



Consulting  
& Services

Our comprehensive range of consulting and other services includes pre-studies and situation analysis, technical specifications and advice, feasibility studies, training, installation, commissioning, maintenance, repair and help line.

## We help enhance the value of your investment from start to finish

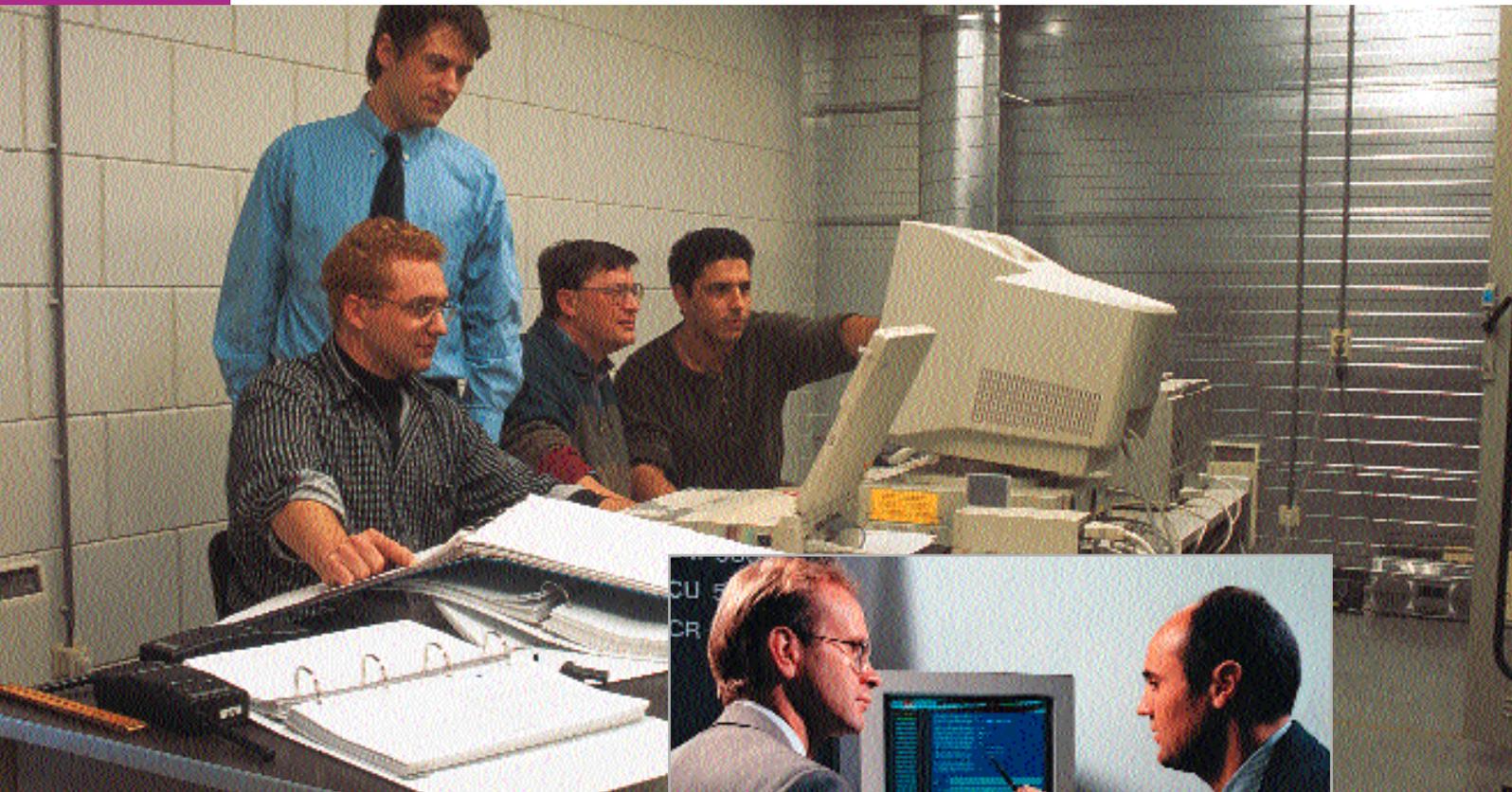
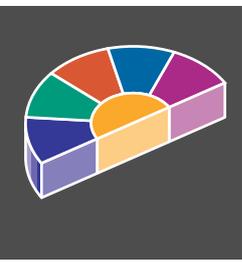


ABB Network Partner





## The total proposition

Panorama is the standard for a comprehensive range of integrated solutions for efficient and reliable management of power networks. Using innovative information technology, Panorama delivers total control of the power process, from generation to consumption. The Panorama standard covers six application areas, each offering specific solutions.



### Station Automation & Protection

Station Automation & Protection includes control, monitoring, and protection for power plant, transmission, and distribution applications. Solutions range from single function protection and control units to fully integrated, comprehensive, high-performance substation automation systems.



### Network Management

Network Management enhances operation of interconnected power networks. It provides integrated solutions that optimize energy supply while maximizing reliability on both transmission and distribution networks.



