

# CONTACT

Issue 1 / 2007  
The ABB India Magazine



**ABB**

# Contents

Global Roundup	3
India Roundup	5
New Technologies	10
Feature Story - Water, Water everywhere, but...	11
Customer Interview Mr. Sashidhar, Director, NECL	14
Recent Water Projects	15
Technology Digest	16
<i>Living our commitment to Sustainability</i>	20
Channel Line	21
Tech Bytes	22

## Editorial Team

Harmeet S Bawa – *Head, Corporate Communications*

Suma Bobby – *Executive Editor*

Namita Asnani – *Power*

Deepak Sood/Amit Sharma - *Automation*

ABB Limited, GF-Corporate Communications, India  
Khanija Bhavan, 2nd Floor, East Wing, 49, Race Course Road  
Bangalore - 560 001.

abb.co.in/contact  
email: gf-cc.india@in.abb.com

Design – Shiloh Associates



Dear friends,

India has 16 percent of the world's population, 2.5 percent of the global land mass and only 4 percent of the world's water resources. 1 in 3 Asians do not have access to safe drinking water and more than 40 per cent of the urban poor in the continent do not have piped water in their homes. With added challenges like dependence on agriculture, climate change, depleting water tables and rising population, the need to 'manage' our scarce water resources has perhaps never been greater.

While we think of efficient ways to collect, distribute, manage and even recycle our precious water resources, it is important to ensure the long term sustainability of the earth's water supply - a fact that often gets neglected in the highly competitive, 'here & now' world we live in. An integrated water resources perspective ensures that social, economic, environmental and technical dimensions are considered in the management and development of water resources.

Technology has a key role to play in facilitating this process and must be leveraged effectively when setting up new facilities or upgrading existing infrastructure across the value chain of supply, processing and distribution of water. Efficiency, energy saving, optimization, control & monitoring and all other parameters that drive productivity in any industrial application are just as relevant to the water sector and we must approach it in this manner.

With leading-edge technologies and several decades of experience across thousands of water treatment facilities across the world, ABB can provide an array of products, systems, services and complete solutions for water resource management across the value chain. This could be for a diverse range of applications including desalination and water treatment plants, effluent and sewage treatment facilities as well as lift irrigation projects, to name a few.

I hope you enjoy reading this issue of CONTACT, in which the spotlight is on the water sector, in addition to the usual features and latest technology updates from the world of ABB.

Yours sincerely,

Ravi Uppal

Vice Chairman and Managing Director, ABB India



## ABB Drive system to power Boeing wind tunnel

Boeing has selected an ABB ACS 5000 variable speed drive system for its Vertical/Short Takeoff and Landing Wind Tunnel (BWT V/STOL) in Philadelphia in the United States.

The 14 MW ACS 5000 drive and 18,800hp synchronous motor will power the giant fan and fan blades that create wind speeds of up to 235 knots (435 kilometers per hour) for testing sophisticated aircraft models in the wind tunnel. Hundreds of pressure sensors are embedded in the models to

measure aerodynamic performance during takeoff and landing. The ACS 5000 variable speed drive system enables Boeing to run the fan in adjustable speed mode or at a constant speed, depending on the protocols and parameters of each test. The quarter-mile wind tunnel contains 42 tons of air, which can be accelerated to 235 knots when squeezed through the 20-by-20 foot section.

ABB has supplied similar drive systems for wind tunnels operated by NASA and the U.S. Air Force.



## Powering growth through improved grid reliability



The city of Tianjin is China's second largest port and home to more than ten million people. The Tianjin Economic Technological Area (TEDA) is consistently

ranked by China's Ministry of Commerce as the country's leading economic development zone and TEDA has identified stable power supply as the most critical element to ensure and enhance the industrial and investment growth in the region.

Tianjin Electric Power Co., the region's utility, has set up a number of projects to increase power capacity and improve grid reliability. They have selected ABB as the

principal supplier of power equipment to help meet the booming demand for reliable electricity. ABB will supply 220 kV power transformers, 35 kV and 10 kV gas insulated switchgear and 10 kV air insulated switchgear.

Transformers and switchgears are the critical components in the new substations that Tianjin Electric Power is building throughout the regional power grid to improve capacity and stability.

## Energising the world's first "hyperbuilding" in China

Described as the world's first "hyperbuilding" - a structure so large and complex it is like a small city in its own right - the new headquarters of CCTV is set to become a landmark on the Beijing skyline and a marvel in the architectural world. Once finished, the new building will have a total floor area of more than 520,000 square meters and be the workplace of some 10,000 people. Completion is scheduled for 2008 - in time to broadcast the Beijing Olympics to hundreds of millions of viewers all over the world.

CCTV selected ABB distribution transformers and medium voltage switchgear for best compliance with the demanding performance specifications. The 67 transformers and 90 units of UniGear ZS1 air insulated switchgear will distribute power throughout the entire complex. ABB's vacuum cast transformers and UniGear switchgear are renowned for their superior mechanical strength and electrical performance.

Rugged ABB UniGear is the world's best selling medium voltage switchgear, and is

uniquely certified for the most demanding locations and applications. ABB dry transformers have exceptionally low losses and very low noise levels - factors of key importance to CCTV as broadcasting studios are highly sensitive environments that require power stability and no noise.



## ABB helps develop the world's first universal train



Bombardier has developed the world's first universal train that can run without stopping on all three power supply alternatives: diesel, AC and DC power - a breakthrough made possible by a unique ABB technology - the roof-mounted traction transformer, thereby freeing up space inside for the diesel engine and without having any impact on the speed,

acceleration, performance or seating capacity of the train itself. ABB is the world's leading supplier of traction transformers with half the share of the world market and has strategic alliance contracts with the world's leading rolling stock manufacturers, including Alstom, Bombardier, Siemens and Stadler Rail.



## ABB turns flared gas into revenues

ABB has delivered a combined heat and power generating plant in Poland that produces electricity, district heating and petroleum products from natural gas that was previously flared off and wasted. The gas is now pumped through an 82-kilometer-long underwater pipeline to a new facility that consists of a Combined Heat and Power (CHP) plant and a gas processing station. At the plant, the gas is used to generate 76,000 (MWH) megawatt-hours of electricity annually for the Polish grid, produces heat for the

town's 12,000 people, and also refines the gas - which is rich in heavy hydrocarbons - into liquid petroleum gas and C5+, a light natural gasoline.

The district heating plant also made it possible to shut down 10 oil-fired and about 110 coal-fired boilers in the town, eliminating the emissions that came from burning roughly 750,000 tons of coal a year.

ABB supervised the implementation of the entire project, and supplied a complete automation system (based on ADVANT



control architecture) for the process chain (from offshore drilling rig to CHP plant and gas processing station). ABB also supplied power equipment for the facility and drilling rig, including drives, power transformers, medium voltage switchgear and compressor motor.

## Unique hoist system for marine railway



The Trent-Severn Waterway meanders through the heart of central Ontario's cottage country between Lake Ontario and Georgian Bay. It takes about a week to travel the full length, a journey that takes boaters through a system of 44 locks, including two of the

world's highest hydraulic lift locks and the Big Chute marine railway. Big Chute has the only marine railway of its kind still in operation in North America, necessary because of its steep rapids. Although the railway is just 33 meters in length, lifting boats up (or down) the 18-meter-rise to calm water at either end of the rapids is the only way to get through.

Boats float on to a submerged platform, where they are cradled by slings to keep them from toppling. The platform (35 metres long by 8 metres wide) is on an angled frame that can carry up to six boats weighing a total of 90 tonnes. The frame is then drawn up an inclined double-track that lifts the boats out of the water and keeps them

level until they are gently delivered back to the calm waters on the other side.

The original marine railway experienced operational problems and, after several incidents, Parks Canada which operates the Trent-Severn Waterway decided to install a more reliable system based on the mine-hoist technology. ABB was awarded a contract for a new system with four single-drum hoists, including all necessary electrical equipment and engineering. Since its operations, 11,000 boats have been transferred and the system has proven reliable throughout the five-year warranty period. Parks Canada is a very satisfied customer, and the unique installation reaffirms ABB's mine-hoist expertise and quality equipment.

