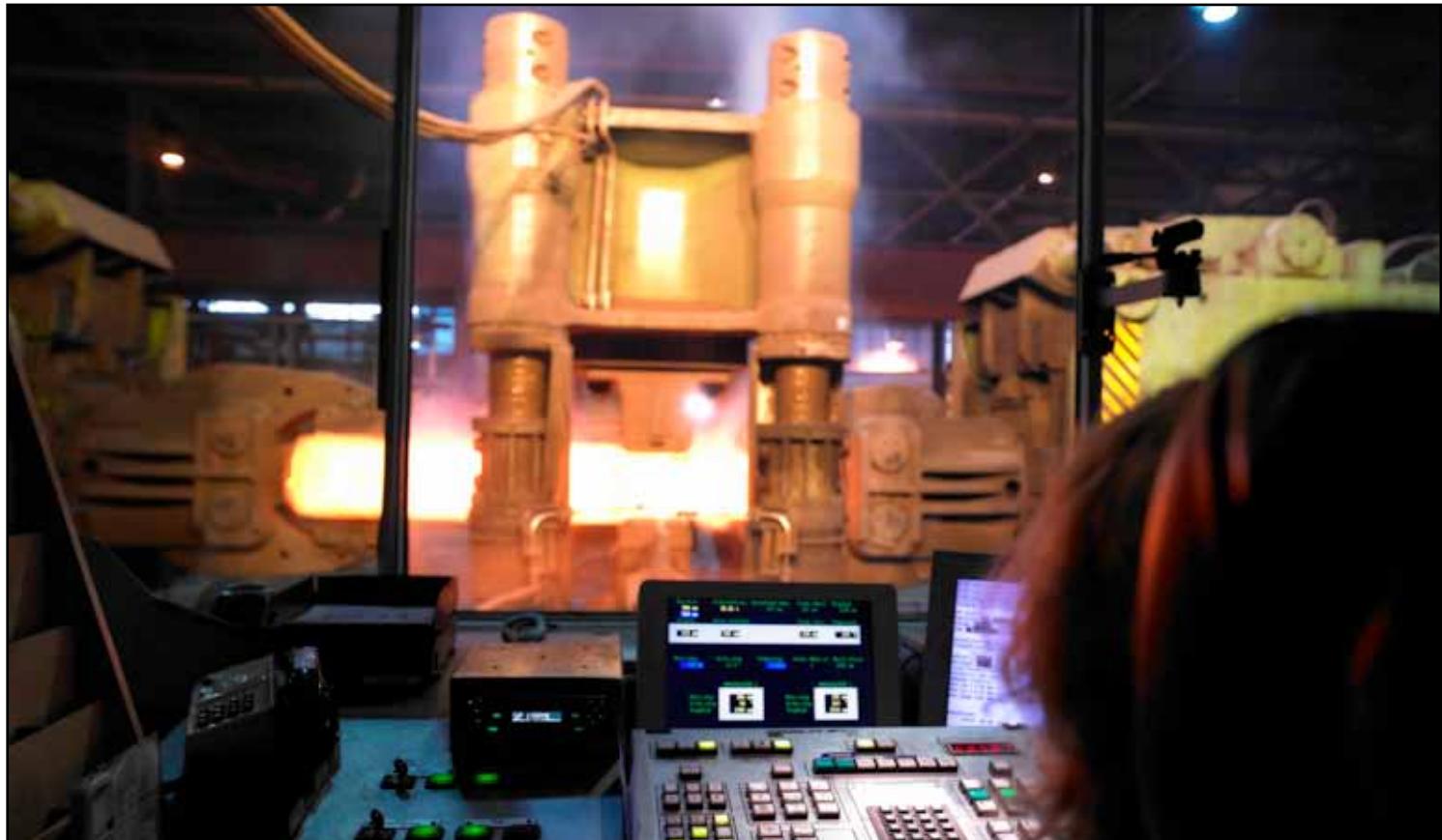


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A customer magazine
of the ABB Group

insider



Seamless power

The power of water – 06

ABB provides a UPS solution for a wastewater business

Smart technology – 11

PCS100 UPS-I protecting Samsung's mega investment in China

Onshore engineering – 13

PCS100 frequency converters for ship building and ship repair activities

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ABB's solution for the steel industry

New beginnings – 17

Napier, New Zealand showcase their new center of excellence

Power and productivity
for a better world™

ABB

ABB's leading edge technology is providing power protection solutions for many commercial and industrial applications, such as the steel industry.



Insider



John Penny
General Manager
LV Power Converter Products (DMPC)

As you read through this issue of the Insider, you will see that again ABB's Power Protection and Power Conversion products have been finding their way into some interesting applications. From what must be one of the world's highest technology factory at Samsung's new Xian facility through to wastewater treatment plants in Germany and steel mills in Russia, ABB's products are being applied. To be successful with our business, we must offer real benefits to valued customers. It is great to read about how we are increasing yield and uptime, reducing waste and system loss increase, while reducing environmental impact in terms of energy loss.

Again the products from ABB's Newave team in Quartino, Switzerland feature prominently, which is great to see. UPS products have been available for many years and there is a high level of competition in the global market. To be successful,

ABB must continue to be innovative and the Decentralised Parallel Architecture (DPA) as used in the Newave modular products is truly leading-edge and offers increased reliability, availability and maintainability, which are high on all customers' requirements. The Newave DPA modular UPS technology is being pushed into increasingly large applications where these benefits are of even more importance due to the highly critical nature of datacenter type applications.

