438	723
Net income	**5,205**	**1,528**	**2,298**
Net income attributable to noncontrolling interests	(59)	(89)	(125)
Net income attributable to ABB	**5,146**	**1,439**	**2,173**
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	294	1,043	1,514
Income from discontinued operations, net of tax	4,852	396	659
Net income	5,146	1,439	2,173
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.30	0.19	0.31
Net income	2.44	0.67	1.02
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.29	0.19	0.31
Net income	2.43	0.67	1.02

A more detailed discussion of the orders, revenues, income from operations and Operational EBITA for our Business Areas follows in the sections of “Business analysis” below for Electrification, Industrial Automation, Motion, Robotics & Discrete Automation and Corporate and Other. Orders and revenues of our businesses include intersegment transactions which are eliminated in the “Corporate and Other” line in the tables below.

Orders

				% Change	
($ in millions)	**2020**	**2019**	**2018**	**2020**	**2019**
Electrification	11,884	13,050	11,867	(9)%	10%
Industrial Automation	6,144	6,432	6,697	(4)%	(4)%
Motion	6,574	6,782	6,725	(3)%	1%
Robotics & Discrete Automation	2,868	3,260	3,808	(12)%	(14)%
Total Business Areas	**27,470**	**29,524**	**29,097**	**(7)%**	**1%**
Corporate and Other					
Non-core and divested businesses	(31)	(91)	364	n.a.	n.a.
Intersegment eliminations and other	(927)	(845)	(871)	n.a.	n.a.
Total	**26,512**	**28,588**	**28,590**	**(7)%**	**0%**

In 2020, total orders decreased 7 percent compared to 2019 (7 percent in local currencies). Total orders reflect the decline across all Business Areas as the COVID-19 pandemic affected most of our businesses across all regions. Measures taken by governments worldwide to contain the virus severely restrained investments, travel and consumption. The decrease was most significant in the Robotics & Discrete Automation Business Area, recording a significant decrease in orders due to COVID-19 disruptions and strong headwinds in discrete markets. The order decrease in the Electrification, Industrial Automation and Motion Business Areas was moderate. The decline in orders was most significant in the second quarter of the year, with variable recovery levels during the second half of 2020. In particular, in the Asia, Middle East and Africa region, order levels showed signs of a full recovery by the end of 2020 in most businesses. For additional information about individual Business Area order performance, refer to the relevant sections of “Business analysis” below.

We determine the geographic distribution of our orders based on the location of the ultimate destination of the products' end use, if known, or the location of the customer. The geographic distribution of our consolidated orders was as follows:

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Europe	9,618	10,509	10,725	(8)%	(2)%
The Americas	7,956	9,057	8,243	(12)%	10%
of which: United States	5,971	6,804	6,135	(12)%	11%
Asia, Middle East and Africa	8,938	9,022	9,622	(1)%	(6)%
of which: China	4,121	4,118	4,201	0%	(2)%
Total	**26,512**	**28,588**	**28,590**	**(7)%**	**0%**

In 2020, orders declined in all regions, reflecting the global impact of the COVID-19 pandemic. In the Americas orders declined 12 percent (11 percent in local currencies) and declined in all Business Areas. Orders declined in the U.S., Canada, Brazil, Mexico, Argentina and Peru, while they remained flat in Chile, driven by large orders in the Industrial Automation Business Area. In Europe, orders decreased 8 percent (9 percent in local currencies) with all Business Areas reporting order declines. Orders decreased in Germany, Switzerland, Italy, Finland and Norway while they increased in most Business Areas in Sweden, reflecting lighter local COVID-19 restrictions. In Asia, Middle East and Africa orders declined 1 percent (1 percent in local currencies) and were lower in the Robotics & Discrete Automation and Electrification Business Areas, while in the Industrial Automation and Motion Business Areas orders increased, driven by the growth in China. Total orders decreased in India, Singapore and Japan while they increased in South Korea and Australia driven by large orders in the Motion and Industrial Automation Business Areas. Orders from China remained flat.

Order backlog

	December 31,			% Change	
($ in millions)	2020	2019	2018	2020	2019
Electrification	4,358	4,488	4,113	(3)%	9%
Industrial Automation	5,805	5,077	4,986	14%	2%
Motion	3,320	2,967	2,740	12%	8%
Robotics & Discrete Automation	1,403	1,356	1,438	3%	(6)%
Total Business Areas	**14,886**	**13,888**	**13,277**	**7%**	**5%**
Corporate and Other					
Non-core and divested businesses	139	192	555	(28)%	(65)%
Intersegment eliminations	(722)	(756)	(748)	n.a.	n.a.
Total	**14,303**	**13,324**	**13,084**	**7%**	**2%**

At December 31, 2020, consolidated order backlog was 7 percent higher (3 percent in local currencies) compared to December 31, 2019. Order backlog increased significantly in the Industrial Automation and Motion Business Areas, increased moderately in Robotics & Discrete Automation Business Area, while it decreased slightly in the Electrification Business Area. The increase in the Motion Business Area was driven by strong order growth in long-cycle businesses. Order backlog also increased in the Industrial Automation Business Area due to orders relating to specialty marine vessels. The order backlog in the Robotics & Discrete Automation Business Area increased slightly, benefiting from order intake in the 3C and automotive and automotive-related sectors.

Revenues

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Electrification	11,924	12,728	11,686	(6)%	9%
Industrial Automation	5,792	6,273	6,500	(8)%	(3)%
Motion	6,409	6,533	6,463	(2)%	1%
Robotics & Discrete Automation	2,907	3,314	3,611	(12)%	(8)%
Total Business Areas	**27,032**	**28,848**	**28,260**	**(6)%**	**2%**
Corporate and Other					
Non-core and divested businesses	(6)	37	273	n.a.	(86)%
Intersegment eliminations and other	(892)	(907)	(871)	n.a.	n.a.
Total	**26,134**	**27,978**	**27,662**	**(7)%**	**1%**

In 2020, revenues decreased 7 percent (6 percent in local currencies). Revenues decreased across all Business Areas with the impacts of the COVID-19 pandemic resulting in a reduction in business activity and a substantial drop in book-and-bill activities. Despite these challenges, revenues in the Electrification and Motion Business Areas reflected good execution of the order backlog as well as resilience in the short-cycle businesses, particularly in the second half of the year. For additional analysis of revenues for each of the Business Areas, refer to the relevant sections of "Business analysis" below.

We determine the geographic distribution of our revenues based on the location of the ultimate destination of the products' end use, if known, or the location of the customer. The geographic distribution of our consolidated revenues was as follows:

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Europe	9,764	10,097	10,129	(3)%	0%
The Americas	7,949	8,955	8,042	(11)%	11%
of which: United States	6,027	6,753	6,005	(11)%	12%
Asia, Middle East and Africa	8,421	8,926	9,491	(6)%	(6)%
of which: China	4,098	4,047	4,910	1%	(18)%
Total	**26,134**	**27,978**	**27,662**	**(7)%**	**1%**

In 2020, revenues decreased across all regions, reflecting the impact of the COVID-19 pandemic. In the Americas revenues decreased 11 percent (9 percent in local currencies) and were lower across all Business Areas. Revenues declined in the U.S., Canada, Brazil, Mexico, Argentina, Chile and Peru. In Europe revenues decreased 3 percent (4 percent in local currencies), partly due to the sale of the solar inverters business in 2020. In Europe, revenues decreased across all Business Areas except in the Motion Business Area, reflecting lower sales volumes in Germany, Switzerland, Italy, Norway and the United Kingdom while revenues grew in Sweden and Finland with robust execution of orders, especially in short-cycle businesses and due to lighter COVID-19 restrictions in Sweden. In Asia, Middle East and Africa revenues decreased 6 percent (5 percent in local currencies) and decreased across all Business Areas except the Motion Business Area which remained flat. Revenues decreased in Saudi Arabia, India, Australia, South Korea and Singapore while they increased in China and in Japan due to a strong execution of the order backlog and generally lower lockdown restrictions over the year, benefiting the Robotics & Discrete Automation Business Area.

Cost of sales

Cost of sales consists primarily of labor, raw materials and component costs but also includes indirect production costs, expenses for warranties, contract and project charges, as well as order-related development expenses incurred in connection with projects for which corresponding revenues have been recognized.

In 2020, cost of sales decreased 4 percent (4 percent in local currencies) to $18,256 million and cost of sales as a percentage of revenues increased from 68.2 percent to 69.9 percent in 2020, a reduction in the gross margin percentage of 1.7 percent, partially due to the impact on sales volumes of the COVID-19 pandemic. The decrease in gross margin percentage also reflects additional losses for projects in non-core businesses and warranty charges relating to a divested business. In the Business Areas, the gross margin percentage was steady in the Electrification Business Area, benefiting from favorable changes in commodity prices in 2020. Gross margin percentages in the Robotics & Discrete Automation Business Area and the Industrial Automation Business Area were lower in 2020 compared to 2019, while in the Motion Business Area they were steady. For ABB, the gross margin did benefit partially from the results of savings from supply chain, operational excellence and the results of OS initiatives.

Selling, general and administrative expenses

The components of selling, general and administrative expenses were as follows:

($ in millions)	2020	2019	2018
Selling expenses	3,087	3,383	3,228
General and administrative expenses	1,808	2,064	2,067
Total	**4,895**	**5,447**	**5,295**

In 2020, general and administrative expenses decreased by 12 percent compared to 2019 (12 percent in local currencies). As a percentage of revenues, general and administrative expenses decreased to 6.9% from 7.4% in 2019. General and administrative expenses were impacted by $152 million of restructuring and implementation expenses for the OS program and administrative expenses from the integration of the acquired GEIS business compared to $240 million in 2019. General and administrative expenses in 2020 did benefit from a $185 million reduction of stranded corporate costs compared to 2019 but continues to include those ongoing costs required to deliver services to Hitachi ABB Power Grids under transition service agreements, for which we are compensated and recorded $91 million in Other income and expense, net, during 2020. Stranded costs were overhead and other management costs which could previously be allocated to the Power Grids business and were lower in 2020 as a large portion of the central costs supporting that business were transferred directly to the business. We had a decrease of general corporate function costs, including the impact of a significant reduction in travel expenses.

In 2020, selling expenses decreased 9 percent compared to 2019 (9 percent in local currencies) mainly driven by significantly reduced sales activities and related travel expenses as virtual sales meetings have been introduced to substitute face-to-face customer visits, due to the COVID-19 pandemic. This resulted in lower selling expenses across all Business Areas. These factors resulted in decreasing selling expenses as a percentage of orders received from 11.8 percent to 11.6 percent.

Non-order related research and development expenses

In 2020, non-order related research and development expenses decreased 6 percent (7 percent in local currencies) compared to 2019. Non-order related research and development expenses decreased mainly as a result of a reduction in the number of research and development employees, due to both restructuring efforts and transfer of employees to Hitachi ABB Power Grids.

In 2020, non-order related research and development expenses as a percentage of revenues remained unchanged at 4.3 percent compared to the previous year.

Impairment of goodwill

In 2020, as a result of the new composition of the reporting units and reallocation of goodwill, we recorded an impairment charge of $311 million, the majority of which related to our Machine Automation Division within the Robotics & Discrete Automation Business Area. See “Note 11 - Goodwill and intangible assets” to our Consolidated Financial Statements.

Other income (expense), net

($ in millions)	2020	2019	2018
Income (loss) from equity-accounted companies	(66)	8	6
Income from provision of services under transition services agreement	91	—	—
Brand income from Hitachi ABB Power Grids	60	—	—
Net gain from sale of property, plant and equipment	37	51	57
Gain (loss) from change in fair value of investments in equity securities	71	(5)	(6)
Favorable resolution of an uncertain purchase price adjustment	36	92	—
Net gain (loss) from sale of businesses	(2)	55	57
Gain on liquidation of foreign subsidiary	—	—	31
Restructuring and restructuring-related expenses[(1)]	(87)	(69)	(37)
Fair value adjustment on assets and liabilities held for sale	(33)	(421)	—
Asset impairments	(35)	(56)	(30)
Other income (expense)	(24)	22	46
Total	**48**	**(323)**	**124**

(1) Excluding asset impairments

In 2020, Other income (expense), net, was a gain of $48 million while it was a loss of $323 million in 2019. In 2020, the amount includes the brand income from Hitachi ABB Power Grids and an income of $91 million related to services provided to Hitachi ABB Power Grids as part of transitional service agreements. The amount also includes fair value adjustments of investments in our ABB Technology Ventures portfolio of $73 million. Partially offsetting this were costs for restructuring and restructuring-related expenses, asset impairments and net losses of $66 million from equity-accounted companies. The net loss from equity-accounted companies primarily reflects the loss from the Hitachi ABB Power Grids joint venture (see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements for additional information).

Other income (expense), net in 2019 included a loss of $421 million for the fair value adjustment to the net assets of the solar inverters business. This was partially offset by a gain of $92 million resulting from a favorable resolution of an uncertain purchase price adjustment related to the acquisition of GEIS.

Income from operations

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Electrification	1,335	1,049	1,290	27%	(19)%
Industrial Automation	344	700	853	(51)%	(18)%
Motion	989	1,009	924	(2)%	9%
Robotics & Discrete Automation	(163)	298	456	n.a.	(35)%
Total Business Areas	**2,505**	**3,056**	**3,523**	**(18)%**	**(13)%**
Corporate and Other	(927)	(1,113)	(1,302)	n.a.	n.a.
Intersegment elimination	15	(5)	5	n.a.	n.a.
Total	**1,593**	**1,938**	**2,226**	**(18)%**	**(13)%**

In 2020 and 2019, changes in income from operations were a result of the factors discussed above and in "Business analysis" below.

Financial income and expenses

Financial income and expenses include “Interest and dividend income”, “Interest and other finance expense” and “Losses from extinguishment of debt”.

“Interest and other finance expense” includes interest expense on our debt, the amortization of upfront transaction costs associated with long-term debt and committed credit facilities, commitment fees on credit facilities, foreign exchange gains and losses on financial items and gains and losses on marketable securities. In addition, interest accrued relating to uncertain tax positions is included within interest expense. “Interest and other finance expense” excludes interest expense which has been allocated to discontinued operations.

($ in millions)	2020	2019	2018
Interest and dividend income	51	67	72
Interest and other finance expense	(240)	(215)	(262)
Losses from extinguishment of debt	(162)	—	—

In 2020, “Interest and other finance expense” increased compared to 2019. Although we incurred lower interest charges on outstanding debt due to lower interest rates and a reduction of debt outstanding, this was offset by higher foreign currency exchange losses.

In 2020, we redeemed the full amount outstanding for two bonds according to the terms of the instruments and executed public tenders for two additional bonds resulting in a partial reduction of the principal outstanding. These transactions resulted in losses on extinguishment of debt totaling $162 million (see “Note 12 - Debt” to our Consolidated Financial Statements).

Non-operational pension (cost) credit

A non-operational pension cost of $401 million was incurred in 2020 compared to a $72 million credit in 2019. In 2020, we incurred charges of $520 million for certain settlements of international pension plans (see "Note 17 - Employee benefits” to our Consolidated Financial Statements).

Income tax expense

($ in millions)	2020	2019	2018
Income from continuing operations before taxes	841	1,862	2,119
Income tax expense	(496)	(772)	(544)
Effective tax rate for the year	59.0%	41.5%	25.7%

In 2020, the effective tax rate increased from 41.5 percent to 59.0 percent due to several factors. First, in 2020, the distribution of income within the Group resulted in a 5 percent higher weighted-average global tax rate. Additionally, the tax rate was negatively impacted by 9 percent due to the impairment of non-deductible goodwill and 10 percent due to non-deductible charges relating to the settlement of certain defined benefit pension plans in 2020. The rate was also negatively impacted by 5 percent due to losses from extinguishment of debt which were incurred in jurisdictions with a full valuation allowance. These negative impacts were partially offset by the favorable resolution of an uncertain tax position in Asia which reduced the tax rate by 10 percent and the positive impact due to the reorganization of a business of 2 percent.

In 2019 there were impacts on the effective tax rate from recording a loss for the planned sale of the solar inverters business which reduced the weighted-average global tax rate by approximately 2 percent and an increase in the effective tax rate by 6 percent due to a change in a valuation allowance. During 2019, the effective tax rate also was negatively impacted due to amounts for the planned divestment of the Power Grids business, primarily non-deductible expenses, taxes payable due to the reorganization of the business in connection with the planned sale, changes to valuation allowances and additional taxes for unremitted earnings. Additionally, the effective tax rate was also higher due to changes in valuation allowances and changes in taxes due to interpretation of tax law and double tax treaty agreements by competent tax authorities. See “Note 16 - Income taxes” to our Consolidated Financial Statements for additional information.

Income from continuing operations, net of tax

As a result of the factors discussed above, income from continuing operations, net of tax, in 2020 decreased by $745 million compared to 2019 to $345 million.

Income from discontinued operations, net of tax

Income from discontinued operations, net of tax, in 2020, 2019 and 2018 was as follows:

($ millions)	2020	2019	2018
Total revenues	4,008	9,037	9,698
Total cost of sales	(3,058)	(6,983)	(7,378)
Gross profit	**950**	**2,054**	**2,320**
Expenses	(808)	(1,394)	(1,326)
Net gain recognized on sale of the Power Grids business	5,141	—	—
Income from operations	**5,282**	**660**	**994**
Net interest and other finance expense	(5)	(61)	(55)
Non-operational pension (cost) credit	(94)	5	12
Income from discontinued operations before taxes	**5,182**	**605**	**951**
Income tax expense	(322)	(167)	(228)
Income from discontinued operations, net of tax	**4,860**	**438**	**723**

On July 1, 2020, we completed the divestment of 80.1 percent of our former Power Grids business to Hitachi. As a result of the sale, substantially all Power Grids related assets and liabilities have been sold. As this divestment represented a strategic shift that would have a major effect on our operations and financial results, the results of operations for this business have been presented as discontinued operations for all periods presented. In addition, consistent with the presentation of the business as discontinued operations, during 2019 and up to the sale in 2020, we did not record depreciation or amortization on the property, plant and equipment, and intangible assets reported as discontinued operations.

In 2020, as a result of the sale of the Power Grids business, we recognized a net gain of $5,141 million, net of transaction costs, for the sale of the entire Power Grids business which is included in Income from discontinued operations, net of tax. Included in the net gain was a cumulative translation loss relating to the Power Grids business of $420 million which was reclassified from accumulated other comprehensive loss (see “Note 21 - Other comprehensive income” to our Consolidated Financial Statements). Certain amounts included in the net gain are estimated or otherwise subject to change in value and, as a result, we may record additional adjustments to the gain in future periods which are not expected to have a material impact on the Consolidated Financial Statements.

Until the date of the divestment, Income from discontinued operations excluded certain costs which were previously able to be allocated to the former Power Grids business. As a result, $40 million and $225 million for 2020 and 2019, respectively, of allocated overhead and other management costs (stranded corporate costs), which were previously able to be included in the measure of segment profit for the Power Grids business were reported as part of Corporate and Other.

The amounts shown in the table above for the full-year 2020 primarily represent the operations of the Power Grids business for six months, compared to a full year of operations for 2019 and 2018. Income from discontinued operations for 2020 and 2019 included income from operations, before tax, of $5,182 million and $605 million, respectively. The results in 2020 reflect the unfavorable impact of COVID-19 on the Power Grids business in the first half of the year, higher expenses when compared to the first half of 2019 and the non-operational pension cost related to the settlement of a defined benefit pension plan in 2020. In addition, in 2020 and 2019 we recorded $322 million and $167 million, respectively, as income tax expense within discontinued operations. In 2020, this included $262 million in Income tax expense within discontinued operations in connection with the reorganization of the legal entity structure of the Power Grids business required to facilitate its sale.

For additional information on the divestment and discontinued operations see, “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Net income attributable to ABB

As a result of the factors discussed above, net income attributable to ABB in 2020 increased by $3,707 million compared to 2019 to $5,146 million.

Earnings per share attributable to ABB shareholders

(in $)	2020	2019	2018
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.30	0.19	0.31
Net income	2.44	0.67	1.02
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.29	0.19	0.31
Net income	2.43	0.67	1.02

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise: outstanding written call options and outstanding options and shares granted subject to certain conditions under our share-based payment arrangements. See "Note 20 - Earnings per share" to our Consolidated Financial Statements.

Business analysis

Electrification Business Area

The financial results of our Electrification Business Area, including the operations of GEIS which was acquired in June 2018, were as follows:

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Orders	11,884	13,050	11,867	(9)%	10%
Order backlog at December 31,	4,358	4,488	4,113	(3)%	9%
Revenues	11,924	12,728	11,686	(6)%	9%
Income from operations	1,335	1,049	1,290	27%	(19)%
Operational EBITA	1,681	1,688	1,626	0%	4%

Orders

Approximately two-thirds of the Business Area's orders are for products with short delivery times; orders are usually recorded and delivered within a three-month period and thus are generally considered as short-cycle. The remainder of orders is comprised of smaller projects that require longer lead times, as well as larger solutions requiring engineering and installation. Approximately half of the Business Area's orders are received via third-party distributors; as a consequence, end customer market data is based partially on management estimates.

In 2020, orders decreased 9 percent (9 percent in local currencies) as the global COVID-19 pandemic negatively impacted demand across all Divisions. Measures taken by governments worldwide to contain the virus severely restrained private consumption, investment, trade and travel. Orders decreased 3 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020, as well as the divestment of two joint ventures in China in the end of 2019. Investment in oil and gas related projects decreased significantly, reflecting the current economic uncertainty. Demand in the building segment was significantly impacted by global lockdowns and COVID-19 related restrictions across various markets, while residential activities showed signs of recovery during the fourth quarter. Commercial and industrial buildings suffered from weaker market conditions, which contributed to the overall order decrease. A lower level of large orders from the utility sector negatively impacted orders in the Distribution Solutions Division in 2020. The demand for data centers benefited from a positive momentum with strong contribution from colocation, cloud-based customers and hyperscale investments. Demand for electric vehicle infrastructure and urban mobility (E-bus, AC-DC chargers, Metro trains) was strong, with investment in all regions. Rail investments continued to be robust throughout the year.

The geographic distribution of orders for our Electrification Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	4,149	4,281	4,225
The Americas	4,033	4,653	3,771
of which: United States	3,065	3,501	2,746
Asia, Middle East and Africa	3,702	4,116	3,871
of which: China	1,819	1,885	1,776
Total	**11,884**	**13,050**	**11,867**

In 2020, orders decreased in all regions. Orders in Europe decreased 3 percent (3 percent in local currencies) as robust order intake in Germany and Sweden partially compensated lower order volumes in Italy, France and Spain due to the current market contraction. Demand in Asia, Middle East and Africa decreased 10 percent (10 percent in local currencies) despite a recovery in China during the second half of the year which substantially offset the COVID-19 related order drop in the first half of the year. The COVID-19 pandemic impacted total orders in the Americas significantly, decreasing 13 percent (12 percent in local currencies). Orders in the U.S., Brazil and Mexico decreased substantially. Orders in Canada were also lower but showed signs of recovery in the fourth quarter.

Order backlog

In 2020, the order backlog decreased 3 percent (5 percent in local currencies). The order backlog decreased 2 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020. The remaining order backlog decreased by 1 percent, partly due to strong backlog execution in the Distribution Solutions Division, but also reflecting the weaker order intake in most Divisions during the year.

Revenues

In 2020, revenues decreased 6 percent (6 percent in local currencies). Revenues declined across all Divisions reflecting the challenging market condition and operational environment caused by the COVID-19 pandemic. Revenues decreased 3 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020, as well as the divestment of two joint ventures in China in the end of 2019. Revenues from long-cycle businesses were impacted by COVID-19 related execution challenges such as restrictions to access customer sites, as well as customer driven delays in receiving finished goods. Revenues from data centers, e-mobility, power distribution and mining were more robust than oil and gas, and conventional power generation. Revenues from short-cycle product businesses were negatively affected by COVID-19 and decreased across most end-user segments, including residential and commercial buildings. Revenues for the Installation Products and Power Conversion Divisions, which have a high dependence on the North American market, were particularly challenged.

The geographic distribution of revenues for our Electrification Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	4,190	4,251	4,136
The Americas	4,093	4,635	3,715
of which: United States	3,115	3,555	2,724
Asia, Middle East and Africa	3,641	3,842	3,835
of which: China	1,858	1,749	1,752
Total	**11,924**	**12,728**	**11,686**

In 2020, revenues in the Americas were strongly impacted by the COVID-19 pandemic and decreased 12 percent (11 percent in local currencies) with significant declines in the U.S., Brazil and Mexico. Revenues in Europe were robust, decreasing 1 percent (2 percent in local currencies). Lower revenues in Switzerland, Italy and Spain were partially offset by growth in Germany, Sweden, Finland and Netherlands. Revenues decreased 5 percent (5 percent in local currencies) in Asia, Middle East and Africa, as the recovery in China during the second half of the year could not fully compensate revenue declines within the region, such as in India, caused by lower demand and COVID-19 pandemic driven lockdowns.

Income from operations

In 2020, income from operations increased 27 percent, mainly due to both the comparative loss of $421 million recognized in 2019 to record the solar inverters business at fair value net of the higher gain in 2019 of $92 million relating the receipt of cash from General Electric for a favorable resolution of an uncertainty with respect to the price paid to acquire GEIS. The COVID-19 pandemic negatively affected the Business Area with lower revenues, higher costs of underutilized manufacturing facilities as well as higher costs for various necessary safety measures and protective equipment. This was partly offset by government grants, furlough measures and a significant reduction of travel and other discretionary expenses. Income from operations in 2020 benefited from a reduction in acquisition-related expenses and integration costs compared to 2019, mainly relating to GEIS. The Business Area also benefited from lower commodity prices in 2020, although commodity headwinds gradually increased during the year. Product pricing actions across the product businesses and the benefits of savings realized from ongoing restructuring and cost savings programs also had a positive impact on operating margins. However, the Distribution Solutions Division experienced negative impacts from pricing pressure, and OS related implementation costs were higher in 2020 compared to 2019. Restructuring related expenses in our operating Divisions were steady, and changes in foreign currencies, including the impacts from FX/commodity timing differences, had no significant impact on 2020 compared to 2019.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Electrification Business Area was as follows:

($ in millions)	2020	2019	2018
Income from operations	**1,335**	**1,049**	**1,290**
Acquisition-related amortization	115	115	106
Restructuring, related and implementation costs	145	112	98
Changes in obligations related to divested businesses	15	—	—
Changes in pre-acquisition estimates	11	22	19
Gains and losses from sale of businesses	4	(42)	(81)
Fair value adjustment on assets and liabilities held for sale	33	421	—
Favorable resolution of an uncertain purchase price adjustment	(36)	(92)	—
Acquisition- and divestment-related expenses and integration costs	71	119	168
Certain other non-operational items	9	3	(2)
FX/commodity timing differences in income from operations	(21)	(19)	28
Operational EBITA	**1,681**	**1,688**	**1,626**

In 2020, Operational EBITA remained flat (1 percent lower excluding the impacts from changes in foreign currencies) compared to 2019, primarily due to the reasons described under “Income from operations”, excluding the explanations related to the reconciling items in the table above.

Industrial Automation Business Area

The financial results of our Industrial Automation Business Area were as follows:

				% Change	
($ in millions)	**2020**	**2019**	**2018**	**2020**	**2019**
Orders	6,144	6,432	6,697	(4)%	(4)%
Order backlog at December 31,	5,805	5,077	4,986	14%	2%
Revenues	5,792	6,273	6,500	(8)%	(3)%
Income from operations	344	700	853	(51)%	(18)%
Operational EBITA	451	732	914	(38)%	(20)%

Orders

In 2020, orders decreased 4 percent (4 percent in local currencies) compared to 2019 reflecting the combined effects of the COVID-19 pandemic and a lower oil price. Those effects negatively impacted orders in the Measurement & Analytics, Turbocharging, Energy Industries and Process Industries Divisions while orders in Marine & Ports Division were up primarily due to large capital investment orders, specifically for the liquefied natural gas (LNG) sector. This increase could not offset the significant decline in orders, in particular in the ongoing service business which was driven by mobility constraints caused by extensive lockdown restrictions as well as lower demand from customers to invest in the current uncertain environment. Customer investment decreased significantly in cruise, conventional power generation, oil and petrochemical, and mining sectors.

The geographic distribution of orders for our Industrial Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	2,365	2,599	2,867
The Americas	1,360	1,627	1,564
of which: United States	770	995	990
Asia, Middle East and Africa	2,419	2,206	2,266
of which: China	559	631	564
Total	**6,144**	**6,432**	**6,697**

Orders in Europe decreased 9 percent (9 percent in local currencies) driven by lower orders in the Energy Industries Division due to the effect of a depressed oil price and mobility constraints, and in the Marine & Ports Division due to lower cruise orders. Orders in Asia, Middle East and Africa increased 10 percent (10 percent in local currencies) due to larger orders related to capital investments in LNG in the Marine & Ports Division. The remaining end-markets in Asia, Middle East and Africa were subdued. China orders were down in the Energy Industries, Marine & Ports and Process Industries Divisions. Orders in the Americas decreased by 16 percent (14 percent in local currencies) and decreased in all Divisions except the Marine & Ports Division. Orders in the U.S. were down in all Divisions except for the Marine & Ports Division due to a large specialty marine vessel order.

Order backlog

The order backlog at the end of 2020 was 14 percent higher (9 percent in local currencies) than at the end of 2019. All Divisions registered an increase in backlog except the Turbocharging Division which was impacted by the marine and conventional onshore oil and gas markets. The Marine & Ports Division benefited from orders for specialty marine vessels which are executed over multiple years. The Energy Industries Division's backlog increase reflected select orders for LNG solutions and the Process Industries Division's backlog benefited from the receipt of a large order in the mining market.

Revenues

In 2020, revenues decreased 8 percent (7 percent in local currencies). Revenues were lower across all Divisions compared to 2019, reflecting subdued level of book-and-bill activities. Revenues in shorter cycle businesses were particularly impacted due to the COVID-19 pandemic and service was significantly down, due to mobility constraints and difficulties in executing services described above.

The geographic distribution of revenues for our Industrial Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	2,395	2,494	2,534
The Americas	1,329	1,595	1,479
of which: United States	808	950	944
Asia, Middle East and Africa	2,068	2,184	2,487
of which: China	629	612	616
Total	**5,792**	**6,273**	**6,500**

In 2020, revenues were 4 percent lower (4 percent in local currencies) in Asia, Middle East and Africa, 17 percent lower (15 percent in local currencies) in the Americas and 5 percent weaker (5 percent in local currencies) in Europe compared to 2019. In Asia, Middle East and Africa, the Process Industries, Marine & Ports and Turbocharging Divisions registered strong growth in 2020. The Process Industries, Marine & Ports and Turbocharging Divisions grew strongly in China while revenues in the Energy Industries Division were negatively impacted by project-related challenges in the Kusile power generation project in South Africa. In Europe, revenues decreased across all Divisions except in the Process Industries Division. In the Americas, revenues were negatively impacted across all Divisions. Revenues in the U.S. declined significantly, reflecting the downturn in the oil and gas and cruise market segments.

Income from operations

In 2020, income from operations decreased 51 percent compared to 2019 on weaker sales volumes in all Divisions, project-related challenges in the Kusile power generation project in South Africa and legacy projects in India, and higher restructuring charges of approximately $100 million. Income from operations was also impacted by legal costs relating to challenges in certain projects, unfavorable pricing and product mix. The Business Area benefited from the positive results of ongoing business rationalization efforts and other cost saving measures especially lower sales expenses. The changes in foreign currencies, including the effect from changes in the FX/commodity timing differences summarized in the table below, increased income from operations by 4 percent compared to 2019.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Industrial Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Income from operations	**344**	**700**	**853**
Acquisition-related amortization	4	4	6
Restructuring, related and implementation costs	125	21	35
Gains and losses from sale of businesses	—	—	3
Acquisition- and divestment-related expenses and integration costs	2	—	4
Certain other non-operational items	1	2	3
FX/commodity timing differences in income from operations	(25)	5	10
Operational EBITA	**451**	**732**	**914**

In 2020, Operational EBITA decreased 38 percent (39 percent excluding the impacts from changes in foreign currencies) compared to 2019. The change is due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

Motion Business Area

The financial results of our Motion Business Area were as follows:

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Orders	6,574	6,782	6,725	(3)%	1%
Order backlog at December 31,	3,320	2,967	2,740	12%	8%
Revenues	6,409	6,533	6,463	(2)%	1%
Income from operations	989	1,009	924	(2)%	9%
Operational EBITA	1,075	1,082	1,023	(1)%	6%

Orders

In 2020, orders declined 3 percent (2 percent in local currencies) compared to 2019, reflecting the impact of the COVID-19 pandemic. Orders development had a mixed performance across the market segments. The Business Area benefited from rising demand in the rail sector, mainly in the Traction Division and an increase in demand in the water and waste water sector in the System Drives and Drive Products Divisions, with stable demand from traditional heavy industries such as mining and minerals and pulp and paper as well as slower demand from oil, gas and chemicals.

The geographic distribution of orders for our Motion Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	2,219	2,355	2,260
The Americas	2,276	2,437	2,490
of which: United States	1,898	2,048	2,105
Asia, Middle East and Africa	2,079	1,990	1,975
of which: China	1,077	987	929
Total	**6,574**	**6,782**	**6,725**

In 2020, in Europe orders decreased 6 percent (6 percent in local currencies) as orders declined in Finland, Russia, France, Italy and Spain. In Asia, Middle East and Africa, orders increased 4 percent (6 percent in local currencies) driven by growth in China, especially in the Drive Products Division and was partly offset by other markets. In the Americas, orders declined 7 percent (6 percent in local currencies) mainly as a result of decreased orders in the U.S., reflecting the impact of the COVID-19 pandemic.

Order backlog

The order backlog in 2020 increased 12 percent (6 percent in local currencies) compared to 2019. The order backlog increased driven by strong long-cycle order growth.

Revenues

In 2020, revenues declined 2 percent (2 percent in local currencies) compared to 2019, and were lower across most Divisions, resulting from the impacts of the COVID-19 pandemic. However, revenues reflected strong execution from the order backlog especially in the System Drives Division as well as resilience in the short-cycle business, particularly in the second half of the year.

The geographic distribution of revenues for our Motion Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	2,196	2,162	2,169
The Americas	2,225	2,378	2,436
of which: United States	1,867	2,009	2,044
Asia, Middle East and Africa	1,988	1,993	1,858
of which: China	1,040	955	940
Total	**6,409**	**6,533**	**6,463**

In 2020, revenues in Europe increased 2 percent (1 percent in local currencies) driven by increases in Poland, Spain and Sweden while sales volumes declined in Germany and Norway. In Asia, Middle East and Africa revenues remained stable as revenue growth was strong in China, partially offset by decreases in India and Saudi Arabia. In the Americas, revenues decreased 6 percent (5 percent in local currencies) mainly as a result of lower revenues in the U.S., especially in the book-and-bill business in the Motors & Generators and Mechanical Power Transmission Divisions.

Income from operations

In 2020, income from operations decreased 2 percent compared to 2019 driven primarily by lower revenues. The lower business volumes reflect the impacts of the COVID-19 pandemic on customer demand and product deliveries. These impacts were mitigated partially by continued cost discipline, lower travel expenses and a focus on operational performance. In 2020, the Motion Business Area was also impacted by higher restructuring and restructuring-related expenses. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, positively impacted income from operations by 3 percent.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Motion Business Area was as follows:

($ in millions)	2020	2019	2018
Income from operations	**989**	**1,009**	**924**
Acquisition-related amortization	52	53	61
Restructuring, related and implementation costs	44	12	17
Gains and losses from sale of businesses	—	—	4
Acquisition- and divestment-related expenses and integration costs	—	—	2
Certain other non-operational items	17	14	10
FX/commodity timing differences in income from operations	(27)	(6)	5
Operational EBITA	**1,075**	**1,082**	**1,023**

In 2020, Operational EBITA decreased 1 percent (1 percent excluding the impact from changes in foreign currency exchange rates) primarily due to the reasons described under “Income from operations”, excluding the explanations related to the reconciling items in the table above.

Robotics & Discrete Automation Business Area

The financial results of our Robotics & Discrete Automation Business Area were as follows:

				% Change	
($ in millions)	2020	2019	2018	2020	2019
Orders	2,868	3,260	3,808	(12)%	(14)%
Order backlog at December 31,	1,403	1,356	1,438	3%	(6)%
Revenues	2,907	3,314	3,611	(12)%	(8)%
Income (loss) from operations	(163)	298	456	n.a.	(35)%
Operational EBITA	237	393	528	(40)%	(26)%

Orders

In 2020, orders decreased 12 percent (12 percent in local currencies). Demand levels in the Robotics and Machine Automation Divisions were negatively impacted by the COVID-19 pandemic. During the second quarter, both Divisions suffered a significant decrease in demand when activity levels declined across key end-markets, including traditional automotive and automotive-related sectors, machine builders and electronics markets. Orders showed signs of recovery in the second half of the year benefiting from select robotics investments in the 3C and automotive sectors, mostly in China, food and beverage, and logistics markets.

The geographic distribution of orders for our Robotics & Discrete Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	1,424	1,717	1,870
The Americas	388	457	493
of which: United States	277	310	311
Asia, Middle East and Africa	1,056	1,086	1,445
of which: China	781	729	1,019
Total	**2,868**	**3,260**	**3,808**

In 2020, order intake for Asia, Middle East and Africa decreased 3 percent (2 percent in local currencies) compared to 2019. Strong demand in China was partially offset by order decreases in India and Japan. Demand in Europe declined 17 percent (18 percent in local currencies) as a result of the impacts from the COVID-19 pandemic, with a strong decline in orders in Germany, Italy and France. The orders in the Americas declined 15 percent (12 percent in local currencies) as a result of the large decrease of orders in the U.S. in both Divisions.

Order backlog

In 2020, the order backlog increased 3 percent (2 percent lower in local currencies) compared to 2019. In local currencies, the backlog decreased despite a recovery in order levels in both Divisions in the second half of the year, impacted by the positive momentum in 3C and automotive and automotive-related sectors.

Revenues

In 2020, revenues decreased 12 percent (13 percent in local currencies) compared to 2019. Revenues decreased in both Divisions due to lower volumes from book-and-bill business, impacted by the COVID-19 pandemic. Service revenues also decreased, driven by weak demand from automotive and automotive-related sectors partially offset by an increase in consumer segments.

The geographic distribution of revenues for our Robotics & Discrete Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Europe	1,481	1,680	1,777
The Americas	389	464	482
of which: United States	273	293	313
Asia, Middle East and Africa	1,037	1,170	1,352
of which: China	719	829	991
Total	**2,907**	**3,314**	**3,611**

In 2020, revenues decreased in all regions. The revenues from Asia, Middle East and Africa decreased 11 percent (12 percent in local currencies) compared to 2019 due to lower book-and-bill revenues and lower execution of orders in China. Revenues in Europe decreased 12 percent (13 percent in local currencies) with Italy and Germany performing poorly while revenues grew slightly in the United Kingdom and France. In the Americas, revenues declined 16 percent (13 percent in local currencies) due to a slight decrease in revenues in the U.S. in both Divisions, negatively impacted by the COVID-19 pandemic.

Income (loss) from operations

In 2020, the Business Area recorded a loss from operations of $163 million compared to an income of $298 million in 2019, reflecting both the impact of an impairment of goodwill in 2020 in the Machine Automation Division of $290 million and a decrease in underlying operating performance. The operational performance was affected by lower sales volumes, an adverse change in the revenue mix, partially offset by benefits of cost reduction measures (especially selling costs) and lower travel expenses. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted the loss from operations by approximately 7 percent.

