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The customer magazine
of ABB in India,
Middle East & Africa

contact



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Building a nation
ABB congratulates UAE
for 40 years of success

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Flagship technology showcased at major trade show held in Doha
Olympian event of the oil and gas Industry

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Giuseppe Di Marco
Country Manager and
Chief Executive Officer
ABB Southern Gulf and Pakistan

Dear friends,

Welcome to the latest issue of Contact. I am delighted to say in my first magazine as the CEO of ABB in Southern Gulf and Pakistan how pleased I am to have joined the region. I am keen to participate in constructing our business success so that we can promote innovation to increase productivity, reliability and energy efficiency in the most sustainable way possible.

You will also see the latest news from ABB customers around the world and this time we have a special focus on the cement, mining and metals industries. From optimising solutions in some of the world's biggest

cement plants to enhancing customer experience through service contracts. ABB has proved itself as an ideal partner for industry, based on expertise, innovation and our extensive range of products and service offerings.

We hope that you find this issue of Contact an interesting read and I look forward to engaging with you soon.

Regards

Giuseppe Di Marco

Tapping into Oman's sturdy construction sector



KNX system improves comfort, energy efficiency and security in hotels, public buildings or skyscrapers

Gulf's premier event on construction and investment opportunities

The Annual Oman Construction Summit held in Muscat saw key players in the construction sector gather together to discuss the major construction and infrastructure projects in the Sultanate. Executives from all over the region were able to interact with executives from ABB and understand how the company can contribute to the sustainable future of Oman with leading edge, energy efficient technology solutions.

With a strong focus on climate change and relative energy challenges, a sustainable and efficient future was seen as the need of the hour. For ABB, the challenge is to reduce energy consumption while always maintaining capacity where it's needed.

ABB is well-equipped to improve on tomorrow's infrastructure. An infrastructure that encompasses all the key elements of a dynamic society: airports, ports, roads, water supply and sewage disposal, track-bound systems, tunnels and public buildings such as hospitals, sports arenas, shopping malls and residential housing.

At the summit Tarek Zakaria, ABB regional manager for KNX Building

Technology in Middle East and Africa, shared insights on the modern green building technology at a panel discussion on 'Reviewing Oman's Regulations, Standards, and Specifications Summit'. "With greater demand of dependable, energy efficient solutions for infrastructure, green building has become to focus globally and also in Oman. ABB systems and products are designed to save energy the easy way; for example our intelligent building control system KNX system, is one of the most energy-efficient building automation systems on the market. The ability to control energy-intensive functions, such as air conditioning and lighting in each room, is reducing significantly power consumption and carbon dioxide emissions in buildings ", explained Zakaria. KNX system improves comfort, energy efficiency and security for example in hotels, public buildings or skyscrapers where energy consumption is traditionally very high.

The Construction Summit and joint exhibition saw over 300 visitors consist of Omani government officials and industry professionals across the region.

For more information: www.abb.com/industries

Latest building automation products for comfort, safety and energy efficiency launched



A typical KNX smart building control panel

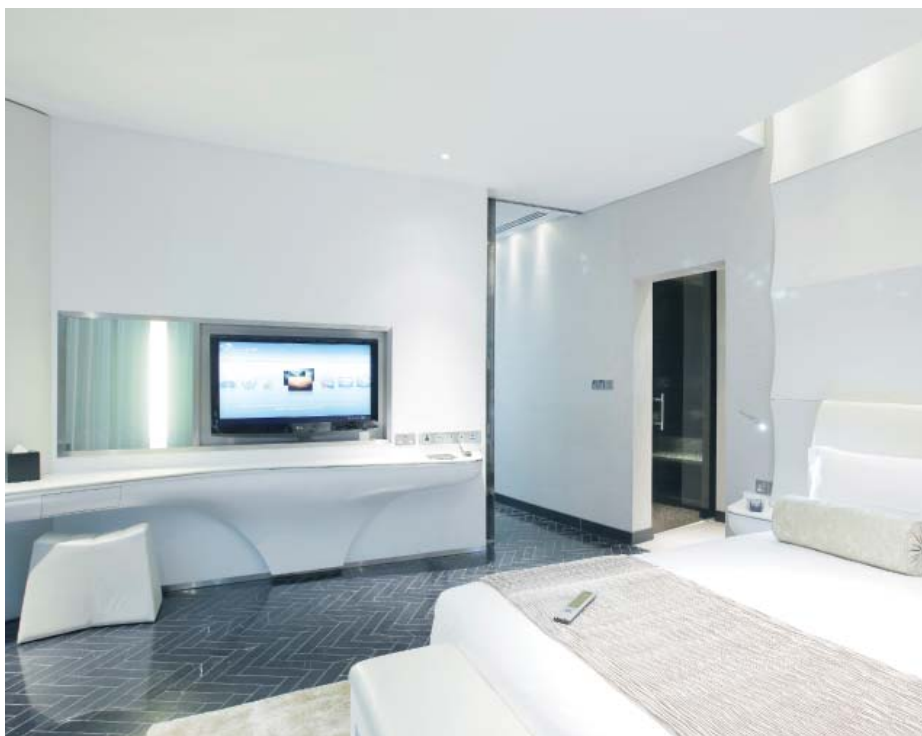


ABB i-bus® KNX systems combine quality living, comfort and safety with efficiency and environmental consciousness

ABB's innovative KNX technology in hotel rooms contributes to energy efficiency in Oman

New and innovative building automation technologies for comfort, safety and energy efficiency have been launched by ABB in the United Arab Emirates.

ABB-Welcome 8 is a high quality door entry system and its design features include: home-to-home intercom, two way message transmission and seamless integration into security systems using an ABB-comfort touch panel.

The product is available in different shades of black, white and silver. Both the indoor unit and the outdoor station are designed to complement each other. The radio frequency (RF) basic automation 'planner' can be integrated with the RF systems which enables actions to be installed, whether they

are built in or placed on any surface eliminating additional work in cabling. The planner helps to optimise energy consumption at home, contributing to energy savings and complying with demanding sustainable building regulations.

ABB's products include the Busch-iDoc and the Busch-iceLight. The ABB's Busch-iDoc can connect with any Apple products such as iPhone or iPad and apple, iPod, or iPhone and be integrated as a remote control featuring the comforts of home entertainment. The Busch-iceLight also sets new standards in the integration of lights and architecture by combining LED flush mounted light system with matching switch design.

For more information: www.abb.com/knx

Full Service contract for Oman aluminum rolling mill



ABB will manage, develop, implement and execute the entire maintenance function at the plant

Agreement will ensure best practice maintenance and increase plant reliability

ABB won a contract worth \$9 million from Oman Aluminum Rolling Company (OARC) to develop, implement and execute all maintenance activities at the company's rolling mill plant in Sohar, Oman.

The greenfield aluminum rolling mill will produce flat sheet and aluminum foil with a capacity of 140,000 tonnes per annum and will primarily serve the Middle East and European markets. The projected completion of the plant is expected during Q3 2013 when the plant will commence operations.

"We look forward to having ABB as a partner in the new rolling facility. ABB brings experience in Oman and gives us access to their global rolling capabilities of ABB for maintenance services and rolling technology support. The agreement is performance based and provides both parties incentives for success. OARC and ABB will work jointly to provide a high rate of Omanization within the maintenance work force which is in the interest

of our shareholders," says Buddy Stemple, chief executive officer of Oman Aluminum Rolling Company.

