Energy efficiency – doing more with less

Why energy efficiency? 06
Using energy more efficiently is critical to business and national competitiveness

ABB solves 100-year-old electrical engineering puzzle 16
New technology to enable future DC grid
Dear friends,

Globally, nations are tasked with finding solutions for our ever-increasing energy demands. Energy-efficient services, products and processes are proving to be cost-effective methods for decreasing energy consumption while lowering environmental impact.

According to the International Energy Agency, improved energy efficiency in buildings, industrial processes and transportation could reduce the world’s energy needs in 2050 by one-third.

ABB is not new to this kind of thinking, we have invested in technology that promotes the efficient use of energy with long term financially viable results and we continuously look for innovative solutions by employing best energy management practices.

In this issue of Contact, we feature significant contributions that ABB has made in the field of energy efficiency.

It was with a sense of sadness that I recently announced that I will be leaving ABB South and Southern Africa to take up the mantle of Country Manager for the United Arab Emirates (UAE) and Cluster Manager, Southern Gulf (UAE, Oman, Qatar) and Pakistan.

Even as I take this step, I reflect on the amazing 20 years of growing with ABB in Southern Africa. I will miss all of the friends I have made during this time.

I wish you all well.

Best regards,

Carlos Pone

CEO, ABB in South Africa
Sub-Regional Manager, Southern Africa

Carlos Pone

Contact 3|12

Customer news magazine from ABB • copyright 2012 • web: www.abb.com • email: contactmagazine@in.abb.com • Publisher: ABB Group

Layout: Shikhar Associates, Bangalore, India
Expanding the Saudi power grid

Orders, worth around $170 million, were booked to execute substation projects for the Saudi Electricity Company (SEC), the country’s national power transmission and distribution operator. The design, supply, installation and commissioning of a substation will help meet the increased demand for electricity in and around the central pilgrimage area of Makkah, which hosts millions of the faithful every year. The substation deploys our compact and robust gas-insulated switchgear (GIS) technology, and will be accommodated in a multi-storied building. Its considerably smaller footprint is ideally suited to tight spaces.

International Monetary Fund (IMF) estimates population increase from 28 million to approximately 37 million by 2020, with nearly 85 percent living in urban areas. Saudi Arabia has among the highest residential electricity consumption in the world. The country is executing an ambitious Ninth Development Plan (2010-2014) aimed at raising its installed power generation capacity by more than 20 gigawatts (GW) to reach around 72 GW by 2014.

For more information: www.abb.com/substations

Big boost for South Africa’s renewable program

In December 2012, ABB booked orders worth around $225 million to supply two turnkey photovoltaic (PV) power plants for the northern province of Limpopo in South Africa.

Located at the Witkop (33 MW) and Soupan (31 MW) Solar Parks, they are among the first utility-scale PV power plants to be built in phase 1 of the South African government’s long-term renewable energy program.

The power generated from these plants will be fed into the high-voltage transmission grid via a new high-voltage substation. Together, the plants will displace around 130,000 tons of carbon dioxide emissions a year. “We are delighted to be part of these solar PV projects which will help promote the energy mix and contribute to the country’s international obligations on climate change,” said Carlos Pone, CEO, ABB South Africa.

For more information: www.abb.com/solar

In brief

ABB opens office in Maputo

We won an order worth $13 million to supply 63 medium voltage induction motors ranging from 375 kilowatts (kW) to 10 megawatts (MW) to Eskom power plants in South Africa, including Durha, Hendrina, Kriel, Lethabo, Matla and Kendali.

The scope of the contract entails the design, manufacturing, testing and delivery of state-of-the-art equipment. The upgrade of the existing motors will commence in September 2012 and the expected completion is September 2013. To encourage skills development and localization, we will train twenty-five apprentices, boiler makers, welders, fitters, armature winders, turners and quality controllers in a controlled environment at the local facility in Alberton, South Africa.

“Urbanization and economic development in emerging markets is fuelling the demand for increased maintenance at various power plants,” said Carlos Pone, CEO, ABB in South Africa. Our motors meet the highest standards of efficiency and reliability and have the structural integrity to maintain high levels of performance. Reliability of equipment is crucial in projects of such magnitude, as every kilowatt of parasitic consumption saved, becomes another kilowatt that can be sold.