The Napier, New Zealand based PCS100 team have also been busy growing the business and producing innovative new products. This success has been rewarded with a fantastic new facility to house the R&D, sales and manufacturing center of excellence for the PCS100 product range. Growth had meant the team was spread over five buildings in an industrial area in Napier, but the new facility, which is situated at the Napier airport industrial park, brings the team together in a purpose-designed building which will allow for further growth.

One of the key PCS100 products is the UPS-I Industrial UPS product, as used by Samsung for their new Xian facility. The question often gets asked what ABB UPS solution suits what application, say a modular DPA UPS from Newave or an Industrial UPS like the PCS100 UPS-I. The answer isn't straightforward – there are many commercial or industrial opportunities for both product ranges. It really comes down to the particular needs of the customer. The PCS100 UPS-I is a modular inverter single conversion design but with a single very rugged static bypass switch. This makes it

suitable for use with difficult industrial loads, which commonly include motors and motor drives. It is also often applied using super-capacitors for short duration energy storage, as many industrial events are short term in nature, which provides a very reliable low maintenance solution with an extremely small footprint. In datacenter and computer room applications, continuous voltage regulation is often called for with longer back-up times, which suits the Newave double conversion designs but also industrial control system protection.

I am sure you will enjoy reading this issue of Insider.



06

The power of water

ABB provide a complete solution to a wastewater business



11

Smart technology

PCS100 UPS-I protecting a mega investment in China

Power protection

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Grid interconnection : www.abb.com/shoretoshippower

Energy storage systems : www.abb.com/energystorageandgridstabilization

PCS 6000 solutions : www.abb.com/powerelectronics

UPS and Power Conditioning: www.abb.com/UPS

Clean power supply?

Certainly.



Power and productivity
for a better world™



ABB's power protection range ensures a continuous, clean supply of power for industrial and commercial equipment, so that daily operations are uninterrupted. The state-of-the-art technology offered by PCS100 is successfully employed in a wide range of applications, including data centers, medical equipment and industrial production processes.

ABB Limited

www.abb.com/powerelectronics



The power of water

Wöhrle system solution based on ABB
UPS for wastewater business.

Stadtentwässerung Stuttgart (SES) is responsible for collecting and treating wastewater in the Stuttgart area in Germany. With 370 employees and servicing an area that includes 700,000 inhabitants, as well as Stuttgart airport, SES is always looking for ways to improve its systems.

SES plans, runs and maintains rainwater runoff and wastewater infrastructure for the region. Part of SES's responsibility is procuring equipment to run the electrical side of the company. The installed electrical plant is significant; apart from an array of large electrical pumps and other equipment distributed around the network, there is also a substantial amount of electrical equipment at four large wastewater treatment plants and a central sludge incineration plant.

A watertight solution

Any wastewater business has to function 24/7 to ensure that all wastewater is properly processed. Clearly, for this to happen, a high-quality power supply has to be available at all times. This is why SES has invested in a system solution from Wöhrle Stromversorgungssysteme GmbH based on ABB uninterruptible power supply (UPS) equipment.

The customer required two fully separate and independent UPS systems, for three-phase 400 V and for 24 VDC. The special challenge was that all the UPS electronics had to be housed in the same cabinet as the associated batteries. In addition, the cabinet had to withstand the rugged environment in which it was installed.

After reviewing the various bids tendered, SES decided on the System Solution from Wöhrle and the flexible UPS units from ABB. The delivery comprised an UPScale RI 22 (RI – rack independent) three-phase UPS, with two 10 kW UPS modules, plus a special power supply, of type DPN 402880/19-2, designed by Wöhrle to cover the 24 V requirements. The Wöhrle supply was realised in 19 inch format with a 400 V input and 28 V, 80 A output. Two 12 V, 28 Ah battery units provided energy reserve for the 24 V UPS.

The solution was delivered in a glass-fronted, air-conditioned Rittal cabinet. The contract includes an annual maintenance agreement.

The customer benefitted from sourcing the UPS concept, as well as design, build and service, from a single supplier. Also, because the 24 V DC UPS was made from existing Wöhrle components and both UPS elements were installed in one cabinet, significant cost savings could be made.

ABB's technology

The architecture of the ABB UPS system has inherent advantages. The UPScale RI 22 UPS comprises a sub-frame, to be installed into a 19 inch frame, with individual power modules. These modules can be hot-swapped, i.e. they can be removed and inserted for maintenance, without powering down the system. Both modules share the load, and the size of the system is designed such that if one module should fail, the remaining module will not be overloaded by all consumers at maximum consumption. This makes servicing easy and gives very high availability. The size of the system can be designed to ensure that all the modules operate at maximum efficiency and that supporting full load in case of maintenance is guaranteed.

ABB UPS units achieve efficiency of 96 percent, an industry best. In times of rising energy prices, high efficiency has a high value – not to mention the benefit to the environment of reduced CO₂ emissions.



ABB's DPA UPScale RI 22, which has been used to provide SES with a uninterrupted power supply.

Moreover, the initial equipment purchase is made easier in financial terms. Overall, the solution fulfills all the requirements, has a very low cost of ownership and a short return time on investment.

To see further technology information please visit:
www.abb.com/UPS



Modular UPS topology and its benefits

Many organizations today depend entirely on their ICT equipment's uninterrupted availability. However, while demanding better protection than ever from their UPSs, users face unprecedented constraints on their budgets as well as the pressure to "go green."

Modular UPS topology is the answer for ICT operators facing these pressures and is currently the fastest growing segment of the 3-phase UPS market. But customers must take great care when selecting a modular UPS because not all modular UPS systems are the same. Parallel architecture that is limited only to modular design does not guarantee the highest power protection. The success of a parallel modular system depends largely on the design of the parallel architecture and on the level of intelligence of the individual UPS modules.