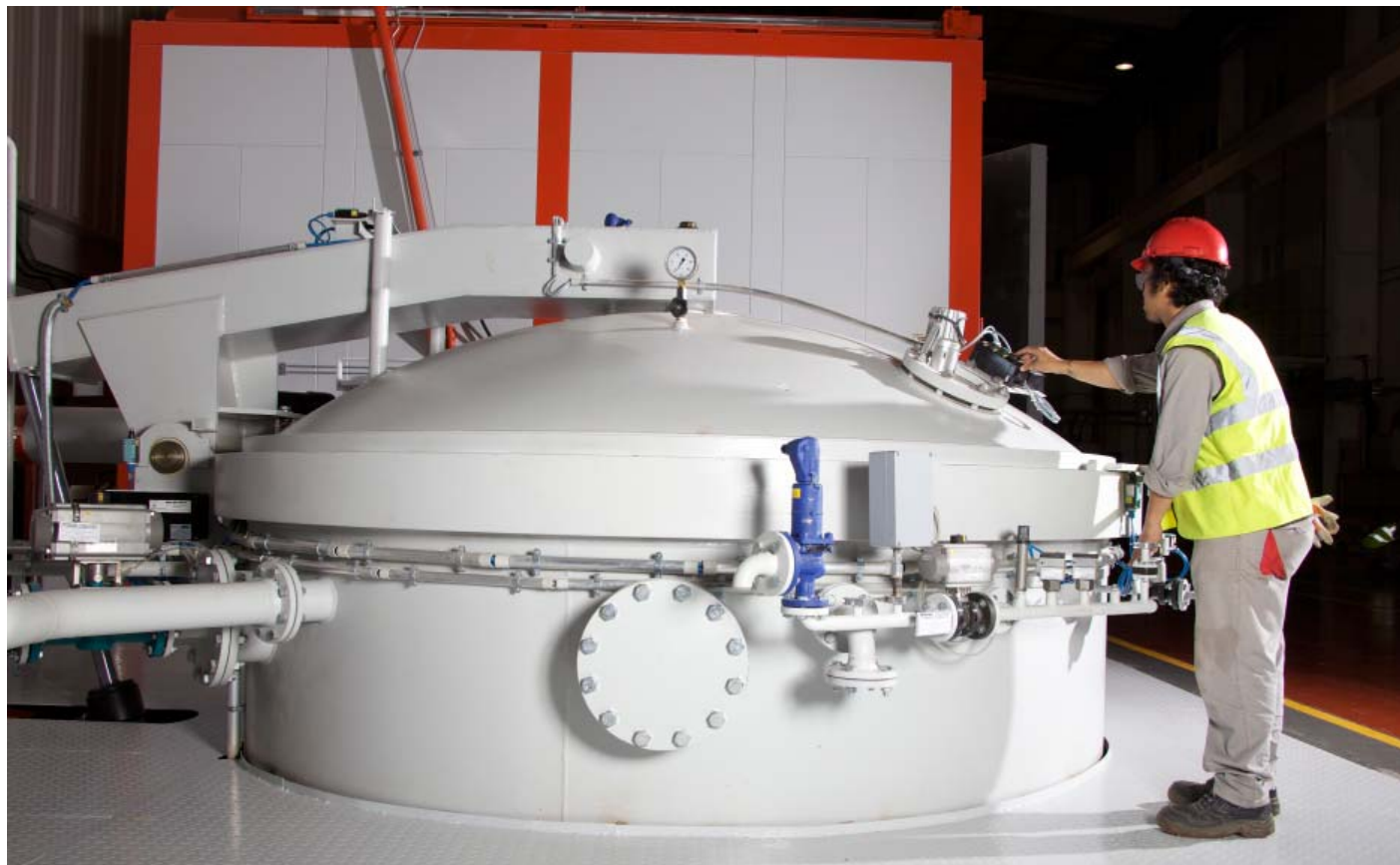
Through the ABB Full Service concept, ABB will manage, develop, implement and execute the entire maintenance function at the plant including all mechanical and electrical maintenance regimes, shutdown management, planning and scheduling and reliability maintenance.

"Our innovative approach to performance-based services ensures improved production and equipment performance, energy efficiency and reliability for the entire facility," says Saeed Fahim, country manager for ABB in Oman.

ABB's renowned global expertise, tools and methodologies will assist OARC in allowing a successful start up of the plant. The agreement involves 55 ABB employees directly and will start in June 2012 and continue for a minimum 5 year period.

For more information: www.abb.com/service

Motor and generator maintenance service to improve performance



The new facility provides machinery to service electrical motors and generators, including those manufactured and distributed by ABB

ABB has collaborated with Oryx Energy Projects and Services of Qatar (Oryx) – to provide a range of electrical motor and generator services to customers in the oil, gas, water and energy sectors. The newly created ABB Oryx Motors and Generators Service LLC (ABB Oryx M&G), will service customers in Qatar and the surrounding Gulf and sub-Saharan African regions.

The agreement is the result of two-and-a-half years' discussion and was signed by Abdulla Ahmed Mannai, chairman and managing director of Oryx, and Gus Abboud, region division manager, ABB Discrete Automation and Motion, Middle East and Africa.

The new partnership will be based at the Oryx Engineering Solutions Centre (OESC) within the RasLaffan Industrial City. This facility – which has a built up area close to 10,500m²

of workshops, offices and training facilities – is fully equipped with all the machinery needed to service electrical motors and generators, including those manufactured and distributed by ABB.

Oryx's chairman and managing director, Abdulla Ahmed Mannai, said: "This agreement strengthens our position in the market by adding to our capabilities. ABB is a highly respected global technology company well known for its innovation and leading position in energy efficiency and industrial productivity."

Speaking for ABB, Gus Abboud, said: "As a leader in power and automation technologies, our aim is to help our utility and industry customers improve their performance whilst reducing their impact on the environment. Electric motors are the single biggest consumer of electricity

and account for about 45 percent of global electricity consumption. Motors and generators are at the heart of everyday life and without them, many businesses would grind to a halt, therefore servicing this vital equipment is key to keeping the wheels of industry turning and keeping the lights on."

The full scope of the joint venture includes the repair, servicing, commissioning, installation and maintenance of all brands of electrical motors and generators, including those manufactured and distributed by ABB. The work will be carried out either at the new ABB Oryx M&G dedicated workshop in the OESC or remotely on site at the customers' operational locations.

For more information:
www.abb.com/motors&generators

Enhancing industrial productivity at gas plant in Abu Dhabi

Key technology to ensure operational safety and reliability

ABB has won an order from Saipem S.p.A. and Samsung Engineering Co. Ltd., to provide a range of power and automation equipment for a natural gas processing plant in Abu Dhabi, United Arab Emirates.

The plant is located in the Shah natural gas field, southwest of Abu

Dhabi city, and has a daily production target of one billion cubic feet of sour gas or high sulfur gas. Abu Dhabi is developing its sour gas reserves as domestic power consumption soars. The hydrogen sulfide content of the gas must be reduced to acceptable levels before it can be used.

ABB in Italy and ABB in South Korea will supply low voltage switchgear, intelligent motor control units and variable frequency drives (VFDs).

“This order is the end result of a successful ‘One ABB’ collaboration between different local teams,” said Tarak Mehta, head of ABB’s

Low Voltage Products division.

“ABB technology for remote control systems is crucial in order to ensure the functionality and the integration of low-voltage switchgear in modern production plants.”

The safety of personnel and equipment reliability are key issues for this plant and played a significant role in the awarding of this contract. ABB’s MNS low-voltage switchgear uses remote control systems and multifunction protection relays that make it the benchmark for operational safety, reliability and quality.

For more information: www.abb.com/oilandgas

Improving productivity process at Podilsky Cement, Ukraine

New production line to achieve high energy efficiency, product quality, while reducing environmental impact



An overview of Podilsky plant, Ukraine

ABB has successfully commissioned its integrated electrical, control and automation systems at the largest cement production line in the Ukraine.

Owned by international building materials group CRH, the plant is located in Kamyanets-Podilsky, approximately 420 kilometers southwest of Kiev and started operation in the 1970s. The new production line No. 7 is part of a plant modernization that replaces the existing production lines while maintaining the plant’s 7,500 tonnes daily capacity, making it the

largest cement production line in the Ukraine.

The modernization project helped the plant decrease the emissions from fossil fuel combustion by changing the technology of cement production from a wet production process to a state-of-the-art dry production process. The new process uses considerably less fuel, with lower emissions of particulates and CO₂.

For this project, ABB delivered integrated electrical and automation systems that include medium-voltage

switchgear, intelligent low-voltage motor control centers, variable speed drives, instrumentation, gas analyzers, collaborative production management systems, and a plant-wide 800xA automation system to control, connect, and optimize the performance of all processes, systems and equipment. ABB also provided design, engineering and site services, training, and procurement of third-party equipment.

For more information: www.abb.com/cement

Electrical equipment contract awarded by Masan Resources' Nui Phao mine in Vietnam



A panoramic view of the Nui Phao mining site

Power and automation equipment will help increase mine efficiency and minimize impact on the surrounding power network

ABB has been awarded a contract to supply the majority of the electrical equipment for Masan Resources' Nui Phao mine. The Nui Phao mine is located approximately 80km northwest of Hanoi in the Dai Tu District of Thai Nguyen Province in Northern Vietnam.