### Business Management

Business Management provides the tools and solutions to help energy companies grow profitably in today's changing market place. Systems for wholesale and retail energy supply and transportation provide the foundation for success in the competitive environment.



### Meter & Load Management

Meter and Load Management comprises electricity metering products and integrated systems for automatic meter reading, and load management.



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### Communications

Communications offers solutions for all communications requirements in the transmission and distribution networks of power utilities and industries.

# Protect your investment in partnership with Panorama Consulting and Services



ABB serves customers in power generation, transmission, distribution and numerous other areas. Electrical engineering expertise built up over one hundred years has enabled us to develop optimized systems, products, and services for the management, automation, control, and protection of power networks.

We have developed the Panorama standard to serve all players in both deregulated and regulated power markets. Panorama ensures all our systems, products and services within network management, automation, control, and protection can be fully integrated.

Panorama Consulting and Services has been created to complement our Panorama standard. Our consultancy services are designed to help you choose the right systems and products. And our post order services maximize the value of your investment.

## Knowledge-based consulting and services

In today's fiercely competitive power marketplace, you have to squeeze every ounce of value out of any investment. Which is why ABB is giving a whole new meaning to the word service. From initial consulting through the entire life time of your installation, we are at your service to protect your investment in partnership with you.

For instance, we offer pre-study consulting and analysis to evaluate your existing networks

and systems, and then recommend the best way forward. We perform technical appraisals and devise programs to support system specification and sizing, through to a feasibility study designed to ensure you only make a financial decision that is absolutely right for you.

Post order, our comprehensive support services include training, installation, commissioning, maintenance, repair, and a 24 hour help line. Decades of close cooperation with power companies, power distributors and manufacturing and processing industries, have given us an extensive understanding of the entire power process from generation to consumption. Our expertise ranges from modernizing existing plants to the design and delivery of completely new systems.

Panorama Consulting and Services has been devised and developed to offer you additional product and system quality, and the assurance of long-term support.

ABB offers consulting and other services such as feasibility studies, commissioning and help line support.

### Panorama Consulting and Services include:

- PRE-STUDIES AND SITUATION ANALYSIS
- TECHNICAL SPECIFICATION AND ADVICE
- FEASIBILITY STUDIES
- TRAINING
- INSTALLATION
- COMMISSIONING
- MAINTENANCE
- REPAIR
- HELP LINE

# Planning your future success together

Above all, an investment must make sound financial sense. And whether you operate in an open or regulated market environment, improving efficiency and operating excellence is important.

At ABB we have the skills and experience to evaluate every aspect, potential and benefit of an upgrade, retrofit or new installation. Our feasibility studies are designed to determine the best solution for you, whatever the market conditions you operate in.

Our pre-investment consultancy services include:

- Pre-studies and situation analysis
- Technical specification and advice
- Feasibility studies.

## **Pre-studies and situation analysis**

ABB situation analysis starts by identifying your exact needs, existing network configuration, plus the processes and systems currently in operation. We then carefully evaluate the various options available against these requirements. Based on this and factoring in price, delivery time and quality, we apply our global resources and expertise to determine the optimum solution for your specific commercial and environmental operating conditions.

Our engineers evaluate investments and strategies with current and potential customers to determine the best route forward. On-site appraisal of existing equipment is part of this process.



### **Technical specification and advice**

Supremely functional design allied to expert engineering is the key to efficient power network management. Our world-beating expertise and experience in complete system design will help you implement the best and most cost effective solution for you.

Whether a project is an upgrade, retrofit or a completely new installation, we will help determine exactly the right solution for you. We can perform a full network analysis by simulating different operating conditions. Then, depending on the results and your specific requirements, we propose the optimal technical solution.

