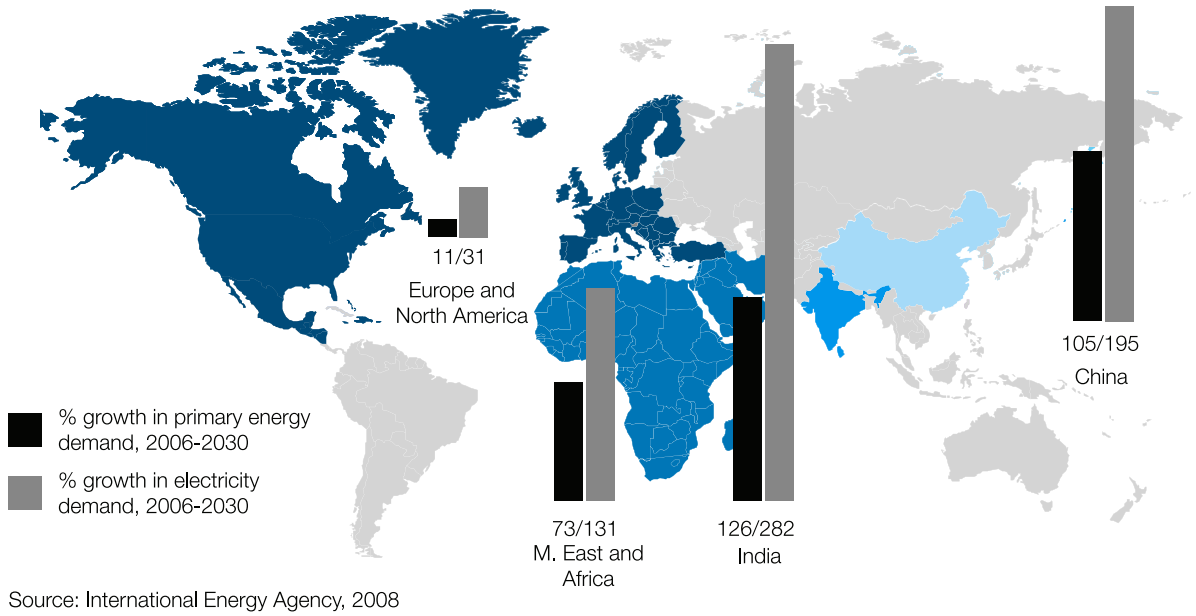
The energy and climate challenge



Source: International Energy Agency, 2008

The world is facing a serious energy challenge; how to provide secure power supplies in the face of fast-growing demand and rising concern for the environment.

The economic downturn might slow the pace of growth in energy consumption in the medium term, but won't eliminate the demand. The International Energy Agency expects demand to rise 45 percent between 2007 and 2030.[1]

Global electricity consumption is set to grow nearly twice as fast as overall energy demand and will almost double by 2030, the IEA says. China alone is expected to triple electricity consumption.

Of particular concern is that CO_2 emissions will grow at the same pace as energy demand unless some dramatic changes are made in the way we produce and use energy.

Concern about the effect of this growth on climate change, security of supplies and energy prices has brought energy issues to the top of the public agenda.

The European Union has pledged to cut emissions by 20 percent by 2020,[2] and in the U.S., the new Obama administration stated its aim "to reduce greenhouse gas emissions 80 percent by 2050." International negotiations are underway for a global treaty to tackle climate change.

Where the savings can be achieved

Climate scientists say that containing global warming will require greenhouse gas levels in the atmosphere to be frozen at around today's levels.[3] This means annual emissions would have to be cut to half what they were in 2000 by 2050, the IEA says.

The IEA has mapped out how this could be achieved, as well as an alternative scenario under which emissions are trimmed less aggressively. In either scenario, energy efficiency will contribute more than half of savings (see chart below).

