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ENERGY manager

Newspaper for energy suppliers

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PSI

EDITORIAL

Dear readers,

If we take a look at the current trends in the energy industry, it is apparent that digitalisation of the energy sector is rapidly advancing. This digital transformation includes the entire value chain, from generation to distribution. Integration of renewable and volatile energy sources is bringing about new and complex requirements, not only for digital infrastructure, but also for the security issues energy suppliers face.

To provide energy suppliers with optimum support in dealing with these challenges, the PSI Electrical Energy division continues to develop and enhance its product solutions, focusing on the general requirements in the market and on the specific needs of existing customers, incorporating

the relevant legal conditions. For example, the new PSI*control* 4.3 possesses enhanced functionality and an improved user interface to support suppliers in replacing their network control systems. We also report on how BASF is using a mobile link for switching operations management with the workforce management system. You will also discover how the new SASO system developed by Tennet and PSI for network operators allows concentrated and straightforward assessment of the network status.

Meanwhile, PSI is heavily involved in a number of research projects that are now operational. The networking of Smart Home and Smart Grid means that the intelligent power supply is now a reality.

Enjoy reading.

Regards

Wolfgang Fischer
Divisional Manager
Electrical Energy, PSI AG

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COVER STORY

Railway power supply

Swiss Federal Railways starts operation of PSI network control system

Swiss Federal Railways (SBB) operates the world's most intensively used railway network. Serving one million passengers per day, a reliable power supply and high-availability network control technology is hugely important. Following acceptance of the final test system, SBB's network control technology based on PSI*control* went into full productive operation at the beginning of 2014.

In the summer of 2010, PSI won the contract to replace SBB's systems for all voltage levels, the transport network and the overhead line network. To win the contract, PSI beat off the challenge of some major international corporations after evaluation of an extensive range of criteria by the client. Four countries in Europe now use PSI network control technology for their railway power supply: Germany, Sweden, Switzerland and the Netherlands.

Intelligent fault management

The replacement of the technology for SBB was precipitated by the existing control technology approaching the end of its life and the previous power breakdown of 2005, which caused a large-scale supply failure. This resulted in general calls for intelligent management of faults, including a reduction in the volume of alarms, and fault simulation using load flow calculations, as well as establishment of an effective fallback level for the network control technology.

Basic requirements for new SBB network control systems

The operator's stated objectives were to replace and standardise the existing control systems, optimise fault clearance and troubleshooting, increase the system security in the railway power control system and synchronise and optimise the traction current and energy management processes. In addition to replacement of the existing operating management and network control functions, and ensuring very high system availability for workstations, data centres, data storage and security, the basic requirements also included using the existing SBB-Telecom communication infrastructure, as well as integration into existing business processes such as the office environment, alarm systems, ticketing and sales, etc.

One of the key challenges was the requirement to minimise the risk to the railway power supply under full railway operation during commissioning of the new technology.

Expansion and improvement of system performance

In addition, to expand and improve system performance, network security calculations with a preview function had to be implemented alongside multilingual operation, extended network controller functions for flexible island detection and optimum power flow. Other requirements included a training simulator for training and development of the network operating personnel, functions such as post mortem analysis and shutdown planning, a shared data basis for the energy management system and the traction current control system and a standardised link for partners. The new technology supplied for SBB is a hugely sophisticated control system that fully meets the stipulated requirements and incorporates numerous innovative solutions that competitors are unable to provide.

SBB Vorbahnhof on the approach to Zurich central station:

SBB Amsteg power plant in the canton of Uri.

The network control technology at SBB is split into two areas. The transport network is operated using the energy management system (EMS), which includes the network control. The traction current control system (TCC) is responsible for monitoring and control of the overhead line network. The two subsystems have some shared components, in particular a shared source database, which provides both systems with the data that describes the network. The systems are designed to be multilingual, in this case German, French and Italian. The display and operating language can be changed online for a specific workstation.

