We keep you competitive
Power Grid Automation Center
Trutnov, Czech Republic

ABB technologies enable the flow and control of electricity for power networks to be more flexible, reliable, efficient, intelligent and environmentally friendly.

Our Mission, Vision and Business Model

Our Vision

To become the first choice partner in engineering services for power grids

Our Mission

To provide reliable substation automation systems - on time, in excellent quality and within budget.

Our guiding principles

We recognise that sub-contractors must think and act like risk-sharing partners.

In-house resources

For all our services only the in-house resources are used. This gives us full control over quality and better cost management resulting in better value for money for our customers.

Full scope of services

Our experience / client references cover the full scope of substation automation systems including engineering services for utilities and industry. We cover all contract stages from design through EPC to commissioning, as well as service and maintenance.

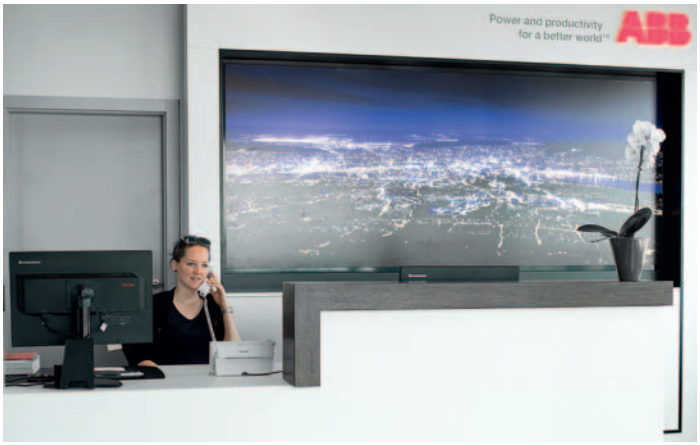
Flexibility

We guarantee short response time and flexibility to meet customer's needs and expectations.

The project delivery time of RFF ranges from 25 weeks for EPC contracts to only 5 weeks in case of fast track projects. Please contact RFF for more information.

Our Company

ABB Regional Focused Factory (RFF) Trutnov is the substation automation systems hub for ABB worldwide.



In the early 90's, ABB decided to enlarge its substation automation activities in the Central and Eastern Europe by acquiring the Protection Relays Division of company ZPA Trutnov, a market leader in electrical protections in the Czech and Slovak Republic. ABB Energo was established and ABB continued to build on a 35 year long tradition in protection relays by expanding engineering activities and improving manufacturing facilities for the assembly of Substation Automation Systems (SAS).

The next milestone date was in 2004. ABB designated Trutnov to be its 1st Regionally Focused Factory (RFF) with the aim to optimize economies-of-scope and economies-of-scale in substation automation solutions for multiple technological platforms. This has allowed ABB to retain its market leadership & exploit its competitive position globally.

Nowadays RFF Trutnov is a synonym for core competency both in engineering services and manufacturing. We offer a wide range of solutions and services (related to automation, protection and control) from the detailed engineering, manufacturing, through to commissioning, whether it is construction or modernization of the substation.

We continue to grow in expertise and size
We have grown tenfold in ten years

The RFF Trutnov has been growing in response to increased order backlog. Our services are in demand throughout the world, and we can proudly state that we have increased our production tenfold since 2004. In order to boost capacity, we moved to newly built Power grid automation center in 2015. The 8,500 square meter facility comprises production, engineering and testing and is a home to ABB's largest European engineering center for substation controls and automation.

Proven track record

We combine technological innovation, experience, and expertise to offer end-to-end solutions. We have a proven track record of successfully delivered projects all over the world. We can provide a wide range of products and solutions from standardized to fully customized packages.

More than 95 per cents of our activities are devoted to international projects. In recent years we have cooperated with the following countries:

Switzerland
Germany
Sweden
United Kingdom
Italy
Czech Republic
Russia
Ukraine
United States of America
Canada
Mexico
Venezuela
Chile
Peru
United Arab Emirates
Qatar
Kuwait
Saudi Arabia
Algeria
Zambia
Nigeria
South Africa
and many others.

Our team

We offer you a long term partnership, close personal contact, openness and superior technical support. In response to customer feedback over the years, we structured our team to be able to fully meet your requirements.

Our team of 200 employees strives to ensure your success from bidding stage to commissioning. Most of our employees work in design and engineering. On time, in excellent quality and within budget - this is our mission. We share our knowledge and experience to develop customized solutions.

Competencies
From greenfield projects through retrofit to after-sale service

Our Services and Competences

Over decade, we have been a center of engineering competence and manufacturing capabilities, building up and enhancing our know-how in all fields of electricity transmission and distribution.

