

CONTACT

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The ABB India Magazine



ABB

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Dear friends,

The global business environment has become highly competitive, complex and diverse and it is imperative for businesses to consistently improve efficiency in all its operations. In order to remain competitive, companies must continuously innovate each facet of its business, be it manufacturing, sales, supply chain management or logistics.

The global economy has given businesses the opportunity to market products and services across the globe and to widen the scope of their operation by development of ancillaries and alliances across geographical boundaries. This diversification in business has been largely achieved because of the success of logistics. An optimally organized logistics system is increasingly becoming a key determinant to success. Companies face a real challenge in managing logistics. It is imperative to coordinate smooth stream of resources between various channels to ensure that the customer gets the right material, at the right time, at the right point and in the right condition - at the lowest cost.

Intermodal freight transport reduces trans-shipment costs by seamless integration of air, sea, rail and road transport. While it serves as the lifeline of business, there is an increasing concern over the rising costs and environmental impact from this activity. Businesses are faced with the challenges of enhancing the energy efficiency and reliability of transportation solutions while managing their logistics in the best possible way.

ABB offers comprehensive power and automation solutions that facilitate the global transportation industry to improve efficiency and speed of their operations. Our wide portfolio products and systems and know-how enable us to offer cutting-edge technologies for developing safe, reliable and cost-effective solutions for managing logistics.

We hope you enjoy reading this special issue on ABB's solutions for the logistics industry.

Yours sincerely,

Biplab Majumder - Managing Director, ABB India

ABB appoints Joseph Hogan

as new
CEO

The Board of Directors of ABB Limited, appointed Joseph M Hogan as Chief Executive Officer of the ABB Group. Prior to his appointment, Hogan was CEO of GE Healthcare, the global leader in medical diagnostic technology and biosciences, and a member of the GE Senior Executive Council. He joined ABB on September 1, 2008.



Joseph Hogan has a long and distinguished career at GE, spanning 23 years and a wide range of challenging positions. Hogan holds a Bachelor of Science degree in Business Administration from the Geneva College and an MBA from Robert Morris University, both in the U.S. He is 51 and holds a U.S. citizenship.

Michel Demaré, ABB's Chief Financial Officer, who was holding the CEO position on an ad-interim basis since February 13, 2008, will continue to serve as ABB's CFO.

"The Board of Directors is very pleased with Joseph's decision to take on this exciting role. His proven international track record as a highly successful leader at one of the world's most respected technology companies will be a great contribution to the Company, as we continue to focus the organization on excellence in everything we do," said Hubertus von Gruenberg, ABB's Chairman.

"I am honored to become ABB's CEO," Hogan said. "I am deeply committed to ABB's drive to increase energy efficiency and industrial productivity for its customers. I look forward to leading the Company to the next stage of its development and success together with the team at ABB."

Frost & Sullivan Award for ABB Low Voltage Electric Drives

ABB earned the 2008 Global Low Voltage Electric Drives Company of the Year Award from Frost & Sullivan for the Low Voltage Drives business segment. Business development, competitive strategy, customer satisfaction, and leadership within a particular Industry Research Group (IRG) were the contingencies Frost & Sullivan included in its evaluation. ABB's global Low Voltage Drives' business unit "perceived to exhibit outstanding management and consistent growth,"

when evaluated against these measurements, the consulting firm noted.

ABB is distinguished in its commitment to serve customers with the most complete line of drives in the marketplace, including AC and DC drives. "Officially, this 'Company of the Year' award is presented in recognition of the company's successful efforts to penetrate horizontal and vertical markets of the low voltage drives domain," said Frost & Sullivan research analyst. "ABB has demonstrated

Thinking Green through Energy Saving

In presenting the award, Frost & Sullivan emphasized the focus ABB puts on helping customers to become more energy conscious - and then providing products that deliver energy savings and a more sustainable world.



an outstanding ability to offer complete solutions for automation customers."

Big Award for a little product

ABB won an innovation award at a major oil and gas industry conference in Houston, Texas, for a wireless vibration sensor that could revolutionize the maintenance of electric motors. The device, called Vivib, has been developed in collaboration with external partners for use on small motors. Analysis of data about the vibrations of a motor enables abnormalities in its performance to be identified at an early stage.

"The sensor paves the way for oil companies to introduce completely new strategies for the maintenance of electric motors," said Egil Birkemoe, who lead the ABB part of this development project. "With

Vivib, the hand-held equipment used for this kind of monitoring today will become a thing of the past."

The device has an expected lifetime of five years and will reduce the cost of maintenance as well as extend the lifetime of electric motors. The sensor is ex-proof certified (certified for operation in hazardous environments) and is ideal for use in the offshore sector. In principle, however, it can be used in all industrial sectors with the same benefits. The product is based on the new Wireless HART communications protocol, which was ratified in September 2007.

Vivib is being jointly developed by ABB's



oil and gas business unit in Norway and Corporate Research in Sweden, in cooperation with a consortium of independent research organizations and several oil companies.

ABB wins award for Customer Support System

Global consulting company Frost & Sullivan presented its "Excellence in Condition Monitoring of the Year Award" to MV Drives for its monitoring and diagnostics system DriveMonitor™. ABB won the award for being the "foremost company in the world electric drives market to develop such a unique customer support system".

DriveMonitor™ is a performance monitoring system for ABB drives. It consists of a hardware module inside the drive, as well as a software layer that routinely collects and analyses selected drive signals and parameters. DriveMonitor™ observes the



drive system and responds when any changes occur. This data can be very useful when determining any malfunction. With DriveMonitor™, ABB

experts can remotely guide a maintenance engineer through a swift and efficient fault-finding procedure. DriveMonitor™ reduces customer downtime and maintenance costs considerably over the product lifecycle.

The award recognizes the company's dedicated commitment to developing a successful service or product to meet customer needs. Additionally, the product has to offer scalability and security as well as be cost effective to ensure market success.



Aiming for a Hatrick!

ABB has won the Frost & Sullivan 'Industrial Technologies Award for Market Leadership in Automation and Software' in Malaysia. This is the second consecutive year that ABB has received the award which recognizes the Company's outstanding performance in providing technologically advanced control systems, drives and software engineering solutions to customers in Malaysia.



ABB expands

power electronics portfolio with acquisition in New Zealand

ABB has acquired the business of Vectek Electronics, a New Zealand company with innovative technology that improves the quality of the power supply in industrial installations, which helps to reduce downtime and increase productivity. "Vectek is an ideal addition to our portfolio of technologies that help customers increase power reliability, productivity and energy efficiency," said Tom Sjoekvist, Head of the Automation Products division. Vectek's high-power electronic converters use Active Voltage Conditioning (AVC) technology to mitigate the effect of voltage surges and sags, creating a more stable and continuous supply. The product is designed for industrial, commercial and marine applications, and has already been successfully introduced in the U.S. and in a number of Asian markets.



Swedish prize for UHVDC technology

The developers of a low-loss, ultra-high-voltage power transmission technology that is being used to build the world's longest power line in China have been awarded the prestigious Grand technology Prize. The team led the development of the new technology that raises the voltage of direct current transmission to 800 kilovolts (ultra-high-

voltage direct current). The technology makes it possible to transfer large amounts of power over long distances with very small losses, and ABB won its first order for the technology from China in December. The Grand Technology Prize is an annual award organized by Ny Teknik, a technology magazine, and VINNOVA, a Swedish Government agency that supports innovation.





ABB powers up offshore Caspian Oilfield



A 120-megawatt ABB power generation barge is powering operations at the most important oil discovery since 1968 - the giant Kashagan oilfield in the Caspian Sea, where drilling complexity and hostile conditions require exceptional power reliability. The custom-designed power generation barge is installed at the D Island in the Kashagan oilfield. Kashagan is the largest oilfield discovery in the past 40 years. It covers a surface area of some 3,400 square kilometers and contains an estimated 38 billion barrels of oil, of which 13 billion are potentially recoverable. The development of the Kashagan field represents one of the greatest challenges in the petroleum industry. ABB was selected to design, construct and deliver a self-contained power generation barge to generate, control and manage electric power for D Island operations.



Thermometers for the world's most Northerly LNG Plant

Over 1,000 ABB RTDs (Resistant Thermometer Devices) are to be used in the world's most northerly liquefied natural gas facility. Supplied for Statoil's Snohvit project, the first offshore development in the Barents Sea, the RTDs will be used for measurement of process temperatures, loading and off-loading, monitoring, spill detection and environmental protection. The full assembly thermometers feature solid drilled flanged thermo-wells and transmitters with HART communications and display. The devices incorporate stainless steel heads, providing an uncoated corrosion-resistant enclosure, with a window for the display.

ABB's online analyzer to help Arcelor Mittal monitor steel production

ArcelorMittal, the world's number one steel producer, has selected ABB's SpectraFlow online cross-belt analyzer solution for its Bremen plant in Germany. SpectraFlow will provide the plant with online and real time chemical composition analysis of the feed as well as data about the carbon content of the feed. With the current method of material analysis at the plant there is a three hour wait between taking a sample and receiving the chemical composition analysis. With the SpectraFlow system, early measurement of the sinter composition is made by already detecting the sinter mix analysis. This makes operation and product quality more stable. Furthermore an increase in productivity can be achieved as improved process stability supports optimization activities.