## ABB Robots are Toblerone's chocolate heroes!

Launched around 100 years ago and now sold in more than 120 countries, Toblerone is arguably the most popular chocolate in the world. When Kraft launched its new product concept of Toblerone 'One by One' - individually wrapped Toblerone peaks in five different flavors - it approached ABB for a robotics solution that would meet the following stringent requirements:

- automatically feed chocolates to five foil-wrapping machines
- collect and merge the packaged products for placement in palette containers
- maximize access for monitoring, cleaning, service and maintenance



- accommodate a three-shift operation
- use simple component design
- provide a simple operating system to facilitate frequent changes in personnel

ABB designed a solution that met all the criteria. Kraft is now able to manufacture the product in increasingly large volumes as it progressively launches Toblerone One by One in new markets all over the world. At the heart of the solution is an IRB 6600, an agile, heavy-duty ABB robot with an extra-long reach of 3.2 meters, exceptional wrist torque and a unique bend-over backwards capability. These features enable the robot to perform



complex stacking and unloading tasks before the chocolates are conveyed to five transfer stations, each of which is manned by an ABB IRB 2400, the world's best selling industrial robot!

## Integrated power distribution management system for KPTCL

ABB has been awarded a turnkey contract by Karnataka Power Transmission Corporation Limited (KPTCL) to implement an integrated Network Manager SCADA/ EMS/DMS (Supervisory Control and Data Acquisition, Energy Management System, Distribution Management System) solution. The scope of the project includes design, engineering, supply, installation, testing & commissioning and is expected to be completed in around 24 months.

The system will monitor and control 830 main transmission and distribution substations spread across the state of Karnataka, including the city of Bangalore. This initiative will significantly help strengthen the transmission and distribution network for KPTCL and its constituent distribution utilities. KPTCL is Karnataka's leading power transmission utility and serves over 11 million customers across the state.

The solution for KPTCL incorporates energy and distribution management applications such as load-sharing technology and



availability-based tariffs, which encourage users to keep to pre-arranged schedules. These features enable better planning and help maintain a steady supply of power under normal conditions. They also facilitate quick restoration of power in case of outages, operational flexibility, archived data and reduction in losses caused by outages, besides bringing several operational efficiencies and commercial benefits.

## Power and automation solutions for JSW steel



ABB has been entrusted to provide turnkey solutions and a range of power and automation products to the JSW Group for its steel and

power plant expansions in Bellary, Vasind and Salem. JSW is enhancing its steel capacity from 3.8 to 6.8 mtpa (million tonnes per annum) supported by a 2x300 MW power generation capability.

ABB's scope of supply includes substation equipment, HT machines, transformers, SCADA (Supervisory Control and Data Acquisition), protection and control systems as well as MV (medium voltage) and LV (low voltage) switchgear. ABB's power solutions will serve the needs of JSW's steel plants, enabling the surplus power to be fed into the 400 kV grid with the latest control and monitoring equipment to help manage the distribution network. ABB will also provide state-of-the-art process automation for the steel plant including plate-mill drives to ensure energy efficiency and reliability across the production chain. The project will be completed in phases and is expected to culminate by around mid 2008.

## Electrics and automation for Grasim's cement capacity expansion

ABB has been chosen by Grasim Industries' Cement division and Ultratech Cement, part of the Aditya Birla Group, to supply power and automation products and systems for their cement capacity expansions. ABB India will provide turnkey electrical and automation systems including the installation of 220 / 132 kV switchyards and supply of a range of switchgear, motors, low and medium voltage drives, power and distribution transformers, capacitors as well as intelligent LV panels. The project is expected to be completed by the end of 2007.

ABB solutions will serve two cement plants of 2.8 MTPA capacity each, being set up by Grasim. This includes a green-field facility at Kotputli, a brown-field expansion at Shambhupura and two green-field grinding units of 1.3 MTPA each at Panipat and Dadri. The technology will also facilitate the operations of a 2.8 MTPA brown-field plant expansion at Ultratech Tadipatri Cement works as well as a



grinding unit at Ginegera of 1.3 MTPA capacity and three captive power plants, each of 2x25 MW capacity being established at Kotputli, Shambhupura and Tadipatri.



## Bringing light to the desert

ABB has received an order for Feeder Renovation that will help provide reliable and efficient power supply in rural areas of four distribution circles in Rajasthan. The order for 9 packages of the FRP scheme has been received from Jaipur Vidyut Vitaran Nigam Limited (JVNL), which distributes and supplies power in 12 districts of Rajasthan.

ABB products and systems will help provide continuous and reliable power supply to villages covered in the four distribution circles, i.e., Jaipur, Dausa, Alwar and Jhalawar. As part of the project ABB will also help JVNL increase the life-span of distribution transformers, bring down the AT & C losses and cut down peak demand in agricultural season. In addition to system design and execution ABB will supply and install 11 kV 3 phase ACSR weasel conductor and LT 1 phase aerial bunched cable. Scope of the project also includes installation of over 18,000 25 KVA distribution transformer centers and more than 100,000 meters.



As part of its commitment to nation building, ABB is executing several rural electrification projects across India.

## Providing integrated building solutions

ABB recently received an order to provide integrated building solutions for LM Glassfiber – the world's leading manufacturer of rotor blades for wind turbines. The new facility is located at Dobospet in Bangalore and is expected to be operational by mid 2007. ABB's scope of work includes the complete design, engineering, supply, installation and commissioning of complete HVAC, Electricals and Building Automation. This encompasses 500 TR of air-conditioning, pumps, Air handling units, cooling towers, transformers, light fixtures, LV Panel and distribution boards, street lighting, CCTV & access control system, fire alarm system and a Building Management System.



## State-of-the-art mechanical test laboratory



A mechanical test laboratory was recently inaugurated in ABB's Vadodra location. The modern laboratory is equipped with the latest testing equipment and software. The facility is designed to perform mechanical operation tests as per IEC 62271-100, IS and IEEE standards.

The laboratory has been accredited by the National Accreditation Board for Laboratories (NABL). The facility is designed to test High Voltage circuit breakers up to 420 kV. The laboratory is also equipped with CCTVs for remote monitoring of test objects and an in-house studio for still photography.

A wide range of tests can be performed at the laboratory including Close and Open Q-C, C-Q, Q-C-Q, any combination of close and open operations, minimum function coil voltage, spring charge, slip coupling, damping curve, static resistance and dynamic resistance, test of disconnectors, pre-insertion resistors, SF6 gas tightness test & SF6 gas quality test. Special mechanical tests like terminal load test and customized operations long mid-voltage CB sequences can also be conducted at the lab.

A K Singh, Director, Electrical Research and Development Agency (ERDA) complimented ABB for taking the initiative to set up the lab in an effort to enhance the quality and reliability of products. "I am impressed by the state-of-the-art technology in the laboratory", he said.

# ABB showcases latest technologies at GRIDTECH 2007



ABB showcased some of its latest power products and systems at the GRIDTECH exhibition recently held in Delhi. The event drew thousands of customers including important policy makers

Technical papers presented by ABB included Aspects of 1200kV AC transmission systems, addressing reactive power compensation with load KW balancing: most desired equipment, city Infeed with HVDC light and extruded cables, latest developments in 800kV DC transmission and applying 61850 systems to Substation Automation Systems.



## Some key ABB products on display included

- ZX2 MV Gas insulated switchgear with waveguide - the new embedded communication medium with guided wireless LAN,
- 'CapThor' the revolutionary series compensation technology,
- HV hybrid switchgear PASS,
- IEC 61850 Substation Automation System panel with MicroSCADAPro HMI,
- Is current limiter for limiting short circuit currents in power networks and Rural Load Management System

## Power conclaves

ABB recently held customer conclaves in Bangalore and Nashik. The Power Systems Customer Conclave, at Bangalore was attended by many of India's leading utilities and industry customers including NTPC, PGCIL, DMRC, L&T, TPC, TNEB, KPCL, Suzlon, APTRANSCO and MSETCL to name a few. The main objective of the conclave was to share insights on the latest technological developments and discuss key issues. The event culminated with a live demonstration of ABB's capabilities in System Integration and an expert panel addressing issues in an Open House Session.



Similar to the conclave in Bangalore, ABB played host to around 100 customers and

ABB experts at the Medium Voltage Switchgear Customer Conference in Nashik. The two day conference included sessions on ABB's latest technologies as well as recent developments and trends in MV switchgear. A visit to ABB's MV manufacturing facilities in Nashik and an interactive sessions between customers and the ABB management was also arranged. Customers from public and private utilities and industry customers such as NTPC, JVVNL, APTRANSCO, Reliance Energy, Tata Power, Essar Steel and Jaypee Ventures attended the conclave.