Operational EBITA

The reconciliation of Income (loss) from operations to Operational EBITA for the Robotics & Discrete Automation Business Area was as follows:

($ in millions)	2020	2019	2018
Income (loss) from operations	**(163)**	**298**	**456**
Acquisition-related amortization	78	77	82
Restructuring, related and implementation costs	26	12	4
Changes in pre-acquisition estimates	—	—	(11)
Acquisition- and divestment-related expenses and integration costs	—	1	—
Impairment of goodwill	290	—	—
Certain other non-operational items	5	4	1
FX/commodity timing differences in income from operations	1	1	(4)
Operational EBITA	**237**	**393**	**528**

In 2020, Operational EBITA decreased 40 percent (40 percent excluding the impact from changes in foreign currency exchange rates) compared to 2019, primarily due to the reasons described under “Income (loss) from operations”, excluding the explanations related to the reconciling items in the table above.

Corporate and Other

Net loss from operations for Corporate and Other was as follows:

($ in millions)	2020	2019	2018
Corporate headquarters and stewardship	(334)	(334)	(391)
Costs for divestment of Power Grids	(86)	(141)	—
Income (loss) from equity-accounted companies	(68)	1	—
Corporate research and development	(49)	(185)	(183)
Restructuring	(46)	(60)	(18)
Digital	(45)	(33)	(46)
OS implementation costs	(24)	(83)	(11)
Net gain (loss) from sale of businesses	(2)	13	(17)
Fair value adjustment on equity securities	71	(5)	(6)
Corporate brand income from Hitachi ABB Power Grids	60	—	—
Corporate real estate	54	60	75
Other corporate costs	(61)	43	—
Stranded corporate costs	(40)	(225)	(297)
Divested businesses and other non-core activities	(342)	(164)	(408)
Total Corporate and Other	**(912)**	**(1,113)**	**(1,302)**

In 2020, the net loss from operations within Corporate and Other decreased by $201 million to $912 million compared to 2019. This reflected a reduction in stranded corporate costs and other costs eliminated due to the divestment of the Power Grids business. In 2020, we incurred significantly lower restructuring and implementation costs for the OS program and also lower costs relating to the divestment of the Power Grids business. Additionally, costs also declined for corporate research and development expenses. This was partially offset by higher losses in the non-core businesses compared to 2019 as well as the impact of recording the equity-method loss relating to the Hitachi ABB Power Grids joint venture in the second half of the year. In 2020, Corporate brand income of $60 million was recorded relating to the use of the ABB brand by the Hitachi ABB Power Grids joint venture.

Corporate

In 2020, corporate headquarters and stewardship costs remained flat, benefiting from savings generated from results of the OS restructuring program efforts, offset by costs for current strategic projects. Costs were lower in corporate functions including: communications, finance, human resources, tax, treasury and information technology. Lower costs reflect the benefits of the reduction in country-level general management costs, spending controls adopted due to the impact of the COVID-19 pandemic and the impact of lower travel expenses and certain marketing costs.

Our investment in the Hitachi ABB Power Grids joint venture is accounted for using the equity method. Income (loss) from equity-accounted companies in 2020 primarily reflects the loss recorded from this joint venture commencing in July 2020. The equity-method loss from the joint venture reflects the amortization of the notional purchase price accounting adjustments (net of tax) which were recorded due to the fair value accounting applied on initial investment in the joint venture (see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements for information on the accounting for the investment in Hitachi ABB Power Grids).

Corporate research and development costs declined significantly compared to 2019. This was primarily due to the transfer of resources to the Power Grids business as well as headcount reductions resulting from restructuring initiatives under the OS program.

For further information on the OS Program see “Restructuring and other cost savings initiatives” below as well as “Note 22 – Restructuring and related expenses” to our Consolidated Financial Statements.

During 2020, we recorded net revaluation gains totaling $71 million on investments in equity securities in our equity ventures investment portfolio

Corporate brand income results from the granting of the use of the ABB brand to Hitachi ABB Power Grids, the fair value of which was initially determined on the date of the divestment. A portion of the proceeds received for the sale of the Power Grids business was allocated to the fair value of the granting of the use of the brand and is being amortized over the expected period of use by Hitachi ABB Power Grids.

Corporate real estate primarily includes income from property rentals and gains from the sale of real estate properties. In 2020, income from operations in Corporate real estate included gains from the sale of real estate properties of $27 million compared to $48 million in 2019.

Other corporate costs consists of operational costs of our Corporate Treasury Operations and certain other charges such as costs and penalties associated with legal cases and environmental expenses.

Stranded corporate costs includes the amount of allocated general and administrative and other overhead costs previously included in the measure of segment profit (Operational EBITA) for the Power Grids business which is presented as discontinued operations. These allocated costs do not qualify for being reported as costs within the discontinued operation. During 2020, stranded costs were recorded until the sale of the Power Grids business and the lower relative costs reflect the effects of transferring centralized functions directly to the Power Grids business. The remaining underlying cost base which we continue to maintain for the benefit of Hitachi ABB Power Grids is subject to transition services agreements.

Other - Divested businesses and other non-core activities

The results of operations for certain divested businesses and other non-core activities are presented in Corporate and Other. Divested businesses include the high-voltage cables business, steel structures business as well as the oil & gas EPC business. Other continuing non-core activities include the execution and wind-down of certain legacy EPC and other contracts.

In both 2020 and 2019, the amounts represent charges and losses relating to divested businesses and the winding down of the remaining EPC projects. In 2020, we recorded $143 million for certain retained warranty obligations relating to the steel structures business and also recorded charges for certain retained commitments and guarantees in connection with the oil & gas EPC business. The loss in 2020 also reflects further operational challenges and customer obligations relating to several legacy projects including the full train retrofit business, substations and offshore wind. In 2019, we recorded additional losses for legacy substations, plant electrification EPC contracts and the full train retrofit business, which were driven by additional project cost overruns.

At December 31, 2020, our remaining non-core activities primarily include the completion of the remaining EPC contracts for substations and oil & gas as well as the completion of the remaining obligations for the full train retrofit business.

Restructuring and other cost savings initiatives

OS program

In December 2018, ABB announced a two-year restructuring program with the objective of simplifying its business model and structure through the implementation of a new organizational structure driven by its businesses. The program resulted in the elimination of the country and regional structures within the previous matrix organization, including the elimination of the three regional Executive Committee roles. The operating businesses are now responsible for both their customer-facing activities and business support functions, while the remaining Group-level corporate activities primarily focus on Group strategy, portfolio and performance management and capital allocation. As of December 31, 2020, we have incurred substantially all restructuring and related expenses related to the OS program.

During the course of the program, we implemented and executed various restructuring initiatives across all business support functions and all operating segments. The cumulative restructuring and related expenses under this program, originally estimated to be $350 million, were reduced by $41 million to $309 million, mainly due to the reductions in both estimated costs and number of projects planned.

The following table outlines the costs incurred in 2020, 2019, 2018 and the cumulative costs incurred under the program per operating segment and Corporate and Other as of December 31, 2020:

	Costs incurred in			Cumulative costs incurred up to December 31, 2020
($ in millions)	**2020**	**2019**	**2018**	
Electrification	35	18	32	85
Industrial Automation	37	3	21	61
Motion	18	6	1	25
Robotics & Discrete Automation	10	8	—	18
Corporate and Other	49	54	11	114
Total	**149**	**89**	**65**	**303**

ABB completed and has incurred substantially all costs related to the OS program as of December 31, 2020. The restructuring program resulted in run-rate cost savings of approximately $590 million, impacting all Business Areas and Corporate and Other. These cost savings were realized mainly as reductions in cost of sales, selling, general and administrative expenses, and non-order related research and development expenses.

The majority of the remaining cash outlays as of December 31, 2020, primarily for employee severance benefits, are expected to occur in 2021.

Liquidity and capital resources

Principal sources of funding

We meet our liquidity needs principally using cash from operations, proceeds from the issuance of debt instruments (bonds and commercial paper), and short-term bank borrowings. In 2020, we also received significant funds from the sale of the Power Grids business, which was completed on July 1, 2020.

Our net debt is shown in the table below:

	December 31,	
($ in millions)	**2020**	**2019**
Short-term debt and current maturities of long-term debt	1,293	2,287
Long-term debt	4,828	6,772
Cash and equivalents	(3,278)	(3,508)
Restricted cash - current	(323)	(36)
Marketable securities and short-term investments	(2,108)	(566)
Restricted cash - non-current	(300)	—
Net debt (defined as the sum of the above lines)	**112**	**4,949**

During 2020, we significantly deleveraged the Company, driven by the receipt of $9,241 million initial net proceeds from the sale of the Power Grids business. As a result, we reduced net debt to $112 million at December 31, 2020, from

$4,949 million at December 31, 2019. This change was also supported by cash flows from operating activities during 2020 of $1,693 million and by the sale of treasury stock in relation to our employee share plans for $412 million. Partially offsetting these items were amounts for purchases of treasury shares of $3,048 million including $2,702 million relating to the announced buyback of our shares as well as $1,736 million for the payment of the dividend to our shareholders. We made net purchases of property, plant and equipment and intangible assets of $580 million (for both continuing and discontinued operations) and made payments of dividends to noncontrolling shareholders totaling $82 million. In addition, net debt increased by $269 million due to movements in foreign exchange rates. See "Financial position", "Investing activities" and "Financing activities" for further details.

During March 2020, as a result of the reaction of global financial markets to the COVID-19 pandemic, access to commercial paper markets was limited. However, the bond and bank credit markets continued to be accessible at temporarily increased credit spreads. To support our short-term liquidity needs at that time, we entered into a bank-funded short-term EUR 2 billion Revolving Credit Agreement and received the proceeds on March 31, 2020, amounting to $2,183 million, net of issuance costs. We repaid this borrowing after the completion of the sale of the Power Grids business at which time the agreement was terminated. Financial markets quickly stabilized and we were again able to access the commercial paper markets with costs commensurate to our credit rating. Through the rest of the year, we did not require access to the commercial paper markets for funding.

Our Corporate Treasury Operations is responsible for providing a range of treasury management services to our group companies, including investing cash in excess of current business requirements. At December 31, 2020 and 2019, the proportion of our aggregate "Cash and equivalents" and "Marketable securities and short-term investments" managed by our Corporate Treasury Operations amounted to approximately 53 percent and 34 percent, respectively.

Our investment strategy for cash (in excess of current business requirements) has generally been to invest in short-term time deposits with maturities of less than 3 months, supplemented at times by investments in money market funds, and in some cases, government securities. We primarily invested the proceeds received from the sale of the Power Grids business in money market funds and reduced these funds over the rest of 2020 to execute our share buyback activities and to pay back maturing debt and retire other debts in advance. We actively monitor credit risk in our investment portfolio and derivative portfolio. Credit risk exposures are controlled in accordance with policies approved by our senior management to identify, measure, monitor and control credit risks. We have minimum rating requirements for our counterparts and closely monitor developments in the credit markets making appropriate changes to our investment policy as deemed necessary. In addition to minimum rating criteria, we have strict investment parameters and specific approved instruments as well as restrictions on the types of investments we make. These parameters are closely monitored on an ongoing basis and amended as we consider necessary.

Our cash is held in various currencies around the world. Approximately 31 percent of our cash and cash equivalents held at December 31, 2020, was in U.S. dollars, while other significant amounts were held in Chinese renminbi (23 percent) and euro (21 percent).

We believe the ongoing cash flows generated from our business, supplemented, when necessary, through access to the capital markets (including short-term commercial paper) and our credit facilities are sufficient to support business operations, capital expenditures, business acquisitions, the payment of dividends to shareholders and contributions to pension plans. Consequently, we believe that our ability to obtain funding from these sources will continue to provide the cash flows necessary to satisfy our working capital and capital expenditure requirements, as well as meet our debt repayments and other financial commitments for the next 12 months. See "Disclosures about contractual obligations and commitments".

Due to the nature of our operations, including the timing of annual incentive payments to employees, our cash flow from operations generally tends to be weaker in the first half of the year than in the second half of the year.

Debt and interest rates

Total outstanding debt was as follows:

	December 31,	
($ in millions)	**2020**	**2019**
Short-term debt and current maturities of long-term debt	1,293	2,287
Long-term debt:		
Bonds	4,580	6,587
Other long-term debt	248	185
Total debt	**6,121**	**9,059**

The decrease in short-term debt in 2020 was due to the repayment at maturity of both the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes as well as a net reduction of outstanding commercial paper of $676 million. This was partially offset by the reclassification to short-term of the USD 650 million 4.0% Notes and the CHF 350 million 2.250% Bonds.

At December 31, 2020, Long-term debt decreased $1,944 million compared to the end of 2019 due partly to the reclassifications to short-term described above. We also reduced through public tenders or otherwise redeemed debt having a combined outstanding principal of $1,208 million. This included partial public tenders of both our USD 750 million 3.8% Notes due 2028 and our USD 750 million 4.375% Notes due 2042 and as well as full redemptions of our USD 250 million 5.625% Notes due 2021 and our USD 450 million 3.375% Notes due 2023.

Our debt has been obtained in a range of currencies and maturities and with various interest rate terms. For certain of our debt obligations, we use derivatives to manage the fixed interest rate exposure. For example, we use interest rate swaps to effectively convert fixed rate debt into floating rate liabilities. After considering the effects of interest rate swaps, at December 31, 2020, the effective average interest rate on our floating rate long-term debt (including current maturities) of $3,330 million and our fixed rate long-term debt (including current maturities) of $2,638 million was 0.2 percent and 3.3 percent, respectively. This compares with an effective rate of 1.1 percent for floating rate long-term debt of $2,221 million and 2.4 percent for fixed rate long-term debt of $6,000 million at December 31, 2019.

For a discussion of our use of derivatives to modify the interest characteristics of certain of our individual bond issuances, see “Note 12 - Debt” to our Consolidated Financial Statements.

Credit facility

In December 2019, we replaced our previous multicurrency revolving credit facility with a new $2 billion multicurrency revolving credit facility, maturing in 2024. In 2020, we exercised our option to extend the maturity to 2025 and retain an option which we can exercise in 2021 to further extend the maturity to 2026. No amount was drawn under the facility at December 31, 2020 and 2019. The facility is available for general corporate purposes and contains cross-default clauses whereby an event of default would occur if we were to default on indebtedness, as defined in the facility, at or above a specified threshold.

The credit facility does not contain financial covenants that would restrict our ability to pay dividends or raise additional funds in the capital markets. For further details of the credit facility, see “Note 12 - Debt” to our Consolidated Financial Statements.

Commercial paper

At December 31, 2020, we had two commercial paper programs in place:

- a $2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States, and
- a $2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies.

At December 31, 2020, $32 million was outstanding under the $2 billion program in the United States, compared to $708 million outstanding at December 31, 2019.

At December 31, 2020 and 2019, no amount was outstanding under the $2 billion Euro-commercial paper program.

European program for the issuance of debt

The European program for the issuance of debt allows the issuance of up to the equivalent of $8 billion in certain debt instruments. The terms of the program do not obligate any third party to extend credit to us and the terms and possibility of issuing any debt under the program are determined with respect to, and as of the date of issuance of, each debt instrument. At December 31, 2020, two bonds (principal amount of EUR 700 million, due in 2023 and principal amount of EUR 750 million, due in 2024) having a combined carrying amount of $1,821 million were outstanding under the program. At December 31, 2019, the carrying amount of these bonds was $1,658 million.

In January 2021, we issued one additional bond under this program having a principle amount of EUR 800 million at zero interest, and a term of 9 years.

Credit ratings

Credit ratings are assessments by the rating agencies of the credit risk associated with ABB and are based on information provided by us or other sources that the rating agencies consider reliable. Higher ratings generally result in lower borrowing costs and increased access to capital markets. Our ratings are of "investment grade" which is defined as Baa3 (or above) from Moody's and BBB− (or above) from Standard & Poor's.

At December 31, 2020, our long-term debt was rated A3 with a Stable outlook by Moody's compared to A2 at the end of 2019. At December 31, 2020, our long term-debt was rated A- with a Stable outlook by Standard & Poor's compared to A at the end of 2019.

Limitations on transfers of funds

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where we operate, including: China, Egypt, India, Indonesia, Kazakhstan, Malaysia, South Korea, Taiwan (Chinese Taipei), Thailand, Turkey and Viet Nam. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred offshore from these countries and are therefore deposited and used for working capital needs in those countries. In addition, there are certain countries where, for tax reasons, it is not considered optimal to transfer the cash offshore. As a consequence, these funds are not available within our Corporate Treasury Operations to meet short-term cash obligations outside the relevant country. The above described funds are reported as cash in our Consolidated Balance Sheets, but we do not consider these funds immediately available for the repayment of debt outside the respective countries where the cash is situated, including those described above. At December 31, 2020 and 2019, the balance of "Cash and equivalents" and "Marketable securities and other short-term investments" under such limitations (either regulatory or sub-optimal from a tax perspective) totaled approximately $1,751 million and $1,843 million, respectively.

During 2020, we continued to direct our subsidiaries in countries with restrictions to place such cash with our core banks or investment grade banks, in order to minimize credit risk on such cash positions. We continue to closely monitor the situation to ensure bank counterparty risks are minimized.

Financial position

Balance sheets

	December 31,		
($ in millions)	**2020**	**2019**	**% Change**
Current assets			
Cash and equivalents	3,278	3,508	(7)%
Restricted cash	323	36	n.a.
Marketable securities and short-term investments	2,108	566	272%
Receivables, net	6,820	6,434	6%
Contract assets	985	1,025	(4)%
Inventories, net	4,469	4,184	7%
Prepaid expenses	201	191	5%
Other current assets	760	674	13%
Assets held for sale and in discontinued operations	282	9,840	(97)%
Total current assets	**19,226**	**26,458**	**(27)%**

For a discussion on Cash and equivalents, see sections "Liquidity and Capital Resources—Principal sources of funding" and "Cash flows" for further details.

The increase in restricted cash relates to certain amounts received on the sale of the Power Grids business which are being held in escrow pending the finalization of legal transfer of certain entities of that business to Hitachi ABB Power Grids. See "Note 3 - Discontinued operations" to our Consolidated Financial Statements.

Marketable securities and short-term investments increased as a significant portion of the proceeds received for the sale of the Power Grids business are invested in money market funds (see "Note 5 - Cash and equivalents, marketable securities and short-term investments" to our Consolidated Financial Statements).

Receivables, net, increased 6 percent primarily due to currency exchange movements. In local currency, Receivables, net, increased 2 percent.

Contract assets decreased 4 percent (9 percent in local currencies). The decrease reflects lower amounts in the non-core businesses and the Motion Business Area. This was partially offset by higher levels in the Industrial Automation and Robotics & Discrete Automation Business Areas.

Inventories, net, increased 7 percent primarily due to movements in exchange rates. In local currencies, inventory decreased 1 percent.

Current assets held for sale and in discontinued operations decreased to $282 million from $9,840 million due to the sale in 2020 of both the solar inverters and Power Grids businesses. The balance at December 31, 2020, relates primarily to working capital balances of certain contracts in the Power Grids business which ABB is executing for the benefit of Hitachi ABB Power Grids. For the details of the assets of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

	December 31,		
($ in millions)	**2020**	**2019**	**% Change**
Current liabilities			
Accounts payable, trade	4,571	4,353	5%
Contract liabilities	1,903	1,719	11%
Short-term debt and current maturities of long-term debt	1,293	2,287	(43)%
Current operating leases	270	305	(11)%
Provisions for warranties	1,035	816	27%
Other provisions	1,519	1,375	10%
Other current liabilities	4,181	3,761	11%
Liabilities held for sale and in discontinued operations	644	5,650	(89)%
Total current liabilities	**15,416**	**20,266**	**(24)%**

Accounts payable, trade, increased 5 percent due primarily to currency exchange rate movements. Excluding movements in exchange rates, the balance was steady.

The decrease in Short-term debt and current maturities of long-term debt was primarily due to repayment at maturity of both the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes. In addition, we reduced the amount outstanding on the U.S. commercial paper program by $676 million. This was partially offset by a reclassification to Short-term debt and current maturities of long-term debt of the USD 650 million Notes and the CHF 350 million Bonds.

Current operating leases includes the portion of the operating lease liabilities that are due to be paid in the next 12 months. For a summary of operating lease liabilities, see “Note 14 - Leases” to our Consolidated Financial Statements.

Provisions for warranties increased 27 percent (20 percent in local currencies). The increase is mainly due to an increase of $143 million in the warranty provision related to a divested business.

For details on the change in the Provision for warranties, see “Note 15 - Commitments and contingencies” to our Consolidated Financial Statements.

Current liabilities held for sale and in discontinued operations decreased to $644 million from $5,650 million due to the sale in 2020 of both the solar inverters and Power Grids businesses. The amount at December 31, 2020, relates to certain working capital balances of the Power Grids business as described above. For the details of the liabilities of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

	December 31,		
($ in millions)	**2020**	**2019**	**% Change**
Non-current assets			
Restricted cash, non-current	300	—	n.a.
Property, plant and equipment, net	4,174	3,972	5%
Operating lease right-of-use assets	969	994	(3)%
Goodwill	10,850	10,825	0%
Intangible assets, net	2,078	2,252	(8)%
Prepaid pension and other employee benefits	360	133	171%
Investments in equity-accounted companies	1,784	33	n.a.
Deferred taxes	843	910	(7)%
Other non-current assets	504	531	(5)%
Total non-current assets	**21,862**	**19,650**	**11%**

Restricted cash at December 31, 2020, represents certain amounts received on the sale of the Power Grids business which have been placed in escrow, pending resolution of certain of our contractual obligations to Hitachi Ltd. See “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

In 2020, Property, plant and equipment, net, increased 5 percent (flat in local currencies) as net capital expenditures (purchases net of disposals for property, plant and equipment) were at a similar level to the annual depreciation recorded in 2020.

In 2020, Goodwill was flat (decreased 2 percent in local currencies). The decrease in local currencies includes the impact of recording goodwill impairments of $311 million in 2020.

Intangible assets, net, decreased 8 percent (11 percent in local currencies) due to the amortization recorded during the year. For additional information on goodwill and intangible assets see “Note 11 - Goodwill and intangible assets” to our Consolidated Financial Statements.

The balance for Investment in equity-accounted companies at December 31, 2020, primarily represents our remaining 19.9 percent interest in the Hitachi ABB Power Grids joint venture. For additional information on investment in equity-accounted companies see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements.

Prepaid pension and other employee benefits increased 171 percent reflecting changes in the funding status for pension plans primarily in Switzerland due to discretionary contributions made in 2020. For additional information on Pension and employee benefits see “Note 17 - Employee benefits” to our Consolidated Financial Statements.

In 2020, Deferred taxes, decreased 7 percent (18 percent in local currencies). For details on deferred tax assets see “Note 16 - Income taxes” to our Consolidated Financial Statements.

	December 31,		
($ in millions)	**2020**	**2019**	**% Change**
Non-current liabilities			
Long-term debt	4,828	6,772	(29)%
Non-current operating leases	731	717	2%
Pension and other employee benefits	1,231	1,793	(31)%
Deferred taxes	661	911	(27)%
Other non-current liabilities	2,025	1,669	21%
Liabilities held for sale and in discontinued operations	197	—	n.a.
Total non-current liabilities	**9,673**	**11,862**	**(18)%**

Long-term debt decreased 29 percent. The decrease in 2020 reflects the reclassifications to short-term of the bonds and notes described above. In addition, we reduced our outstanding debt by $508 million in connection with cash tender offers to the noteholders of our USD 750 million Notes, due 2028, and our USD 750 million Notes, due 2042. We also exercised our early redemption options on the full amounts outstanding of our USD 250 million Notes due 2021 and our USD 450 million Notes due 2023 under the original terms of these instruments. During 2020, Long-term debt increased 4 percent due to movements in foreign exchange rates. For additional information on Long-term debt, see “Liquidity and Capital Resources—Debt and interest rates” as well as “Note 12 - Debt” to our Consolidated Financial Statements.

Non-current operating leases includes the portion of the operating lease liabilities that are due to be paid in more than 12 months.

Pension and employee benefits decreased 31 percent (37 percent in local currencies). The decrease in 2020 primarily reflects the settlement of certain defined benefit pension obligations during 2020. For additional information on Pension and employee benefits see “Note 17 - Employee benefits” to our Consolidated Financial Statements.

For a breakdown of Other non-current liabilities, see “Note 13 - Other provisions, other current liabilities and other non-current liabilities” to our Consolidated Financial Statements.

Non-current liabilities held for sale and in discontinued operations relate to the sale in 2020 of the Power Grids business. The amount at December 31, 2020, relates to certain amounts which are expected to be payable in more than one year. For the details of the liabilities of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Cash flows

The Consolidated Statements of Cash Flows are shown on a continuing operations basis, with the effects of discontinued operations shown in aggregate for each major cash flow activity and also include the impact from changes in restricted cash.

The Consolidated Statements of Cash Flows can be summarized as follows:

($ in millions)	**2020**	**2019**	**2018**
Net cash provided by operating activities	1,693	2,325	2,924
Net cash provided by (used in) investing activities	6,760	(815)	(3,085)
Net cash used in financing activities	(8,175)	(1,383)	(789)
Effects of exchange rate changes on cash and equivalents	79	(28)	(131)
Net change in cash and equivalents and restricted cash	**357**	**99**	**(1,081)**

Operating activities

($ in millions)	2020	2019	2018
Net income	5,205	1,528	2,298
Less: Income from discontinued operations, net of tax	(4,860)	(438)	(723)
Depreciation and amortization	915	961	916
Total adjustments to reconcile net income to net cash provided by operating activities (excluding depreciation and amortization)	263	220	(189)
Total changes in operating assets and liabilities	352	(372)	50
Net cash provided by operating activities — continuing operations	**1,875**	**1,899**	**2,352**
Net cash provided by (used in) operating activities — discontinued operations	**(182)**	**426**	**572**

Cash flows from operating activities of continuing operations in 2020 provided net cash of $1,875 million, a decrease of 1 percent from 2019. In 2020, lower cash effective net income (i.e. net income from continuing operations adjusted for depreciation, amortization and other non-cash items) which included the impacts of the cash payments made to settle certain international pension plans in 2020 as well as payments for certain project and legal settlements was offset by higher cash generated from a reduction in working capital during the year. In 2020, net cash provided by operating activities benefited from a reduction of inventory levels (in local currencies) and a more favorable timing of cash flows on long-term projects.

Cash flows from operating activities of discontinued operations in 2020 decreased to a net outflow of $182 million compared to an inflow of $426 million in 2019. This primarily reflects the timing of the divestment of the Power Grids business in July 2020, with 2020 primarily reflecting the cash flows in the first half of the year. This business typically generated most of its operating cash flows in the second half of the year and thus the two years are not comparable.

Investing activities

($ in millions)	2020	2019	2018
Purchases of investments	(5,933)	(748)	(322)
Purchases of property, plant and equipment and intangible assets	(694)	(762)	(772)
Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies	(121)	(22)	(2,664)
Proceeds from sales of investments	4,341	749	567
Proceeds from maturity of investments	11	80	160
Proceeds from sales of property, plant and equipment	114	82	72
Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies	(136)	69	113
Net cash from settlement of foreign currency derivatives	138	(76)	(30)
Other investing activities	8	(23)	(32)
Net cash used in investing activities — continuing operations	**(2,272)**	**(651)**	**(2,908)**
Net cash provided by (used in) investing activities — discontinued operations	**9,032**	**(164)**	**(177)**

Net cash used in investing activities for continuing operations in 2020 was $2,272 million compared to $651 million in 2019. The amount in 2020 reflects primarily the net investment in money market funds of amounts received from the sale of the Power Grids business as well as cash payments for purchases of property, plant and equipment. In 2020, we also recorded net investing cash flows of $138 million for settlements of derivatives compared to net outflows of $76 million in 2019.

The following presents purchases of property, plant and equipment and intangible assets by significant asset category:

($ in millions)	2020	2019	2018
Construction in progress	493	536	523
Purchase of machinery and equipment	134	156	152
Purchase of land and buildings	17	26	28
Purchase of intangible assets	50	44	69
Purchases of property, plant and equipment and intangible assets	**694**	**762**	**772**

In 2020 there were no significant business acquisitions. The divestment of the solar inverters business resulted in a net cash outflow of $143 million in 2020.

In 2020, we divested the Power Grids business and recorded net proceeds of $9,168 million (net of transaction costs and purchase price related repayments) which are included in cash provided by investing activities from discontinued operations.

Financing activities

($ in millions)	2020	2019	2018
Net changes in debt with maturities of 90 days or less	(587)	164	221
Increase in debt	343	2,406	1,914
Repayment of debt	(3,459)	(2,156)	(830)
Delivery of shares	412	10	42
Purchase of treasury stock	(3,048)	—	(250)
Dividends paid	(1,736)	(1,675)	(1,717)
Dividends paid to noncontrolling shareholders	(82)	(90)	(86)
Other financing activities	(49)	13	(35)
Net cash used in financing activities — continuing operations	**(8,206)**	**(1,328)**	**(741)**
Net cash provided by (used in) financing activities — discontinued operations	**31**	**(55)**	**(48)**

Our financing cash flow activities primarily include debt transactions (both from the issuance of debt securities and borrowings directly from banks), share transactions and payments of distributions to controlling and noncontrolling shareholders. Net cash from financing activities for discontinued operations represents primarily distributions paid to noncontrolling shareholders of certain subsidiaries classified in discontinued operations and in 2020, also includes net borrowings of the discontinued operation.

In 2020, the net outflow for debt with maturities of 90 days or less related to net repayments of amounts outstanding under the U.S. commercial paper program.

In 2020, “Repayment of debt” includes the repayment at maturity of the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes. We also made payments of $1,376 million in connection with early retirement of bonds including partial public tenders of both our USD 750 million 3.8% Notes due 2028 and our USD 750 million 4.375% Notes due 2042 as well as full redemptions of our USD 250 million 5.625% Notes due 2021 and our USD 450 million 3.375% Notes due 2023.

“Delivery of shares” in 2020 reflects cash received primarily from the exercise of options in connection with our Management Incentive Plan (resulting in a delivery of 16.5 million shares) and in connection with our Employee Share Acquisition Plan (resulting in a delivery of 1.4 million shares). All shares were delivered out of Treasury stock.

In 2020, “Purchase of treasury stock” reflects $2,702 million of cash payments to purchase 109 million of our own shares in connection with the announced share buyback program. It also reflects $346 million paid to purchase 13 million shares on the open market during 2020.

Disclosures about contractual obligations and commitments

The contractual obligations presented in the table below represent our estimates of future payments under fixed contractual obligations and commitments. These amounts may differ from those reported in our Consolidated Balance Sheet at December 31, 2020. Changes in our business needs, cancellation provisions and changes in interest rates, as well as actions by third parties and other factors, may cause these estimates to change. Therefore, our actual payments in future periods may vary from those presented below. The following table summarizes certain of our contractual obligations and principal and interest payments under our debt instruments, leases and purchase obligations at December 31, 2020:

($ in millions)	Total	Less than 1 year	1–3 years	3–5 years	More than 5 years
Payments due by period					
Long-term debt obligations	5,730	1,108	2,115	1,321	1,186
Interest payments related to long-term debt obligations	842	128	148	94	472
Operating lease obligations(1)	1,083	282	371	210	220
Finance lease obligations(1)	230	38	63	49	80
Purchase obligations	3,264	2,701	458	80	25
Total	**11,149**	**4,257**	**3,155**	**1,754**	**1,983**

(1) Lease obligations represent total cash payments to be made in the future, and include an implied interest expense, being the difference between undiscounted cash flows and discounted cash flows, of $82 million and $43 million, for operating and finance leases, respectively. See “Note 14 - Leases” to our Consolidated Financial Statements.

In the table above, the "Long-term debt obligations" reflect the cash amounts to be repaid upon maturity of those debt obligations. The cash obligations above will differ from Long-term debt due to the impacts of fair value hedge accounting adjustments and premiums or discounts on certain debt. In addition, finance lease obligations are shown separately in the table above while they are combined with long-term debt amounts in our Consolidated Balance Sheets.

We have determined the interest payments related to long-term debt obligations by reference to the payments due under the terms of our debt obligations at the time such obligations were incurred. However, we use interest rate swaps to modify the interest characteristics of certain of our debt obligations. The net effect of these swaps may be to increase or decrease the actual amount of our cash interest payment obligations, which may differ from those stated in the above table. For further details on our debt obligations and the related hedges, see "Note 12 - Debt" to our Consolidated Financial Statements.

Of the total of $1,455 million unrecognized tax benefits (net of deferred tax assets) at December 31, 2020, it is expected that $32 million will be paid within less than a year. However, we cannot make a reasonably reliable estimate as to the related future payments for the remaining amount.

Off-balance sheet arrangements

Commercial commitments

We disclose the maximum potential exposure of certain guarantees, as well as possible recourse provisions that may allow us to recover from third parties amounts paid out under such guarantees. The maximum potential exposure does not allow any discounting of our assessment of actual exposure under the guarantees. The information below reflects our maximum potential exposure under the guarantees, which is higher than our assessment of the expected exposure.

Guarantees

The following table provides quantitative data regarding our third-party guarantees. The maximum potential payments represent a worst-case scenario, and do not reflect our expected outcomes.

	Maximum potential payments(1)	
December 31, ($ in millions)	**2020**	**2019**
Performance guarantees	6,726	1,860
Financial guarantees	339	10
Indemnification guarantees(2)	177	64
Total	**7,242**	**1,934**

(1) Maximum potential payments include amounts in both continuing and discontinued operations.
(2) Certain indemnifications provided to Hitachi in connection with the divestment of Power Grids are without limit.

The carrying amount of liabilities recorded in the Consolidated Balance Sheets reflects our best estimate of future payments, which we may incur as part of fulfilling our guarantee obligations. In respect of the above guarantees, the carrying amounts of liabilities at December 31, 2020, amounted to $135 million, which was included in discontinued operations, while at December 31, 2019, balances were not significant.

In addition, in the normal course of bidding for and executing certain projects, we have entered into standby letters of credit, bid/performance bonds and surety bonds (collectively "performance bonds") with various financial institutions. Customers can draw on such performance bonds in the event that we do not fulfill our contractual obligations. We would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2020 and 2019, the total outstanding performance bonds aggregated to $4.3 billion and $6.8 billion, respectively, of which $0.3 billion and $3.7 billion, respectively, relate to discontinued operations. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2020, 2019 and 2018.

For additional descriptions of our performance, financial and indemnification guarantees see "Note 15 - Commitments and contingencies" to our Consolidated Financial Statements.

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Consolidated Financial Statements of ABB Group

Report of management on internal control over financial reporting

The Board of Directors and Management of ABB Ltd and its consolidated subsidiaries (“ABB”) are responsible for establishing and maintaining adequate internal control over financial reporting. ABB’s internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation and fair presentation of the published Consolidated Financial Statements in accordance with U.S. generally accepted accounting principles.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with ABB’s policies and procedures may deteriorate.

Management conducted an assessment of the effectiveness of internal control over financial reporting based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this assessment, management has concluded that ABB’s internal control over financial reporting was effective as of December 31, 2020.

KPMG AG, the independent registered public accounting firm who audited the Company’s consolidated financial statements, has issued an opinion on the effectiveness of ABB’s internal control over financial reporting as of December 31, 2020, which is included on page 151-152 of this Annual Report.

Björn Rosengren	**Timo Ihamuotila**
Chief Executive Officer	Chief Financial Officer

Zurich, February 25, 2021

Report of the Statutory Auditor

To the General Meeting of ABB Ltd, Zurich

Report of the Statutory Auditor on the Consolidated Financial Statements

Opinion

As statutory auditor, we have audited the accompanying consolidated financial statements of ABB Ltd and its subsidiaries (the Group), which comprise the consolidated balance sheets as of December 31, 2020 and 2019, and the related consolidated income statements, statements of comprehensive income, cash flows and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements on pages 153 to 227). In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020 and 2019, and the consolidated results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in accordance with U.S. Generally Accepted Accounting Principles, and comply with Swiss law.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Group has changed its method of accounting for leases as of January 1, 2019, due to the adoption of Accounting Standard Codification (ASC), 842 *Leases*.

Board of Directors' Responsibility

The Board of Directors is responsible for the preparation of the consolidated financial statements in accordance with U.S. Generally Accepted Accounting Principles and the requirements of Swiss law. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We are a public accounting firm and are required to be independent with respect to the Group. We conducted our audits in accordance with Swiss law, Swiss Auditing Standards and the standards of the Public Company Accounting Oversight Board (United States) (PCAOB). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement, whether due to fraud or error.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers the internal control system relevant to the entity's preparation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue recognition for long-term fixed price contracts using the percentage-of-completion method

TAX **Valuation of unrecognized tax benefits related to transfer pricing**

Valuation of goodwill for the Machine Automation reporting unit

Valuation of the retained noncontrolling interest in the Power Grids business

Revenue recognition for long-term fixed price contracts using the percentage-of-completion method

Critical Audit Matter

As discussed in Note 2 to the consolidated financial statements, revenues from the sale of customized products, including long-term fixed price contracts for integrated automation and electrification systems and solutions are generally recognized on an over time basis using the percentage of completion method of accounting. For the year ended December 31, 2020, the Group reported $21,214 million of revenue from sales of products, a portion of which related to long-term fixed price contracts.

We identified the evaluation of estimated costs to complete related to revenue recognition of long-term fixed price contracts using the percentage of-completion method of accounting as a critical audit matter. In particular, a high degree of subjective auditor judgment was required to evaluate the Group's estimates regarding the amount of future direct materials, labor and subcontract costs, and indirect costs to complete the contracts.

Our response

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Group's revenue process including controls over the development of estimates regarding the amount of future direct materials, labor and subcontract costs, and indirect costs. We assessed the Group's historical ability to accurately estimate costs to complete by comparing historical estimates to actual results for a selection of contracts. We evaluated the estimate of remaining costs to be incurred for a selection of contracts by assessing progress to date and the nature and complexity of work to be performed through interviewing project managers and inspecting correspondence, if any, between the Group and the customer and/or subcontractors.

For further information on revenue recognition on long-term projects refer to the following:

— Note 2 "Significant accounting policies"

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Valuation of unrecognized tax benefits related to transfer pricing

Critical Audit Matter

As discussed in Note 2 to the consolidated financial statements, the Group operates across multiple tax jurisdictions, is exposed to numerous tax laws and is regularly subject to tax audits by local tax authorities. As discussed in Note 16, the Group reported total unrecognized tax benefits of $1,298 million, a portion of which related to unrecognized tax benefits related to transfer pricing.

We identified the valuation of unrecognized tax benefits related to transfer pricing as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required in assessing the Group's interpretation of international tax practice and developments in relation to intragroup charges and intragroup sales of goods and services and the Group's ability to estimate the ultimate resolution of the tax positions.

Our response

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Group's tax process including controls related to the Group's interpretation of international tax practice and developments in relation to intragroup charges and intragroup sale of goods and services and the estimate of the related unrecognized tax benefits. We tested the identified costs that have a higher likelihood of being challenged by tax authorities associated with intragroup arrangements and potential price adjustments for intragroup sales of goods and services. We involved tax professionals with specialized skills and knowledge, who assisted in evaluating (1) the Group's historical ability to accurately estimate the unrecognized tax benefits related to transfer pricing by comparing historical tax positions to subsequent settlements (2) the Group's transfer pricing documentation and methodology for compliance with applicable laws and regulations by assessing the documentation and relevant agreements, (3) the impact of new information or changes in international tax practice and developments on historical tax positions, and (4) developing an independent expectation of the unrecognized tax benefits estimate relating to the Group's intragroup sales of goods and services and comparing the results to the Group's assessment.

