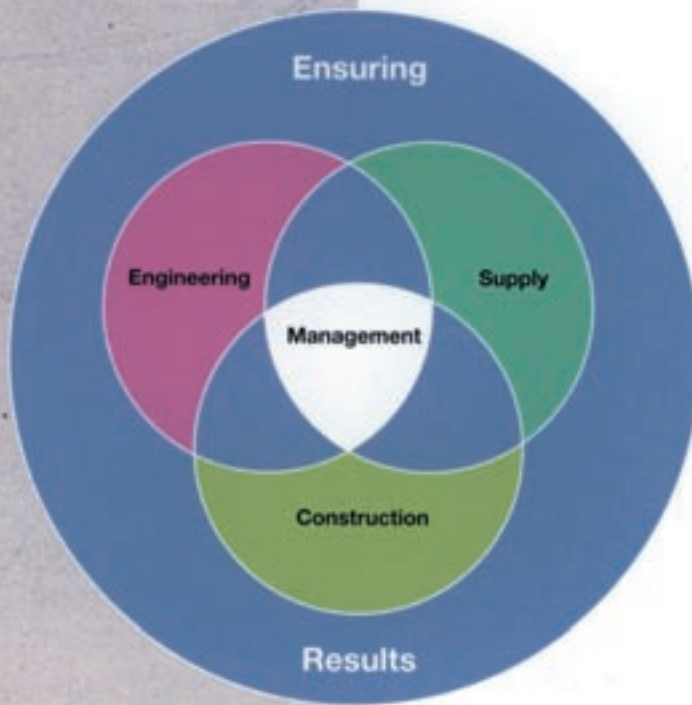
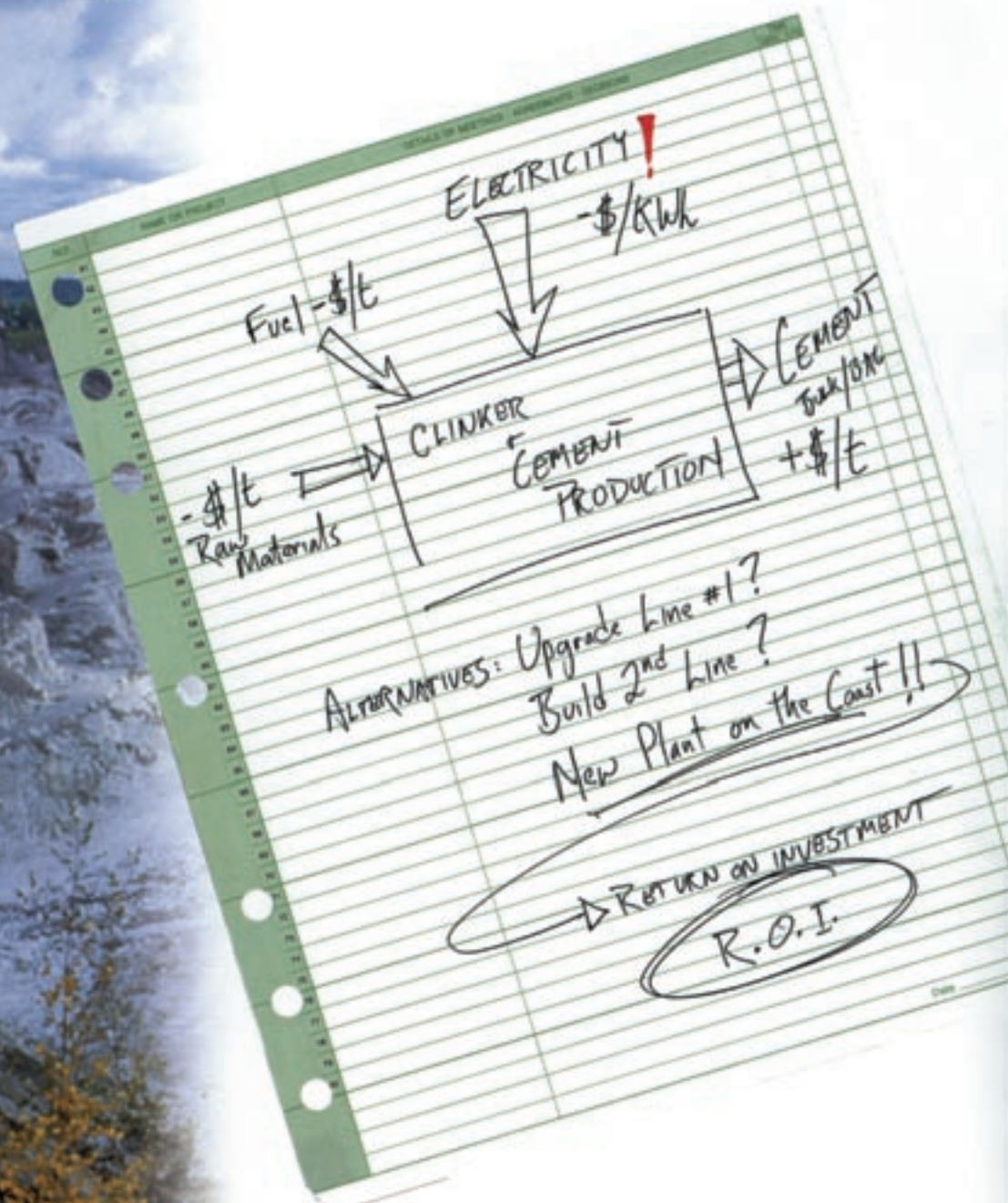


