

ABB CORPORATE B-ROLL 2010

This B-roll includes background shots of ABB's industry solutions, operations and products for legitimate broadcast media to cover ABB. Aspect 16:9, with audio, HD (unless stated otherwise).

ABB operations

ABB headquarters, Zurich / Switzerland

ABB is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 115,000 people. The head office is in Zurich, Switzerland.

ABB corporate research center, Bangalore / India

Research and development is a vital source of ABB's technology leadership. At the heart of it are our people, in R&D and beyond, together with our partners: customers, suppliers and leading technology schools around the world. Our research center in Bangalore, inaugurated in February 2002, was established to meet research and development demands of ABB's software-intensive products and systems. Research plays a vital role in our product and process innovations, which aim to enhance electrical power reliability and industrial productivity, helping our customers improve competitiveness while reducing their environmental impact. ABB has nine research centers, 6,000 scientists and 70 university collaborations across the world – working to develop technologies that make our customers more competitive while minimizing environmental impact.

ABB training center in Vadodara / India

Established in 1967, ABB in Vadodara houses a number of manufacturing facilities and is ABB's hub for power products and systems in India. The advanced training center is equipped with an outdoor switchyard and demonstration room where products are displayed in working condition. This location offers training for high voltage products (circuit breakers, instrument transformers, disconnectors, hybrid switchgear and cable accessories), power transformers and distribution transformers, motors, power protection, relays and turbochargers. ABB's technical training gives engineers, operators, programmers, maintenance and service personnel the necessary know-how to handle ABB products, systems, processes and technology. Global training standards and our qualified and certified instructors lead the way. Dedicated demo equipment is available for hands-on training. ABB also conducts in-house, on-site training. Custom-made training programs are provided to meet the varying needs of customers and help them maximize the return on their ABB investment.

ABB in San Luis Potosi / Mexico

Opened in 2009, the ABB location in San Luis Potosi integrates engineering, sourcing and manufacturing for all of ABB's divisions. The campus-like facility was designed to encourage the sharing of ideas, technologies, resources and best practices between the divisions. Currently, the facility manufactures and assembles high-, medium- and low-voltage products; robotics, and control systems and automation products. The facility also offers standard and specialized engineering services, and is home to a customer service center supporting utility, industrial and commercial customers designed to increase the effectiveness and efficiency of ABB automation equipment.

ABB in Västerås / Sweden

ABB's head office in Sweden is located in Västerås, and employs about 4,500 people. This is also where most of the automation business can be found in Sweden. The local production includes robotics, machines and low voltage motors. ABB uses its products in its own factories – for example ABB robots are manufacturing ABB low voltage motors. ABB robots are capable of coordinating multiple manufacturing steps and coordinating with other ABB robots. ABB software also makes it possible to model manufacturing cells to optimize production flow and identify problems and bottlenecks before actual production begins. Robots increase the flexibility and speed of manufacturing production.

ABB electrical machines facility, Lingang / China

ABB Electrical Machines Ltd. was established in 2006 in the Minhang district of Shanghai to produce high quality high-voltage motors in China. The company is founded as a wholly owned foreign enterprise. The plant is designed and constructed following the latest technologies and standards from ABB's European factories. The company has also established its own team of product specialists and engineers to understand local needs. The company offers a complete range of high-voltage products, both locally made and imported. The company serves industries such as the chemical sector, oil and gas, power generation, marine, pulp and paper, cement, mining, metals, and water treatment. It provides manufacturing, sales and after-sales services to the entire Chinese market. ABB motors are highly efficient, an important benefit in process industries, water treatment, the marine sector, traction, and in power plants.

ABB gas-insulated switchgear (GIS) facility, Hanau / Germany

Gas-insulated switchgear has a much smaller footprint than the air-insulated alternative. This technology allows substations to be built in space-restricted areas like city centers, offshore oil and gas platforms, power plants and office buildings. The installations are so compact they can often be concealed in a building to blend in with the local architecture. ABB delivered the world's first gas-insulated (GIS) substation in 1965 and has since delivered tens of thousands of GIS bays worldwide, including the world's largest GIS installations at the Itaipu hydropower plant in Brazil (delivered in 1984) and the Three Gorges hydropower plants in China (delivered in 2006).