ABB Wireless Motion Detector

with almost zero energy consumption

ABB has developed a top-of-the-range wireless motion detector that does not consume mains electricity and is powered - for a remarkable 5-7 years - by just three standard 1.5 volt alkaline batteries. Launched to widespread industry acclaim in Germany in 2007, the new Busch-Watchdog wireless motion detector breaks new ground in energy-efficient and cost-effective building surveillance technology.

Powered by just three inexpensive AAA alkaline batteries (the sort commonly used in portable electronic devices like digital cameras, MP3-players and remote TV controls), the new motion detector uses an innovative design to eliminate the need for costly wiring and reduce power consumption to uniquely low levels. Battery lifespan can be extended even more - to 10 years - by using lithium iron disulfide cells instead of standard alkaline batteries.

Industry benchmark

ABB developed the product in collaboration with Busch-Jaeger and MEMS Inc, a Swiss-based company founded by former ABB engineers. Busch-Jaeger is an ABB company and a world-leading brand in low voltage building installation products and solutions. Its range of Busch-Watchdog motion detectors is widely considered

the benchmark in detection capability, reliability and aesthetic appeal.

Equipped with an exceptionally powerful lens and broad range of functionality, the Busch-Watchdog detects any moving object within an unparalleled 16 meters of the detector. Unrestricted by power



connections, the new wireless variant brings complete freedom of placement to users. It can be attached to a building, garage, perimeter wall, porch or ceiling.

The Watchdog is equipped with a microcontroller which supports several power-down modes that allow the detector to go into various states of 'sleep' during daylight, gradually waking up as the light fades. Full recovery is instantaneous (a few microseconds) if a moving object is detected.

The innovation is based on low power-consuming components and embedded system technologies in three interconnected modules comprising sensors, radio communications and microcontrollers.

ABB launches world-first Integrated DC Circuit Breaker

ABB has launched a low-voltage air circuit breaker for critical DC applications that integrates - for the first time - advanced functionality and external devices in a single space-saving, factory-tested unit. The ABB SACE Emax DC circuit breaker integrates in a single unit a broad range of advanced monitoring, protection and control functions that were previously performed by external devices. It is the only breaker of its kind on the global market.

The innovation takes DC current breakers into another dimension, eliminating the disadvantages and limitations of existing breaker alternatives. These are either integrated (but do not offer advanced functionality) or non-integrated, in which case they require separate devices like the trip unit and shunts to be installed in the switchboard.

Emax DC, on the other hand, combines in a single breaker the trip unit, current and voltage sensors and connections, as well as a comprehensive range of advanced protection,

measurement, communication, automation, diagnostic and HMI (human machine interface) functions.

It is compact, saving space in the switchboard (no external devices required), and is factory tested, certified and compliant with all main electrical standards. Because of its extensive functionality and integrated components, Emax DC offers better performance characteristics than existing breakers.

Critical applications

Emax DC is designed for key power applications where continuity of power supply is critical. Typical users include hospitals, continuous process industries, telecommunications and data processing centers, as well as electrical traction and drilling units, chemical and electrolytic processes, and naval applications like speed control and battery or fuel cell propulsion.



ABB Robots drive innovation in Indian automotive sector

ABB is a market leader in robotics worldwide, with a global installed base of 160,000 robots - the largest in the world. In India, the robotics business is growing at a rapid pace with an expanding range of products and services. ABB's vast expertise in providing cost-effective automation solutions that enhance productivity and efficiency in industries helps customers optimize their investments.

India is emerging as a manufacturing hub for the automotive sector which continues to grow in top gear and substantial investments being made in this sector. Robotic solutions from ABB are helping the industry to address issues like productivity, quality and worker safety.



Ford India chooses ABB Robots for its new car program

ABB recently won an order from Ford India for the supply and installation of its roller hemming cells, which includes proven roller hemming technology and industrial robots. The installation comes as a strategic move for Ford India in the replacement of its predecessor press die hemming. The robots help Ford complete the closures of its B-517 vehicles.

ABB will supply 66 IRB 6640 and 7600 robots as part of the order. Out of the ten IRB 6640 robots, four will handle roller hemming solutions while the other six will aid all material handling within the cells and robotics sealant application. The other lot

of 56 robots will be installed at Ford's upcoming body shop at Chennai. ABB will also supply robot software, peripheral equipment, modular manufacturing cells and service for tasks such as welding, handling, assembly, painting and finishing, picking, packing, palletizing and machine tending.

ABB robots perform at high-speed with the capacity of 22 JPH (jobs per hour) with zero downtime. These solutions will help Ford achieve improved productivity and efficiency with less investment. The robots are highly modular and have high degree of flexibility.

At the service of Honda

ABB's robotics business has won an order to provide service and spares for the painting line robots at Honda Siel Cars India's (HSCI) Greater Noida facility. A team of service experts will help HSCI enhance productivity of this plant. HSCI, a leading manufacturer of premium cars in India, recently expanded the capacity of this facility from 50,000 units to 100,000 units per annum. ABB has also supplied robots from its production facility in Japan for the painting line at Noida.

ABB's Robotics Centre in India is located in Bangalore. Sales and Service offices in other locations include Pune, Faridabad, Chennai and Jamshedpur. ABB Robotics serves both the automotive and the general industry customers with products, solutions and services.

Significant Robotics Orders

- Roller Hemming Cells - Ford India
- Robots, Service & Spares - Honda Siel Cars India
- Robot-based Automation - Fiat
- Roller Hemming Cells - Mahindra Renault
- Body in White Line - Tata Motors

Landmark SCADA project goes live at ONGC



ABB achieved a significant milestone with the activation of phase I of its landmark enterprise-wide SCADA (Supervisory Control and Data Acquisition) project linking all ONGC's (Oil and Natural Gas Corporation) facilities across India. The goal of bringing real time data from the well to the board room was achieved when phase-I was recently activated by R S Sharma, Chairman and Managing Director, ONGC.

Key Landmarks

The solution is a landmark project in many aspects:

- It is the largest instrumentation - automation - IT solution project in India
- Single largest network with 1300 plus HMI stations and 600 plus servers in India
- Largest number of oil and gas producing wells connected to the SCADA system - 1800 wells, 179 control rooms, 16 data centers and 75 mobile control rooms

With real-time data available at the click of a button, the system empowers key decision makers at ONGC to make timely interventions to optimize production and supply. Problems like rig idling or monitoring of wells at unmanned platforms would also be solved.

The enterprise-wide SCADA will map information from all production and drilling facilities spread across India and the Arabian Sea. The solution has been designed to minimize the distance, time and ambiguity from the well to the board room. This would facilitate capturing of real time data, data storage, back up trending and analysis. With oil and gas fields of ONGC scattered across the sub-continent, huge geographies have to be covered for mapping the data. Once implementation is completed, all installations of ONGC for production and drilling can be monitored 24 x7 on a real time basis.

Manufacturing backbone for Vedanta's new smelter plant

Key Landmarks

The combination of standard products and systems and ABB's expertise in primary metals and minerals creates an unbeatable offering for customers in terms of productivity, reliability and energy efficiency.



ABB India has won orders from Vedanta Aluminum Limited to provide automation and power products, systems and solutions for expansion of their aluminum smelter plant at Jharsuguda, in Orissa. ABB will design, supply, build and commission 24 sets of high power diode rectifier systems for four aluminum potlines. ABB's automation and electrical systems will become the manufacturing backbone of this smelter plant.

The expansion will double the smelter's production capacity of aluminum ingots, rods and rolled products. ABB's scope of supply also includes a new 400/220-kilovolt (kV) switchyard to supply the new smelter plant with reliable power, as well as a high-performance process control system with fiber optic current sensors and an ABB MicroSCADA control system for the power distribution network, substation switching bays, power and station transformers. ABB has already supplied rectifier systems for phase one of the Jharsuguda plant expansion in 2007-08.

ABB India continues to profitable growth

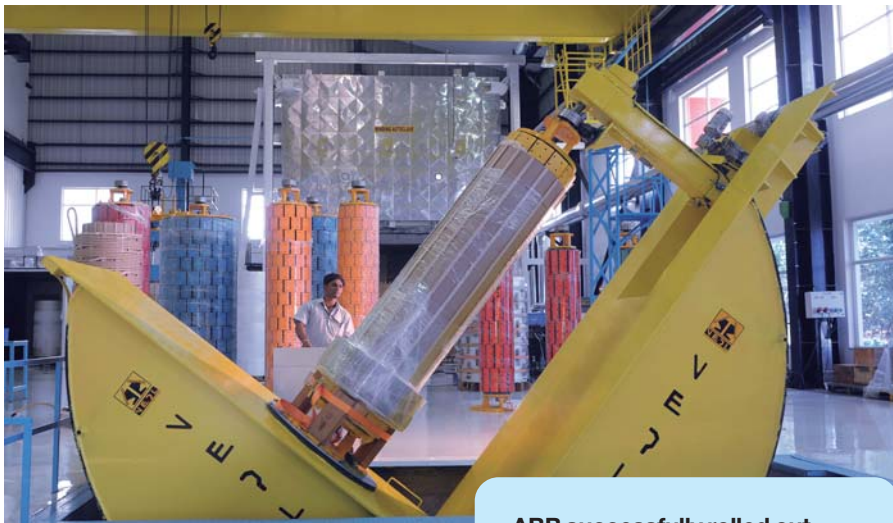
ABB India recently announced its results for Q2 and H1 2008. During the quarter, the company received significant orders for industrial automation and electrification driven by capacity additions as well as projects to improve productivity and efficiency in industry. This was supported by orders for transmission and distribution systems to enhance grid reliability, airport and metro infrastructure as well as a continued surge in the standard products and service businesses. The company continued to enhance production and execution capacity to support the growth.