The majority of modular 3-phase UPS systems currently available use traditional technology. Traditional technology means that some of the components are shared by the individual UPSs within the system. As an example, such installations may have a system logic that is common for all UPS modules – creating a severe single point of failure. Such "centralized" systems compromise the UPS system's availability. The system is only as reliable as its weakest single point of failure.

ABB's UPS systems are based on DPA (Decentralized Parallel Architecture). In contrast to traditional solutions, DPA solutions do not share any common components. DPA means that each UPS module contains all the hardware and software required for full system operation. The major benefit is very high power availability. Each UPS module has its own independent static switch, rectifier, inverter, logic control, control panel and battery charger. Even the batteries can be configured separately for each module if required. With all of the critical components duplicated and distributed between individual units, potential single points of failure are eliminated. System uptime is further maximized by the true safe-swap modularity of the modules. Increased flexibility is another benefit.

Each UPS unit's availability can be defined as a ratio between its Mean Time Between Failures (MTBF) and Mean Time To Repair (MTTR). Without a single point of failure, DPA systems maximize mean time between failure. Quick and simple repair by safe-swapping modules while the UPS is online minimizes the system's mean time to repair.

This benefit is key to users, but cost-savings accrue as well. Inventory cost for specialist parts is reduced, and the need for highly skilled on site technicians is eliminated. Modular topology provides secure power with high availability and efficiency – and it does this cost-effectively too.

Although the initial capital cost of a true modular system is typically slightly higher than ones based on centralized parallel architecture, the picture changes when Total Cost of Ownership (TCO) is taken into account.



Improved energy efficiency, as well as other savings, mean that the modular system's extra cost will be recovered within its first year of operation. Longer term costs will also favor the modular system. The system offers extremely high availability arising from significantly reduced repair times, which is a fundamental consideration for any UPS user. The reduced floor space requirement, and the flexibility to adapt quickly to changing critical load demands, will also be attractive propositions to many ICT equipment operators.

ABB's PCS100 – innovation in power protection

PCS100 AVC (Active Voltage Conditioner)

- Protects sensitive loads from the most common disturbances in utility supplies
- Sags, surges, unbalance, flicker and poor regulation are corrected within a few milliseconds
- Rated 160 kVA - 30 MVA
- High power and performance inverter-based system
- Operating efficiency 97 to 99 percent (model dependent)
- Very small footprint due to no storage to operate

PCS100 UPS-I (Industrial UPS)

- The PCS100 UPS-I is the ideal solution where very deep sags or short term power outages are a problem
- The PCS100 UPS-I uses energy storage coupled through an inverter to allow the downstream load to ride through very deep sags and short term outages
- The PCS100 UPS-I is an offline system. It is inactive unless the voltage increases by 10 percent or falls by 10 to 13 percent. This enables it to be very efficient, up to 99 percent



PCS100 RPC (Reactive Power Conditioner)

- ABB's PCS100 RPC is specifically designed to condition the current drawn by industrial and commercial loads. The PCS100 RPC uses leading-edge power electronic conversion to inject current into supply, correcting for common problems such as:
 - Unbalanced load current
 - Fast varying current causing voltage flicker
 - Low order harmonic currents
 - Power factor problems including leading power factor
 - Load current induced voltage drop
- As a purely static device, the PCS100 RPC provides extremely fast correction. Its modular redundant design makes it a very reliable, scalable and serviceable product, backed by ABB's global support network. Packed with new features to suit industrial and commercial applications.

PCS 6000 Wind medium voltage power converter

At home in harsh offshore environments

PCS 6000 Wind medium voltage power converter is designed to cover all the needs of 5+ MW wind turbines, especially those dedicated to offshore application.

It offers a proven, highly efficient and easy-to-service solution that contributes to stability of the grid.

Application: wind turbines off-shore and on-shore

The PCS 6000 Wind is highly reliable thanks to the “less part count” concept. With only 26 power semiconductors, the converter enables grid compliant wind turbine operation up to 9 MVA.

An overall efficiency of around 98 percent is achieved thanks to the very effective IGCT semiconductors technology and optimized pulse pattern. The medium voltage and the compact design allow the converter to be installed on a single deck in the turbine tower foot. As a consequence, the reduced tower head mass saves foundation costs and service access becomes easy.

With PCS 6000 Wind, ABB delivers a complete frequency converter, highly flexible in configuration and line-up. It can include generator breaker, cooling system, filters, brake chopper for smooth fault ride-through, and soft-start unit. It supports single or multi generator operation.

www.abb.com/powerconversion
(generation)



Advantages

- Highest availability and efficiency
- Lowest levelized cost of energy
- Smallest footprint and weight
- Reduced risk with proven MV building blocks
- Generator and grid interconnection support



Smart technology

ABB's PCS100 UPS-I protects Samsung's
mega-investment in China.

Samsung's new \$3 billion liquid crystal display production facility in Suzhou is the biggest single investment ever made by a South Korean company in China. The state-of-the-art facility is safeguarded from potentially crippling power disruptions by an ABB power protection solution – one of many that ABB has supplied to semiconductor companies in Asia.

Situated at Samsung's huge production complex at Suzhou Industrial Park in Jiangsu province, the new 7.5 generation fabrication line is capable of producing 100,000 glass substrates a month.

Each substrate can be divided into eight 42-inch panels, six 46-inch panels, or three 55-inch panels, which is enough to produce between 300,000 and 800,000 LCD TVs a month. Production at the new plant is expected to start in the first half of 2013.