ABB low-voltage circuit breakers facility, Frosinone / Italy

ABB manufactures and supplies a range of high-quality products for the solar power market, suitable for the smallest residential building applications, right up to large power plants. ABB's products and solutions ensure that solar energy systems operate with maximum uptime, which translates into increased power production and higher revenues for the system operator and owner. The portfolio includes low-voltage circuit breakers, produced in Frosinone, Italy. These products can be adapted to a variety of service and installation requirements, and satisfy all plant needs, from the small user up to large industrial electric power distributors. ABB's molded case switches are also the ideal solution for the disconnecting requirements of photovoltaic installations.

ABB low-voltage products facility, Heidelberg / Germany

ABB in Heidelberg develops, manufactures and sells highly modern modular systems for electrical building installations and building automation, products for electrical energy distribution, for machinery and factory automation. It expanded production facilities in 2008 to include the manufacture of low-voltage circuit breakers. It is ABB's manufacturing center for intelligent building control systems. These control all the different functional subsystems within a building, integrated and connected to a single communication system. This enables the optimal, energy-efficient interaction of the subsystems, which is almost impossible to do with conventional technology. The system provides optimal control of lighting, heating and ventilation, climate, shutter, alarm, energy management, and central automation..

ABB medium-voltage switchgear facility, Xiamen / China

The plant manufacturing medium-voltage switchgear in China is one of ABB's largest production facilities. Medium-voltage switchgear reduces power outage times and improves power quality and control, and are key to improving operational efficiency of both utility and industrial customers. Established in 1992, ABB Xiamen Switchgear Co., Ltd., ABB's first joint venture in China, is the largest manufacturer of medium-voltage switchgear and circuit breakers in the world and has been ranked among China's top 10 electric enterprises in recent years. In addition to being exported to overseas markets, the products have been used in many flagship projects and enterprises in China, including the National Grand Theater, Shanghai Baosteel, Qinshan Nuclear Power Plant, Three Gorges Project, China National Offshore Oil Corp and Shell Petrochemical Plant, Guangzhou Metro and many Olympic projects in Beijing.

ABB power products facilities, Ludvika / Sweden

Ludvika is a key knowledge and production site for ABB, manufacturing high- and medium-voltage products and systems. The 2,500 employees there are involved in the research, development and production of a wide range of products, including power transformers, insulation and components, high voltage products, power systems, high-voltage direct current (HVDC) and HVDC Light transmission systems, and high- and medium-voltage circuit breakers. In 2006, ABB opened the world's first installation for testing the technology of direct current (DC) rated at 800 kilovolts (kV), marking another first for the company, which pioneered high-voltage direct current systems more than 50 years ago. UHVDC (ultrahigh-voltage direct current) transmission systems will make it viable to produce electricity in remote regions of China, India, Brazil and Africa, where vast hydropower resources remain untapped.

ABB robotics lab, Ladenburg / Germany

The FlexPicker from ABB's robotics business is the world's fastest pick-and-place industrial robot. It offers new opportunities for flexibility and repeatability in the consumer goods and other industries. Established in 2003, FlexPack Robotics is a production developer, analyst and system integrator in the food, pharmaceutical, chemical, logistics and material handling industries. ABB recently launched the second generation of this industry pioneering high-speed robot. The new FlexPicker features stainless-steel parts that can be easily washed down to provide the maximum in hygiene and production cleanliness. The robot's speed and small footprint offers flexibility combined with high cycle times. It saves time, space and money and its rugged industrial design ensures it can meet the needs of the most demanding production operations.