Orders		Order Backlog	
Q2-08	H1 08	Q2-08	H1 08
Up 11%	Up 23%	Up 46%	Up 46%
22086	39966	67769	67769
Revenues		Net Profit	
Q2-08	H1 08	Q2-08	H1 08
Up 16%	Up 16%	Up 21%	Up 28%
16376	31914	1318	2495

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ABB adds new plants and enhances capacity at Vadodara



With a rapidly growing Indian power market ABB has made significant expansions at its Vadodara unit, the power technologies hub of the company in India. New manufacturing units have been set up for Small Power Transformers (SPT) and Transformer Bushings while the existing High Voltage Circuit Breakers and Instrument Transformers factories have undergone major expansion and modernization.

ABB successfully rolled out its first transformer from the new Small Power Transformers facility. The first unit is a part of an order for four 50MVA, 132 / 33kV power transformers placed by West Bengal State Electricity Transmission Corporation Limited for their transmission substations.

The new SPT factory with a 5000 MVA annual capacity is equipped with the latest equipment, including a programmable semi-automatic vertical winding machine for enhanced winding accuracy and increased productivity, a testing laboratory with an impulse generator and facilities for type and routine tests. The existing test facility for large power transformers have also been upgraded to 765kV level to meet India's ambitious 765 kV transmission infrastructure build-up.

A new factory for oil filled transformer bushings (upto 245kV) has also been commissioned. It is optimally designed for smooth and minimum movement of assemblies and is equipped with the latest vacuum evacuation and oil filling plant. The facility will help to significantly increase production volumes and is equipped to test bushings up to 440kV.

The High Voltage circuit breakers and instrument transformers plants at Vadodara have undergone significant expansion and upgrades and are now being doubled and enhanced to cater to 765kV range.

Complete drives and automation solution for Jindal Stainless

ABB has won an order to deliver the complete drives and automation solution for Jindal Stainless's Greenfield Integrated Stainless Steel project in the state of Orissa in India with a capacity of 1.6 million tons per annum. This order consists of a Hot Annealing Pickling line with single stand 6Hi Reduction mill and a Cold Annealing Pickling line with 3 stand 6Hi reduction mills, tension leveler and in line Skin Pass Mill.

ABB's scope of delivery includes MV AC Drives and Motors for Reduction mills and LV AC Drives for line controls. ABB



will also provide complete automation system including technological line & mill controls, Level 2 automation and mathematical model for 3 stand and 1 stand reduction mills. The drive system

consists of frequency converters and motors for both the main and the auxiliary drives. The rolling mill's control system is based on the OperateIT-800xA platform, which will give the operators a state-of-the-art tool to follow and supervise the rolling process.

The automation package will ensure substantial cost savings by optimizing energy consumption in the plant

ABB to power JSW Energy's Ratnagiri plant

ABB in India has received orders to provide power solutions to JSW Energy for its upcoming 4 x 300 MW thermal power plant in Ratnagiri in the State of Maharashtra in Western India. The orders are for a range of power solutions including, electrical balance of plant (EBoP), 400kV Gas Insulated Switchgear (GIS) substation and generator transformers.

ABB's solutions for the project comprise several leading edge power technologies for improved system efficiency. The modular EBoP solution for 300MW generating units will provide optimized and integrated solutions for complete plant electricals including shunt reactors, bus ducts, control and relay panels, MV and LT switchgear, other auxiliary



ABB's power products and systems will ensure safe and reliable operation of the plant while optimizing energy consumption of the equipment.

systems and four 20kV Generator Circuit Breakers (GCB), thus providing a further boost to the GCB scheme usages by thermal power plants in India. The 400kV GIS substation will provide substantial space saving due to its compact design. ABB's scope of delivery also includes 20/420 kV generator transformers.

CESC procures advanced current transformers for Kolkata

ABB will supply its latest range of technologically-advanced silicon rubber insulator current transformers (CTs) to CESC Limited to help provide reliable power to the city of Kolkata. The CTs of 132 kV rating will be supplied from ABB's manufacturing unit in Vadodara. Silicon rubber insulators for HV products are gaining popularity across the world and are the fastest growing and most



dominant polymeric insulation material for the same. The CTs are type and routine tested in accordance with IEC 61462.

The silicon rubber compound and glass fibre reinforced tube offers the best insulation performance due to its unique properties such as hydrophobic quality, splinter proof, and UV stability. The hydrophobic surface suppresses leakage currents, thereby ensuring minimal discharge in case of severe pollution.

Demo lounge for home automation solutions

ABB recently unveiled a first-of-its-kind EIB Demo Lounge in Bangalore. The specially created lounge features ABB's offerings in home automation. The lounge will allow customers to experience a different environment powered by ABB's technology.

An actual living room setting with the latest home automation systems like ABB i-bus® EIB / KNX has been recreated at the lounge. It allows customers to experience the comfort of these advanced systems in a luxurious setting. EIB / KNX technology is the world's first open standard for control of all types of intelligent buildings - industrial, commercial or residential. The system installed at the lounge is complete with motion sensors, presence detectors and a central control sensor to regulate air-conditioning, lighting utilities and blinds. The latest range of switches from Busch-Jaeger is also on display including the Carat range, Alpha BS as well as the Classiq range of switches.



Seamless information management for pulp and paper industry



A key asset to any business is the effective management of its information. Most business enterprises have data available in plenty, but they lack the expertise to translate this data into information. The Smart Client from ABB is one such solution that tackles this concern.

ABB recently contributed its expertise to the ITC Group to help enhance their business. ABB provided a solution to three of ITC's plants predominantly in supplementing the 800xA software with Information Management used to integrate the different core systems installed in

ABB's Smart Client system will integrate the different core systems on a single system. Data generated from the respective core systems will be connected to the new 800xA core system for monitoring.

these plants. The installation is the first of its kind in India and the largest in Asia.

At the ITC - Bhadrachalam (BPL) plant, ABB installed the system that includes Information Manager (IM) as well as the Smart Client software. At the ITC - Kovai and the ITC - Trebeni plants, ABB installed the system with Information Management to integrate with different core systems installed in the plant. Data from the core system installed at Bhadrachalam will also appear on SAP.

The Smart Client has a wide range of advantages due to its dynamic user-interface capabilities. At the ITC - Bhadrachalam plant, real-time data is now available at one's desk. The Smart Client also makes operations free from programming or scripting.

ABB consolidates presence in SAARC Region

In a significant step towards consolidating its presence in the SAARC region, ABB has set up a service station for turbochargers in the port city of Chittagong in Bangladesh. The service station will serve the large installed base of turbochargers with industry, utility and marine customers in Bangladesh.

The service station - the first-of-its-kind from ABB in Bangladesh - will greatly reduce the cost and time of repair and maintenance of turbochargers for customers in Bangladesh. It is part of ABB's global network of over 95 service stations that guarantee fast, direct access to well-trained and experienced service personnel who are on call 24/7.

On his recent visit to Bangladesh, Biplab Majumder, Managing Director, ABB India and Head of SAARC Region, met with a number of customers, channel partners, government officials and diplomats to reinforce ABB's commitment to support the development of utilities and industries in the

region. A series of seminars organized during his visit received an overwhelming response. The seminars were an ideal platform to inform stakeholders about ABB's contribution in improving grid reliability as well as the

increasing productivity and competitiveness of key industries like steel, cement, textile, pharmaceutical, oil & gas and infrastructure in Bangladesh.

ABB Group has been present in Bangladesh for three decades, serving industry and utility customers with critical products, systems and solutions. In 2003, ABB established direct presence in the country by setting up a branch office for its international marketing division in Dhaka.



One for the record

ABB has successfully commissioned India's biggest thyristor rectifier system at Hindustan Zinc Limited (HZL) in Chanderiya, Rajasthan. The solution of HZL's new smelter plant, including the 2x 96 kA, 490 V DC rectifier system, was commissioned in a record time of 20 months compared to the world average of 28-30 months. ABB's solution includes state-of-the-art high current rectifier, 4 inch thyristors with case explosion protection, system control with advanced PLC AC 800 PEC and optical DC measuring systems - Fibre Optic Current Sensor (FOCS). The new system will enhance the productivity of the plant and boost production capacity of the zinc smelter by 17000 TPA.



Largest 3 phase power transformers in India



ABB successfully designed, manufactured and tested the largest three phase power transformers in India at its Vadodara facility. A 400 MVA 24/235 kV 3 phase Generator Transformer has been manufactured for Adani Power Ltd for its 2 X 330 MW Power Station at Mundra, Gujarat and a 355 MVA 20/420 kV 3 phase Generator Transformer for JSW Energy (Vijayanagar) Limited for their 300 MW Coal Based Thermal Power Station at Toranagallu, Karnataka. The largest size manufactured so far for 3 phase power transformers in India has been 315MVA.