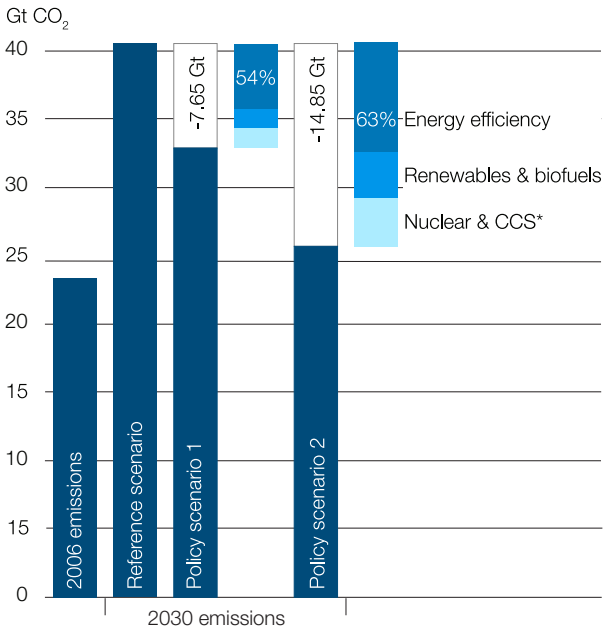
1 World Energy Outlook, International Energy agency, 2008. Unless otherwise indicated, all data in this document are taken from this source.

2 Compared with 1990 levels. See conclusions of Brussels European Council, March 2007

3 IPCC Fourth Assessment Report, Intergovernmental Panel on Climate Change, 2007

ABB Ltd Media Relations P.O. Box 8131, CH-8050 Zürich, Switzerland
Phone: +41 (0) 43 317 6568 | Fax: +41 (0) 43 317 7958 | www.abb.com

IEA scenarios for reducing global carbon emissions



Reference scenario: current energy policies
Policy scenario 1: aims to cut emissions to year 2000 levels by 2050
Policy scenario 2: aims to cut emissions to 50 percent of 2000 levels by 2050
Source: International Energy Agency, World Energy Outlook 2008
*CCS carbon capture storage

Energy efficiency – the low-hanging fruit

Using energy more efficiently will not only contribute the lion's share of the emissions reductions needed, it is arguably the fastest, most sustainable and cheapest way to reduce emissions and enhance global energy security.[4]

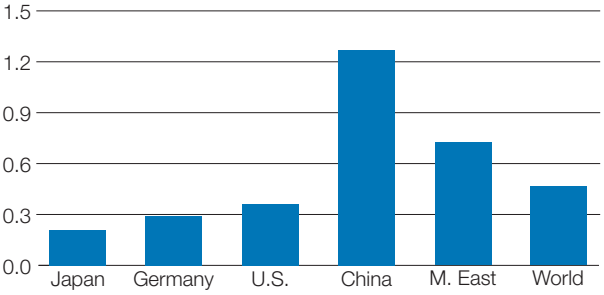
Variations in energy efficiency across the world give a sense of what can be achieved with today's technologies. The most efficient economies generate almost six times more GDP with the same amount of energy than the least efficient (see chart opposite).

The key advantages of existing energy-efficient technologies are that they are tried and tested, and investment payback times are short. They provide the opportunity to save energy and reduce environmental impact, without compromising economic development.

Renewable energy

Power generation from renewable sources of energy is set to expand rapidly until 2030. The required technologies are maturing and becoming more competitive, concern is growing about the cost and the security of fossil-fuel supplies, and policy support for renewable energy schemes is gathering strength.

Primary energy used to produce $1,000 GDP
metric tons of oil equivalent (toe)



Source: international Energy Agency, Key World Energy Statistics, 2008 (figures from 2006)

The IEA projects total cumulative investment in renewable energy supply from 2007 to 2030 will amount to $5.5 trillion, representing about half of all projected investments in electricity generation during this period. As a result, global electricity generation from renewable sources is projected to double by 2030.

The ABB contribution

Energy efficiency and renewable energy are the two areas in which ABB technology can contribute most, and are the focus of this information pack.

4 Closing statement of G8 Summit, June 2007

ABB and energy efficiency

What would you do if you only had access to 20 percent of your salary? Or if 80 percent of the food you purchased each week spoiled, and had to be thrown away?

Something like this is happening to our primary energy sources, the raw materials on which our way of life depends. The process of finding and harvesting primary energy resources (such as oil, coal and natural gas), refining them, transporting them, turning them into electricity and delivering it to consumers is only about 20 percent effective.

Many of the losses are unavoidable but significant improvements in efficiency can be made.

As the global leader in power transmission and distribution technology, and a leading automation company, ABB can help achieve energy savings at every step of the energy chain, from harvesting primary energy through transportation and processing to power generation, delivery and ultimate end-use.

By reducing power consumption and losses, improving productivity and managing electrical equipment more effectively, ABB technologies can reduce the waste of energy and more than double the current productivity of the energy value chain.