ABB robot manufacturing facility, Shanghai / China

To date, ABB is the only multinational company to produce industrial robots in China, operating a full range of business activities including manufacture, R&D, sales, engineering and services. In 2006, ABB relocated the headquarters of its global robotics business to Shanghai. Established in 2005, the global robotics research center in Shanghai is ABB's third such R&D facility after those in Switzerland and Sweden. Last year, ABB Engineering (Shanghai) Ltd. inaugurated its brand new production base in Shanghai, doubling ABB's robot manufacturing capacity in China. Also in 2009, the robotics R&D center in Shanghai successfully developed ABB's smallest ever industrial robot: the IRB 120, useful in the electronics, food and beverage, pharmaceutical, medical, and research sectors. It can handle and assemble small parts, and is particularly useful where space is at a premium. As a pioneer and leader in robotics, ABB was the first to bring industrial robots into the world in 1974. Today, there are more than 160,000 ABB robots in operation – perhaps the largest installed base in the world – used in applications that include material handling, picking, packing, palletizing, welding, painting, gluing, sealing and assembling in various industries.

ABB semiconductors facility, Lenzburg / Switzerland

Lenzburg is ABB's center for the production of power semiconductors, a 24-hour factory with two production lines that have a combined output of around 225,000 silicon wafers per annum. These semiconductors are supplied to the power electronics industry, and are the key component in ABB's high-voltage direct current systems. ABB in Lenzburg represents state-of-the-art semiconductor manufacturing and employs the newest technologies and the most advanced production techniques and machines. This ensures ABB's power semiconductor devices consistently meet the high performance and quality standards customers demand and rely on.

ABB transformer factory, Chongqing / China

Established in 1998, ABB's transformer factory in Chongqing is the group's largest investment in China. Transformers are typically used for power transmission and distribution systems, such as in large substations. The generator transformers produced in Chongqing are used in power generation to increase the voltage of the electricity produced at a power plant for long-distance transmission. ABB's transformers are widely used in China and play an important role in many of the country's key projects. In 2009, Chongqing began designing and manufacturing high voltage direct current (HVDC) converter transformer to support China's growing need for high-voltage transmission systems.

ABB projects

Automotive

Paint robots, car assembly plant, Turin / Italy (no audio)

This paint line at a Fiat assembly plant includes various stations for interior base painting; coat exterior base painting; and interior and exterior varnish. Combined with a new generation of rotary atomizers, ABB's FlexPainter significantly increases productivity on the paint line, while lowering investment and operating costs. FlexPainter also uses less paint, reducing both cost and environmental impact. ABB has already revolutionized robot painting technology by replacing conventional paint tanks and hoses with a refillable cartridge on the robot arm.

Building Industry

Power and automation products, Burj Khalifa Tower, Dubai / UAE

A host of ABB products and solutions support the energy efficiency and electrical stability of the Burj Khalifa. At 828 meters, the tower is the world's tallest building and has the power needs of a small town, which presents many engineering challenges. The distribution substation and control equipment that ABB custom-engineered are on the 155th floor. ABB also delivered 50 lightweight gas-insulated medium voltage switchgear units, which save space and are easy to service; 72 Resibloc dry-type transformers custom-designed to fit in tight spaces; 37 low-voltage main distribution boards and panels plus a host of energy-saving low-voltage variable speed drives to regulate air-handling units, booster pumps, water pumps and air fans. ABB's variable speed drives enable motors to run efficiently at optimal speed as needed, instead of at constant fixed speeds.

Food and beverage

Packing and palletizing robots, water bottling plant, Dubai / UAE

ABB robots helped the Oasis Water Company automate a once-hazardous operation and increase production capacity. With an estimated 60-percent market share in the UAE's five gallon bottled water market, on-time delivery for homes and offices is crucial. In 2004, the company automated its production line with the help of a pair of ABB robots: the IRB 6600 and the IRB 7600, which handle 250 kg and 500 kg payloads respectively. The IRB 6600 loads empty water bottles and places them on the conveyor belt, while the IRB 7600 lifts 16 water-filled bottles along with a metal stack holder – a total of 450kg – and loads them accurately into massive steel racks. ABB robots have helped the firm cut cycle times and increase productivity by 36 percent, and created a safer working environment for employees.