Together with Samsung's existing LCD module production plant at its Suzhou complex, the new LCD line enables Samsung to create an integrated LCD production base for China – by far the world's largest market for LCD televisions.

To ensure that production at its multi-billion dollar plant is not brought to a standstill by power failures, voltage sags and other electrical disruptions, Samsung selected ABB to provide a power protection solution.

The solution comprises eight ABB PCS100 UPS-I low voltage uninterruptable power supply (UPS) units, which have a combined protection capacity of 16.5 megavolt amperes (MVA) of electric power.

The PCS100 UPS-I is a single conversion UPS with an ultra-capacitor energy storage system, coupled to a back-up inverter system to allow the downstream load to remain operational through short power outages and very deep voltage sags.

Among the many differentiating features of the PCS100 UPS-I, the solution for semiconductor applications are:

- Short payback time, typically less than 12 months
- Large low voltage power capacity of 16.5 MVA (most other solutions require medium voltage systems for this capacity)
- Ultra-fast transfer time of less than 2 milliseconds
- Exceptionally small footprint – 50 percent smaller than competing solutions
- Long and more economical operating life – 15 years compared to the three to five years of UPS batteries
- Comprehensive customer support

Recently, Samsung also selected 22 PCS100 UPS-I units for its latest mega-investment in China – the \$7 billion NAND flash plant in Xi'an. The facility will have a monthly output of 100,000 nanometer chips and is expected to become fully operational towards the end of 2013. NAND chips are primarily used in memory cards, USB flash drives, solid-state drives, and similar products for data storage and transfer.

To date, over 680 MW of PCS100 power protection has been supplied to the high tech semiconductor and flat panel LCD manufacturing facilities.

To read more on PCS100 UPS-I technology, please visit:
www.abb.com/powerquality

Semiconductor outlook:

End market drivers – Industry watch

The computing and consumer end markets together consume around 60 percent of the total number of semiconductors sold worldwide. Therefore, they have a significant influence on total sector performance. Emerging markets, such as China, India, Brazil and Russia, remain positive for sector growth.

The Consumer Electronics Association (CEA) expects global consumer electronics sales to be up 5.9 percent this year, driven by growth in tablets (up 83 percent from 2011), smartphones (up 24 percent), networked-enabled TVs (20 percent) and 3D-enabled displays (75 percent). A growing number of consumer electronic devices are now being sold to be factory-installed in automobiles.

Industrial consumption of semiconductors is expected to be one of the strongest this year, driven by the need for production efficiencies, which in turn is increasing demand for power management semiconductor solutions. IHS iSuppli expects semiconductors for industrial applications to be up 7.7 percent this year. Medical Devices (normally included in this segment) contribute another emerging area where semiconductor usage continues to increase.

Overall, Semiconductor Industry Association (SIA) projections (based on WSTS data) places worldwide semiconductor sales growth at 7.2 percent for 2013.

The automotive end-market is an emerging area for semiconductors. The growing electronic content within this market is based on an increasing demand for safety, infotainment, navigation and fuel efficiency.

Increased spending on technology upgrades during 2011 resulted in sufficient production capacity for 2012 and 2013. However, the growing demand for semiconductors is likely to encourage the next wave of spending some time in 2013.

Source: www.zacks.com





Onshore engineering

PCS100 frequency
converters for ship
building and ship
repair activities.

Shipping facilitates around 90 percent of international trade. Although this figure seems impressive, it also entails a heavy impact on the global environment. Facing tight environmental regulations, shipping operators and authorities have to find ways to reduce emission and noise levels. ABB's new Static Frequency Converter technology helps to keep these to a minimum, ensuring necessary legislation compliance.

Shore-to-ship electric power supply, also known as “cold ironing,” is the most reasonable and cost-effective choice for greener shipyards and fleet.

ABB have provided a leading-edge solution consisting of four 250 kVA PCS100 SFCs (Static Frequency Converters) to the first and only “green shipyard” in India at Pipavav Shipyard Limited (PSL). Whilst providing a “green” solution (by reducing emissions, pollution and noise level), cost saving is also being achieved by using grid power instead of diesel generator (DG) power.

In the majority of shipyards, ships at berth use their diesel generators to run amenities, such as heating, ventilation and cooling, as well as galley equipment. This produces noxious emissions which have a negative impact not only on the surrounding environment, but also on the global climate.

At the same time, noise and vibrations from ships seriously affect quality of life for local communities. Mounting pressures to reduce the pollution generated by the world’s fleet and the rising costs of fuel have forced ship-owners to adopt a proactive approach to measuring and monitoring combustion, which is reflected in such schemes as marine fuel management (MFM). However, going green and becoming compliant with the demanding requirements of regulatory authorities, such as IMO/MARPOL and EU, call for decisive steps. And this is where advanced technology steps in.

Shore-to-ship electric power supply, also known as “cold ironing,” is the most reasonable and cost-effective choice for greener ports, shipyards and fleet. The solution enables ships to shut down their diesel generators and plug into an onshore power source while berthed. However, the power generation units on most ships operate at a frequency of 60 Hz, whereas local grid in most parts of the world is 50 Hz. This means that providing ships with electricity requires a shore-side electricity supply arrangement; this was the requirement of PSL. Once a ship arrives at PSL the ship will shut off all its power generation and the shipyard will connect the ship’s 60 Hz supply to its 50 Hz mains grid.

ABB’s technology

As a technology pioneer in low voltage installations for marine applications, ABB offers PCS100 SFCs, which are a safe, economic and highly efficient solution for converting grid electricity to the appropriate load frequency. This leading-edge frequency conversion technology guarantees a seamless automated power transfer of the ship load from the onboard power plant to the onshore source and back.