For further information on unrecognized tax benefits refer to the following:

— Note 2 “Significant accounting policies”

— Note 16 “Income taxes”

Valuation of goodwill for the Machine Automation reporting unit

Critical Audit Matter

As discussed in Note 2 to the consolidated financial statements, goodwill is evaluated for impairment annually as of October 1, or more frequently if events or circumstances indicate that the carrying value may not be recoverable. As discussed in Note 11, effective July 1, 2020, the Group implemented a new operating model resulting in the identification of new goodwill reporting units and a revised allocation of goodwill within operating segments. As a result, interim quantitative impairment tests were performed over the newly established goodwill reporting units, with the fair value of each reporting unit estimated using a discounted cash flow model. The Group's quantitative impairment test indicated that the Machine Automation

Our response

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Group's goodwill process. This included controls related to management's determination of the projected revenue growth rates, projected EBITDA margins, and the discount rate. We assessed the Group's ability to accurately prepare projections for the Machine Automation reporting unit by comparing the projected revenues from past periods to actual results for the same period. Additionally, we evaluated the reasonableness of the reporting unit projected revenue growth rates and projected EBITDA margins used in management's discounted cash flow reporting unit within the Robotics & Discrete Automation operating segment had a carrying value that was not recoverable, resulting in an impairment charge of $290 million, which was recorded to reduce the carrying value of this reporting unit to its implied fair value. The goodwill balance was $2,228 million for the Robotics & Discrete Automation operating segment as of December 31, 2020.

We identified the valuation of goodwill for the Machine Automation reporting unit as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required to evaluate the projected revenue growth rates, projected earnings before interest, taxes, depreciation, and amortization ("EBITDA") margins, and the discount rate used in the Group's impairment test.

analysis by comparing projected amounts to past performance of the reporting unit. We involved valuation professionals with specialized skills and knowledge who assisted in assessing: (1) the reasonableness of the projected revenue growth rates and projected EBITDA margins by comparing the assumptions to relevant industry trends and current market indices of comparable entities (2) the reasonableness of the discount rate through testing the source information underlying the determination of the discount rate, and developing a range of independent estimates and comparing those to the discount rate applied by management.

For further information on Goodwill refer to the following:

— Note 2 "Significant accounting policies"

— Note 11 "Goodwill and intangible assets"

Valuation of the retained noncontrolling interest in the Power Grids business

Critical Audit Matter

As discussed in Notes 3 and 4 to the consolidated financial statements, the Group completed the sale of 80.1 percent of its Power Grids ("PG") business and retained a 19.9 percent ownership interest in the PG business with a fair value estimated at $1,661 million as of July 1, 2020, which was valued using a discounted cash flow model, and recognized within Investments in equity-accounted companies. The valuation of the retained noncontrolling interest had a direct impact on the gain on sale of the PG business, for which the Group recognized a gain of $5,141 million in Income from discontinued operations, net of tax.

We identified the valuation of the retained noncontrolling interest in the PG business as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required to evaluate the projected revenue growth rates, projected earnings before interest, taxes, depreciation, and amortization ("EBITDA") margins, and the risk-adjusted weighted-average cost of capital ("discount rate") assumptions applied by management in the discounted cash flow model used to estimate the fair value of the retained noncontrolling interest.

Our response

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Group's valuation of noncontrolling interest process including internal controls related to management's determination of the projected revenue growth rates, projected EBITDA margins, and the discount rate assumptions used in the discounted cash flow model. We evaluated the projected revenue growth rates and projected EBITDA margins by comparing projected amounts to historical performance of the PG business. We involved valuation professionals with specialized skills and knowledge who assisted in assessing: (1) the reasonableness of the projected revenue growth rates and projected EBITDA margins by comparing the assumptions to relevant industry trends and current market indices of comparable entities (2) the reasonableness of the discount rate through testing the source information underlying the determination of the discount rate, and developing a range of independent estimates and comparing those to the discount rate applied by management.

For further information on the valuation of the retained noncontrolling interest in the Power Grids business refer to the following:

— Note 3 "Discontinued Operations"

— Note 4 "Acquisitions, divestments and equity-accounted companies"

Report on Other Legal and Regulatory Requirements

We are a public accounting firm registered with the Swiss Federal Audit Oversight Authority (FAOA) and the PCAOB and we confirm that we meet the legal requirements on licensing according to the Auditor Oversight Act (AOA). We are independent of the Group in accordance with Swiss law (article 728 CO and article 11 AOA) and U.S. federal securities laws as well as the applicable rules and regulations of the Swiss audit profession, the U.S. Securities and Exchange Commission and the PCAOB, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

In accordance with article 728a paragraph 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

We have also audited, in accordance with the standards of the PCAOB, the Group's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework 2013 issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), and our report dated February 25, 2021, expressed an unqualified opinion on the effectiveness of the Group's internal control over financial reporting.

We have served as the Group's auditor since 2018.

KPMG AG

Hans-Dieter Krauss
Licensed Audit Expert
Auditor in Charge

Mohammad Nafeie

Zurich, Switzerland
February 25, 2021

KPMG

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of ABB Ltd

Opinion on Internal Control Over Financial Reporting

We have audited ABB Ltd and its subsidiaries' (the Group) internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion the Group maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by COSO.

We also have audited, in accordance with Swiss law, Swiss Auditing Standards and the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets as of December 31, 2020 and 2019, and the related consolidated income statements, statements of comprehensive income, cash flows and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements), and our report dated February 25, 2021, expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Group's Board of Directors and management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying management's annual report on internal control over financial reporting. Our responsibility is to express an opinion on the Group's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Group in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

KPMG AG

Hans-Dieter Krauss
Licensed Audit Expert
Auditor in Charge

Mohammad Nafeie

Zurich, Switzerland
February 25, 2021

KPMG AG, Räffelstrasse 28, PO Box, CH-8036 Zurich

Consolidated Income Statements

Year ended December 31 ($ in millions, except per share data in $)	2020	2019	2018
Sales of products	21,214	22,554	22,366
Sales of services and other	4,920	5,424	5,296
Total revenues	**26,134**	**27,978**	**27,662**
Cost of sales of products	(15,229)	(15,811)	(15,961)
Cost of services and other	(3,027)	(3,261)	(3,157)
Total cost of sales	**(18,256)**	**(19,072)**	**(19,118)**
Gross profit	**7,878**	**8,906**	**8,544**
Selling, general and administrative expenses	(4,895)	(5,447)	(5,295)
Non-order related research and development expenses	(1,127)	(1,198)	(1,147)
Impairment of goodwill	(311)	—	—
Other income (expense), net	48	(323)	124
Income from operations	**1,593**	**1,938**	**2,226**
Interest and dividend income	51	67	72
Interest and other finance expense	(240)	(215)	(262)
Losses from extinguishment of debt	(162)	—	—
Non-operational pension (cost) credit	(401)	72	83
Income from continuing operations before taxes	**841**	**1,862**	**2,119**
Income tax expense	(496)	(772)	(544)
Income from continuing operations, net of tax	**345**	**1,090**	**1,575**
Income from discontinued operations, net of tax	4,860	438	723
Net income	**5,205**	**1,528**	**2,298**
Net income attributable to noncontrolling interests	(59)	(89)	(125)
Net income attributable to ABB	**5,146**	**1,439**	**2,173**
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	294	1,043	1,514
Income from discontinued operations, net of tax	4,852	396	659
Net income	5,146	1,439	2,173
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.30	0.19	0.31
Net income	2.44	0.67	1.02
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.29	0.19	0.31
Net income	2.43	0.67	1.02
Weighted-average number of shares outstanding (in millions) used to compute:			
Basic earnings per share attributable to ABB shareholders	2,111	2,133	2,132
Diluted earnings per share attributable to ABB shareholders	2,119	2,135	2,139

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

Consolidated Statements of Comprehensive Income

Year ended December 31 ($ in millions)	**2020**	**2019**	**2018**
Net income	**5,205**	**1,528**	**2,298**
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments:			
Foreign currency translation adjustments	498	(130)	(627)
Gain on liquidation of foreign subsidiary	—	—	(31)
Changes attributable to divestments	519	(2)	12
Foreign currency translation adjustments	**1,017**	**(132)**	**(646)**
Available-for-sale securities:			
Net unrealized gains (losses) arising during the year	24	14	(4)
Reclassification adjustments for net (gains) losses included in net income	(14)	—	1
Changes attributable to divestments	(3)	—	—
Unrealized gains (losses) on available-for-sale securities	**7**	**14**	**(3)**
Pension and other postretirement plans:			
Prior service (costs) credits arising during the year	43	6	(7)
Net actuarial losses arising during the year	(200)	(220)	(352)
Amortization of prior service credit included in net income	(11)	(28)	(24)
Amortization of net actuarial loss included in net income	88	68	69
Net (gains) losses from pension settlements included in net income	518	32	19
Changes attributable to divestments	151	—	—
Pension and other postretirement plan adjustments	**589**	**(142)**	**(295)**
Cash flow hedge derivatives:			
Net unrealized gains (losses) arising during the year	2	20	(49)
Reclassification adjustments for net (gains) losses included in net income	—	(9)	21
Unrealized gains (losses) of cash flow hedge derivatives	**2**	**11**	**(28)**
Total other comprehensive income (loss), net of tax	**1,615**	**(249)**	**(972)**
Total comprehensive income, net of tax	**6,820**	**1,279**	**1,326**
Total comprehensive income attributable to noncontrolling interests, net of tax	(86)	(83)	(110)
Total comprehensive income attributable to ABB, net of tax	**6,734**	**1,196**	**1,216**

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

Consolidated Balance Sheets

December 31 ($ in millions, except share data)	2020	2019
Cash and equivalents	3,278	3,508
Restricted cash	323	36
Marketable securities and short-term investments	2,108	566
Receivables, net	6,820	6,434
Contract assets	985	1,025
Inventories, net	4,469	4,184
Prepaid expenses	201	191
Other current assets	760	674
Current assets held for sale and in discontinued operations	282	9,840
Total current assets	**19,226**	**26,458**
Restricted cash, non-current	300	—
Property, plant and equipment, net	4,174	3,972
Operating lease right-of-use assets	969	994
Investments in equity-accounted companies	1,784	33
Prepaid pension and other employee benefits	360	133
Intangible assets, net	2,078	2,252
Goodwill	10,850	10,825
Deferred taxes	843	910
Other non-current assets	504	531
Total assets	**41,088**	**46,108**
Accounts payable, trade	4,571	4,353
Contract liabilities	1,903	1,719
Short-term debt and current maturities of long-term debt	1,293	2,287
Current operating leases	270	305
Provisions for warranties	1,035	816
Other provisions	1,519	1,375
Other current liabilities	4,181	3,761
Current liabilities held for sale and in discontinued operations	644	5,650
Total current liabilities	**15,416**	**20,266**
Long-term debt	4,828	6,772
Non-current operating leases	731	717
Pension and other employee benefits	1,231	1,793
Deferred taxes	661	911
Other non-current liabilities	2,025	1,669
Non-current liabilities held for sale and in discontinued operations	197	—
Total liabilities	**25,089**	**32,128**
Commitments and contingencies		
Stockholders' equity:		
Common stock, CHF 0.12 par value (2,168,148,264 issued shares at December 31, 2020 and 2019)	188	188
Additional paid-in capital	83	73
Retained earnings	22,946	19,640
Accumulated other comprehensive loss	(4,002)	(5,590)
Treasury stock, at cost (137,314,095 and 34,647,153 shares at December 31, 2020 and 2019, respectively)	(3,530)	(785)
Total ABB stockholders' equity	**15,685**	**13,526**
Noncontrolling interests	314	454
Total stockholders' equity	**15,999**	**13,980**
Total liabilities and stockholders' equity	**41,088**	**46,108**

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

Consolidated Statements of Cash Flows

Year ended December 31 ($ in millions)	2020	2019	2018
Operating activities:			
Net income	5,205	1,528	2,298
Less: Income from discontinued operations, net of tax	(4,860)	(438)	(723)
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	915	961	916
Impairment of goodwill	311	—	—
Pension and other employee benefits	50	(102)	(100)
Deferred taxes	(280)	(83)	(142)
Losses from extinguishment of debt	162	—	—
Net loss (gain) from derivatives and foreign exchange	(2)	1	93
Net gain from sale of property, plant and equipment	(37)	(51)	(57)
Net loss (gain) from sale of businesses	2	(55)	(57)
Fair value adjustment on assets and liabilities held for sale	33	421	—
Share-based payment arrangements	44	46	50
Other	(20)	43	24
Changes in operating assets and liabilities:			
Trade receivables, net	(100)	(202)	(144)
Contract assets and liabilities	186	128	(18)
Inventories, net	196	(182)	(336)
Accounts payable, trade	(13)	130	454
Accrued liabilities	(92)	(76)	252
Provisions, net	243	(36)	87
Income taxes payable and receivable	(76)	(3)	(102)
Other assets and liabilities, net	8	(131)	(143)
Net cash provided by operating activities — continuing operations	**1,875**	**1,899**	**2,352**
Net cash provided by (used in) operating activities — discontinued operations	**(182)**	**426**	**572**
Net cash provided by operating activities	**1,693**	**2,325**	**2,924**
Investing activities:			
Purchases of investments	(5,933)	(748)	(322)
Purchases of property, plant and equipment and intangible assets	(694)	(762)	(772)
Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies	(121)	(22)	(2,664)
Proceeds from sales of investments	4,341	749	567
Proceeds from maturity of investments	11	80	160
Proceeds from sales of property, plant and equipment	114	82	72
Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies	(136)	69	113
Net cash from settlement of foreign currency derivatives	138	(76)	(30)
Other investing activities	8	(23)	(32)
Net cash used in investing activities — continuing operations	**(2,272)**	**(651)**	**(2,908)**
Net cash provided by (used in) investing activities — discontinued operations	**9,032**	**(164)**	**(177)**
Net cash provided by (used in) investing activities	**6,760**	**(815)**	**(3,085)**

Year ended December 31 ($ in millions)	2020	2019	2018
Financing activities:			
Net changes in debt with maturities of 90 days or less	(587)	164	221
Increase in debt	343	2,406	1,914
Repayment of debt	(3,459)	(2,156)	(830)
Delivery of shares	412	10	42
Purchase of treasury stock	(3,048)	—	(250)
Dividends paid	(1,736)	(1,675)	(1,717)
Dividends paid to noncontrolling shareholders	(82)	(90)	(86)
Other financing activities	(49)	13	(35)
Net cash used in financing activities — continuing operations	**(8,206)**	**(1,328)**	**(741)**
Net cash provided by (used in) financing activities — discontinued operations	**31**	**(55)**	**(48)**
Net cash used in financing activities	**(8,175)**	**(1,383)**	**(789)**
Effects of exchange rate changes on cash and equivalents and restricted cash	79	(28)	(131)
Net change in cash and equivalents and restricted cash	**357**	**99**	**(1,081)**
Cash and equivalents and restricted cash, beginning of period	3,544	3,445	4,526
Cash and equivalents and restricted cash, end of period	**3,901**	**3,544**	**3,445**
Supplementary disclosure of cash flow information:			
Interest paid	189	284	243
Income taxes paid	905	1,005	1,026

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

Consolidated Statements of Changes in Stockholders’ Equity

Years ended December 31, 2020, 2019 and 2018 ($ in millions)	Common stock	Additional paid-in capital
Balance at January 1, 2018	188	29
Cumulative effect of changes in accounting principles		
Comprehensive income:		
Net income		
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized income (expense) related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests		(4)
Noncontrolling interests recognized in connection with business combination		
Dividends to noncontrolling shareholders		
Dividends paid to shareholders		
Share-based payment arrangements		60
Purchase of treasury stock		
Delivery of shares		(35)
Call options		5
Balance at December 31, 2018	**188**	**56**
Adoption of accounting standard update		
Comprehensive income:		
Net income		
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized income (expense) related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests		(17)
Fair value adjustment to noncontrolling interests recognized in business combination		
Changes in noncontrolling interests in connection with divestments		
Dividends to noncontrolling shareholders		
Dividends paid to shareholders		
Share-based payment arrangements		55
Delivery of shares		(24)
Call options		4
Balance at December 31, 2019	**188**	**73**
Adoption of accounting standard update		
Comprehensive income:		
Net income		
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized (income) expense related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests		(16)
Changes in noncontrolling interests in connection with divestments		
Dividends to noncontrolling shareholders		
Dividends paid to shareholders		
Share-based payment arrangements		54
Purchase of treasury stock		
Delivery of shares		(24)
Other		(3)
Balance at December 31, 2020	**188**	**83**

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

	Retained earnings	Accumulated other comprehensive loss	Treasury stock	Total ABB stockholders' equity	Noncontrolling interests	Total stockholders' equity
	19,594	(4,345)	(647)	14,819	530	15,349
	(192)	(9)		(201)		(201)
	2,173			2,173	125	2,298
		(631)		(631)	(15)	(646)
		(3)		(3)		(3)
		(295)		(295)		(295)
		(28)		(28)		(28)
				1,216	110	1,326
				(4)	(19)	(23)
				—	107	107
				—	(146)	(146)
	(1,736)			(1,736)		(1,736)
				60		60
			(249)	(249)		(249)
			77	42		42
				5		5
	19,839	(5,311)	(820)	13,952	582	14,534
	36	(36)		—		—
	1,439			1,439	89	1,528
		(126)		(126)	(6)	(132)
		14		14		14
		(142)		(142)		(142)
		11		11		11
				1,196	83	1,279
				(17)	12	(5)
				—	(44)	(44)
				—	(55)	(55)
				—	(122)	(122)
	(1,675)			(1,675)		(1,675)
				55		55
			34	10		10
				4		4
	19,640	(5,590)	(785)	13,526	454	13,980
	(82)			(82)	(9)	(91)
	5,146			5,146	59	5,205
		990		990	27	1,017
		7		7		7
		589		589		589
		2		2		2
				6,734	86	6,820
				(16)	19	3
				—	(138)	(138)
				—	(98)	(98)
	(1,758)			(1,758)		(1,758)
				54		54
			(3,181)	(3,181)		(3,181)
			436	412		412
				(3)		(3)
	22,946	(4,002)	(3,530)	15,685	314	15,999

Notes to the Consolidated Financial Statements

Note 1
The Company

ABB Ltd and its subsidiaries (collectively, the Company) together form a leading global technology company, connecting software to its electrification, robotics, automation and motion portfolio to drive performance to new levels.

Note 2
Significant accounting policies

The following is a summary of significant accounting policies followed in the preparation of these Consolidated Financial Statements.

Basis of presentation

The Consolidated Financial Statements are prepared in accordance with United States of America (United States or U.S.) generally accepted accounting principles (U.S. GAAP) and are presented in United States dollars ($ or USD) unless otherwise stated. Due to rounding, numbers presented may not add to the totals provided. The par value of capital stock is denominated in Swiss francs.

Reclassifications

Certain amounts reported for prior years in the Consolidated Financial Statements and the accompanying Notes have been reclassified to conform to the current year's presentation. These changes primarily relate to the separate presentation of Restricted cash in the Consolidated Balance Sheets.

Scope of consolidation

The Consolidated Financial Statements include the accounts of ABB Ltd and companies which are directly or indirectly controlled by ABB Ltd. Additionally, the Company consolidates variable interest entities if it has determined that it is the primary beneficiary. Intercompany accounts and transactions are eliminated. Investments in joint ventures and affiliated companies in which the Company has the ability to exercise significant influence over operating and financial policies (generally through direct or indirect ownership of 20 percent to 50 percent of the voting rights), are recorded in the Consolidated Financial Statements using the equity method of accounting.

Translation of foreign currencies and foreign exchange transactions

The functional currency for most of the Company's subsidiaries is the applicable local currency. The translation from the applicable functional currencies into the Company's reporting currency is performed for balance sheet accounts using exchange rates in effect at the balance sheet date and for income statement accounts using average exchange rates prevailing during the year. The resulting translation adjustments are excluded from the determination of earnings and are recognized in "Accumulated other comprehensive loss" until the subsidiary is sold, substantially liquidated or evaluated for impairment in anticipation of disposal.

Foreign currency exchange gains and losses, such as those resulting from foreign currency denominated receivables or payables, are included in the determination of earnings, except as they relate to intercompany loans that are equity-like in nature with no reasonable expectation of repayment, which are recognized in “Accumulated other comprehensive loss”. Exchange gains and losses recognized in earnings are included in “Total revenues”, “Total cost of sales”, “Selling, general and administrative expenses” or “Interest and other finance expense” consistent with the nature of the underlying item.

Discontinued operations

The Company reports a disposal, or planned disposal, of a component or a group of components as a discontinued operation if the disposal represents a strategic shift that has or will have a major effect on the Company’s operations and financial results. A strategic shift could include a disposal of a major geographical area, a major line of business or other major parts of the Company. A component may be a reportable segment or an operating segment, a reporting unit, a subsidiary, or an asset group.

The assets and liabilities of a component reported as a discontinued operation are presented separately as held for sale in the Company’s Consolidated Balance Sheets.

Interest expense that is not directly attributable to or related to the Company’s continuing business or discontinued business is allocated to discontinued operations based on the ratio of net assets to be sold less debt that is required to be paid as a result of the planned disposal transaction to the sum of total net assets of the Company plus consolidated debt. General corporate overhead is not allocated to discontinued operations (see Note 3).

Operating cycle

A portion of the Company’s activities (primarily long-term system integration activities) has an operating cycle that exceeds one year. For classification of current assets and liabilities related to such activities, the Company elected to use the duration of the individual contracts as its operating cycle. Accordingly, there are accounts receivable, inventories and provisions related to these contracts which will not be realized within one year that have been classified as current.

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make assumptions and estimates that directly affect the amounts reported in the Consolidated Financial Statements and the accompanying Notes. These accounting assumptions and estimates include:

- growth rates, discount rates and other assumptions used to determine impairment of long-lived assets and in testing goodwill for impairment,
- estimates to determine valuation allowances for deferred tax assets and amounts recorded for unrecognized tax benefits,
- assumptions used in determining inventory obsolescence and net realizable value,
- estimates and assumptions used in determining the initial fair value of retained noncontrolling interest and certain obligations in connection with divestments,
- estimates and assumptions used in determining the fair values of assets and liabilities assumed in business combinations,
- assumptions used in the determination of corporate costs directly attributable to discontinued operations,
- estimates of loss contingencies associated with litigation or threatened litigation and other claims and inquiries, environmental damages, product warranties, self-insurance reserves, regulatory and other proceedings,
- estimates used to record expected costs for employee severance in connection with restructuring programs,
- estimates related to credit losses expected to occur over the remaining life of financial assets such as trade and other receivables, loans and other instruments,
- assumptions used in the calculation of pension and postretirement benefits and the fair value of pension plan assets, and

- assumptions and projections, principally related to future material, labor and project-related overhead costs, used in determining the percentage-of-completion on projects, as well as the amount of variable consideration the Company expects to be entitled to.

The actual results and outcomes may differ from the Company's estimates and assumptions.

Cash and equivalents

Cash and equivalents include highly liquid investments with maturities of three months or less at the date of acquisition.

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where the Company operates. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred abroad from these countries and are therefore deposited and used for working capital needs locally. These funds are included in cash and equivalents as they are not considered restricted.

Cash and equivalents that are subject to contractual restrictions or other legal obligations and not readily available are classified as "Restricted cash".

Marketable securities and short-term investments

Management determines the appropriate classification of held-to-maturity and available-for-sale debt securities at the time of purchase. Debt securities are classified as held-to-maturity when the Company has the positive intent and ability to hold the securities to maturity. Held-to-maturity debt securities are carried at amortized cost, adjusted for accretion of discounts or amortization of premiums to maturity computed under the effective interest method. Such accretion or amortization is included in "Interest and dividend income". Marketable debt securities not classified as held-to-maturity are classified as available-for-sale and reported at fair value.

Unrealized gains and losses on available-for-sale debt securities are excluded from the determination of earnings and are instead recognized in the "Accumulated other comprehensive loss" component of stockholders' equity, net of tax, until realized. Realized gains and losses on available-for-sale debt securities are computed based upon the historical cost of these securities, using the specific identification method.

Marketable debt securities are classified as either "Cash and equivalents" or "Marketable securities and short-term investments" according to their maturity at the time of acquisition.

Marketable equity securities are generally classified as "Marketable securities and short-term investments", however, any marketable securities held as a long-term investment rather than as an investment of excess liquidity are classified as "Other non-current assets". Equity securities are measured at fair value with fair value changes reported in net income. Fair value changes for equity securities are generally reported in "Interest and other finance expense", however, fair value changes for certain equity securities classified as long-term investments are reported in "Other income (expense), net".

For debt securities classified as available-for-sale where fair value has declined below amortized cost due to credit losses, the Company records an allowance for expected credit losses and adjusts the allowance in subsequent periods in "Interest and other finance expense". All fair value changes other than those related to credit risk are reported in "Accumulated other comprehensive loss" until the security is sold.

In addition, equity securities without readily determinable fair values are written down to fair value if a qualitative assessment indicates that the investment is impaired and the fair value of the investment is less than its carrying amount. The impairment charge is recorded in "Interest and other finance expense".

Accounts receivable and allowance for expected credit losses

Accounts receivable are recorded at the invoiced amount. The Company has a group-wide policy on the management of credit risk. The policy includes a credit assessment methodology to assess the creditworthiness of customers and assign to those customers a risk category. Third-party agencies' ratings are considered, if available. For customers where agency ratings are not available, the customer's most recent financial statements, payment history and other relevant information are considered in the assignment to a risk category. Customers are assessed at least annually or more frequently when information on significant changes in the customer's financial position becomes known. In addition to the assignment to a risk category, a credit limit per customer is set.

The Company recognizes an allowance for credit losses to present the net amount of receivables expected to be collected as of the balance sheet date. The allowance is based on the credit losses expected to arise over the asset's contractual term taking into account historical loss experience, customer-specific data as well as forward looking estimates. Receivables are grouped in pools based on similar risk characteristics to estimate expected credit losses. Expected credit losses are estimated individually when the related assets do not share similar risk characteristics.

Accounts receivable are written off when deemed uncollectible and are recognized as a deduction from the allowance for credit losses. Expected recoveries, which are not to exceed the amount previously written off, are considered in determining the allowance balance at the balance sheet date.

The Company, in its normal course of business, transfers receivables to third parties, generally without recourse. The transfer is accounted for as a sale when the Company has surrendered control over the receivables. Control is deemed to have been surrendered when (i) the transferred receivables have been put presumptively beyond the reach of the Company and its creditors, even in bankruptcy or other receivership, (ii) the third-party transferees have the right to pledge or exchange the transferred receivables, and (iii) the Company has relinquished effective control over the transferred receivables and does not retain the ability or obligation to repurchase or redeem the transferred receivables. At the time of sale, the sold receivables are removed from the Consolidated Balance Sheets and the related cash inflows are classified as operating activities in the Consolidated Statements of Cash Flows. Costs associated with the sale of receivables, including the related gains and losses from the sales, are included in "Interest and other finance expense". Transfers of receivables that do not meet the requirements for treatment as sales are accounted for as secured borrowings and the related cash flows are classified as financing activities in the Consolidated Statements of Cash Flows.

Concentrations of credit risk

The Company sells a broad range of products, systems, services and software to a wide range of industrial, commercial and utility customers as well as various government agencies and quasi-governmental agencies throughout the world. Concentrations of credit risk with respect to accounts receivable are limited, as the Company's customer base is comprised of a large number of individual customers. Ongoing credit evaluations of customers' financial positions are performed to determine whether the use of credit support instruments such as guarantees, letters of credit or credit insurance are necessary; collateral is not generally required. The Company maintains an allowance for credit losses as discussed above in "Accounts receivable and allowance for expected credit losses". Such losses, in the aggregate, are in line with the Company's expectations.

It is the Company's policy to invest cash in deposits with banks throughout the world with certain minimum credit ratings and in high quality, low risk, liquid investments. The Company actively manages its credit risk by routinely reviewing the creditworthiness of the banks and the investments held. The Company has not incurred significant credit losses related to such investments.

The Company's exposure to credit risk on derivative financial instruments is the risk that the counterparty will fail to meet its obligations. To reduce this risk, the Company has credit policies that require the establishment and periodic review of credit limits for individual counterparties. In addition, the Company has entered into close-out netting agreements with most derivative counterparties. Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events. Derivative instruments are presented on a gross basis in the Consolidated Financial Statements.

Revenue recognition

A customer contract exists if collectability under the contract is considered probable, the contract has commercial substance, contains payment terms, as well as the rights and commitments of both parties, and has been approved.

The Company offers arrangements with multiple performance obligations to meet its customers' needs. These arrangements may involve the delivery of multiple products and/or performance of services (such as installation and training) and the delivery and/or performance may occur at different points in time or over different periods of time. Goods and services under such arrangements are evaluated to determine whether they form distinct performance obligations and should be accounted for as separate revenue transactions. The Company allocates the sales price to each distinct performance obligation based on the price of each item sold in separate transactions at the inception of the arrangement.

The Company generally recognizes revenues for the sale of non-customized products including circuit breakers, modular substation packages, control products, motors, generators, drives, robots, turbochargers, measurement and analytical instrumentation, and other goods which are manufactured on a standardized basis at a point in time. Revenues are recognized at the point in time that the customer obtains control of the goods, which is when it has taken title to the products and assumed the risks and rewards of ownership of the products specified in the purchase order or sales agreement. Generally, the transfer of title and risks and rewards of ownership are governed by the contractually defined shipping terms. The Company uses various International Commercial Terms (as promulgated by the International Chamber of Commerce) in its sales of products to third party customers, such as Ex Works (EXW), Free Carrier (FCA) and Delivered Duty Paid (DDP).

Billing terms for these point in time contracts vary but generally coincide with delivery to the customer. Payment is generally due upon receipt of the invoice, payable within 90 days or less.

The Company generally recognizes revenues for the sale of customized products, including integrated automation and electrification systems and solutions, on an over time basis using the percentage-of-completion method of accounting. These systems are generally accounted for as a single performance obligation as the Company is required to integrate equipment and services into one deliverable for the customer. Revenues are recognized as the systems are customized during the manufacturing or integration process and as control is transferred to the customer as evidenced by the Company's right to payment for work performed or by the customer's ownership of the work in process. The Company principally uses the cost-to-cost method to measure progress towards completion on contracts. Under this method, progress of contracts is measured by actual costs incurred in relation to the Company's best estimate of total costs based on the Company's history of manufacturing or constructing similar assets for customers. Estimated costs are reviewed and updated routinely for contracts in progress to reflect changes in quantity or pricing of the inputs. The cumulative effect of any change in estimate is recorded in the period when the change in estimate is determined. Contract costs include all direct materials, labor and subcontract costs and indirect costs related to contract performance, such as indirect labor, supplies, tools and depreciation costs.

The nature of the Company's contracts for the sale of customized products gives rise to several types of variable consideration, including claims, unpriced change orders, liquidated damages and penalties. These amounts are estimated based upon the most likely amount of consideration to which the customer or the Company will be entitled. The estimated amounts are included in the sales price to the extent it is probable that a significant reversal of cumulative revenues recognized will not occur when the uncertainty associated with the variable consideration is resolved. All estimates of variable consideration are reassessed periodically. Back charges to suppliers or subcontractors are recognized as a reduction of cost when it is determined that recovery of such cost is probable and the amounts can be reliably estimated.

Billing terms for these over-time contracts vary but are generally based on achieving specified milestones. The differences between the timing of revenues recognized and customer billings result in changes to contract assets and contract liabilities. Payment is generally due upon receipt of the invoice, payable within 90 days or less. Contractual retention amounts billed to customers are generally due upon expiration of the contractual warranty period.

Service revenues reflect revenues earned from the Company's activities in providing services to customers primarily subsequent to the sale and delivery of a product or complete system. Such revenues consist of maintenance type contracts, repair services, equipment upgrades, field service activities that include personnel and accompanying spare parts, training, and installation and commissioning of products as a stand-alone service or as part of a service contract. The Company generally recognizes revenues from service transactions as services are performed or at the point in time that the customer obtains control of the spare parts. For long-term service contracts including monitoring and maintenance services, revenues are recognized on a straight line basis over the term of the contract consistent with the nature, timing and extent of the services or, if the performance pattern is other than straight line, as the services are provided based on costs incurred relative to total expected costs.

In limited circumstances the Company sells extended warranties that extend the warranty coverage beyond the standard coverage offered on specific products. Revenues for these warranties are recorded over the length of the warranty period based on their stand-alone selling price.

Billing terms for service contracts vary but are generally based on the occurrence of a service event. Payment is generally due upon receipt of the invoice, payable within 90 days or less.

Revenues are reported net of customer rebates, early settlement discounts, and similar incentives. Rebates are estimated based on sales terms, historical experience and trend analysis. The most common incentives relate to amounts paid or credited to customers for achieving defined volume levels.

Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value added and some excise taxes, are excluded from revenues.

The Company does not adjust the contract price for the effects of a financing component if the Company expects, at contract inception, that the time between control transfer and cash receipt is less than 12 months.

Sales commissions are expensed immediately when the amortization period for the costs to obtain the contract is less than a year.

Contract loss provisions

Losses on contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Shipping and handling costs

Shipping and handling costs are recorded as a component of cost of sales.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method, the weighted-average cost method, or the specific identification method. Inventoried costs are stated at acquisition cost or actual production cost, including direct material and labor and applicable manufacturing overheads. Adjustments to reduce the cost of inventory to its net realizable value are made, if required, for decreases in sales prices, obsolescence or similar reductions in value.

Impairment of long-lived assets

Long-lived assets that are held and used are evaluated for impairment for each of the Company's asset groups when events or circumstances indicate that the carrying amount of the long-lived asset or asset group may not be recoverable. If the asset group's net carrying value exceeds the asset group's net undiscounted cash flows expected to be generated over its remaining useful life including net proceeds expected from disposition of the asset group, if any, the carrying amount of the asset group is reduced to its estimated fair value. The estimated fair value is determined using a market, income and/or cost approach.

Property, plant and equipment

Property, plant and equipment is stated at cost, less accumulated depreciation and is depreciated using the straight-line method. The estimated useful lives of the assets are generally as follows:

- factories and office buildings: 30 to 40 years,
- other facilities: 15 years,
- machinery and equipment: 3 to 15 years,
- furniture and office equipment: 3 to 8 years, and
- leasehold improvements are depreciated over their estimated useful life or, for operating leases, over the lease term, if shorter.

Goodwill and intangible assets

Goodwill is reviewed for impairment annually as of October 1, or more frequently if events or circumstances indicate that the carrying value may not be recoverable.

Goodwill is evaluated for impairment at the reporting unit level. A reporting unit is an operating segment or one level below an operating segment. For the annual impairment review performed in 2020, the reporting units were determined to be one level below the operating segments.

When evaluating goodwill for impairment, the Company uses either a qualitative or quantitative assessment method for each reporting unit. The qualitative assessment involves determining, based on an evaluation of qualitative factors, if it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, based on this qualitative assessment, it is determined to be more likely than not that the reporting unit's fair value is less than its carrying value, a quantitative impairment test is performed, otherwise no further analysis is required. If the Company elects not to perform the qualitative assessment for a reporting unit, then a quantitative impairment test is performed.

When performing a quantitative impairment test, the Company calculates the fair value of a reporting unit using an income approach based on the present value of future cash flows, applying a discount rate that represents the reporting unit's weighted-average cost of capital, and compares it to the reporting unit's carrying value. If the carrying value of the net assets of a reporting unit exceeds the fair value of the reporting unit then the Company records an impairment charge equal to the difference, provided that the loss recognized does not exceed the total amount of goodwill allocated to that reporting unit.

The cost of acquired intangible assets with a finite life is amortized using a method of amortization that reflects the pattern of intangible assets' expected contributions to future cash flows. If that pattern cannot be reliably determined, the straight-line method is used. The amortization periods range from 3 to 5 years for software and from 5 to 20 years for customer-, technology- and marketing-related intangibles. Intangible assets with a finite life are tested for impairment upon the occurrence of certain triggering events.

Derivative financial instruments and hedging activities

The Company uses derivative financial instruments to manage currency, commodity, interest rate and equity exposures, arising from its global operating, financing and investing activities (see Note 6).

The Company recognizes all derivatives, other than certain derivatives indexed to the Company's own stock, at fair value in the Consolidated Balance Sheets. Derivatives that are not designated as hedging instruments are reported at fair value with derivative gains and losses reported through earnings and classified consistent with the nature of the underlying transaction.

If the derivatives are designated as a hedge, depending on the nature of the hedge, changes in the fair value of the derivatives will either be offset against the change in fair value of the hedged item attributable to the risk being hedged through earnings (in the case of a fair value hedge) or recognized in "Accumulated other comprehensive loss" until the hedged item is recognized in earnings (in the case of a cash flow hedge). Where derivative financial instruments have been designated as cash flow hedges of forecasted transactions and such forecasted transactions are no longer probable of occurring, hedge accounting is discontinued and any derivative gain or loss previously included in "Accumulated other comprehensive loss" is reclassified into earnings consistent with the nature of the original forecasted transaction. Gains or losses from derivatives designated as hedging instruments in a fair value hedge are reported through earnings and classified consistent with the nature of the underlying hedged transaction.

Certain commercial contracts may grant rights to the Company or the counterparties, or contain other provisions that are considered to be derivatives. Such embedded derivatives are assessed at inception of the contract and depending on their characteristics, accounted for as separate derivative instruments and shown at their fair value in the Consolidated Balance Sheets with changes in their fair value reported in earnings consistent with the nature of the commercial contract to which they relate.

Derivatives are classified in the Consolidated Statements of Cash Flows in the same section as the underlying item. Cash flows from the settlement of undesignated derivatives used to manage the risks of different underlying items on a net basis are classified within “Net cash provided by operating activities”, as the underlying items are primarily operational in nature. Other cash flows on the settlement of derivatives are recorded within “Net cash provided by (used in) investing activities”.

Leases

The Company leases primarily real estate, vehicles and machinery.

In January 2019, the Company adopted a new lease accounting standard. Prior to the adoption of the new accounting standard, lease transactions where substantially all risks and rewards incident to ownership were transferred from the lessor to the lessee were accounted for as capital leases. All other leases were accounted for as operating leases. The periodic rent expense for operating leases was recorded on a straight-line basis over the life of the lease term. Amounts due under capital leases were recorded as a liability. The value of the assets under capital leases were recorded as property, plant and equipment. Depreciation and amortization of assets recorded under capital leases was included in depreciation and amortization expense.

Under the new lease accounting standard, the Company evaluates if a contract contains a lease at inception of the contract. A contract is or contains a lease if it conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. To determine this, the Company assesses whether, throughout the period of use, it has both the right to obtain substantially all of the economic benefits from use of the identified asset and the right to direct the use of the identified asset. Leases are classified as either finance or operating, with the classification determining the pattern of expense recognition in the Consolidated Income Statements. Lease expense for operating leases continues to be recorded on a straight-line basis over the lease term. Lease expense for finance leases is separated between amortization of right-of-use assets and lease interest expense.

In many cases, the Company’s leases include one or more options to renew, with renewal terms that can extend up to 5 years. The exercise of lease renewal options is at the Company’s discretion. Renewal periods are included in the expected lease term if they are reasonably certain of being exercised by the Company. Certain leases also include options to purchase the leased property. None of the Company’s lease agreements contain material residual value guarantees or material restrictions or covenants.