Marine

Power products and propulsion system, cruise ship, Turku / Finland

Royal Caribbean's Oasis of the Seas is the largest cruise ship ever built, spanning 16 decks capable of carrying around 5,400 guests and a crew of 2,800. Oasis is equipped with an ABB power and propulsion system, setting a new standard for fuel efficiency, ship maneuverability and passenger comfort. ABB supplied three ABB Azipod propulsion units, three ACS6000 medium voltage drives, six main generators, 11-kilovolt main switchboards, six propulsion transformers, four thruster motors, distribution and propulsion excitation transformers, and substation switchgear. The electrically powered Azipod provides both propulsion and 360° steering in a unique, space-saving pod fixed to the hull of the ship. It delivers more payload at higher speed using less energy compared with conventional shaftline propulsion. Exceptional maneuverability (full thrust in all directions), smooth operation at cruising speeds, imperceptible noise and vibrations, and significantly lower fuel consumption and greenhouse gas emissions are hallmarks of ABB's Azipod. The units are installed in about 70 vessels, from cruise liners to icebreakers and drilling rigs, and have accumulated nearly 4 million operational hours.

Metals

Power and control products, aluminum smelter, Sao Roque / Brazil

Since the opening of its first plant in Alumínio, São Paulo state, in 1955, Companhia Brasileira de Alumínio (CBA) has become Brazil's second-biggest metal producer, with output of 400,000 metric tons of primary aluminum each year. ABB supplied a turnkey high-power converter system, including electrical and mechanical equipment, civil design, construction, installation and commissioning as well as power lines and monitoring and control (SCADA) systems. High power converters (also called rectifiers) are critical components in aluminum production. They control and convert alternating current delivered by the power grid or onsite power plant into the required direct current that powers the electrolytic process and produces molten aluminum. ABB is the market and technology leader in power conversion for smelter applications, with a global market share of around 50 percent and a full scope-of-supply capability.

Metals

Power and control products, aluminum smelter, Mesaieed / Qatar

Qatalum is one of the world's largest aluminum smelters with a production capacity of 585,000 metric tons per year. ABB supplied a high-voltage power conversion station as well as control and protection systems (System 800xA, SCADA) and electrical equipment for the plant. The high power converters at Qatalum (also known as rectifiers) are the biggest and most powerful ever built. Rectifiers are critical components in the aluminum production process. They control and convert the alternating current delivered by the power grid or onsite power plant into the required direct current that powers the electrolytic process and produces the molten aluminum in the pots. For many years the capacity of rectifiers was limited to 1,200 volts DC. Recently, ABB has raised the voltage limit to as high as 2,000 volts DC for Qatalum, a groundbreaking achievement that enables ABB rectifiers to convert and deliver substantially more power. Added to the huge cost savings (fewer units needed to supply more power) is an 18-percent increase in energy efficiency – representing an enormous saving for plants that consume as much electricity in a year as 300,000 homes.

Metals

Force measurement, aluminum rolling mill, Shanghai / China

Sapa Heat Transfer is one of the world's largest manufacturers of clad aluminum heat-exchanger strip for the automotive industry. Heat-exchanger strip is used to produce different types of radiators, evaporators, air-intake coolers and condensers for passenger cars and trucks. The company's cold rolling mill north of Shanghai works exclusively with aluminum strip for heat exchangers in automotive applications. The mill uses ABB's Stressometer system for flatness control and an ABB MTG system to gauge the thickness of aluminum it produces. The Stressometer installations have increased the mill's productivity by improving quality, increasing production speeds and shortening the production cycle by 10 percent, with a considerable decrease in scrap. A single operator can now take care of two roll stands, and run the mill by himself. ABB provides a complete range of force measurement products designed to improve control, productivity and quality in a wide variety of processes and industries. For more than 40 years, the Stressometer system has been recognized as the world standard in flatness measurement and control in flat rolling mills. Since 1967, more than 500 systems have been installed in steel, stainless, aluminum and copper mills.