For more information: www.abb.com/motors

Automation solutions to support surge in power industry

India service tie-up with SAIL

SAIL, one of India’s largest steel manufacturers, operates 10 steel plants, five of which are Integrated Steel Producers. It is currently in the process of modernizing and expanding its plants, extensively adopting state-of-the-art technologies, and requiring re-deployment of a large part of its workforce.

Over a period of two years, we will train about 4,000 employees across the various plants of SAIL.

This will facilitate SAIL in developing and enhancing technical competency, to adapt and maximize returns on deployed state-of-the-art technologies. ABB has a huge installed base of products, systems and solutions across all SAIL plants, measuring, controlling and optimizing many process-critical applications. The training will be conducted mostly at SAIL plants, as well as ABB locations, and will cover a wide portfolio. For improved training effectiveness, the modules are developed to include theoretical and hands-on exercises using specially designed training kits/simulators.

For more information: www.abb.com/service

For more information: www.abb.com/service

Mega project inauguration

In January 2013, jointly with Al Futtaim Group, Carillion and El Sewedy Cables, ABB in Egypt celebrated the inauguration of the Cairo Festival City mixed urban development substation in New Cairo. Top officials from Egypt’s Ministry of Electricity were present at the event. The air-insulated switchgear substation rated at 100 megavolt amperes, helps secure reliable power supplies to the mega project.

For more information: www.abb.com/motors

Riding the metro

On his visit to India, Group CEO, Joe Hogan caught a ride in the pride of Bangalore, the newly started metro service from MG Road to Byapanahalli. Earlier this year, the Bangalore Metro project team from ABB received an award from BMRCL for successfully completing one million safe man-hours.

For more information: www.abb.com/substations

India service tie-up with SAIL
Why energy efficiency?

Using energy more efficiently is critical to business and national competitiveness. It’s also the fastest, most effective way to protect our environment by breaking the link between economic development and climate change.

We have been in the energy business for over 120 years and ABB technologies are used along the entire energy value chain, from the extraction of resources and their transformation into electricity, liquefied natural gas or refined petroleum products, to their efficient end use in industry, transportation and buildings.

Utilities

Power generation is by far the largest energy consuming industry. The efficiency varies widely with the fuel and technology used: in traditional coal-fired plants, only about 35 percent of fuel consumed is converted into electricity.

In addition to high conversion losses, power plants consume on average, 5 percent of the electricity they generate. Using sophisticated control systems and energy-efficient equipment can reduce energy consumption by 10 to 30 percent.

We also address thermal energy efficiency of boilers – by automating their future efficiency, one chemical plant was able to realize $300,000 in energy savings across four boilers, as well as improved performance, from a $75,000 investment.

Nine percent of all the electricity generated worldwide is lost in transmission and distribution. Flexible AC transmission systems (FACTS) enable more power to travel over existing networks, which is critical in dense urban areas.

And, ABB high voltage direct current (HVDC) electrical transmission and high-efficiency power and distribution transformers reduce power losses over great distances. This can help integrate renewable energy from remote locations into the grid, or to bring reliable electricity to remote mines or offshore platforms.

Industry

Just six process industries account for two-thirds of the global final energy consumption: iron and steel, oil and gas, chemical and petrochemicals, non-metallic minerals, pulp and paper, and non-ferrous metals. Despite significant improvements through energy efficiency, there is still room for ways, which complement rather than change production processes in energy-intensive industries.

We help customers improve efficiency in two ways:

1) Through leading technologies: In 2011, the global installed base of ABB variable speed drives saved some $10 million megawatt-hours of electricity, the equivalent of the annual power consumption of 75 million EU households.

2) Through our experts, who help customers understand where and how they use energy, and then identify and implement opportunities for improvement. Over ten years of experience in many industries, we have learned that energy savings of 5 to 35 percent can often be created.

Transportation

Innovations for shipping

Around 90 percent of world trade is carried by some 70,000 vessels that make up the international shipping industry. Fuel accounts for 30-40 percent of the cost of running a cruise ship and between 50-60 percent for most merchant vessels. ABB’s Azipod®, the world’s first rotating propulsion device, fitted to the outside of a ship’s hull, is now installed on half of all cruise liners built over the past two decades, reducing energy consumption of open-water vessels by 5 to 15 percent.