Masan Resources, a division of the Masan Group, one of the largest private companies in Vietnam, is developing the Nui Phao mine, which is a unique polymetallic mine with reserves of tungsten, fluorspar, bismuth, copper and gold. The mine is positioned to be one of the most cost-effective producers of tungsten in the world.

ABB will supply and provide commissioning for a comprehensive scope of electrical equipment, including automation and drives systems for the mine. The equipment and system design for the project will minimize impact on the surrounding power network, and increase both efficiency and productivity. Reliable performance of the system is critical to the safety and financial success of the mine's operation. ABB's proven maintenance, lifecycle support service and expertise in delivering systems were important factors in securing this contract.

For more information: www.abb.com/mining

Rio Tinto mines in Australia to boost production via power infrastructure

ABB has won orders worth around \$100 million from Rio Tinto for 17 distribution substations to support increased production at iron ore mines in Western Australia.

The upgrades and installation of new power infrastructure will raise the voltage level of the existing distribution substations and increase the power supply to support the expansion of existing iron ore mines in the Pilbara region.

Urbanization and economic development in emerging markets is fueling demand for steel, for which iron ore is the main component. Steel is widely used in the construction of bridges, railways, ships, cars, buildings,

and other infrastructure and industries.

ABB's scope of supply includes electrical switch rooms, switchgear, cables, power transformers and ring main units. ABB will also deliver a range of components including SCADA (Supervisory Control and Data Acquisition), and protection and communication equipment compliant with the IEC 61850 global standard. This will enable remote monitoring and control of power assets located at multiple sites, from Rio Tinto's Remote Operations Centre situated in Perth, more than 1,000 kilometers away.

As part of the contracts, ABB is responsible for the design, engineering and supply of equipment needed

for the upgrade and installation of new electrical infrastructure for the substations. The projects are scheduled for completion by 2013 and form part of the customer's multi-stage Electrical Infrastructure Replacement (EIR) project. ABB has successfully completed several similar projects for Rio Tinto in the past.

Rio Tinto is a global leader in the exploration, mining and processing of minerals and metals, including aluminum, copper, diamonds, energy products, gold, industrial minerals and iron ore.

For more information: www.abb.com/mining

Automation solutions optimize mining project in Chile



Gearless mill drive systems to optimize production at Minera Quadra's new copper mine

ABB won an order worth \$43 million to deliver three gearless mill drive systems, plus related automation and power infrastructure equipment for a new copper mine to be operated by Minera Quadra Ltd., in Sierra Gorda, Chile.

Minera Quadra is a Chilean subsidiary of Vancouver-based Quadra FNX Mining Ltd.

Located in the Atacama Desert region of northern Chile, the new open-pit mine will produce 111,000 tonnes of copper per day, with significant molybdenum by-products, for the next 20 years.

ABB's delivery will help the mine to optimize its overall efficiency and productivity. Its gearless ore-crushing

mill drives are more reliable and energy efficient than traditional mill drive systems, providing increased productivity.

The scope of supply for the project consists of three 17 megawatt gearless mill drive systems, related automation equipment and systems, as well as remote and diagnostic monitoring systems that include earthquake detection, and related engineering and installation services. ABB will also provide power infrastructure equipment such as transformers, containerized electrical-rooms to house electrical systems, auxiliary distribution, and other electrical equipment.

For more information: www.abb.com/mining

Turning Lisbon's waste into energy



One-fifth of Portugal's waste is processed and converted into electricity at the Valorsul waste-to-energy plant, Portugal

Located on the outskirts of Lisbon, the plant recovers the solid waste of 19 municipalities in the capital and western Portugal, and turns it into 50 megawatts of electricity – enough to meet the needs of a large city.

Looking for ways to reduce the energy consumption and CO₂ emissions of the plant, Valorsul identified six fans with a high energy saving potential: three induced draft (ID) fans and three secondary air fans.

In waste-to-energy plants, ID fans and secondary air fans are an important part of the combustion process. The latter supply secondary air to the boiler to combust the fuel, and ID fans remove the flue gases as exhaust during combustion. ID fans in particular consume large amounts of electrical energy. The method by which the fans are speed-controlled has, therefore, a major effect on energy consumption and

operating costs. Prior to the installation of the ABB solution, the fans were controlled by dampers, which is the least energy-efficient control method available.

By replacing the dampers with an ABB variable speed drive solution, Valorsul considerably reduced fan energy consumption and carbon dioxide emissions, and gained a number of other significant benefits as well.

The ABB solution comprises three ACS 2000 medium voltage drives, three ACS800 low voltage drives, and UniMix medium voltage switchgear for line supply connection and backup bypass for the variable speed drives. The ACS 2000 variable speed drives - rated at 700 kW, 6.4 kV - can be directly connected to the line supply and do not require an input isolation transformer.

Prior to the installation of the ABB solution, the average daily energy consumption of the fans with damper

control was 153.6 megawatt-hours. The variable speed drives have reduced this by 9 MWh to 144 MWh, which equates to €240,000 (\$320,000) a year at a tariff of €0.80 (\$1) per kWh.

Lower energy consumption means lower carbon dioxide emissions. The drive solution has reduced the plant's CO₂ emissions by about 4.5 tonnes a day – a significant reduction to the plant's carbon footprint.

The ABB variable speed drives have also improved process control. The air flow can be controlled more accurately, faster and reliably than with dampers. Other benefits of the drive solution include lower investment and maintenance costs, reduced footprint in the electrical room, and smooth integration with existing plant infrastructure.

For more information: www.abb.com/betterworld
www.abb.com/drives

Minerals Remote Monitoring Center

High-end integral service offering for mineral industry



Minerals Remote Monitoring Center (MiRMC) is an offering from ABB for the minerals industry to provide remote monitoring, periodic patch, release updates and modification of the plant operating systems. MiRMC integrates process consultancy service with remote diagnostic services for processes and systems.

MiRMC facilitates customers to collaborate with ABB experts to achieve improved quality and cost effectiveness. A step-wise process in which the key data is monitored by ABB experts remotely, thereby predicts potential problems and resolves errors. MiRMC



offering includes system upgrades and maintenance, periodic patch and release updates, system status monitoring, system modification and enhancements, loop performance monitoring and tuning, process consultancy (Cement Performance FingerPrint), access to global knowledge repository, 24x7 service support and training.

The remote service offering reduces redundant maintenance, improves production efficiency, tracks causes of failures, provides fault diagnosis and recommends specific actions for smooth work flow. It also notifies about impending failures which in turn helps in initiating proactive corrective actions.

The benefits of MiRMC include, but are not limited to lower operating cost enhanced plant availability, maximized production and improved quality.

ABB experts will have access to plant distributed control system (DCS) through a secured network, this ensures security. The system will be managed by competent and certified resources through a secured environment with SSL encrypted connection to plant system. Actricity tool based case tracking and unique service ID generation are some other features of MiRMC. MiRMC also has well defined automated workflow, plant access through approved work permit,

audit trail for complete traceability and knowledge management for re-use.

Across the globe ABB has an installed base of more than \$100 billion of automation products and systems, hence is constantly working on achieving flawless product support for ABB customers. Remote service developments are directly proportional to clients' ever changing demands. MiRMC plays a significant role in cost saving and offering an exhaustive review of procedures and process implementation.