Moreover, ABB is the market leader for key energy-saving technologies in emerging economies, where the energy-efficiency need and potential is greatest. In China and India, ABB is the market leader for power transmission and distribution technology and a leading supplier to fledgling industrial sectors.

Our customers are utilities in power generation, transmission and distribution, and we are also a leading automation and power technology supplier to all industries, including the transportation sector.

The sections below outline how ABB technologies and solutions help save energy at each step of the energy value chain.

ABB technology reduces energy losses across the energy chain

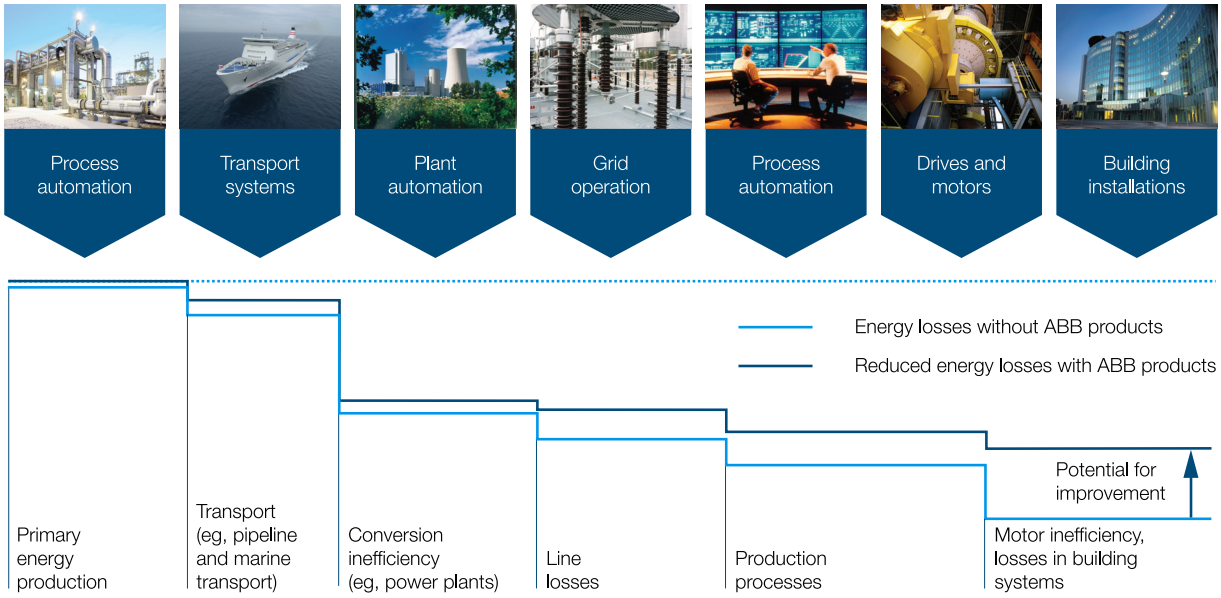


ABB Ltd Media Relations P.O. Box 8131, CH-8050 Zürich, Switzerland
Phone: +41 (0) 43 317 6568 | Fax: +41 (0) 43 317 7958 | www.abb.com

Energy efficiency in primary energy production

ABB helps companies recovering primary energy resources, such as oil, gas and coal, to run their operations more efficiently and use less energy to extract and deliver these products to customers.

In coal mining, efficient motors and drives for hoist systems and conveyor belts can bring cost and efficiency improvements.

A standard liquefied natural gas (LNG) processing plant powered by ABB electric drives saves nearly $100 million annually compared to the conventional gas turbine alternative. Other benefits include improved energy efficiency, maintenance cycles, uptime and lower emissions: an LNG plant with a capacity of 6.25 million metric tons a year would reduce its annual CO_2 emissions by 360,000 metric tons.

For StatoilHydro, ABB provided a 70-kilometer long, high-efficiency underwater power link that delivers emissions-free hydroelectricity from the Norwegian mainland to the Troll A gas platform in the North Sea. High-voltage direct current (HVDC) technology and high-efficiency motors driving gas delivery equipment have helped slash CO_2 emissions at the platform by 130,000 metric tons per year.

ABB technologies can also improve the recovery rates of primary energy extraction. Our subsea electrification solutions can keep compressor motors running on the seabed, extending the life of oil and gas fields and improving the efficiency of extraction.

Energy efficiency in transport

Oil and gas is delivered by land and sea - in pipelines or in tankers. LNG exports are expected to triple by 2030, and already Western Europe and North America are increasingly importing liquefied natural gas (LNG) in tankers.