## ABB at COMFEX 2007

ABB recently participated in the COMFEX exhibition held in Kolkata. COMFEX is among the largest international exhibitions for air-conditioning and refrigeration products in India and is organised by Indian Society of Heating Refrigerating and Airconditioning Engineers (ISHRAE). ABB showcased its Integrated Building Solutions Portfolio encompassing complete HVAC, Electricals & Illumination, Building Automation and Comprehensive Services focussing on its expertise for various market

segments including IT/ITES Software parks, Hospitality and Entertainment, Pharma & Healthcare, Industry, Airports & Metro and Marine & Off-shore.

ABB also featured the WebCTRL(R) technology which offers significant integration possibilities and complies with internet and web standards, offering full flexibility to communicate with any computer via the World Wide Web. Some of the other products on display included EIB - intelligent installation systems,



Electrical Wiring Accessories and AC Drives, reiterating ABB's ability to provide complete and integrated solutions.



## ABB on track at IREE

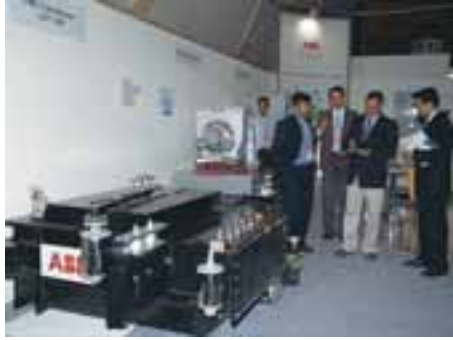


ABB showcased its wide range of state-of-the-art technologies for the Railways at the recently held International Railway Equipment Exhibition (IREE) organized by CII (Confederation of Indian Industry) in

Delhi. Some of ABB's displays at the exhibition included 1250 kVA traction transformers for EMUs LOT1250, 750kW compact converter BORDLINE CC750AC for AC propulsion systems, 25kV single pole outdoor vacuum circuit breaker FSK II (the only VCB with magnetic actuator approved by the Indian Railways), new generation Turbocharger (TPR 61), communication equipment (FOX515X) for tele-protection, SCADA for metro applications, distribution automation relays and PQFS Active Filter for improving power quality. To maximize the fast growing opportunities in the Railways and Metro Rail sectors, ABB in India has



established a dedicated vertical to present a single window integrated offering to customers.

## ABB Robots star in IMTEX 2007

ABB recently participated in IMTEX 2007 held in Bangalore. IMTEX is an established forum for showcasing emerging technologies and solutions for the manufacturing industry. ABB showcased its IRB 1410 robots by synchronizing two robots to demonstrate mock material handling and arc welding applications. Several of ABB's business partners also showcased ABB Robots in varied applications like pick and place, quality verification and spot welding among others.



## ABB launches new Emax and Tmax series



ABB recently held road shows in Chennai, Bangalore, Hyderabad, Mumbai, New Delhi and Kolkata to showcase its new 'Emax series of Air Circuit Breaker (ACB)' & 'Full Tmax series of Moulded Case Circuit Breaker (MCCB)'. The new series of products are part of ABB's low voltage product portfolio targeted at

OEMs and Panel builders. Also on display were ABB's OT range of load break switches and a recent addition from ABB's Kabeldon IP system.

The new EMax ACB is a result of customer feedback and boasts of a brilliant range of new trip units. The new Emax also covers the complete application spectrum

for low voltage breakers. The TMax range is complete with MCCB's upto T7. The range offers complete freedom to designers and installers to choose the most cost effective and appropriate MCCB for a given application. Innovative features like rating plugs on the trip units and EFDP (Early Fault Detection and Prevention) are a first in the industry.

The OT range upto 800A has innovative features like test position and clear contact visibility. Kabeldon IP system has the unique IP20 polyamide coated insulated bus-bar system with innovative termination features enabling a safe working environment. The galvanised enclosures provide a life of 30 years even in extreme environments.



# ABB India enters the billion dollar league

ABB India's cumulative order intake of 56,236 MINR (appx.1.3 BUSD) for the year 2006 grew 50 per cent over the previous year, taking it into the elite billion dollar league. The Indian operations also accelerated revenue growth momentum with cumulative revenues of 43,477 MINR growing 44 per cent over 2005. Taking into account Group business, ABB in India clocked revenues in excess of a billion dollars during the year. Even after taking into account the strong revenue growth, the company managed to strengthen its order backlog further to 33,723 MINR, 60 per cent higher than at the beginning of the year. Keeping pace with top-line growth, the Indian operations recorded an equally impressive growth in profitability

"ABB in India is certainly a jewel in ABB's crown and among our fastest growing operations around the world. We are increasingly leveraging India, not just as a market but as an important resource and R&D base in line with our global footprint approach", said Dinesh Paliwal, President Global Markets & Technology.

"The Indian economy is on the move, assisted by strong industrial growth. The urgent need for quality power, delivered efficiently and economically across urban and rural India is now among the nation's key priorities. At the same time, Indian industry is increasingly adopting automation technologies as it scales up.



## New manufacturing locations



Haridwar



LV Control Gear Factory, Bangalore



LV Motors Factory, Bangalore



MCCB line in Peenya, Bangalore

## Recently introduced products



Low cost CSS



11 kV Air Break Switch



Retrofit solution for Westinghouse breakers



245 kV Spring Spring Breaker



180 KVA Traction Converter



M2BA Eff 2 Cast Iron Motors



DCS 800 Drives

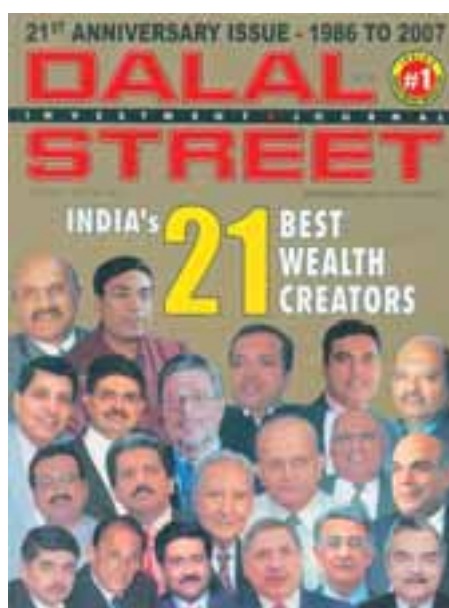


NI 40 Relays

## Ranked among country's '21 Best Wealth Creators'

ABB India has been ranked 17th in a listing of the country's Best Wealth Creators by Dalal Street Investment Journal, a leading Stocks & Investment magazine. The survey reports that the company's share price as on 1st January 2002 was Rs 205 and has risen to Rs 3,713 on 2nd January 2007 bringing the market capitalization to over \$3 billion.

"ABB India is not content to rest on its laurels, its growth march will continue. The company is playing an increasing role in the country's power and industrial automation landscape by leveraging technology and enhancing value for customers," said Ravi Uppal, VC & MD - ABB India and Head -SAS Region



In another recent listing of ET-500 by Economic Times, ABB India was ranked 22nd amongst India's Top companies rated across several performance parameters





# ABB's flagship automation system 800xA sets the pace



Developed in collaboration with industry leaders like Dow Chemical, the latest version of ABB's Extended Automation System 800xA is winning acclaim for its

unique engineering capability and unparalleled focus on eliminating process downtime. Version 5.0 of ABB's System 800xA extended automation platform is equipped with new engineering functions that let the customers make application changes without interrupting production and incurring downtime. New to the platform is Load-Evaluate-GO, a tool developed in collaboration with Dow Chemical Company, as well as Multi-User and Distributed Engineering, a remote collaboration tool for engineers working from different locations on the same project. Both new functions are unique to System 800xA.

Load-Evaluate-GO lets customers add programs, modify configurations and

implement software upgrades while production is running, and then simulate and evaluate the impact these changes will have on the production process. Once the application changes have been evaluated, the customer can choose to execute, modify or discard them. Multi-User and Distributed Engineering lets users move, copy and reuse configuration data from different systems, and make engineering changes in an environment separate from the running process. Engineers in onsite and offsite locations can collaborate on a project and synchronize the results so they can be implemented at will, in a single transaction.