ABB’s experts have worked on some 3,000 marine automation and control systems around the world, which are...
Operated by Deutsche Bahn, Germany’s national rail operator, cutting energy by at least 12 percent. This is the first project worldwide involving the exchange of high-speed train converters while leaving all other components of the traction chain and all interfaces unchanged.

**Buildings**

By 2050 there will be 4.5 billion people in cities around the world, creating an urgent need for infrastructure. Old buildings offer room for improvement, while modern buildings house energy-intensive data centers and sophisticated air conditioning systems.

ABB’s intelligent building control system, based on the KNX open standard, is increasing efficiency in thousands of new and existing buildings in more than 60 countries, enabling customers to reduce energy consumption by about 50 percent, with a payback period of between one and five years. Three ABB i-bus® KNX-equipped buildings in Singapore, including the region headquarters of Xilinx, Applied Materials Inc, and the Singapore National Library, have won prestigious BCA Green Mark Platinum awards from the Building and Construction Authority for their energy efficiency.

Annual consumption for heating and ventilation can be cut by as much as 45 percent using very simple methods, such as individual room temperature control, combined with moderately reducing the room temperature, or heating control based on the outdoor temperature.

High-efficiency motors and the transmission (AC) drives used to control them offer further efficiencies as motors consume about 40 percent of a building’s electricity, and AC drives can reduce energy consumption in these applications by as much as 80 percent.

**Putting it all together**

Many technologies that improve energy efficiency are readily available. However, often, the greatest potential for savings often lies in the gaps between production processes and functional silos — manufacturing, facilities management, maintenance and support processes such as electrification, compressed air, steam and water.

For this reason, ABB advocates a holistic approach — understanding where and how energy is used so you can prioritize projects which will bring operational benefits. For example, improperly tuned boilers not only waste energy, but they are often unable to respond quickly to changes in steam demand — this can hurt product quality and reduce plant throughput.

**So are a lot of companies embracing these technologies?**

We see a big disconnect between recognition and action. In an ABB-commissioned global survey of top industrial executives, while about 90 percent acknowledged that energy efficiency will be a critical success factor for their business in the coming decades, only 40 percent had invested in energy efficiency in the past three years and only a third had undertaken a plant-wide energy audit.

**How do you account for this gap?**

It really comes down to a lack of facts and resources. Many manufacturers simply don’t have transparency as to where and how their energy is used, preventing optimization. In addition, other priorities such as quality, productivity and safety improvements also place demands on both human and capital resources resulting in energy efficiency improvements being relegated down the priority list.

This lack of information makes it difficult to build the business case for investment, and for management to have confidence that they will reap the intended savings.

**How can companies overcome these obstacles?**

More and more we see operating companies turning to partners like ABB who are equally fluent in technology on the plant floor and cash flows in the board room. For example, financing is often a critical hurdle and requires new approaches such as performance-based contracts that will pay for improvements out of operating expenses instead of CAPEX.

**Putting it all together**

For more information:

www.abb.com/energyefficiency

---

**Energy efficiency as a sustainable, competitive advantage**

**Why is energy efficiency such a hot topic today?**

It’s high on the radar of countries and industries alike because energy is increasingly one of our greatest challenges. Security of energy supply is a very real problem, from generation shortfalls to unreliable power quality. Businesses in locations with comparatively high energy prices are finding it more and more difficult to compete in a global marketplace.

At the same time, the world has become intensely aware that we can’t continue meeting the challenge of secure, affordable energy only by adding new carbon-based thermal generation capacity. Industrial energy efficiency doesn’t command the media attention of solar power or electric cars, but it is a workhorse for tackling climate change.

**Are the technologies to create this savings already available?**

Yes. There are a slew of automation and power solutions that are well proven. It’s not just the technical features — there is ample evidence of the business benefits. Naturally there are cost savings, but in addition, companies who learn to do more while using less energy are more competitive overall and enjoy enhanced reputation.

We’ve also found that, improving energy efficiency often provides the greatest business benefits, and then ensuring their successful implementation. This improved ‘energy transparency’ also helps build the business case for future efficiency investments, creating a process for continuous improvement much like those for quality and operational excellence.
Taking the motor world by storm

ABB’s synchronous reluctance motor and drive packages continue to raise interest eleven months after being voted Europe’s automation product of the year.