Autoreclosers with GSM facility for unmanned substation

ABB successfully commissioned a 33KV/11KV unmanned substation for Uttar Haryana Bijli Vitaran Nigam Limited (UHBVNL) in Rohtak, Haryana installing autoreclosers, type OVR, on both sides of the transformer along with GSM communications for protection, remote monitoring and communication. The system can send out nine different messages indicating transformer faults to five mobile phones. The solution is economical and applicable to numerous 33KV / 11KV substations all over the country.



Control systems for NTPC 500MW Units



ABB India successfully commissioned 'Symphony Harmony' control systems for NTPC Sipat's 500MW Unit 4 and NTPC Kahalgaon's 500MW Unit 5 at full load and with approx. 16,000 IOs and 20 control loops each. These are the 1st 500MW control systems to be commissioned by ABB in India, so far only few such systems have been commissioned in the country by BHEL. All major control loops were tuned in record time, as acknowledged by NTPC and are running on auto mode. ABB also carried out the first of Gas turbine controls in India for NTPC's Anta plant.

Traction Electrification for Mumbai Metro

ABB India has won orders from Mumbai Metro One Pvt. Ltd. a joint venture company between Reliance Energy Limited, Veolia Transport, France and Mumbai Metropolitan Region Development Authority (MMRDA) for implementing the Versova-Andheri-Ghatkopar (VAG) Metro corridor. The order for traction electrification, power supply and distribution and SCADA systems, is on similar lines to the solutions executed by ABB for Delhi Metro.



Securing power distribution in Mumbai and Jaipur

ABB has received an order for supplying 230 RMUs with Distribution Automation from Reliance Energy Limited for the Northern and Western zones of Mumbai. ABB has already supplied 140 RMUs to REL for Mumbai's Central Zone. With the help of these RMUs, REL is putting its power distribution network on a

Distribution Management System for enhanced control and reliability. ABB has also received an order close to 400 RMUs from Jaipur Vidyut Vitaran Nigam Limited (JVNL) as part of Jaipur city's scheme of improving power reliability as well as aesthetics of the city.



Rolling mill automation solution for Bhushan Steel



ABB recently won an order for drives and automation systems for Bhushan Steel's phase II expansion of a cold rolling mill complex in Orissa. ABB will provide the automation solution for 10 cold rolling mills at the plant and the scope of delivery includes ACS800 Variable Speed Multidrive systems, Variable Speed Single drives, Variable Speed Induction Motors, flatness control systems and human system interface. ABB will also provide accessories like data acquisition system, control desks and UPS.

ABB to shift barge-mounted power plant from Mangalore to Kakinada

ABB will shift a barge-mounted power plant, consisting of a 220 kV switchyard, from Mangalore in Karnataka to Kakinada in Andhra Pradesh for GMR Energy. The project involves dismantling, packing and transportation of the complete switchyard that includes six 220 kV bays, from Mangalore and re-erecting, testing and commissioning of the same at Kakinada (AP). For the purpose of power evacuation two additional 220 kV bays will also be erected at Samalkot (AP). Shifting the entire 220 kV substation will save substantial cost for GMR and will be done for the first time in India.



An idea to automate IKEA

IKEA, one of the world's top home furnishings brand, has partnered with ABB in leading the way to automate furniture manufacturing. To meet a boom in growth, IKEA plans to double its manufacturing capacity in the next five years and has signed a frame agreement with ABB for robotics solutions that will enable it to produce flat-pack furniture speedily, flexibly and efficiently at low cost. The agreement covers a broad sweep of robotics products for painting, packing and palletizing applications, as well as IRC5 controllers, PickMaster software and advanced vision-guided technologies.



Innovation for a power packed performance

Generator Circuit Breakers (GCBs) are a critical component in power plants, protecting both the generator and the power transformer. An ABB innovation has increased the performance of GCBs by more than 25 percent while simultaneously reducing the footprint, weight, noise levels and maintenance requirements of these critical components. Previously GCBs required a so-called 'forced' cooling system of pumps, fans or motors to counteract heat dissipation and keep sensitive breaker components within their rated temperature tolerances. ABB has eliminated the need for these cooling devices by developing an innovative heat pipe cooling system that makes the GCBs lighter, slimmer and quieter than was previously possible.



Pulp that is pure for sure

ABB's unique online pulp defect analyzer is helping a pulp mill in Sweden achieve its target of 100 percent pulp quality by detecting minute defects as small as 0.04 square millimeters. The pulp defect analyzer is an online automated inspection system that analyzes the whole length of a pulp bale, detecting dirt spots and shives as small as 0.04 mm² and with an accuracy of one hundredth of one square millimeter (0.01 mm²). This is a massive improvement on the alternative method of pulp bale analysis, which is sample-based, covers only a fraction of the bale and is time-consuming, inefficient and error-prone. The solution has been implemented at a pulp mill of Södra Cell - one of the world's leading producers of paper pulp.



Small drive makes big impact on performance of oil giant

TNK-BP, one of the world's largest oil producers, is carrying out a modernization program to improve the safety and performance of its oilfield drilling rigs. At the heart of the rig revamps is an ABB innovation - AC drilling drive systems. The objective of the modernization program is to improve rig safety, extend rig operating life, increase drilling efficiency and raise cost effectiveness. The target is to achieve performance improvements of between 10 and 30 percent. ABB's solution enables rigs to use cutting-edge AC drives and motors rather than conventional and less advanced DC powered systems. AC systems are lighter, smaller and about 25 percent more efficient than other systems. They allow faster, safer rig moves and have less potential for human error in rig up.



Logistics

The lifeline of global business

Goods transport has a major impact on the economic power, quality of life, accessibility and attractiveness of a country, but it receives little attention in comparison to passenger movement. In today's highly globalised economies, there is an increased concern about goods movement and their consequences. An efficient & reliable logistic system is increasingly becoming a key determinant of success.

The field of transportation in the logistics business can be divided into infrastructure, vehicles and operations. Infrastructure consists of the fixed installations necessary for transport, and may be roads, railways, airways, waterways, canals and pipelines or terminals such as airports, railway stations, bus stations and seaports. Vehicles traveling on the network include automobiles, bicycles, buses, trains, people and aircraft. Operations deal with the way the vehicles are operated, and the procedures set for this purpose including the financing, legalities and policies.

As one of the pioneers in developing technologies for modern transportation, ABB offers a wide portfolio of electrical and automation products and solutions for improving the efficiency and speed of operation in the transportation

Rail

Railways are one of the fastest growing mediums for freight transportation in India. With ever-increasing freight volumes and decreasing timelines, it is imperative to devise intelligent solutions for safe, reliable and speedy movement of goods. ABB provides reliable and high performance power equipment and power supply systems for railway applications.

Air

Air transport is an innovative industry that drives economic and social progress. It is a major contributor to global economic prosperity by providing access to global markets and generating trade and tourism. ABB provides a range of equipment; systems and solutions that help enhance energy efficiency, reliability, safety and productivity in the aviation sector.

Road

Road transport is perhaps the most important link in freight movement, especially intermodal transport. Transport by trucks is often the first as well as the last stage of goods transport. While road transport offers high flexibility, it is prone to problems like high energy and area use and it is one of the main sources of noise and air pollution. ABB offers a variety of solutions for the road transportation industry - from engineering solutions for automobiles to advanced power and automation systems for traffic control and information management.

Marine

Shipping industry has played a significant role in the development of human society over the centuries. In the age of globalization, the industry has become more important than ever before. With increasing demands to transport large volumes of goods safely and reliably, there are tremendous demands on the overall performance of vessels and ports. ABB marine systems provide high-performance vessels and more profitable operations for our customers through innovative solutions, high competence and true global capability.

New Products/ Technologies with applications in transportation industry

- Air Insulated Secondary Switchgear (Uniswitch)
- Intelligent Low Voltage Switchgear (MNS iS)
- Air Insulated Medium Voltage Switchgear (Unigear)
- Vacuum Circuit Breaker with Magnetic Actuator (VM1)
- Contra-rotating Podded Propulsion System (Azipod)
- Turbochargers
- Diesel Engine Performance Monitoring (Cylmate System)
- Low Voltage AC Industrial Drives (ACS 800)
- High Efficiency Motors



Logistic solutions from ABB

Rail

Railway Power Supply

- Distribution Transformers
- Frequency Converters
- High Voltage Products
- Medium Voltage Products
- Power Quality
- Power Supply Systems
- Power Transformers
- Protection Control

Rail Control Systems

- Communication
- Signalling

Rolling Stock

- Traction Transformers
- Traction Converters
- Low Voltage Products
- Medium Voltage Products
- Motors & Generators
- Semiconductors
- Surge Arrestors
- Turbo Chargers



Air

Airport Infrastructure

- Building Automation
- Power Distribution
- SCADA
- Control Systems
- Services & Maintenance
- Automation Systems
- Low Voltage Switchgear
- Low Voltage Systems
- Medium Voltage Switchgear

Aircraft Maintenance

- Drives
- Motors
- Control Systems
- Low Voltage Switchgear



Marine

Crane Systems

- ASTAT
- Control Systems
- Drives
- CIMS
- Cranes & Automation
- Service

Marine Service

- Installation & Commissioning
- Repair & Refurbishment
- Spare Parts
- Training
- Maintenance & Field Services
- Retrofit
- Support and Remote Services

Marine Systems & Solutions

- Electricals
- Power supply
- Azipod Propulsion
- CRP Propulsion
- Drilling Drives
- Electric Propulsion
- Onboard Drives
- Power Generation & Distribution

Specialised Solutions for Marine Vessels

- Container & Cargo
- Passenger & RoPax
- Drilling
- Icegoing
- Field Support
- Cruise
- LNG
- Yachts



Road

Automotive

- Components
- Powertrain Assembly
- Press Automaton
- Body-in-White
- Paint Process Automation
- Robotics Services & Support

Traffic Systems

- Control & Signalling
- Power Distribution
- M V Switchgear
- Drives
- Motors



ABB technology revolutionizes US airport radar systems

Revolutionary new ABB semiconductor switches are the key component in airport radar control systems that monitor the US airspace and ensure the safety of millions of passengers at 132 civilian airports throughout the country. The groundbreaking ABB technology, which offers considerable user benefits in terms of reliability and longevity, is the main component in the modernization program of civilian airport radar systems throughout the United States.