Long-term leases (leases with terms greater than 12 months) are recorded in the Consolidated Balance Sheets at the commencement date of the lease based on the present value of the minimum lease payments. The present value of the lease payments is determined by using the interest rate implicit in the lease if available. As most of the Company’s leases do not provide an implicit rate, the Company’s incremental borrowing rate is used for most leases and is determined for portfolios of leases based on the remaining lease term, currency of the lease, and the internal credit rating of the subsidiary which entered into the lease.

Short-term leases (leases with an initial lease term of 12 months or less and where it is reasonably certain that the property will not be leased for a term greater than 12 months) are not recorded in the Consolidated Balance Sheets and are expensed on a straight-line basis over the lease term. The majority of short-term leases relate to real estate and machinery.

Assets under operating lease are included in “Operating lease right-of-use assets”. Operating lease liabilities are reported both as current and non-current operating lease liabilities. Right-of-use assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease.

Assets under finance lease are included in “Property, plant and equipment, net” while finance lease liabilities are included in “Long-term debt” (including “Current maturities of long-term debt” as applicable).

Lease and non-lease components for leases other than real estate are not accounted for separately.

Income taxes

The Company uses the asset and liability method to account for deferred taxes. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company records a deferred tax asset when it determines that it is more likely than not that the deduction will be sustained based upon the deduction’s technical merit. Deferred tax assets and liabilities that can be offset against each other are reported on a net basis. A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized.

Deferred taxes are provided on unredeemed retained earnings of the Company’s subsidiaries. However, deferred taxes are not provided on such unredeemed retained earnings to the extent it is expected that the earnings are permanently reinvested. Such earnings may become taxable upon the sale or liquidation of these subsidiaries or upon the remittance of dividends.

The Company operates in numerous tax jurisdictions and, as a result, is regularly subject to audit by tax authorities. The Company provides for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred. Contingency provisions are recorded based on the technical merits of the Company’s filing position, considering the applicable tax laws and Organisation for Economic Co-operation and Development (OECD) guidelines and are based on its evaluations of the facts and circumstances as of the end of each reporting period.

The Company applies a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. Uncertain tax positions that could be settled against existing loss carryforwards or income tax credits are reported net.

Expenses related to tax penalties are classified in the Consolidated Income Statements as “Income tax expense” while interest thereon is classified as “Interest and other finance expense”. Current income tax relating to certain items is recognized directly in “Accumulated other comprehensive loss” and not in earnings. In general, the Company applies the individual items approach when releasing income tax effects from “Accumulated other comprehensive loss”.

Research and development

Research and development costs not related to specific customer orders are generally expensed as incurred.

Earnings per share

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise outstanding written call options, outstanding options and shares granted subject to certain conditions under the Company’s share-based payment arrangements. See further discussion related to earnings per share in Note 20 and of potentially dilutive securities in Note 18.

Share-based payment arrangements

The Company has various share-based payment arrangements for its employees, which are described more fully in Note 18. Such arrangements are accounted for under the fair value method. For awards that are equity-settled, total compensation is measured at grant date, based on the fair value of the award at that date, and recorded in earnings over the period the employees are required to render service. For awards that are cash-settled, compensation is initially measured at grant date and subsequently remeasured at each reporting period, based on the fair value and vesting percentage of the award at each of those dates, with changes in the liability recorded in earnings.

Fair value measures

The Company uses fair value measurement principles to record certain financial assets and liabilities on a recurring basis and, when necessary, to record certain non-financial assets at fair value on a non-recurring basis, as well as to determine fair value disclosures for certain financial instruments carried at amortized cost in the financial statements. Financial assets and liabilities recorded at fair value on a recurring basis include foreign currency, commodity and interest rate derivatives, as well as cash-settled call options and available-for-sale securities. Non-financial assets recorded at fair value on a non-recurring basis include long-lived assets that are reduced to their estimated fair value due to impairments.

Fair value is the price that would be received when selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Company uses various valuation techniques including the market approach (using observable market data for identical or similar assets and liabilities), the income approach (discounted cash flow models) and the cost approach (using costs a market participant would incur to develop a comparable asset). Inputs used to determine the fair value of assets and liabilities are defined by a three-level hierarchy, depending on the nature of those inputs. The Company has categorized its financial assets and liabilities and non-financial assets measured at fair value within this hierarchy based on whether the inputs to the valuation technique are observable or unobservable. An observable input is based on market data obtained from independent sources, while an unobservable input reflects the Company's assumptions about market data.

The levels of the fair value hierarchy are as follows:

Level 1:
Valuation inputs consist of quoted prices in an active market for identical assets or liabilities (observable quoted prices). Assets and liabilities valued using Level 1 inputs include exchange-traded equity securities, listed derivatives which are actively traded such as commodity futures, interest rate futures and certain actively traded debt securities.

Level 2:
Valuation inputs consist of observable inputs (other than Level 1 inputs) such as actively quoted prices for similar assets, quoted prices in inactive markets and inputs other than quoted prices such as interest rate yield curves, credit spreads, or inputs derived from other observable data by interpolation, correlation, regression or other means. The adjustments applied to quoted prices or the inputs used in valuation models may be both observable and unobservable. In these cases, the fair value measurement is classified as Level 2 unless the unobservable portion of the adjustment or the unobservable input to the valuation model is significant, in which case the fair value measurement would be classified as Level 3. Assets and liabilities valued or disclosed using Level 2 inputs include investments in certain funds, certain debt securities that are not actively traded, interest rate swaps, commodity swaps, cash-settled call options, forward foreign exchange contracts, foreign exchange swaps and forward rate agreements, time deposits, as well as financing receivables and debt.

Level 3:
Valuation inputs are based on the Company's assumptions of relevant market data (unobservable input).

Investments in private equity, real estate and collective funds held within the Company's pension plans are generally valued using the net asset value (NAV) per share as a practical expedient for fair value provided certain criteria are met. The NAVs are determined based on the fair values of the underlying investments in the funds. These assets are not classified in the fair value hierarchy but are separately disclosed.

Whenever quoted prices involve bid-ask spreads, the Company ordinarily determines fair values based on mid-market quotes. However, for the purpose of determining the fair value of cash-settled call options serving as hedges of the Company's management incentive plan (MIP), bid prices are used.

When determining fair values based on quoted prices in an active market, the Company considers if the level of transaction activity for the financial instrument has significantly decreased, or would not be considered orderly. In such cases, the resulting changes in valuation techniques would be disclosed. If the market is considered disorderly or if quoted prices are not available, the Company is required to use another valuation technique, such as an income approach.

Disclosures about the Company's fair value measurements of assets and liabilities are included in Note 7.

Contingencies

The Company is subject to proceedings, litigation or threatened litigation and other claims and inquiries, related to environmental, labor, product, regulatory, tax (other than income tax) and other matters, and is required to assess the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. A determination of the provision required, if any, for these contingencies is made after analysis of each individual issue, often with assistance from both internal and external legal counsel and technical experts. The required amount of a provision for a contingency of any type may change in the future due to new developments in the particular matter, including changes in the approach to its resolution.

The Company records a provision for its contingent obligations when it is probable that a loss will be incurred and the amount can be reasonably estimated. Any such provision is generally recognized on an undiscounted basis using the Company's best estimate of the amount of loss incurred or at the lower end of an estimated range when a single best estimate is not determinable. In some cases, the Company may be able to recover a portion of the costs relating to these obligations from insurers or other third parties; however, the Company records such amounts only when it is probable that they will be collected.

The Company provides for anticipated costs for warranties when it recognizes revenues on the related products or contracts. Warranty costs include calculated costs arising from imperfections in design, material and workmanship in the Company's products. The Company makes individual assessments on contracts with risks resulting from order-specific conditions or guarantees and assessments on an overall, statistical basis for similar products sold in larger quantities.

The Company may have legal obligations to perform environmental clean-up activities related to land and buildings as a result of the normal operations of its business. In some cases, the timing or the method of settlement, or both, are conditional upon a future event that may or may not be within the control of the Company, but the underlying obligation itself is unconditional and certain. The Company recognizes a provision for these obligations when it is probable that a liability for the clean-up activity has been incurred and a reasonable estimate of its fair value can be made. In some cases, a portion of the costs expected to be incurred to settle these matters may be recoverable. An asset is recorded when it is probable that such amounts are recoverable. Provisions for environmental obligations are not discounted to their present value when the timing of payments cannot be reasonably estimated.

Pensions and other postretirement benefits

The Company has a number of defined benefit pension plans, defined contribution pension plans and termination indemnity plans. The Company recognizes an asset for such a plan's overfunded status or a liability for such a plan's underfunded status in its Consolidated Balance Sheets. Additionally, the Company measures such a plan's assets and obligations that determine its funded status as of the end of the year and recognizes the changes in the funded status in the year in which the changes occur. Those changes are reported in "Accumulated other comprehensive loss".

The Company uses actuarial valuations to determine its pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates and expected return on plan assets. Current market conditions are considered in selecting these assumptions.

The Company's various pension plan assets are assigned to their respective levels in the fair value hierarchy in accordance with the valuation principles described in the "Fair value measures" section above.

See Note 17 for further discussion of the Company's employee benefit plans.

Business combinations

The Company accounts for assets acquired and liabilities assumed in business combinations using the acquisition method and records these at their respective fair values. Contingent consideration is recorded at fair value as an element of purchase price with subsequent adjustments recognized in income.

Identifiable intangibles consist of intellectual property such as trademarks and trade names, customer relationships, patented and unpatented technology, in-process research and development, order backlog and capitalized software; these are amortized over their estimated useful lives. Such intangibles are subsequently subject to evaluation for potential impairment if events or circumstances indicate the carrying amount may not be recoverable. See "Goodwill and intangible assets" above. Acquisition-related costs are recognized separately from the acquisition and expensed as incurred. Upon gaining control of an entity in which an equity method or cost basis investment was held by the Company, the carrying value of that investment is adjusted to fair value with the related gain or loss recorded in income.

Deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax base of assets and liabilities as well as uncertain tax positions and valuation allowances on acquired deferred tax assets assumed in connection with a business combination are initially estimated as of the acquisition date based on facts and circumstances that existed at the acquisition date. These estimates are subject to change within the measurement period (a period of up to 12 months after the acquisition date during which the acquirer may adjust the provisional acquisition amounts) with any adjustments to the preliminary estimates being recorded to goodwill. Changes in deferred taxes, uncertain tax positions and valuation allowances on acquired deferred tax assets that occur after the measurement period are recognized in income.

New accounting pronouncements

Applicable for current period

Measurement of credit losses on financial instruments

In January 2020, the Company adopted a new accounting standard update, along with additional related updates containing targeted improvements and clarifications, that replaces the previous incurred loss impairment methodology for most financial assets with a new "current expected credit loss" model. The new model requires immediate recognition of the estimated credit losses expected to occur over the remaining life of financial assets such as trade and other receivables, held-to-maturity debt securities, loans and other instruments. Measurement of expected credit losses is now based on historical experience, current conditions, and reasonable and supportable forecasts. The update also requires additional disclosures related to estimates and judgments used to measure credit losses. Credit losses relating to available-for-sale debt securities are now measured in a manner similar to the loss impairment methodology, except that the losses are recorded through an allowance for credit losses rather than as a direct write-down of the security.

The Company has adopted these updates on a modified retrospective basis and has therefore recorded a cumulative-effect adjustment of $91 million to the opening balance of retained earnings on January 1, 2020, relating to an increase in the allowance for credit losses on financial assets carried at amortized cost. This adjustment consisted primarily of an impact on the opening balance of trade receivables of $98 million (excluding an offsetting amount for deferred tax), of which $56 million related to continuing operations and $42 million related to the Power Grids business, which is included in discontinued operations.

Disclosure Framework — Changes to the disclosure requirements for fair value measurement
In January 2020, the Company adopted a new accounting standard update which modified the disclosure requirements for fair value measurements. The update eliminates the requirements to disclose the amount of and reasons for transfers between Level 1 and 2 of the fair value hierarchy, the timing of transfers between levels and the Level 3 valuation process, while expanding the Level 3 disclosures to include the range and weighted-average used to develop significant unobservable inputs and the changes in unrealized gains and losses on recurring fair value measurements. This update was applied prospectively for the changes and modifications to the Level 3 disclosures, while all other amendments were applied retrospectively. The update does not have a significant impact on the Company's Consolidated Financial Statements.

Applicable for future periods
Simplifying the accounting for income taxes
In December 2019, an accounting standard update was issued which enhances and simplifies various aspects of the income tax accounting guidance related to intraperiod tax allocations, ownership changes in investments, and certain aspects of interim period tax accounting. This update is effective for the Company for annual and interim periods beginning January 1, 2021. Depending on the amendment, adoption may be applied on a retrospective, modified retrospective or prospective basis. The Company does not expect this update to have a significant impact on its Consolidated Financial Statements.

Facilitation of the effects of reference rate reform on financial reporting
In March 2020, an accounting standard update was issued which provides temporary optional expedients and exceptions to the current guidance on contract modifications and hedge accounting to ease the financial reporting burdens related to the expected market transition from the London Interbank Offered Rate (LIBOR) and other interbank offered rates to alternative reference rates. The update can be adopted and applied no later than December 31, 2022, with early adoption permitted. The Company is currently evaluating the impact of adopting this optional guidance on its Consolidated Financial Statements.

Note 3
Discontinued operations

Divestment of the Power Grids business

On July 1, 2020, the Company completed the sale of 80.1 percent of its Power Grids business to Hitachi Ltd (Hitachi). The transaction was executed through the sale of 80.1 percent of the shares of Hitachi ABB Power Grids Ltd ("Hitachi ABB PG" or "HAPG"). Cash consideration received at the closing date was $9,241 million net of cash disposed. Further, for accounting purposes, the 19.9 percent ownership interest retained by the Company is deemed to have been both divested and reacquired at its fair value on July 1, 2020. The Company also obtained a put option, exercisable commencing in April 2023, allowing the Company to require Hitachi to purchase the remaining interest for fair value, subject to a minimum floor price equivalent to a 10 percent discount compared to the price paid for the initial 80.1 percent. The combined fair value of the retained investment and the related put option, which amounted to $1,779 million, was recorded at fair value on July 1, 2020, and also was accounted for as part of the proceeds for the sale of the entire Power Grids business (see Note 4). The Company also recorded a liability in discontinued operations for estimated future costs and other cash payments of $487 million for various contractual items relating to the sale of the business including required future cost reimbursements payable to HAPG, costs incurred by the Company for the direct benefit of HAPG and an amount due to Hitachi Ltd in connection with the expected purchase price finalization of the closing debt and working capital balances. From the date of the disposal through December 31, 2020, $33 million of these liabilities have been paid and are reported as reductions in the cash consideration received.

As a result of the Power Grids sale, the Company has recognized a net gain of $5,141 million, net of transaction costs, for the sale of the entire Power Grids business which is included in Income from discontinued operations, net of tax, in 2020. Included in the calculation of the net gain was a cumulative translation loss relating to the Power Grids business of $420 million which was reclassified from Accumulated other comprehensive loss (see Note 21). Certain amounts included in the net gain are estimated or otherwise subject to change in value and, as a result, the Company may record additional adjustments to the gain in future periods which are not expected to have a material impact on the Consolidated Financial Statements. In 2020, the Company has also recorded $262 million in Income tax expense within discontinued operations in connection with the reorganization of the legal entity structure of the Power Grids business required to facilitate the sale.

Certain entities of the Power Grids business for which the legal process or other regulatory delays resulted in the Company not yet having transferred legal titles to Hitachi have been accounted for as being sold since control of the business as well as all risks and rewards of the business have been fully transferred to Hitachi ABB PG. The proceeds for these entities are included in the cash proceeds described above and certain funds have been placed in escrow and are reflected as current restricted cash of $302 million at December 31, 2020. All entities are expected to be transferred to HAPG by the first half of 2021.

The Company has recognized liabilities in discontinued operations in connection with the divestment for certain indemnities (see Note 15 for additional information). The Company has also recorded an initial liability of $258 million representing the fair value of the right granted to Hitachi ABB PG for the use of the ABB brand for up to 8 years.

Upon closing of the sale, the Company entered into various transition services agreements (TSAs). Pursuant to these TSAs, the Company and Hitachi ABB PG provide to each other, on an interim, transitional basis, various services. The services provided by the Company primarily include finance, information technology, human resources and certain other administrative services. Under the current terms, the TSAs will continue for up to 3 years, and can only be extended on an exceptional basis for business-critical services for an additional period which is reasonably necessary to avoid a material adverse impact on the business. In 2020, the Company has recognized within its continuing operations, general and administrative expenses incurred to perform the TSAs, offset by $91 million in TSA-related income for such services that is reported in Other income and expense, net.

Discontinued operations

As a result of the sale of the Power Grids business, substantially all Power Grids-related assets and liabilities have been sold. As this divestment represented a strategic shift that would have a major effect on the Company's operations and financial results, the results of operations for this business have been presented as discontinued operations and the assets and liabilities are presented as held for sale and in discontinued operations for all periods presented. Certain of the business contracts in the Power Grids business continue to be executed by subsidiaries of the Company for the benefit/risk of Hitachi ABB PG. Assets and liabilities relating to, as well as the net financial results of, these contracts will continue to be included in discontinued operations until they have been completed or otherwise transferred to Hitachi ABB PG.

Prior to the divestment, interest expense that was not directly attributable to or related to the Company's continuing business or discontinued business was allocated to discontinued operations based on the ratio of net assets to be sold less debt that was required to be paid as a result of the planned disposal transaction to the sum of total net assets of the Company plus consolidated debt. General corporate overhead was not allocated to discontinued operations.

Operating results of the discontinued operations are summarized as follows:

($ in millions)	2020	2019	2018
Total revenues	4,008	9,037	9,698
Total cost of sales	(3,058)	(6,983)	(7,378)
Gross profit	**950**	**2,054**	**2,320**
Expenses	(808)	(1,394)	(1,326)
Net gain recognized on sale of the Power Grids business	5,141	—	—
Income from operations	**5,282**	**660**	**994**
Net interest and other finance expense	(5)	(61)	(55)
Non-operational pension (cost) credit	(94)	5	12
Income from discontinued operations before taxes	**5,182**	**605**	**951**
Income tax expense	(322)	(167)	(228)
Income from discontinued operations, net of tax	**4,860**	**438**	**723**

Of the total Income from discontinued operations before taxes in the table above, $5,170 million, $566 million and $874 million in 2020, 2019 and 2018, respectively, are attributable to the Company, while the remainder is attributable to noncontrolling interests.

Until the date of the divestment, Income from discontinued operations before taxes excluded stranded costs which were previously able to be allocated to the Power Grids operating segment. As a result, $40 million, $225 million and $297 million, for 2020, 2019 and 2018, respectively, of allocated overhead and other management costs which were previously included in the measure of segment profit for the Power Grids operating segment are now reported as part of Corporate and Other. In the table above, Net interest and other finance expense in 2020, 2019 and 2018 includes $20 million, $44 million and $43 million, respectively, of interest expense which has been recorded on an allocated basis in accordance with the Company's accounting policy election until the divestment date. In addition, as required by U.S. GAAP, subsequent to December 17, 2018, (the date of the original agreement to sell the Power Grids business) -the Company has not recorded depreciation or amortization on the property, plant and equipment and intangible assets reported as discontinued operations. In 2018, a total of $258 million of depreciation and amortization expense was recorded for such assets.

Included in the reported Total revenues of the Company for 2020, 2019 and 2018 are revenues for sales from the Company's operating segments to the Power Grids business of $108 million, $213 million and $243 million, respectively, which represent intercompany transactions that, prior to Power Grids being classified as a discontinued operation, were eliminated in the Company's Consolidated Financial Statements (see Note 23). Subsequent to the divestment, sales to Hitachi ABB PG are reported as third-party revenues.

In addition, the Company also has retained obligations (primarily for environmental and taxes) related to other businesses disposed or otherwise exited that qualified as discontinued operations. Changes to these retained obligations are also included in Income from discontinued operations, net of tax, above.

The major components of assets and liabilities held for sale and in discontinued operations in the Company's Consolidated Balance Sheets are summarized as follows:

December 31, ($ in millions)	2020[1]	2019
Receivables, net	280	2,541
Contract assets	—	1,243
Inventories, net	1	1,667
Property, plant and equipment, net	—	1,754
Goodwill	—	1,631
Other current assets	1	1,004
Current assets held for sale and in discontinued operations	**282**	**9,840**
Accounts payable, trade	188	1,722
Contract liabilities	—	1,121
Pension and other employee benefits	—	419
Other current liabilities	456	1,984
Current liabilities held for sale and in discontinued operations	**644**	**5,246**
Other non-current liabilities	197	—
Non-current liabilities held for sale and in discontinued operations	**197**	**—**

(1) At December 31, 2020, the balances reported as held for sale and in discontinued operations pertain to Power Grids activities and other obligations which will remain with the Company until such time as the obligation is settled or the activities are fully wound down.

Note 4
Acquisitions, divestments and equity-accounted companies

Acquisition of controlling interests

Acquisitions of controlling interests were as follows:

($ in millions, except number of acquired businesses)	2020	2019	2018
Purchase price for acquisitions (net of cash acquired)	79	—	2,638
Aggregate excess of purchase price over fair value of net assets acquired[1]	92	92	1,472
Number of acquired businesses	3	—	3

(1) Recorded as goodwill (see Note 11). Includes adjustments of $92 million in 2019 arising during the measurement period of acquisitions, primarily reflecting changes in the valuation of net working capital, deferred tax liabilities and intangible assets acquired.

Acquisitions of controlling interests have been accounted for under the acquisition method and have been included in the Company's Consolidated Financial Statements since the date of acquisition. In 2020 and 2019, acquisitions of controlling interests were not material.

On June 30, 2018, the Company acquired through numerous share and asset purchases substantially all the assets, liabilities and business activities of GEIS, General Electric's global electrification solutions business. GEIS, headquartered in Atlanta, United States, provides technologies that distribute and control electricity and support the commercial, data center, health care, mining, renewable energy, oil and gas, water and telecommunications sectors. The resulting cash outflows for the Company amounted to $2,622 million (net of cash acquired of $192 million). The acquisition strengthens the Company's global position in electrification and expands its access to the North American market through strong customer relationships, a large installed base and extensive distribution networks. Consequently, the goodwill acquired represents expected operating synergies and cost savings as well as intangible assets that are not separable such as employee know-how and expertise.

While the Company uses its best estimates and assumptions as part of the purchase price allocation process to value assets acquired and liabilities assumed at the acquisition date, the purchase price allocation for acquisitions is preliminary for up to 12 months after the acquisition date and is subject to refinement as more detailed analyses are completed and additional information about the fair values of the acquired assets and liabilities becomes available. The purchase price allocation relating to the GEIS acquisition was finalized during the second quarter of 2019 and resulted in $92 million of net measurement period adjustments, increasing goodwill, primarily related to changes in the valuation of net working capital, deferred tax liabilities and intangible assets acquired.

In addition, in November 2019, the Company recognized a gain of $92 million relating to the receipt of cash from General Electric for a favorable resolution of an uncertainty with respect to the price paid to acquire GEIS. This occurred after the end of the measurement period and as a result, the Company recorded a gain in "Other income (expense), net".

The final allocation of purchase consideration for GEIS was as follows:

	GEIS	
($ in millions)	**Allocated amounts**	**Weighted-average useful life**
Technology	92	7 years
Customer relationships	178	12 years
Trade names	135	13 years
Supply agreement	32	13 years
Intangible assets	**437**	
Property, plant and equipment	373	
Deferred tax liabilities	(45)	
Inventories	405	
Other assets and liabilities, net(1)	(19)	
Goodwill(2)	1,534	
Noncontrolling interest	(63)	
Total consideration (net of cash acquired)(3)	**2,622**	

(1) Gross receivables from the GEIS acquisition totaled $658 million; the fair value of which was $624 million after adjusting for contractual cash flows not expected to be collected.
(2) The amount of goodwill which is tax deductible is $769 million.
(3) Cash acquired in the GEIS acquisition totaled $192 million.

The Company's Consolidated Income Statement for 2018, includes total revenues of $1,317 million and net income of $1 million in respect of GEIS since the date of acquisition.

The unaudited pro forma financial information in the table below summarizes the combined pro forma results of the Company and GEIS for 2018 as if GEIS had been acquired on January 1, 2017.

($ in millions)	**2018**
Total revenues	28,936
Income from continuing operations, net of tax	1,622

The pro forma results are for information purposes only and do not include any anticipated cost synergies or other effects of the planned integration of GEIS. Accordingly, such pro forma amounts are not necessarily indicative of the results that would have occurred had the acquisition been completed on the date indicated, nor are they indicative of the future operating results of the combined company.

The unaudited pro forma results above include certain adjustments related to the GEIS acquisition. The table below summarizes the adjustments necessary to present the pro forma financial information of the combined entity as if GEIS had been acquired on January 1, 2017.

($ in millions)	**2018**
Impact on cost of sales from additional amortization of intangible assets	(10)
Impact on cost of sales from fair valuing acquired inventory	26
Impact on cost of sales from additional depreciation of property, plant and equipment	(4)
Impact on selling, general and administrative expenses from additional amortization of intangible assets	(5)
Impact on selling, general and administrative expenses from acquisition-related costs	44
Impact on interest expense from financing costs	(15)
Taxation adjustments	(5)
Total pro forma adjustments	**31**

Acquisition of noncontrolling interests

In connection with the divestment of its Power Grids business to Hitachi (see Note 3), the Company retained a 19.9 percent interest in the business. For accounting purposes the 19.9 percent interest is deemed to have been both divested and reacquired, with a fair value at the transaction date of $1,661 million. The fair value was based on a discounted cash flow model considering the expected results of the future business operations of Hitachi ABB PG and using relevant market inputs including a risk-adjusted weighted-average cost of capital. The Company also obtained a right to require Hitachi to purchase this investment (see Note 3) with a floor price equivalent to a 10 percent discount compared to the price paid for the initial 80.1 percent. This option was valued at $118 million using a standard option pricing model with inputs considering the nature of the investment and the expected period until option exercise. As this option is not separable from the investment the value has been combined with the value of the underlying investment and is accounted for together.

The Company has concluded that based on its continuing involvement with the Power Grids business, including membership in its governing board of directors, it has significant influence over Hitachi ABB PG. As a result, the investment (including the value of the option) is accounted for using the equity method.

The difference between the initial carrying value of the Company's investment in Hitachi ABB PG at fair value and its proportionate share of the underlying net assets created basis differences of $8,503 million ($1,692 million for the Company's 19.9 percent ownership), which are allocated as follows:

($ in millions)	Allocated amounts	Weighted-average useful life
Inventories	169	5 months
Order backlog	727	2 years
Property, plant and equipment(1)	1,016	
Intangible assets(2)	1,731	9 years
Other contractual rights	251	2 years
Other assets	43	
Deferred tax liabilities	(942)	
Goodwill	5,959	
Less: Amount attributed to noncontrolling interest	(451)	
Basis difference	**8,503**	

(1) Property, plant and equipment includes assets subject to amortization having an initial fair value difference of $686 million and a weighted-average useful life of 14 years.
(2) Intangible assets include brand license agreement, technology and customer relationships.

For assets subject to depreciation or amortization, the Company amortizes these basis differences over the estimated remaining useful lives of the assets that gave rise to this difference, recording the amortization, net of related deferred tax benefit, as a reduction of income from equity-accounted companies. Certain other assets are recorded as an expense as the benefits from the assets are realized. At December 31, 2020, the Company determined that no impairment of its equity-accounted investments existed.

The carrying value of the Company's investments in equity-accounted companies and respective percentage of ownership is as follows:

	Ownership as of	Carrying value at December 31,	
($ in millions, except ownership share in %)	December 31, 2020	2020	2019
Hitachi ABB Power Grids Ltd	19.9%	1,710	—
Others		74	33
Total		**1,784**	**33**

In 2020, 2019 and 2018, the Company recorded a loss of $66 million and gains of $8 million and $6 million, respectively, in Other income (expense), net, representing the Company's share of the earnings of investees accounted for under the equity method of accounting, the components of which are as follows:

($ in millions)	2020	2019	2018
Income from equity-accounted companies, net of taxes	29	8	6
Basis difference amortization (net of deferred income tax benefit)	(95)	—	—
Income (loss) from equity-accounted companies	**(66)**	**8**	**6**

Business divestments

In 2020, the Company completed the sale of its Power Grids business (see Note 3 for details) and its solar inverters business. In 2019, the Company recorded net gains (including transactions costs) of $55 million, primarily due to the divestment of two businesses in China, and in 2018, there were no significant amounts recognized from divestments of consolidated businesses.

Divestment of the solar inverters business

In February 2020, the Company completed the sale of its solar inverters business for no consideration. Under the agreement, which was reached in July 2019, the Company was required to transfer $143 million of cash to the buyer on the closing date. In addition, payments totaling EUR 132 million ($145 million) are required to be transferred to the buyer from 2020 through 2025. In 2019, the Company recorded a loss of $421 million, in "Other income (expense), net", representing the excess of the carrying value, which includes a loss of $99 million arising from the cumulative translation adjustment, over the estimated fair value of this business. In 2020, a further loss of $33 million was recorded in "Other income (expense), net" for changes in fair value of this business. The loss in 2020 includes the $99 million reclassification from other comprehensive income of the currency translation adjustment related to the business.

The fair value was based on the estimated current market values using Level 3 inputs, considering the agreed-upon sale terms with the buyer. The solar inverters business, which includes the solar inverter business acquired as part of the Power-One acquisition in 2013, was part of the Company's Electrification operating segment.

As this divestment does not qualify as a discontinued operation, the results of operations for this business prior to its disposal are included in the Company's continuing operations for all periods presented. The assets and liabilities of this business were shown as assets and liabilities held for sale in the Company's Consolidated Balance Sheet at December 31, 2019, and as at that date, the carrying amounts of the major classes of assets and liabilities held for sale were as follows:

($ in millions)	December 31, 2019
Assets	
Receivables, net	70
Inventories, net	127
Property, plant and equipment, net	69
Intangible assets, net	27
Other assets	26
Valuation allowance on assets held for sale	(319)
Current assets held for sale	**—**
Liabilities	
Accounts payable, trade	86
Contract liabilities	59
Provisions for warranties	108
Other liabilities	49
Fair value adjustment on disposal group	102
Current liabilities held for sale	**404**

Including the above loss of $33 million and $421 million in 2020 and 2019, respectively, Income from continuing operations before taxes includes net losses of $63 million and $490 million, from the solar inverters business. In 2018, net losses of $94 million from this business were included in Income from continuing operations before taxes.

Note 5
Cash and equivalents, marketable securities and short-term investments

Current assets

Cash and equivalents and marketable securities and short-term investments consisted of the following:

December 31, 2020 ($ in millions)	Cost basis	Gross unrealized gains	Gross unrealized losses	Fair value	Cash and equivalents	Marketable securities and short-term investments
Changes in fair value recorded in net income						
Cash	2,388			**2,388**	2,388	
Time deposits	1,513			**1,513**	1,513	
Equity securities	1,704	12		**1,716**		1,716
	5,605	**12**	**—**	**5,617**	**3,901**	**1,716**
Changes in fair value recorded in other comprehensive income						
Debt securities available-for-sale:						
—U.S. government obligations	274	19		**293**		293
—European government obligations	24			**24**		24
—Corporate	69	6		**75**		75
	367	**25**	**—**	**392**	**—**	**392**
Total	**5,972**	**37**	**—**	**6,009**	**3,901**	**2,108**
Of which:						
—Restricted cash, current					323	
—Restricted cash, non-current					300	

December 31, 2019 ($ in millions)	Cost basis	Gross unrealized gains	Gross unrealized losses	Fair value	Cash and equivalents	Marketable securities and short-term investments
Changes in fair value recorded in net income						
Cash	2,111			**2,111**	2,111	
Time deposits	1,433			**1,433**	1,433	
Equity securities	294	10		**304**		304
	3,838	**10**	**—**	**3,848**	**3,544**	**304**
Changes in fair value recorded in other comprehensive income						
Debt securities available-for-sale:						
—U.S. government obligations	191	7	(1)	**197**		197
—Corporate	61	4		**65**		65
	252	**11**	**(1)**	**262**	**—**	**262**
Total	**4,090**	**21**	**(1)**	**4,110**	**3,544**	**566**
Of which:						
—Restricted cash, current					36	

Contractual maturities

Contractual maturities of debt securities consisted of the following:

	Available-for-sale	
December 31, 2020 ($ in millions)	**Cost basis**	**Fair value**
Less than one year	104	104
One to five years	133	139
Six to ten years	70	76
Due after ten years	60	73
Total	**367**	**392**

At December 31, 2020 and 2019, the Company pledged $66 million and $66 million, respectively, of available-for-sale marketable securities as collateral for issued letters of credit and other security arrangements.

Note 6
Derivative financial instruments

The Company is exposed to certain currency, commodity, interest rate and equity risks arising from its global operating, financing and investing activities. The Company uses derivative instruments to reduce and manage the economic impact of these exposures.

Currency risk

Due to the global nature of the Company's operations, many of its subsidiaries are exposed to currency risk in their operating activities from entering into transactions in currencies other than their functional currency. To manage such currency risks, the Company's policies require its subsidiaries to hedge their foreign currency exposures from binding sales and purchase contracts denominated in foreign currencies. For forecasted foreign currency denominated sales of standard products and the related foreign currency denominated purchases, the Company's policy is to hedge up to a maximum of 100 percent of the forecasted foreign currency denominated exposures, depending on the length of the forecasted exposures. Forecasted exposures greater than 12 months are not hedged. Forward foreign exchange contracts are the main instrument used to protect the Company against the volatility of future cash flows (caused by changes in exchange rates) of contracted and forecasted sales and purchases denominated in foreign currencies. In addition, within its treasury operations, the Company primarily uses foreign exchange swaps and forward foreign exchange contracts to manage the currency and timing mismatches arising in its liquidity management activities.

Commodity risk

Various commodity products are used in the Company's manufacturing activities. Consequently it is exposed to volatility in future cash flows arising from changes in commodity prices. To manage the price risk of commodities, the Company's policies require that its subsidiaries hedge the commodity price risk exposures from binding contracts, as well as at least 50 percent (up to a maximum of 100 percent) of the forecasted commodity exposure over the next 12 months or longer (up to a maximum of 18 months). Primarily swap contracts are used to manage the associated price risks of commodities.

Interest rate risk

The Company has issued bonds at fixed rates. Interest rate swaps are used to manage the interest rate risk associated with certain debt and generally such swaps are designated as fair value hedges. In addition, from time to time, the Company uses instruments such as interest rate swaps, interest rate futures, bond futures or forward rate agreements to manage interest rate risk arising from the Company's balance sheet structure but does not designate such instruments as hedges.

Equity risk

The Company is exposed to fluctuations in the fair value of its warrant appreciation rights (WARs) issued under its MIP (Management Incentive Plan) (see Note 18). A WAR gives its holder the right to receive cash equal to the market price of an equivalent listed warrant on the date of exercise. To eliminate such risk, the Company has purchased cash-settled call options, indexed to the shares of the Company, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs.

Volume of derivative activity

In general, while the Company's primary objective in its use of derivatives is to minimize exposures arising from its business, certain derivatives are designated and qualify for hedge accounting treatment while others either are not designated or do not qualify for hedge accounting.

Foreign exchange and interest rate derivatives

The gross notional amounts of outstanding foreign exchange and interest rate derivatives (whether designated as hedges or not) were as follows:

	Total notional amounts at December 31,		
Type of derivative ($ in millions)	**2020**	**2019**	**2018**
Foreign exchange contracts	12,610	15,015	13,612
Embedded foreign exchange derivatives	1,134	924	733
Interest rate contracts	3,227	5,188	3,300

Derivative commodity contracts

The Company uses derivatives to hedge its direct or indirect exposure to the movement in the prices of commodities which are primarily copper, silver and aluminum. The following table shows the notional amounts of outstanding derivatives (whether designated as hedges or not), on a net basis, to reflect the Company's requirements for these commodities:

		Total notional amounts at December 31,		
Type of derivative	**Unit**	**2020**	**2019**	**2018**
Copper swaps	metric tonnes	39,390	42,494	46,143
Silver swaps	ounces	1,966,677	2,508,770	2,861,294
Aluminum swaps	metric tonnes	8,112	8,388	9,491

Equity derivatives

At December 31, 2020, 2019 and 2018, the Company held 22 million, 40 million and 41 million cash-settled call options indexed to ABB Ltd shares (conversion ratio 5:1) with a total fair value of $21 million, $26 million and $6 million, respectively.

Cash flow hedges

As noted above, the Company mainly uses forward foreign exchange contracts to manage the foreign exchange risk of its operations, commodity swaps to manage its commodity risks and cash-settled call options to hedge its WAR liabilities. Where such instruments are designated and qualify as cash flow hedges, the effective portion of the changes in their fair value is recorded in "Accumulated other comprehensive loss" and subsequently reclassified into earnings in the same line item and in the same period as the underlying hedged transaction affects earnings. Any ineffectiveness in the hedge relationship, or hedge component excluded from the assessment of effectiveness, is recognized in earnings during the current period.

At December 31, 2020, 2019 and 2018, "Accumulated other comprehensive loss" included net unrealized losses of $3 million, $5 million and net unrealized gains of $12 million, respectively, net of tax, on derivatives designated as cash flow hedges. Of the amount at December 31, 2020, net losses of $1 million are expected to be reclassified to earnings in 2021. At December 31, 2020, the longest maturity of a derivative classified as a cash flow hedge was 49 months.

In 2020, 2019 and 2018, the amounts of gains or losses, net of tax, reclassified into earnings due to the discontinuance of cash flow hedge accounting and the amount of ineffectiveness in cash flow hedge relationships directly recognized in earnings were not significant.

The pre-tax effects of derivative instruments, designated and qualifying as cash flow hedges, on “Accumulated other comprehensive loss” and the Consolidated Income Statements in 2020, 2019 and 2018, were not significant.

Fair value hedges

To reduce its interest rate exposure arising primarily from its debt issuance activities, the Company uses interest rate swaps. Where such instruments are designated as fair value hedges, the changes in the fair value of these instruments, as well as the changes in fair value of the risk component of the underlying debt being hedged, are recorded as offsetting gains and losses in “Interest and other finance expense”.

The effect of Interest rate contracts, designated and qualifying as fair value hedges, on the Consolidated Income Statements was as follows:

($ in millions)	**2020**	**2019**	**2018**
Gains (losses) recognized in Interest and other finance expense:			
– on derivatives designated as fair value hedges	11	38	(4)
– on hedged item	(11)	(38)	5

Derivatives not designated in hedge relationships

Derivative instruments that are not designated as hedges or do not qualify as either cash flow or fair value hedges are economic hedges used for risk management purposes. Gains and losses from changes in the fair values of such derivatives are recognized in the same line in the income statement as the economically hedged transaction.

Furthermore, under certain circumstances, the Company is required to split and account separately for foreign currency derivatives that are embedded within certain binding sales or purchase contracts denominated in a currency other than the functional currency of the subsidiary and the counterparty.

The gains (losses) recognized in the Consolidated Income Statements on derivatives not designated in hedging relationships were as follows:

($ in millions)	**Gains (losses) recognized in income**			
Type of derivative not designated as a hedge	**Location**	**2020**	**2019**	**2018**
Foreign exchange contracts	Total revenues	94	(7)	(121)
	Total cost of sales	—	(64)	46
	SG&A expenses[1]	(11)	2	10
	Non-order related research and development	(2)	1	(1)
	Interest and other finance expense	207	(122)	40
Embedded foreign exchange contracts	Total revenues	(34)	17	58
	Total cost of sales	(1)	(6)	(4)
	SG&A expenses[1]	—	—	2
Commodity contracts	Total cost of sales	56	12	(33)
Other	Interest and other finance expense	1	—	3
Total		**310**	**(167)**	**—**

(1) SG&A expenses represent “Selling, general and administrative expenses”.