High output SynRM motors (the motor on the right in the image above) provide the same output as traditional induction motors (the motor on the left in the image above) that are up to two frame sizes larger – thus, enabling smaller, lighter and more cost-efficient pump and fan installations.

And, as they provide double the power of an induction motor of the same size, this enables increased flow without the need to mechanically modify the system to accept a larger motor.

High output SynRM motors are also more energy-efficient, with 10–20 percent lower energy losses than those of IE2 induction motors, thus, providing a commercially competitive alternative to traditional and other new motor technologies.

How is all this possible?


From the outside, the SynRM looks like a conventional induction motor. But on the inside, it is nothing like it, instead it uses an innovative rotor design that has neither magnets nor cage, thus virtually eliminating rotor losses and giving the motor a uniquely cool operating temperature.

This in turn reduces the temperature of the bearings and extends their service life and maintenance intervals. As about 70 percent of motor failures are related to bearings, the lower bearing temperature can prevent unplanned motor stoppages, thereby increasing motor availability and reliability.

Not surprisingly, the new SynRM has generated major market interest, winning Europe’s foremost automation award at the SPS IPC Drives Fair in Germany in November 2011.

To access these learning materials

Register online at: http://www.abb.com/motors/new/greeningyourbusiness.aspx
University lighting solution wins international award

A winning ABB solution for the new Princess Nora Bint Abdul Rahman University in Riyadh, Saudi Arabia, provides energy-efficient lighting and heat protection across an eight-square-kilo meter campus.

The solution was named winner of the KNX Award 2012 in the international category for Asia earlier this year. It is thought to be the largest solution ever to use devices that comply with the global KNX standard for energy-efficient home and building automation control.

Princess Nora University is the largest women’s university in the world. The new purpose-built campus opened in January 2011 and accommodates 40,000 students and 12,000 staff. It covers an area of 8 square kilometers and comprises 800 buildings; including classrooms, halls of residence, research centers, recreational and sports facilities, a library, a 700-bed hospital, as well as kindergartens, schools, mosques and its own 10-station, driverless, overhead metro system.

The ABB i-bus® KNX solution enables the university to automatically and remotely control lighting and sun protection systems in each of the 800 buildings using one single interface. A similar i-bus KNX solution controls the lighting in each of the 10 campus metro stations.

With strong sunlight and temperatures of up to 50 degrees Celsius to contend with, sun and heat protection are key features of our solution. Thousands of blinds provide protection from the sun’s glare and prevent high levels of solar heat from entering the buildings. The blinds shift automatically according to the position and strength of the sun, or can be adjusted manually, resuming their automatic settings via presence detectors when people leave the room.

Each building is divided into zones with presence- and daylight-dependent lighting control. Classrooms and lecture halls are equipped with dimming and darkness control to facilitate presentations, and large rooms and halls are divided into smaller lighting areas to create ambience and save energy. When no one is present in a room, the climate control system automatically adjusts to eliminate waste of energy, by shutting down air conditioning.

By using lighting control efficiently and by reducing the need for air conditioning with presence detection and effective sun and heat protection, our solution is helping to make Princess Nora University a landmark in energy-efficient building control.

Not only does the i-bus reduce building energy consumption by around 40 percent compared to technologies that do not use the KNX open standard, it has opened the possibility for many of the university buildings to apply for green or gold ratings within the LEED standards (Leadership in Energy and Environmental Design) of the US Green Building Council.

ABB was selected for the project by the two main construction companies that built the university, Saudi Oger and SBG, and the two system integrators subcontracted to install the solution on the construction companies’ behalf: MTTS and Honeywell HBS respectively. The KNX award was made to MTTS.

The ACS 2000 medium voltage variable speed drive was installed in July 2011 and has achieved some remarkable results within its first year of operation at the City of Beloit Water Pollution Control Facility (WPCF) in Wisconsin, United States.

The facility treats an average of 5.5 million gallons (20.8 million liters) of wastewater a day from the city’s 37,000 inhabitants, as well as industrial waste from local businesses and biological waste from food processing plants.