Energy management system

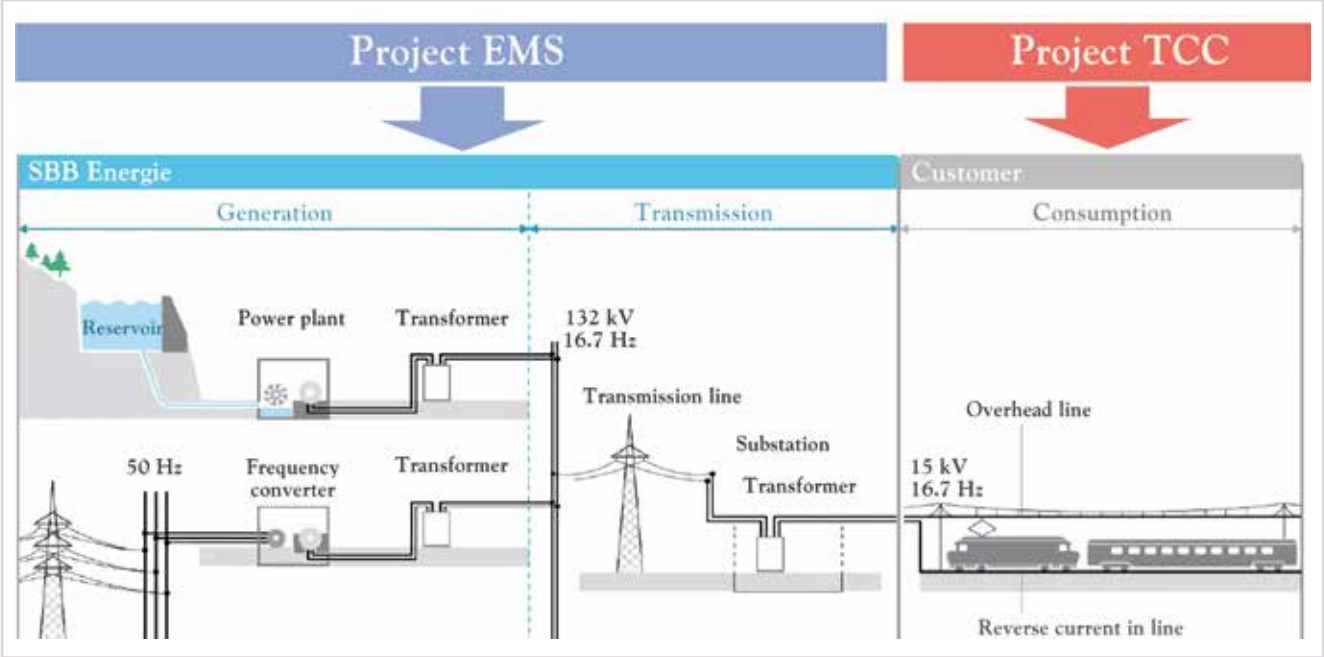
The energy management system (EMS) has to meet the tough requirements of SBB operations, particularly in terms of the extremely dynamic load profile. Managing any island networks that occur in case of faults is essential. Further challenges include determining power sharing with the traction current level and partners and optimising generation (loss minimisation). The comprehensive integrated network calculations, including previews, support the network operating personnel in identifying and resolving bottlenecks and with shutdown planning.

Traction current control system

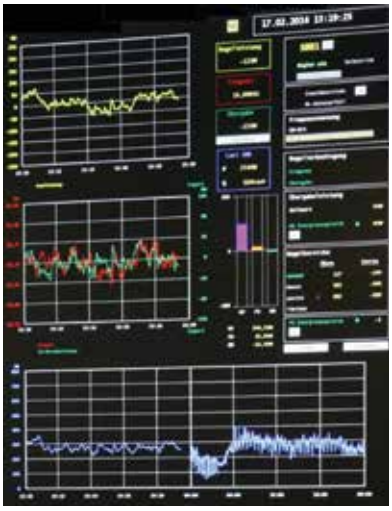
The focus of the traction current control (TCC) system is on supporting the numerous switching operations at traction current level. This includes rail-specific control programs for lines, routes and operating points. Intended switching operations can be displayed in a preview along with their effects.

Shared training system

A shared training system allows training and development of new and existing control centre personnel under realistic conditions. As well as normal network conditions, it simulates the protective response as well as faults in primary and secondary equipment, providing trainees with an extremely realistic training experience.



Overview of energy management (EMS) and traction current control (TCC) system tasks at SBB.



Extended network controller functions for flexible island detection and optimum power flow.

Comprehensive switching order management

The system also includes comprehensive switching order management, integrated into the corporate IT infrastructure. Process monitoring is extensive, using telecontrol technology components from PSI.