Compared to the conventional technology - electron tubes, which have to be replaced every 12-18 months, the ABB semiconductor switches have an estimated maintenance-free service life of more than 12 years. They also demonstrate a very high level of reliability compared to other semiconductor technologies - high reliability being a critical factor in air traffic control.



ABB solutions for the world's first unmanned bulk cargo terminal

A complete ABB crane systems solution has helped create the world's first fully automated bulk cargo terminal in Shanghai. Three giant unmanned cranes are remotely operated from a central control room to achieve new industry benchmarks in speed, efficiency and productivity.

The solution revolutionizes the way that bulk materials like coal, minerals and grain are loaded and unloaded at non-container ports and shipping terminals. It enables port operators to evolve from the comparatively inefficient and error-prone world of manned cranes - where each crane has its own driver who receives instructions via radio from a quayside control room - to a fully automated, unmanned world of precision handling, where each crane is programmed to operate automatically and is monitored and controlled from a central control room.



ABB to power T3 Terminal at Delhi International Airport

ABB has won an order for design, supply, installation, testing and commissioning of electrical products and systems for the new Terminal 3 (T3) building at Indira Gandhi International Airport in Delhi, India. ABB will provide electrical infrastructure and control systems for T3, which is currently under construction. ABB's intelligent power distribution management system, SCADA, will be used to monitor and control the terminal's entire electrical network.



ABB helps the traffic flow freely in Santiago de Chile

A comprehensive package of ABB integrated systems - automation, ventilation, lighting, signage and traffic management - has helped make the new Costanera Norte expressway in Chile the most advanced multilane expressway in the world. Acclaimed by independent authorities as the most advanced expressway of its kind in the world, Costanera Norte cuts across northern Santiago in an east-west direction to relieve heavy congestion in downtown areas and provide a fast link to the city's international airport.



ABB supplies MV equipments to Hunan section of Shanghai-Yunnan Expressway

ABB has supplied critical power equipment for a 535 km-long expressway between Shanghai & Yunnan in China. The completion of the expressway helped clear a critical bottleneck in the inland transportation between Hunan and Yunnan. ABB supplied & installed medium voltage equipment like 10 kV Safe Switchgear, 10 kV Outdoor cubicle-type substations and protective relays for the project. This is by far the most demanding expressway construction project in Hunan Province and is also the first expressway constructed in the hard-to-access mountain area. The ABB project team overcame challenges of arduous construction and harsh environment and provided professional service in due time.



Glimpses of events, seminars & trade shows

IT in Power 2008

ABB India introduced the concept of 'Smart Grids' at the power packed 'IT in Power' conference held in New Delhi recently. Under the theme "Next steps in Generation, Transmission and Distribution" the objective of the conference was to highlight on the integration of IT

applications and solutions with the power sector. Organized by the publishers of the trade journal 'PowerLine', the conference was attended by over 200 delegates from utilities and system suppliers' like Areva, Oracle, ClickSoftware Technologies, SAP, IFS Solutions and Siemens. ABB's display

elicited keen interest from the participants including requests for a lecture in their respective organizations.



ACSM1 Launch



ABB recently unveiled ACSM1, its latest offerings in the high performance machinery drives, at a ceremony in New

Delhi. The launch-cum-conference was well-attended by OEMS, Machine Builders, System Integrators, Channel Partners and end users. The ACSM1 is a high performance machinery drive that provides speed, torque and motion control for

demanding machines. The unique design of the ACSM1's hardware and its programming flexibility ensure optimum industrial solutions. The drive is also equipped with an innovative memory unit concept to facilitate flexible drive configuration.

Seminar on LV products

ABB recently hosted a technical seminar on Low Voltage Products in Bangalore. The seminar was organized in association with COSMA (Control Panel and Switchgear Manufacturer's Association) - the industry's apex body that works for mutual benefit and progress in technical and commercial fields for all stakeholders.

Leading panel builders from across India participated in the event which gave them a platform to discuss and deliberate upon the latest trends and innovations in LV Switchgear technology. The seminar was a resounding success and provided an ideal setting for brainstorming and networking with industry peers. Key points discussed

included reduced down time, better safety standards, clean environment & low maintenance cost for the panels.



Power-Gen India and Central Asia 2008



Power-Gen, an international event in the field of power generation, was recently

held in New Delhi. Power Gen is the only event of its kind, offering key opportunities

to organizations in the power sector to play a major role in the world's fastest developing power markets. Representatives of the power industry, dignitaries, channel partners, financial analysts and engineering students attended the event which focused on "Accelerating Power Growth-Challenges Ahead". ABB showcased its latest power

generation offering and the Electrical Balance of Plant (EBoP) offering for integrated power plant solutions was the main highlight of the stall. Other exhibits included the recently launched fast bus transfer system SUE 3000, IEC 61850 substation automation solutions and power plant automation solutions.

SugarAsia 2008 conference cum exposition

ABB participated in the recently held SugarAsia 2008, a conference cum exposition held at Pragati Maidan, New Delhi. SugarAsia is heralded as an exhibition exclusively dedicated for sugar and downstream products and is India's only International Exhibition meant for equipment manufacturers, technology providers as well as input suppliers to

showcase their products before a focused and targeted audience such as sugar, distillery, ethanol, co-generation and cane farming experts from Asia. ABB's showcase attracted large crowds with the display of complete range of automation products offered including drives, LV Motors, switchgears and instrumentation products



ARC Forum



ABB in India recently participated in an ARC Forum titled 'Winning Strategies and Best Practices for Process Industries,' held in Hyderabad. The event was

structured to bring together manufacturing companies, engineering procurement consultants, OEMs, suppliers of automation systems and enterprise solutions, and other stakeholders to discuss and deliberate on the appropriate competitive strategies and manufacturing models

that will ensure their success. The forum was a resounding success with over 170 end users and about 65 suppliers attending, including delegates from leading companies representing industries such as cement, food and beverage, oil and gas, pharmaceutical, power and steel

ROTEQ 2008

ABB participated in 'ROTEQ-2008' a national-seminar-cum-exposition in Delhi. The two-day event organised by the Confederation of Indian Industry-LM Thapar Centre for Competitiveness exclusively focused on Rotating Equipment. The seminar included focused modules on Energy efficient

Motors, Role of Instrumentation and EMS in monitoring and control, Air Compressors, Pumps, Fans and Fluid Flow. ABB presented paper on 'Energy Efficient Induction Motors' which emphasized on design as a pre-requisite impacting its resourcefulness and endurance. The presentation was

well-received by the delegates who showed keen interest in ABB's expertise in the field of manufacturing rotating equipment.



Seminar on Value Engineering



ABB participated in the seminar on Value Engineering organized by CII's (Confederation of Indian Industry) Total

Cost Management Division in Bangalore recently. Technical experts from leading manufacturing companies from across India participated in the seminar. The seminar was aimed at projecting latest technologies and methods in Value Engineering (VE) application and providing tools and models to develop

an in-house VE system. ABB presentation focused on engineering efficiency improvement and cost saving in project execution through ABB's Operations Center concept. The concept involves project support throughout the project life cycle including material sourcing and engineering.

Rice Pro-Tech Expo 2008

ABB recently participated in the Rice Pro -Tech Expo 2008 at Ludhiana. The exhibition showcased advanced rice-processing technologies from around the world. More than 100 companies participated in the expo. The exhibition provided an ideal opportunity to over 4,000 rice millers of Punjab and Haryana

to access the latest technology that will help them in advancing their rice milling operations, reduce post paddy procurement losses and increase the quality of the rice. Pro -Tech Expo 2008 exhibition. Participation in the expo was part of ABB's continuing focus on the food processing industry. ABB displayed

an array of its latest products at the expo including drives, motors and low voltage products that can help improve the production and quality of rice.



Papertech 2008 conference

ABB participated in the second edition of 'Papertech 2008' a Conference on Energy and Environment in Pulp and Paper Industry recently held at



Hyderabad. The conference focused on the theme: 'Make Indian Pulp & Paper Industry World Class'. Pulp and paper manufacturers, consultants in technology and equipment, chemical suppliers, academicians, representatives from R&D Institutes and government & multilateral agencies attended the event. ABB presented a paper performance

enhancing services as well as incremental investments that the mills could make to their existing automation & drives solutions to meet the challenge of improving productivity and reducing operational expenses. ABB also displayed leading-edge technologies and solutions for the paper and pulp industry.