Like many wastewater treatment plants, Beloit uses a conventional activated sludge process for treating the wastewater. At the heart of this process are the aeration basins in which microorganisms break down the organic matter in the wastewater. These bacteria require oxygen to survive, which is provided by huge aeration blowers that blow air through diffusers at the bottom of the basin.

Aeration blowers typically account for 50 percent or more of the electricity consumed by a wastewater treatment plant, and Beloit is no exception. Prior to the installation of the ACS 2000, the aeration blower system at Beloit WPCF was controlled by an inlet throttling valve—a common solution for blower control, that operates at fixed speed and does not offer the same operating and cost benefits as variable speed drives.

For Beloit WPCF these benefits are wide-ranging and include soft start capability, ease of installation, direct-to-line (transformer-less) connection to the power supply network, minimal harmonic distortion, non-requirement of medium voltage power factor correction, compact and lightweight footprint, short payback time and low total cost of ownership.

These benefits are enhanced by an ABB DriveMonitor™ intelligent diagnostic system that performs remote and real-time monitoring and diagnostics of the drive via a wall-mounted PC connected to the telephone line.

Once the ACS 2000 was installed, the power consumption of the aeration blower system dropped by more than 30 percent and total plant energy consumption by 15 percent, which is more than 1 million kilowatt-hours (kWh) a year. At an average composite rate of $0.62/kWh, the annual savings for the city of Beloit amount to $75,000.

For more information: www.abb.com/water
Leading by example

ABB Longmeadow lowers environmental impact for maximum output and wins national recognition with the Eta energy efficiency award.

The ABB Longmeadow Headquarters in Modderfontein, Johannesburg continues to showcase energy efficiency best practice by constantly aiming to reduce the amount of energy required to provide products and render services. The head office, manufacturing and logistics center was designed with an impressive depth of research and focus on design, construction, facilities management, automation and resource efficiency to ensure minimal impact on the environment while maximizing the use of energy through innovative solutions.

The building has won a prestigious energy efficiency award in the industrial category of the Eta energy efficiency awards sponsored by national utility, Eskom, in association with the Department of Energy. The awards were created to commend corporates that are making strides in reducing their carbon footprint while recognizing superior performance, creativity and innovation in energy efficiency.

The award was given to three organizations that were nominated in the National Energy Accord category run by the National Business Initiative for outstanding performance in energy efficiency. ABB was awarded in the industrial category for outstanding performance in energy efficiency and was commended for its energy-efficient building and use of its own energy-efficient technologies to lower environmental impact.

The 17,800 meters square of office space and 22,000 meters square of warehouse and factory are located on an 80,000 meters square piece of land in the Longmeadow business estate. The energy-efficient nature of the building encompasses key green building elements, including solar panels, a grey water recycling system, energy-efficient lighting and the maximization of natural light in both the offices and the factory.

The windows are coated with film and they have louvers which create shade in order to help reduce energy loss from the air-conditioning system. The building is insulated, which further supports the minimum loss of energy. Temperature is controlled through the innovative use of our drives which ultimately reduce the consumption of energy. Rainwater is collected and attenuation tanks are used to irrigate indigenous landscaped gardens. ABB in South Africa has certainly established itself as a model of energy efficiency for corporations around the globe. The green building represents an investment by the organization to show its commitment to a better tomorrow, today.

Minister Peters with Carlos Pone and delegates

Commitment to national energy efficiency leadership

Energy Minister, Dipuo Peters recently presented Carlos Pone, CEO and Country Manager of ABB South Africa, with a pledge to improve energy efficiency in ABB’s operations.

The pledge, presented in Johannesburg on September 25, is part of the Energy Efficiency Leadership Network (EELN). This is a combined initiative between the National Business Initiative (NBI), working in partnership with the Department of Energy (DoE) and Business Unity South Africa (BUSA).

ABB South Africa joined about 80 other leading South African businesses, who voluntarily committed to energy efficiency through the EELN.

Minister Peters commended these businesses for voluntarily committing to the energy efficiency pledge to improve energy efficiency in their operations.

The EELN, launched in December last year at Cop 17 in Durban has 58 signed up members, which includes the Department of Energy. It is expected that more government departments will also sign up to show their commitment to saving energy.