ABB technology can help lower energy losses and reduce CO_2 emissions on land and sea. ABB Azipod ship propulsion systems reduce fuel consumption by up to 15 percent. ABB also supplies connections so that vessels in port can get electricity from shore rather than generate their own power on board, helping reduce CO_2 and other emissions.

More than half the world's tankers, container ships, diesel power stations and mining vehicles are fitted with high-performance ABB diesel engine turbochargers, helping them increase engine power output by up to 300 percent.

Pipeline operators manage flows and detect leaks with energy-efficient ABB solutions that combine compressors, drives, instruments and control systems to pump gas through thousands of kilometers of pipelines. Five ABB compressor stations as well as control, automation and electrical systems support the 4,000-kilometer Yamal pipeline, bringing natural gas from western Siberia to western Europe.

Energy efficiency in power generation

For electrical generation, ABB systems improve the efficiency of fuel combustion, boiler operations and energy consumption in support operations.

Coal is still the main fuel of power generation. Since 1970, the average efficiency of coal-fired power plants has improved by about 20 percent. On average, the efficiency of the process that turns coal into electricity is now 40 percent, while a modern combined heat and power plant (cogeneration plant or CHP) that uses heat produced during power generation to warm nearby buildings can achieve an efficiency of as much as 85 percent.

Enel's Torrevaldaliga clean-coal power plant in Italy. The plant is equipped with ABB control systems and electrical equipment, which help to increase efficiency from 39 to 45 percent

ABB has designed and commissioned CHP projects around the world. One is at the heart of a district heating system in China that takes heat normally wasted in a cooling tower and uses it to heat homes for about one million people, reducing CO_2 emissions by 500,000 metric tons and SO_2 emissions by 2,200 metric tons annually.

ABB supplies all the electric and automation equipment for power plants except for turbines and boilers. ABB's power combustion software and precise boiler control systems are helping

to minimize losses and better use primary fuel sources by operating the process very close to its limits.

The new 750-megawatt “Walsum 10” coal-fired power plant will be the most efficient in Germany when it goes live in 2010 thanks to ABB’s optimized equipment and monitoring systems, which will help it feed more electricity into the grid than other generating units that use the same amount of fuel.

Energy efficiency in power transmission

Electricity is sent through transmission and distribution systems to end users who are often hundreds or even thousands of kilometers away. Losses typically range from 6 to 8 percent, but can be as high as 10 percent.

Current technology can save substantial amounts of electricity and increase the capacity of transmission and distribution networks by 16 percent, so more power can reach consumers over existing networks, instead of building new transmission lines and power plants. China increased capacity of a transmission corridor into Beijing by 40 percent using one of these transmission technologies.

The EU commission estimates network losses in the European Union can be cut by up to 48 million megawatt-hours annually with currently available technology, an amount equal to the power consumption of 13 million EU households.

ABB’s 800 kV ultrahigh-voltage DC transformer - a key component for long-distance, bulk power transmission systems - will be used in world’s longest power transmission link in China

ABB is the recognized global leader in sophisticated power transmission and distribution technologies, such as high-voltage direct current (HVDC) electrical transmission and high-efficiency power and distribution transformers, which significantly reduce power losses.

In China, ABB’s HVDC technology will help cut consumption of raw coal by 40 to 50 million metric tons per year, and eliminate 100 million metric tons of carbon dioxide emissions. Power for Shanghai generated more than 1,000 kilometers away at the Three Gorges hydropower station is sent to the city over two HVDC transmission lines, which save enough electricity per line to power more than 150,000 households.

ABB’s ultrahigh-voltage direct current (UHVDC) technology can save about 30 percent of transmission losses on very long power transmission distances above 1,500 kilometers.

Energy efficiency in industry

Industry consumes about 42 percent of all electricity generated, according to the International Energy Agency. The most energy-intensive industries are cement, chemical, iron and steel.

The vast majority of ABB’s industrial product range improves energy savings by helping factories run more productively with state-of-the-art control systems, automation products and electrical equipment. Our key technologies include controls, enterprise software, instrumentation, low-voltage products, drives, motors, robots and turbochargers.