For more information: www.abb.com/minerals

MiRMC architecture

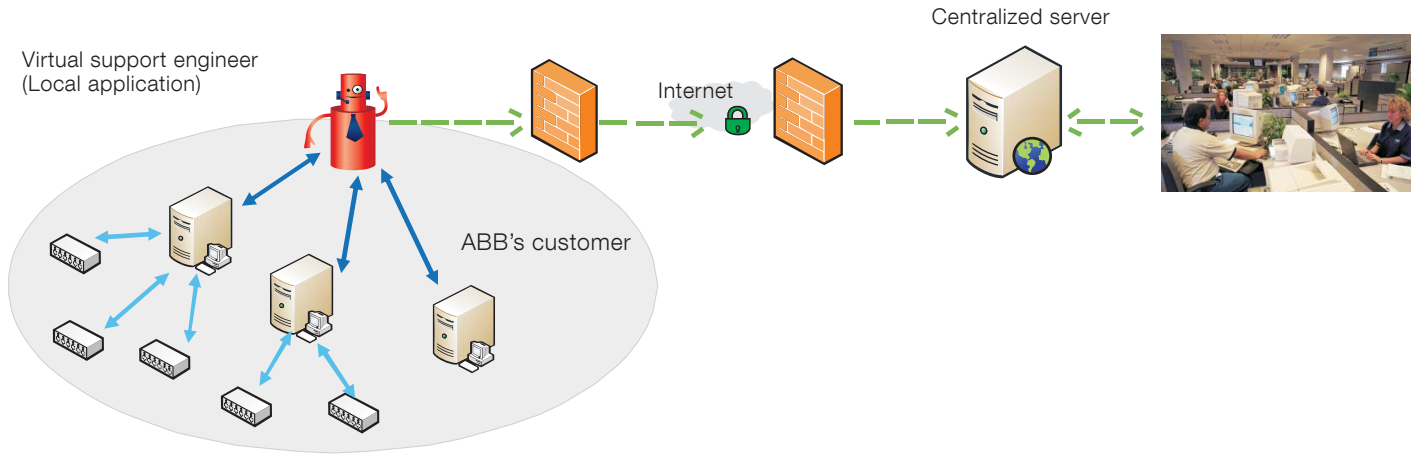


ABB solutions for the Industry

Cement Performance FingerPrint

Cement Performance FingerPrint is a process optimization and energy consulting service designed to capture, analyze and improve operational performance and energy efficiency of cement making process. This process ensures tuning of plant control system efficiently, benchmarked to industry best practices. It also offers a systematic approach in capturing the process sensitivity using plant step tests, building a dynamic process model, analyzing site constraints and identifying improvement opportunities.

Cement Performance FingerPrint provides plant benchmarking with industry standards, plant variability study, control loop performance report, process performance analysis, energy efficiency potential and access to best practices.



Knowledge Manager Cement basic report package

The Knowledge Manager cement basic report package is an entry level production reporting system which is cost-efficient and fast to implement. Knowledge Manager enables to achieve operational objectives by monitoring and managing manufacturing processes. It also provides analytical insight to identify best practices that will improve overall operation.



The highlights of this report package are fast implementation and startup, cost-efficient installation, basic calculations that fit the cement industry, standard reports across all plant sections, minimal customization requirements, extendable with more cement report package.

SpectraFlow

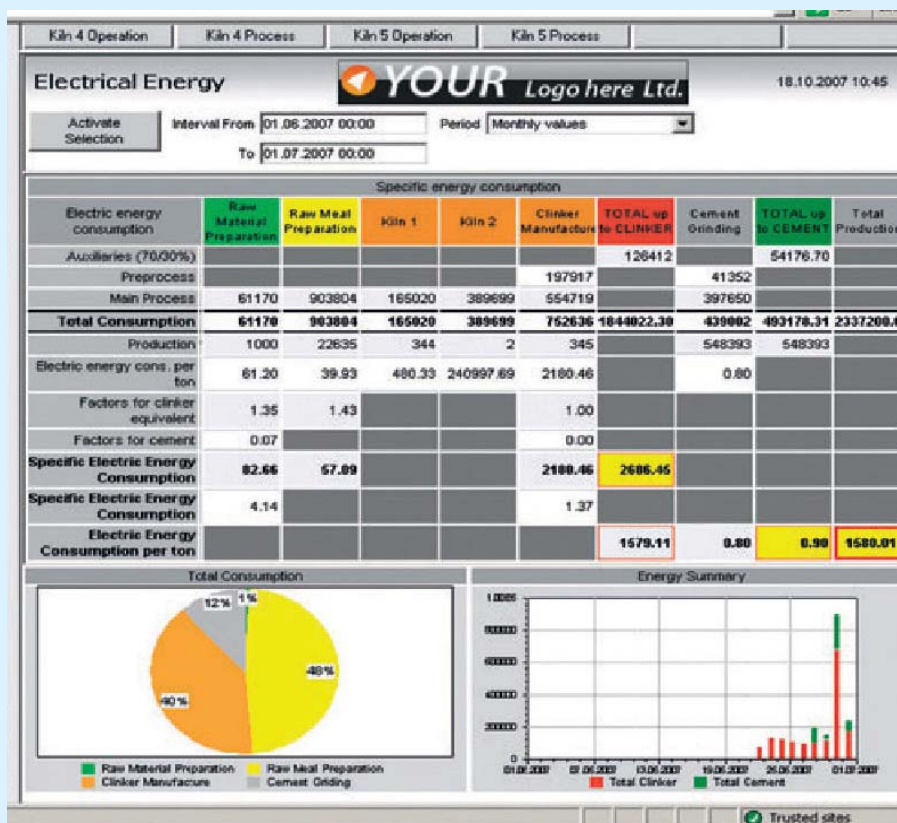
SpectraFlow is an online bulk material analyzer for belt conveyors powered by ABB's SOLBAS™ technology. SOLBAS™ technology is the innovative application of the well known Near Infra Red (NIR) concept to the analysis of bulk material online. Fast and accurate chemical analysis using Near Infra Red (NIR) i. e. the wavelength range from 700 to 2500 nanometers is a well established method in the petrochemical, food and pharmaceutical industry.

The SpectraFlow analyzer helps plants in better and longer use of the quarry, less variation in the raw material feed, reduced need for corrective material and smoother mill operation. Its benefits in the analyzer operation include online analysis of secondary materials, long lifetime of the source because the lamps are operated at 80 % of their rating, high stability of the FTIR, low cost of ownership and low analyzer maintenance.

Energy Management Solution (EMS)

EMS is a set of software solutions for the cement and minerals Industry, where ABB has extensive experience in developing and supplying energy management solutions. EMS aims to reduce energy use and costs, while improving the company's overall carbon footprint. Energy Management solutions can achieve an overall cost reduction of 2 to 5 percent of the total electrical energy bill.

In EMS customer sites are modeled as an Economic Flow Network with a number of balancing areas interconnected by connection points that model the transfer and conversion of energy and material. The total consumption or outbound flows of the utility in the balancing area is balanced with other supply resources, or inbound flows. Depending on the objectives of a specific case, the resources are selected to minimize the total energy cost or to maximize the total profit of the operation over a specified time range. Energy Management Solution helps in lowering electricity purchase prices due to



EMS Overview screenshot

accurate consumption plans, avoiding price peaks and penalty charges and

in employing optimal resources in the supply of electric power.

Loop Performance Manager (LPM)

LPM provides a powerful, yet extremely easy-to-use, collection of software tools that control engineers and process operators will find useful to start-up, diagnose and maintain control loops. LPM supports a wide variety of commercial PID (proportional-integral-derivative) control block algorithms, as well as various configuration options available for those PID algorithms. By combining data collection, model identification, feedback tuning, feed forward tuning and controller simulation in a single user interface, ABB delivers a complete tool and removes the barriers preventing optimization of regulatory layer.

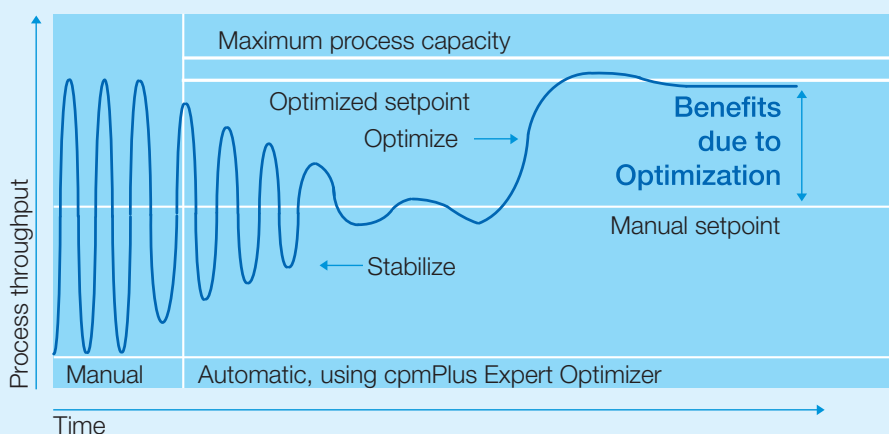
The benefits include extended equipment lifetime, improved energy efficiency, increased process capacity, fewer plant trips and higher as well as more consistent product quality.

cpmPlus Expert Optimizer

cpmPlus Expert Optimizer helps improve productivity, energy efficiency and profitability by stabilizing and optimizing the process involved. cpmPlus Expert Optimizer extends the capabilities of control system by coordinating actions on the process, such as rotational speed, fuels, valves or chemical additives. It maximizes efficiency by looking at the interactions among variables and deciding according to the plant goals. It collects real-time data, processes it with mathematical algorithms and coordinates the plant actuators for

optimal performance.