The fair values of derivatives included in the Consolidated Balance Sheets were as follows:

December 31, 2020 ($ in millions)	Derivative assets		Derivative liabilities	
	Current in "Other current assets"	Non-current in "Other non-current assets"	Current in "Other current liabilities"	Non-current in "Other non-current liabilities"
Derivatives designated as hedging instruments:				
Foreign exchange contracts		1	2	4
Interest rate contracts	6	78		
Cash-settled call options	10	11		
Total	**16**	**90**	**2**	**4**
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	221	22	106	26
Commodity contracts	59		7	
Interest rate contracts	2		2	
Embedded foreign exchange derivatives	10	2	28	16
Total	**292**	**24**	**143**	**42**
Total fair value	**308**	**114**	**145**	**46**

December 31, 2019 ($ in millions)	Derivative assets		Derivative liabilities	
	Current in "Other current assets"	Non-current in "Other non-current assets"	Current in "Other current liabilities"	Non-current in "Other non-current liabilities"
Derivatives designated as hedging instruments:				
Foreign exchange contracts			2	6
Interest rate contracts		72		
Cash-settled call options	11	14		
Total	**11**	**86**	**2**	**6**
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	85	14	127	14
Commodity contracts	17		2	
Cash-settled call options		1		
Embedded foreign exchange derivatives	7	3	12	3
Total	**109**	**18**	**141**	**17**
Total fair value	**120**	**104**	**143**	**23**

Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events.

Although the Company is party to close-out netting agreements with most derivative counterparties, the fair values in the tables above and in the Consolidated Balance Sheets at December 31, 2020 and 2019, have been presented on a gross basis.

The Company's netting agreements and other similar arrangements allow net settlements under certain conditions. At December 31, 2020 and 2019, information related to these offsetting arrangements was as follows:

December 31, 2020 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized assets	Derivative liabilities eligible for set-off in case of default	Cash collateral received	Non-cash collateral received	Net asset exposure
Derivatives	410	(106)			**304**
Total	**410**	**(106)**	**—**	**—**	**304**

December 31, 2020 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized liabilities	Derivative liabilities eligible for set-off in case of default	Cash collateral pledged	Non-cash collateral pledged	Net liability exposure
Derivatives	147	(106)			**41**
Total	**147**	**(106)**	**—**	**—**	**41**

December 31, 2019 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized assets	Derivative liabilities eligible for set-off in case of default	Cash collateral received	Non-cash collateral received	Net asset exposure
Derivatives	214	(102)			**112**
Total	**214**	**(102)**	**—**	**—**	**112**

December 31, 2019 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized liabilities	Derivative liabilities eligible for set-off in case of default	Cash collateral pledged	Non-cash collateral pledged	Net liability exposure
Derivatives	151	(102)			**49**
Total	**151**	**(102)**	**—**	**—**	**49**

Note 7
Fair values

Recurring fair value measures

The fair values of financial assets and liabilities measured at fair value on a recurring basis were as follows:

December 31, 2020 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Assets				
Securities in “Marketable securities and short-term investments”:				
Equity securities		1,716		**1,716**
Debt securities—U.S. government obligations	293			**293**
Debt securities—European government obligations	24			**24**
Debt securities—Corporate		75		**75**
Derivative assets—current in “Other current assets”		308		**308**
Derivative assets—non-current in “Other non-current assets”		114		**114**
Total	**317**	**2,213**	**—**	**2,530**
Liabilities				
Derivative liabilities—current in “Other current liabilities”		145		**145**
Derivative liabilities—non-current in “Other non-current liabilities”		46		**46**
Total	**—**	**191**	**—**	**191**

December 31, 2019 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Assets				
Securities in "Marketable securities and short-term investments":				
Equity securities		304		**304**
Debt securities—U.S. government obligations	197			**197**
Debt securities—Corporate		65		**65**
Derivative assets—current in "Other current assets"		120		**120**
Derivative assets—non-current in "Other non-current assets"		104		**104**
Total	**197**	**593**	**—**	**790**
Liabilities				
Derivative liabilities—current in "Other current liabilities"		143		**143**
Derivative liabilities—non-current in "Other non-current liabilities"		23		**23**
Total	**—**	**166**	**—**	**166**

During 2020, 2019 and 2018 there have been no reclassifications for any financial assets or liabilities between Level 1 and Level 2.

The Company uses the following methods and assumptions in estimating fair values of financial assets and liabilities measured at fair value on a recurring basis:

- Securities in "Marketable securities and short-term investments": If quoted market prices in active markets for identical assets are available, these are considered Level 1 inputs; however, when markets are not active, these inputs are considered Level 2. If such quoted market prices are not available, fair value is determined using market prices for similar assets or present value techniques, applying an appropriate risk-free interest rate adjusted for non-performance risk. The inputs used in present value techniques are observable and fall into the Level 2 category.
- Derivatives: The fair values of derivative instruments are determined using quoted prices of identical instruments from an active market, if available (Level 1 inputs). If quoted prices are not available, price quotes for similar instruments, appropriately adjusted, or present value techniques, based on available market data, or option pricing models are used. Cash-settled call options hedging the Company's WAR liability are valued based on bid prices of the equivalent listed warrant. The fair values obtained using price quotes for similar instruments or valuation techniques represent a Level 2 input unless significant unobservable inputs are used.

Non-recurring fair value measures

The Company elects to record private equity investments without readily determinable fair values at cost, less impairment, adjusted for observable price changes. The Company reassesses at each reporting period whether these investments continue to qualify for this treatment. In 2020, the Company recognized net increases in fair value of $73 million related to certain of its private equity investments based on observable market price changes for an identical or similar investment of the same issuer. The fair values of these investments totaled $105 million and were determined using Level 2 inputs.

Based on valuations at July 1, 2020, the Company recorded goodwill impairment charges of $311 million in the third quarter of 2020. The fair value measurements used in the analyses were calculated using the income approach (discounted cash flow method). The discounted cash flow models were calculated using unobservable inputs, which classified the fair value measurement as Level 3 (see Note 11 for additional information including further detailed information related to these charges and significant unobservable inputs).

In June 2019, upon meeting the criteria as held for sale, the Company adjusted the carrying value of the solar inverters business which was sold in February 2020 (see Note 4). Apart from the transactions above, there were no additional significant non-recurring fair value measurements during 2020 and 2019.

Disclosure about financial instruments carried on a cost basis

The fair values of financial instruments carried on a cost basis were as follows:

December 31, 2020 ($ in millions)	Carrying value	Level 1	Level 2	Level 3	Total fair value
Assets					
Cash and equivalents (excluding securities with original maturities up to 3 months):					
Cash	1,765	1,765			**1,765**
Time deposits	1,513		1,513		**1,513**
Restricted cash	323	323			**323**
Restricted cash, non-current	300	300			**300**
Liabilities					
Short-term debt and current maturities of long-term debt (excluding finance lease obligations)	1,266	497	769		**1,266**
Long-term debt (excluding finance lease obligations)	4,668	4,909	89		**4,998**

December 31, 2019 ($ in millions)	Carrying value	Level 1	Level 2	Level 3	Total fair value
Assets					
Cash and equivalents (excluding securities with original maturities up to 3 months):					
Cash	2,075	2,075	—	—	**2,075**
Time deposits	1,433	—	1,433	—	**1,433**
Restricted cash	36	36	—	—	**36**
Liabilities					
Short-term debt and current maturities of long-term debt (excluding finance lease obligations)	2,270	1,534	736	—	**2,270**
Long-term debt (excluding finance lease obligations)	6,618	6,267	692	—	**6,959**

The Company uses the following methods and assumptions in estimating fair values of financial instruments carried on a cost basis:

- Cash and equivalents (excluding securities with original maturities up to 3 months), Restricted cash, current and non-current, and Marketable securities and short-term investments (excluding securities): The carrying amounts approximate the fair values as the items are short-term in nature or, for cash held in banks, are equal to the deposit amount.
- Short-term debt and current maturities of long-term debt (excluding finance lease obligations): Short-term debt includes commercial paper, bank borrowings and overdrafts. The carrying amounts of short-term debt and current maturities of long-term debt, excluding finance lease obligations, approximate their fair values.
- Long-term debt (excluding finance lease obligations): Fair values of bonds are determined using quoted market prices (Level 1 inputs), if available. For bonds without available quoted market prices and other long-term debt, the fair values are determined using a discounted cash flow methodology based upon borrowing rates of similar debt instruments and reflecting appropriate adjustments for non-performance risk (Level 2 inputs).

Note 8
Receivables, net and Contract assets and liabilities

“Receivables, net” consisted of the following:

December 31, ($ in millions)	2020	2019
Trade receivables	6,417	5,967
Other receivables	760	695
Allowance	(357)	(228)
Total	**6,820**	**6,434**

“Trade receivables” in the table above includes contractual retention amounts billed to customers of $146 million and $151 million at December 31, 2020 and 2019, respectively. Management expects that the substantial majority of related contracts will be completed and the substantial majority of the billed amounts retained by the customer will be collected. Of the retention amounts outstanding at December 31, 2020, 70 percent and 18 percent are expected to be collected in 2021 and 2022, respectively.

“Other receivables” in the table above consists of value added tax, claims, rental deposits and other non-trade receivables.

The reconciliation of changes in the allowance for doubtful accounts is as follows:

($ in millions)	2020	2019	2018
Balance at January 1,	**228**	**219**	**202**
Transition adjustment	56	—	—
Current-period provision for expected credit losses	115	31	50
Write-offs charged against the allowance	(42)	(19)	(17)
Exchange rate differences	—	(3)	(16)
Balance at December 31,	**357**	**228**	**219**

The following table provides information about Contract assets and Contract liabilities:

($ in millions)	2020	2019	2018
Contract assets	985	1,025	1,082
Contract liabilities	1,903	1,719	1,707

Contract assets primarily relate to the Company’s right to receive consideration for work completed but for which no invoice has been issued at the reporting date. Contract assets are transferred to receivables when rights to receive payment become unconditional. Management expects that the majority of the amounts will be collected within one year of the respective balance sheet date.

Contract liabilities primarily relate to up-front advances received on orders from customers as well as amounts invoiced to customers in excess of revenues recognized predominantly on long-term projects. Contract liabilities are reduced as work is performed and as revenues are recognized.

The significant changes in the Contract assets and Contract liabilities balances were as follows:

	2020		2019	
($ in millions)	Contract assets	Contract liabilities	Contract assets	Contract liabilities
Revenue recognized, which was included in the Contract liabilities balance at January 1, 2020/2019		(1,011)		(1,158)
Additions to Contract liabilities - excluding amounts recognized as revenue during the period		1,129		1,255
Receivables recognized that were included in the Contract assets balance at January 1, 2020/2019	(680)		(786)	

The Company considers its order backlog to represent its unsatisfied performance obligations. At December 31, 2020, the Company had unsatisfied performance obligations totaling $14,303 million and, of this amount, the Company expects to fulfill approximately 73 percent of the obligations in 2021, approximately 15 percent of the obligations in 2022 and the balance thereafter.

Note 9
Inventories, net

"Inventories, net" consisted of the following:

December 31, ($ in millions)	2020	2019
Raw materials	1,785	1,760
Work in process	1,020	819
Finished goods	1,499	1,499
Advances to suppliers	165	106
Total	**4,469**	**4,184**

Note 10
Property, plant and equipment, net

"Property, plant and equipment, net" consisted of the following:

December 31, ($ in millions)	2020	2019
Land and buildings	3,889	3,568
Machinery and equipment	6,144	5,620
Construction in progress	505	500
	10,538	**9,688**
Accumulated depreciation	(6,364)	(5,716)
Total	**4,174**	**3,972**

Assets under finance leases included in "Property, plant and equipment, net" were as follows:

December 31, ($ in millions)	2020	2019
Land and buildings	169	142
Machinery and equipment	79	62
	248	**204**
Accumulated depreciation	(111)	(99)
Total	**137**	**105**

In 2020, 2019 and 2018 depreciation, including depreciation of assets under finance leases, was $586 million, $616 million and $578 million, respectively. In 2020, 2019 and 2018 there were no significant impairments of property, plant or equipment.

Note 11
Goodwill and intangible assets

The changes in “Goodwill” were as follows:

($ in millions)	Electrification	Industrial Automation	Motion	Robotics & Discrete Automation	Corporate and Other	Total
Balance at January 1, 2019	4,276	1,616	2,441	2,410	21	**10,764**
Goodwill acquired during the year[1]	92	—	—	—	—	**92**
Goodwill allocated to disposals	(18)	—	—	—	—	**(18)**
Exchange rate differences and other	22	(1)	(5)	(29)	—	**(13)**
Balance at December 31, 2019	**4,372**	**1,615**	**2,436**	**2,381**	**21**	**10,825**
Goodwill acquired during the year	71	—	—	21	—	**92**
Impairment of Goodwill	—	—	—	(290)	(21)	**(311)**
Exchange rate differences and other	84	24	20	116	—	**244**
Balance at December 31, 2020[2]	**4,527**	**1,639**	**2,456**	**2,228**	**—**	**10,850**

(1) Amount consists of adjustments arising during the twelve-month measurement period subsequent to the respective acquisition date (see Note 4).

(2) As of December 31, 2020, the gross goodwill amounted to $11,152 million. The accumulated impairment charges amounted to $302 million and related to the Robotics & Discrete Automation segment.

The Company adopted a new operating model on July 1, 2020, which resulted in a change to the identification of the goodwill reporting units. Previously, the reporting units were the same as the operating segments for Electrification, Motion and Robotics & Discrete Automation, while for the Industrial Automation operating segment the reporting units were determined to be at the Division level, which is one level below the operating segment. The new operating model provides the Divisions with full ownership and accountability for their respective strategies, performance and resources and based on these changes, the Company concluded that the reporting units would change and be the respective Divisions within each operating segment. This change resulted only in an allocation of goodwill within the operating segments and thus there is no change to segment level goodwill in the table above.

As a result of the new allocation of goodwill, an interim quantitative impairment test was conducted both before and after the changes which were effective July 1, 2020. In the “before” test, it was concluded that the fair value of the Company’s reporting units exceeded the carrying value under the historical reporting unit structure.

The impairment test was performed for the new reporting units and the fair value of each was determined using a discounted cash flow fair value estimate based on objective information available at the measurement date. The significant assumptions used to develop the estimates of fair value for each reporting unit included management’s best estimates of the expected future results and discount rates specific to the reporting unit. The fair value estimates were based on assumptions that the Company believed to be reasonable, but which are inherently uncertain and thus, actual results may differ from those estimates. The fair values for each of the individual reporting units and their associated goodwill were determined using Level 3 measurements.

The interim quantitative impairment test indicated that the estimated fair values of the reporting units were substantially in excess of their carrying value for all reporting units except for the Machine Automation reporting unit within the Robotics & Discrete Automation operating segment. The contraction of the global economy in 2020, particularly in end-customer industries related to this reporting unit and considerable uncertainty around the continued pace of macroeconomic recovery generally led to a reduction in the fair values of the reporting units, thus affecting this reporting unit. Also, at the division level, this reporting unit does not benefit from shared cash flows generated within an entire operating segment. In addition, the book value of the Machine Automation Division includes a significant amount of intangible assets recognized in past acquisitions, resulting in a proportionately higher book value than the other reporting unit within the Robotics & Discrete Automation Business Area. With the fair value of the reporting unit lower due to the economic conditions, the existing book value of the intangible assets combined with the newly allocated reporting unit goodwill led to the carrying value of the Machine Automation reporting unit exceeding its fair value. During 2020, a goodwill impairment charge of $290 million was recorded to reduce the carrying value of this reporting unit to its implied fair value. The remaining goodwill for the Machine Automation reporting unit was $554 million as of December 31, 2020.

The Company performed its annual impairment test as of October 1, 2020, using a qualitative assessment method for each reporting unit and determined it was not more likely than not that any reporting unit's fair value is less than its carrying value.

Intangible assets consisted of the following:

	2020			2019		
December 31, ($ in millions)	**Gross carrying amount**	**Accumulated amortization**	**Net carrying amount**	**Gross carrying amount**	**Accumulated amortization**	**Net carrying amount**
Capitalized software for internal use	828	(694)	**134**	790	(628)	**162**
Capitalized software for sale	33	(32)	**1**	29	(29)	**—**
Intangibles other than software:						
Customer-related	2,557	(1,104)	**1,453**	2,513	(1,005)	**1,508**
Technology-related	1,170	(898)	**272**	1,056	(722)	**334**
Marketing-related	492	(304)	**188**	501	(286)	**215**
Other	63	(33)	**30**	59	(26)	**33**
Total	**5,143**	**(3,065)**	**2,078**	**4,948**	**(2,696)**	**2,252**

In 2020 and 2019, additions to intangible assets were $78 million and $42 million, respectively.

There were no significant intangible assets acquired in business combinations during 2020 and 2019.

Amortization expense of intangible assets consisted of the following:

($ in millions)	**2020**	**2019**	**2018**
Capitalized software for internal use	61	74	59
Intangibles other than software	268	271	279
Total	**329**	**345**	**338**

In 2020, 2019 and 2018, impairment charges on intangible assets were not significant.

At December 31, 2020, future amortization expense of intangible assets is estimated to be:

($ in millions)	
2021	323
2022	288
2023	261
2024	215
2025	181
Thereafter	810
Total	**2,078**

Note 12
Debt

The Company’s total debt at December 31, 2020 and 2019, amounted to $6,121 million and $9,059 million, respectively.

Short-term debt and current maturities of long-term debt

The Company’s “Short-term debt and current maturities of long-term debt” consisted of the following:

December 31, ($ in millions)	2020	2019
Short-term debt (weighted-average interest rate of 2.8% and 2.8%, respectively)	153	838
Current maturities of long-term debt (weighted-average nominal interest rate of 3.2% and 0.7%, respectively)	1,140	1,449
Total	**1,293**	**2,287**

Short-term debt primarily represents short-term loans from various banks and issued commercial paper.

At December 31, 2020, the Company had in place two commercial paper programs: a $2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies, and a $2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States. At December 31, 2020 and 2019, no amount was outstanding under the $2 billion Euro-commercial paper program. At December 31, 2020 and 2019, $32 million and $708 million, respectively, was outstanding under the $2 billion program in the United States.

In March 2020, the Company entered into a bank-funded short-term EUR 2 billion Revolving Credit Agreement (the “Agreement”). This Agreement was in addition to the Company’s existing $2 billion multicurrency revolving credit facility (see below). Under this Agreement, outstanding amounts were subject to interest at the rate of EURIBOR plus a margin of 0.25 percent. The Company requested the full amount to be borrowed and the proceeds were received on March 31, 2020, amounting to $2,183 million, net of issuance costs. The Agreement required that all outstanding amounts be repaid within 15 days after the completion of the sale of the Power Grids business. The Agreement was terminated after the final repayment on July 8, 2020.

In addition, during 2019, the Company replaced its previous $2 billion multicurrency revolving credit facility, maturing in 2021, with a new $2 billion 5-year multicurrency credit facility maturing in 2024. The new credit facility provides an option in 2020 and 2021 to extend the maturity to 2025 and 2026, respectively. The Company exercised the option in 2020 to extend the maturity of the facility to 2025. The facility is for general corporate purposes. Interest costs on drawings under the facility are LIBOR or EURIBOR (depending on the currency of the drawings) plus a margin of 0.175 percent, while commitment fees (payable on the unused portion of the facility) amount to 35 percent of the margin, which represents commitment fees of 0.06125 percent per annum. Utilization fees, payable on drawings, amount to 0.075 percent per annum on drawings up to one-third of the facility, 0.15 percent per annum on drawings in excess of one-third but less than or equal to two-thirds of the facility, or 0.30 percent per annum on drawings over two-thirds of the facility. The facility contains cross-default clauses whereby an event of default would occur if the Company were to default on indebtedness as defined in the facility, at or above a specified threshold. No amount was drawn at December 31, 2020 and 2019, under this facility.

Long-term debt

The Company raises long-term debt in various currencies, maturities and on various interest rate terms. For certain of its debt obligations, the Company utilizes derivative instruments to modify its interest rate exposure. In particular, the Company uses interest rate swaps to effectively convert certain fixed-rate long-term debt into floating rate obligations. The carrying value of debt, designated as being hedged by fair value hedges, is adjusted for changes in the fair value of the risk component of the debt being hedged.

The following table summarizes the Company's long-term debt considering the effect of interest rate swaps. Consequently, a fixed-rate debt subject to a fixed-to-floating interest rate swap is included as a floating rate debt in the table below:

December 31, ($ in millions, except % data)	2020 Balance	2020 Nominal rate	2020 Effective rate	2019 Balance	2019 Nominal rate	2019 Effective rate
Floating rate	3,330	1.6%	0.2%	2,221	1.5%	1.1%
Fixed rate	2,638	3.2%	3.3%	6,000	2.8%	2.4%
	5,968			**8,221**		
Current portion of long-term debt	(1,140)	3.2%	2.6%	(1,449)	0.7%	0.6%
Total	**4,828**			**6,772**		

At December 31, 2020, the principal amounts of long-term debt repayable (excluding finance lease obligations) at maturity were as follows:

($ in millions)	
2021	1,108
2022	1,255
2023	860
2024	1,238
2025	83
Thereafter	1,186
Total	**5,730**

Details of the Company's outstanding bonds were as follows:

December 31, (in millions)	2020 Nominal outstanding		2020 Carrying value[(1)]		2019 Nominal outstanding		2019 Carrying value[(1)]	
Bonds:								
2.8% USD Notes, due 2020				—	USD	300	$	300
Floating EUR Notes, due 2020				—	EUR	1,000	$	1,122
4.0% USD Notes, due 2021	USD	650	$	649	USD	650	$	648
2.25% CHF Bonds, due 2021	CHF	350	$	403	CHF	350	$	373
5.625% USD Notes, due 2021				—	USD	250	$	260
2.875% USD Notes, due 2022	USD	1,250	$	1,280	USD	1,250	$	1,267
3.375% USD Notes, due 2023				—	USD	450	$	448
0.625% EUR Instruments, due 2023	EUR	700	$	875	EUR	700	$	799
0.75% EUR Instruments, due 2024	EUR	750	$	946	EUR	750	$	859
0.3% CHF Notes, due 2024	CHF	280	$	317	CHF	280	$	288
3.8% USD Notes, due 2028	USD	383	$	381	USD	750	$	746
1.0% CHF Notes, due 2029	CHF	170	$	192	CHF	170	$	175
4.375% USD Notes, due 2042	USD	609	$	589	USD	750	$	724
Total			**$**	**5,632**			**$**	**8,009**

(1) USD carrying values include unamortized debt issuance costs, bond discounts or premiums, as well as adjustments for fair value hedge accounting, where appropriate.

During 2020, the Company repaid at maturity its 2.8% USD Notes and its floating EUR Notes. The 2.8% USD Notes paid interest semi-annually in arrears, while the floating EUR Notes paid interest quarterly in arrears at a variable interest rate of 35 basis points above the 3-month EURIBOR, with a floor rate of zero.

In November 2020, the Company completed a cash tender offer on its 3.8% USD Notes due 2028 and 4.375% USD Notes due 2042. As a result of this tender offer the Company redeemed principal amounts of $367 million of the 3.8% USD Notes due 2028 and $141 million of the 4.375% USD Notes due 2042 for a total cash payment of $629 million. The Company recognized losses from extinguishment of debt of $123 million for these two transactions, representing the premium associated with the early redemption, as well as the recognition of remaining unamortized issuance discounts and costs.

In December 2020, the Company exercised its early redemption option on its 5.625% USD Notes due 2021 and its 3.375% USD Notes due 2023. Both USD Notes paid interest semi-annually in arrears. In connection with the redemption, the Company recognized losses from extinguishment of debt of $39 million representing the premium associated with the early redemption, as well as the recognition of the relevant remaining unamortized premium or discount and issuance costs.

The 4.0% USD Notes, due 2021, pay interest semi-annually in arrears, at a fixed annual rate of 4.0 percent. The Company may redeem these notes prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date.

The 2.25% CHF Bonds, due 2021, pay interest annually in arrears, at a fixed annual rate of 2.25 percent. The Company has the option to redeem the bonds prior to maturity, in whole, at par plus accrued interest, if 85 percent of the aggregate principal amount of the bonds has been redeemed or purchased and cancelled. The Company entered into interest rate swaps to hedge its interest obligations on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate Swiss franc obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

The 2.875% USD Notes, due 2022, pay interest semi-annually in arrears at a fixed annual rate of 2.875 percent. The 4.375% USD Notes, due 2042, pay interest semi-annually in arrears at a fixed annual rate of 4.375 percent. The Company may redeem both of these notes (which were issued together in May 2012) prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date. These notes, registered with the U.S. Securities and Exchange Commission, were issued by ABB Finance (USA) Inc., a 100 percent owned finance subsidiary, and were fully and unconditionally guaranteed by ABB Ltd. There are no significant restrictions on the ability of the parent company to obtain funds from its subsidiaries by dividend or loan. In reliance on Rule 3-10 of Regulation S-X, the separate financial statements of ABB Finance (USA) Inc. are not provided. The Company has entered into interest rate swaps for an aggregate nominal amount of $1,050 million to partially hedge its interest obligations on the 2.875% USD Notes, due 2022. After considering the impact of such swaps, $1,050 million of the outstanding principal is shown as floating rate debt in the table of long-term debt above.

The 0.625% EUR Instruments, due 2023, were issued in May 2016, with total net issuance proceeds of EUR 697 million (equivalent to approximately $807 million on date of issuance). These Instruments pay interest annually in arrears at a fixed rate of 0.625 percent per annum. The Company may redeem these notes three months prior to maturity (Par call date), in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date. The Company may redeem these instruments in whole or in part, after the Par call date at 100 percent of the principal amount of the notes to be redeemed. The Company entered into interest rate swaps to hedge its interest on these bonds. After considering the impact of such swaps, these notes effectively became floating rate euro obligations and consequently have been shown as floating rate debt, in the table of long-term debt above.

The 0.75% EUR Instruments, due 2024, were issued in May 2017, with total net issuance proceeds of EUR 745 million (equivalent to approximately $824 million on date of issuance). These Instruments pay interest annually in arrears at a fixed rate of 0.75 percent per annum and have the same early redemption terms as the 0.625% EUR Instruments above. The Company entered into interest rate swaps to hedge its interest on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate euro obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

In April 2018, the Company issued the following notes (i) $300 million of 2.8% USD Notes, due 2020, (ii) $450 million of 3.375% USD Notes, due 2023, and (iii) $750 million of 3.8% USD Notes, due 2028. Each of the respective notes pays interest semi-annually in arrears. The aggregate net proceeds of these bond issues, after underwriting discount and other fees, amounted to $1,494 million. The 2020 Notes were repaid at maturity in October 2020 and the 2023 Notes were redeemed in full in December 2020. The Company may redeem the remaining principal outstanding on the 2028 Notes up to three months prior to their maturity date, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the Notes terms, plus interest accrued at the redemption date. On or after January 3, 2028 (three months prior to their maturity date), the Company may also redeem the 2028 Notes, in whole or in part, at any time at a redemption price equal to 100 percent of the principal amount of the notes to be redeemed plus unpaid accrued interest to, but excluding, the redemption date. These notes, registered with the U.S. Securities and Exchange Commission, were issued by ABB Finance (USA) Inc., a 100 percent owned finance subsidiary, and were fully and unconditionally guaranteed by ABB Ltd. There are no significant restrictions on the ability of the parent company to obtain funds from its subsidiaries by dividend or loan. In reliance on Rule 3-10 of Regulation S-X, the separate financial statements of ABB Finance (USA) Inc. are not provided.

In February 2019, the Company issued the following notes: (i) CHF 280 million of 0.3% CHF Notes, due 2024 and (ii) CHF 170 million of 1.0% CHF Notes, due 2029. Each of the respective notes pays interests annually in arrears. The Company recorded aggregate net proceeds, after underwriting discount and other fees, of CHF 449 million (equivalent to approximately $449 million on date of issuance).

The Company's various debt instruments contain cross-default clauses which would allow the bondholders to demand repayment if the Company were to default on any borrowing at or above a specified threshold. Furthermore, all such bonds constitute unsecured obligations of the Company and rank pari passu with other debt obligations.

In addition to the bonds described above, included in long-term debt at December 31, 2020 and 2019, are finance lease obligations, bank borrowings of subsidiaries and other long-term debt, none of which is individually significant.

Subsequent events

In January 2021, the Company issued zero interest notes having a principal amount of EUR 800 million and due in 2030. The Company recorded net proceeds (after underwriting fees) of EUR 791 million (equivalent to $960 million on the date of issuance).

Note 13
Other provisions, other current liabilities and other non-current liabilities

"Other provisions" consisted of the following:

December 31, ($ in millions)	2020	2019
Contract-related provisions	754	607
Restructuring and restructuring-related provisions	292	234
Provisions for contractual penalties and compliance and litigation matters	113	209
Provision for insurance-related reserves	176	168
Other	184	157
Total	**1,519**	**1,375**

“Other current liabilities” consisted of the following:

December 31, ($ in millions)	2020	2019
Employee-related liabilities	1,467	1,396
Accrued expenses	650	592
Non-trade payables	622	442
Income taxes payable	395	355
Accrued customer rebates	317	287
Other tax liabilities	286	282
Derivative liabilities (see Note 6)	145	143
Deferred income	130	25
Pension and other employee benefits	42	36
Accrued interest	29	44
Other	98	159
Total	**4,181**	**3,761**

“Other non-current liabilities” consisted of the following:

December 31, ($ in millions)	2020	2019
Income tax related liabilities	1,423	1,218
Deferred income	138	7
Provisions for contractual penalties and compliance and litigation matters	120	112
Employee-related liabilities	70	72
Environmental provisions	38	48
Derivative liabilities (see Note 6)	46	23
Other	190	189
Total	**2,025**	**1,669**

Note 14
Leases

The Company’s lease obligations primarily relate to real estate, machinery and equipment. Prior to the adoption of the new lease standard in 2019, rent expense was $364 million in 2018. Sublease income received by the Company on leased assets was $7 million in 2018.

Under the accounting standard, adopted in January 2019, the components of lease expense were as follows:

	2020			2019		
($ in millions)	Land and buildings	Machinery and equipment	Total	Land and buildings	Machinery and equipment	Total
Operating lease cost	287	89	**376**	268	101	**369**
Finance lease cost:						
Amortization of right-of-use assets	11	13	**24**	13	20	**33**
Interest on lease liabilities	2	3	**5**	1	2	**3**
Variable lease cost[(1)]	3	3	**6**	—	5	**5**
Short-term lease cost	17	31	**48**	19	29	**48**
Sub-lease income	(20)	(1)	**(21)**	(2)	—	**(2)**
Total lease expense	**300**	**138**	**438**	**299**	**157**	**456**

(1) Primarily relates to variable payments that are tied to the consumer price index and are therefore included in the measurement of the right-of-use asset or lease liability.

The following table presents supplemental cash flow information related to leases:

($ in millions)	2020 Land and buildings	2020 Machinery and equipment	2020 Total	2019 Land and buildings	2019 Machinery and equipment	2019 Total
Cash paid for amounts included in the measurement of lease liabilities:						
Operating cash flows from						
- operating leases	263	83	**346**	252	96	**348**
- finance leases	2	3	**5**	1	2	**3**
Financing cash flows from						
- finance leases	11	13	**24**	8	12	**20**
Right-of-use assets obtained in exchange for new liabilities:						
Under operating leases	266	57	**323**	153	52	**205**
Under finance leases	32	14	**46**	23	18	**41**

At December 31, 2020, the future net minimum lease payments for operating and finance leases and the related present value of the net minimum lease payments consisted of the following:

($ in millions)	Operating Leases Land and buildings	Operating Leases Machinery and equipment	Finance Leases Land and buildings	Finance Leases Machinery and equipment
2021	215	67	26	12
2022	168	43	25	9
2023	138	22	24	5
2024	110	9	23	2
2025	87	4	23	1
Thereafter	215	5	80	—
Total minimum lease payments	**933**	**150**	**201**	**29**
Difference between undiscounted cash flows and discounted cash flows	(80)	(2)	(43)	—
Present value of minimum lease payments	**853**	**148**	**158**	**29**

The following table presents certain information related to lease terms and discount rates:

($ in millions)	Operating Leases Land and buildings 2020	Operating Leases Land and buildings 2019	Operating Leases Machinery and equipment 2020	Operating Leases Machinery and equipment 2019	Finance Leases Land and buildings 2020	Finance Leases Land and buildings 2019	Finance Leases Machinery and equipment 2020	Finance Leases Machinery and equipment 2019
Weighted-average remaining term (months)	84	78	29	29	107	110	40	33
Weighted-average discount rate	3.0%	3.0%	2.0%	2.2%	7.7%	8.2%	2.3%	2.8%

The present value of minimum finance lease payments included in “Short-term debt and current maturities of long-term debt” and “Long-term debt” in the Consolidated Balance Sheets at December 31, 2020, amounts to $27 million and $160 million, respectively, and at December 31, 2019, amounts to $17 million and $154 million, respectively.

Note 15
Commitments and contingencies

Contingencies—Regulatory, Compliance and Legal

Regulatory

As a result of an internal investigation, the Company self-reported to the Securities and Exchange Commission (SEC) and the Department of Justice (DoJ) in the United States as well as to the Serious Fraud Office (SFO) in the United Kingdom concerning certain of its past dealings with Unaoil and its subsidiaries, including alleged improper payments made by these entities to third parties. In May 2020, the SFO closed its investigation, which it originally announced in February 2017, as the case did not meet the relevant test for prosecution. The Company continues to cooperate with the U.S. authorities as requested. At this time, it is not possible for the Company to make an informed judgment about the outcome of this matter.

Based on findings during an internal investigation, the Company self-reported to the SEC and the DoJ, in the United States, to the Special Investigating Unit (SIU) and the National Prosecuting Authority (NPA) in South Africa as well as to various authorities in other countries potential suspect payments and other compliance concerns in connection with some of the Company's dealings with Eskom and related persons. Many of those parties have expressed an interest in, or commenced an investigation into, these matters and the Company is cooperating fully with them. The Company paid $104 million to Eskom in December 2020 as part of a full and final settlement with Eskom and the Special Investigating Unit relating to improper payments and other compliance issues associated with the Controls and Instrumentation Contract, and its Variation Orders for Units 1 and 2 at Kusile. The Company continues to cooperate fully with the National Prosecuting Authority in South Africa as well as other authorities in their review of the Kusile project. Although the Company believes that there could be an unfavorable outcome in one or more of these ongoing reviews, at this time it is not possible for the Company to make an informed judgment about the possible financial impact.

General

The Company is aware of proceedings, or the threat of proceedings, against it and others in respect of private claims by customers and other third parties with regard to certain actual or alleged anticompetitive practices. Also, the Company is subject to other claims and legal proceedings, as well as investigations carried out by various law enforcement authorities. With respect to the above-mentioned claims, regulatory matters, and any related proceedings, the Company will bear the related costs, including costs necessary to resolve them.

Liabilities recognized

At December 31, 2020 and 2019, the Company had aggregate liabilities of $100 million and $157 million, respectively, included in "Other provisions" and "Other non-current liabilities", for the above regulatory, compliance and legal contingencies, and none of the individual liabilities recognized was significant. As it is not possible to make an informed judgment on, or reasonably predict, the outcome of certain matters and as it is not possible, based on information currently available to management, to estimate the maximum potential liability on other matters, there could be adverse outcomes beyond the amounts accrued.

Guarantees

General

The following table provides quantitative data regarding the Company's third-party guarantees. The maximum potential payments represent a "worst-case scenario", and do not reflect management's expected outcomes.

December 31, ($ in millions)	Maximum potential payments[1] 2020	2019
Performance guarantees	6,726	1,860
Financial guarantees	339	10
Indemnification guarantees[2]	177	64
Total	**7,242**	**1,934**

(1) Maximum potential payments include amounts in both continuing and discontinued operations.
(2) Certain indemnifications provided to Hitachi in connection with the divestment of Power Grids are without limit.

The carrying amount of liabilities recorded in the Consolidated Balance Sheets reflects the Company's best estimate of future payments, which it may incur as part of fulfilling its guarantee obligations. In respect of the above guarantees, the carrying amounts of liabilities at December 31, 2020, amounted to $135 million, which was included in discontinued operations, while at December 31, 2019, balances were not significant.

The Company is party to various guarantees providing financial or performance assurances to certain third parties. These guarantees, which have various maturities up to 2035, mainly consist of performance guarantees whereby (i) the Company guarantees the performance of a third party's product or service according to the terms of a contract and (ii) as member of a consortium/joint venture that includes third parties, the Company guarantees not only its own performance but also the work of third parties. Such guarantees may include guarantees that a project will be completed within a specified time. If the third party does not fulfill the obligation, the Company will compensate the guaranteed party in cash or in kind. The original maturity dates for the majority of these performance guarantees range from one to ten years.

In conjunction with the divestment of the high-voltage cable and cables accessories businesses, the Company has entered into various performance guarantees with other parties with respect to certain liabilities of the divested business. At December 31, 2020 and 2019, the maximum potential payable under these guarantees amounts to $994 million and $898 million, respectively, and these guarantees have various maturities ranging from one to ten years.

The Company retained obligations for financial, performance and indemnification guarantees related to the Power Grids business sold on July 1, 2020 (see Note 3 for details). The performance and financial guarantees have been indemnified by Hitachi at the same proportion of its ownership in Hitachi ABB Power Grids (80.1 percent). These guarantees, which have various maturities up to 2035, primarily consist of bank guarantees, standby letters of credit, business performance guarantees and other trade-related guarantees, the majority of which have original maturity dates ranging from one to ten years. The maximum amount payable under the guarantees is approximately $5.5 billion and the carrying amounts of liabilities (recorded in discontinued operations) at December 31, 2020, amounted to $135 million.

Commercial commitments

In addition, in the normal course of bidding for and executing certain projects, the Company has entered into standby letters of credit, bid/performance bonds and surety bonds (collectively "performance bonds") with various financial institutions. Customers can draw on such performance bonds in the event that the Company does not fulfill its contractual obligations. The Company would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2020 and 2019, the total outstanding performance bonds aggregated to $4.3 billion and $6.8 billion, respectively, of which $0.3 billion and $3.7 billion, respectively, relate to discontinued operations. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2020, 2019 and 2018.

Product and order-related contingencies

The Company calculates its provision for product warranties based on historical claims experience and specific review of certain contracts.

The reconciliation of the “Provisions for warranties”, including guarantees of product performance, was as follows:

($ in millions)	2020	2019	2018
Balance at January 1,	**816**	**948**	**909**
Net change in warranties due to acquisitions, divestments and liabilities held for sale(1)	8	(88)	41
Claims paid in cash or in kind	(209)	(310)	(307)
Net increase in provision for changes in estimates, warranties issued and warranties expired	369	276	341
Exchange rate differences	51	(10)	(36)
Balance at December 31,	**1,035**	**816**	**948**

(1) Includes adjustments to the initial purchase price allocation recorded during the measurement period.

