

Solutions for Pipelines

Creating value through integrated solutions



ABB Solutions for Pipelines



Global

responsibility

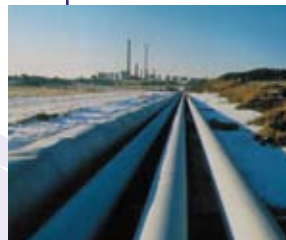
ABB is a truly global organization with global concerns. With a firm focus on Health, Safety, Security and Environment, we strive to provide the Oil & Gas industry with technology and services that have a positive effect on the world we live in.



MultiScope

risk management

ABB manages large liquid and gas pipeline projects with multiple scopes. We value that skill as a core competence. By combining our multiscope capability with project forecasting, planning and implementation, we reduce risk throughout the project and decrease the total installed cost.



LifeCycle

enhanced return on capital

ABB's services and products enhance your project from first concept to decommissioning. We operate locally while drawing support from ABB resources around the globe. A partnership with ABB provides world-class expertise and continuity. As the project develops from one phase to the next, we're able to capture lost profit opportunities to help improve return on capital.



Enabling Technologies

operational profitability

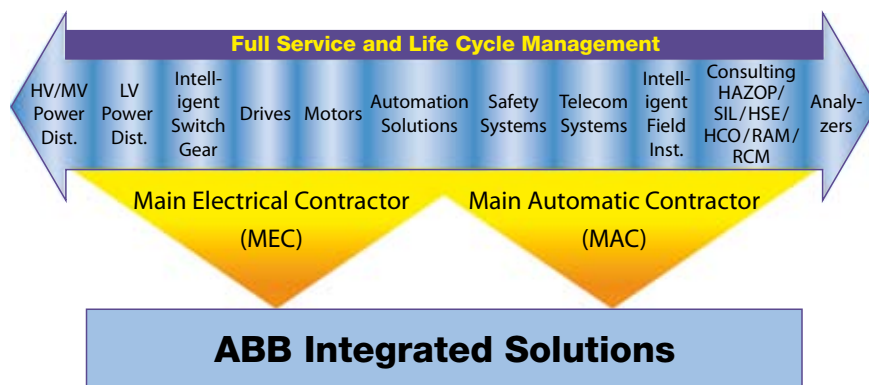
Our Industrial[™] Enabling Technologies provide fully integrated power, SCADA, automation, telecom and pipeline applications with open connectivity to business systems - a major contribution to safety, profitability and maximized resource utilization.



A Pioneering Spirit

Flawless project execution

ABB minimizes your risk by providing integrated products and solutions as the Main Automation Contractor (MAC) and the Main Electrical Contractor (MEC). Solutions for oil and gas pipeline automation include block valve stations, pump stations, tank farms in liquid applications and compressing, reducing and metering stations in gas applications.



Benefits using the ABB integrated approach:

- Risk Management - everything working right first time
- Schedule Improvement - engineering, commissioning and start-up time reduced
- Cost Reduction - lower engineering, start-up and maintenance costs
- Operational Efficiency - a reality that the total plant availability and throughput will maximize the plant's profit margin
- Best Use of Technology - truly integrated solution
- Designing It Right - providing best in class and fit for purpose solutions that "build-in" long term benefits
- Project Execution Excellence - a single integrated team with global reach and resources
- Life Cycle Management - from competency development to post commissioning support to full service



Pipeline MAC/MEC benefits

- 20% project cost saving potentials using MAC
- Reduced procurement, spare parts, training, installation and commissioning requirements
- Lower engineering costs – proven interfaces and standard libraries
- Reduced expediting and inspection - single source supplier

“ABB provided the efficient way to execute and complete our refined products pipeline SCADA project.”

Liu Weiguo
Operations Manager
SINOPEC



Our solutions for pipelines are more valuable than the sum of our products



As the world's leading supplier to the oil and gas transportation and distribution industries, ABB can provide you with equipment, automation systems, software and services to run your operation productively and profitably. You've thought of us as a measurement company, a controls company and an automation company. We're all of those things. And all of those things combined are Information Technology, or IT. We focus IT on the core processes in your industry, blending the needs of the IT world with the needs of Industrial Automation. That's ABB Industrial IT.

A key feature of ABB Industrial IT is ABB Aspect Objects™, which integrates information from a variety of applications and makes it available in real-time to any authorized users regardless of their location. Pipeline data and pipeline components are presented as configurable software objects. Each object carries a range of related information, such as electrical and mechanical capabilities, intellectual properties and identity information that makes the object instantly recognizable to enterprise-wide information networks. With Aspect Objects, pipeline information is deployed rapidly and uniformly, so personnel throughout your enterprise view your business through the same real-time "window." Better information means faster and better decision-making and more control over assets.