# Revolutionary change in oxygen measurement

ABB has done significant work on improving classic oxygen sensors. These manually assembled devices comprise an electromechanical module and an optical readout system. Their performance is good, but it could be better. In response to this challenge, ABB has developed an innovative new sensor that will expand the application range of gas analyzers in the future.

The new sensor uses a cutting-edge silicon micro-electromechanical chip, encased in a ceramic housing with integrated electro-optical components and optimized magnetic excitation.



The chip's main advantage over the classical paramagnetic solution is the drastically reduced volume of the sensor chamber. This cuts response time from three seconds to just one. In markets where speed is essential - such as

monitoring combustion engines - this is a significant breakthrough. The planar sensor chip is a key feature of the sensor's layered structure, which allows automated assembly and cost-efficient mass-production. The sensor is also highly resistant to corrosive gases and has negligible sensitivity to gases other than oxygen. Thanks to low production costs and quicker response times, the new sensor is expected to change the way oxygen is measured - it competes in price and performance with classic, high-performance paramagnetic sensors, as well as the low-cost electrochemical devices.

# Compatibility tool boosts grid reliability

ABB has developed a simple software tool to analyze compliance of sub-station automation devices and systems with the new global substation standard IEC 61850. As a solution provider, ABB must ensure that all devices are working harmoniously by measuring key quality figures and demonstrating that the systems meet the required specifications.

ABB has developed a set of tools to support the process of testing and

commissioning compliant systems. The software enables substation automation engineers to analyze 61850-based systems quickly and reliably by simply plugging a laptop into a substation communication network. The software searches for automation devices in a network, inspects their configuration and examines network traffic. It helps to detect network problems and inspects the implementation of the IEC 61850 protocol. The software also verifies



engineering data against actual data loaded on physical devices, checking for inconsistencies, which may manifest during or after the activation of a substation automation system.

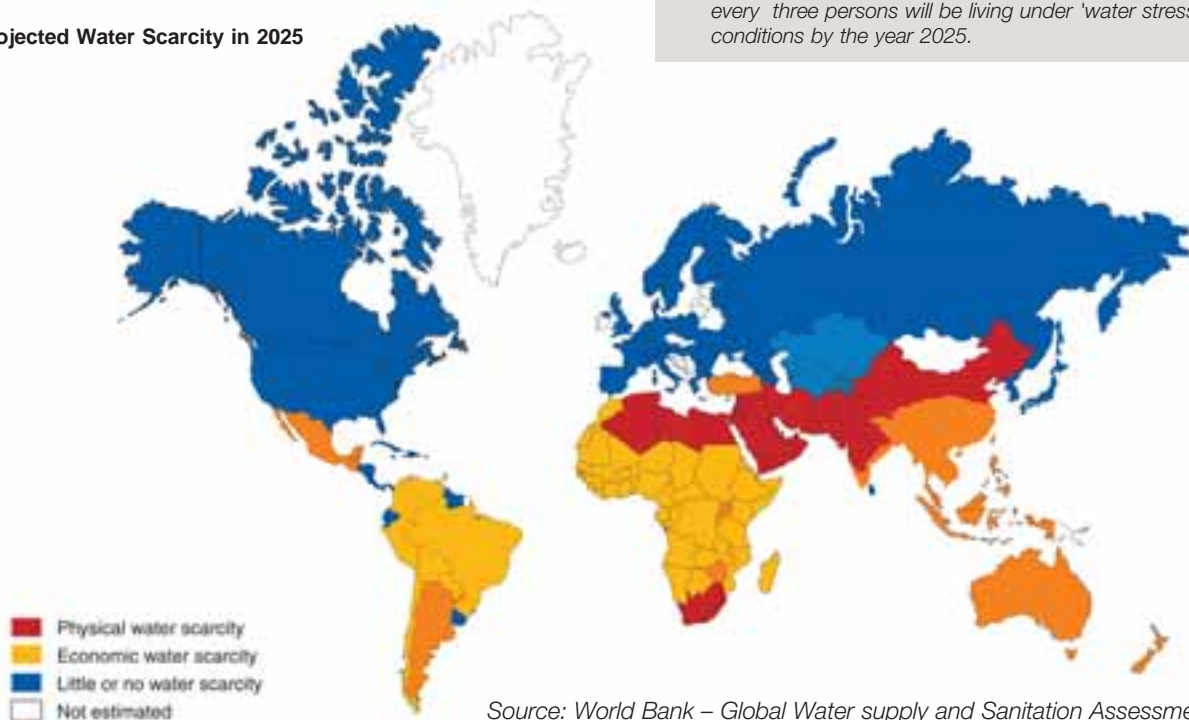


# Water, Water everywhere, but.....

According to the World Water Council, while the world's population tripled in the 20th century, the use of renewable water resources has grown six-fold. Within the next fifty years, the world population is expected to increase by another 40 to 50 %. This population growth - coupled with industrialization and urbanization - will result in an increasing demand for water and will have serious consequences on the environment. Water development underpins food security, people's livelihoods, industrial growth, and environmental sustainability throughout the world.

## Water situation by 2025

Projected Water Scarcity in 2025



If the present consumption patterns continue, two out of every three persons will be living under 'water stressed' conditions by the year 2025.

Source: World Bank – Global Water supply and Sanitation Assessment Report



## Indian scenario

In India, water scarcity is a reality in many states, including, Andhra Pradesh, Tamil Nadu, Madhya Pradesh, Gujarat, Rajasthan & Karnataka. The Indian economy is still reliant to a large extent on agriculture. Large Lift irrigation Schemes are being implemented to help farmers in many states.

It is a grim reality that millions of Indians queue up every day at public taps for one of life's most precious commodities- water. Water Pumping Stations are being set-up or modernised to improve drinking water distribution in major cities. Due to scarcity of water, desalination plants are

*In India, for instance, the per capita average annual availability of freshwater - 5,177 cubic metres in 1951 - 1,869 cubic metres in 2001 - 1,341 cubic metres in 2025.*

considered alternate source especially for Sea Port based industries.

As water resources become increasingly scarce, technology will play an important role in getting more from less. ABB's technologies play an important role in enhancing the efficiency of the entire water usage cycle from the source to its transportation and use for agricultural, industrial and residential requirements.

# One stop solution fo

ABB has more than half a century of experience in equipping thousands of water treatment facilities across the world. ABB supplies products and systems for a wide range of applications in the water cycle, including complete electrics and automation solutions. To reduce energy consumption and costs in general, ABB offers a range of technologies, including high efficiency motors and Variable Speed Drives (VSDs). In addition, ABB's automation solutions include process instrumentation controls and analytics. The right Power Supply systems and installations can be built based on ABB's comprehensive range of offering from medium voltage systems to the full range of products and components for low

## Automation products for the complete water cycle

### Industrial Use

- Motors
- VSDs & soft starters
- Control gear & MCCs
- Instrumentation
- PLC
- Installation equipment

### Residential

- Motors
- Instrumentation
- Installation equipment

### Water Storage

- Motors
- VSDs & soft starters
- Control gear & MCCs
- Instrumentation
- Installation equipment

### Boreholes

- VSDs
- Instrumentation
- Installation equipment
- Motors

### Pressure Boosting

- Motors
- VSDs & soft starters
- Control gear & MCCs
- Instrumentation
- PLC
- Installation equipment

### Rain Water Pumping

- Motors
- VSDs & soft starters
- Control gear & MCCs
- Instrumentation
- Installation equipment

### Waste /Sewage Pumping

- Motors
- VSDs & soft starters
- Control gear & MCCs
- Instrumentation
- PLC / SCADA
- Installation equipment

### Treatment Plant Inlet

- Motors
- VSDs & soft starters
- Control gear & MCCs
- PLC
- Instrumentation
- Installation equipment