During 2018, the Company determined that the provision for a product warranty related to a divested business was no longer sufficient to cover expected warranty costs in the remaining warranty period. Due to an unexpected level of product failure, the previously estimated product warranty provision was increased by a total of $92 million during 2018 and further increased by $143 million during 2020. In both years, the corresponding increase was included in “Cost of sales of products”. As these costs relate to a divested business, in accordance with the definition of the Company’s primary measure of segment performance, Operational EBITA (see Note 23), the costs have been excluded from this measure.

The warranty liability has been recorded based on the information currently available and is subject to change in the future.

Related party transactions

The Company conducts business with certain companies where members of the Company’s Board of Directors or Executive Committee act, or in recent years have acted, as directors or senior executives. The Company’s Board of Directors has determined that the Company’s business relationships with those companies do not constitute material business relationships. This determination was made in accordance with the Company’s related party transaction policy which was prepared based on the Swiss Code of Best Practice and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Note 16
Income taxes

“Income tax expense” consisted of the following:

($ in millions)	2020	2019	2018
Current taxes	776	855	686
Deferred taxes	(280)	(83)	(142)
Income tax expense allocated to continuing operations	**496**	**772**	**544**
Income tax expense allocated to discontinued operations	**322**	**167**	**228**

Income tax expense from continuing operations is reconciled below from the Company’s weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate) as the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland and income generated in jurisdictions outside of Switzerland (hereafter “foreign jurisdictions”) which has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. There is no requirement in Switzerland for any parent company of a group to file a tax return of the consolidated group determining domestic and foreign pre-tax income. As the Company’s consolidated income from continuing operations is predominantly earned outside of Switzerland, the weighted-average global tax rate of the Company results from enacted corporate income tax rates in foreign jurisdictions.

The reconciliation of “Income tax expense from continuing operations” at the weighted-average tax rate to the effective tax rate is as follows:

($ in millions, except % data)	2020	2019	2018
Income from continuing operations before income taxes	**841**	**1,862**	**2,119**
Weighted-average global tax rate	**22.9%**	**18.3%**	**22.2%**
Income taxes at weighted-average tax rate	193	341	470
Items taxed at rates other than the weighted-average tax rate	3	(7)	(43)
Unrecognized tax benefits	(38)	133	(22)
Changes in valuation allowance, net	29	198	41
Effects of changes in tax laws and (enacted) tax rates	23	63	1
Non-deductible expenses (including impairment of goodwill)	232	44	86
Other, net	54	—	11
Income tax expense from continuing operations	**496**	**772**	**544**
Effective tax rate for the year	**59.0%**	**41.5%**	**25.7%**

The allocation of consolidated income from continued operations, which is predominantly earned outside of Switzerland, impacts the “weighted-average global tax rate”. In 2019, based on the enacted tax rates in the applicable jurisdictions, the loss recorded for the planned sale of the solar inverters business reduced the weighted-average global tax rate by approximately 2 percent.

In 2018, the benefit reported in “Items taxed at rates other than the weighted-average tax rate” included positive impacts of $17 million, relating to non-taxable amounts for net gains from sale of businesses. In 2020 and 2019, the amount was not significant.

In 2020, “Changes in valuation allowance, net” predominantly reflects increases in the valuation allowance resulting from changes in expectations of future economic conditions due to impacts on the Company’s business from the COVID-19 pandemic.

In 2019, “Changes in valuation allowance, net” included adjustments to the valuation allowance in certain jurisdictions where the Company updated its assessment that it was more likely than not that such deferred tax assets would be realized. In 2019, the Company recorded an increase of $158 million to the valuation allowance in certain operations in North America, including an amount to provide for certain deferred tax assets arising in 2019.

In 2018, the “Changes in valuation allowance, net” included adjustments in valuation allowance recorded in certain jurisdictions where the Company updated its assessment that it was more likely than not that such deferred tax assets would be realized. The amount included an increase of $40 million relating to certain operations in Central Europe.

In 2020, “Effects of changes in tax laws and (enacted) tax rates” primarily reflects the impact of changes to tax rates in certain countries in Asia by $16 million. In 2019, “Effects of changes in tax laws and (enacted) tax rates” primarily reflects a change in tax law applicable to a country in Europe. The benefit in 2019 was mostly offset by a related change in the valuation allowance, resulting in a net benefit of $17 million.

In 2020, the impact on the income tax expense from “Non-deductible expenses” was $232 million, and includes an impact of $82 million for the impairment of non-deductible goodwill. In addition, the amount in 2020 includes $62 million relating to non-operational pension costs resulting from the settlement of certain defined benefit plans which were principally not deductible. Non-deductible expenses also includes other items that were deducted for financial accounting purposes but are typically not tax deductible, such as interest expense, local taxes on productive activities, disallowed meals and entertainment expenses and other similar items. The amounts in 2019 and 2018 related primarily to these typically non-deductible items.

In 2020 and 2018, "Unrecognized tax benefits" in the table above included a net benefit of $20 million and $22 million, respectively, related to the interpretation for tax law and double tax treaty agreements by competent tax authorities while in 2019, "Unrecognized tax benefits" included a net charge of $91 million.

In 2020, "Other, net" represents income tax expense of $54 million related to finalization of tax audits in Europe.

Deferred tax assets and liabilities (excluding amounts held for sale and in discontinued operations) consisted of the following:

December 31, ($ in millions)	2020	2019
Deferred tax assets:		
Unused tax losses and credits	758	507
Provisions and other accrued liabilities	750	650
Other current assets including receivables	114	121
Pension	413	592
Inventories	370	463
Intangible assets	873	972
Other	76	179
Total gross deferred tax asset	**3,354**	**3,484**
Valuation allowance	(1,518)	(1,632)
Total gross deferred tax asset, net of valuation allowance	**1,836**	**1,852**
Deferred tax liabilities:		
Property, plant and equipment	(275)	(244)
Intangible assets	(419)	(483)
Other assets	(65)	(161)
Pension	(223)	(214)
Other liabilities	(310)	(359)
Inventories	(29)	(39)
Unremitted earnings of subsidiaries	(333)	(353)
Total gross deferred tax liability	**(1,654)**	**(1,853)**
Net deferred tax asset (liability)	**182**	**(1)**
Included in:		
"Deferred taxes"—non-current assets	843	910
"Deferred taxes"—non-current liabilities	(661)	(911)
Net deferred tax asset (liability)	**182**	**(1)**

Certain entities have deferred tax assets related to net operating loss carry-forwards and other items. As recognition of these assets in certain entities did not meet the more likely than not criterion, valuation allowances have been recorded. "Unused tax losses and credits" at December 31, 2020 and 2019, in the table above, included $170 million and $126 million, respectively, for which the Company has established a valuation allowance as, due to limitations imposed by the relevant tax law, the Company determined that, more likely than not, such deferred tax assets would not be realized.

The valuation allowance at December 31, 2020, 2019 and 2018, was $1,518 million, $1,632 million and $1,535 million, respectively.

At December 31, 2020 and 2019, deferred tax liabilities totaling $333 million and $353 million, respectively, have been provided for withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter "withholding taxes") on unremitted earnings which will be payable in foreign jurisdictions in the event of repatriation of the foreign earnings to Switzerland. Income which has been generated outside of Switzerland and has already been subject to corporate income tax in such foreign jurisdictions is, to a large extent, tax exempt in Switzerland and therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries.

Certain countries levy withholding taxes on dividend distributions and these taxes cannot always be fully reclaimed by the Company's relevant subsidiary receiving the dividend although the taxes have to be withheld and paid by the relevant subsidiary distributing such dividend. In 2020 and 2019, certain taxes arose in certain foreign jurisdictions for which the technical merits do not allow utilization of benefits. At December 31, 2020 and 2019, foreign subsidiary retained earnings subject to withholding taxes upon distribution of approximately $100 million and $100 million, respectively, were considered as indefinitely reinvested, as these funds are used for financing current operations as well as business growth through working capital and capital expenditure in those countries and, consequently, no deferred tax liability was recorded.

At December 31, 2020, net operating loss carry-forwards of $3,033 million and tax credits of $82 million were available to reduce future income taxes of certain subsidiaries. Of these amounts, $1,682 million of operating loss carry-forwards and $57 million of tax credits will expire in varying amounts through 2042, while the remainder are available for carryforward indefinitely. The largest amount of these carry-forwards related to the Company's Europe operations.

Unrecognized tax benefits consisted of the following:

($ in millions)	Unrecognized tax benefits	Penalties and interest related to unrecognized tax benefits	Total
Classification as unrecognized tax items on January 1, 2018	**1,025**	**242**	**1,267**
Net change due to acquisitions and divestments	8	—	**8**
Increase relating to prior year tax positions	35	37	**72**
Decrease relating to prior year tax positions	(99)	14	**(85)**
Increase relating to current year tax positions	126	5	**131**
Decrease due to settlements with tax authorities	(44)	(17)	**(61)**
Decrease as a result of the applicable statute of limitations	(66)	(31)	**(97)**
Exchange rate differences	(24)	(11)	**(35)**
Balance at December 31, 2018, which would, if recognized, affect the effective tax rate	**961**	**239**	**1,200**
Net change due to acquisitions and divestments	11	7	**18**
Increase relating to prior year tax positions	202	85	**287**
Decrease relating to prior year tax positions	(82)	(63)	**(145)**
Increase relating to current year tax positions	163	6	**169**
Decrease due to settlements with tax authorities	(57)	(8)	**(65)**
Decrease as a result of the applicable statute of limitations	(83)	(28)	**(111)**
Exchange rate differences	(9)	(5)	**(14)**
Balance at December 31, 2019, which would, if recognized, affect the effective tax rate	**1,106**	**233**	**1,339**
Net change due to acquisitions and divestments	1	—	**1**
Increase relating to prior year tax positions	298	96	**394**
Decrease relating to prior year tax positions	(161)	(57)	**(218)**
Increase relating to current year tax positions	390	5	**395**
Decrease due to settlements with tax authorities	(340)	(75)	**(415)**
Decrease as a result of the applicable statute of limitations	(59)	(16)	**(75)**
Exchange rate differences	63	6	**69**
Balance at December 31, 2020, which would, if recognized, affect the effective tax rate	**1,298**	**192**	**1,490**

In 2020, the "Increase relating to current year tax positions" included a total of $381 million, in taxes related to the interpretation of tax law and double tax treaty agreements by competent tax authorities, of which $301 million is reported as Income tax expense in discontinued operations.

In 2019 and 2018, the “Increase relating to current year tax positions” included a total of $163 million and $111 million, respectively, in taxes related to the interpretation of tax law and double tax treaty agreements by competent tax authorities.

In 2020, the “Increase relating to prior year tax positions” is predominantly related to the interpretation of tax law and double tax treaty agreements by competent tax authorities in Europe, of which $73 million is reported as Income tax expense in discontinued operations.

In 2020, the “Decrease relating to prior year tax positions” included a total of $85 million related to a change of interpretation of tax law in Asia and changed tax risk assessments in Europe of $59 million.

In 2020, the “Decrease due to settlements with tax authorities” is predominantly related to closed tax audits in Europe.

At December 31, 2020, the Company expected the resolution, within the next twelve months, of unrecognized tax benefits related to pending court cases amounting to $32 million for income taxes, penalties and interest. Otherwise, the Company had not identified any other significant changes which were considered reasonably possible to occur within the next twelve months.

At December 31, 2020, the earliest significant open tax years that remained subject to examination were the following:

Region	Year
Europe	2015
United States	2017
Rest of Americas	2015
China	2011
Rest of Asia, Middle East and Africa	2011

Note 17
Employee benefits

The Company operates defined benefit pension plans, defined contribution pension plans, and termination indemnity plans, in accordance with local regulations and practices. At December 31, 2020, the Company's most significant defined benefit pension plans are in Switzerland as well as in Germany, the United Kingdom, and the United States. These plans cover a large portion of the Company's employees and provide benefits to employees in the event of death, disability, retirement, or termination of employment. Certain of these plans are multi-employer plans. The Company also operates other postretirement benefit plans including postretirement health care benefits and other employee-related benefits for active employees including long-service award plans. The measurement date used for the Company's employee benefit plans is December 31. The funding policies of the Company's plans are consistent with the local government and tax requirements.

During 2020, the Company took steps to transfer the defined benefit pension risks in three International countries to external financial institutions. Two of these plans were settled entirely for accounting purposes while the third plan involved the settlement of specific obligations for certain former employees. In connection with these transactions, the Company made net payments of $309 million and recorded non-operational pension charges of $520 million which are included in net periodic benefit cost as curtailments, settlements and special termination benefits. The Company also made cash payments of $143 million and recorded non-operational pension charges of $101 million in 2020 for the settlement of pension obligations in discontinued operations.

The Company recognizes in its Consolidated Balance Sheets the funded status of its defined benefit pension plans, postretirement plans, and other employee-related benefits measured as the difference between the fair value of the plan assets and the benefit obligation.

Unless otherwise indicated, the following tables include amounts relating to both continuing and discontinued operations.

Obligations and funded status of the plans

The change in benefit obligation, change in fair value of plan assets, and funded status recognized in the Consolidated Balance Sheets were as follows:

	Defined pension benefits				Other postretirement benefits	
	Switzerland		International		International	
($ in millions)	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**
Benefit obligations at January 1,	**4,308**	**3,993**	**7,878**	**7,429**	**110**	**120**
Service cost	74	76	92	113	1	1
Interest cost	6	15	111	174	3	4
Contributions by plan participants	72	75	12	19	—	—
Benefit payments	(160)	(133)	(295)	(302)	(12)	(10)
Settlements	(101)	(111)	(2,542)	(102)	—	—
Benefit obligations of businesses acquired (divested)	(765)	—	(165)	(21)	(5)	—
Actuarial (gain) loss	71	323	214	617	4	(1)
Plan amendments and other	—	—	(64)	9	(3)	(5)
Exchange rate differences	365	70	286	(58)	—	1
Benefit obligation at December 31,	**3,870**	**4,308**	**5,527**	**7,878**	**98**	**110**
Fair value of plan assets at January 1,	**4,189**	**3,879**	**6,246**	**5,866**	**—**	**—**
Actual return on plan assets	191	320	375	689	—	—
Contributions by employer	228	91	611	115	12	10
Contributions by plan participants	72	75	12	19	—	—
Benefit payments	(160)	(133)	(295)	(302)	(12)	(10)
Settlements	(101)	(111)	(2,542)	(102)	—	—
Plan assets of businesses acquired (divested)	(664)	—	(82)	(12)	—	—
Plan amendments and other	—	—	62	—	—	—
Exchange rate differences	378	68	221	(27)	—	—
Fair value of plan assets at December 31,	**4,133**	**4,189**	**4,608**	**6,246**	**—**	**—**
Funded status — overfunded (underfunded)	**263**	**(119)**	**(919)**	**(1,632)**	**(98)**	**(110)**

The amounts recognized in "Accumulated other comprehensive loss" and "Noncontrolling interests" were:

	Defined pension benefits			Other postretirement benefits		
December 31, ($ in millions)	2020	2019	2018	2020	2019	2018
Net actuarial (loss) gain	(2,038)	(2,782)	(2,628)	21	28	30
Prior service credit	75	59	74	11	13	23
Amount recognized in OCI[(1)] and NCI[(2)]	**(1,963)**	**(2,723)**	**(2,554)**	**32**	**41**	**53**
Taxes associated with amount recognized in OCI and NCI	374	536	535	—	—	—
Amount recognized in OCI and NCI, net of tax[(3)]	**(1,589)**	**(2,187)**	**(2,019)**	**32**	**41**	**53**

(1) OCI represents "Accumulated other comprehensive loss".
(2) NCI represents "Noncontrolling interests".
(3) NCI, net of tax, amounted to $(1) million, $(1) million, and $(1) million at December 31, 2020, 2019 and 2018.

In addition, the following amounts were recognized in the Company's Consolidated Balance Sheets:

	Defined pension benefits				Other postretirement benefits	
	Switzerland		International		International	
December 31, ($ in millions)	2020	2019	2020	2019	2020	2019
Overfunded plans	267	62	92	71	—	—
Underfunded plans — current	—	(78)	(22)	(295)	(9)	(14)
Underfunded plans — non-current	(4)	(103)	(989)	(1,408)	(89)	(96)
Funded status - underfunded	**263**	**(119)**	**(919)**	**(1,632)**	**(98)**	**(110)**
Amounts reported as assets and liabilities held for sale	—	(78)	—	(277)	—	(5)

December 31, ($ in millions)	2020	2019
Non-current assets		
Overfunded pension plans	359	132
Other employee-related benefits	1	1
Pension and other employee benefits	**360**	**133**

December 31, ($ in millions)	2020	2019
Current liabilities		
Underfunded pension plans	(22)	(374)
Underfunded other postretirement benefit plans	(9)	(14)
Other employee-related benefits	(11)	(72)
Pension and other employee benefits	**(42)**	**(460)**
Amounts reported as Current liabilities held for sale	—	(424)

December 31, ($ in millions)	2020	2019
Non-current liabilities		
Underfunded pension plans	(993)	(1,510)
Underfunded other postretirement benefit plans	(89)	(96)
Other employee-related benefits	(149)	(186)
Pension and other employee benefits	**(1,231)**	**(1,792)**

The accumulated benefit obligation (ABO) for all defined benefit pension plans was $9,310 million and $11,981 million at December 31, 2020 and 2019, respectively. The projected benefit obligation (PBO), ABO and fair value of plan assets, for pension plans with a PBO in excess of fair value of plan assets or ABO in excess of fair value of plan assets, was:

	PBO exceeds fair value of plan assets				ABO exceeds fair value of plan assets			
	Switzerland		International		Switzerland		International	
December 31, ($ in millions)	2020	2019	2020	2019	2020	2019	2020	2019
PBO	13	3,769	5,131	7,346	13	3,769	5,008	7,228
ABO	13	3,769	5,056	7,156	13	3,769	4,942	7,054
Fair value of plan assets	9	3,588	4,120	5,643	9	3,588	4,004	5,537

All of the Company's other postretirement benefit plans are unfunded.

Components of net periodic benefit cost

Net periodic benefit cost consisted of the following:

	Defined pension benefits						Other postretirement benefits		
	Switzerland			International			International		
($ in millions)	2020	2019	2018	2020	2019	2018	2020	2019	2018
Operational pension cost:									
Service cost	74	76	92	92	113	122	1	1	1
Operational pension cost	**74**	**76**	**92**	**92**	**113**	**122**	**1**	**1**	**1**
Non-operational pension cost (credit):									
Interest cost	6	15	30	111	174	198	3	4	4
Expected return on plan assets	(123)	(112)	(117)	(253)	(276)	(305)	—	—	—
Amortization of prior service cost (credit)	(11)	(14)	(15)	2	2	1	(2)	(5)	(5)
Amortization of net actuarial loss	7	—	—	109	108	92	(3)	(3)	(1)
Curtailments, settlements and special termination benefits	6	11	—	644	27	23	—	(10)	—
Non-operational pension cost (credit)	**(115)**	**(100)**	**(102)**	**613**	**35**	**9**	**(2)**	**(14)**	**(2)**
Net periodic benefit cost	**(41)**	**(24)**	**(10)**	**705**	**148**	**131**	**(1)**	**(13)**	**(1)**

The components of net periodic benefit cost other than the service cost component are included in the line "Non-operational pension (cost) credit" in the income statement. Net periodic benefit cost includes $121 million, $47 million and $45 million in 2020, 2019 and 2018, respectively, related to discontinued operations.

Assumptions

The following weighted-average assumptions were used to determine benefit obligations:

	Defined pension benefits				Other postretirement benefits	
	Switzerland		International		International	
December 31, (in %)	2020	2019	2020	2019	2020	2019
Discount rate	—	0.2	1.6	2.0	2.1	2.8
Rate of compensation increase	—	—	1.0	2.2	0.2	0.2
Rate of pension increase	—	—	1.4	1.3	—	—
Cash balance interest credit rate	1.0	1.0	2.1	1.6	—	—

For the Company's significant benefit plans, the discount rate used at each measurement date is set based on a high-quality corporate bond yield curve (derived based on bond universe information sourced from reputable third-party index and data providers and rating agencies) reflecting the timing, amount and currency of the future expected benefit payments for the respective plan. Consistent discount rates are used across all plans in each currency zone, based on the duration of the applicable plan(s) in that zone. For plans in the other countries, the discount rate is based on high quality corporate or government bond yields applicable in the respective currency, as appropriate at each measurement date with a duration broadly consistent with the respective plan's obligations.

At the end of 2018, the Company changed the approach used to calculate the service and interest components of net periodic benefit cost for its significant benefit plans to provide a more precise measurement of service and interest costs. This change compared to the previous approach resulted in a net decrease in the service and interest components for benefit cost in 2019. Previously, the Company calculated the service and interest cost components utilizing a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. The Company has elected to utilize an approach that discounts the individual expected cash flows using the applicable spot rates derived from the yield curve over the projected cash flow period. This change does not affect the measurement of our total benefit obligations.

The following weighted-average assumptions were used to determine the "Net periodic benefit cost":

	Defined pension benefits						Other postretirement benefits		
	Switzerland			International			International		
(in %)	2020	2019	2018	2020	2019	2018	2020	2019	2018
Discount rate	0.3	0.8	0.8	1.9	2.8	2.6	2.8	3.9	3.2
Expected long-term rate of return on plan assets	3.0	3.0	3.0	4.3	4.9	4.9	—	—	—
Rate of compensation increase	—	—	—	2.2	2.4	2.5	0.2	0.2	—
Cash balance interest credit rate	1.0	1.0	1.0	1.6	1.6	1.7	—	—	—

The "Expected long-term rate of return on plan assets" is derived for each benefit plan by considering the expected future long-term return assumption for each individual asset class. A single long-term return assumption is then derived for each plan based upon the plan's target asset allocation.

The Company maintains other postretirement benefit plans, which are generally contributory with participants' contributions adjusted annually. The assumptions used were:

December 31,	2020	2019
Health care cost trend rate assumed for next year	5.9%	6.3%
Rate to which the trend rate is assumed to decline (the ultimate trend rate)	4.9%	5.0%
Year that the rate reaches the ultimate trend rate	2028	2028

Plan assets

The Company has pension plans in various countries with the majority of the Company's pension liabilities deriving from a limited number of these countries.

The pension plans are typically funded by regular contributions from employees and the Company. These plans are typically administered by boards of trustees (which include Company representatives) whose primary responsibilities include ensuring that the plans meet their liabilities through contributions and investment returns. The boards of trustees have the responsibility for making key investment strategy decisions within a risk-controlled framework.

The pension plan assets are invested in diversified portfolios that are managed by third-party asset managers, in accordance with local statutory regulations, pension plan rules and the respective plans' investment guidelines, as approved by the boards of trustees.

Plan assets are generally segregated from those of the Company and invested with the aim of meeting the respective plans' projected future pension liabilities. Plan assets are measured at fair value at the balance sheet date.

The boards of trustees manage the assets of the pension plans in a risk-controlled manner and assess the risks embedded in the pension plans through asset/liability management studies. Asset/liability management studies typically take place every three years. However, the risks of the plans are monitored on an ongoing basis.

The board of trustees' investment goal is to maximize the long-term returns of plan assets within specified risk parameters, while considering the future liabilities and liquidity needs of the individual plans. Risk measures taken into account include the funding ratio of the plan, the likelihood of extraordinary cash contributions being required, the risk embedded in each individual asset class, and the plan asset portfolio as a whole.

The Company's global pension asset allocation is the result of the asset allocations of the individual plans, which are set by the respective boards of trustees. The target asset allocation of the Company's plans on a weighted-average basis is as follows:

	Target	
(in %)	**Switzerland**	**International**
Asset class		
Equity	19	16
Fixed income	54	68
Real estate	22	6
Other	5	10
Total	**100**	**100**

The actual asset allocations of the plans are in line with the target asset allocations.

Equity securities primarily includes investments in large-cap and mid-cap publicly traded companies. Fixed income assets primarily include corporate bonds of companies from diverse industries and government bonds. Both fixed income and equity assets are invested either via funds or directly in segregated investment mandates, and include an allocation to emerging markets. Real estate consists primarily of investments in real estate in Switzerland held in the Swiss plans. The "Other" asset class includes investments in private equity, hedge funds, commodities, and cash, and reflects a variety of investment strategies.

Based on the above global asset allocation and the fair values of the plan assets, the expected long-term return on assets at December 31, 2020, is 3.5 percent. The Company and the local boards of trustees regularly review the investment performance of the asset classes and individual asset managers. Due to the diversified nature of the investments, the Company is of the opinion that no significant concentration of risks exists in its pension fund assets.

At December 31, 2020 and 2019, plan assets include ABB Ltd's shares (as well as an insignificant amount of the Company's debt instruments) with a total value of $8 million and $10 million, respectively.

The fair values of the Company's pension plan assets by asset class are presented below. For further information on the fair value hierarchy and an overview of the Company's valuation techniques applied, see the "Fair value measures" section of Note 2.

December 31, 2020 ($ in millions)	**Level 1**	**Level 2**	**Not subject to leveling[1]**	**Total fair value**
Asset class				
Equity				
Equity securities	180	5		**185**
Mutual funds/commingled funds		1,298		**1,298**
Emerging market mutual funds/commingled funds		243		**243**
Fixed income				
Government and corporate securities	389	1,415		**1,804**
Government and corporate—mutual funds/commingled funds		2,876		**2,876**
Emerging market bonds—mutual funds/commingled funds		547		**547**
Real estate			1,289	**1,289**
Insurance contracts		50		**50**
Cash and short-term investments	103	190		**293**
Private equity			156	**156**
Hedge funds			1	**1**
Total	**672**	**6,624**	**1,446**	**8,742**

December 31, 2019 ($ in millions)	Level 1	Level 2	Not subject to leveling[(1)]	Total fair value
Asset class				
Equity				
Equity securities	224	7		**231**
Mutual funds/commingled funds		1,687	23	**1,710**
Emerging market mutual funds/commingled funds		339		**339**
Fixed income				
Government and corporate securities	521	1,013		**1,534**
Government and corporate—mutual funds/commingled funds		3,738	31	**3,769**
Emerging market bonds—mutual funds/commingled funds		805		**805**
Real estate			1,433	**1,433**
Insurance contracts		123		**123**
Cash and short-term investments	101	152		**253**
Private equity			211	**211**
Hedge funds			1	**1**
Commodities		26		**26**
Total	**846**	**7,890**	**1,699**	**10,435**

(1) Amounts relate to assets measured using the NAV practical expedient which are not subject to leveling.

The Company applies accounting guidance related to the presentation of certain investments using the net asset value (NAV) practical expedient. This accounting guidance exempts investments using this practical expedient from categorization within the fair value hierarchy. Investments measured at NAV are primarily non exchange-traded commingled or collective funds in private equity and real estate where the fair value of the underlying assets is determined by the investment manager. Investments in private equity can never be redeemed, but instead the funds will make distributions through liquidation of the underlying assets. Total unfunded commitments for the private equity funds were approximately $115 million at December 31, 2020. The real estate funds are typically subject to a lock-in period of up to three years after subscribing. After this period, the real estate funds typically offer a redemption notice of three to twelve months.

Contributions

Employer contributions were as follows:

	Defined pension benefits				Other postretirement benefits	
	Switzerland		International		International	
($ in millions)	2020	2019	2020	2019	2020	2019
Total contributions to defined benefit pension and other postretirement benefit plans	228	91	611	115	12	10
Of which, discretionary contributions to defined benefit pension plans	152	2	520	8	—	—

In 2020, total contributions included non-cash contributions totaling $224 million of available-for-sale debt securities to certain of the Company's pension plans in Switzerland and the United Kingdom. The contributions in 2019 and 2018 were not significant.

The Company expects to contribute approximately $156 million, including $35 million in discretionary contributions, to its defined benefit pension plans in 2021. Of these discretionary contributions, $14 million are expected to be non-cash contributions. The Company expects to contribute approximately $9 million to its other postretirement benefit plans in 2021.

The Company also contributes to a number of defined contribution plans. The aggregate expense for these plans in continuing operations was $205 million, $190 million and $186 million in 2020, 2019 and 2018, respectively. Contributions to multi-employer plans were not significant in 2020, 2019 and 2018.

Estimated future benefit payments

The expected future cash flows to be paid by the Company's plans in respect of pension and other postretirement benefit plans at December 31, 2020, are as follows:

	Defined pension benefits		Other postretirement benefits
($ in millions)	Switzerland	International	International
2021	347	314	9
2022	235	264	9
2023	219	257	8
2024	209	261	8
2025	200	264	7
Years 2026 - 2030	877	1,308	29

Note 18
Share-based payment arrangements

The Company has granted share-based instruments to its employees under three principal share-based payment plans, as more fully described in the respective sections below. Compensation cost for equity-settled awards is recorded in Total cost of sales and in Selling, general and administrative expenses and totaled $44 million, $46 million and $50 million in 2020, 2019 and 2018, respectively, while compensation cost for cash-settled awards, recorded in Selling, general and administrative expenses, was not significant, as mentioned in the WARs, LTIP and Other share-based payments sections of this note. The total tax benefit recognized in 2020, 2019 and 2018 was not significant.

At December 31, 2020, the Company had the ability to issue up to 94 million new shares out of contingent capital in connection with share-based payment arrangements. In addition, 28 million of the 137 million shares held by the Company as treasury stock at December 31, 2020, could be used to settle share-based payment arrangements.

As the primary trading market for the shares of ABB Ltd is the SIX Swiss Exchange (on which the shares are traded in Swiss francs) and substantially all the share-based payment arrangements with employees are based on the Swiss franc share or have strike prices set in Swiss francs, certain data disclosed below related to the instruments granted under share-based payment arrangements are presented in Swiss francs.

Management Incentive Plan

Up to 2019, the Company offered, under the MIP, options and cash-settled WARs to key employees for no consideration. Starting in 2020, the employee group previously eligible to receive grants under the MIP were granted shares under the LTIP (see LTIP section below) and consequently no grants were made in 2020 under the MIP.

The options granted under the MIP allow participants to purchase shares of ABB Ltd at predetermined prices. Participants may sell the options rather than exercise the right to purchase shares. Equivalent warrants are listed by a third-party bank on the SIX Swiss Exchange, which facilitates pricing and transferability of options granted under this plan. The options entitle the holder to request that the third-party bank purchase such options at the market price of equivalent listed warrants related to that MIP launch. If the participant elects to sell the options, the options will thereafter be held by a third party and, consequently, the Company's obligation to deliver shares will be toward this third party.

Each WAR gives the participant the right to receive, in cash, the market price of an equivalent listed warrant on the date of exercise of the WAR. Participants may exercise or sell options and exercise WARs after the vesting period, which is three years from the date of grant. All options and WARs expire six years from the date of grant.

Options

The fair value of each option was estimated on the date of grant using a lattice model that used the assumptions noted in the table below. Expected volatilities were based on implied volatilities from equivalent listed warrants on ABB Ltd shares. The expected term of the options granted is the contractual six-year life of each option, based on the fact that after the vesting period, a participant can elect to sell the option rather than exercise the right to purchase shares, thereby also realizing the time value of the options. The risk-free rate was based on a six-year Swiss franc interest rate, reflecting the six-year contractual life of the options. In estimating forfeitures, the Company used data from previous comparable MIP launches.

	2019	2018
Expected volatility	19%	17%
Dividend yield	4.7%	3.1%
Expected term	6 years	6 years
Risk-free interest rate	-0.9%	-0.1%

Presented below is a summary of the activity related to options under the MIP:

	Number of options (in millions)	Number of shares (in millions)(1)	Weighted-average exercise price (in Swiss francs)(2)	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value (in millions of Swiss francs)(3)
Outstanding at January 1, 2020	**417.6**	**83.5**	**21.13**		
Exercised(4)	(72.5)	(14.5)	21.00		
Forfeited	(8.9)	(1.8)	21.16		
Expired	(0.1)	—	21.00		
Outstanding at December 31, 2020	**336.1**	**67.2**	**21.16**	**2.5**	**239**
Vested and expected to vest at December 31, 2020	**336.1**	**67.2**	**21.16**	**2.5**	**239**
Exercisable at December 31, 2020	**261.0**	**52.2**	**21.15**	**2.0**	**186**

(1) Information presented reflects the number of ABB Ltd shares that can be received upon exercise, as options have a conversion ratio of 5:1.
(2) Information presented reflects the exercise price per ABB Ltd share.
(3) Computed using the closing price, in Swiss francs, of ABB Ltd shares on the SIX Swiss Exchange and the exercise price of each option in Swiss francs.
(4) The cash received upon exercise amounted to approximately $334 million. The shares were delivered out of treasury stock.

At December 31, 2020, there was $12 million of total unrecognized compensation cost related to non-vested options granted under the MIP. That cost is expected to be recognized over a weighted-average period of 1.3 years. The weighted-average grant-date fair value (per option) of options granted during 2019 and 2018 was 0.34 Swiss francs and 0.46 Swiss francs, respectively. As mentioned previously, no options were granted in 2020. In 2020 and 2018, the aggregate intrinsic value (on the date of exercise) of options exercised was $38 million and $13 million, respectively, while the amount in 2019 was not significant.

Presented below is a summary, by launch, related to options outstanding at December 31, 2020:

Exercise price (in Swiss francs)(1)	Number of options (in millions)	Number of shares (in millions)(2)	Weighted-average remaining contractual term (in years)
19.50	77.9	15.6	0.6
21.50	72.7	14.5	1.7
22.50	63.9	12.8	2.6
23.50	62.4	12.5	3.7
19.00	59.2	11.8	4.7
Total number of options and shares	**336.1**	**67.2**	**2.5**

(1) Information presented reflects the exercise price per share of ABB Ltd.
(2) Information presented reflects the number of shares of ABB Ltd that can be received upon exercise.

WARs

As each WAR gives the holder the right to receive cash equal to the market price of the equivalent listed warrant on date of exercise, the Company records a liability based upon the fair value of outstanding

WARs at each period end, accreted on a straight-line basis over the three-year vesting period. In Selling, general and administrative expenses, the Company records the changes in both the fair value and vested portion of the outstanding WARs. To hedge its exposure to fluctuations in the fair value of outstanding WARs, the Company purchased cash-settled call options, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs. The cash-settled call options are recorded as derivatives measured at fair value (see Note 6), with subsequent changes in fair value recorded in Selling, general and administrative expenses to the extent that they offset the change in fair value of the liability for the WARs. The total impact in Selling, general and administrative expenses in 2020, 2019 and 2018 was not significant.

The aggregate fair value of outstanding WARs was $21 million and $26 million at December 31, 2020 and 2019, respectively. The fair value of WARs was determined based upon the trading price of equivalent warrants listed on the SIX Swiss Exchange.

Presented below is a summary of the activity related to WARs:

(in millions)	Number of WARs
Outstanding at January 1, 2020	**39.9**
Exercised	(17.1)
Forfeited	(0.7)
Outstanding at December 31, 2020	**22.1**
Exercisable at December 31, 2020	**9.0**

The aggregate fair value at date of grant of WARs granted in 2019 and 2018 was not significant. As mentioned previously, no grants were made in 2020 under the MIP. In 2020, share-based liabilities of $13 million were paid upon exercise of WARs by participants. The amounts in 2019 and 2018 were not significant.

Employee Share Acquisition Plan

The employee share acquisition plan (ESAP) is an employee stock-option plan with a savings feature. Employees save over a twelve-month period, by way of regular payroll deductions. At the end of the savings period, employees choose whether to exercise their stock options using their savings plus interest, if any, to buy ABB Ltd shares (American Depositary Shares (ADS) in the case of employees in the United States and Canada—each ADS representing one registered share of the Company) at the exercise price set at the grant date, or have their savings returned with any interest. The savings are accumulated in bank accounts held by a third-party trustee on behalf of the participants and earn interest, where applicable. Employees can withdraw from the ESAP at any time during the savings period and will be entitled to a refund of their accumulated savings.

The fair value of each option is estimated on the date of grant using the same option valuation model as described under the MIP, using the assumptions noted in the table below. The expected term of the option granted has been determined to be the contractual one-year life of each option, at the end of which the options vest and the participants are required to decide whether to exercise their options or have their savings returned with interest. The risk-free rate is based on one-year Swiss franc interest rates, reflecting the one-year contractual life of the options. In estimating forfeitures, the Company has used the data from previous ESAP launches.

	2020	2019	2018
Expected volatility	24%	18%	19%
Dividend yield	3.8%	4.1%	4.1%
Expected term	1 year	1 year	1 year
Risk-free interest rate	-0.7%	-0.7%	-0.6%

Presented below is a summary of activity under the ESAP:

	Number of shares (in millions)(1)	Weighted-average exercise price (in Swiss francs)(2)	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value (in millions of Swiss francs)(2)(3)
Outstanding at January 1, 2020	**2.3**	**20.78**		
Granted	2.1	22.87		
Forfeited	(0.1)	20.79		
Exercised(4)	(1.4)	20.78		
Not exercised (savings returned plus interest)	(0.8)	20.78		
Outstanding at December 31, 2020	**2.1**	**22.87**	**0.8**	**3.9**
Vested and expected to vest at December 31, 2020	**2.0**	**22.87**	**0.8**	**3.8**
Exercisable at December 31, 2020	**—**	**—**	**—**	**—**

(1) Includes shares represented by ADS.
(2) Information presented for ADS is based on equivalent Swiss franc denominated awards.
(3) Computed using the closing price, in Swiss francs, of ABB Ltd shares on the SIX Swiss Exchange and the exercise price of each option in Swiss francs.
(4) The cash received in 2020 upon exercise was approximately $28 million. The shares were delivered out of treasury stock.

The exercise prices per ABB Ltd share and per ADS of 22.87 Swiss francs and $24.93, respectively, for the 2020 grant, 20.78 Swiss francs and $20.17, respectively, for the 2019 grant, and 20.38 Swiss francs and $20.37, respectively, for the 2018 grant were determined using the closing price of the ABB Ltd share on the SIX Swiss Exchange and ADS on the New York Stock Exchange on the respective grant dates.

At December 31, 2020, the total unrecognized compensation cost related to non-vested options granted under the ESAP was not significant. The weighted-average grant-date fair value (per option) of options granted during 2020, 2019 and 2018 was 1.67 Swiss francs, 1.05 Swiss francs and 1.10 Swiss francs, respectively. The total intrinsic value (on the date of exercise) of options exercised in 2020, 2019 and 2018 was not significant.

Long-Term Incentive Plan

The long-term incentive plan (LTIP) involves annual grants of the Company's stock subject to certain conditions (Performance Shares) to members of the Company's Executive Committee and selected other senior executives, as defined in the terms of the LTIP. In 2020, certain of the employee group previously eligible to receive grants under the MIP are now included in the LTIP. The ultimate amount delivered under the LTIP's Performance Shares grant is based on achieving certain results against targets, as set out below, over a three-year period from grant and the final amount is delivered to the participants at the end of this period. In addition, for certain awards to vest, the participant has to fulfill a three-year service condition as defined in the terms and conditions of the LTIP.

The Performance Shares under the 2020, 2019 and 2018 LTIP launches include a performance component, based on the Company's earnings per share performance, and a market component, based on the Company's relative total shareholder return.

For the relative total shareholder return component of the Performance Shares, the actual number of shares that will be delivered at a future date is based on the Company's total shareholder return performance relative to a peer group of companies over a three-year period starting with the year of grant. The actual number of shares that will ultimately be delivered will vary depending on the relative total shareholder return outcome achieved between a lower threshold (no shares delivered) and an upper threshold (the number of shares delivered is capped at 200 percent of the conditional grant).

For the earnings per share performance component of the Performance Shares, the actual number of shares that will be delivered at a future date is based on the Company's average earnings per share over three financial years, beginning with the year of launch. The actual number of shares that will ultimately be delivered will vary depending on the earnings per share outcome as computed under each LTIP launch, interpolated between a lower threshold (no shares delivered) and an upper threshold (the number of shares delivered is capped at 200 percent of the conditional grant).