The features of cpmPlus Expert Optimizer include advanced process optimization techniques, such as Model Predictive Control (MPC), Fuzzy Logic and Neural Networks Flexibility to handle the process requirements of different industries with different business objectives, user-friendly modeling environment in which the process engineer does not have to get in to the mathematical complexity of the optimizer along with a modular, reusable and scalable design to reduce deployment time.





System 800xA is ABB's flagship automation solution

Tourah Portland Cement Company gets a System 800xA upgrade

Proven technology in control systems coupled with training help customer in improved plant continuity and productivity

A complete Cement Mill Control System modernization was commissioned by ABB at the Tourah Portland Cement Company Plant # 2 with high level of plant modernization solutions like Lock Out Tag Out System (LOTO System) which took the safety to higher level and SMS functionality which increased plant availability via keeping the plant managers updated on time with any stoppages / alarms for immediate corrective actions.

The Tourah Portland Cement Company is Egypt's first cement company with 66.12% owned by Suez

Cement Company. Suez Cement owns approximately 30% of grey cement market share and 50% of white cement market share in Egypt making it one of the largest cement producers. The solutions were implemented in its mill no. 11. Prior to the upgrade, the company was using obsolete BBC control systems.

ABB provided complete engineering solutions on turnkey basis which were incorporated during the shutdown window at the facility. The scope of solutions include System 800xA with AC800M, work stations and screens, LOTO System, LCD, Padlocks Holder,

Padlocks and Bar Code Scanner System, SMS functionality engineering, activation and communication modems.

The company is familiar with ABB control systems and was pleased with the level of detailing and involvement by ABB engineers including hands-on training and safety procedures and operational training. In addition to the supply and commissioning which was implemented on time, the customer will stand to benefit from long-term technical support for their assets as well as ready availability of spares.

For more information: www.abb.com/cement

Unique mining solution brings out the best results

ABB has used its global expertise in automation solutions for open pit mining and material handling to provide a unique, custom-built automation system for a bucket wheel excavator (BWE) for Neyveli Lignite Corporation Limited, in Tamil Nadu. ABB Cottbus, Germany is the MTC (Main Technology Center) for open pit mining. ABB Cottbus supported for this bucket wheel excavator project, by providing the Continuous Mining Motion Control program, which is used in the Variable Frequency drives. Also ABB Cottbus has deputed their experts for commissioning of the various drives.

ABB introduced a variable frequency drive (VFD) ACS 8004Q for the bucket wheel application, which significantly reduced the wear and tear of buckets and optimizes energy consumption in the operation of the machine. The indigenously developed solution was implemented in record time and helped boost the performance of the bucket wheel. Bucket-wheel excavators are pieces of heavy equipment used in open pit/ surface mining, especially for lignite. It is a continuous excavation machine capable of removing up to 3430 cubic meters of soil / strata per hour.

The excavation component itself is a large rotating wheel mounted on a boom. On the outer edge of the wheel are a series of buckets. As the wheel turns, the buckets remove soil or strata from the target area and carry it around to the rear of the wheel, where it falls onto a conveyor, which carries it up the arm toward the main body of the excavator.

Discharge conveyor carries it further and discharges it on the overland conveyor. The most favourable soil and strata conditions for BWE operation are soft, unconsolidated overburden materials without large boulders.

ABB partnered with ThyssenKrupp Industries India Limited, the original equipment manufacturer (OEM) for the project, to develop the unique

automation solution. ABB's scope included composite solutions spanning engineering, manufacturing, supply, erection supervision, testing and commissioning of machine electrics, drives, motors, automation system and field instruments.

Electrics comprised HT switchboard, transformer, motor control centers (MCC) and cables for the complete machine.

The automation system included AC800M controller, S800 IO's and process panel. Communication with the remote IO's, process panels and field devices is through Profibus network.

The solution was designed after detailed studies, analysis and simulations. The objective of the application software designed to operate the system was to ensure even loading of the conveyor belt, minimize idle operation and form stable slopes. ABB's application engineering team developed the application programme including the automation of the entire process of soil excavation. This software seamlessly directs the bucket wheel to follow the optimal track, thereby helping the operator to enhance its productivity.

For more information: www.abb.com/mining

Key benefits

- reduced wear and tear of the buckets
- energy saving
- avoidance of overload trippings
- optimum use of the BWE
- increase in machine availability time



Bucket wheel excavator at Neyveli Lignite Corporation Limited



Shah Cement Industries Limited, Dhaka, Bangladesh

Improving plant uptime and productivity

ABB has recently provided Cement Mill Control System for Shah Cement Industries Limited, Bangladesh. This includes high level of plant modernization solutions like 33kV indoor substation, switch boards, distribution and converter duty transformers, LT PCC and MCC, variable frequency drives, LT and VFD duty motors, HT capacitor, automatic power factor control and 800xA based AC800M distributed control system.

Comprehensive design, engineering, supply and commissioning solutions on turnkey basis were done by ABB in line with customer requirements. The scope of solutions include 800xA DCS with AC800M, servers, workstations and screens along with all electrical equipment. ABB has also provided hands-on training in safety procedures and operational training. In addition to the supply and commissioning, the customer

will benefit from long-term technical support for their assets and ready availability of spare parts.

Shah Cement, located at Dhaka, is one of the pioneer cement companies in Bangladesh. Shah Cement has a total plant capacity of 6 MTPA and has about 16% market share.

For more information: www.abb.com/cement

Enabling JSW Steel to manufacture steel at competitive price



JSW cold rolling mill facility, Bellary

ABB has equipped the JSW cold rolling mill, the most modern CRM plant in the world at Bellary, with its latest technology. The CRM plant is equipped with modern automation, drives and control systems. ABB in India was the sole supplier for automation and drives for this green-field project which consists of continuous pickling line (CPL), compact cold mill (CCM), electrolytic cleaning line (ECL), skin pass mill (SPM) and two recoiling lines cum tension leveling lines (RCL).

ABB solutions helped the CRM plant to improve yield and productivity of processing lines, improved surface quality and finishing, better roughness transfer reducing turnaround time, accurate tension control, enhanced strip defect inspection to log surface defects and production planning and management through modern MES system.

JSW Steel Ltd., with a capacity of 10 million tonnes per annum is a major player. It is India's second largest steelmaker and boasts of

the most modern, eco-friendly steel plants with the latest technologies for both upstream and downstream processes. It is also one of the lowest cost steel producers in the world. ABB has prepared the CRM with advanced drive and automation technology. The drives control is based on the patented Direct Torque Control or DTC concept, providing dynamic performance in terms of torque and speed accuracy. The high torque accuracy and dynamics of the drives used in combination with mass flow control leads to extremely fast correction times of process disturbances and exceptional thickness quality. ABB power system and drives consist of ACS 6000 family of medium voltage drives based on IGCT technology, coupled with synchronous machines for accurate torque control for the compact cold mill. Medium Voltage switchgear system, LV distribution, and UPS system were also supplied in this project.

ABB has standard software modules for rolling mills, consisting of total

integration of automation functions based on ABB 800xA control system. ABB has also provided the Level 1 and Level 2 automation system to integrate the plant. Level 1 control system for mills is based on 800xA which is highly flexible and scalable ABB DCS solution and level 2 consists of production management and process control.

In close collaboration with JSW Steel Ltd. and other suppliers, ABB in India ensured a rapid plant start-up by supporting it with the advanced automation systems. Ensuring that the CRM plant was commissioned within a record period of 24 months, it has presently a capacity of producing 10 MT per year cold rolled coils. On an average 350 coils are manufactured per day. The consistent cold rolled quality has enabled JSW to produce steel at a very competitive price catering to the automotive and process industries.

You Tube Visit ABB YouTube channel to watch the video www.youtube.com/abb

For more information: www.abb.com/metals

Driving new levels of performance at Anglo Platinum

Sole supplier of switchgear to world's leading producer of platinum group metals (PGMs)



Styldrift: Double Drum Service Winder

Anglo American Platinum Limited is a member of the Anglo American plc Group and is the world's leading primary producer of platinum group metals. The company is listed on the Johannesburg Securities Exchange (JSE). Its mining, smelting and refining operations are based in South Africa. Elsewhere in the world, the Group owns Unki Platinum Mine in Zimbabwe and is actively exploring in Brazil. Anglo American Platinum has a number of joint ventures with several South African consortia as part of its commitment to the transformation of the mining industry.