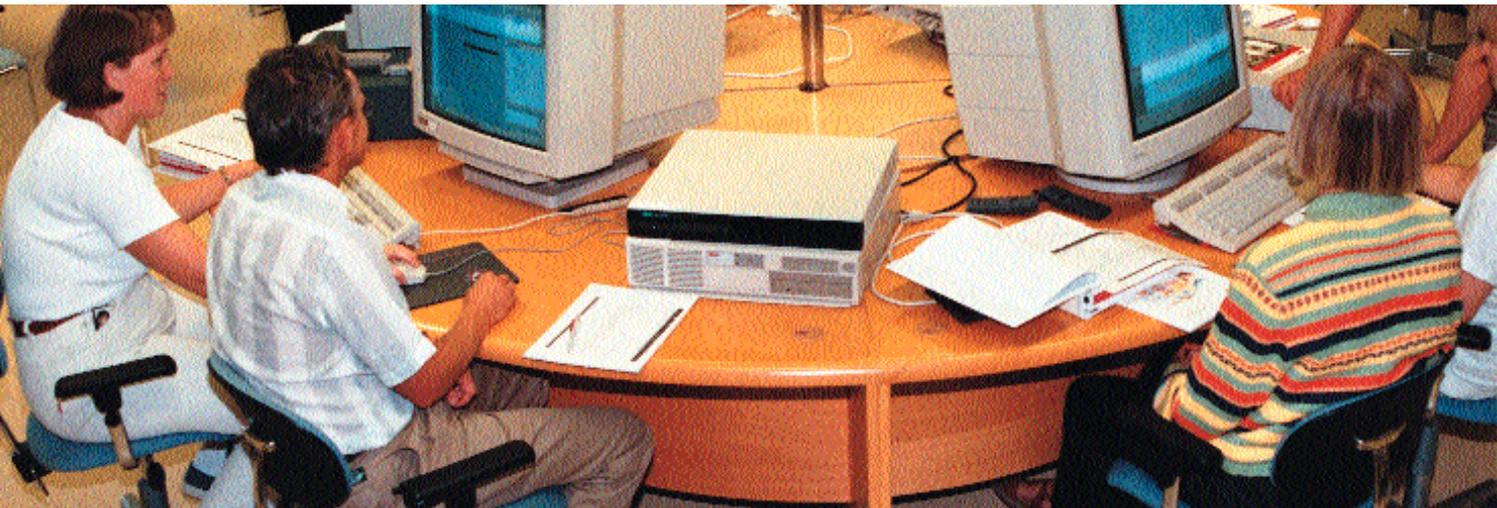
### **Feasibility studies**

Truly cost effective solutions must factor in both installation and life time operating costs. We perform commercial feasibility studies in close cooperation with our customers to ensure that every investment – whether a single application or an entire network – makes sound financial sense.

We also offer an extensive package of business consultancy services oriented to deregulated markets and designed to provide detailed recommendations on how to improve business efficiency.



# Sharing knowledge and know-how for greater success



Training courses are offered at our Customer Centers and Centers of Excellence throughout the world.

High quality training and instruction is integral to our partnership approach and the key to the successful use of different Panorama products and systems.

Increased product and systems expertise immediately makes optimal use of your investment more likely. Similarly, a better understanding of the power supply process radically increases reliability across the entire process.

All our instructors have extensive and wide ranging fieldwork experience which enables them to discuss different operational situations with you. Course participants will learn how to utilize and maintain the equipment, and how to operate the power process and its associated products in the most efficient manner.

Our courses are designed to mix theory with hands-on practice. Standard courses follow a set agenda for in-depth technical training. We also tailor courses to specific customer demands, for instance in connection with a particular project.

## **Basic courses**

Basic courses provide comprehensive general training in power system control, protection, communications, and management. Topics covered include the Panorama concept, protection and substation automation, modern power applications for network control, and modern

power system communications.

Aimed at a broad audience, basic courses have a fixed content and documentation, and are offered at regular intervals. Participants will gain extensive product and system knowledge.

## **Product courses**

Product courses are dedicated to specific equipment, software or systems in the Panorama range. They are designed for personnel directly involved with the product to enable them to manage daily operations with maximum efficiency at either product or system level. Hands-on training also teaches maintenance staff how to react quickly and appropriately when the unexpected occurs.

## **Project courses**

Project courses comprise a mix of basic and product courses geared to a specific project. If needed, they can be complemented by project specific analysis and engineering.

## **Special courses**

Project independent training can be arranged on request for any combination of Panorama systems and products. We can also cover power system calculations and hardware/software engineering.

# Full support throughout the life time of the installation



## Installation and commissioning

System commissioning for protection and control is essential to ensure correct functionality of the system and associated equipment.

To secure rapid and reliable commissioning of our equipment, we have dedicated resources for on-site installation. For customers with their own commissioning personnel, we offer on-site supervision and support.

## Maintenance

Our preventative maintenance programs range from single product repair to multi vendor contracts.

## Repair

The use of microprocessor technology in control and protection systems has significantly improved hardware reliability. Testing is made on-demand

for both primary high voltage and secondary equipment. However, in the event of any failure, we can deliver a replacement or perform a full repair at short notice.

Software support is tailored to the requirements of each individual user and includes our basic support package plus a mix of other services, such as disaster recovery, third party software support and enhancements.

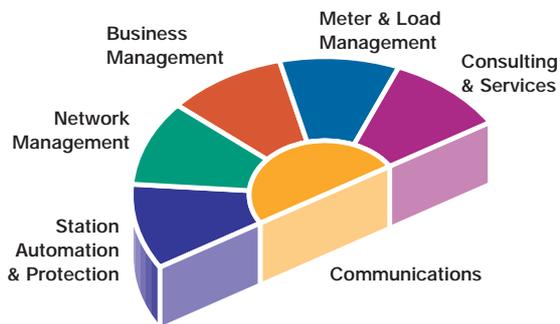


## Help line

For urgent support we have a full help line service at all our major Customer Centers. Our modern computerized network system guarantees round the clock access to our expertise wherever in the world you are.



Installation, commissioning, preventive maintenance, repair, help line... We offer every service you need to secure reliable operations!



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