Mining

Power and automation products and services, copper mine, Gällivare / Sweden

ABB's comprehensive automation and power delivery at Boliden's Aitik copper concentrator plant is the latest chapter in ABB's rich history of improving the operations of all types of mines and ore processing plants. High efficiency is a matter of survival for the Aitik copper mine in northern Sweden. The proportion of metal in the earth's surface here is so low – less than 0.3 percent – that it can only be extracted profitably if the processes are highly automated. Located near Gällivare, in the arctic Lapland region of Sweden, the copper deposit at Aitik was discovered in the 1930s although mining only began in 1968 when technology was sufficiently advanced to profitably extract the metal. In 2006, Boliden decided to make the biggest investment in its history to increase output. At full capacity, the mine is now capable of processing about 100,000 tons of ore every day. Around 650 ABB high-efficiency motors, many of them equipped with variable speed drives, power the conveyors, crushers, pumps, fans, and process equipment to ensure minimal energy use and maximum process efficiency. In the concentrator, two ABB gearless mill drives (GMDs) – the most powerful ever built – power two new mills that grind the ore to sand from which the copper can be extracted. The entire site process – including the concentrator plant, conveyor systems and pumping stations – is controlled by ABB's Extended Automation System 800xA. ABB's scope of supply also included a gas-insulated substation, a harmonics and power factor correction filter system, low-voltage switchgear as well as maintenance and service.

Oil, gas and petrochemicals

Electrical products and systems, petrochemical complex, Ras Laffan C / Qatar

Ras Laffan in Qatar is a massive downstream petrochemical complex serving the largest natural gas field and biggest liquefied natural gas port in the world. The field is estimated to hold as much as 20 percent of the world's proven gas reserves, which are piped onshore into the complex, liquefied, and then shipped on large LNG tankers to markets in Asia, Europe and the United States. The \$3.7 billion Ras Laffan C plant is the largest power generation and water desalination project in the country, with capacity to generate 2,730 megawatts (MW) of power, and produce more than 286,000 cubic meters of potable water per day. It is expected to begin operations in 2010 and be fully operational by 2011. ABB has supplied the plant's turnkey electrical systems, comprising substations rated at 400, 220 and 132 kilovolts, 800-MVA (megavolts ampere) transformers, generator bus ducts and breakers, medium- and low-voltage switchgear, the emergency power supply and the plant's cable systems. In addition, 27 ABB medium voltage variable-speed drives and a number of large motors will help pump 833,000 cubic meters of water an hour to cool the power plant, LNG trains and petrochemical facilities, where summer temperatures can reach 50°C (122°F). ABB will also provide engineering services, construction supervision, commissioning and training.

Oil, gas and petrochemicals

Automation, ethanol production center, Manchester / United Kingdom

Nedalco is a leading European producer of natural ethanol (ethyl alcohol), with activities in about 20 countries worldwide and four production sites in Europe. Their plant in Manchester takes waste wheat sugars from a neighbouring food manufacturing plant and turns them into 40 million litres per annum of top quality alcohol, used in beverage, fuel and as an additive in perfume, cosmetics, pharmaceutical products and printing inks. By-products of the process are used in the production of animal feeds for cattle and pigs. ABB helped with commissioning the Extended Automation System 800xA control system and provides round-the-clock technical support in the form of telephone access to ABB automation experts. As well as supplying preventive maintenance services, ABB will also help with any future modifications or upgrades to improve the system. Modern control systems are very complex. To ensure maximum reliability and availability, professional support is required – downtime for such plants costs huge amounts of money.

Pulp and paper

Automation and power products, paper mill, Telemaco Borba, / Brazil

Klabin SA, one of Brazil's largest paper manufacturers and exporters, uses ABB's electrical and automation systems to improve energy efficiency and industrial productivity in a new paperboard line, which has boosted output of its liquid packaging board product by 50 percent. ABB is supplying new automation systems based on its System 800xA platform and upgrades to existing systems for a uniform operating environment. ABB will also supply electrical systems including a 69 kV substation, transformers, refiner motors and protection equipment, process electrification, and paper machinery drives. ABB monitoring and quality systems ensure top performance of paper and pulping machinery.