Minister Peters said the South African government was running an energy efficiency campaign in line with the 2012 International Year of Sustainable Energy Campaign of the UN Secretary General. This initiative is supported by three pillars, including ensuring universal access to modern energy services, doubling the rate of improvement of energy efficiency and doubling the share of renewable energy in the global energy mix.

The Minister said the business drive on energy efficiency came at an important time as the South African government was on a roadshow to intensify its energy efficiency campaign for the country. She said tax allowances would be introduced for large energy efficiency investments for upgrades, expansions and new facilities.

Pone said, “We are very pleased to support this energy efficiency leadership initiative. We have participated in the National Energy Efficiency Accord since 2006 and look forward to playing a leading role in championing energy efficiency to our customers and within ABB.”

Energy efficiency is considered as one of the key solutions to managing energy consumption, reducing greenhouse gas emissions, enhancing energy security and improving business competitiveness.
Recently, ABB announced a breakthrough in the ability to interrupt direct current, solving a 100-year-old electrical engineering puzzle and paving the way for a more efficient and reliable electricity supply system.

After years of research, we have developed the world’s first circuit breaker for high voltage direct current (HVDC). It combines very fast mechanics with power electronics, and will be capable of “interrupting” power flows equivalent to the output of a large power station within 5 milliseconds – that is thirty times faster than the blink of a human eye.

The breakthrough removes a 100-year-old barrier to the development of DC transmission grids, which will enable the efficient integration and exchange of renewable energy. DC grids will also improve grid reliability and enhance the capability of existing alternating current (AC) networks. We are in discussions with power utilities to identify pilot projects for the new development.

"ABB has written a new chapter in the history of electrical engineering," said Joe Hogan, CEO of ABB. “This historical breakthrough will make it possible to build the grid of the future. Overlay DC grids will be able to interconnect countries and continents, balance loads and reinforce the existing AC transmission networks.”

The Hybrid HVDC breaker development has been a flagship research project for our company, which invests over $1 billion annually in R&D activities. The breadth of our portfolio and unique combination of in-house manufacturing capability for power semiconductors, converters and high voltage cables (key components of HVDC systems) were distinct advantages in the new development.

HVDC technology is needed to facilitate the long distance transfer of power from hydropower plants, the integration of offshore wind power, the development of visionary solar projects, and the interconnection of different power networks. ABB pioneered HVDC nearly 60 years ago and continues to be a technology driver and market leader with many innovations and developments. With over 70 HVDC projects, our company accounts for around half the global installed base, representing an installed capacity of more than 60,000 megawatts (MW).

Deployment of HVDC has led to an increasing number of point-to-point connections in different parts of the world.

ABB solves 100 year old electrical engineering puzzle

Development of a DC breaker for high voltage transmission will help shape the grid of the future.
Egypt becomes regional export hub for African markets

Knowledge and manufacturing capabilities of ABB in Egypt are to be extended to 22 countries in the African subcontinent.

Naji Jneijri, CEO, ABB Egypt and Central Africa spoke about the growing influence of our presence in Egypt. “Plans are in place to build on the knowledge and manufacturing capability within our Egyptian operations so that ABB can undertake larger projects in the African continent.”

To this end, we increased the production capacity of our Medium Voltage and Transformer factories in Egypt by adding new assembly lines for the Compaq substation and Ring Main Units. In addition, a new painting line and assembly facility for the transformer factory was commissioned. To cover the market and generate demand for our factories, our sales and services have also been increased by more than one hundred percent. Resources in sales and services have also been added in the sheet metal workshop. Since 2007, ABB in Egypt has been recognized and that they comply with all national and international standards.

Setting standards in manufacturing excellence

Our experience ensures that all our products and solutions tested in and built to withstand the harshest conditions. Our long-term projects in Egypt. Recent successes include a turnkey substation to power the new Cairo Festival City mixed-use urban development, the third special KNX award nomination at the Light and Building Fair in Frankfurt, Germany’s KNX Top Event for our contribution to the Family Park project in New Cairo City. Most recently, we have been awarded a prestigious and high profile project to provide the Grand Egyptian Museum with all electrification infrastructure.