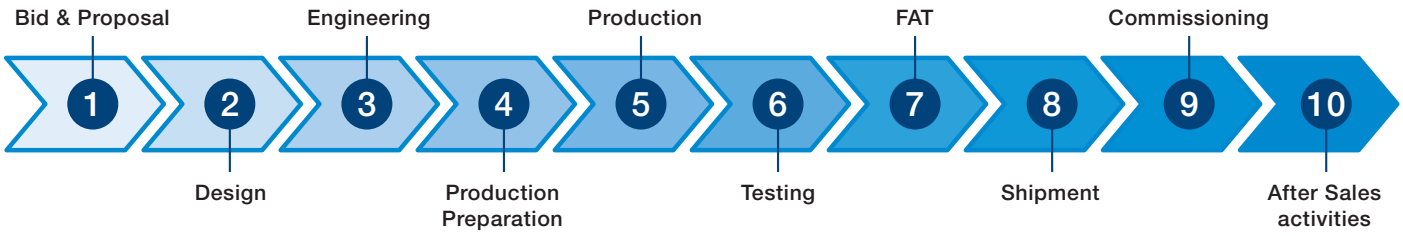
We provide detailed and accurate proposals comprising system design, project management, manufacturing and installation in a very short time.

Key deliveries

Procurement
Manufacturing
Engineering
- Bay Level Engineering (C&P + SAS Panels, IEDs, …)
- Station Level Engineering (Substation Automation Systems)

Testing:
- Bay Level Testing (Bay Protection & Control Solutions, Local Control Cubicles, Generator Protection Solutions)
- Station Level Testing (Substation Automation Systems, System Integration with Bay Level Solutions)

Commissioning



Over the last years RFF has expanded its production and started to manufacture also cabinets and panels used in process automation and power generation. This includes AC 800 systems cabinets (Controller/I/O/Server cabinets, network cabinets) for PA/PSP control systems including basic design.

Currently, our portfolio includes the following cabinets: RESP07/ MNS / IS2 from ABB, Rittal, ZPAS or any other on special request.

RFF Engineering activities

RFF provides wide range of engineering services within the substation automation segment for transmission and distribution applications. System design and detail engineering of the substation automation system and integrated bay level solutions represent the key engineering activities.

Bay Level Enngineering

Typical tasks of our bay level engineering group include base design and detail of the bay level solutions. Proposals of Protection Concept, Functional Block Diagrams and Interlocking Concept are followed by Hardware Engineering of the panels and Software IED engineering.

Detail design of the panels is usualy done by means of E3 software CAD tool. Following cubicles can be prepared by our bay level engineers:

- SAS cubicles and containers
- Bay Control Solutions - Conventional (LCC) and modern (IED based) cubicles
- Bay Protection Solutions for transmission and subtransmission applications
- Generator protection cubicles, inc. synchronizing
- RTU cubicles
- I/O cabinets, CPU cabinets
- DCS cabinets, Etc.

Our engineering team is also capable of doing IED (Intelligent Electronic Device) software engineering for following relays:

- Bay Control Solutions – REC 670, 650 and REF 6xx
- Bay Protection Solutions - REL, RET, RED 670, 650 family
- Busbar Protection Solutions – REB 500, REB 670, 650
- ABB Distribution Automation products (SPACOM, 610, 615, 620, 630, …)
- Generator protection REG REG670, 650, 630
- And other non-ABB relays as well.

Various engineering services, such as network studies, short circuit and protection relay setting calculations as well as consultancies and customer training programs are provided on request.

Substation Automation System (SAS) Engineering and Testing

SAS engineers are able to prepare complete Station Automation System concept starting from base design to system design. When focusing on detail design, they are able to specify hardware and software for system.

Competencies
From greenfield projects through retrofit to after-sale service

Within the area of software engineering our engineers are ready to provide:
- Database engineering (IET600, product tools, other LBU tools)
- HMI (Human-machine interface) engineering (MicroSCADA, RTU, COM600)
- Gateway engineering (MicroSCADA, RTU, COM600, COM581)
- Programming (MicroSCADA, RTU, …)

SAS engineers provide also a wide range of testing activities, such as:
- Hardware&software setup
- Communication setup
- Functional testing
- System integration testing

Last but not least the SAS engineers are also involved in on-site activities, mostly commissioning.

Testing Services on Panel Level
ABB RFF test field provides complete range of tests for all ABB control/protection systems and products.

RFF continuously invests in new testing technology/equipment to keep up with the current trends and provide for the highest error detection accuracy and performance monitoring and evaluation when testing your products.

The test field team consists of 14 highly flexible and experienced bay level engineers performing testing on customers‘ sites all around the world.

Experience and knowledge
- Local Control Cubicles (LCC)
- Protection cubicles
- IEDs (control and protection)
- ABB products: REx670, REx650, REx630, REx615, REF54x, REB500, REx316, SPAU, REX521,…
- Non ABB relays

Wiring check & high voltage test
The dielectric test is performed according to the requirements of the standard IEC 60255-5.