This solution contributes to a significant reduction of fuel and lubrication oil consumption, which means less pollution and improved financial benefits. Shore-to-ship power is especially applicable to ships operating on dedicated routes, and vessels that consume large amounts of power while in port or at a shipyard. This could bring real benefits for terminal operators whose ships berth each day for a fixed number of hours.

Pipavav Shipyard commented further on ABB’s PCS100 SFC, “The Static Frequency Converter is eco-friendly in regards to being air and noise pollution free. It is highly efficient, has quick response against variable load, requires less time to restart, is reliable and boasts a very low maintenance charge, compared to 60 Hz DG sets.”

Versatility, integrity and unrivalled flexibility

The PCS100 SFC system is internally configured as an arrangement of modular rectifiers and inverters controlled by a power electronic controller. This unique line-up produces sine wave voltage to supply the output load. The converters also allow for the control of reactive power on the ship as well as on the shore side. This feature permits maximum flexibility in adjusting the system to suit the customer’s needs.

The modularity and scalability of these systems enable multiple units to be paralleled, which makes the solution adaptable to the different power requirements of ships and to a variety of shipyard and port infrastructures. The PCS100 SFC has a small footprint design and can be placed indoors or outdoors. This gives the customer flexibility with the physical and spatial layout to harmoniously fit to the surrounding architecture.

Low operational impact

Another advantage of the system is its superior availability due to high reliability and low maintenance (MTTR<30min), which leads to low operational costs. The cost of ownership may be further reduced thanks to the possibility of incorporating renewable energy sources, such as wind or hydro power, solar panels and fuel cells, which can open up a range of new opportunities.

ABB’s offering includes comprehensive turnkey shore-to-ship power solutions, from electrical infrastructure on ships (retrofits or new installations) to electrical infrastructure in shipyards and ports, as well as connection and control solutions to ensure personnel safety and seamless power transfer.

Only green shipyard in India

Pipavav Shipyard Limited (PSL) is located in the State of Gujarat and is the largest shipyard in India. It has one of the largest dry-docks in the world and a shipbuilding, ship repair and offshore fabrication complex. To have state of the art facilities, PSL has installed and commissioned some of the most modern shipbuilding equipment available.

To read more PCS100 SFC technology information please visit:

www.abb.com/powerelectronics
(grid interconnection products)



ABB's PCS100 STATCOM improves power quality by regulating voltage, mitigating sags, and minimizing voltage flicker for a major steel company.

In order to safeguard the equipment at a new manufacturing facility and provide dynamic reactive power compensation, ABB have provided a 3 MVar PCS100 STATCOM to a steelmaker that offers a range of solutions for solar panel installations.

Located in Mississippi, the new facility provides a one-stop-shop for solar panel I-beam supports, tubing, pipes and pedestal posts used in the mounting of solar panels. These solar panels are galvanized in a process called "hot dip galvanizing." This coating provides a significant level of protection for these structures and often last as long as 75 years. It is widely used in applications where rust resistance is needed, so is highly suitable for solar projects that are seeking to move toward a longer life cycle. In order to protect the steel manufacturer's investment in this new market and ensure the smooth operation of their equipment, it was necessary to find a solution that would prevent power supply interruptions, regulate voltage and mitigate sags.

The power of steel

The new galvanizing facility utilizes a 1 MW and 750 kW roughing stand, and 750 kW finishing stand driven by a DC drive system. These three stands operate as a coordinated drive



PCS100 STATCOM that is providing voltage regulation to the steel industry

of harmonic currents. This was important for the new plant in order to meet specifications of utility violations, impact to production and future load expansion.

ABB's technology

ABB's PCS100 STATCOM technology ranges from 100 kilo-volt-amperes reactive (kVAr) to 10 MVar and offers power factor control, voltage regulation and high- and low-voltage ride through support. The PCS100 STATCOM system has overload up to 260 percent for three seconds, and higher overload requirements can be met by adding extra modules while having advanced capability of flicker mitigation.

ABB's high quality PCS100 STATCOM provided a robust solution that improved power quality to the plant.

system to roll wide flange products. This load, combined with cut-off saws, edging mill DC drives, conveyors and auxiliary plant loads, contribute to poor power factor, voltage transients, flicker and harmonics. These power quality issues have adverse impacts on both the load and the surrounding utility distribution network. ABB's high quality PCS100 STATCOM provided a robust solution that improved power quality to the plant (leading to better utilization of equipment and increased efficiency), whilst being compliant with utility requirements, including voltage and flicker limits.

Unique to the industry

ABB's technology provided a range of benefits, including the modular construction of the PCS100 STATCOM, which makes the platform very reliable. If one of the power modules fails, the system will not trip, but will continue to operate at reduced capacity. This level of reliability is unique in the industry. Also the PCS100 STATCOM has a smaller footprint, a smaller parallel capacitor bank, faster dynamic performance and active filtering

One-stop-shop

The new steel manufacturing facility will complement the company's existing structural steel mill and fabrication plant, distinguishing the company as the only steelmaker with all three processing facilities in one convenient location. The new galvanizing plant is fully automated featuring a 42-foot kettle and the latest advances in environmental technology. The company has been serving the solar industry since 2008, producing specialty structural steel products for large-scale, ground-mounted PV solar fields.

To see further technology information please visit:
www.abb.com/energystorageandgridstabilization



PCS100 STATCOM providing a turn-key solution for Vykса metallurgical plant in Russia.