Now we have a wider role in providing reliable power and automation products and solutions tested in and built to withstand the harshest conditions. Our long experience ensures that all our products are manufactured to meet the needs of the local markets, now inclusive of Africa, and that they comply with all national and international standards.

For more information: www.abb.com/eg

Another European port goes green

Ystad, one of Sweden’s fastest growing cargo and ferry terminals installs an ABB shore-to-ship power connection that enables it to use shore-side electricity while in port, thereby reducing noise pollution and cutting CO₂ emissions by 98 percent.

Located on the southern tip of Sweden on the Baltic coast, Ystad is Sweden’s fifth largest port, handling some 3,500 sailings annually, including daily ferry services to Poland and Denmark, as well as cruise ships in the summer and cargo vessels all year round.

Thanks to a strong and ambitious investment program, the port has enjoyed double-digit growth in tonnage over the past three years – one of the few ports to grow in the current economic climate. Part of that forward-looking program is a bid to become the region’s greenest port by equipping all its berths with shore-side power connections.

Our solution has a unique flexibility, in that it adapts both the voltage level and frequency to match those of each vessel – enabling multiple vessels to be powered simultaneously at the port, regardless of any differences in the ships’ voltage level or system frequency.

ABB pioneered shore-to-ship technology at the beginning of the millennium by delivering the world’s first high voltage shore-side power connection for the Swedish port of Gothenburg in 2000. Since then, we have provided ports throughout Asia and Europe with shore-to-ship solutions, the most recent of which – prior to Ystad – was inaugurated in July this year at the Hoek of Holland in the Netherlands.

We also supply turnkey shipside solutions for shore-side power connections, and have provided solutions for all types of vessels worldwide, including container ships, bulk carriers, liquefied natural gas (LNG) carriers, cruise liners and floating storage and off-loading (FSO) vessels.

For more information: www.abb.com/marine

Ystad shore-to-ship installation wins environmental award

On September 27, the port of Ystad was awarded Sweden’s foremost marine environmental award by Maritime Forum, “for investing in a flexible shore-to-ship solution for both 50 and 60 Hz. The solution minimizes the shipside investment requirements for shipping companies, while improving the environment for the port’s immediate surroundings.”

Efficient shore-to-ship solutions – a necessity. Scan here to watch the video.
**Just launched**

New technology solutions from South Africa, Middle East and India.

**Automation product**

**CP600 scalable HMI range**

New touch screen range launched in South Africa

The CP600 series, ABB's latest HMI, is now available in a larger range, starting from the entry level (4.3”) to the high-end panel (15”). It is highly flexible and is specifically designed for advanced applications in complex systems or processes. Using premium graphic panels created with either the Panel Builder 600 engineering software or the web browser panels via the PLC Web server, the CP600 series allows more effective representation of information to ease human-machine interaction.

**Advantages**

- Vector scaled graphics
- Multiple driver communication
- Runtime language switching
- Data acquisition: flash memory storage
- Flash memory storage
- Historical event list
- Users/passwords
- Integration within Control Builder Plus — AC500 PLC software

**AC500 PLC + PROFINET**

PLC networking on real time Ethernet now available in South Africa

PROFINET I/O meets the sophisticated demands placed on real time Ethernet protocols in the world of automation. Very fast data transmission, integrated and standardized network structures, from the control to the field level, as well as flexible network management support users in the implementation of their automation solutions.

**Advantages**

- S500 I/O compatible with PROFINET I/O slaves even for non-ABB PLC
- Can run in parallel with commercial IT data
- Reduces costs
- 3000 I/Os for central and decentralized I/O with AC500 PLC
- Configuration and diagnostics by user-friendly engineering tool
- PSS01 Control Builder Plus

**Low voltage product**

**M2M meters**

New measurement device in India

The made-to-measure device provides transparency on energy consumption, be it single phase or three-phase supply. Meant specifically for medium voltage and low voltage electrical panels, the product provides real-time analysis on parameters such as voltage, current, frequency, power factor and active and reactive power. One of the outstanding features of this meter is that it provides instant information on CO2 emission-based energy consumption: important information for green building solution.