Substation



Power Transformer & Breakers



Control Products & Drives



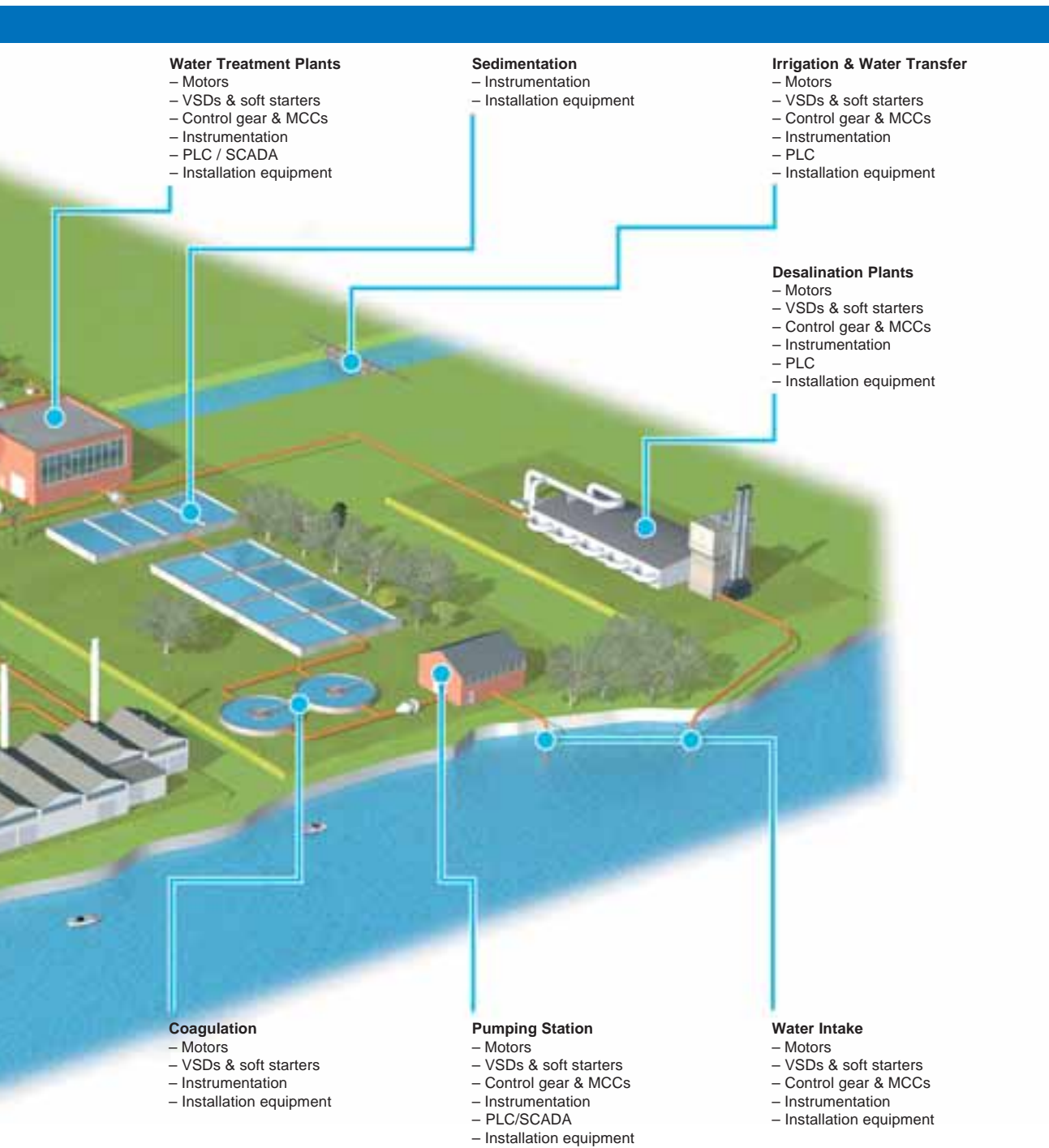
HT M



# r water management

voltage distribution including panels, insulating material, controls, protection and measurement devices. ABB products are compliant with international standards and are designed in accordance with the most advanced environmental standards.

The more complex the facility, the more beneficial it is to have a single partner to rely on. ABB provides state-of-the-art products and systems to equip the entire process from on-site instruments to remote control and monitoring stations. ABB offers a one stop solution for complete water management across the value chain from pumping stations and desalination plants to industrial and residential consumption of water.



Machine



LV Motors



Flow Meters & Instruments



SCADA



# Bringing water to the farmers

**Navayuga Engineering (NECL)** is the flagship entity of the Rs.2000 Crores NAVAYUGA group. NECL, a multi-disciplinary engineering and construction company. In addition to large Infrastructure and Civil projects, NECL is a key player in changing the irrigation landscape in the country. NECL has considerable experience and expertise in providing solutions in Lift Irrigation Projects, Water Intake Systems as well as in building Dams & Barrages. We caught up with Mr Sashidhar, Director, NECL to get his views on various topics related to irrigation as well as insights on the role of technologies in effective irrigation management.

## What is the concept of lift irrigation? Could you throw light on the importance of this concept to provide relief to parched areas?

The basic principle of lift irrigation is to pump water from a low lying river or water body to a large reservoir constructed at a higher terrain. From these reservoirs water is released (by gravity) to a network of canals/channels to irrigate the surrounding land areas. This principle can also be applied to a multistage process where water from one reservoir is allowed to cascade to another bringing elevated areas under irrigation.

Lift irrigation schemes are extremely effective in bringing relief to rocky and hilly terrains as well as fields above the level of the water source. These areas can be irrigated effectively, thereby opening up more fields for cultivation and allowing crops to grow all year round. Farmers in landscapes such as these can actually convert stony land to green fields through lift irrigation. This then enables them not only to grow traditional crops but also to diversify into growing flowers, fruit, and vegetables.

## With the agricultural sector poised for modernisation, what are the key initiatives required with respect to irrigation projects in the country?

Irrigated agriculture has driven much of the increase in global food production over the recent decades. While only 20% of the world's farmland is irrigated, it produces 40% of our food supply. The highest yields obtained from irrigation are more than double the highest yields from rainfed agriculture - even low-input irrigation is more productive than high-input rainfed farming. The Indian economy depends on the agricultural sector, which is a primary source of livelihood for 70% of the population. Of the total water available, about 85% goes into agriculture and one should remember that assured irrigation for agriculture is critical for economic development.

Agriculture modernization involves more than providing water for irrigation. It is necessary to make irrigation agriculture

investment packages more comprehensive, including addressing issues related to resource distribution and access to support services. Irrigation alone is not sufficient for achieving the desired level of improvements in productivity for poverty reduction. To increase productivity of our land it is necessary to match crops to the soil type, select proper seeds, and arrange proper fertilizers in addition to adequate water. The principles of "self help group" for arranging micro financing and "e-choupal" for delivering information system needs be encouraged / adopted. Irrigation projects should be developed as a complementary support to the farmers. Only large scale irrigation schemes without effort to increase the productivity of our irrigable lands, will not be competitive in the liberalized world.

The government has recognized that the Agriculture growth at 2.3% is significantly less than the desired 4%. In order to boost growth in this sector and the economy, the Rs 11,000 crore allocated in the budget for irrigation projects is a welcome step. However, it must be reiterated that the irrigation projects must have involvement from farmers - effort and monetary to bring about a sense of ownership. In addition the Government has declared 2007 as the "water year". This will help rally support of all stakeholders varying from policy makers, technology providers, communities and NGOs to Indian farmers.

## What is the role of power and automation technologies in your sector? What other applications of water management can benefit from such technologies.

Farmers irrigate their fields during periods of dry weather to ensure normal growth. As the irrigators are driven by the water flow, constant pressure is essential for even water distribution over the fields. Automation Technologies like motors, automatic pump control, frequency converters etc can play an important role in conserving water and ensuring that the irrigation is sustainable. Some of the



benefits of using technology in irrigation projects are:

- Even water distribution due to accurate flow control
- Reduced energy consumption through optimum flow control
- Lower maintenance costs as pressure shocks are eliminated
- Lower labour costs due to automatic control

Each project needs to be optimally designed with the right technologies for a cost effective solution. Technologies for water management, reducing waste water and irrigation scheduling will become increasingly critical as the global water scarcity situation increases.

## What has been your experience of working with ABB as a partner?

We are currently working with ABB on Lift irrigation projects - the Kalwakurthy Lift Irrigation Project and the Bhima Lift Irrigation Project (Phase II) in Andhra Pradesh. ABB is providing turnkey electro-mechanical packages for both irrigation projects. ABB's turnkey solution includes the 220 kV switchyard, power transformers, a SCADA system, large synchronous machines LCI starting equipment, control & relay panels, excitation equipment, instrumentation and controls. These projects will make a huge difference to thousands of farmers in the Krishna River basin and will impact nearly 500,000 acres of agricultural land.