Under the 2019 and 2018 LTIP launches, participants receive 65 percent of the shares that have vested in the form of shares and 35 percent of the value of the shares that have vested in cash, with the possibility to elect to also receive the 35 percent portion in shares rather than in cash. Under the 2020 LTIP launches, participants generally do not have the ability to receive any of the award in cash, subject to legal restrictions in certain jurisdictions.

Presented below is a summary of activity under the Performance Shares of the LTIP:

	Number of Performance Shares (in millions)	Weighted-average grant-date fair value per share (Swiss francs)
Nonvested at January 1, 2020	**1.0**	**19.26**
Granted	1.4	10.50
Vested	(0.7)	15.72
Forfeited	(0.4)	16.41
Nonvested at December 31, 2020	**1.3**	**12.76**

The aggregate fair value, at the dates of grant, of Performance Shares granted in 2019 and 2018 was $18 million and $19 million, respectively, while in 2020 it was not significant. The total grant-date fair value of shares that vested during 2019 and 2018 was $21 million and $17 million, respectively. The amount in 2020 was not significant. The weighted-average grant-date fair value (per share) of shares granted during 2020, 2019 and 2018 was 10.50 Swiss francs, 15.94 Swiss francs and 21.97 Swiss francs, respectively.

Starting in 2020, key employees which were previously eligible to participate in the MIP and which were not included in the employee group granted the Performance Shares described above, were granted Restricted Shares of the Company under the LTIP. The Restricted Shares do not have performance conditions and vest over a three-year period from the grant date.

Presented below is a summary of activity under the Restricted Shares of the LTIP:

	Number of Restricted Shares (in millions)	Weighted-average grant-date fair value per share (Swiss francs)
Nonvested at January 1, 2020	**—**	**—**
Granted	1.3	15.76
Forfeited	(0.1)	15.20
Nonvested at December 31, 2020	**1.2**	**15.80**

The aggregate fair value, at the dates of grant, of Restricted Shares granted in 2020 was $22 million. The weighted-average grant-date fair value (per share) of shares granted during 2020 was 15.76 Swiss francs.

Equity-settled awards are recorded in the Additional paid-in capital component of Stockholders' equity, with compensation cost recorded in Selling, general and administrative expenses over the vesting period (which is from grant date to the end of the vesting period) based on the grant-date fair value of the shares. Cash-settled awards are recorded as a liability, remeasured at fair value at each reporting date for the percentage vested, with changes in the liability recorded in Selling, general and administrative expenses.

At December 31, 2020, total unrecognized compensation cost related to equity-settled awards under the LTIP was $34 million and is expected to be recognized over a weighted-average period of 2.3 years. The compensation cost recorded in 2020, 2019 and 2018 for cash-settled awards was not significant.

For the relative total shareholder return component of the LTIP launches, the fair value of granted shares at grant date, for equity-settled awards, and at each reporting date, for cash-settled awards, is determined using a Monte Carlo simulation model. The main inputs to this model are the Company's share price and dividend yield, the volatility of the Company's and the peer group's share price as well as the correlation between the peer companies. For the earnings per share component of the LTIP launches, the fair value of granted shares is based on the market price of the ABB Ltd share at grant date for equity-settled awards and at each reporting date for cash-settled awards, as well as the probable outcome of the earnings per share achievement, as computed using a Monte Carlo simulation model. The main inputs to this model are the Company's and external financial analysts' revenue growth rates and Operational EBITA margin expectations.

Other share-based payments

The Company has other minor share-based payment arrangements with certain employees. The compensation cost related to these arrangements in 2020, 2019 and 2018 was not significant.

Note 19
Stockholders' equity

At both December 31, 2020 and 2019, the Company had 2,672 million authorized shares, of which 2,168 million were registered and issued.

At the Annual General Meeting of Shareholders (AGM) in March 2020, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.80 Swiss francs per share. The approved dividend distribution amounted to $1,758 million and was paid in April 2020. At the AGM in March 2019, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.80 Swiss francs per share. The approved dividend distribution amounted to $1,675 million and was paid in May 2019. At the AGM in March 2018, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.78 Swiss francs per share. The approved dividend distribution amounted to $1,736 million and was paid in April 2018.

In July 2020, the Company announced it initially intends to buy 10 percent of its share capital (which at the time represented a maximum of 180 million shares, in addition to those already held in treasury) through the share buyback program that started in July 2020. The share buyback program is executed on a second trading line on the SIX Swiss Exchange and is planned to run until the Company's AGM in March 2021. At the AGM the Company intends to request shareholder approval to cancel the shares purchased through this program. In 2020, under this program, the Company purchased 109 million shares for cancellation, resulting in an increase in Treasury Stock of $2,835 million.

In addition to the ongoing share buyback program, in the fourth quarter of 2020, the Company purchased 13 million of its own shares on the open market mainly for use in connection with its employee share plans. These transactions resulted in an increase in Treasury stock of $346 million. In the first quarter of 2018, the Company purchased on the open market an aggregate of 10 million of its own shares to be available for delivery under its employee share programs. These transactions resulted in an increase in Treasury stock of $249 million.

Upon and in connection with each launch of the Company's MIP, the Company sold call options to a bank at fair value, giving the bank the right to acquire shares equivalent to the number of shares represented by the MIP WAR awards to participants. Under the terms of the agreement with the bank, the call options can only be exercised by the bank to the extent that MIP participants have exercised their WARs. At December 31, 2020, such call options representing 9.7 million shares and with strike prices ranging from 19.00 to 23.50 Swiss francs (weighted-average strike price of 21.15 Swiss francs) were held by the bank. The call options expire in periods ranging from August 2021 to August 2025. However, only 5.3 million of these instruments, with strike prices ranging from 19.00 to 23.50 Swiss francs (weighted-average strike price of 20.99 Swiss francs), could be exercised at December 31, 2020, under the terms of the agreement with the bank.

In addition to the above, at December 31, 2020, the Company had further outstanding obligations to deliver:

- up to 15.6 million shares relating to the options granted under the 2015 launch of the MIP, with a strike price of 19.50 Swiss francs, vested in August 2018 and expiring in August 2021,
- up to 14.5 million shares relating to the options granted under the 2016 launch of the MIP, with a strike price of 21.50 Swiss francs, vested in August 2019 and expiring in August 2022,

- up to 12.8 million shares relating to the options granted under the 2017 launch of the MIP, with a strike price of 22.50 Swiss francs, vested in August 2020 and expiring in August 2023,
- up to 12.5 million shares relating to the options granted under the 2018 launch of the MIP, with a strike price of 23.50 Swiss francs, vesting in August 2021 and expiring in August 2024,
- up to 11.8 million shares relating to the options granted under the 2019 launch of the MIP, with a strike price of 19.00 Swiss francs, vesting in August 2022 and expiring in August 2025,
- up to 2.1 million shares relating to the ESAP, vesting and expiring in October 2021,
- up to 6.7 million shares to Eligible Participants under the 2020, 2019 and 2018 launches of the LTIP, vesting and expiring in April 2023, May 2022 and April 2021, respectively, and
- approximately 1 million shares in connection with certain other share-based payment arrangements with employees.

See Note 18 for a description of the above share-based payment arrangements.

In 2020 and 2018, the Company delivered 16.5 million and 2.4 million shares, respectively, out of treasury stock, for options exercised in relation to the MIP, while in 2019 the amount was not significant. In addition, in 2020 and 2019 the Company delivered 1.4 million and 0.5 million shares from treasury stock under the ESAP. No shares were delivered in 2018 under the ESAP.

Amounts available to be distributed as dividends to the stockholders of ABB Ltd are based on the requirements of Swiss law and ABB Ltd's Articles of Incorporation, and are determined based on amounts presented in the unconsolidated financial statements of ABB Ltd, prepared in accordance with Swiss law. At December 31, 2020, the total unconsolidated stockholders' equity of ABB Ltd was 9,063 million Swiss francs ($10,287 million), including 260 million Swiss francs ($295 million) representing share capital, 12,032 million Swiss francs ($13,657 million) representing reserves and 3,229 million Swiss francs ($3,665 million) representing a reduction of equity for own shares (treasury stock). Of the reserves, 3,229 million Swiss francs ($3,665 million) relating to own shares and 52 million Swiss francs ($59 million) representing 20 percent of share capital, are restricted and not available for distribution.

In February 2021, the Company announced that a proposal will be put to the 2021 AGM for approval by the shareholders to distribute 0.80 Swiss francs per share to shareholders.

Subsequent events

Subsequent to December 31, 2020, and up to February 24, 2021, the Company purchased, under the share buyback program, an additional 14 million shares, for approximately $400 million, and, on the open market, an additional 13 million shares, for approximately $378 million.

Note 20
Earnings per share

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise outstanding written call options and outstanding options and shares granted subject to certain conditions under the Company's share-based payment arrangements. In 2020, 2019 and 2018, outstanding securities representing a maximum of 65 million, 81 million and 88 million shares, respectively, were excluded from the calculation of diluted earnings per share as their inclusion would have been antidilutive.

Basic earnings per share:

($ in millions, except per share data in $)	2020	2019	2018
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	294	1,043	1,514
Income from discontinued operations, net of tax	4,852	396	659
Net income	**5,146**	**1,439**	**2,173**
Weighted-average number of shares outstanding (in millions)	**2,111**	**2,133**	**2,132**
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.30	0.19	0.31
Net income	**2.44**	**0.67**	**1.02**

Diluted earnings per share:

($ in millions, except per share data in $)	2020	2019	2018
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	294	1,043	1,514
Income from discontinued operations, net of tax	4,852	396	659
Net income	**5,146**	**1,439**	**2,173**
Weighted-average number of shares outstanding (in millions)	2,111	2,133	2,132
Effect of dilutive securities:			
Call options and shares	8	2	7
Adjusted weighted-average number of shares outstanding (in millions)	**2,119**	**2,135**	**2,139**
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.14	0.49	0.71
Income from discontinued operations, net of tax	2.29	0.19	0.31
Net income	**2.43**	**0.67**	**1.02**

Note 21
Other comprehensive income

The following table includes amounts recorded within “Total other comprehensive income (loss)” including the related income tax effects:

	2020			2019			2018		
($ in millions)	**Before tax**	**Tax effect**	**Net of tax**	**Before tax**	**Tax effect**	**Net of tax**	**Before tax**	**Tax effect**	**Net of tax**
Foreign currency translation adjustments:									
Foreign currency translation adjustments	500	(2)	**498**	(130)	—	**(130)**	(641)	14	**(627)**
Gain on liquidation of foreign subsidiary	—	—	**—**	—	—	**—**	(31)	—	**(31)**
Changes attributable to divestments	519	—	**519**	(2)	—	**(2)**	12	—	**12**
Net change during the year	**1,019**	**(2)**	**1,017**	**(132)**	**—**	**(132)**	**(660)**	**14**	**(646)**
Available-for-sale securities:									
Net unrealized gains (losses) arising during the year	31	(7)	**24**	16	(2)	**14**	(5)	1	**(4)**
Reclassification adjustments for net (gains) losses included in net income	(18)	4	**(14)**	1	(1)	**—**	1	—	**1**
Changes attributable to divestments	(3)	—	**(3)**	—	—	**—**	—	—	**—**
Net change during the year	**10**	**(3)**	**7**	**17**	**(3)**	**14**	**(4)**	**1**	**(3)**
Pension and other postretirement plans:									
Prior service (costs) credits arising during the year	55	(12)	**43**	3	3	**6**	(11)	4	**(7)**
Net actuarial gains (losses) arising during the year	(243)	43	**(200)**	(293)	73	**(220)**	(411)	59	**(352)**
Amortization of prior service cost (credit) included in net income	(11)	—	**(11)**	(25)	(3)	**(28)**	(19)	(5)	**(24)**
Amortization of net actuarial loss included in net income	113	(25)	**88**	99	(31)	**68**	91	(22)	**69**
Net losses from pension settlements included in net income	650	(132)	**518**	38	(6)	**32**	23	(4)	**19**
Changes attributable to divestments	186	(35)	**151**	—	—	**—**	—	—	**—**
Net change during the year	**750**	**(161)**	**589**	**(178)**	**36**	**(142)**	**(327)**	**32**	**(295)**
Cash flow hedge derivatives:									
Net gains (losses) arising during the year	2	—	**2**	20	—	**20**	(51)	2	**(49)**
Reclassification adjustments for net (gains) losses included in net income	(2)	2	**—**	(9)	—	**(9)**	20	1	**21**
Net change during the year	**—**	**2**	**2**	**11**	**—**	**11**	**(31)**	**3**	**(28)**
Total other comprehensive income (loss)	**1,779**	**(164)**	**1,615**	**(282)**	**33**	**(249)**	**(1,022)**	**50**	**(972)**

The following table shows changes in “Accumulated other comprehensive loss” (OCI) attributable to ABB, by component, net of tax:

($ in millions)	Foreign currency translation adjustments	Unrealized gains (losses) on available-for-sale securities	Pension and other post-retirement plan adjustments	Unrealized gains (losses) of cash flow hedge derivatives	Accumulated other comprehensive loss
Balance at January 1, 2018	**(2,693)**	**8**	**(1,672)**	**12**	**(4,345)**
Cumulative effect of changes in accounting principles[1]	—	(9)	—	—	(9)
Other comprehensive (loss) income before reclassifications	(627)	(4)	(359)	(49)	**(1,039)**
Amounts reclassified from OCI	(19)	1	64	21	**67**
Total other comprehensive (loss) income	**(646)**	**(3)**	**(295)**	**(28)**	**(972)**
Less:					
Amounts attributable to noncontrolling interests	(15)	—	—	—	**(15)**
Balance at December 31, 2018	**(3,324)**	**(4)**	**(1,967)**	**(16)**	**(5,311)**
Adoption of an accounting standard update[2]	—	—	(36)	—	**(36)**
Other comprehensive (loss) income before reclassifications	(130)	14	(214)	20	**(310)**
Amounts reclassified from OCI	(2)	—	72	(9)	**61**
Total other comprehensive (loss) income	**(132)**	**14**	**(142)**	**11**	**(249)**
Less:					
Amounts attributable to noncontrolling interests	(6)	—	—	—	**(6)**
Balance at December 31, 2019	**(3,450)**	**10**	**(2,145)**	**(5)**	**(5,590)**
Other comprehensive (loss) income before reclassifications	498	24	(157)	2	**367**
Amounts reclassified from OCI	519	(17)	746	—	**1,248**
Total other comprehensive (loss) income	**1,017**	**7**	**589**	**2**	**1,615**
Less:					
Amounts attributable to noncontrolling interests	27	—	—	—	**27**
Balance at December 31, 2020	**(2,460)**	**17**	**(1,556)**	**(3)**	**(4,002)**

(1) Amounts relate to the adoption of two accounting standard updates in 2018 regarding the Recognition and measurement of financial assets and financial liabilities and Revenue from contracts with customers.
(2) Amounts relate to the adoption of an accounting standard update in 2019 regarding the Tax Cuts and Jobs Act of 2017.

The following table reflects amounts reclassified out of OCI in respect of Foreign currency translation adjustments and Pension and other postretirement plan adjustments:

($ in millions) Details about OCI components	Location of (gains) losses reclassified from OCI	2020	2019	2018
Foreign currency translation adjustments:				
Gain on liquidation of foreign subsidiary	Other income (expense), net	—	—	(31)
Changes attributable to divestments:				
- Loss on solar inverters business (see Note 4)	Other income (expense), net	99	—	—
- Losses (gains) on other divestments, net	Other income (expense), net	—	(2)	12
- Loss on Power Grids business (see Note 3)	Income from discontinued operations, net of tax	420	—	—
Amounts reclassified from OCI		**519**	**(2)**	**(19)**
Pension and other postretirement plan adjustments:				
Amortization of prior service cost (credit)	Non-operational pension (cost) credit(1)	(11)	(25)	(19)
Amortization of net actuarial loss	Non-operational pension (cost) credit(1)	113	99	91
Net losses from pension settlements and curtailments	Non-operational pension (cost) credit(1)	650	38	23
Changes attributable to divestments	Income from discontinued operations, net of tax(2)	186	—	—
Total before tax		**938**	**112**	**95**
Tax	Income tax expense	(157)	(40)	(31)
Changes in tax attributable to divestments	Income from discontinued operations, net of tax(2)	(35)	—	—
Amounts reclassified from OCI		**746**	**72**	**64**

(1) Amounts include a total of $94 million, $6 million and $12 million in 2020, 2019 and 2018, respectively, reclassified from OCI to Income from discontinued operations (see Note 3).
(2) Amounts represent the reclassification of OCI relating to pensions, including tax, on divestment of the Power Grids business.

The amounts reclassified out of OCI in respect of Unrealized gains (losses) on available-for-sale securities and Unrealized gains (losses) of cash flow hedge derivatives were not significant in 2020, 2019 and 2018.

Note 22
Restructuring and related expenses

OS program

In December 2018, the Company announced a two-year restructuring program with the objective of simplifying its business model and structure through the implementation of a new organizational structure driven by its businesses. The program resulted in the elimination of the country and regional structures within the previous matrix organization, including the elimination of the three regional Executive Committee roles. The operating businesses are now responsible for both their customer-facing activities and business support functions, while the remaining Group-level corporate activities primarily focus on Group strategy, portfolio and performance management and capital allocation. During the year ended December 2020, the total program costs, originally estimated to be $350 million, were reduced by $41 million to $309 million, mainly due to reductions in both estimated costs and number of projects planned. As of December 31, 2020, the Company has incurred substantially all costs related to the OS program.

The following table outlines the costs incurred in 2020, 2019, 2018 and the cumulative costs incurred under the program per operating segment as well as Corporate and Other:

	Costs incurred in			Cumulative costs incurred up to
($ in millions)	2020	2019	2018	December 31, 2020
Electrification	35	18	32	85
Industrial Automation	37	3	21	61
Motion	18	6	1	25
Robotics & Discrete Automation	10	8	—	18
Corporate and Other	49	54	11	114
Total	**149**	**89**	**65**	**303**

The Company recorded the following expenses, net of change in estimates, under this program:

	Costs incurred in			Cumulative costs incurred up to
($ in millions)	2020	2019	2018	December 31, 2020
Employee severance costs	109	81	65	255
Estimated contract settlement, loss order and other costs	17	1	—	18
Inventory and long-lived asset impairments	23	7	—	30
Total	**149**	**89**	**65**	**303**

Restructuring expenses recorded for this program are included in the following line items in the Consolidated Income Statements:

($ in millions)	2020	2019	2018
Total cost of sales	38	8	35
Selling, general and administrative expenses	37	46	23
Non-order related research and development expenses	4	1	3
Other income (expense), net	70	34	4
Total	**149**	**89**	**65**

Liabilities associated with the OS program are included primarily in Other provisions. The following table shows the activity from the beginning of the program to December 31, 2020:

($ in millions)	Employee severance costs	Contract settlement, loss order and other costs	Total
Liability at January 1, 2018	**—**	**—**	**—**
Expenses	65	—	**65**
Liability at December 31, 2018	**65**	**—**	**65**
Expenses	111	1	**112**
Cash payments	(44)	(1)	**(45)**
Change in estimates	(30)	—	**(30)**
Exchange rate differences	(3)	—	**(3)**
Liability at December 31, 2019	**99**	**—**	**99**
Expenses	119	17	**136**
Cash payments	(91)	(15)	**(106)**
Change in estimates	(10)	—	**(10)**
Exchange rate differences	4	—	**4**
Liability at December 31, 2020	**121**	**2**	**123**

Other restructuring-related activities

In addition, during 2020, 2019 and 2018, the Company executed various other restructuring-related activities and incurred the following charges, net of changes in estimates:

($ in millions)	2020	2019	2018
Employee severance costs	164	55	74
Estimated contract settlement, loss order and other costs	18	37	29
Inventory and long-lived asset impairments	12	22	13
Total	**194**	**114**	**116**

Expenses associated with these activities are recorded in the following line items in the Consolidated Income Statements:

($ in millions)	2020	2019	2018
Total cost of sales	95	46	24
Selling, general and administrative expenses	50	4	52
Non-order related research and development expenses	10	—	2
Other income (expense), net	39	64	38
Total	**194**	**114**	**116**

At December 31, 2020 and 2019, $233 million and $189 million, respectively, was recorded for other restructuring-related liabilities and is primarily included in “Other provisions”.

Note 23
Operating segment and geographic data

The Chief Operating Decision Maker (CODM) is the Chief Executive Officer. The CODM allocates resources to and assesses the performance of each operating segment using the information outlined below. The Company is organized into the following segments, based on products and services: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation. The remaining operations of the Company are included in Corporate and Other.

A description of the types of products and services provided by each reportable segment is as follows:

- Electrification: manufactures and sells electrical products and solutions which are designed to provide safe, smart and sustainable electrical flow from the substation to the socket. The portfolio of increasingly digital and connected solutions includes electric vehicle charging infrastructure, renewable power solutions, modular substation packages, distribution automation products, switchboard and panelboards, switchgear, UPS solutions, circuit breakers, measuring and sensing devices, control products, wiring accessories, enclosures and cabling systems and intelligent home and building solutions, designed to integrate and automate lighting, heating, ventilation, security and data communication networks. The products and services are delivered through five operating Divisions: Distribution Solutions, Smart Power, Smart Buildings, Installation Products and Power Conversion.

- Industrial Automation: develops and sells a broad range of industry-specific, integrated automation and electrification systems and solutions, as well as digital solutions, lifecycle services and artificial intelligence applications for the process and hybrid industries. Products and solutions include process and discrete control technologies, advanced process control software and manufacturing execution systems, sensing, measurement and analytical instrumentation, electric ship propulsion systems and large turbochargers. In addition, the Business Area offers a comprehensive range of services ranging from repair to advanced services such as remote monitoring, preventive maintenance, asset performance management and cybersecurity services. The products and services are delivered through five operating Divisions: Energy Industries, Process Industries, Marine & Ports, Turbocharging, and Measurement & Analytics.

- Motion: manufactures and sells drives, motors, generators, traction converters and mechanical power transmission products that are driving the low-carbon future for industries, cities, infrastructure and transportation. These products, digital technology and related services enable industrial customers to increase energy efficiency, improve safety and reliability, and achieve precise control of their processes. Building on over 130 years of cumulative experience in electric powertrains, the Business Area combines domain expertise and technology to deliver the optimum solution for a wide range of applications in all industrial segments. In addition, the Business Area, along with partners, has an unmatched global service presence. These products and services are delivered through six operating Divisions: Motors & Generators, Drive Products, System Drives, Service, Traction and Mechanical Power Transmission.

- Robotics & Discrete Automation: delivers its products, solutions and services through two operating Divisions: Robotics and Machine Automation. Robotics includes: industrial robots, software, robotic solutions and systems, field services, spare parts, and digital services. Machine Automation specializes in solutions based on its programmable logic controllers (PLC), industrial PCs (IPC), servo motion, transport systems and machine vision. Both Divisions offer engineering and simulation software as well as a comprehensive range of digital solutions.

Corporate and Other: includes headquarters, central research and development, the Company's real estate activities, Corporate Treasury Operations, historical operating activities of certain divested businesses and other non-core operating activities.

The primary measure of profitability on which the operating segments are evaluated is Operational EBITA, which represents income from operations excluding:

- amortization expense on intangibles arising upon acquisitions (acquisition-related amortization),
- restructuring, related and implementation costs,
- changes in the amount recorded for obligations related to divested businesses occurring after the divestment date (changes in obligations related to divested businesses),
- changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates),
- gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale),
- acquisition- and divestment-related expenses and integration costs,
- other income/expense relating to the Power Grids joint venture,
- certain other non-operational items, as well as
- foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

Certain other non-operational items generally includes: certain regulatory, compliance and legal costs, certain asset write downs/impairments (including impairment of goodwill) and certain other fair value changes, as well as other items which are determined by management on a case-by-case basis.

The CODM primarily reviews the results of each segment on a basis that is before the elimination of profits made on inventory sales between segments. Segment results below are presented before these eliminations, with a total deduction for intersegment profits to arrive at the Company's consolidated Operational EBITA. Intersegment sales and transfers are accounted for as if the sales and transfers were to third parties, at current market prices.

The following tables present disaggregated segment revenues from contracts with customers for 2020, 2019 and 2018:

	2020					
($ in millions)	**Electrification**	**Industrial Automation**	**Motion**	**Robotics & Discrete Automation**	**Corporate and Other**	**Total**
Geographical markets						
Europe	4,008	2,322	1,934	1,429	15	**9,708**
The Americas	4,050	1,321	2,173	385	7	**7,936**
of which: United States	3,093	805	1,846	270	5	**6,019**
Asia, Middle East and Africa	3,506	2,038	1,807	1,024	7	**8,382**
of which: China	1,820	628	926	714	3	**4,091**
	11,564	**5,681**	**5,914**	**2,838**	**29**	**26,026**
Product type						
Products	9,951	1,263	5,040	1,635	53	**17,942**
Systems	743	1,665	—	780	(24)	**3,164**
Services and software	870	2,753	874	423	—	**4,920**
	11,564	**5,681**	**5,914**	**2,838**	**29**	**26,026**
Third-party revenues	11,564	5,681	5,914	2,838	29	**26,026**
Intersegment revenues(1)	360	111	495	69	(927)	**108**
Total revenues	**11,924**	**5,792**	**6,409**	**2,907**	**(898)**	**26,134**

	2019					
($ in millions)	**Electrification**	**Industrial Automation**	**Motion**	**Robotics & Discrete Automation**	**Corporate and Other**	**Total**
Geographical markets						
Europe	4,039	2,416	1,879	1,634	36	**10,004**
The Americas	4,568	1,582	2,315	453	1	**8,919**
of which: United States	3,522	948	1,972	290	3	**6,735**
Asia, Middle East and Africa	3,665	2,153	1,827	1,157	40	**8,842**
of which: China	1,729	608	876	825	1	**4,039**
	12,272	**6,151**	**6,021**	**3,244**	**77**	**27,765**
Product type						
Products	10,315	1,439	5,152	1,785	65	**18,756**
Systems	958	1,648	—	968	12	**3,586**
Services and software	999	3,064	869	491	—	**5,423**
	12,272	**6,151**	**6,021**	**3,244**	**77**	**27,765**
Third-party revenues	12,272	6,151	6,021	3,244	77	**27,765**
Intersegment revenues(1)	456	122	512	70	(947)	**213**
Total revenues	**12,728**	**6,273**	**6,533**	**3,314**	**(870)**	**27,978**

($ in millions)	2018 Electrification	Industrial Automation	Motion	Robotics & Discrete Automation	Corporate and Other	Total
Geographical markets						
Europe	3,881	2,475	1,862	1,737	58	**10,013**
The Americas	3,650	1,467	2,389	476	21	**8,003**
of which: United States	2,686	941	2,018	310	25	**5,980**
Asia, Middle East and Africa	3,680	2,449	1,699	1,339	236	**9,403**
of which: China	1,724	609	858	987	2	**4,180**
	11,211	**6,391**	**5,950**	**3,552**	**315**	**27,419**
Product type						
Products	9,679	1,528	5,111	2,019	118	**18,455**
Systems	617	1,853	—	1,001	197	**3,668**
Services and software	915	3,010	839	532	—	**5,296**
	11,211	**6,391**	**5,950**	**3,552**	**315**	**27,419**
Third-party revenues	11,211	6,391	5,950	3,552	315	**27,419**
Intersegment revenues[(1)]	475	109	513	59	(913)	**243**
Total revenues	**11,686**	**6,500**	**6,463**	**3,611**	**(598)**	**27,662**

(1) Intersegment revenues until June 30, 2020, include sales to the Power Grids business, which is presented as discontinued operations, and are not eliminated from Total revenues (see Note 3).

Revenues by geography reflect the location of the customer. In 2020, 2019 and 2018 the United States and China are the only countries where revenue exceeded 10 percent of Total revenues. In each of 2020, 2019 and 2018 more than 98 percent of the Company’s total revenues were generated from customers outside Switzerland.

The following tables present Operational EBITA, the reconciliations of consolidated Operational EBITA to Income from continuing operations before taxes, as well as Depreciation and amortization, and Capital expenditure for 2020, 2019 and 2018, as well as Total assets at December 31, 2020, 2019 and 2018:

($ in millions)	**2020**	**2019**	**2018**
Operational EBITA:			
Electrification	1,681	1,688	1,626
Industrial Automation	451	732	914
Motion	1,075	1,082	1,023
Robotics & Discrete Automation	237	393	528
Corporate and Other:			
— Non-core and divested businesses	(133)	(145)	(291)
— Stranded corporate costs	(40)	(225)	(297)
— Corporate costs and Other intersegment elimination	(372)	(418)	(498)
Total	**2,899**	**3,107**	**3,005**
Acquisition-related amortization	(263)	(265)	(273)
Restructuring, related and implementation costs(1)	(410)	(300)	(172)
Changes in obligations related to divested businesses	(218)	(36)	(106)
Changes in pre-acquisition estimates	(11)	(22)	(8)
Gains and losses from sale of businesses	(2)	55	57
Fair value adjustment on assets and liabilities held for sale	(33)	(421)	—
Acquisition- and divestment-related expenses and integration costs	(74)	(121)	(204)
Other income/expenses relating to the Power Grids joint venture	(20)	—	—
Foreign exchange/commodity timing differences in income from operations:			
Unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives)	67	20	(1)
Realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized	26	8	(23)
Unrealized foreign exchange movements on receivables/payables (and related assets/liabilities)	(33)	(7)	(9)
Certain other non-operational items:			
Costs for planned divestment of Power Grids	(86)	(141)	—
Regulatory, compliance and legal costs	(7)	(7)	(34)
Business transformation costs	(31)	(19)	(17)
Executive Committee transition costs	(1)	(14)	—
Favorable resolution of an uncertain purchase price adjustment	36	92	—
Gain on sale of investments	—	15	—
Gain on liquidation of a foreign subsidiary	—	—	31
Asset write downs/impairments & certain other fair value changes(2)	(239)	(4)	(25)
Other non-operational items	(7)	(2)	5
Income from operations	**1,593**	**1,938**	**2,226**
Interest and dividend income	51	67	72
Interest and other finance expense	(240)	(215)	(262)
Losses from extinguishment of debt	(162)	—	—
Non-operational pension (cost) credit	(401)	72	83
Income from continuing operations before taxes	**841**	**1,862**	**2,119**

(1) Amounts in 2020 and 2019 include $67 million and $97 million, respectively, of implementation costs in relation to the OS program.
(2) Amount in 2020 includes goodwill impairment charges of $311 million.

	Depreciation and amortization			Capital expenditures[1]			Total assets[1][2] at December 31,		
($ in millions)	**2020**	**2019**	**2018**	**2020**	**2019**	**2018**	**2020**	**2019**	**2018**
Electrification	381	414	355	276	279	244	12,098	11,671	12,052
Industrial Automation	63	55	57	56	64	58	4,624	4,559	4,287
Motion	168	169	184	93	110	93	6,248	6,149	6,016
Robotics & Discrete Automation	126	124	127	64	59	74	4,660	4,661	4,760
Corporate and Other	177	199	193	205	250	303	13,458	19,068	17,326
Consolidated	**915**	**961**	**916**	**694**	**762**	**772**	**41,088**	**46,108**	**44,441**

(1) Capital expenditures and Total assets are after intersegment eliminations and therefore reflect third-party activities only.
(2) At December 31, 2020, 2019 and 2018, Corporate and Other includes $282 million, $9,840 million and $8,591 million, respectively, of assets in the Power Grids business which is reported as discontinued operations (see Note 3). In addition, at December 31, 2020, Corporate and Other includes $1,710 million related to the equity investment in Hitachi ABB Power Grids Ltd (see Note 4).

Other geographic information

Geographic information for long-lived assets was as follows:

	Long-lived assets at December 31,	
($ in millions)	**2020**	**2019**
Europe	2,822	2,565
The Americas	1,382	1,469
Asia, Middle East and Africa	940	932
Total	**5,144**	**4,966**

Long-lived assets represent “Property, plant and equipment, net” and “Operating lease right-of-use assets” and are shown by location of the assets. At December 31, 2020, approximately 21 percent, 10 percent and 11 percent of the Company’s long-lived assets were located in the United States, China and Switzerland, respectively. At December 31, 2019, approximately 23 percent, 10 percent and 10 percent of the Company’s long-lived assets were located in the United States, China and Switzerland, respectively.

05

ABB Ltd Statutory Financial Statements

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ABB Ltd Management Report 2020

ABB Ltd is the holding company of the ABB Group, owning directly or indirectly all subsidiaries globally.

The major business activities during 2020 can be summarized as follows:

Management services

The Company provided management services to a Group company for CHF 18 million.

Share transactions

- share deliveries for employee share programs of CHF 422 million.
- share repurchases for the intended cancellation of CHF 2,578 million
- share repurchases for employee share programs of CHF 312 million

Dividend payment to external shareholders

- from retained earnings of CHF 1,343 million.

Divestment of the Power Grids business

On July 1, 2020, the Company received CHF 6,490 million (USD 6,850 million) in cash and restricted cash for the sale of 80.1 percent of the shares in Hitachi ABB Power Grids Ltd.

Other information

In 2020, the Company employed on average 19 employees.

Once a year, the Company's Board of Directors performs a risk assessment in accordance with the Group's risk management process and discusses appropriate actions if necessary.

The Company does not carry out any research and development activities.

In 2021, the Company will continue to operate as the holding company of the ABB Group. No change of business is expected.

February 25, 2021

Financial Statements 2020

Income Statement

Year ended December 31 (CHF in thousands)	Note	2020	2019
Dividend income	7	8,045,320	1,200,000
Finance income		107,326	27,660
Other operating income	8	83,603	98,274
Finance expense		(100,778)	(31,788)
Personnel expenses		(42,142)	(51,857)
Other operating expenses		(65,101)	(40,076)
Write down of participation	2	(3,263,742)	—
Loss on sale of participation	2	(308,073)	—
Net income before taxes		**4,456,413**	**1,202,213**
Income taxes		(906)	(3,842)
Net income		**4,455,507**	**1,198,371**

Balance Sheet

December 31 (CHF in thousands)	Note	2020	2019
Cash		781	243
Cash deposit with ABB Corporate Treasury Operations		3,573,027	345,299
Non-trade receivables		2,306	76
Non-trade receivables – Group		7,878	24,190
Short-term loans – Group		22,026	24,205
Accrued income and prepaid expenses		631	582
Accrued income and prepaid expenses – Group		4,155	4,092
Other short-term assets	2	266,281	—
Total current assets		**3,877,085**	**398,687**
Long-term loans – Group		330,394	387,280
Participations	2	7,086,247	8,973,229
Other long-term assets	2	266,143	2,530
Total non-current assets		**7,682,784**	**9,363,039**
Total assets		**11,559,869**	**9,761,726**
Interest-bearing liabilities	4	350,000	—
Interest-bearing liabilities – Group	4	22,026	24,205
Non-trade payables		145,435	9,416
Non-trade payables – Group		908	3,204
Deferred income and accrued expenses	2	533,787	115,134
Deferred income and accrued expenses – Group	2	50,367	756
Short-term provisions	2	349,453	—
Total current liabilities		**1,451,976**	**152,715**
Interest-bearing liabilities	4	450,251	800,292
Interest-bearing liabilities – Group	4	330,394	387,280
Long-term provisions	2	264,315	1,850
Total non-current liabilities		**1,044,960**	**1,189,422**
Total liabilities		**2,496,936**	**1,342,137**
Share capital	6	260,178	260,178
Legal reserves			
Legal reserves from capital contribution	6	—	30,430
Legal other reserves	6	30,430	—
Legal reserves from retained earnings	6	1,000,000	1,000,000
Free reserves			
Retained earnings	6	6,545,827	6,690,847
Net income		4,455,507	1,198,371
Own shares	6	(3,229,009)	(760,237)
Total stockholders' equity		**9,062,933**	**8,419,589**
Total liabilities and stockholders' equity		**11,559,869**	**9,761,726**

Notes to Financial Statements

Note 1
General

ABB Ltd, Zurich, Switzerland (the Company) is the parent company of the ABB Group. Its stand-alone financial statements are prepared in accordance with Swiss law.

The financial statements have been prepared in accordance with Article 957 et seqq. of Title 32 of the Swiss Code of Obligations.

Group companies are all companies which are directly or indirectly controlled by the Company and variable interest entities if it is determined that the Company is the primary beneficiary.

Note 2
Participations

			Share capital	Ownership and voting rights	Share capital	Ownership and voting rights
Company name	**Purpose**	**Domicile**	**2020**	**2020**	**2019**	**2019**
ABB Asea Brown Boveri Ltd.	Holding	CH-Zurich	CHF 2,767,880,000	100.00%	CHF 2,768,000,000	100.00%
Hitachi ABB Power Grids Ltd.	Holding	CH-Zurich	CHF 1,250,000	19.90%	—	—

Development of participations	**CHF in thousands**	
	2020	**2019**
Opening balance January 1	**8,973,229**	**8,973,229**
Additions[1]	6,917,922	—
Disposals	(5,541,042)	—
Write offs	(3,263,862)	—
Closing balance December 31	**7,086,247**	**8,973,229**

(1) thereof dividend in kind from ABB Asea Brown Boveri Ltd CHF 6,745,619

On July 1, 2020, the Company completed the sale of 80.1 percent of its Powers Grids business to Hitachi Ltd (Hitachi). The transaction was executed through the sale of 80.1 percent of the shares of Hitachi ABB Power Grids Ltd ("Hitachi ABB PG"). Cash consideration received directly by the Company at the closing date was USD 5,674 million (CHF 5,376 million) and USD 1,176 million (CHF 1,114 million) restricted cash. The Company also obtained a put option allowing the Company to require Hitachi to purchase the remaining interest for fair value, subject to a minimum floor price equivalent to a 10 percent discount compared to the total price paid for the initial 80.1 percent. The put option can be exercised commencing April 2023. It is not recognized in the accounts of the Company.

The book value of the retained 19.9 percent investment for Hitachi ABB Power Grids Ltd was CHF 1,377 million. The Company has also recorded liabilities for estimated payments of approximately CHF 845 million for various contractual items relating to the sale of the business including required future cost reimbursements (CHF 178 million included in Deferred income and accrued expenses - Group and Short-term provisions) and the expected finalization of the closing debt and working capital balances (CHF 217 million included in Short-term provisions) and deferred income (CHF 450 million included in Deferred income and accrued expenses).

For certain entities of the Power Grids business, the legal process or other regulatory delays resulted in the Company not having transferred legal title to Hitachi as at the date of this report. The proceeds for these entities are included in Other short-term assets of CHF 266 million at December 31, 2020. The remaining entities: ABB Power Technology Services Private Limited, India, and ABB Power Products And Systems India Limited, India, have been transferred to Hitachi ABB PG in February 2021. ABB Power Grids South Africa (Pty) Ltd and an entity to be established in Kuwait are expected to be transferred by the first half of 2021.

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Note 3

Indirect Participations

The following table set forth the name, country of incorporation, ownership and voting rights, as well as share capital, of the significant indirect subsidiaries of the Company, as of December 31, 2020 and 2019.