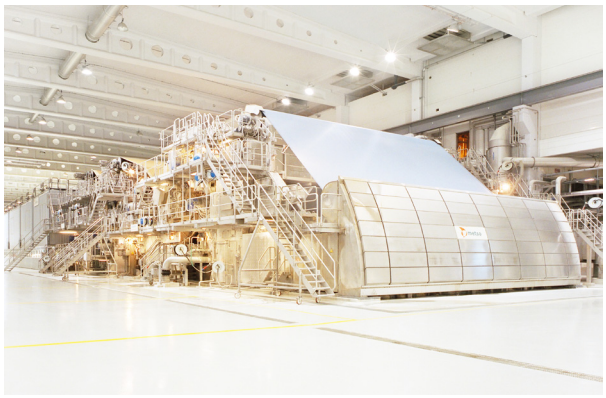
The energy saving potential in industry is enormous in motor systems alone: hundreds of millions of electric motors driving machines, compressors, fans, pumps or conveyors in virtually all sectors account for about 67 percent of all the electricity industry uses.

More than 90 percent of these motors either cannot adjust their power consumption, or use only crude and grossly inefficient ways to do so. Many are constantly running at full speed regardless of actual output requirement. In many applications, energy use can be cut to one-eighth just by adjusting motor speed to one-half.

ABB has delivered more than 2.5 million energy-efficient motor control devices. The installed base of ABB low-voltage drives alone (just one type of motor control device) saved more than 170 million megawatt-hours of electricity in 2008, equal to the annual electricity consumption of 42 million households in the 27 member states of European Union. In CO_2 terms, the savings were about 140 million metric tons, equal to the yearly emissions of 35 million cars.

Robots are mainly used in industry to increase productivity, improve quality and reduce safety

risks to employees. Increasing productivity typically leads to lower scrap rates and therefore lower energy consumption per manufactured unit. Roland Murten AG, a Swiss maker of bakery products, reduced its scrap rate on a pretzel packaging line by 80 percent with ABB robots, cutting energy consumption by 12 percent in the process.



Paper machine at Stora Enso Kvarnsveden in Sweden. The machine is equipped with 45 ABB drives, frequency converters and motors.

Energy efficiency in commercial and residential buildings

The IEA says cities and towns account for more than 70 percent of global CO_2 emissions.

Commercial and residential buildings account for about 38 percent of global end-user energy demand, mainly for heating, cooling and powering electric appliances.

Adjusting the heating temperature, lighting and the energy consumption of electric appliances to the actual requirements offers a substantial energy-saving potential without compromising comfort or quality of life.

Every day, ABB ships one million products for the commercial and residential building sector and is a leading producer of low-voltage devices and automated control and building automation systems that can help to achieve savings mainly in three areas:

- Temperature control can save up to 30 percent
- Lighting control can save up to 50 percent
- Building automation can save up to 60 percent

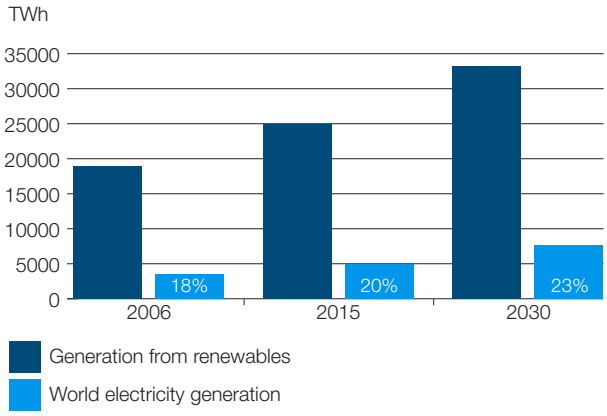
ABB and renewable energy

Electricity generation from renewable sources is set to more than double by 2030, according to the IEA. Most of the increase will come from hydro and onshore wind power, followed by offshore wind and solar power.

Renewables are set to overtake natural gas as the second-largest source of electricity (after coal) within the next six years.

Global wind generation is growing particularly fast and is projected to rise eleven-fold by 2030, with the largest increase occurring in Europe. In Europe, 20 wind farms have been approved for the North Sea as of 2009, and seven for the Baltic. Altogether, this means about 12,000 MW of power from wind generation coming online by 2015.

World electricity generation from renewables



Source: International Energy Agency, Reference Scenario, 2008

ABB provides both power and automation technologies for the renewable power industry. These are used to generate the electricity from renewable sources, to control the power plants, and to feed the electricity into the grid. Renewable power is fed to the grid in such a way that the stability of the network is maintained or improved, even when changeable weather conditions lead to irregular power generation.