ABB offers total solutions for transportation and distribution to manage the movement of hydrocarbons through pipelines, tankers and terminals; eliminate losses; and meet strict government regulations. From the stations to the control room, and on to the boardroom, ABB provides your business a competitive edge, with unsurpassed enterprise connectivity and information access.

ABB's engineering services range from providing electrical equipment, automation equipment and/or instrumentation to delivering sophisticated pipeline management systems. A typical project scope of services includes:

- Project management
- Procurement and logistics
- Site survey and analysis of existing facilities
- Installation and commissioning
- Work statement
- Startup assistance and training
- Basic and detailed design
- Service and maintenance
- Hardware and software engineering

Much of the lifetime return on your investment is determined from the moment you break ground on a new project. ABB can help by providing services, consultation and training as an integral part of the project throughout its life-cycle, including planning, design, production and startup. ABB's support doesn't end with commissioning, however, online and onsite support is also part of our program.



SCADA Systems

are a core competence of ABB

Supervisory Control And Data Acquisition (SCADA) systems improve the use of pipeline facilities. The result is faster turnaround with increased functionality

Products are moved from the point of production to the point of consumption in the shortest possible time and at the lowest possible cost. Industrial IT solutions from ABB are designed to fulfill this objective while keeping overhead as low as possible.

ABB industry-specific solutions offer scalability and openness, from single-node installations to multi-layered systems. Moreover, the solutions are implemented upon an object-oriented system based on true relational principles and with redundancy (hot-standby). Security is offered through a highly configurable authority system. Open communication with system components is available through standards such as ODBC, OPC and OLEDB. These state-of-the-art features are offered along with sophisticated front-end communications with redundant configurations and automatic switchover in case of signal loss with remote devices. System features include:

- Open architecture
- Redundancy
- Real-time object-oriented relational database (SQL compliant)
- Time synchronization
- Real-time calculation engine
- Pipeline object library
- Integrated historian server
- Integrated pipeline model
- State-of-the-art-process graphics
- Web browser
- Scalability from single-node installations to multi-layered systems
- Peer-to-peer replication for main and backup centers
- Hierarchical replication for multi-layered systems
- Intuitive configuration tools, available across system and application boundaries

ABB's SCADA Vantage™ solutions seamlessly link your business and trading systems in real time, creating a single source for operational, engineering and business information. With this approach, you can coordinate and optimize your operations, and integrate them with the rest of your business... a true competitive advantage.



Benefits

- Simplified user interaction
- Integrated automation, SCADA and telecom user environment
- Enhanced SCADA functionality
- Support for OPC and a wide variety industry-standard communication protocols over a wide range of media
- Simple integration with station automation solutions
- Highly integrated, fast information access and navigation

“ABB has supported us with SCADA technology for the last ten years, making a continuous expansion and upgrade of the system possible.”

Javier Pellón
Technical Manager
ENAGAS



Project Profile: West Africa Gas Pipeline

Project Phase



Operations Phase



Tail-end Phase



The West Africa Gas Pipeline (WAGP) will traverse 620 miles (1,033 kilometers) both on and offshore from Nigeria's Niger Delta region to its final planned terminus in Ghana. The World Bank estimates that Benin, Togo and Ghana can save nearly \$500 million in energy costs over a 20-year period as WAGP-supplied gas is substituted for more expensive fuels in power generation.

A study, commissioned by Chevron, estimates that 10,000 to 20,000 primary sector jobs will be created in the region by WAGP. New power supplies, fueled by gas from the project, will stimulate the growth of new industry.

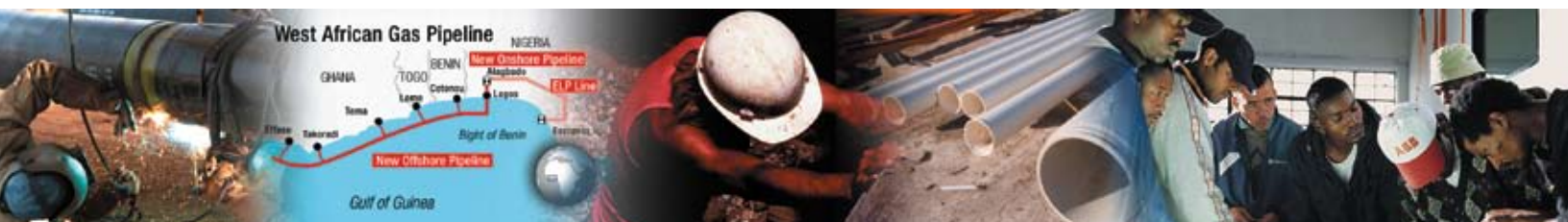
ABB provides an integrated WAGP project approach with a scope including:

- Process Control Systems (800xA)
- SCADA Vantage™ System
- VoIP Telephone Service
- Satellite Communication
- Safety Systems (800M HI controllers)
- Fire and Gas Systems
- Human System Interfaces
- Electrical Components (including switchgear, transformers, and MCC)

It was a matter of whether to ship the components or to deliver integrated results. After further study it was decided that delivering integrated results to the project would save the customer both time and money.

ABB was selected for our scope of supply and the ability to reduce overall project risk, construction schedule and cost, by modularizing, installing and testing the systems before shipping them to Africa. This turnkey solution minimized risk because the units were fully integrated and assembled prior to shipment and lack of qualified technical oil and gas resources for testing and integration on site was no longer an issue.

ABB meets the customer's needs, drawing on our global operations and expertise.



A Full Range of Solutions from control room to field installation

Remote Terminal Units family includes smart RTUs, which combine a high performance RTU with a library of field-proven algorithms (for example, flow computer applications, multi-tube flow compensation calculations and compressibility calculations) in one controller.

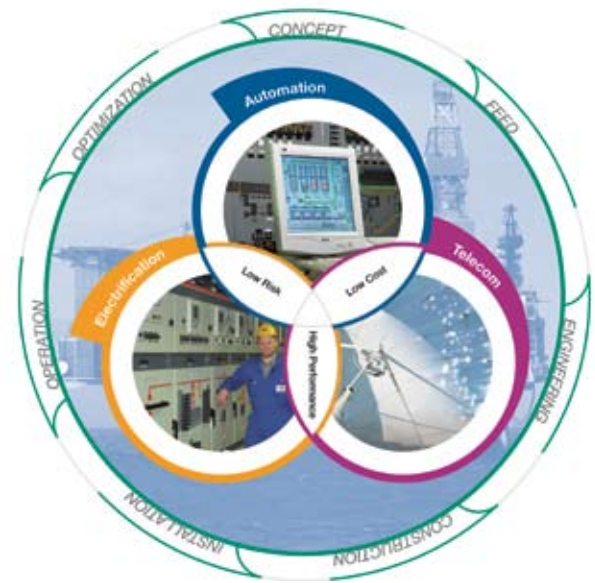
Instrumentation and Fieldbus Solutions ABB combines world-class products with unparalleled application expertise and industry knowledge. The current generation of ABB fieldbus-capable devices and systems provide true inter-operability, allowing you the freedom to select the most appropriate devices and fieldbus for your application. Our instrumentation product range includes transmitters, recorders, indicators, flow meters, analyzers, and valves. Our fieldbus offerings guarantee safe, secure and reliable operations through their unique built-in redundancy.

Analytical Instruments ABB also helps you maintain correct quality control. Our products include sampling systems and analyzers to measure pH, density, conductivity and turbidity; gas chromatographs; mass spectrometers; FTIR spectrometers; photometers (IR and UV); and physical property analyzers.

Drives and Motors ABB is the pioneer in digital AC and DC motor speed control for transportation and distribution industries. ABB's dependable single-drive and multi-drive systems provide a simple and clear solution for fluctuating flow rates.

Telecommunication Solutions ABB's solutions are based on the leading industrial telecom technologies and allow for simple, reliable and secure operation throughout your facility's lifetime. These systems can adapt to your changing needs, protecting your investments. ABB designs each telecom system for integration with other telecom, SCADA and automation systems.

Power Technology ABB is the world's leading supplier of power technology products. ABB delivers solutions, systems and equipment to efficiently transmit, distribute and control electricity. We combine an extensive line of hardware with expertise in network management, control, protection and monitoring, and with consulting and diagnostic capabilities. Our solutions include High, Medium and Low Voltage technologies, power transformers and distribution transformers.



Asset Information operational gains

- Centralized management and low cost maintenance
- Increased safety and environmental control
- Reduced cost of ownership
- More reliable production and more efficient operation

“ We’ve chosen ABB because they offer state-of-the-art technical solutions at competitive prices within short delivery times.”

Liu Xiang Dong,
PetroChina Project Manager





For further information please contact
your local ABB office, or visit us at:
www.abb.com/oilandgas

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