**Power electronics and MV drives**

**DPA system**

High-power, modular UPS now available in Middle East

UPS systems based on decentralized parallel architecture (DPA) do not share any common components. Each module contains all hardware and software required for full system operation. What does this mean for the customer? Very high power availability, increased flexibility, lower total cost of ownership and improved energy efficiency. Modular systems based on DPA are free of single points of failure and maximize the mean time between failure, while minimizing mean time between repair.

With DPA technology each UPS module has its independent:

- Logic control
- Control panel
- Rectifier
- Inverter
- Battery charger
- Static switch

Concept power DPA modules can be connected in parallel to provide redundancy or capacity, to 1.5 Mva. The class-leading design provides the highest power density/m² available.
With demand for electricity rising year on year and concern for the environment bringing more renewable energy sources online, transmission system operators are under increasing pressure to enhance the flexibility of their grids to improve capacity and accommodate the demands of deregulated power markets.

ABB’s expertise in power transmission systems and electrical optimization, grid reliability and blackout prevention offers sustainable solutions to the challenges of today, and tomorrow. From Flexible Alternating Current Transmission systems that enhance the security, capacity and flexibility of power transmission networks, to High Voltage Direct Current power superhighways, there are comparatively inexpensive and faster ways to provide more power and control in existing networks. Read the next issue of Contact to see how it’s done.

Preview 1|13

Revitalizing the power grid

In focus

Innovative marine propulsion

Breaking the ice
Ice-going ships from tankers to container ships with Azipod® propulsion can do what was once considered impossible – combine excellent ice-breaking and open water characteristics. In 1990, MV Seili, a buoy tender was the first to be fitted with Azipod, followed by MT Uisko a 16,000 DWT ice-breaking tanker in 1993 and Azipod-equipped icebreaker, IB Rothelstein on the Danube river, which became the first double acting ship in the world in 1995 – running in open water and astern in ice. The Azipod combines the advantage of the diesel-electric powertrain with the manoeuvrability of the azimuth thruster, offering design flexibility and great space saving, as well as 360°steering that provides full torque and thrust in any direction.

For more information: www.abb.com/marine

Executive editor: Karen Wilds
Editor-in-chief: Sanaj Natarajan
Production team:
Ali Kelani, Anita Ramkumar, Claire Hill,
Gowriashan S. Savant, Gritshar Sharma,
Michael Wachter, Nataasha Mhembula,
Peter Stierli, Philip Lewin, Reakesh Shawir,
Rubi Rakha, Sanaj Natarajan, Tamara Chetty,
Tuula Elomaa-Maenpaa, Wendy Joseph

Contact is published in English for circulation among ABB customers and stakeholders with an interest in ABB offerings, products and technologies.

Partial reprints or reproductions are permitted subject to full acknowledgement. Complete reprints require the publisher’s written consent.

Publisher and copyright ©2012
ABB Asea Brown Boveri Ltd.

Disclaimer
The information contained herein reflects the views of the authors and is for informational purposes only. Readers should not act upon the information contained herein without seeking professional advice. We make publications available with the understanding that the authors are not rendering technical or other professional advice or opinions on specific facts or matters and assume no liability whatsoever in connection with their use.

The companies of the ABB Group do not make any warranty or guarantee, or promise, expressed or implied, concerning the content or accuracy of the views expressed herein.

In focus

Innovative marine propulsion

Breaking the ice
Ice-going ships from tankers to container ships with Azipod® propulsion can do what was once considered impossible – combine excellent ice-breaking and open water characteristics. In 1990, MV Seili, a buoy tender was the first to be fitted with Azipod, followed by MT Uisko a 16,000 DWT ice-breaking tanker in 1993 and Azipod-equipped icebreaker, IB Rothelstein on the Danube river, which became the first double acting ship in the world in 1995 – running in open water and astern in ice. The Azipod combines the advantage of the diesel-electric powertrain with the manoeuvrability of the azimuth thruster, offering design flexibility and great space saving, as well as 360°steering that provides full torque and thrust in any direction.

For more information: www.abb.com/marine
Cities that consume 30% less energy?

As a leading producer of energy-efficient solutions, ABB helps deliver major power savings, without compromising performance. Our lighting control systems can deliver power savings of up to 50 percent, and our building automation up to 60 percent. While everyone else is talking about energy prices, power shortages and climate change, ABB is doing something about it, right here, right now. www.abb.com/betterworld

Certainly.