Many of these technologies are also used in other segments of the renewable energy industry, to help generate heat or produce biofuels, but power generation and transmission remains the main renewables market.

Renewable portfolio

ABB is the world's leading supplier of electrical components, systems and services to the wind power industry. We design and make everything from transformers and generators to grid connections and the power electronics needed to maintain grid stability while accommodating the erratic nature of renewable power.

Wind farms in coastal waters or on shore can be connected to the grid using alternating current (AC) technology that can regulate the voltage and avoid instability (eg, Flexible AC Transmission Systems technologies), as well as with high-voltage direct current (HVDC) technology.

ABB innovations in HVDC transmission technology mean wind farms can also be located far out at sea, where average wind speeds can be 20 percent higher than on land, and the resulting energy yield from wind farms as much as 70 percent higher.

Electric power can be fully controlled with HVDC, so that the intermittent electricity supply from a wind farm cannot disrupt the grid. Using a form of the technology that ABB calls HVDC Light, the transmission system can be started from a powerless state, for example if the wind hasn't been blowing at all. Very little electricity is lost during transmission, even over long distances.

The use of oil-free cables running underwater to the coast, where underground transmission can begin, are further ways that HVDC Light transmission technology minimizes environmental impacts.

In addition to a deep involvement in wind generation projects, ABB has been a leading force in the solar power industry since the early 1990s,

ABB Ltd Media Relations P.O. Box 8131, CH-8050 Zürich, Switzerland
Phone: +41 (0) 43 317 6568 | Fax: +41 (0) 43 317 7958 | www.abb.com

when we developed an automation platform for the world's first test facility for concentrating solar power technologies at the Plataforma Solar de Almería (PSA) in Spain.

Since then we have been involved at a pioneering stage in just about every type of photovoltaic (PV) and concentrating solar power (CSP) technology developed, in Europe, North America, Australia, North Africa and the Middle East.

In addition to providing products, systems and services for large-scale wind, solar and hydro power plants, we produce custom-built generators that are the key components of wave energy projects.

ABB is a partner in an award-winning pilot project in Germany, which is designed to reduce energy consumption and minimize CO_2 emissions by integrating an entire power grid system – generation, distribution and consumption - into a single, interactive, real-time network.

This solution will integrate clean energy generated by solar panels, wind turbines, fuel cells and other sources of distributed generation and provide the grid operator with real-time information about the entire power network in terms of supply and consumer demand.

ABB references

– Borkum-2 is a 400MW, 80-turbine wind farm situated 130-kilometers from the German coast in the North Sea, the most remote wind farm in the world. When it begins production in 2009, an ABB-built HVDC Light transmission link will send power harvested at sea to the coast 128-kilometers away, and then 78-kilometers inland where it will join the German power grid.

– Totana is a high-efficiency, ABB-designed 1MW turnkey photovoltaic power plant in Spain. Pre-assembled and factory-tested equipment modules can be installed and commissioned very quickly on site, and include patented technologies to increase plant performance. Totana produces 2.2 gigawatt-hours of grid-quality electricity, displacing about 1,350 tons of tons of CO_2.

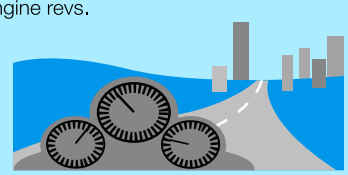
– Custom-built ABB generators are key components in the world's first commercial wave farm, a 2.25MW installation off the coast of northern Portugal set up to convert the motion of water into power. That is done with three wave energy converters, which generate enough power for 1,500 Portuguese homes, and displace 6,000 tons of CO_2 annually.

Focus on technology: motors and drives

Electric motors are the workhorses of industry, so commonplace they are estimated to consume about two-thirds of all the electricity used by industry. Since industry accounts for about 42 percent of the world's electrical consumption,[1] it follows there are enormous opportunities to save energy, simply by improving the way we use electric motors.

Name virtually any industrial activity, and the chances are it uses an electric motor. Motors operate all kinds of machines, fans, pumps, conveyors and compressors in applications as varied as pharmaceuticals and chemical processing, pulp and paper and cement manufacturing, mining and electronics, to name only a few.

The importance of speed control has always been clear in cars. You can imagine how difficult it would be to manage a car by keeping your foot on the accelerator and controlling your speed with the brake. It is much easier to change to a lower gear and reduce engine revs.