Switchgear for Styldrift

In September 2008, Anglo American Platinum established in partnership with community-based investment group Royal Bafokeng Holdings, a new South African Rand (ZAR) 10 billion mine at Styldrift, in the North West Province. Bulk earthworks started in March 2009 and extended over a 17-hectare footprint. Styldrift is processing 230,000 tonnes of Merensky reef a month, utilising a new twin shaft system, sunk to

a depth of 740m, and a new concentrator. In January this year, ABB was awarded a 10 million ZAR order for double bus bar Air Insulated Switchgear (AIS) for the Styldrift Shaft. "We have been part of the Styldrift project since its inception as we tendered for and were awarded the contract for the supply of Unigear Switchgear for the first phase of the project in 2009," said Per Wanland, ABB's Key Account Manager for Anglo American. "The new contract for the supply of air insulated switchgear is a critical part of a new development at the main consumer substation of the Styldrift shaft. While this will be the first time we supply AIS at this shaft, I am proud of the fact that ABB is the sole supplier of switchgear at this critical Anglo American Platinum operation."

Energising Thembelani 2 Shaft

ABB was awarded an order valued 3 million ZAR for a new 33kV substation at Anglo American Platinum's Thembelani 2 shaft project in Rustenburg in South Africa's North West province.

The original substation installation at the Thembelani 2 Shaft was successfully completed by ABB and, based on their satisfaction with its performance; the customer continued the project by extending the substation with ABB equipment. The medium-term mining profile for Rustenburg is predicated on a series of phased decline extension projects to existing shafts. Between 2014 and 2020, the production profile will be maintained by using either two or three intermediate vertical shafts. The Thembelani No 2 shaft is the first of these vertical shafts.

The first blast for construction of the ventilation shaft took place in September 2006, while construction of the men-and-materials shaft began in September 2007. The Thembelani 2 project includes a downcast vertical men-and-materials shaft, and an adjacent matching vertical upcast ventilation shaft, which will intersect the existing horizontal connections. It also involves the extension of the existing declines at the Thembelani 1 shaft project.

For more information: www.abb.com/mining

New installations enhance capacity at UltraTech



Ultratech cement is one of the premier manufacturers of cement in India



ABB installations at the plant

New technology installed to replace existing production lines

ABB in India has equipped a cement plant in Kotputli, Rajasthan with integrated electrical, control and automation systems as part of plant modernization project.

New ABB technology was installed to replace the existing production lines while maintaining the plant's 800 tonnes of concrete per day capacity. UltraTech Cement plant is one of the premier manufacturers of cement in India and is owned by the global business conglomerate Aditya Birla Group.

ABB's proven track record, installed reference base in other units with the same customer and innovative technology, gave it priority over competitors. Proven technology and ABB expertise helped the manufacturing plant to enhance its existing production capacity, improve product quality and energy efficiency.

ABB delivered medium voltage switchgears, variable speed drives, transformers, HT (High Tension) and LT (Low Tension) panels, intelligent low voltage motor control centre, workstations for minerals library and instrumentation systems, Intelligent Motor Control Centres (IMCC) feeders, motors, plant wide 800xA automation system to control, connect and optimize the performance of all processes, systems, equipment. ABB also provided design, engineering and site services, erection and commissioning for this project.

UltraTech Cement Limited, along with its subsidiaries, has an annual capacity of 52 million tonnes, making it among the top 10 producers of cement globally.

For more information: www.abb.com/cement

Bringing increased efficiency to the Southern Hemisphere's largest coal project

Through its electrification and automation contract, ABB is making a huge contribution towards coal projects commissioned by Vale, the world's largest iron-ore producer



Industrial IT System 800xA Extended Operator Workplace

Vale - the world's largest iron ore producer - significantly raised its initial production target for its Moatize coal mine in Mozambique, expecting to quadruple initial targets by the end of this year. Ships emptied of iron ore in Asia are now filled with coal in Mozambique for return journeys to Brazil and other steelmaking markets.

It is believed that some of the world's richest coal deposits are located in Moatize in the Tete Province of Mozambique – 2000 kilometers (1,250 miles) north of the capital Maputo. With a targeted production volume of 12 MTPA of hard export coking coal and 2 MTPA of export thermal coal, the mine brings much needed economic growth to the region, as does the upgrade of rail and port facilities. Moatize, which employs 7,500 workers, transports its coal along a 600-kilometer railway line to the port of Beira in central Mozambique.

In 2008 Vale awarded ABB the contract for Moatize's electrification and automation. ABB collaborated internally with members of the Centre for Excellence for Mineral Processing in Switzerland, and formed an external consortium with B&W Electrical and Instrumentation.

ABB has made a huge contribution towards the cost-efficiency of the project through its multi-drive solution in variable speed drives. Compact and movable substations known as Mini subs have been designed for a part of the 22kV distribution in the plant. These are built on steel baseframes with a distribution transformer up to 800 kVA and an LV distribution board. Ring main units (RMUs) used in the distribution system are SF6 insulated compact switchgear units with a short circuit current of 25 kA.

For more information: www.abb.com/mining

ABB scope of works at Moatize includes

- Extending the existing substation at Matambo with a new 220/66 kV bay including a 45 MVA 220/66 kV transformer and extension to the existing double busbar system
- Installing a 44km, 66 kV overhead line from the Matambo substation to the Moatize site
- Building a new switchyard equipped with SCADA system at the proposed Moatize site with a 45 MVA 66/22 kV transformer
- 22 kV GIS switchgear and DC power supply units, plus 22 kV power factor and harmonic filter system
- Control system equipment, complete with workstations and furniture. DCS equipment and software packages
- Plant lighting and earthing protection system. Plant lighting and small power system within substation area

One of the largest System 800xA installations in the world



Clockwise, from back row: Robert Markic (ABB), Murray Aird (ABB), Tony Antonecchia (ABB), Glen Evans (Vale), Mark Fletcher (ABB), Arun Duraisamy (ABB), John Leger (ABB), Mats Pahls (Vale), Anthony Klip (Vale) and Rejish Kandy (ABB)

ABB's solutions for Vale in Mozambique is not a standalone project. Vale Nouvelle Calédonie, part of the Vale group, has a plant in the French-territory South Pacific island of New Caledonia. This site ranks as one of the richest undeveloped laterite ore bodies in the world, with an estimated 55 million tonnes of measured and indicated mineral reserves.

In 2005 Vale Nouvelle Calédonie awarded ABB the electrification and automation of this new nickel refinery. Vale Nouvelle Calédonie selected ABB's flagship automation solution, System 800xA, for the facility's automation system – making it one of the largest System 800xA installations in the world.

Beyond the breadth and scope of the mining site and plant, as well as the client expectation of continuous installation and commissioning support, there was a unique challenge posed: for the first time, ABB needed to abide by French standards. All drawings and documents produced had to be submitted in both French and English.

ABB solutions for the System 800xA open pit mine's refinery comprised of the following:

- 48 operator workplaces
- 15 Quad screen and 20 Dual screen Rich clients
- 10 engineering workstations and 10 temporary engineering workstations
- Integration of approximately 8,000 HART-capable instruments
- Approximately 1,100 DOL and 450 VSD Profibus devices
- 2 OPC clients (connecting to OSI PI)
- 2 IM servers
- 33,000 History logs
- 23,000 (redundant) 800xA tags
- 56,000 (non-HI) CLPs
- 15,000 (HI) CLPs
- 1 PC network monitoring system
- 50 AC800M (redundant, PM 864) controllers
- 4 AC800M (redundant, PM 866) controllers
- 8 AC800M (redundant, PM 865) controllers

Vale Nouvelle Calédonie, part of the Vale group has ABB installations as well as has a long-term service contract

Based on customer feedback and continued collaboration, Vale awarded ABB a three-year service contract to provide onsite process control systems service and maintenance of the process plants installed System 800xA process automation system in 2009. The service contract formed part of an overall solution package offered to Vale.

"Good planning and preparation resulted in a successful execution (of the upgrade)," shared Ghislain Belmonte, Technical Services Manager at Vale.