Both systems, EMS and TCC, are set up at two central locations. There are also additional decentralised workstations with different designs, e. g. control centres and office workstations. Splitting the configuration into different, separate zones, combined with other measures, guarantees a high level of reliability.

Planning and management process

The high complexity of the technology offered and ultimately implemented is reflected in the project management. Throughout the process, various groups were involved on the client side, including system engineering, network management applications and adjacent departments, and they all had to be coordinated.

They were all integrated into a continuous planning and management process, which frequently required extreme efforts due to the high quality standards and tight deadlines required. Across all processes, the central requirement of "no significant impairment and no interruption of railway operations" was the guiding principle.

Quality assurance

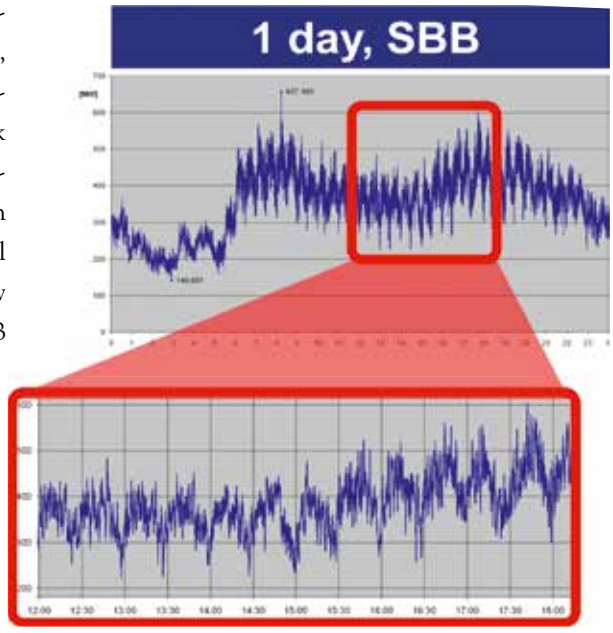
The quality requirements were demanding, which had an impact on the project implementation in detail, including the testing and inspection work. Users—network management employees—were incorporated into the quality assurance process at all times, and were involved in release decisions and risk analyses based on detailed checklists. In parallel to the actual introduction of new control systems, SBB also brought in comprehensive organisational changes.

The general fault clearing process for all technical equipment was changed from "person-specific" to "process-based". This had implications for the relevant network control process. A new release management and deployment system was set up, which was adopted as part of the system commissioning.

Operator summary

Implementation of the new SBB network control technology involved some huge challenges. Thanks to extensive coordination between the operator, supplier, users and other parties involved, we managed to introduce the system within the agreed schedule and without impacting ongoing railway operations. One of the key lessons is that both the organisation and the processes have to be able to withstand changes and extensions that can influence production, in this case operation.

The project represents an important milestone, not just for the ongoing development of railway power systems and EMS functions at PSI. PSI has been able to acquire priceless experience in a very demanding and exhausting project, and this will help us to handle other large and complex projects with the required quality and at reasonable cost.



The railway power network is extremely dynamic and requires massively complex control.

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Research project: The intelligent power supply is a reality

Smart Operator starts operation in Wertachau and Kisselbach

Operation of Smart Operator controls and intelligent modules in households and in the local network has started in the pilot regions of Wertachau and Kisselbach. This means that intelligent power meters, domestic appliances and network modules are combined in a Smart Grid for the very first time.

In Wertachau, a suburb of the town of Schwabmünchen near Augsburg, Lechwerke (LEW) and RWE Deutschland have set up an intelligent energy network. After almost two years of preparatory work, on 1 July 2014 the central Smart Operator control unit along with intelligent modules in the network and in 100 households came into operation. It is the first of three RWE Deutschland Smart Operator projects across Germany to be up and running. The project in Wertachau is one of the most extensive Smart Grid installations.

On 27 September 2014, after almost two years of preparation the central Smart Operator control unit and intelligent modules in the network and in 130 households also came into operation in the Kisselbach pilot region, in the Hunsrück area.

Smart Operator utilises potential

Smart Operator makes optimum use of the potential of renewable energies. It controls intelligent appliances in households as well as central components in the local network and uses data such as weather forecasts to determine the expected feed-ins, as well as loads, capacity and storage options in the power network. Smart Operator coordinates these factors based on current measured values and aligns them.