The problem is that many of these motors are bigger than they need to be, and most are running constantly at full speed, even when they don't have to. While the motor keeps on running at full speed, the output of the process is controlled by "throttling," which is like trying to control your car's speed by braking with one foot while continuing to accelerate with the other.

This not only wastes a vast amount of energy, but also causes excessive wear and tear on equipment. But there is another way. The speed of a motor can be controlled by gently raising or lowering the amount of power it receives, using a variable-speed drive. This simple approach can significantly reduce the amount of electricity a motor uses, and also lengthens the life of equipment that is no longer subjected to the jolting, on/off braking that results form throttling.

By connecting the motor to a variable-speed drive (VSD), the motor's speed can be matched exactly to the job in hand, ensuring that no more power than necessary is used. Typical applications can achieve energy savings of about 30 percent, meaning an investment in variable-speed drives can often pay for itself in less than a year.

Using high-efficiency motors in combination with drives is even more effective. The energy savings quickly add up because the energy used to run a motor over its lifetime costs 100 times more than the motor itself.

The International Electrotechnical Commission (IEC) has introduced new standards relating to energy efficient motors, including new rules governing testing methods and three new efficiency classes for motors (from IE3 – the most efficient – to IE1).

The new standards introduce more accurate measuring of motor efficiency. This benefits manufacturers, who can compete on equal terms with competitors, and consumers, who can more easily compare the efficiency of different motors.

The new standards could also reduce emissions significantly, if they encourage most motor manufacturers to improve the efficiency of the motors they sell. ABB manufactures a full range of motors in the IE2 class and premium efficiency motors in the IE3 class.

ABB is the world's largest maker of electric motors and variable-speed drives. The installed

1 International Energy Agency, Key World Energy Statistics. 2008

ABB Ltd Media Relations P.O. Box 8131, CH-8050 Zürich, Switzerland
Phone: +41 (0) 43 317 6568 | Fax: +41 (0) 43 317 7958 | www.abb.com

base of ABB low voltage drives alone saved about 170 terawatt-hours (TWh) in 2008, equivalent to the annual energy consumption of more than 42 million households in the 27 member states of the European Union.

If that 170 TWh of power had been generated by electric plants burning fossil fuel, the resulting CO_2 emissions would have been about 140 million metric tons, equivalent to the annual emissions of more than 35 million cars.

Bigger is not always better

In addition to issues of speed and inefficiency, the vast majority of the world's industrial motors are oversized. That is because companies commonly buy more powerful motors than are actually needed as a "buffer," to protect them from power spikes and uncontrolled overload.

An intelligent, or software-based, motor control system allows businesses to manage the status, condition and energy consumption of all the motors in a plant, which means they can install smaller motors that consume far less energy, knowing their investment is monitored and protected. Smaller, energy-efficient motors that are correctly dimensioned consume less energy and reduce greenhouse gas emissions.

Replacing an oversized, 37-kilowatt motor with a 30-kilowatt motor would save a typical medium-sized site with 200 motors about 180,000 kilowatt-hours a year, and avoid the generation of 90 metric tons of CO_2 emissions. For a paper mill, which might contain 1,500 motors, the savings are even more striking.

A new ABB low-voltage drive features an innovative built-in energy counter that shows the amount of energy saved (in kilowatt hours or local currencies) and even the quantity of CO_2 emissions avoided by using the drive to regulate the speed of the motor. The ACS310 drive specifically targets millions of small electric motors that are used in common pump and fan applications, most of which have no speed control at all.

ABB references

– Drives controlling the speed of kitchen fans have cut energy consumption in half at 50 McDonald's restaurants in the United Kingdom, with the added benefits of reduced fan noise and improved equipment efficiency in the kitchens.

– Fitting a drive to a cooling fan at Pena Colorada, Mexico's largest iron mining operation, reduced energy consumption of the installation by 23 percent, and boosted productivity by increasing the availability of the system.

– Equipping the motor of a mixer at the Daqing Petrochemical Plastic Factory in China, improved production quality and resulted in energy savings of 30 percent.

Focus on technology: direct-current transmission

About 6-8 percent of all the electricity leaving power stations never actually reaches consumers, but is lost along the way to them.

Losses are created by resistance[1] in the metal cables used to conduct the electricity. Resistance converts some of the electrical energy into heat, which then simply dissipates from the power lines into the surrounding atmosphere. The further electricity has to go, the more energy is converted into heat, and ultimately lost.