Automotive Engineering Show



ABB participated in the recently held Automotive Engineering Show in Pune. The event theme was "Solutions for Automotive Manufacturing" and showcased high-end

technology solutions in Robotics, Automation, Engineering Services, Painting, Welding solutions and Machine tools for the Automotive Industry. The event was well attended by OEMs (Original Equipment Manufacturers), Tier-1 customers from the region including Tata Motors, Mahindra & Mahindra, General

Motors. ABB exhibited its wide range of solutions for the automotive space including the latest range of robots, drives and PLCs (Programmable Logic Controllers). The robotics display included the IRB 6600 robot with press tooling (grippers) and an IRB 140 robot with dual cabinet controller.

Green Cementech 2008

ABB participated in the 4th edition of 'Green Cementech 2008' - a three-day conference cum exhibition organized by the Confederation of Indian Industry (CII) in Hyderabad. The conference centered on the theme 'Make Indian Cement Plants World Class in Green.' The objective of this conference was to facilitate the Indian Cement Industry to reach world-class standards on energy and environment,

through the most energy efficient manufacturing processes and address all issues related to sustainable development including benefits from clean development mechanism (CDM) 2008. ABB made a presentation on its composite solutions and offerings for cement plants. It highlighted ABB's capability to provide a fully integrated, single-point solution for all electrical, automation and drives equipment.

An innovative solution for bulk material analytical characterization - ABB SpectraFlow Analyzers powered by SOLBASTM technology - was also unveiled at the conference.



Architects' Meet



Architects - Bangalore Chapter. The seminar aimed at exchanging information

ABB conducted a seminar for the members of the Indian Institute of

about the latest trends and technology in the field of architecture and building automation. The meet was attended by over 400 architects from the city including RSP, Atkins, Z Axis and GMR Infrastructure. ABB presented a snapshot of its offerings in the building space, including latest range of automation systems for both commercial and residential complexes. A luxury home

setting was recreated at the venue to provide a working demo of ABB's building automation systems. The EIB / KNX system complete with motion sensors, presence detectors as well as central control of all lighting utilities and blinds was demonstrated. The latest range of switches from Busch -Jaeger were also on display including the Carat range, Alpha BS as well as the Classiq range of switches.

Seminar on irrigation sector

ABB recently conducted a seminar in Hyderabad on its portfolio for the Irrigation sector. ABB's strategic partner Andritz, Austria was also present at the seminar with their range of products. Government officials, representatives of the irrigation sector and industry experts attended the event. ABB has played an active role in helping the State Government with power and automation products being installed at a number of medium and major irrigation projects. Prominent projects include the Kalwakurthy Lift Irrigation Project and Bheema Lift Irrigation Projects where ABB is supplying the entire electrical package including 220KV switch yard, pump house automation & SCADA, starting equipment and synchronous motors up to rating of 30MW.



Seminar on Distribution Automation Products

A seminar on distribution automation products was organized in New Delhi recently for panel builders & consultants. Features and benefits of the complete portfolio of ABB's distribution automation products, including conventional relays, low cost numerical relays and high end numerical relays were shared with the participants of the seminar. System products like fast bus transfer system (SUE3000), communication system over IEC61850 (COM600), auto change over schemes and arc protection were the main focus of the discussion at the seminar. The event was well-attended by panel builders as well as consultants.



Better technology for a better world

Electricity makes life more comfortable – all around the globe

Friedrich Pinnekamp

Comfort provides us with the freedom to develop skills and capabilities to improve our quality of life. The perception of comfort depends very much on a person's starting point: For those who once had to walk kilometers to fetch drinking water, comfort can be a running source of fresh water at home. Similarly, for people who previously had to open their blinds by hand, comfort can be opening the blinds with the touch of a button.

With a functioning infrastructure – for example, water supply or blind control – people can devote more time to developing further and finding creative means toward new levels of comfort. To foster this move toward increasing comfort and with it the quality of life for everyone in the world, huge investments in reliable infrastructure are necessary. ABB has a broad portfolio of products and systems to provide major parts of this infrastructure, especially in terms of power and productivity. With its local presence in all parts of the world, ABB can directly respond to the different needs and so contribute to a better world.

Every year, statistics are presented that rank the nations according to their per capita income, and the spread of the scale is very wide, with a factor of more than 100 between the lowest and the highest income. Irrespective of the absolute level of this income, the strive for growth and economic welfare is present everywhere.

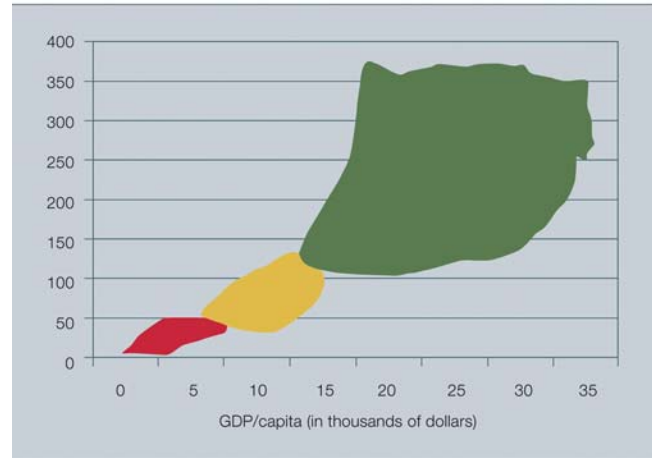
The requirements for this ongoing growth are different, however, for the poor and the rich countries. **1** shows a schematic presentation of the gross domestic product (in purchasing power parity) and its connection to the energy consumption per capita. Economies move from the lower left to the upper right in this presentation when measured over the years.

In the low-income economies (below \$ 5,000 per capita), the growth of the gross domestic product (GDP) is almost linearly connected to the energy consumption of the respective society. When industrialization with increasing need for energy takes off, the growing infrastructure increases the comfort of the people.

This trend continues until industrialization is close to complete. When, in economies above \$ 15,000 per capita income, the growth shifts over to more value-adding from service, the increase in energy requirement is less pronounced, even though the growth of infrastructure (with lower energy need) is ongoing.

Among the different forms of energy used to provide a better infrastructure and increase comfort, electricity plays an extraordinary role. Electrical energy can be used in almost all applications to facilitate the lives of the people so that it has become the most versatile form of energy available. It helps to pump water, transport people, light hospitals and run medical equipment, operate computers and mobile communication, energize factories,

1 The coupling of energy production and gross domestic product



optimize production processes and heat houses. Electrical energy is the infrastructure making the larger contribution to people's comfort. However, to make this change, it is a necessary but not sufficient boundary condition¹⁾.

Successful projects

As a provider of products and systems for modern electrical energy, ABB has long promoted the access to electricity in developing countries.

Following the successful launch of a rural electrification scheme in a remote location in southern Tanzania, the program was recently extended to Rajasthan in western India. The project – based on public-private partnerships – has brought together ABB, the state government of Rajasthan and a non-governmental organization (NGO) to provide power to desert hamlets. The program started by

providing one hamlet with power generated by solar panels, and has been extended to four more hamlets covering 500 households.

In ABB's original Access to Electricity project in a Tanzanian village, electrification has led to economic, social and environmental gains over the past two years². A total of 15 businesses, including a guest house, food stores and clothes shops have sprung up in the village, compared with just three prior to electrification. Other recent advances include:

- 25 new homes underscoring economic gains and local immigration
- More homes connected to the minigrd, based on the diesel generator donated by ABB, and a new water pump
- Children who are able to study after dark are passing school exams in increasing numbers
- Training on limiting hunting and sustainable logging

ABB partners with the global conservation organization WWF and local authorities on the project.

The supply of electricity to a remote hamlet in India also is helping people earn more and is facilitating children's education. The hamlet's inhabitants who are mainly tailors can now work longer and their children can also study at night.

2 Modern energy services to transform people's lives [1]

Energy service needed	Current energy options	Modern energy options
Lighting	→ Oil/kerosene lamps	→ Off-grid electricity (solar, hydro, wind)
Cooked food	→ Wood/charcoal stove	→ Improved cookstoves/ LP Gas and kerosene
Pumped water	→ Surface/tube well	→ Electric pumps
Refrigeration	→ Grid/diesel power or nothing	→ Off-grid electricity (solar, hydro, wind)
Telecommunications	→ Grid/diesel power or nothing	→ Battery charger/off-grid electricity
Transportation	→ Human/animal-powered vehicles	→ Motorized vehicles
Agro-processing	→ Human/animal-powered devices	→ Multi-functional platform/micro-hydro

Footnote

¹⁾ Even with sufficient electrical infrastructure, life cannot be comfortable when other aspects of life are unfavorable. War, disease, suppression or terrorism are only some important factors influencing the perceived comfort of the individual.

ABB has signed an agreement with the Chinese province of Guangdong, the country's largest by GDP, to provide advice about ways to improve the energy efficiency of companies in the region. The five-year agreement, signed in 2006, aims to help Guangdong achieve its goal of reducing energy consumption by 16 percent per unit of GDP by 2010. The authorities will promote cooperation between ABB and more than 1,000 companies with high energy consumption. ABB will conduct energy conservation audits for companies that request them and help the companies to implement energy-saving measures. The energy saved can be used to increase the supply of electricity and the subsequent comfort.

Among the different forms of energy used to provide a better infrastructure and increase comfort, electricity plays an extraordinary role.