Smart Operator was jointly developed by RWE and PSI and is based on a control model developed in collaboration with the Rhineland Westphalia Technical University of Aachen (RWTH).

RWE Deutschland is the project manager for the overall Smart Operator programme, with Lechwerke responsible for implementing the project in Wertachau and RWE Westnetz in Kisselbach. Other partners include RWTH Aachen, the University of Twente (Netherlands) and the companies PSI, Hoppecke, Maschinenfabrik Rheinhausen, Horlemann and Stiebel Eltron.

The launch of the intelligent network means that by the end of 2015 lots of practical experience will have be gained in operation of an intelligent power network.

Left to right: Gerhard Buchweitz (PSI AG), Dr. Markus Litpher (LEW), Wolfgang Ache (Wertachau residents' association), Prof. Dr. Armin Schnettler (RWTH Aachen), district administrator Martin Sailer, Lorenz Müller (Mayor of Schwabmünchen), Dr. Joachim Schneider (RWE) and Prof. Dr. Josef Neiß (Bavarian Ministry of Economics) start operation of the Smart Operator.

More information

- Project in Wertachau: www.lew.de/smartoperator
- Overall Smart Operator project: www.rwe.com/smartoperator

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Event: Review of PSI-EE Info Days 2014

Current energy supply projects and developments

On 8 and 9 October 2014, the PSI-EE Info Days event was held for the second time in Aschaffenburg. It gave customers an opportunity to attend presentations and workshops on the various areas covered by the products and services from the PSI Electrical Energy division. The PSI Gas and Oil division was also represented, as well as the Energy trade division, which focussed on the PSI*vpp* solution for virtual power plants.

Numerous presentations by customers, PSI employees and external speakers addressed current projects, the latest developments and general issues in the energy supply sector. The focus was on applications based on the current products PSI*control* and PSI*command*,

Welcome by Wolfgang Fischer, Head of Electrical Energy division at PSI AG.

particularly those that are involved with the energy transition, such as feed-in management for renewable energies, SASO (Security Assessment and System Optimization), a new tool for top level system control, and Smart Operator, an RWE pilot project for low-voltage network management involving PSI.

Swiss Federal Railways reported on an incredibly demanding project, and the challenges involved in introducing future operation of the PSI*control* network control system at SBB (more details can be found in the cover story).

Presentation by "Blackout" author, Marc Elsberg.

Workshop.

Another interesting presentation updated participants on the current state of the energy supply sector in Russia, the latest trends and the ongoing development of the country's network management systems.

There was also a talk about the regulatory security requirements for the German energy sector. Another presentation looked at ICT security and secure energy supply "beyond the hype" and outlined the significance of the IEC 61850 series of

Audience in the great hall of Aschaffenburg town hall.

standards for network control technology.
One of the major highlights was a talk by Marc Elsberg. The author of the best-selling "Blackout" talked about how the book came about, his experiences researching for it and much more about the background to the book. The workshops on offer provided practical demonstrations of numerous new implementations and developments in the Electrical Energy division, along with the PSI*vpp* product for virtual power plants.
The event was attended by around 200 visitors from Germany, Europe and Southeast Asia. The many conversations with our customers and partners gave us a chance to show our expertise as a solution provider for high-end control technology. The feedback received to date on the content, atmosphere and quality of the event has been extremely positive. This reinforces our intention to make the EE Info Days a fixed part of our sales and marketing activities.

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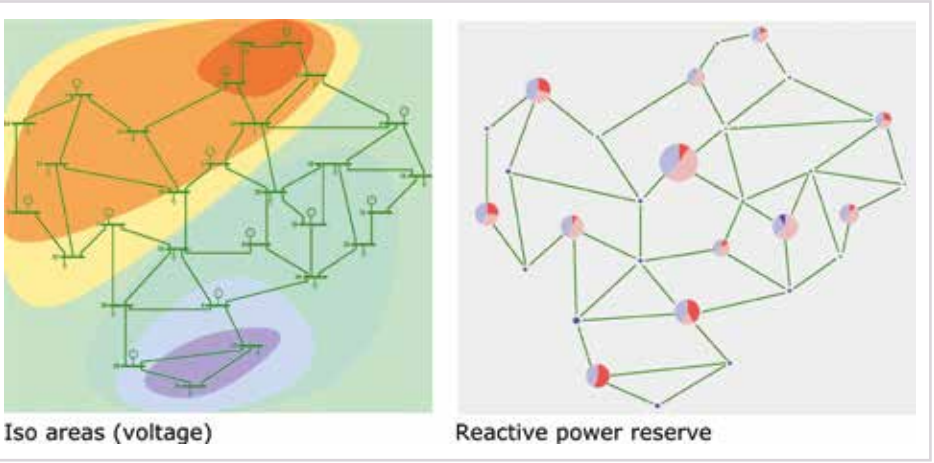
News: First SASO contract from transport network operator TennetTennet