ABB have designed a leading-edge solution consisting of two containers, each with 2 x 4.5 MVar PCS100 STATCOMs, for Vykса Steel Works, a major steel company in Russia. This project is an important milestone for ABB as it is the first PCS100 STATCOM in Russia for the industrial sector. The STATCOM solution will stabilize voltage while also increasing the power supply reliability for Vykса Steel Works.

Vykса Steel Works (VSW) is the world's largest producer of solid train wheels which are designed for everything from freight engines and cars through to subway trains. ABB's PCS100 STATCOM was selected to provide fast reactive power compensation for VSW's fluctuating load, reducing voltage flicker. The STATCOM will also increase network stability and transmission capacity.

This is the first PCS100 STATCOM application in Russia the PCS100 is well suited to challenging industrial applications with fast changing reactive power requirements and distortion. Industrial loads such as arc furnaces, welders and big motors cause voltage disturbances and current distortion. The PCS100 STATCOM provides the ideal solution for voltage regulation, flicker mitigation, negative sequence compensation and harmonic cancellation.

Vykса Steel Works is one of Russia's oldest metallurgical centers. It was established in 1757. Today, VSW, in addition to rail wheel manufacture, is a major domestic producer of longitudinal welded pipes with various



Marina Voronina - Energopromservice, Mariya Krasukova - Energopromservice, Alexander Kostichev - OMK Stal, Dmitry Kabanov - OMK Stal

diameters designed for oil and gas production and transport, construction, and the housing and utility sector. The pipes are manufactured from sheet steel that has undergone 100 percent automated ultrasonic testing. The potential pipe production capacity of VSW is over 2 million tonnes of pipes per year.

To see further technology information please visit:

www.abb.com/energystorageandgrid-stabilization



ABB Review featuring power protection technology



The first ABB Review issue for 2013 is now available as a free download. Click [here](#) to read the latest ABB Review, featuring ABB's PCS100 power protection technology.

ABB Review is published quarterly in five languages and is designed and written for a worldwide audience. By presenting the best of ABB technology, it backs up the company's claim to be a technological leader and enhances ABB's reputation for technical excellence.

ABB Review is available, free of charge, to those with an interest in ABB's technology and objectives or those in management positions who need to be kept informed of the latest technology advances in order to have a firm knowledge base for investment and strategic decisions.



New beginnings

ABB officially opens
new center of
excellence in Napier.

ABB's new world-class research and development center and factory is providing power protection and conversion products to a global market.



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ABB officially opened its new 6500 square meter research and development center and factory in March, at the Hawke's Bay Airport Business Park in Napier, New Zealand.

ABB's Napier business has global responsibility for a range of highly innovative power protection and power conversion products which they design, manufacture and sell globally. Products range from leading-edge voltage conditioners that are used to protect some of the world's largest semiconductor (silicon chip) manufacturing plants, through to frequency converters allowing ships to connect to shore power while at port, saving fuel and reducing pollution.

This significant investment in times of global economic uncertainty reinforces the importance of the Napier-based design and manufacturing operation to ABB's international power electronics business.

The growth in ABB's business that is signalled by the new Hawke's Bay facility

not only good news for the local economy but also the New Zealand research, design and manufacturing sector as a whole, says Grant Gillard, Managing Director of ABB New Zealand. "ABB is very committed to New Zealand with three manufacturing plants and over 7,000 people employed. Although we only make up a small percentage of ABB's 145,000 employee global work force, we are very proud to be recognized as a center for innovation and a major export earner for New Zealand."

John Penny, General Manager of ABB's Napier-based global business is particularly proud of the new facility. John says, "Napier has a long legacy of excellence in power electronics stretching back around 30 years. The new Napier ABB facility secures Napier's position as a true global center of excellence for our specialty designs."

"Many people are surprised to hear that we sell electronic products from Napier to protect some of the world's largest electronic factories that make silicon chips and dis-

plays found on the latest smart phones and tablet computers."

ABB's new site was blessed in a dawn ceremony by several Kaumatua from Ngati Kahungunu (1). The facility was officially opened by local Member of Parliament and Minister of Internal Affairs and local Government, Chris Tremain. Minister of Commerce, Craig Foss, also spoke at the opening.

01 John Penny, ABB's General Manager LV Power Converter Products.

02 Mayor of Hastings Lawrence Yule, ABB's NZ Managing Director Grant Gillard, Mayor of Napier Barbara Arnott and ABB's General Manager John Penny.

03 Hon Chris Tremain.

04 Hon Craig Foss.

05 The official opening was held in a marquee outside the building to accommodate the 200-plus attendees.

06 The visitors to the site were taken on a tour of the facility.

01 Kaumatua are Maori elders and Ngati Kahungunu is the local Maori tribe in Hawke's Bay, New Zealand.

ABB Automation and Power World Switzerland 2013: PCS100 makes a stand



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03

ABB's largest customer event in Switzerland took place on 23 and 24 April 2013 in Spreitenbach. Guests arriving daily from all over the country had the opportunity to get to know the complete ABB portfolio and learn which products, solutions and services will help them on the road to energy efficiency, productivity and environmental consciousness.

The exhibition focused on four major application areas: power generation and distribution, buildings and infrastructure, industry, and mobility. The PCS100 AVC (Active Voltage Conditioner) and PCS100 UPS-I (Industrial Uninterruptible Power Supply) products were featured and fit many application areas, including at least three of the four above mentioned. However, the main focus at the event was given to the use of these products in the industrial sector. The applications of PCS100 AVC and UPS-I for protection of sensitive industrial loads ensure a continuous and clean electrical supply, which means uninterrupted manufacturing processes, high productivity and profits for our customers.