ABB leverages its more than 20 years' knowledge of mineral processing. As the original equipment manufacturer of the control system, ABB had the added capacity to provide expertise to support, maintain and train the local Vale New Caledonie teams.

For more information: www.abb.com/mining

Solar takes centre stage at WETEX 2012 exhibition in Dubai

ABB's cutting-edge solar power generation systems were showcased at the WETEX 2012 (Water, Energy, Technology and Environment) exhibition in Dubai, UAE. The show provided an opportunity for professionals in the energy, water and environment management industries to exchange ideas with the potential to transform the future of communities, economies and nations.

For the first time, customers and visitors were able to try ABB's interactive augmented reality demo pod. The hands on tool allowed visitors to be given an interactive virtual tour of a solar plant via a large screen. The 3D visualization of a photovoltaic (PV) plant on the screen explained ABB's turnkey solution for a power plant, touching on product details like the megawatt station.

ABB's solar solutions maximize plant performance and provide owners with a rapid return on investment and a long plant operating life. The solutions include trackers, inverters, transformers, electrical and control equipment which

are delivered in pre-tested 1 MW modules for scalability, cost efficiency and rapid installation.

The scope of supply covers the entire project from site and project assessment to plant design, engineering, installation, commissioning, service and maintenance. In partnership with contracted manufacturers, ABB also supplies a complete range of solar trackers.

The show came hot on the heels of an announcement to build the Mohammad Bin Rashid Al Maktoum Solar Park which will be operated by Dubai Electricity and Water Authority with the first phase of the project, 10MW of solar power, slated to be completed by 2013.

Other key ABB technology and features highlighted included energy efficiency, solutions for the water industry and the Smart Home and Intelligent Building Control (KNX) that meets the highest requirements for applications in modern home and building control.

At the exhibition Ventyx, an ABB

company, introduced FocalPoint solution suite that offers advanced business analytics solutions. The business intelligence captures and aggregates rich data in a plant held across disparate software systems. The solution can be easily tailored for individual users or user groups.

Asset management tools such as Symphony Plus software compile the industry's best business practices into pre-packaged solutions to enable companies to more effectively monitor and manage their distributed assets on a real-time, near real-time and event driven basis. The software leads operators to greater awareness, faster response and better decisions.

The exhibition provided visitors an excellent platform for a discussion on how ABB can help improve productivity in various processes while saving energy and lowering environmental impact.

For more information: www.abb.com/solar
www.abb.com/water

Turbocharging solutions for better operational and environmental performance

The turbocharging business of ABB in India showcased its products and solutions in the 7th International Maritime Exhibition and Conference (INMEX 2011) held at Mumbai.

Advanced turbocharging solutions and service, resulting in maximized fuel efficiency and reduced emissions, were displayed at ABB's stall. The business showcased its expertise as a solution provider through Power2 Technology along with latest A series Turbochargers.

The highlight of the stall was the cut section of the TPL series turbocharger. This turbocharger provides a robust and reliable platform for engine applications



ABB stall at INMEX 2011

with outputs ranging from 2,500 KW to the highest in the industry. The TPL series have features designed to satisfy strict environmental requirements and typically need overhauls after long time durations.

Visitors to the ABB stall included officials from Wartsila India Ltd., Chidambaram Shipcare Pvt. Ltd., GMMCO Ltd, Pipavav Shipyard Ltd, Kirloskar Oil engines Ltd, Shipping Corporation of India, Great Eastern Shipping, Indian Navy and Indian Coast Guard.

For more information: www.abb.com/turbocharging
www.abb.com/marine

Flagship technology showcased at major trade show held in Doha



Visitors at ABB stall at World Petroleum Congress

‘Olympian event of the oil and gas industry’, the WPC was attended by a global oil and gas audience and outside stakeholders

ABB’s pioneering technology in the oil and gas industry drew major attention at the 20th World Petroleum Congress (WPC) held in Qatar.

The power of the integrated solutions and System 800xA – the company’s flagship distributed control system, the IRB 120 robot and asset management solutions from Ventyx, an ABB company, took center stage at the event.

Focus on energy efficiency

System 800xA extends the reach of traditional automation systems - beyond control of the process - to increase energy efficiency, asset utilization, energy savings and operator effectiveness.

At a plant, in order to be competitive, various plant entities, departments and personnel have to work as one flexible, integrated, collaborative team. For this to be accomplished, an automation platform with incredible connectivity capabilities

is necessary. Integration of systems and applications where all actionable information is available for use in the system can be provided to users in a variety of roles.

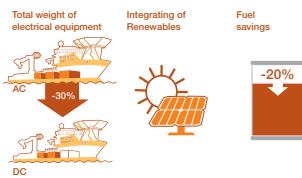
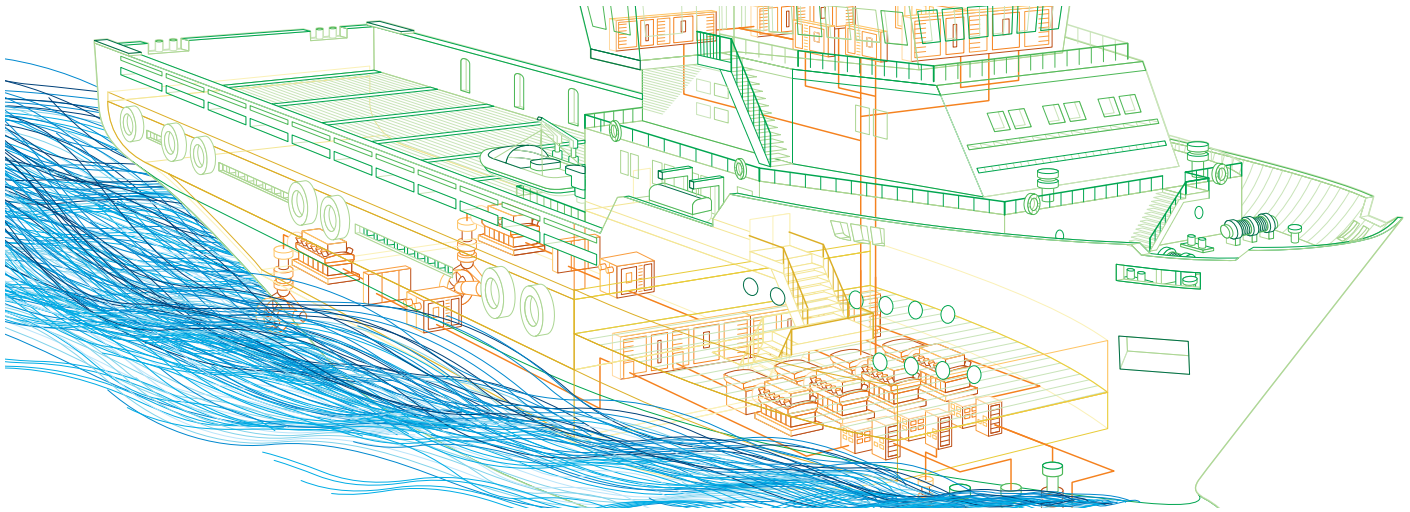
Robots increase productivity

A special feature at the ABB stand was the IRB 120 multi-purpose industrial robot that visitors were able to try operating. The robot consumes 50 per cent less power compared to even the lowest power consuming robot and allows easy transportation and hassle-free installation. The robot is capable of handling a payload of three kilos (four kilos for vertical wrist) with a reach of 580mm.

Visitors to the exhibition were given an interactive and hands on demonstration of ABB’s flagship technology which improves productivity and energy efficiency across a number of different industries.

For more information: www.abb.com/oilandgas

Breakthrough order for DC technology



Annual emission reduction*

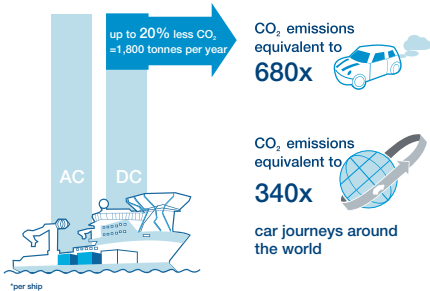


ABB wins order to install the first ever DC-based electric solution for a vessel. The Onboard DC Grid will allow vessels to cut fuel consumption and emissions by up to 20 percent

ABB has won an order from ship owner Myklebusthaug Management to supply the first ever direct current (DC) power grid on board a ship. The equipment will allow a new offshore platform support vessel, under construction in Norway, to operate at the highest energy efficiency level to minimize emissions.