Network status assessment using Security Assessment and System Optimization

PSI AG has won its first contract for delivery of the Security Assessment and System Optimization (SASO) solution for network status assessment and decision-making support from transport network operator Tennet, and the project has already begun.

The new SASO system designed by Tennet and PSI for network operators allows concentrated and straightforward assessment of the network status and provides suggestions for resolving any actual or expected fault situations.

In recent years, the number of network interventions required in the transport network has risen massively, due to the significant changes in network operating conditions. SASO is designed to meet the tough future demands for network management that result from the volatile feed-in of renewable energy, reductions in large power station capacity and the predominantly market-driven electricity transport. It began with the development of a module for idle power management. The components provided include status assessment, decision support and innovative visualisation.
The data required is drawn from the existing PSI*control* network control system, which is connected to SASO. Status assessment is based on traditional network calculations. Decision support will use algorithmic methods and, in the future, increasingly "computational intelligence" (CI) methods, such as PSI's own fuzzy logic, or neural networks. The SASO system is essentially designed to be independent of the control system to minimise mutual influence between the two.



Representation of location-specific network information, examples.

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News: Switching by means of mobile connections

BASF expands current PSI control system with Workforce Management

PSI AG has been contracted by the BASF SE with the delivery of a workforce management system with mobile connections as a supplement to the company's existing PSI network control system in Ludwigshafen on the Rhine. BASF will use the system for centralised support in the preparation, execution and documentation of jobs in the field of switching processing.

An interface to the existing SAP system delivers the orders to be dispatched. The job preparation will be supplemented by necessary switching in the network in the existing network control room based on PSI*control*. The jobs will be communicated to the available switching supervisors by means of mobile devices and their completion reported. This will significantly increase the level of planning in the future, improve the documentation of switching actions and achieve a more effective processing by avoiding system discontinuities in the process.

BASF plant Ludwigshafen, production Toluene Diisocynate.

PSI*command* in the current product version 3.3 will be applied in the project; this version bases the graphic user interface on the new group-wide PSI technology platform.

BASF SE, with 112,000 employees, six joint sites and 376 additional production sites worldwide is the world's largest chemical group based on sales and market capitalisation.

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News: Higher Efficiency in grid operation

Russian grid operator IDGC of Centre and Volga region chooses PSI network control system

The Russian distribution network operator Interregional Distribution Grid Company of Centre and Volga has decided to use the Network Control System PSI*control* as Distribution Management System (DMS) in all nine regional branches of the distribution grid holding.

PSI had already delivered five SCADA (Supervisory Control and Data Acquisition) systems to IDGC of Centre and Volga Region in 2008.

The new contract includes additional four regions which will be equipped with PSI SCADA systems and all nine systems will be expanded functionally in a further step to DMS systems.

IDGC of Centre and Volga Region is one of the five biggest distribution system operator companies in Russia. The goals of the project are reduced operating costs and an improved accuracy of grid calculations by unifying the systems in all regions.

Integration partner in the project, which is one of the most technically advanced in the Russian energy market, is CROC. CROC is the leading systems integration service provider in Russia and one of the country's ten largest IT companies. The total implementation time of the project is about 24 months.

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News: Network control at Saarländische Kooperation

PSI delivers control system for main control centre

PSI AG has been contracted by the Saarländische Kooperation with the implementation of a new joint control system for the four divisions electricity, gas, water and district heating.

The Saarländische Kooperation consists of the four network operators Creos Deutschland GmbH, energis-Netzgesellschaft mbH, Stadtwerke Saarbrücken AG and VSE Verteilnetz GmbH. The four companies have been working together in different areas since 2009, including the main control centre and joint network documentation. PSI*control* will replace the existing network control systems.