Comfort on a global scale

While ABB contributes with technology to increase the comfort of people in the LDCs, it has a large portfolio of products and services to lift the perceived comfort of people in the emerging and developed economies. Take transport, for example. A century ago, traveling comfort increased significantly when trains became

3 Local shops are staying open longer in Ngarambe thanks to the extra four hours of power provided daily by a generator.



widely available in Europe and the United States. Decades later, trains still started with a bump and jolt and one had to hold on tight not to be sent flying. ABB's frequency converters make a world of difference in comfort today. Besides these frequency converters, ABB supplies many other train components. For example, ABB supplied the traction transformer that the TGV, the world's fastest train, used on its record-breaking run. And

more mundanely, the opening of borders has resulted in the increasing demand for trains that work on different power supplies. ABB makes the transformers and converters of innovative trains that can – and do – go anywhere.

The comfort of ships as a means of transport has increased dramatically as well. Ships equipped with ABB's Azipod® and ABB turbochargers permit journeys to

Factbox Access to electricity is crucial

In July 2007, the United Nations Ministerial Conference of the Least Developed Countries (LDCs) stated the following in connection with their meeting in Istanbul [1]:

“The energy challenges that underlie the Millennium Development Goals (MDG) achievement are best illustrated by the number of people who do not have access to modern energy services. It is estimated that worldwide there are 2.5 billion people who rely on traditional fuels such as wood, charcoal, and dung as their principal source of energy for cooking and heating. Almost 1.6 billion people have no access to electricity. In light of these daunting figures, energy's important role in underpinning MDG achievement is now being recognized by the international development community. This is due to the fact that energy is a prerequisite for meeting all of the MDGs because of its inherent linkage with poverty alleviation, education, gender equity, health, and the protection of the environment. Although there is no MDG explicitly on energy, it is now recognized that the MDGs cannot be met without expanding access to affordable and reliable energy services for the poor and unserved.

“Energy is central to practically all aspects of our lives, including access to water, agricultural productivity, healthcare, education, job creation, gender equality and environmental sustainability. Yet, millions of households in the developing world still lack access to safe and reliable energy and pay high prices for poor-quality substitutes. Moreover, poor people spend much of their income on energy services. This amounts to more than a third of household expenditures in some countries. They also devote a large portion of another important asset, their time, to energy-related activities – for example, women and young girls spend upwards of six hours a day gathering fuelwood and water, cooking, and agro-processing. In Sub-Saharan Africa, only 8 percent of the rural population has access to electricity while 90 percent of the population still relies on traditional fuels for cooking.

“Having access to modern energy services can make a real difference to poor people's lives **3**. Therefore, developing a new approach, where access to energy services is acknowledged not just as an outcome, but also as an actual driver of development, will be crucial if energy is to play a more prominent role in strategies aimed at achieving the MDGs and making globalization work for the LDCs.”

Millennium Development Goals (2000)	
Goal 1	Eradicate extreme poverty and hunger
Goal 2	Achieve universal primary education
Goal 3	Promote gender equality and empower women
Goal 4	Reduce child mortality
Goal 5	Improve maternal health
Goal 6	Combat HIV/AIDS, malaria and other diseases
Goal 7	Ensure environmental sustainability
Goal 8	Develop a global partnership for development

be made faster and with less fuel. So whether you're just waiting for goods, or maybe going on a cruise or even planning a polar expedition, ABB is keeping your ambitions afloat.

Another means of transport are elevators. Modern elevators take comfort to a higher level. By eliminating bumps and jolts, ABB drives make elevators more comfortable, while at the same time reducing power consumption. But there is more to the story than boring office elevators – for example, a ship hoist that lets you take a boat trip across Canada.

With growing income, the demands on infrastructure are increasing. Electrical energy supply is no longer an issue in developed countries (if they can avoid blackouts), but the quality requirements of electricity are getting tighter. ABB's contributions include silent transformers with an unprecedented noise level and hidden advantages: Few people think overhead cables improve the landscape. ABB technology is making it possible to move them underground. Windmills too, are a controversial subject and are not appreciated by people who have them in their own backyards. Thanks to ABB technology, they can go out to sea and so not be seen.

The safety and automation level in building installations has reached a very

high standard. ABB's smart home automation system has taken luxury living to new heights in the award winning 50-story Le Rêve (The Dream) Tower, one of the most exclusive addresses in Dubai and the first smart home built in the Middle East ⁴.

ABB's i-bus EIB/KNX smart home system, which uses wireless touch screens, enables residents to control all the functions of their homes, including lighting, air conditioning, curtains and water heater temperature in any room, and from any room. The ability to control energy-intensive functions, such as air conditioning and lighting in each room, reduces power consumption and carbon dioxide emissions, and makes it one of the most energy-efficient building automation systems on the market. It is one of the most widely used intelligent installation systems in the world, and the leading smart building system in the Middle East and Africa.

As a provider of products and systems for modern electrical energy, ABB has long promoted the access to electricity in developing countries.

It's not just about electrical power. ABB has numerous solutions for the management of other utilities. In the domain of water supplies, for example, ABB produces the drives that deliver the right pressure as needed. The company also supports water utilities through a plethora of products ranging from humble flow meters to advanced process-control systems. And even if people in developed countries are used to it: Fresh water is a comfort.

Protection against natural disasters is a basic human need. We want early warnings about the next big hurricane to save our lives. But also on a more indulgent comfort level, people might like to check the weather when they take vacations. Satellites equipped with ABB instruments are delivering better predictions. And satellites equipped with ABB interferometers are keeping a close check on air quality as well. Like water, clean air is a comfort.

For many people, daily work is not only a necessary duty but also an enriching life activity. The more creative people can be at work, the more comfortable they feel. Again, technology is the key to providing a comfortable working environment. ABB automation systems take away the burden of administrative efforts of operators and support the data analysis of complex processes. Robots help with more mechanical tasks and even the programming of robots is easier than ever before. Ultimately, it is technology, tools and versatile energy that provide people with the freedom to develop further – and that is comfort.

⁴ Le Rêve Tower in Dubai



 Source: ABB Review

Top of the charts!

Electrical Switchgear, New Delhi



Electrical Switchgear in New Delhi is ABB's largest channel partner for LV products, EWA and LPD in the Northern Region. Under the leadership of Puneet Mehta, Electrical Switchgear has remained on top of the charts as one of the best performing partners of ABB in India. A qualified electrical engineer, Puneet, 32, believes in 'effective delegation of work' and the secret of his success partly lies in his mantra to 'strictly follow business ethics'. Anshuman N from ABB spoke to Puneet to gain an insight into his business and his experience of working with ABB:

Please tell us about your background?

I completed my B.Tech (Electrical) in 1998 and immediately joined my grandfather's business "Electrical Associates", which dealt with electrical products since the beginning. After my grandfather's death in 2003, I took over the family business.

What are the ranges of products you deal in?

We deal in all electrical products- PVC and MS pipes, wires, switchgear, MCB's and DB's and cables. My offering of ABB products include Switchgear, MCB's & DB's and switches.

Could you tell us who some of your customers include?

Our main customers are from two segments - infrastructure and industries. Among builders our key customers are OMAXE Builders, ODEAN Builders, EROS Builders and

Uppal Builders while our top industrial customers include Honda cars, Vodafone and Max Hospital.

Can you share with us your experience of working with ABB?

We are delighted to be associated with ABB; the association has been long and fruitful. I am very impressed with the top management because of their ethical approach towards the business. ABB has a wide range of products and most importantly the quality of the products is excellent.

What do you think are ABB's strengths?

I think the most essential strength of any organization is the quality and skilled workforce that it possesses; ABB has a very good and integrated marketing and sales team. The other critical success factor for ABB is the wide range of quality products that it offers.

What do you think about ABB's technology?

I rate ABB as the top company in its sector. ABB is a technology company and is also the trendsetter for some of the latest technologies. I can just say that ABB's technology is the industry benchmark and there is no comparison even with the closest competitor.

What more support do you think you need from ABB?

We really want ABB to organize some joint meets of customers and channel partners; it will not only boost our

business but will also be beneficial for ABB's business. Our end-customers really look forward to meeting the top management of ABB.

How is your business growing and what are your plans for the future?

My business is growing at a steady pace. The turnover of our organization was 300 MINR in 2007 as compared to 3.7 MINR in 2003; the turnover has grown 10 times in the last four years. I plan to get into medium voltage segment in years

to come, in-fact this year we executed one order from Omaxe Builders for compact substations worth 7 MINR. Almost 35 per cent of my business comes because of ABB.

"ABB's technology is the industry benchmark and there is no comparison even with the closest competitor"

- ### Awards
- Best Distributor Award - All India: 2007
 - Best Performance Award - Region North: 2004 - 2007
 - Best Performance Award for LPD's - All India - 2005 and 2007

ABB Annual Channel Partner Meet in Kochi

Over 150 business partners from across India attended ABB's annual Channel Partner Meet which was held in Kochi this year. The meet cum conference focused on felicitating the best performing partners for their exemplary record and contribution to the growth of ABB's automation business in 2007.

Biplab Majumder, Managing Director, ABB India welcomed delegates to the conference and briefly spoke about the new products being introduced. Commending the entrepreneurial spirit of the audience he reassured them on ABB's capacity expansion plans to meet the growing market demands. He also complimented all channel partners for an outstanding performance in the year gone by and urged them to capitalize on the market growth with existing products supplemented by an extended offering.