Default test voltage and duration, on demand:
- Test voltage: 3.1 kV DC (2 kV *√2*1,1)
- Duration of the test: 1 second

Optional test voltage and durations, on demand:
- Test voltage: 2.8 kV DC (2 kV *√2) for 1 minute
- Test voltage: 2.2 kV AC (2 kV * 1.1) for 1 second
  Test voltage : 2.0 kV AC (2 kV * 1.1) for 1 minute

Continuity of the protective bonding circuit
The continuity of the protective bonding circuit will only is carried out on cubicles and containers.
According to IEC 60950-1
Resistance of earthing conductors (paragraph 2.6.3.4) applies:
- Test current: 25 A AC
- Test voltage: 12 V AC
- Max Resistance: 0.1Ω
- Duration of the test: 2 minutes

Testing Services on System Level
SAS tests include the following:

- Start-up behavior
- System functions
- SAS main menu picture
- All window functions
- Advance control function
- Advanced monitoring functions and other.

Training Services
The RFF provides proficiency training for substation operators and other advanced training modules. We are able to provide any training from basic operation and maintenance training for Microscada to advanced Microscada training which replicates the requisite operator environment enabling trainee operators to master operations and decision-making under stress in a safe hands-on environment. Experienced instructors will share expert knowledge and deliver high quality course material. Our main trainers were awarded an ABB university certificate. The training can be provided in several languages (English, Russian, German, French, Czech and Slovak).

Achieving Excellence in ABB

RFF Attains Registration to Quality Standards

The ABB‘s RFF production facilitiy has been accredited for quality standards such as ISO. This provides a solid foundation for the division‘s quality efforts and demonstrates our commitment to providing our customers with excellence. ABB RFF received registration after thorough evaluations. We are committed to manage health, safety and environment as core business values to ensure compliance with all applicable government standards and regulations. We integrate health, safety and environment into all aspects of our businesses and consider them to be a competitive advantage in achieving profitable growth and accelerated productivity.

- ISO 9001 Quality Systems
- ISO 14001 Environment management
- OHSAS 18001 Health & Safety
- GOST-R 51321.1-2007
  Conformity with norms and standards of the Russian Federation

Being awarded the registration gives us and also you, our customers, the confidence in the quality of our services and products. Also, instead of viewing this registration as an end result, we see it as the beginning of our challenge to keep the momentum and go on improving our quality system that constitute the key factor in our commitment to help you compete sucessfully.

Major Projects
From greenfield projects through retrofit to after-sale service

Qatar Phase VII project

One of the strategic projects implemented by KAHRAMAA (Electricity & Water Corporation) to upgrade the capacity of KAHRAMAA network to meet the growing demand for electricity. The project includes expansion of primary and secondary high voltage substations, cables and overhead lines (OHL). The OHL part - the critical part of the project - includes construction of 2 lines 400 kV double circuits OHL for transmission of 800 MVA of power, establishment of OHL (66 kV), establishment of OHL (132 kV) and dismantling of the existing OHL.

ABB scope of supply:

- IEC61850 substation automation systems to provide protection and control for reliable local and remote monitoring and control of all three substations
- Expansion of existing SDH STM-4 & SDH STM-1 communication rings to new substations
- Redundant station servers in hot stand-by configuration for local operation and monitoring
- Redundant gateways for connection to remote control center
- More than 250 IEDs / substation integrated into the SA system
- Engineering, supply, construction, commissioning and hand over of all three substations

Ochakovo project

Ochakovo substation (500/220/110 kV) belongs to FGC (Federal Grid Company of Unified Energy System JSC). Customer required protection and substation automation system based on IEC 61850. The major benefits of the project include savings in secondary wiring through the use of GOOSE-based functionality (e.g. blockings, interlocking, etc.). Ochakovo is now the largest substation automation project world-wide using the 670 series terminals.

ABB scope of supply

- SA system with MicroSCADA Pro-based HMI
- Protection system based on IED 670 series (totally 306 cubicles)
- Emergency control and protection cubicles
- GOOSE for substation interlocking
- Redundant station servers
- Redundant gateways

Kenya Power project

Kenya Power is a limited liability company which transmits, distributes and retails electricity to customers throughout Kenya.
In this project there was need for total 174 control and protection panels for 17 substations.

- Full scope project (SAS engineering; C&P engineering; production; functional test; System test; FAT; Relay setting calculation; Customer training)
- Important project for RFF - Complexity of project, scope. 174 panels for 17 substations, partly retrofit and extension, several new substations
- modern IEC61850 based technology, user friendly IEDs, wide scope of services, lead time

ABB scope of supply:

- Control and Protection panels type RESP07
- IEC61850 communication protocol
- Protection realys from Relion production family

Contacts

ABB s.r.o.
Prumyslova 137
541 01 Trutnov, Czech Republic
Phone: + 420 499 808 111
Fax: + 420 499 808 501
email: rff.sales@cz.abb.com

www.abb.com/substationautomation
new.abb.com/cz/abbtrutnov