PSI*control* will be implemented as a modern, expandable and standardised control system with an integrated concept across every company and area.

The new, highly available system not only covers all of todays and future requirements, but in particular provides accelerated measures for error detection, error limitation and error elimination in the specific networks by high-quality network calculations.

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News: PSI*control* 4.3 with extended functionality and improved user interface

PSI receives important orders for renewal of network control systems

By the end of 2014 PSI AG obtained a number of orders in the energy sector for the renewal of network control systems.

Extensive upgrade orders for the modernisation of the existing PSI systems were received from ELE Verteilnetz GmbH (EVNG), LEW Verteilnetz GmbH (LVN), Regensburger Energie- und Wasserversorgung (REWAG) as well as recently from another large municipal utility, where the new PSI*control* Version 4.3 with partially extended functionality and improved user interface will be implemented. Besides, the Stadtwerke Krefeld (SWK) was upgraded within a maintenance contract.

Along with the network control technology for electricity and gas, the EVNG in Gelsenkirchen is renewing the integrated workforce management for fault clearance and maintenance on the basis of PSI*control* Version 4.3. For the LVN, Augsburg the focus is on the management of renewable energies with the further development and feeding management integrated in the standard.

The REWAG system is already being implemented as an integrated system for electricity, gas and water in the third PSI*control* generation, as well as the SWK control system.

The requirements for security technology formulated by the Bundesverband der Energie- und Wasserwirtschaft e. V. (BDEW—German Association for Energy and Water Industries) have been implemented in all these projects. With these contracts, PSI has been able to once again solidify their good order situation in the market of distribution networks and municipal utilities and to expand and therefore successfully confirm the product investment in network control technology.

PSI*control: presentation of resource limits.*

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Research project: econnect Germany

Networking of Smart Home and Smart Grid

As part of a national research project, a field trial began in Aachen on 26 September 2014, in which ten private customers of STAWAG (the Aachen municipal utility company) were given an electric vehicle for six months to incorporate into their everyday lives. The focus of the research project is on networking Smart Home and Smart Grid—the pioneering technology for private households and energy suppliers' intelligent networks.

The econnect Germany project is the largest of 18 supported by the German Federal Ministry for Economic Affairs and Energy (BMWi) as part of its "ICT for electro mobility II" research programme. The aim of these projects is to develop concepts and solutions that will enable information and communication technology (ICT) to integrate electro mobility into the intelligent energy supply of the future and into modern mobility concepts. Municipal utility companies and partners from industry and research will be working together at seven locations across the country as part of econnect Germany. In Aachen, the municipal utility company and its partners have launched a field trial involving electric vehicles in ten private households. This field trial brings together the complex structures of intelligent networks and the various parties involved in the energy sector under real-world conditions, using the example of electro mobility. The ICT controls the data flow between the energy generator, the consumer and the network operator.

The role of the network operator

The information and communication technology installed enables the network operator to monitor charging operations on the electric vehicles and to make interventions if required. The field trial allows a real-world investigation of the response required by the network operator if a relevant number of electric vehicles are integrated into the network as new power consumers.

Integration of electric cars into intelligent energy networks.

PSI*control* with enhanced monitoring functions

The expected development of electro mobility leads to a significant increase in load in the electrical distribution network. A rough calculation reveals that if users of one million electric vehicles start charging at 22 kW after work, this would create a load of 22 GW within a short time window, which corresponds to around a third of the average German network load. This would certainly lead to a network collapse. Therefore, it is absolutely essential to shift this load to off-peak hours and spread it over time. For network security it is necessary to monitor the charging operations using control technology and to intervene where necessary. The load created by charging stations and electric vehicles is communicated to the STAWAG control system using an open interface and, when combined with other master data, allows monitoring and control. The data entry in the PSI*control* system has been extended and appropriate monitoring functions have been implemented so that violation of voltage bands and exceeding of maximum load and maximum current values are continuously monitored. If one of the specified bottlenecks occurs, a load shedding signal is generated for the affected network stations. When network capacity is detected and released, an enable signal is generated for the affected network stations.

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Project: Wind farm management

ENEA Operator successfully implements PSI*control* test system

The agreement signed in 2013 between PSI Poland and ENEA Operator Sp. z o.o. for implementation of a test version of the PSI*control* system to control wind power generation was successfully completed in 2014.