Our relationship with ABB is relatively new and our experience has been good till date. As we move forward with more projects I hope to see this relationship mature into a mutually beneficial one.



## ABB drives bring water to China's dry regions



Eight sets of ABB drive packages at the Huinanzhuang pump station near Beijing pump water up a 60 meter slope at 60 cubic meters per second and bring safe, stable and sanitary supplies to the capital

of Beijing and the surrounding region. ABB will deliver eight sets of 7.3 megawatt ACS6000 drive packages, including transformers, frequency converters and machines to power the stations' centrifugal water pumps and machinery.

In recent years, high levels of economic growth has compelled the country to launch new steps to manage, preserve and redistribute its precious water resources. This includes the multi-billion dollar south-to-north water diversion projects, the largest scheme of its kind in the world. This ambitious undertaking will send billions of cubic meters of water from

the south to satisfy spiraling demand for water in the country's dry, resource-rich north, where booming populations in Beijing and Tianjin, massive construction activities and an arid climate have conspired to create chronic water shortages. Huinanzhuang is the only major pump station to be built in the main channel of the middle diversion route.

Planning of the south-to-north diversion projects began in the 1950s, and the entire scheme was expected to take about 50 years to complete. The Chinese government expects to divert 44.8 billion cubic meters of water annually by 2050.

## Bondi sewage treatment plant modernisation

The Bondi sewage treatment plant, located below ground adjacent to Bondi Golf course, has benefited from a complete make-over through technology supplied by ABB. Serving Sydney city and the Eastern suburbs and with a customer base of 500,000; the facility is in need of improvements and is being renewed and modernised under the Bondi Reliability Improvement and Modernisation Program (RIAMP). In addition to bringing the system up to date, Sydney Water wanted to see a reduction in the amount of manual input that the current system demanded and was looking for the installation of more intelligent and automatic equipment. In addition to these requirements



were the added constraints of Bondi being an underground treatment plant, with any extra digging dramatically increasing project costs.

ABB was able to provide a compact switchboard that meant very little extra

digging was necessary and the savings gained were diverted into the provision of leading edge switchgear. ABB supplied their MNS low voltage system, a pump control system, together with variable speed drives and a dedicated energy distribution system. The motor control system application utilises the latest motor protection relay technology and allows remote communication with the control room, with capacity in the future for wireless operations if required. There was a high level of customisation on this project with ABB developing specific software and hardware for the protection relay in order to display certain information that Sydney Water required.

## Control system for giant desalination plant

ABB is supplying a state-of-the-art control system to integrate the largest seawater desalination plant in the southern hemisphere into the Western Australia water network. The plant will feed the same network as another ABB automation project - the 700-kilometer Goldfields Pipeline, the longest potable water pipeline in the world. The Perth Seawater Desalination Plant will feed 45 gigaliters of drinking water a year into the state's integrated water system and will boost the dwindling water supplies in one of the largest states in the world.

ABB is supplying a network control system based on its MicroSCADA and RTU560 technology to enable the water produced at the desalination plant to flow into the Perth water distribution network. The solution includes upgrading the existing MicroSCADA control system with new functionality, like profiling and cascade PID (Proportional-Integral-Derivative) control across



multiple remote sites and fallback communications systems, as well as remote monitoring and control of pressure, flow and other functions.

# Embedded system technology in ABB

Christoffer Apneseth

As the underlying technologies evolve, embedded systems are finding their way into an increasing range of ABB products and applications. Advances in this technology lead to higher performance and more functionality on the one hand, and reduced cost and size on the other. While this benefits the end user, the ever increasing complexity of embedded systems imposes new challenges for developers. This article provides a brief introduction to the use and application of embedded system technology in ABB's power and automation products – and the challenges being faced now and in the future.





Embedded systems are special purpose computer systems that are totally integrated and enclosed by the devices that they serve or control – hence the term “embedded systems”. While this is a generally accepted definition of embedded systems, it does not give many clues as to the special characteristics the systems possess.

### How is ABB applying embedded systems?

The first question is: How do embedded systems differ from general-purpose computer systems? The answer is, it depends. By definition, an embedded system is designed to perform a set of predefined tasks. This could range in complexity from simple supervision of the operation of an electrical switch, to controlling the movements of a powerful and highly flexible industrial robot. The two solutions, accordingly, will look completely different. The former would be optimized for very low cost, high volume production and the execution of a small set of pre-defined algorithms. The latter would be designed for computing complex, programmable movement paths and transforming the signals that control the motors of the manipulator.

The second question to ask is: Why do we need embedded systems? The answer to this is that general-purpose computers, like PCs, would be far too costly for the majority of products that incorporate some form of embedded system technology. A general-purpose solution might also fail to meet a number of functional or performance requirements such as constraints in power-consumption, size-limitations, reliability or real-time performance.

### Embedded systems – where are they found?

ABB has been developing automation and power technologies for more than a hundred



TPS..-E compressor and turbine.



TPS..-E compressor and turbine.

years. The concepts that underlie some of these technologies have evolved slowly: modern power transformers, for instance, work according to the same principles as they did in the early days of electric power transmission. And despite huge progress in switching technologies and material science, circuit breakers have been based on the same principles for the last fifty years. Now that small and powerful microcontrollers are available at low cost, embedded system components are finding their way into these long-established products. Here, the embedded systems typically perform a secondary function: they are used to supervise, protect or control the primary

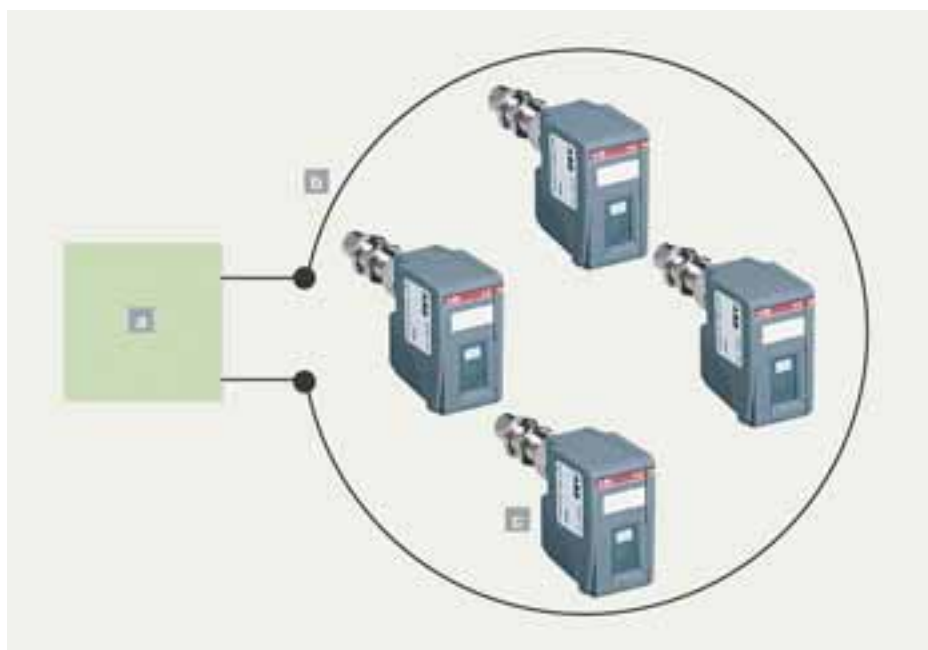
function of the product. The technology is a way of providing these attributes more cheaply, than the alternatives, or with new value-added features.

Many other product families now offered by ABB could not have been conceived without embedded system technology. Examples are Distributed Control Systems (DCS) that can safely automate and control large and complex industrial plants, such as oil refineries, power plants and paper mills. In the early days of industrial automation, relay logic was used to perform simple control functions. With the advent of integrated circuits and the first commercial microcontrollers in the seventies and eighties, programmable industrial controllers were introduced to perform more complex control logic. Today, ABB's Industrial IT Extended Automation System 800xA integrates widely distributed and intelligent field devices with high-level system functions that optimize production assets, as well as the process itself.

The software part of a modern embedded system can consist of hundreds of thousand lines of code.

### Challenges in industrial applications of embedded systems

This issue of ABB Review discusses the wide range of opportunities and challenges associated with the integration



Wireless power transmission  
a. power supply b. primary coil c. switches with secondary coils

of embedded system technology into ABB's portfolio of products and solutions. Many of the benefits and requirements are typical of embedded systems in general – such as low cost, small size, etc. – some challenges are more specifically associated with industrial applications.