Newave Energy AG, Switzerland – a member of the ABB Group – represents PCS100 power protection solutions on the Swiss market along with its own product range of UPS products. The PCS100 family and the Newave portfolio perfectly complement each other, covering all possible grid instability scenarios that a customer might face.

During the event, Peter Niggli (Marketing and Sales, Newave Energy AG) gave a much appreciated speech titled "Ensuring power supply during grid instability events" that attracted an audience of over 90 people. The speech ended with a dynamic discussion among the attendees.

01 Infrastructure and industrial sectors of the exhibition.

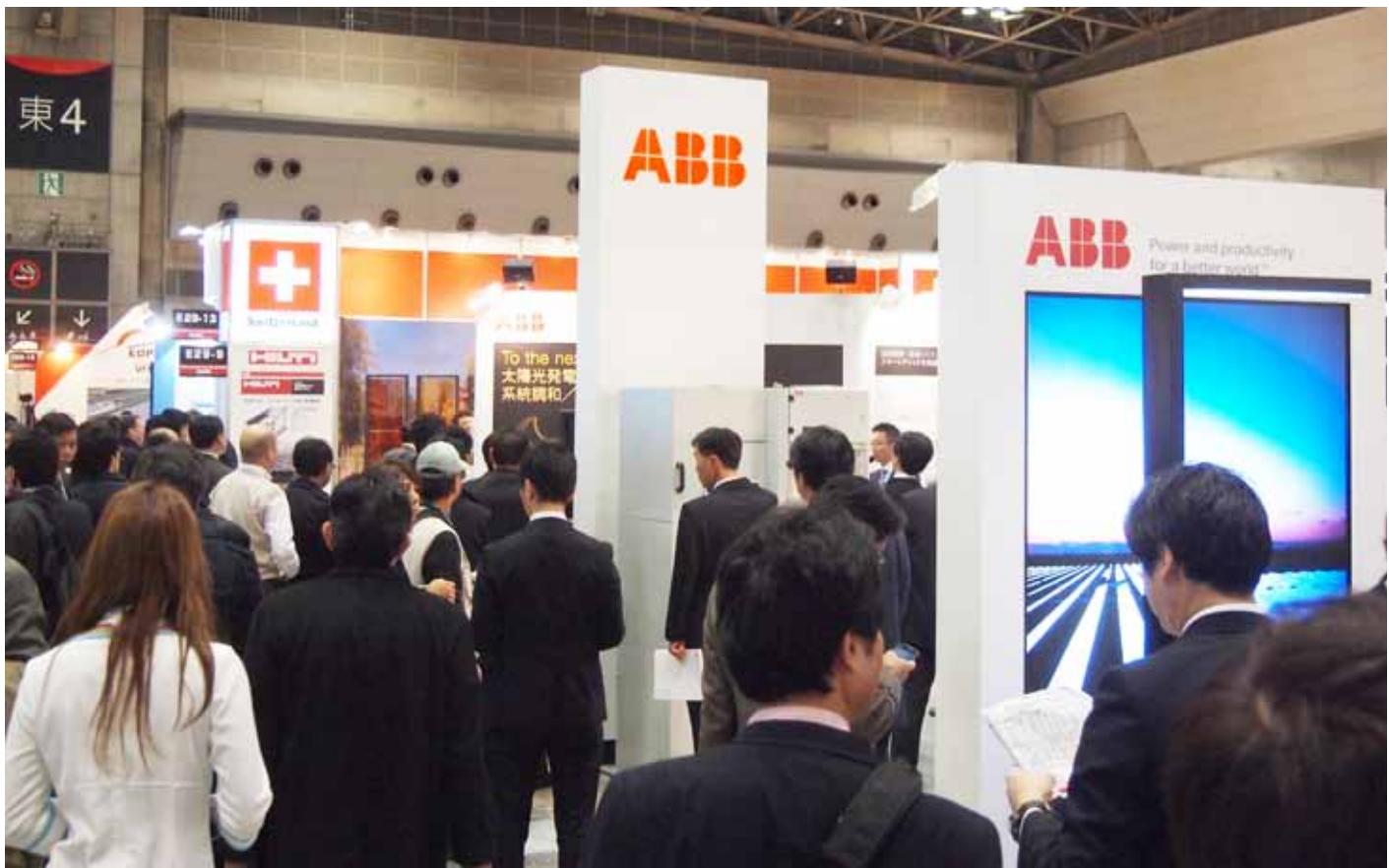
02 Introducing a customer to ABB's power protection offering.

03 Power protection booth.

04 From left: Ralph Schmidhalter (Area Sales Manager Power Control, ABB) and Peter Niggli after the speech.

For more information on ABB's offering for the 2013 APW, please [click here](#)

Smart energy week for ABB in Tokyo, Japan



01



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ABB recently participated in the Photovoltaic (PV) expo, held in Tokyo, Japan. This PV Expo was a part of the Smart Energy Week 2013, along with Wind Expo, PC (power conversion) Expo and Battery Japan, and Smart Grid Expo. The PCS100 STATCOM was featured in this event and created interest from various visitors, such as end-users and utility power companies, as well as PV PCS manufacturers.

It was ABB's third consecutive participation at this event, with the focus being "economical optimization." PCS100 STATCOM was nominated by Solar ISI as the most powerful and practical solution available for grid voltage problems for the low voltage power range by regenerative power stations.

The PCS100 STATCOM is now making an impact in Japan, thanks to its leading-edge technology and what it can offer to the industry. ABB has a strong technical background in electrical performance and grid compliance. This will help solar investors comply with the local regulatory requirements, increasing the strong incentive plan of increased solar growth for the future.