The distribution network operator ENEA Operator, part of the ENEA Group, is responsible for supplying electrical energy and covers the northern region of Poland, around 20 percent of the total area of the country. ENEA Operator has cables with a total length of over 129 000 km and more than 35 000 network stations. The test system incorporated 10 cables and 268 systems from the 110 kV network.

ENEA supply region.

The first phase involved configuration and integration of the SCADA systems already in use. This was followed by the second phase, made up of tests focusing on status estimation, simulation mode, determination of dynamic load capacity of the high-voltage cables, load flow calculations and feed-in forecasts.

ENEA forecast for one of the wind farms.

The test system supported the dispatches over several months, including in overload situations that can occur due to increased wind feed-ins. However, the most important test took place on 14 May 2014, when the transmission network operator had scheduled maintenance work, which could have led to an overload and thus to a local blackout in Stettin. After this fault warning, the dispatchers therefore carried out a simulation with PSI*control*. The system proved its reliability in an emergency. As well as valuable experience, the first test project in Poland provided an opportunity to find out more about the specific requirements of the Polish energy market. One very important result was the development and successful testing of the interface to the SCADA system from the largest Polish competitor. ENEA Operator was extremely satisfied, both with the results of the project and with the co-operation with PSI. On the back of these positive experiences, in 2015 ENEA Operator is planning to award the contract for a central energy management system for its 110-kV networks.

PSI*control ensures control of the energy generation.*

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News: Control system software for dispatching centres and compressor stations

PSI awarded contract from OAO Gazprom for gas transport in the Northwest region of Russia

PSI has been contracted by the system integrator OAO Gazprom avtomatizatsiya with the delivery of the software for a total of 12 control systems and control system expansions for dispatching centres and compressor stations in the north-western region of Russia.

The Gazprom subsidiaries Gazprom Transgaz St. Petersburg and Gazprom Transgaz Ukhta are responsible for gas transportation in this region. PSI has already supplied control systems for them as part of the strategic projects SEG (Nord-Stream onshore section on the Russian mainland) and Bovanenkovo—Ukhta—Torshok. With this important contract Gazprom reinforces its decision to employ PSI control systems for new investments and suitable replacement investments in its gas transportation business.

The order consists of the first delivery stage for the planned replacement investments in the framework of migration projects for existing gas transportation pipelines of the Gazprom subsidiaries Gazprom Transgaz St. Petersburg and Gazprom Transgaz Ukhta, for which the central dispatching systems previously delivered and in production are being expanded in St. Petersburg und Ukhta. With the use of PSI*control* V7, Gazprom aims to develop a highly efficient, hierarchically structured control system for the control of the gas transportation in the vicinity of strategically important gas transportation lines. PSI*control* V7 is intended for both the implementation of cross-magisterial as well as the local control systems at the level below these. As part of that, PSI already obtained and implemented the orders for the gas transportation pipelines Bovanenko—Uchta—Torshok and SEG previously mentioned, but also two orders for the pipeline Sachalin-Khabarovsk-Vladivostok with a regional dispatching centre in Khabarovsk.

Gazprom avtomatizatsiya is the general contractor and responsible system integrator for the implementation of the projects based on PSI software. PSI also supports Gazprom avtomatizatsiya in the concept process for the development of the system solutions and assumes the training of the engineers for the product-specific know-how of the PSI software employed. The Gas and Oil segment of PSI has been cooperating with Gazprom avtomatizatsiya for years, resulting in the conclusion of a partnership agreement in 2009.

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Event: PSI Power Days customer conference in Poland

City tour with PSI*command*

The first PSI Power Days customer conference on 15 and 16 May 2014 in Poznan, Poland, gave Polish customers a unique opportunity to see the PSI*command* energy system in action as more than just a workforce management solution.

The software—which normally supports operational activities in fault clearance and maintenance—was demonstrated in an unusual and interactive way.