#### Industrial requirements

Industrial requirements vary enormously from application to application, but special industrial requirements typically include:

- Availability and reliability
- Safety
- Real-time, deterministic response
- Power consumption
- Lifetime

#### Availability and reliability

Automation and power systems must have very high availability and be extremely reliable in order to minimize the cost of operation (i.e. to minimize scheduled as well as unplanned maintenance time).

#### Safety

While customers demand high quality and reliability from most of their embedded systems, it is not necessarily critical if, say, a PDA (personal digital assistant) needs to be restarted after an application causes the system to fail. For industrial applications, however, the effect of a failure in the system could be devastating. A gas leakage at an oil platform, for example, must be detected and followed by a safe shutdown of the process. Otherwise, expensive assets – or even human lives – could be at risk. Similarly, instabilities in power transmission and distribution networks should be detected before they are allowed to propagate and cause large blackouts. Economic security and personal safety depend on high-integrity systems. ABB uses embedded systems in such mission-critical configurations. Special development processes and design methodologies are implemented to provide proven and certified high-integrity products.

#### Real-time properties

'Real-time' is a term often associated with embedded systems. Because these systems are used to control or monitor real-time processes, they must be able to perform certain tasks reliably within a given time. But the definition of 'real-time' varies with the application. A chemical reaction,



Communication module for radio transmission

for instance, may proceed slowly, and the temperature at a given point may need to be read no more than once per second. However, the schedule must be predictable. At the other end of the scale, protection devices for high-voltage equipment need to sample currents and voltages thousands of times per second in order to detect and, where necessary, act within a fraction of a power-cycle.

**ABB utilizes its global reach to apply best practices developed in one part of its organization to others to improve overall performance.**

#### Power consumption

At first glance, the power consumption of industrial electronics may appear insignificant because of the abundance of power that is available. However, this power is not always available, and the need to keep installation costs low has created a demand for electrical protection devices that do not require a separate power

supply for the electronics; these devices are self-sufficient with respect to power and meet their needs by extracting small amounts of energy from their surroundings. Wireless sensors for buildings-, factories - or process-automation must offer years of battery life or a completely autonomous mode of operation. Self-sufficient power supplies can be designed to extract minute levels of energy from electromagnetic or solar power, temperature gradients or vibration in the environment. This is frequently referred to as energy "harvesting." Even when power is available, low-power design can be used to reduce the generation of excessive heat that would otherwise necessitate expensive and error-prone cooling devices.

#### Lifecycle issues

Yet another requirement that is frequently imposed on industrial embedded systems is a long lifetime of the product itself and the lifecycle of the product family. While modern consumer electronics may be expected to last for less than five years, most industrial devices are expected to



work in the field for 20 years or more. This imposes challenges not only on the robustness of the electronics, but also on how the product should be handled throughout its lifecycle: Hardware components, operating systems and development tools are constantly evolving and individual products eventually become obsolete.

#### Key issues in developing embedded systems

Some challenges involved in the design of embedded systems have not really changed in the last couple of decades. The drive for increased performance at reduced cost and size, for instance, will continue as long as developments in the underlying technologies will permit. Other challenges involved in embedded system design are changing rapidly. Three areas should be given particular attention: complexity, connectivity and usability.

#### Complexity

While the steadily increasing transistor density and speeds of integrated circuits offer tremendous opportunities, these improvements also present developers (individuals, teams, organizations) with a huge challenge: how to handle the added complexity? A modern embedded system can consist of hundreds of thousand lines of software code.

More and more products now include complex embedded systems and the development organizations must evolve with the products and their technologies. It is necessary to establish suitable development processes, methods and tools. ABB utilizes its global reach to apply best practices developed in one part of its organization to others to improve overall



Robot arm equipped with wireless proximity switch

performance. Developing product platforms also ensures re-use of technology and increased efficiency.

### The emergence of SoC has enabled extremely powerful systems to run on configurable platforms that contain all the building blocks of an embedded system.

#### Connectivity

Before the widespread deployment of digital communication, most embedded systems operated in a stand-alone mode. They may have had some capabilities for remote supervision and control, but, by and large, most functions were performed autonomously. This is changing rapidly. Embedded systems are now often part of sophisticated distributed networks. Simple sensors with basic transmitter electronics have been replaced by complex, intelligent field devices. As a consequence, individual products can no longer be designed in isolation; they must have common components. Communication has gone from being a small part of a system to being a significant function. Where serial peer-to-peer communication was once the only way to connect a device to a control system, field buses are now able to integrate large numbers of complex devices. The need to connect different applications within a system to information and services in field devices drives the introduction of standard ICT technologies like Ethernet and web-services.

#### Usability

Complex field devices are often programmable or configurable. Today's pressure transmitters can contain several hundred parameters. The interaction with a device – either from a built-in panel or from a software application in the system – has become more complex. The task of hiding this complexity from the user through the creation of a user-friendly device has sometimes been underestimated. Most other requirements are easily quantifiable or absolute, but “usability” is somewhat harder to define. Yet an embedded system that is intuitive and simple to operate will reduce the cost of commissioning and maintenance. It will reduce errors and be a key factor in the

overall customer satisfaction. That is why usability is given a high priority in the design and development of ABB products, from the conceptual stage, right through to the final testing.

#### Embedded systems – latest trends

ABB is shaping the future of power and automation through innovative products and solutions, and embedded systems technologies are increasingly important in what the company does. That is why, to stay ahead of the game, ABB must anticipate the emerging trends and opportunities. One such trend is SoC – Systems on Chip. The emergence of SoC has enabled extremely powerful systems – including hardware and software – to run on configurable platforms that contain all the building blocks of an embedded system; microprocessors, DSPs, programmable hardware logic, memory, communication processors and display drivers, to give but a few examples.

Other trends are related to built-in wireless communication and self-configurable networked devices. These trends enable extended use of intelligent field devices in applications where wiring costs for such devices are prohibitive. ABB is at the forefront of developing technologies and applications that benefit from the latest advances in research combined with technologies from other industries such as telecommunications and consumer electronics.

### Simple sensors with basic transmitter electronics have been replaced by complex, intelligent field devices.

Exactly what power and automation systems will look like twenty years from now is impossible to predict. But whatever developments we witness, embedded systems will be key enablers and drivers for change.

#### Christoffer Apneseth

ABB Corporate Research

Source: ABB Review

## ABB organizes eye camp with support from Rotary



As one of its sustainability pillars, ABB has an ongoing programme to support underprivileged students in schools in the vicinity of its major manufacturing facilities across India. Besides providing infrastructure support the company is deepening its engagement with the students, through mid-day meals, educational visits and other programmes to facilitate learning.

In keeping with this endeavor, ABB recently organized an eye camp for over 800 students of the

Nelagaradanahalli Primary School Peenya, supported by the company in Bangalore. The two day eye camp was organized in association with Rotary Health City and voluntary service doctors from Narayana Nethralaya, a leading health organization. This was the first eye camp conducted at the school and in fact the very first time most of the children had their eyes tested!

Dr Ashwin Mallipatna, from Narayana Nethralaya who was the lead doctor for the eye camp said "I would like to congratulate ABB on the wonderful organisation of the school eye check-up. We are touched by your commitment to their well being. Please keep up the good work."

Over 100 children will be further tested for vision related ailments and free spectacles will be provided as required.

## ABB drives slash energy bill at giant aquarium

ABB variable speed drives have reduced the annual energy bill at one of Europe's biggest aquatic attractions by \$30,000 - nearly equivalent to its yearly water bill. The nine ABB ACS550 variable speed - recirculate millions of liters of water in the giant tanks of the National Marine Aquarium, the biggest oceanic museum and marine conservation center in the United Kingdom.



With millions of liters of seawater in the tanks - including 2.5 million liters in the three-storey Mediterranean aquarium, the largest tank of its kind in Europe - the expense of continuously pumping huge volumes of water at the correct flow and pressure is one of the NMA's single biggest costs.

## A helping hand for the deaf and blind

ABB technology has helped Italian students develop a unique, hand-shaped keyboard that lets deaf and blind people send electronic messages that can be read on a computer display. Within a year, the keyboard will be equipped to accept and display return messages as well. The hand shaped pad is equipped with special sensors and software to serve as a keyboard.