In traditional electrical propulsion vessels, multiple DC connections are made to thrusters and propulsion drives from an alternating current (AC) circuit, accounting for more than 80 percent of electrical power consumption. ABB's Onboard DC Grid represents a step forward in optimized propulsion by

distributing power through a single DC circuit providing significant power savings.

Launched in May 2011, ABB's Onboard DC Grid is part of a revival of power solutions using DC, and will provide highly efficient power distribution and electric propulsion for a wide range of vessels. It is designed for ships with low-voltage onboard circuits, such as offshore support vessels, tug boats, ferries and yachts, and can reduce fuel consumption and emissions by up to 20 percent.

ABB will provide its full onboard DC system, including all power, propulsion and automation systems for the 93 meter long, 5,000 tonnes multi-purpose oil field supply and construction vessel, which is scheduled for delivery in the first quarter of 2013.

A key advantage of ABB's Onboard DC Grid is that the ship's engines no longer have to run at a fixed speed and engine's speed can be adjusted to optimize fuel consumption. By eliminating the need for bulky transformers and switchboards, the footprint and weight of the electrical system can be reduced by up to 30 percent, leaving more space on the vessels for passengers or cargo while also providing greater flexibility in the positioning of system components in the vessel.

For more information: www.abb.com/marine

Turning electronic scrap into gold



Electronic scrap. Images courtesy of Boliden



ABB power and automation technologies are helping metals company Boliden create the world's largest electronic scrap recycling facility – recovering copper and precious metals from electronic scrap using only a fraction of the energy required to extract metals from ore.

Boliden is currently ramping up a new plant adjacent to its existing electronic scrap recycling facility at the Rönnskär copper smelter in northern Sweden. The expansion will almost triple the recycling capacity from 45,000 metric tonnes to 120,000 metric tonnes a year, making it the largest e-scrap recycling facility in the world.

Rönnskär is an integrated metallurgical complex, which smelts and refines metals from mined copper concentrates and from recyclable materials like metal shred and electronic scrap. E-scrap comes from computers, mobile phones, circuit boards and other electronic equipment and contains metals such as copper, gold and silver.

The pre-sorted and pre-shredded e-scrap is smelted at Rönnskär using Boliden's proprietary Kaldo furnace technology. After smelting, the molten metals are transferred to the adjoining

production lines for processing into high-grade products.

In 2010, e-scrap accounted for 6 percent of Rönnskär's feed, with recyclable materials as a whole contributing 24 percent. When the new plant reaches full capacity in the second quarter of 2012, these figures will rise to 14 and 31 percent respectively, thus enabling Rönnskär to become less dependent on copper concentrates and more energy efficient.

Recovering metals from electronic scrap requires only 10-15 percent of the energy required to extract metals from ore. The process also supports the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive, which requires 4 kg of e-scrap to be collected and sorted per head of population in the EU. This is expected to rise to 13-16 kg per person by 2016.

ABB has played a significant role in the Kaldo plant expansion and at the Rönnskär complex as a whole. For the new Kaldo plant, ABB has supplied a comprehensive range of process-critical power and automation technologies, including the process control system.

On the electrical side, the ABB solutions include low- and medium-

voltage switchgear to ensure safe and reliable power distribution throughout the plant; low-voltage industrial drives to speed-control the motor applications and reduce energy consumption and RESIBLOC dry-type distribution transformers, which are explosion-proof and environmentally friendly, and can withstand extreme loads and very high levels of mechanical stress and thermal shock.

The entire e-scrap recycling process is controlled by ABB's 800xA Extended Automation System, and includes customized features such as remote operation of the process and an exact positioning system to prevent spilling of molten metal from the furnace.

The System 800xA solution for the Kaldo plant expansion is integrated with Rönnskär's existing System 800xA distributed control system, which controls the entire site and all its production processes. When ABB first installed the Rönnskär automation system in 1999, it was one of the largest plant control systems of all time, with more 50,000 input/output (I/O) points.

For more information: www.abb.com

Building a nation – ABB congratulates UAE for 40 years of success

Power and automation solutions
increase energy efficiency and industrial
productivity in UAE



A view of Burj Khalifa, Dubai which houses ABB technology

ABB has played a pivotal role in the UAE's development over the past four decades. Since the unification of the seven Emirates in 1971 – celebrated as National Day – the country has transformed into one of the world's leading regions of which ABB technology has been instrumental. The 40th National



Day was celebrated on December 2 2011. Over the past 40 years, ABB has helped increase grid reliability, energy efficiency and industrial productivity across many elementary sectors such as utilities, transportation and the economy, while ensuring sustainable growth for the nation.

“ABB technology is everywhere. Our solutions enable reliable power and energy efficient automation from the world’s tallest tower, palm islands or driverless metro system right down to utilities and industrial sector; our presence in the UAE has been far-reaching. ABB will continue to play

a vital role in driving the country’s infrastructure, projects and economy forwards, for many years to come,” said Frank Duggan, country manager for ABB in the UAE.” We take this opportunity to congratulate the lead of the nation and its people for the 40th National Day of UAE.”



Dubai Metro is powered by ABB substations

Behind the scenes of the noble landmarks

Burj Khalifa, the world's tallest tower, houses ABB technology that enables reliable power, water supply and energy efficient cooling throughout the 5-million square-foot building. The world's highest distribution substation and control equipment that ABB custom-engineered are on the top floors ensuring power to lighting, elevators, ventilation, heating and the air conditioning system.

Additionally, ABB is the driving force behind the Dubai Fountain, the world's largest dancing fountain. The company supplied equipment such as switchgears, transformers and power monitoring systems to ensure the feature receives reliable power. The fountain's energy efficiency and power quality was increased with ABB's capacitor banks and harmonic filters.

The Dubai Metro, a key part of the city's infrastructure, runs smoothly

thanks to ABB's products, which ensure reliable, high quality power. Two substations supply power to all red line stations, while the third substation supplies power to the entire green line. The metro has transported 100 million passengers since it opened in September 2009.

Leading edge technology for complete water cycle

To assist the capital's rising demand for drinking water, ABB has worked with Abu Dhabi Transmission & Despatch Company (TRANSCO) on a major expansion of a water transmission system. The project increased the volume of water supplied by the Shuweihat power and desalination plant to Abu Dhabi by expanding the capacity of two pumping stations.

Meanwhile, ABB's robots, helped the Oasis Water Company to automate a once-hazardous operation and increased its bottled water production

capacity to become the second biggest 5-gallon water producer in the world.

Powering the nation

Furthermore, ABB has played an integral part in helping the UAE to meet its electricity demand and upgraded and expanded electric power transmission and distribution through the country. The contracts, signed with Abu Dhabi Water and Electricity Authority (ADWEA), helped meet the growing demand for energy. ABB also worked with DEWA to deliver electrical power to Dubai's two palm shaped islands.

In addition, ABB successfully strengthened the power and transmission network in the north of the country for the Federal Electricity and Water Authority (FEWA) in Ajman, UAE. The substations were part of a wider project to expand the power supply network in the northern region.

Executive editor: Karen Wilds

Editor-in-chief: Sanaj Natarajan

Branding and production team:

Isha Bhalla, Midhun Murali, Rakesh Shastri

Editorial board: Ali Keilani, Claire Hill, Marion Hug, Midhun Murali, Rakesh Shastri, Riham El Gamal, Royston Rebello, Tamara Chetty, Tuija Elomaa-Maenpaa, Vikram V Kanth

Design and layout: Michael Wachter

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Preview 2|12

Solar Generating power from the sun

Light and heat from the sun is the most abundant energy source on earth. The solar energy that hits our planet's surface in one hour is about equal to the amount of energy consumed by all human activities in a year. Moreover, electricity generated by solar power is emission-free and can help mitigate climate change as well as reduce our dependence on finite carbon-based energy sources.

ABB offers a range of solutions that not just help capture the sun's rays in the most effective manner but also help achieve grid parity.



Connect renewable power to the grid?

Electricity generated by water, sun and wind is most abundant in remote areas like mountains, deserts or far out at sea. ABB's leading power and automation technologies help renewable power reach about 70 million people by integrating it into electrical grids, sometimes over vast distances. Our effort to harness renewable energy is making power networks smarter, and helping to protect the environment and fight climate change. www.abb.com/betterworld

Naturally.