Using PSI*command* as a communication tool, a game had been devised that involved participants using mobile devices to discover the system at first hand as they explored the city. The participants had first been split into mobile units, each with a group leader. Each group was given a tablet, on which the PSI*mobile* software solution was installed to support the mobile units and to exchange

data with the central PSI*command* system.
The actual activities the mobile units had to complete were simplified examples of normal operational processes.
From the deployment centre at the PSI site, PSI*command* was used to send specific tasks to the teams, who had to confirm receipt and report that they had started work at their location. There were a total of seven tasks in seven locations. Once a task had been successfully completed, each team had to send a report, which was registered in the system.
The "faults" and "scheduled work" had to be carried out at various places of interest in Poznan, providing an exciting way of combining the demonstration with a city tour. Among

One of the teams at the PSI Power Days.

other things, the teams had to change a counter in a historic courtyard, investigate cable connections on the castle hill, find the causes of a power failure in an old tenement building, read counters in the historic ballet school and shut down a customer due to non-payment. The reports from PSI*command* were then evaluated to obtain the results and determine the winners.
The following day, workshops were run to demonstrate the workflow in more depth from the planners' perspective.

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Events: Review of E-world 2015

High visitor interest in new energy solutions

From 10 to 12 February 2015 PSI presented a comprehensive solution portfolio for the energy sector at the E-world in Essen. The focal points were on software solutions for virtual power plants, energy trading and sales, auditing of major gas metering plants, portfolio planning and optimisation, network control systems and the implementation of the regulatory requirements for systems in gas logistics.

Energy trading and virtual power plants

PSI*market* supports energy trading with all the essential functions, e.g. from the deal compilation through the portfolio and risk management. In addition, the current, integrated solution PSI*vpp* for virtual power plants has been presented.

Stochastic optimisation

Furthermore, the new releases of the market-leading system TS Energy 7 for stochastic optimisation has been presented with a widely expanded scope of functions such as the web-based portal for supporting trading.

Electrical grids

The Electrical Energy segment presented PSI*control*, which, along with extensive network calculation programs for every supply unit, provides extensive energy management functions for transportation grids and distribution network operators.
Furthermore, the Smart Telecontrol Unit communication solution for intelligent electrical networks has been demonstrated. Additionally, Gerhard Buchweitz, Manager Sales of the division Electrical Energy, spoke in his lecture about how "Smart network control systems guarantee success of future network operation" at the Smart Tech Forum in Hall 6.

Gas management

The PSI unit Gas and Oil showed the solutions PSI*transport*, PSI*transact* and PSI*transstore*, which reproduce logistics business processes of the transportation and storage service providers, storage and network operators as well as traders in the gas market.
The web-based solution PSI*portal* serves the visualisation and reporting of master and dynamic data.

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Event: Smart Grids at the HANNOVER MESSE 2015

PSI presents network control solutions

The PSI Electrical Energy division's appearance at the Hannover Messe from 13 to 17 April 2015 (Hall 7, Stand A 26) will focus on network control solutions for monitoring and intelligent control of energy networks.

Head of the Electrical Energy division, Wolfgang Fischer, explains: "Because of the increasing feed-in of regenerative energies into medium and low-voltage networks, the network operators are being faced with new demands, which require much greater automation of the networks for these voltage levels".

The PSI*control* system provides comprehensive functions to support customers in this area, including overhead line monitoring, generation and feed-in management, bottleneck correction and preview calculations with wind and solar forecasts.

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EVENTS

www.psi.de/en/events

13.04.–17.04.2015	Hannover Messe 2015 Hanover, Germany	Hall 7 Booth A 26
06.05.–08.05.2015	E-world Turkey 2015 Istanbul, Turkey	Hall 11 Booth L107
01.06.–05.06.2015	World Gas Congress 2015 Paris, France	Hall 1 Booth L50
07.06.–10.06.2015	UITP World Congress Milan, Italy	Hall 4 Booth 4C138
08.06.–10.06.2015	10th Pipeline Technology Conference Berlin, Germany	Booth 33
15.06.–19.06.2015	CIRED 2015 Lyon, France	Convention Centre Booth C04
23.06.–26.06.2015	MIOGE 2015 Moskow, Russia	Pavilion 2 Booth 3-90
24.06.–25.06.2015	CONSULECTRA Symposium Netzleittechnik 2015 Hamburg, Germany	Grand Elysée Hotel
15.09.–17.09.2015	Energetab Bielsko-Biała, Poland	Hall A Booth 78
27.10.–28.10.2015	GAT 2015 Essen, Germany	
03.11.–05.11.2015	European Utility Week 2015 Vienna, Austria	RAI Booth A.e36+37

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