A person with severe sensory deficits like blindness can place a hand on the keyboard and use a familiar style of blind/deaf communication known as the Malossi alphabet, a hand-to-hand method in which people press and pinch specific areas of the fingers and palm corresponding to letters. The new technology converts their pinching and pressing motions into electronic impulses that can be relayed to a



monitor and read by a sighted person. The development is part of an ongoing ABB programme to involve local students in the business of research and development.

## ABB India sustainability team holds stakeholder dialogue



One of the key sustainability pillars of ABB India's sustainability programme is to support primary schools for under-privileged children, as part of India's effort to alleviate illiteracy, often a pre-cursor to many other social challenges. As part of this initiative, ABB in India provides infrastructure support and has a deeper engagement programme aimed at improving the quality of primary education in select government supported schools, located close to major manufacturing locations.

In keeping with this objective, the ABB India Foundation, a registered trust that helps drive the sustainability programme, held a stakeholder dialogue on 3rd March 2007 in Vadodara. The forum brought together representatives from the city education board, government functionaries, educationists and NGO representatives in addition to the members of the ABB India foundation.



## Precise Process Controls

Precise Process Controls (PPC) is one of ABB's fastest growing channel partners in Vadodara. The company began its operations in 1999 as an ABB channel partner. PPC deals with ABB's Low voltage range of products, Drives, PLCs, DCS and motors.

PPC has an established name in the Industry, providing System Integration solutions for process industries like paper, sugar, textile, cement, plastics and glass among others. From humble beginnings in 1999 the company has grown manifold and has recently expanded its operations to the Pune market.

Mr Darshak Sheth, proprietor, PPC is extremely pleased with the business opportunities in the market place. Though upbeat, he is quick to point

out the challenges in the marketplace, "The customer is extremely price sensitive. But once he experiences our products and services, we have an easier time."

He is happy with the support received from ABB and feels that regular channel partner meets help the network and grow the business. "The best part of being an ABB channel partner is that all channel partners take a collaborative approach. The channel partner meets brings us together and we learn a lot from everyone's experience. It also helps us leverage the strengths and market presence of other channel partners."

Darshak identifies people as one of his biggest challenges. To battle the issues of attrition he has set up a training center to ensure that customers are serviced by people who are competent and with the



right skill sets. PPC has 66 employees spread across his offices in Pune and Vadodara

Speaking on his management philosophy, the 32 year old Darshak Sheth says, "Ethics are extremely important in business. My style is to be forthright, upfront and honest in my dealings. That's the only way to do well in the long term."

## Technocrafts Switchgear Ltd



Technocrafts Switchgear Ltd (TSL), Mumbai has been an ABB partner for over 17 years. The team at TSL is not new to ABB products and the company is an exclusive ABB channel partner. TSL deals with ABB's range of Ring Main Units, Compact Sub Stations and Relays. In addition to the channel business, TSL utilizes its team of experts to provide turnkey solutions and retrofitting assignments both in domestic and international markets.

Mr Ram Mohan Shenoy, Managing Director, TSL, spent over 12 years in ABB before starting his own dealership. Talking about his long association, he says, "We already had ABB's culture imbibed in us, so it was easy for us to relate to the company. ABB's quality, service standards and customer focus are all values that we have at TSL as well."

Commenting on market conditions, Mr Shenoy, says, "Market conditions have been cyclical and we have faced turbulent times over the years. However in the last 2 years the market has been upbeat and I expect the trend to continue for the next five years."

TSL works primarily with industrial clients in the pharma, cement, steel, glass, textile and paper sectors. As TSL works towards establishing brand presence in the market, they will continue to focus on operational excellence and innovation. Commenting on the challenges in the market place,

Mr Shenoy, says, "Competition is increasing both in the organized and unorganized sector especially in MV Switchgear. We will have to continuously differentiate ourselves to stay ahead."

Mr Shenoy is happy with his relationship with ABB. "We have always worked together, drawing strategies together and creating a win-win situation for our customers. With growth, systems and technology takes precedence but I hope to continue the strong personal relations we share with ABB", he said.

With respect to his management philosophy, Mr Shenoy follows Robin Sharma's words in his book "The Monk who sold his Ferrari" – The more successful you and your organization become, the more humble and devoted to your customers you need to be."

### Helping launch satellites into space

Sea Launch, the world's only private ocean-based satellite launch services provider, uses mission-critical systems supplied by ABB. Sea Launch successfully launched the XM-4 broadcast satellite at the end of October. The Boeing 702 spacecraft will broadcast digital radio programs to seven million XM Satellite Radio subscribers throughout the United States and parts of Canada.

Sea Launch consists of a launch platform and command vessel, both of which are equipped with a complete range of ABB power and automation solutions that Sea Launch classifies as "mission critical." These range from integrated automation and safety systems to complete electric power generation and distribution systems for the Odyssey Launch Platform and the Sea Launch Commander. ABB also supplied the bow and azimuth thruster motors for both vessels.



### Voltage indicator makes workplace safer



VisiVolt is a voltage indicator designed to minimize the risk of electrocution for workers on indoor and outdoor medium-voltage systems. Electrical accidents have many causes; equipment malfunction combined with a momentary distraction can be fatal. Poorly trained workers may approach a live distribution panel instead of one that has been disconnected, leading to dire consequences.

The VisiVolt indicator can be permanently installed, directly on current bars and conductors, using simple fittings. This compact device indicates the presence of a voltage by displaying a large and highly visible "lightning" arrow symbol on its liquid crystal display (LCD), providing an active reminder of the potential hazards of working in and around electrical systems.

### Precision machines hold heavy loads

ABB's new FlexPLP machine can perform precision tasks and hold heavy objects within the tight, narrow confines of a factory production line. The FlexPLP (Flexible Programmable Lean Positioner) is, unlike regular industrial robots that are equipped with extendible arms and handle various materials at high speeds over long, measured distances. The FlexPLP is a machine that provides precise manipulation and an ability to position heavy loads precisely in constrained spaces. FlexPLP can support three times its own weight, yet is small enough to operate in an automotive production line. It could, for example, do the fine detail work of positioning locator pins and then carry a car underbody to the next point in the production line. FlexPLP is thus a highly flexible bodyshop all in itself. Automotive factories are the first of many possible applications for these versatile machines, which have the potential to improve production in any industry.



### Right mix for cement makers



The most important aspect of modern cement plant quality control is the Raw Mix Proportioning (RMP) system. The RMP system defines the proportions in which the main raw minerals of the cement-making process (limestone, clay, sand and iron ore) are mixed. The task of RMP control is made particularly difficult by the highly variable chemical composition of the minerals that are dug out of the ground. To meet this challenge, ABB has developed an innovative, state-of-the-art solution for the RMP problem.

The solution is part of the OptimizeIT Expert Optimizer suite. It executes online control of the cement kiln feeders, where the various raw minerals are stored. This guarantees an optimal trade-off that balances deviations in quality targets and material cost. The system's control algorithm is based on the latest control technologies, such as Model Based Control, which allow the cement plant's dynamic behavior to be simulated using mathematical models of the feeders, conveyor belts, mills, silos, etc. The crucial mixing operation becomes predictive, rather than reactive. ABB was the first to come up with an advanced model-based application for the RMP process.



Brochures



Building System Posters



Gridtech Exhibition



Recent Media Coverage



The last word

Based on your feedback, we continue with our theme-based approach and have focused on 'water' in this issue. We welcome your inputs, questions and any specific feature requests, you may have. Our constant endeavour is to keep you updated on ABB's latest technology offerings and of course, above all to remain in 'CONTACT' with you!

Harmeet S Bawa, Head, GF-Corporate Communications, ABB India

[www.abb.co.in/contact](http://www.abb.co.in/contact)

# One stop shop

## Made in ABB



## The widest range of standard products

ABB offers you a wide range of standard products – all under one roof! Our state-of-the-art technologies help enhance productivity, efficiency and competitiveness.

In more than 100 countries around the world, ABB standard products are the preferred choice across applications for utilities, industries and building solutions. Our extensive presence and channel partner network ensures that we are always at your doorstep, no matter where you are. Over one million products delivered around the world everyday! Made in ABB.

[www.abb.co.in](http://www.abb.co.in)

Power and productivity  
for a better world™

The ABB logo, consisting of the letters 'ABB' in a bold, red, sans-serif font.