The problem is that today, electricity has become a long-distance traveler. Offshore wind farms, hydroelectric dams in remote mountainous areas and international power trading systems moving electricity from country to country all demand efficient long-distance transmission systems that can conduct large amounts of electricity across long distances with low losses.

The most efficient technology for this purpose is high-voltage direct current (HVDC) transmission. HVDC was developed by ABB more than 50 years ago, and one of its central features is that it achieves lower energy losses during transmission than conventional alternating current (AC) transmission and DC transmission at lower voltages.

HVDC systems need technology to switch electricity from AC (the form in which it is generated) to DC, and then back to AC again at the other end of the transmission. Since the switching process also causes power losses, HVDC is economically viable only for transmission distances greater than 600 kilometers (for overhead lines) and 50 kilometers (for underwater cables).

1 Cables and electrical devices “resist” the movement of electrons that constitute the current passing through them. An electric current is often compared to water flowing through a pipe. Resistance in a wire is like an obstruction or kink in a hose pipe that impedes the flow of water through the pipe.

Over very long distances, however, the potential to save power and money is considerable. Losses amount to about 7.5 percent in a 500-kilovolt (kV) AC system transmitting 3,000 megawatts (MW) over a distance of 1,000 kilometers. This energy loss shrinks to 6 percent when HVDC technology is used at 500 kV.

An ABB engineer tests HVDC Light valves during installation

From small volumes of power over relatively short distances 50 years ago, HVDC transmission technology has been developed to carry much larger amounts of power over much greater distances. The world’s longest and most powerful DC transmission system is currently under construction in China. It will transmit hydro-electricity over a 2,000-kilometer long, 800-kV ultrahigh-voltage direct current (UHVDC) link between Xiangjiaba and Shanghai. A single overhead line will carry 6,400 MW, with losses of 7 percent. The power will meet the needs of 30 million people in the Shanghai region.

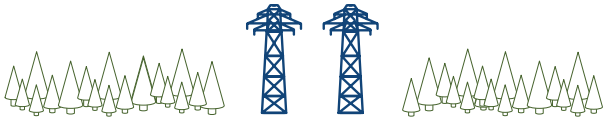
Environmental benefits

HVDC transmission is environmentally friendly for a number of reasons. A single HVDC line can provide the same capacity as multiple lines using alternative transmission systems. This means that DC high-voltage transmission corridors can be significantly narrower, reducing the land area

ABB Ltd Media Relations P.O. Box 8131, CH-8050 Zürich, Switzerland
Phone: +41 (0) 43 317 6568 | Fax: +41 (0) 43 317 7958 | www.abb.com

and the construction materials required. Furthermore, in some applications, transmission cables can be buried underground, avoiding the need for steel pylons across the countryside.

Conventional AC overhead line



AC overhead line with FACTS*

HVDC overhead line

HVDC underground

*FACTS: Flexible AC transmission system, a series of ABB technologies that enhance the capacity of existing transmission infrastructure

Electricity in DC transmissions can flow in both directions, providing further environmental benefits. The 580-kilometer link that ABB has built between Norway and the Netherlands allows the Netherlands to import “green” hydropower from Norway during the day, when demand is high, and export excess capacity from its thermal power stations during the night, when demand is low.

The ability to efficiently trade power back and forth like this maximizes the use of renewable power and allows thermal generating plants in the Netherlands to reduce their output, yielding a reduction in CO_2 emissions of almost 1.7 million tons per year.

The vision of harvesting solar power in deserts and transmitting it to population centers within a range of 2,000 to 3,000 km with low losses is virtually dependent on HVDC transmission technology.

This tantalizing idea is a long way from the starting gate, but the availability of a trusted and reliable transmission technology brings the scheme a step closer to reality.

ABB references

ABB is the world leader in power transmission and distribution technology and has delivered more than 50 percent of HVDC projects in operation or under construction around the world, including:

- Cross Sound, a 300-MW, 40-kilometer HVDC Light underwater link between Connecticut and Long Island, New York, that improves power reliability and enables regional power trading.
- Troll A, a North Sea oil-and-gas platform is powered from the Norwegian mainland 70 kilomteres away with a breakthrough HVDC Light underwater link that provides reliable power and lower emissions.
- Three Gorges-Shanghai, long-distance HVDC links (one 850 kilometers, the other 1,060 kilometers) that deliver a total of 7,200 MW of clean hydropower from central China to the coastal city of Shanghai.