Rail

Automation and power products, commuter rail system, Delhi / India

ABB's solutions for management of power networks and electrical products are helping Delhi Metro Rail Corporation's (DMRC) commuter trains run smoothly and efficiently, reducing traffic congestion, pollution and road accidents for the long-suffering citizens of India's capital city. With a burgeoning population of more than 16 million people, the streets of Delhi have the highest number of vehicles per square kilometer in India, with more bicycles, scooters, auto-rickshaws, buses and cars on its roads than Calcutta, Mumbai and Chennai combined. Early in the new millennium, local government decided to tackle the problem head-on by building a new mass transit rail system tracing some of Delhi's most congested roads in order to reduce traffic. The goal is to cover the whole of Delhi with a world-class metro network by the year 2021, presenting an alternative to roads. The first section of Delhi's metro was opened in 2002. Today it consists of three lines and more than 80 stations. ABB has provided numerous solutions for DMRC, including electrification of overhead lines, substations and SCADA (supervisory, control and data acquisition) installations. The customer benefits from efficient and seamless management, monitoring and control of various parameters of the power network, high system reliability, and efficient power and traction transformers.

Rail

Substation control and monitoring, commuter rail system, Dubai / UAE

Dubai metro is a driverless metro network. Service started on the fully automated metro system's "Red Line" in September 2009. ABB's Substation Control and Monitoring Systems (SCMS) and low-voltage products are working together to deliver reliable power. ABB's SCMS technology is designed to increase energy efficiency and grid reliability for the entire electrical network by using a powerful set of tools to monitor and manage power quality. The substations also feature fault recorders and tariff metering systems to carefully monitor performance and ensure smooth operation. The metro network is 75 kilometers long and will carry 23,000 passengers per hour per direction. The service started with 12 trains. There will be 44 once the remaining stations are operational in 2011.

Utilities

Power products and SCADA installations, power utility, Bangalore / India

Rapid economic growth is fueling increased demand for electricity and straining Bangalore's power infrastructure. ABB has been helping the state power utility, Karnataka Power Transmission Corporation Limited (KPTCL), strengthen its transmission and distribution infrastructure for the past decade. As part of this effort, a new substation being built by ABB in the heart of the city will help to meet the rising demand for power, and improve the quality and reliability of electricity in Bangalore. The 220/66 kV substation is equipped with the most modern gas-insulated switchgear (GIS) and SCADA (supervisory control and data acquisition) system, providing data to the local distribution company. The solution monitors the power network of the entire state, provides accurate and real-time information on power supply and revenues, and enables operators to identify and correct faults quickly. ABB is the world leader in network management and utility communication and provides solutions which are critical components in turning the smart grid vision into reality.

Utilities

High-voltage direct current power transmission, Foz do Iguacu / Brazil

The Itaipu project, with two transmission lines built by ABB in 1984 and 1987, is the world's highest-voltage DC power transmission system currently in operation. At 14,000 megawatts Itaipu provides nearly 30 percent of Brazil's power needs, and more than 90 percent of the needs of neighboring Paraguay. The Itaipu transmission system consists of two bipolar HVDC transmission lines bringing power generated in the 12,600 MW Itaipu hydropower plant, owned by Itaipu Binacional. ABB stabilized and increased the power load on the AC transmission corridor from the power plant by installing seven banks of 800 kilovolt series capacitors from its family of flexible alternating current transmission systems (FACTS). The Itaipu power plant also contains one of the largest 550 kilovolt gas-insulated switchgear (GIS) installations in the world and is controlled by an ABB power-plant control system. ABB products and skill have helped shape Itaipu into a reliable, efficient power supply supporting South America's biggest economy.