Pekka Tiitinen, Manager and Senior Vice President for PRU LV AC Drives and BUJ Drives in Helsinki, also addressed the delegates and presented updates on ABB's Global Low Voltage Drives. R Narayanan, Head-Channel Business Organisation, ABB India, highlighted the significance of

ABB's partnership with the delegates by sharing details of the steady growth in the volume of business in the Automation Products segment.

Deepak Sood, Head - Corporate Communications, ABB India shared some of the initiatives planned with respect to communications for the coming years and urged channel partners to revert with suggestions and feedback. Going forward he also added that there would be campaigns for branding and marketing and that ABB looks forward to receiving support from its partners in executing them.



The meet was a resounding success and provided a good forum for delegates to share their experiences, raise queries, share expectations and vision for ABB India's growth. It also gave them ample opportunity for informal networking and sharing of best practices.



Behind the scenes with ABB @ the Beijing Olympics



No, we did not break any world records at Beijing, but our innovative power and automation technologies helped China make the games a reality. Big sports competitions involve big spending on venues, accommodation and transport infrastructure, and the first Olympic Games held in China was no exception.

ABB contributed to more than 30 projects in Beijing that were either part of the games or the infrastructure supporting them. ABB contributed to the smooth running of the event, for the athletes and visitors alike. Visitors would not have seen ABB's contribution, but had experienced the benefits, starting from the airport and the metro rail network right up to the numerous Olympic venues across the city.

Significant Olympic projects executed by ABB

- National Stadium (Birds Nest)
- National Aquatics Center (Water Cube)
- Olympic Aquatic Park
- Olympic Village
- Olympic Sports Center
- Training Gymnasium
- Beijing Olympic Central Park
- Wukesong Baseball Field
- China Agricultural University
- Gymnasium - Wrestling Stadium
- Shunyi Olympic Rowing-Canoeing Park
- Beijing Olympic Hockey Field
- Olympic Archery Field
- Capital Indoor Stadium
- Beijing Worker's Stadium
- Shenyang Olympic Sports Center
- Qingdao Olympic Sailing Center
- Beijing University of Technology Gymnasium
- China Central Television Station (CCTV) site
- Beijing Television Station site
- Olympic Media Zone and Media Village
- Terminal 3 of Beijing Capital Airport
- Beijing Airport Line
- Beijing Subway Line 4



ABB keeps aircrafts looking their best

KLM's vast Hangar 14 at Amsterdam Airport Schiphol is the largest airline maintenance building in Europe. Here, the world's aircrafts come for routine health checks and the aviation equivalent of a body scrub and facial - expertly applied by 32 ACS800 variable speed drives from ABB. The drives control the speed, torque and energy consumption of the motors that power the platforms and gondolas.



McDonald's gets happy deal from ABB

Fifty McDonald's restaurants across the United Kingdom are now saving 50% on power bills for kitchen extractor fans with the help of ABB inverter drives. McDonald's was hoping to see a 40% drop in energy consumption and less wear and tear on the fan. The performance of ABB drives exceed



their expectation resulting in a happy deal for the fast-food giant.

Living our commitment to Sustainability

Organic plant gets efficiency boost from ABB technology

An ABB System 800xA installation in Europe's largest organically-fuelled electricity generator will help improve energy efficiency at the 38.5 megawatt (MW) plant. The power generating unit is owned by Energy Power Resources Limited in Thetford, U.K. ABB will provide an overview of the entire plant operation by transferring hard-wired data from existing panels into an 800xA control system, and installing a central control desk along with new operator work places.

ABB will integrate separate displays into a single large display, while its power generation information system enables a company-wide reporting system for processes and production that can be easily expanded to serve all EPR's power plants in future.

The upgrade is part of what ABB calls its 'Evolution' lifecycle support strategy, which allows owners and operators on tight budgets to upgrade existing equipment over time. It is designed to allow continuous operation while upgrades are achieved through a series of small, cost-effective steps, to meet the needs of changing business environments.

EPR is at the forefront of the renewable energy market in the UK, with a relatively diverse portfolio of plants fuelled by organic materials, or biomass. But this initiative still owes much to the chicken. Each chicken produces 1.13 kilograms of litter in its life, a mixture of manure and bedding materials like wood shavings. The litter can be used as fuel for an alternative source



of energy, as here, or it can be applied directly to land as a fertilizer for crops like corn or soybeans.

The litter's nutrient-rich elements can also be separated out to create more concentrated fertilizer pellets, which allow a slower release of nutrients into the soil and curb pollution from pathogens in the unrefined litter. The installation for EPR is one of many ABB projects in the field of alternative energy, and the second Evolution-style project for EPR involving a biomass-fuelled power station.

Interconnecting control systems based on ABB's Extended Automation System 800xA, let the plant operators measure and optimize energy usage while documenting every aspect of production.



ABB automates solar cell chemical technology



To ensure production reliability and process excellence at the site, Evonik selected ABB to evolve and expand the existing distributed control system into a new plant-wide solution.

Evonik Industries, a leading chemical, energy and real estate company based in Essen, Germany, is the world's largest producer of ultra-pure chemicals for the photovoltaic industry. It chose ABB's flagship System 800xA automation platform to control the complex production process at its new site expansion in Germany.

The expansion will enable Evonik to triple production of ultra-pure chlorosilanes, raw material in the production of photovoltaic (PV) silicon. PV silicon is the substance from which solar-grade silicon wafers are made, which are the key components in solar cells and solar power systems.

Photovoltaic or solar cells convert sunlight directly into electricity, and are commonly made of silicon (like the blocks above), a semiconductor material. When light strikes the cell, it creates a flow of electrons, or an electrical current.

The solution enables Evonik to enhance its existing ABB Advant open control system to the latest version of System 800xA without interrupting production at the plant. It allows Evonik to retain existing application programs and AC450 controllers and integrate them with new AC800M and AC800M HI (high integrity) controllers, Information Management software and System 800xA workplaces. ABB is also providing S900 explosion-proof I/O modules for high-risk production zones.

ABB supplied a similar solution for chlorosilane production to Wacker Chemie for its production plant in Neunhritz, Germany, and is supplying the power plant automation system for Europe's largest solar power plant, currently under construction in Spain.



120 Years of Innovations Technology Timeline • 1883-1912

ABB has written technological history. With their inventions, our employees have been advancing technical development decisively for over 120 years.

1883



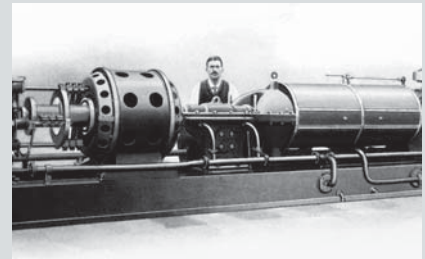
Ludvig Fredholm establishes Elektriska Aktiebolaget in Stockholm as manufacturers of electrical lighting and generators

1891



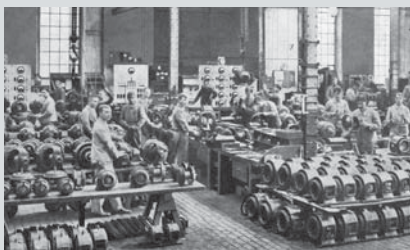
Charles E. L. Brown and Walter Boveri establish Brown, Boveri & Cie in Baden, Switzerland. Shortly afterwards, Brown, Boveri is the first company to transmit high-voltage AC power.

1901



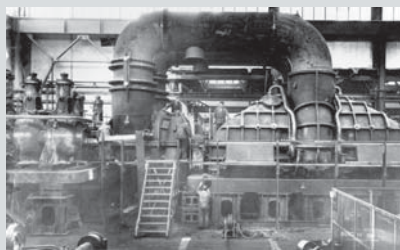
Construction of Europe's first steam turbine

1889



1889 - Jonas Wenstrom of Elektriska Aktiebolaget invents the three-phase system for generators, transformers and motors

1893



Construction of Europe's first large-scale combined heat and power plant producing alternating current

Construction of first three-phase transmission system in Sweden

1910



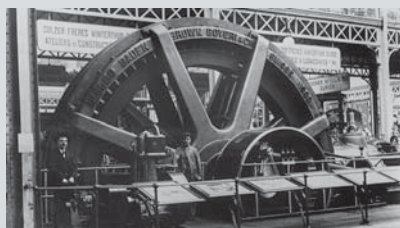
Development of the first turbine with radial, contra rotating vapor stream

1890



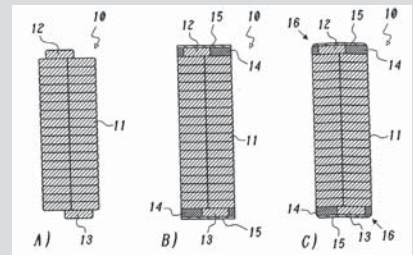
Elektriska Aktiebolaget merges with Wenströms & Granströms Elektriska Kraftbolaget, later shortened to Asea

1895



Delivery of 1000th generator

1912



Invention of the Roebel bar

Energy efficiency



At ABB, it translates into cutting-edge Power and Automation technologies that offer seamlessly integrated solutions to reduce transmission and distribution losses for power networks and enhance efficiency and productivity of industrial plants. A commitment that will go a long way in conserving natural resources to make the world a better place for generations to come.