Company name/location	Country	Company ownership and voting rights % 2020	Share capital in thousands 2020	Company ownership and voting rights % 2019	Share capital in thousands 2019	Currency
ABB S.A., Buenos Aires	Argentina	100.00	278,860	—(3)	—(3)	ARS
ABB Australia Pty Limited, Moorebank, NSW	Australia	100.00	131,218	100.00	131,218	AUD
ABB Group Investment Management Pty. Ltd., Moorebank, NSW	Australia	100.00	505,312	100.00	505,312	AUD
ABB AG, Wiener Neudorf	Austria	100.00	15,000	—(3)	—(3)	EUR
B&R Holding GmbH, Eggelsberg	Austria	100.00	35	100.00	35	EUR
B&R Industrial Automation GmbH, Eggelsberg	Austria	100.00	1,240	100.00	1,240	EUR
ABB N.V., Zaventem	Belgium	100.00	34,308	—(3)	—(3)	EUR
ABB AUTOMACAO LTDA., SOROCABA	Brazil	100.00	196,554	100.00	37,780	BRL
ABB Ltda., São Paulo	Brazil	—(4)	—(4)	100.00	854,784	BRL
ABB Eletrificacao Ltda., Sorocaba	Brazil	100.00	268,759	—(3)	—(3)	BRL
ABB Bulgaria EOOD, Sofia	Bulgaria	100.00	65,110	100.00	65,110	BGN
ABB Electrification Canada ULC, Edmonton, Alberta	Canada	100.00	—(1)	100.00	—(1)	CAD
ABB Inc., Saint-Laurent, Quebec	Canada	100.00	—(1)	100.00	—(1)	CAD
ABB S.A., Santiago	Chile	100.00	5,484,348	—(3)	—(3)	CLP
ABB (China) Investment Limited, Beijing	China	100.00	95,000	—(3)	—(3)	USD
ABB (China) Ltd., Beijing	China	100.00	140,000	100.00	235,000	USD
ABB Beijing Drive Systems Co. Ltd., Beijing	China	90.00	5,000	90.00	5,000	USD
ABB Beijing Switchgear Limited, Beijing	China	60.00	16,500	—(3)	—(3)	USD
ABB Electrical Machines Ltd., Shanghai	China	100.00	14,400	100.00	14,400	USD
ABB Engineering (Shanghai) Ltd., Shanghai	China	100.00	40,000	100.00	40,000	USD
ABB Shanghai Free Trade Zone Industrial Co., Ltd., Shanghai	China	100.00	6,500	100.00	6,500	CNY
ABB Shanghai Motors Co. Ltd., Shanghai	China	75.00	11,217	—(3)	—(3)	USD
ABB Xiamen Low Voltage Equipment Co. Ltd., Xiamen	China	100.00	15,800	100.00	15,800	USD
ABB Xiamen Switchgear Co. Ltd., Xiamen	China	66.52	29,500	66.52	29,500	USD
ABB Xinhui Low Voltage Switchgear Co. Ltd., Xinhui	China	90.00	6,200	90.00	6,200	USD
ABB s.r.o., Prague	Czech Republic	100.00	400,000	100.00	400,000	CZK
ABB A/S, Skovlunde	Denmark	100.00	100,000	100.00	100,000	DKK
ABB for Electrical Industries (ABB ARAB) S.A.E., Cairo	Egypt	100.00	353,479	100.00	353,479	EGP
Asea Brown Boveri S.A.E., Cairo	Egypt	100.00	166,000	100.00	166,000	USD
ABB AS, Jüri	Estonia	100.00	1,663	100.00	1,663	EUR
ABB Oy, Helsinki	Finland	100.00	10,003	100.00	10,003	EUR
ABB France, Cergy Pontoise	France	99.83	25,778	99.83	25,778	EUR
ABB SAS, Cergy Pontoise	France	100.00	45,921	100.00	45,921	EUR
ABB AG, Mannheim	Germany	100.00	167,500	100.00	167,500	EUR
ABB Automation GmbH, Mannheim	Germany	100.00	15,000	100.00	15,000	EUR
ABB Automation Products GmbH, Ladenburg	Germany	100.00	10,620	100.00	10,620	EUR
ABB Beteiligungs- und Verwaltungsges. mbH, Mannheim	Germany	100.00	61,355	100.00	61,355	EUR
ABB Stotz-Kontakt GmbH, Heidelberg	Germany	100.00	7,500	100.00	7,500	EUR

Company name/location	Country	Company ownership and voting rights % 2020	Share capital in thousands 2020	Company ownership and voting rights % 2019	Share capital in thousands 2019	Currency
B + R Industrie-Elektronik GmbH, Bad Homburg	Germany	100.00	358	100	358	EUR
Busch-Jaeger Elektro GmbH, Lüdenscheid	Germany	100.00	1,535	100.00	1,535	EUR
ABB Engineering Trading and Service Ltd., Budapest	Hungary	100.00	26,436,281	—(3)	—(3)	HUF
Industrial C&S Hungary Kft., Budapest	Hungary	100.00	3,000	100.00	3,000	HUF
ABB Global Industries and Services Private Limited, Bangalore	India	100.00	366,923	100.00	190,000	INR
ABB India Limited, Bangalore	India	75.00	423,817	75.00	423,817	INR
ABB S.p.A., Milan	Italy	100.00	110,000	100.00	110,000	EUR
Power-One Italy S.p.A., Terranuova Bracciolini (AR)	Italy	—(4)	—(4)	100.00	22,000	EUR
ABB K.K., Tokyo	Japan	100.00	1,000,000	100.00	1,000,000	JPY
ABB Ltd., Seoul	Korea, Republic of	100.00	23,670,000	100.00	23,670,000	KRW
ABB Electrical Control Systems S. de R.L. de C.V., Monterrey	Mexico	100.00	315,134	100.00	315,134	MXN
ABB Mexico S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	683,418	100.00	633,368	MXN
Asea Brown Boveri S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	667,686	100.00	667,686	MXN
ABB B.V., Rotterdam	Netherlands	100.00	9,200	100.00	9,200	EUR
ABB Capital B.V., Rotterdam	Netherlands	—(3)	—(3)	100.00	1,000	USD
ABB Finance B.V., Rotterdam	Netherlands	100.00	20	100.00	20	EUR
ABB Holdings B.V., Rotterdam	Netherlands	100.00	119	100.00	119	EUR
ABB AS, Fornebu	Norway	100.00	134,550	100.00	134,550	NOK
ABB Electrification Norway AS, Skien	Norway	100.00	60,450	—(3)	—(3)	NOK
ABB Holding AS, Fornebu	Norway	100.00	240,000	100.00	240,000	NOK
ABB Business Services Sp. z o.o., Warsaw	Poland	99.93	24	99.93	24	PLN
ABB Industrial Solutions (Bielsko-Biala) Sp. z o.o., Bielsko-Biala	Poland	99.93	328,125	99.93	328,125	PLN
ABB Industrial Solutions (Klodzko) Sp.z.o.o., Klodzko	Poland	99.93	50	—(3)	—(3)	PLN
ABB Sp. z o.o., Warsaw	Poland	99.93	245,461	99.93	245,461	PLN
Industrial C&S of P.R. LLC, San Juan	Puerto Rico	100.00	—	100.00	—	USD
ABB Ltd., Moscow	Russian Federation	100.00	5,686	100.00	5,686	RUB
ABB Electrical Industries Co. Ltd., Riyadh	Saudi Arabia	65.00	181,000	65.00	181,000	SAR
ABB Holdings Pte. Ltd., Singapore	Singapore	— (4)	— (4)	100.00	32,797	SGD
ABB Pte. Ltd., Singapore	Singapore	100.00	32,797	100.00	28,842	SGD
ABB Holdings (Pty) Ltd., Modderfontein	South Africa	100.00	4,050	100.00	4,050	ZAR
ABB South Africa (Pty) Ltd., Modderfontein	South Africa	74.91	1	74.91	1	ZAR
Asea Brown Boveri S.A., Madrid	Spain	100.00	33,318	100.00	33,318	EUR
ABB AB, Västerås	Sweden	100.00	200,000	100.00	200,000	SEK
ABB Norden Holding AB, Västerås	Sweden	100.00	2,344,783	100.00	2,344,783	SEK
ABB Power Grids Sweden AB, Västerås	Sweden	—(4)	—(4)	100.00	400,000	SEK
ABB Canada EL Holding GmbH, Zurich	Switzerland	100.00	1,000	—(3)	—(3)	CHF
ABB Capital AG, Zurich	Switzerland	100.00	100	100.00	100	CHF
ABB Information Systems Ltd., Zurich	Switzerland	100.00	500	100.00	500	CHF
ABB Investment Holding 2 GmbH, Zurich	Switzerland	100.00	20	100.00	20	CHF
ABB Management Holding Ltd., Zurich(5)	Switzerland	—(4)	—(4)	100.00	1,051	CHF
ABB Management Services Ltd., Zurich	Switzerland	100.00	571	100.00	571	CHF
ABB Schweiz AG, Baden	Switzerland	100.00	55,000	100.00	55,000	CHF
ABB Turbo Systems AG, Baden	Switzerland	—(4)	—(4)	100.00	10,000	CHF
ABB Ltd., Taipei	Taiwan (Chinese Taipei)	100.00	195,000	—(3)	—(3)	TWD
ABB LIMITED, Bangkok	Thailand	—(4)	—(4)	100.00	1,034,000	THB
ABB Elektrik Sanayi A.S., Istanbul	Turkey	99.99	13,410	99.99	13,410	TRY
ABB Industries (L.L.C.), Dubai	United Arab Emirates	49.00	5,000	49.00(2)	5,000	AED
ABB Holdings Limited, Warrington	United Kingdom	100.00	226,014	100.00	226,014	GBP
ABB Limited, Warrington	United Kingdom	100.00	120,000	100.00	120,000	GBP
ABB Enterprise Software Inc., Atlanta, GA	United States	—(4)	—(4)	100	1	USD
ABB Finance (USA) Inc., Wilmington, DE	United States	100.00	1	100.00	1	USD
ABB Holdings Inc., Cary, NC	United States	100.00	2	100.00	2	USD
ABB Inc., Cary, NC	United States	100.00	1	100.00	1	USD
ABB Installation Products Inc, Memphis, TN	United States	100.00	1	100.00	1	USD

Company name/location	Country	Company ownership and voting rights % 2020	Share capital in thousands 2020	Company ownership and voting rights % 2019	Share capital in thousands 2019	Currency
ABB Installation Products International LLC., Wilmington, DE	United States	100.00	—	—(3)	—(3)	USD
ABB Motors and Mechanical Inc, Fort Smith, AR	United States	100.00	—	100.00	—	USD
ABB Treasury Center (USA), Inc., Wilmington, DE	United States	100.00	1	100.00	1	USD
Edison Holding Corporation, Wilmington, DE	United States	100.00	—	100.00	—	USD
Industrial Connections & Solutions LLC, Cary, NC	United States	100.00	—	100.00	—	USD
Verdi Holding Corporation, Wilmington, DE	United States	—(3)	—(3)	100.00	—	USD

(1) Shares without par value.
(2) Company consolidated as ABB exercises full management control.
(3) Based on the internally defined thresholds, these indirect participations are considered not significant, and therefore no details to these participations are disclosed in the respective year.
(4) Participation was either sold, liquidated or merged in 2020.
(5) Participation was renamed into Hitachi ABB Power Grids Ltd in 2020 and is reported as direct participation of the Company.

Note 4
Interest-bearing liabilities

December 31 (CHF in thousands)		2020	2019
Bonds 2019–2024 0.3% coupon	nominal value	280,000	280,000
	premium on issuance	75	96
Bonds 2019–2029 1.0% coupon	nominal value	170,000	170,000
	premium on issuance	176	196
Bonds 2011–2021 2.25% coupon	nominal value	350,000	350,000
Loan 2016-2024 USD 400 million (in 2019 USD 425 million)		352,420	411,485
Total		**1’152’671**	**1,211,777**

In February 2019, the Company issued the following bonds: (i) CHF 280 million 0.3% bonds due 2024 and (ii) CHF 170 million 1.0% bonds due 2029. Each of the respective bonds pays interest annually in arrears in August and May respectively. The Company has the option, one month before their maturity date in case of the 2024 bonds and three months before their maturity date in the case of the 2029 bonds, to redeem the bonds, in whole but not in part, at par plus accrued interest.

The 2.25% bonds, due 2021, also pay interest annually in arrears, at a fixed annual rate of 2.25%. The Company has, through ABB Corporate Treasury Operations, entered into an interest rate swap with a bank to effectively convert the bonds maturing 2021 into floating rate obligations. The interest swap is treated as an off-balance sheet item and is therefore not recorded.

The Company has the option to redeem all the above bonds prior to maturity, in whole but not in part only, at par plus accrued interest, if 85% of the aggregate principle amount of the relevant bond issue has been redeemed or purchased and cancelled at the time of the option exercise notice.

Bonds are accreted/amortized to par over the period to maturity. The bonds, issued prior to January 1, 2013, are stated at their nominal value less any discount or plus any premium on issuance.

In 2016, the Company entered into a borrowing agreement of USD 500 million with ABB Corporate Treasury Operations due in 2024 (with an amortization schedule of USD 25 million per annum) to hedge the USD 500 million loan granted to a Group company. In 2020 and 2019, the Company repaid USD 25 million in each year. The average interest in 2020 and 2019 was 1.89% and 3.40%, respectively.

In March 2020, the Company entered into a bank-funded short term EUR 2 billion Revolving Credit Agreement (the “Agreement”). This Agreement was in addition to the Group Facility referred to in Note 5. Under this Agreement, outstanding amounts were subject to interest at the rate of EURIBOR plus a margin of 0.25%. The Company requested the full amount to be borrowed and the proceeds were received on March 31, 2020, amounting to EUR 2,000 million (CHF 2,115 million). The Company terminated the Agreement on July 8, 2020 after repaying the amount then outstanding.

Note 5
Contingent liabilities

The Company has issued a support letter to a surety institution for the issuance of surety bonds on behalf of Group companies. The amount issued under this letter was CHF 889.9 million as of December 31, 2020 and CHF 726.2 million as of December 31, 2019.

With certain Group companies, the Company has keep-well agreements. A keep-well agreement is a shareholder agreement between the Company and a Group company. These agreements provide for maintenance of a minimum net worth in the Group company and the maintenance of 100% direct or indirect ownership by the Company.

The keep-well agreements additionally provide that if at any time the Group company has insufficient liquid assets to meet any payment obligation on its debt (as defined in the agreements) and has insufficient unused commitments under its credit facilities with its lenders, the Company will make available to the Group company sufficient funds to enable it to fulfill such payment obligation as it falls due. A keep-well agreement is not a guarantee by the Company for payment of the indebtedness, or any other obligation, of a Group company. No party external to the ABB Group is a party to any keep-well agreement.

The Company has also provided certain guarantees securing the performance of Group companies in connection with commercial paper programs, indentures or other debt instruments to enable them to fulfill the payment obligations under such instruments as they fall due. The amount guaranteed under these instruments was CHF 4,144.0 million as of December 31, 2020 and CHF 7,605.6 million as of December 31, 2019.

Additionally, the Company has provided certain guarantees securing the performance of contracts and undertakings of Group companies with third parties entered into in the normal course of business of an aggregate value of CHF 70.3 million as per December 31, 2020 and CHF 77.0 million as per December 31, 2019.

Furthermore, the Company is the guarantor in the Group’s USD 2 billion multicurrency revolving credit facility (“Group Facility”). In December 2019, the Group Facility maturing in 2021 was replaced with a new Group Facility maturing in 2024, with the option in 2020 and 2021 to extend the maturity to 2025 and 2026, respectively. The Company exercised its option in 2020 to extend the maturity of the facility to 2025. No amounts were outstanding at December 31, 2020 and 2019.

The Company through certain of its direct and indirect subsidiaries is involved in various regulatory and legal matters. The Company’s direct and indirect subsidiaries have made certain related provisions as further described in “Note 15 Commitments and contingencies” to the Consolidated Financial Statements of ABB Ltd. As described in the note, there is a risk of adverse outcomes beyond the provisioned amounts.

The Company is part of a value added tax Group and therefore is jointly liable to the Swiss Federal Tax Department for the value added tax liabilities of the other members.

Note 6
Stockholders' equity

		Legal reserves			Free reserves			
(CHF in thousands)	Share capital	from capital contri-bution	Other reserves	from retained earnings	from retained earnings	Net income	Own shares	Total
Opening balance as of January 1, 2020	**260,178**	**30,430**	**—**	**1,000,000**	**6,690,847**	**1,198,371**	**(760,237)**	**8,419,589**
Allocation to retained earnings					1,198,371	(1,198,371)		—
Dividend payment CHF 0.80 per share					(1,343,391)			(1,343,391)
Release to other reserves		(30,430)	30,430					—
Purchases of own shares							(2,890,725)	(2,890,725)
Delivery of own shares							421,953	421,953
Net income for the year						4,455,507		4,455,507
Closing balance as of December 31, 2020	**260,178**	**—**	**30,430**	**1,000,000**	**6,545,827**	**4,455,507**	**(3,229,009)**	**9,062,933**

Share capital as of December 31, 2020	Number of registered shares	Par value (CHF)	Total (CHF in thousands)
Issued shares	2,168,148,264	0.12	260,178
Contingent shares	304,038,800	0.12	36,485
Authorized shares	200,000,000	0.12	24,000
Share capital as of December 31, 2019	**Number of registered shares**	**Par value (CHF)**	**Total (CHF in thousands)**
Issued shares	2,168,148,264	0.12	260,178
Contingent shares	304,038,800	0.12	36,485
Authorized shares	200,000,000	0.12	24,000

The own shares are valued at acquisition cost. During 2020 and 2019, a loss from the delivery of own shares of CHF 13.9 million and CHF 2.7 million, respectively, was recorded in the Income Statement under Finance expense.

During 2020, a bank holding call options related to ABB Group's management incentive plan (MIP) exercised a portion of these options. Such options had been issued in 2014 by the Group company that facilitates the MIP at fair value and had a strike price of CHF 21.00. At issuance, the Group company had entered into an intercompany option agreement with the Company, having the same terms and conditions to enable it to meet its future obligations. As a result of the exercise by the bank, the Company delivered 16,431,565 shares at CHF 21.00, out of own shares. During 2019, no call options related to ABB Group's management incentive plan, were exercised.

The ABB Group has an annual employee share acquisition plan (ESAP) which provides share options to employees globally. To enable the Group company that facilitates the ESAP to deliver shares to employees who have exercised their stock options, the Group company entered into an agreement with the Company to acquire the required number of shares at their then market value from the Company. Consequently, in 2020, the Company delivered, out of own shares, to the Group company 1,149,891 shares at CHF 24.91 and 237,259 shares at USD 27.27. In 2019, the Company delivered, out of own shares, to the Group company 396,323 shares at CHF 21.92 and 78,591 at USD 22.21.

In 2020 and 2019, the Company transferred 1,389,715 and 1,063,791 own shares at an average acquisition price per share of CHF 21.97 and CHF 21.94, respectively, to fulfill its obligations under other share-based arrangements.

In 2020, the Company purchased 13.0 million shares, for CHF 312.4 million, to support its employee share programs globally and 108.8 million shares, for CHF 2,578.3 million, as part of its share buyback program for capital reduction purposes as publicly disclosed on July 22, 2020. During 2019 there was no purchase of shares by the Company.

The movement in the number of own shares during the year was as follows:

	2020		2019	
	Number of shares	Average acquisition price per share (in CHF)	Number of shares	Average acquisition price per share (in CHF)
Opening balance as of January 1	**34,647,153**	**21.94**	**36,185,858**	**21.94**
Purchases for employee share programs	13,046,013	23.95	—	—
Purchases for intended cancellation	108,829,359	23.69	—	—
Delivery for employee share programs	(19,208,430)	21.97	(1,538,705)	21.94
Closing balance as of December 31	**137,314,095**	**23.52**	**34,647,153**	**21.94**
Thereof pledged for MIP	9,866,402		11,881,394	

Note 7
Dividend income

The Company received in 2020, dividend payments from ABB Asea Brown Boveri Ltd of CHF 1.3 billion in cash and CHF 6.7 billion in kind (see note 2). The Company received in 2019, a dividend payment from ABB Asea Brown Boveri Ltd of CHF 1.2 billion in cash.

Note 8
Other operating income

Other operating income includes mainly outgoing charges for Business Area and Division management services, income from share deliveries and guarantee compensation fees to Group companies.

Note 9
Significant shareholders

Investor AB, Sweden, held 265,385,142 ABB Ltd shares as of December 31, 2020 and 254,915,142 ABB Ltd shares as of December 31, 2019 respectively. This corresponds to 12.24 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2020 and 11.76 as of December 31, 2019.

Pursuant to its disclosure notice, Cevian Capital II GP Limited, Channel Islands, announced that, on behalf of its general partners it held 105,988,662 ABB Ltd shares as of August 30, 2020 and 115,868,333 ABB Ltd shares as of September 8, 2017 which corresponds to 4.89 and 5.34 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2020 and 2019, respectively.

Pursuant to its disclosure notice, BlackRock, Inc., USA, disclosed that, as per August 31, 2017, it, together with its direct and indirect subsidiaries, held 72,900,737 ABB Ltd shares. This corresponds to 3.36 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2020 and 2019, respectively.

Pursuant to its disclosure notice, The Capital Group Companies, Inc., USA, disclosed that, as per April 4, 2020, it, together with its direct and indirect subsidiaries, held 65,680,803 ABB Ltd shares. This corresponds to 3.03 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2020. The Capital Group Companies, Inc., USA did not hold 3 percent or more of ABB Ltd's total share capital and voting rights on December 31, 2019.

Pursuant to its disclosure notice, Artisan Partners Limited Partnership, USA, disclosed that, as per April 10, 2019, it, together with its direct and indirect subsidiaries, held 65,721,454 ABB Ltd shares. This corresponds to 3.03 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2019. Artisan Partners Limited Partnership, USA does not hold 3 percent or more of ABB Ltd's total share capital and voting rights on December 31, 2020.

To the best of the Company's knowledge, no other shareholder holds 3 percent or more of ABB Ltd's total share capital and voting rights on December 31, 2020 and 2019, respectively.

Note 10
Shareholdings of Board and Executive Committee

At December 31, 2020 and 2019, the members of the Board of Directors as of that date, held the following numbers of shares (or American Depository Shares (ADSs) representing such shares):

Board ownership of ABB shares (audited)	Total number of shares held	
Name	December 31, 2020	December 31, 2019
Peter Voser[1]	314,648	260,175
Jacob Wallenberg	234,246	226,021
Matti Alahuhta	93,408	51,466
Gunnar Brock	26,951	14,635
David Constable	33,978	27,581
Frederico Curado	32,382	21,298
Lars Förberg	49,992	35,499
Jennifer Xin-Zhe Li	33,721	8,319
Geraldine Matchett	19,800	11,919
David Meline[2]	33,774	25,463
Satish Pai	24,618	19,047
Total	**897,518**	**701,423**

(1) Includes 2,000 shares held by spouse.
(2) Includes 3,150 shares held by spouse.

At December 31, 2020, the members of the Executive Committee, as of that date, held the following number of shares (or ADSs representing such shares), the conditional rights to receive ABB shares under the Long-term Incentive Plan (LTIP) and options (either vested or unvested as indicated) under the MIP and unvested shares in respect of other compensation arrangements.

		Vested at December 31, 2020	Unvested at December 31, 2020						
	Total number of shares held at December 31, 2020	Number of vested options held under the MIP	Number of unvested options held under the MIP	Reference number of shares deliverable under the 2018 performance components (EPS and TSR) of the LTIP[1]	Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP[1]	Reference number of shares deliverable under the 2020 performance factors (EPS and TSR) of the LTIP[1]	Replacement share grant for foregone benefits from former employer[2]	Replacement share grant for foregone benefits from former employer[2]	Replacement share grant for foregone benefits from former employer[2]
Name			**(vesting 2021/ 2022)**	**(vesting 2021)**	**(vesting 2022)**	**(vesting 2023)**	**(vesting 2021)**	**(vesting 2022)**	**(vesting 2023)**
Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020)	5,000	—	—	—	—	131,715	—	130,150	18,904
Timo Ihamuotila	171,610	—	—	37,217	49,071	49,071	—	—	—
Sylvia Hill	2,265	796,875	318,750	—	36,158	37,707	—	—	—
Maria Varsellona	—	—	—	—	41,323	41,323	40,010	40,009	—
Theodor Swedjemark (EC member as of August 1, 2020)[3]	480	102,000	250,750	—	—	6,209	—	—	—
Sami Atiya	42,778	—	—	23,301	49,587	41,323	—	—	—
Tarak Mehta	179,636	—	—	34,790	44,422	46,488	—	—	—
Peter Terwiesch	142,338	—	—	37,379	41,323	41,323	—	—	—
Morten Wierod	1,544	—	—	15,292	36,158	38,740	—	—	—
Total Executive Committee members at December 31, 2020	**545,651**	**898,875**	**569,500**	**147,979**	**298,042**	**433,899**	**40,010**	**170,159**	**18,904**

(1) The final LTIP 2018 award and LTIP 2019 award will be settled 65 percent in shares and 35 percent in cash. This applies to both performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares. The final LTIP 2020 award will be settled 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes.

(2) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.

(3) In addition, his spouse holds unvested shares and options granted in connection with her role in the company.

At December 31, 2019, the members of the Executive Committee, as of that date, held the following number of shares (or ADSs representing such shares), the conditional rights to receive ABB shares under the LTIP and options (either vested or unvested as indicated) under the MIP and unvested shares in respect of other compensation arrangements.

		Vested at December 31, 2019	Unvested at December 31, 2019					
	Total number of shares held at December 31, 2019	Number of vested options held under the MIP	Number of unvested options held under the MIP	Reference number of shares deliverable under the 2017 performance components (P1 and P2) of the LTIP[1]	Reference number of shares deliverable under the 2018 performance factors (EPS and TSR) of the LTIP[2]	Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP[2]	Replacement share grant for foregone benefits from former employer[3]	Replacement share grant for foregone benefits from former employer[4]
Name			(vesting 2020/2021)	(vesting 2020)	(vesting 2021)	(vesting 2022)	(vesting 2020)	(vesting 2021/2022
Timo Ihamuotila	64,572	—	—	41,000	37,217	49,071	76,628	—
Sylvia Hill (EC member as of June 1, 2019)	2,265	743,750	584,375	—	—	36,158	—	—
Maria Varsellona (EC member as of November 1, 2019)	—	—	—	—	—	41,323	—	80,019
Frank Duggan	269,846	—	—	34,984	31,756	41,323	—	—
Chunyuan Gu	45,577	—	—	31,196	33,981	36,158	—	—
Sami Atiya	24,435	—	—	34,735	23,301	49,587	—	—
Tarak Mehta	212,869	—	—	34,494	34,790	44,422	—	—
Claudio Facchin	163,219	—	—	39,076	26,214	41,839	—	—
Peter Terwiesch	122,242	—	—	37,147	37,379	41,323	—	—
Morten Wierod (EC member as of April 1, 2019)	1,064	398,440	—	—	15,292	36,158	—	—
Total Executive Committee members at December 31, 2019 [5]	**906,089**	**1,142,190**	**584,375**	**252,632**	**239,930**	**417,362**	**76,628**	**80,019**

(1) The LTIP 2017 foresees that 70 percent are settled in shares and 30 percent in cash for the performance components (P1 and P2). However, participants have the possibility to elect to receive 100 percent of the vested award in shares.
(2) It is expected that the LTIP 2018 and 2019 will be settled 65 percent in shares and 35 percent in cash for the performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.
(3) The replacement share grant was settled 100 percent in shares.
(4) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participant has the possibility to elect to receive 100 percent of the vested award in shares.
(5) Departing Executive Committee members are not included in this table.

Note 11
Full time employees

During 2020 and 2019, the Company employed on average 19 and 23 employees, respectively.

Proposed appropriation of available earnings

Proposed appropriation of retained earnings (CHF in thousands)	**2020**	**2019**
Net income for the year	4,455,507	1,198,371
Carried forward from previous year	6,545,827	6,690,847
Retained earnings available to the Annual General Meeting	**11,001,334**	**7,889,218**
Gross dividend of CHF 0.80 per share on total number of registered shares[1]	(1,734,519)	(1,343,391)
Balance to be carried forward	**9,266,815**	**6,545,827**

(1) No dividend will be paid on own shares held by ABB Ltd. Shareholders who are resident in Sweden participating in the established dividend access facility will receive an amount in Swedish kronor from ABB Participation AB which corresponds to the dividend resolved on a registered share of ABB Ltd without deduction of the Swiss withholding tax. This amount however is subject to taxation according to Swedish law.

On February 4, 2021, the Company announced that the Board of Directors will recommend for approval at the March 25, 2021, Annual General Meeting that a dividend of CHF 0.80 per share be distributed out of the retained earnings available, to be paid in March 2021 and in April 2021 for residents in Sweden participating in the dividend access facility.

Report of the Statutory Auditor

To the General Meeting of ABB Ltd, Zurich

Report of the Statutory Auditor on the Financial Statements

As statutory auditor, we have audited the accompanying financial statements of ABB Ltd, which comprise the balance sheet, income statement and notes to financial statements (pages 231 to 241) for the year ended December 31, 2020.

Board of Directors' Responsibility

The Board of Directors is responsible for the preparation of the financial statements in accordance with the requirements of Swiss law and the company's articles of incorporation. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation of financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Swiss law and Swiss Auditing Standards. Those standards require that we plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers the internal control system relevant to the entity's preparation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control system. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements for the year ended December 31, 2020 comply with Swiss law and the company's articles of incorporation.

Report on Key Audit Matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. We have determined that there are no key audit matters to communicate in our report.

Report on Other Legal Requirements

We confirm that we meet the legal requirements on licensing according to the Auditor Oversight Act (AOA) and independence (article 728 CO and article 11 AOA) and that there are no circumstances incompatible with our independence.

In accordance with article 728a paragraph 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of financial statements according to the instructions of the Board of Directors.

We further confirm that the proposed appropriation of available earnings complies with Swiss law and the company's articles of incorporation. We recommend that the financial statements submitted to you be approved.

KPMG AG

Hans-Dieter Krauss

Licensed Audit Expert
Auditor in Charge

Mohammad Nafeie

Zurich, February 25, 2021

06 Supplemental information

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Supplemental information

The following are definitions of key financial measures used to evaluate ABB's operating performance. These financial measures are referred to in this Annual Report and are not defined under United States generally accepted accounting principles (U.S. GAAP).

While ABB's management believes that the non-GAAP financial measures herein are useful in evaluating ABB's operating results, this information should be considered as supplemental in nature and not as a substitute for the related financial information prepared in accordance with U.S. GAAP.

For a full reconciliation of ABB's non-GAAP measures, please refer to Supplemental Reconciliations and Definitions, ABB Q4 2020 Financial Information on global.abb/group/en/investors/results-and-reports/2020.

Comparable growth rates

Growth rates for certain key figures may be presented and discussed on a "comparable" basis. The comparable growth rate measures growth on a constant currency basis. Since we are a global company, the comparability of our operating results reported in U.S. dollars is affected by foreign currency exchange rate fluctuations. We calculate the impacts from foreign currency fluctuations by translating the current-year periods' reported key figures into U.S. dollar amounts using the exchange rates in effect for the comparable periods in the previous year.

Comparable growth rates are also adjusted for changes in our business portfolio. Adjustments to our business portfolio occur due to acquisitions, divestments, or by exiting specific business activities or customer markets. The adjustment for portfolio changes is calculated as follows: where the results of any business acquired or divested have not been consolidated and reported for the entire duration of both the current and comparable periods, the reported key figures of such business are adjusted to exclude the relevant key figures of any corresponding quarters which are not comparable when computing the comparable growth rate. Certain portfolio changes which do not qualify as divestments under U.S. GAAP have been treated in a similar manner to divestments. Changes in our portfolio where we have exited certain business activities or customer markets are adjusted as if the relevant business was divested in the period when the decision to cease business activities was taken. We do not adjust for portfolio changes where the relevant business has annualized revenues of less than $50 million.

Operational EBITA margin

Operational EBITA margin

Operational EBITA margin is Operational EBITA as a percentage of Operational revenues.

Operational EBITA

Operational earnings before interest, taxes and acquisition-related amortization (Operational EBITA) represents Income from operations excluding:

- acquisition-related amortization (as defined below),
- restructuring, related and implementation costs (as defined below),
- changes in the amount recorded for obligations related to divested businesses occurring after the divestment date (changes in obligations related to divested businesses),
- changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates),
- gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale),
- acquisition- and divestment-related expenses and integration costs,
- other income/expense relating to the Power Grids joint venture,
- certain other non-operational items, as well as
- foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

Certain other non-operational items generally includes: certain regulatory, compliance and legal costs, certain asset write downs/impairments (including impairment of goodwill) and certain other fair value changes, as well as other items which are determined by management on a case-by-case basis.

Operational EBITA is our measure of segment profit but is also used by management to evaluate the profitability of the Company as a whole.

Acquisition-related amortization

Amortization expense on intangibles arising upon acquisitions.

Restructuring, related and implementation costs

Restructuring, related and implementation costs consists of restructuring and other related expenses, as well as internal and external costs relating to the implementation of group-wide restructuring programs.

Other income/expense relating to the Power Grids joint venture

Other income/expense relating to the Power Grids joint venture consists of amounts recorded in Income from continuing operations before taxes relating to the divested Power Grids business including the income/loss under the equity method for the investment in Hitachi ABB Power Grids Ltd. (Hitachi ABB PG), amortization of deferred brand income as well as changes in value of other obligations relating to the divestment.

Operational revenues

We present Operational revenues solely for the purpose of allowing the computation of Operational EBITA margin. Operational revenues are total revenues adjusted for foreign exchange/commodity timing differences in total revenues of: (i) unrealized gains and losses on derivatives, (ii) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (iii) unrealized foreign exchange movements on receivables (and related assets). Operational revenues are not intended to be an alternative measure to Total revenues, which represent our revenues measured in accordance with U.S. GAAP.

Operational EPS

Operational EPS

Operational EPS is calculated as Operational net income divided by the weighted-average number of shares outstanding used in determining basic earnings per share.

Operational net income

Operational net income is calculated as Net income attributable to ABB adjusted for the following: (i) acquisition-related amortization, (ii) restructuring, related and implementation costs, (iii) non-operational pension cost (credit), (iv) gains/losses from extinguishment of debt (v) changes in obligations related to divested businesses, (vi) changes in pre-acquisition estimates, (vii) gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale), (viii) acquisition- and divestment-related expenses and integration costs, (ix) other income/expense relating to the Power Grids joint venture, (x) certain other non-operational items, (xi) foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities), (xii) the amount of income tax on operational adjustments either estimated using the Adjusted Group effective tax rate or in certain specific cases, computed using the actual income tax effects of the relevant item in (i) to (xi) above, and (xiii) certain other non-operational amounts recorded within income tax expense.

Adjustment for certain non-operational amounts recorded within Income tax expense

Adjustments are made for certain amounts recorded within Income tax expense primarily when the amount recorded has no corresponding underlying transaction recorded within income from continuing or discontinued operations before taxes. This would include the amounts recorded in connection with internal reorganizations of the corporate structure of the Company.

Adjusted Group effective tax rate

The Adjusted Group effective tax rate is computed by dividing a combined adjusted income tax expense (for both continuing and discontinued operations) by a combined adjusted pre-tax income (from both continuing and discontinued operations). Certain amounts recorded in income before taxes and the related income tax expense (primarily gains and losses from sale of businesses) are excluded to arrive at the computation. Amounts recorded in income tax expense for certain non-operational items are also excluded from the computation of the Adjusted Group effective tax rate.

Constant currency Operational EPS adjustment and Operational EPS growth rate (constant currency)

We compute the constant currency operational net income using the relevant monthly exchange rates which were in effect during 2019 and any difference in computed Operational net income is divided by the relevant weighted-average number of shares outstanding to identify the constant currency Operational EPS adjustment.

Free cash flow conversion to net income

Free cash flow conversion to net income

Free cash flow conversion to net income is calculated as free cash flow divided by Adjusted net income attributable to ABB.

Adjusted net income attributable to ABB

Adjusted net income attributable to ABB is calculated as net income attributable to ABB adjusted for: (i) impairment of goodwill, (ii) losses from extinguishment of debt, and (iii) gain on the sale of the Power Grids business included in discontinued operations.

Free cash flow

Free cash flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, and (ii) proceeds from sales of property, plant and equipment.

Return on Capital employed (ROCE)

Return on Capital employed (ROCE)

Return on Capital employed is calculated as Operational EBITA after tax, divided by the average of the period's opening and closing Capital employed, adjusted to reflect impacts from significant acquisitions/divestments occurring during the same period.

Capital employed

Capital employed is calculated as the sum of Adjusted total fixed assets and Net working capital (as defined below).

Adjusted total fixed assets

Adjusted total fixed assets is the sum of (i) property, plant and equipment, net, (ii) goodwill, (iii) intangible assets, net, (iv) investments in equity-accounted companies, and (v) operating lease right-of-use assets, less (vi) deferred tax liabilities recognized in certain acquisitions.

Net working capital

Net working capital is the sum of (i) receivables, net, (ii) contract assets, (iii) inventories, net, and (iv) prepaid expenses; less (v) accounts payable, trade, (vi) contract liabilities, and (vii) other current liabilities (excluding primarily: (a) income taxes payable, (b) current derivative liabilities, and (c) pension and other employee benefits), (d) payables under the share buyback program and (e) liabilities related to the divestment of the Power Grids business); and including the amounts related to these accounts which have been presented as either assets or liabilities held for sale but excluding any amounts included in discontinued operations.

Notional tax on Operational EBITA

The Notional tax on Operational EBITA is computed using an Adjusted Group effective tax rate applicable to continuing operations. The rate applied is computed as described above in Operational EPS and excludes any impacts from discontinued operations.

Book-to-bill ratio

Book-to-bill ratio is calculated as Orders received divided by Total revenues.

Parts of the ABB annual report 2020 have been translated into German. Please note that the English-language version of the ABB annual report is the binding version.

Caution concerning forward-looking statements
The ABB annual report 2020 includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. We have based these forward-looking statements largely on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions as well as the economic conditions of the regions and the industries that are major markets for ABB. The words "believe," "may," "will," "estimate," "continue," "target," "anticipate," "intend," "expect", "plan" and similar words and the express or implied discussion of strategy, plans or intentions are intended to identify forward-looking statements. These forward-looking statements are subject to risks, uncertainties and assumptions, including among other things, the following: (i) business risks related to the global volatile economic environment; (ii) costs associated with compliance activities; (iii) difficulties encountered in operating in emerging markets; (iv) risks inherent in large, long term projects served by parts of our business; (v) the timely development of new products, technologies, and services that are useful for our customers; (vi) our ability to anticipate and react to technological change and evolving industry standards in the markets in which we operate; (vii) changes in interest rates and fluctuations in currency exchange rates; (viii) changes in raw materials prices or limitations of supplies of raw materials; (ix) the weakening or unavailability of our intellectual property rights; (x) industry consolidation resulting in more powerful competitors and fewer customers; (xi) effects of competition and changes in economic and market conditions in the product markets and geographic areas in which we operate; (xii) effects of, and changes in, laws, regulations, governmental policies, taxation, or accounting standards and practices and (xiii) other factors described in documents that we may furnish from time to time with the US Securities and Exchange Commission, including our Annual Reports on Form 20-F. Although we believe that the expectations reflected in any such forward-looking statements are based on reasonable assumptions, we can give no assurance that they will be achieved. We undertake no obligation to update publicly or revise any forward-looking statements because of new information, future events or otherwise. In light of these risks and uncertainties, the forward-looking information, events and circumstances might not occur. Our actual results and performance could differ substantially from those anticipated in our forward-looking statements.

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