Utilities

Power products and systems, Foz do Iguacu / Brazil

Furnas Centrais Eletricas is the largest Brazilian electric generation and transmission power utility and owns the Itaipu HVDC transmission system. ABB was also responsible for a complete refurbishment of 600 kilovolt converter transformers located at the Foz do Iguacu converter station. Itaipu is particularly critical as it supplies 90 percent of Paraguay's electricity and 30 percent of Brazil's, feeding the two Brazilian megacities of São Paulo and Rio de Janeiro. The revamping work of these units was performed on site, using ABB advanced technology for on-site repair (OSR), refurbishment and tests of large power transformers. OSR eliminates the need to transport large transformers for repair, and makes it possible to get the failed unit repaired or refurbished in a shorter time. This capability is critical for transformers in remote or inaccessible locations, where transportation is either too costly or logistically impossible. ABB has performed more than 200 on-site transformer rebuilds all over the world and on all types, ratings and makes of transformer - achieving the same level of quality and using the same work processes as in its factories.

Utilities

Power products, Colorado / US

San Isabel Electric Association is a rural electric cooperative, serving over 23,000 members in seven counties in southern Colorado. ABB delivered modular substations and wiring designs, which make it possible to connect and commission substations quickly, bringing reliable power to remote areas. Today, projects are required to be delivered with extremely short lead times, and high-risk exposure due to reduced design, manufacturing, installation and commissioning schedules. Modular substations enable the equipment to be factory installed and precommissioned off the site, thus allowing simple on-site civil works, installation and commissioning. It is an ideal solution for remote sites or sites which are exposed to inclement weather or are difficult to access.

Water

Drives, motors and control systems, water treatment plant / Dubai, UAE (PAL 3:4, no audio)

ABB drives and motors work in unison to provide extremely precise control and energy savings to any application powered by motors, such as water treatment plants, paper mills, power plants and steel mills. ABB drives allow motors to be ramped up or down at the exact speed required, allowing precision control that uses only the energy required, rather than having a constant speed motor which always runs at the same pace. At the Al Aweer water treatment plant, ABB drives and motors also provide interconnectivity with ABB's advanced control System 800xA, allowing energy efficiency to be measured and optimized as a process variable and performance indicator.

Wind

High-voltage transmission with HVDC Light, offshore wind farm, Germany

Borwin1 is the world's most remote offshore wind farm, located more than 100 kilometers off the German coast in the North Sea. ABB supplied the power equipment that will connect the 400 megawatt (MW) wind park to the German grid, using its innovative and environmental friendly HVDC Light (high voltage direct current) transmission technology, which gives utilities complete control over the power supply and increases grid stability. ABB was responsible for system engineering including design, supply and installation of the offshore converter, sea and land cable systems and the onshore converter. Most of the transmission system will be laid underwater and underground, thus minimizing environmental impact. HVDC Light offers numerous other environmental benefits and is ideal for connecting renewable hydro and wind generation sites over long distances to centers of demand, reducing reliance on fossil-fuel generated power. ABB has supplied some of the world's most powerful high-voltage direct current (HVDC) lines, helping make reliable energy available to industry and households with lower environmental impact.

Wind

Power products, wind farm, Finland

The first stage of Finland's largest wind farm, Kemi Ajos in Northern Finland, became fully operational in 2008. The wind farm has 10, three-megawatt turbines (onshore and offshore) with a total production capacity of 30 megawatts. It is connected to the national grid by an 11 kilometer, 110 kilovolt power line. ABB delivered generators and frequency converters to all wind turbines in the project as well as substations and transformers. With its 20 years of experience, ABB serves wind power customers at every stage of a project. ABB's offering includes everything from components for wind turbines to power plant solutions, including electrical design, substation construction, project management, and installation and commissioning.

Wind

Power products, wind farm, United Kingdom

The wind farm at Braes of Doune in Stirlingshire, Scotland, was commissioned in 2006 and comprises 36 turbines capable of generating 72 megawatts of power, enough energy to power around 45,000 homes, according to the British Wind Energy Association (BWEA). ABB supplied medium voltage substation equipment, including GIS (gas insulated switchgear) panels, as well as auxiliary substation transformers. It was also responsible for installation, testing and commissioning services.

For help with any technical terms in this release, please go to: www.abb.com/glossary.

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