01 ABB's booth was located in front of the main entrance of the hall and was always very busy with keen visitors

02 PCS100 STATCOM attracted customers with its state-of-art technology. Local electricity trade media carried a large article on the product.

03 ABB demonstrated its wide range of portfolio in the booth. Presentations were well received by visitors.

For more information on ABB's offering, please [click here](#)

PCS100 Product training 2013

Register your interest now for 14-16 May 2013



Enhance your technical ability and knowledge in the PCS100 product range. Receive the benefit of interactive practical training with real devices for demonstration purposes and functional exercises.

Product training

Products, applications, markets and technical basics

- Power protection
- Frequency conversion
- Grid connect interfaces

Marketing

- PCS100 tools and support

Hardware

- Power modules, aux.module, interfaces

Control modes, interfaces, options

- Power protection
- Frequency conversion
- Grid connect interfaces

Order handling process

- PCS100 sizing and pricing

PCS100 outlook

- Ongoing and future developments

Who should attend?

ABB channel partner sales and service engineers.

Training locations

ABB's low voltage power converter product training is conducted in our well-equipped manufacturing and R&D facility in Napier, New Zealand, by highly qualified engineers and instructors.

Enrolments

Register your interest for any one of our courses via email to: pq.supportline.nz@nz.abb.com

Confirmation

Confirmation of acceptance and course information will be sent approximately two weeks before the start of the course. We will inform you by email or phone if there are no vacant places.

Course program

The course program and all related information about the course times and venue are sent to the participants with the confirmation. The course normally runs from 9.00 a.m. - 4.00 p.m. over a three day period.

Reservations

We reserve the right to change any course schedules, programs and their contents. A course could be cancelled due to minimal enrolment. The maximum number of students varies between 10 - 12 persons.

Cancellation

In the case of cancellation, inform us as soon as possible. This will allow another applicant to attend the course. Your place on a course can be transferred to another person in your company or department.

Training schedule 2013

Course	Day one	Day two	Day three
Two	14 May	15 May	16 May
Three	13 August	14 August	15 August
Four	12 November	13 November	14 November
agenda a.m.	PCS100 product platform overview	PCS100 frequency conversion	PCS100 sizing and pricing tools
Agenda p.m.	PCS100 power protection	PCS100 grid connection	Outlook / future developments

Service and commissioning training 2013

Register your interest now for 21-23 May 2013

Your knowledge. Your power.

ABB is a leading supplier of power electronic systems. This extensive experience and history of innovation helps customers around the world to improve plant performance and production.

Our customer awareness means that we are committed to supporting customers globally in their plans for growth. ABB offers a wide range of professional training courses adapted to meet the needs of customers and partner channels.

Benefits of the training

Service and commissioning training courses give valuable support to increase return on investment, reduce costs in down time and improve skills and motivation of personnel.

Training participants profit from our extensive experience and modern training infrastructures which enable them to:

- efficiently operate and maintain ABB's PCS100 low voltage power converter systems
- extend the lifetime of the product

Training locations

ABB's low voltage power converter product training is conducted in our well-equipped manufacturing and R&D facility in Napier, New Zealand, by highly qualified engineers and instructors.

Course profile

Our service and commissioning training courses are aimed at qualifying maintenance engineers to undergo unsupervised first level support of ABB's PCS100 applications. The main goal of the course is to learn how to operate, troubleshoot and maintain the system.

Upon completion of the course, maintenance engineers will be able to locate and identify hardware components, download fault loggers and important information for first analyses by support personnel, replace parts and perform preventative maintenance. Trainees will gain practical experience using available tools and techniques through organized practical exercises.

Who should attend?

ABB partner channel and customer service engineers.

Confirmation

Confirmation, reservation details, and all related course information including schedule and venue details will be sent approximately four weeks before the start of the course.



Enrolments

Register your interest for upcoming courses via email to: pq.supportline.nz@nz.abb.com

Training schedule 2013

Course	Day one	Day two	Day three
Two	21 May	22 May	23 May
Three	20 August	21 August	22 August
Four	19 November	20 November	21 November
Agenda	PCS100 a.m. platform service introduction	PCS100 service power protection	PCS100 service grid interconnection
Agenda	PCS100 p.m. platform service detailed	PCS100 service frequency conversion	Outlook / future developments

Power protection



Power protection

6. The power package

ABB provides a complete solution to commercial and industrial applications

8. Vital protection

ABB's Modular UPS installed at Aareon's datacenter in Germany

12. Astronomical power

PCS100 UPS-I protecting a major LCD plant in China

Project completion

14. Unleash the battery power

China's first PCS100 ESS to be shipped to Indonesia

MV PCS

20. Wind power

AREVA Wind and ABB provide a way to harness wind energy

Powering the digital age



Power protection

6. Smart technology

ABB provides leading edge technology to electronics manufacturer

7. Mega protection

PCS100 UPS-I protects the front end process of memory chip production

8. Datacenter power

ABB supplies six Conceptpower DPA units to Zurich

Industry watch

12. Grid stability reaching new limits

ABB and Prudent Energy work together to provide grid stability

Project completion

15. PCS 6000 setting new efficiency records

Efficiency at its best



Peace of mind without wasting a watt?

Absolutely.



By choosing from ABB's PCS100 Active Voltage Conditioner and UPS-I solutions, you are selecting from a unique lineup of advanced technologies and expertise. This low voltage power protection product range provides energy efficiency, high reliability and increased productivity. Both unique systems give superior value to operations in the industrial, utility and commercial sectors.
www.abb.com/powerprotection

Power and productivity
for a better world™

ABB