Ensuring Results in Cement Manufacturing



ABB

How does ABB ensure results?



We've learned to ensure the return on your cement investment through constant attention to your **time**, your **money** and **compliance** with your project needs.

With experience and responsibility.

Whether you're building a greenfield plant, extending an existing line, or modernizing your whole plant, decisions about everything from raw materials and energy consumption to the final product play a key role in ensuring the security, and profitability, of your investment—and *energy, automation and information management can make or break your investment.*

More and more owners, producers, suppliers, consultants and their engineers are recognizing the value of a single responsible source to oversee these critical issues.

Regardless of how you decide to obtain this single responsible source, your investment can only be safeguarded through an integrated approach to engineering, supply, construction and management (ESCM).



The payoff: profitable cement operations.

Few companies can deliver the complete, quality product portfolio for your electrical and control needs. Fewer still can combine this portfolio with qualified project teams who are intimate with your processes and can install the best equipment in a tailored and optimal fashion. This not only safeguards, but maximizes, the return on your investment.

ABB is qualified. Along with our product portfolio and ESCM approach, we bring with us a financially secure, long-term global commitment and the services that ensure your start-up results are met, maintained and exceeded for the life of your plant.

*ABB is there for the long run,
after others are gone.*

Leading producers look to integrated ESCM...

Siam Cement Public Co. Ltd.



Siam Cement has partnered with ABB at its Thung Song plant, located in Thailand's Nakhonsrithammarat Province. ABB has been subcontracted to deliver the electrical equipment for the Number 5 production line, which produces 5,500 metric tons of clinker per day. On the new Number 6 line, which will produce 7,500 tons of clinker per day, ABB is supplying the complete electrification package as general contractor.

"We are partnering with ABB because of their in-depth experience in cement and world-class, local support. They have a broad spectrum of high-quality and reliable equipment that is backed by a team of technical service experts."

Mr. Tawee Butsunton
Executive Vice President
Cement and Trading
Siam Cement Group

"Communicating directly with ABB for a complete electrical and optimization solution means faster response, shorter cycle times and higher performance-to-price value."

Modern cement facilities like the Thung Song plant require an increasingly complex matrix of electrical control technologies to efficiently and effectively operate. Siam Cement is turning to ABB's complete plant capability, in-depth process expertise, and local support services to power its continued growth. For instance, an ABB Advant Cement System with over 13,000 I/O will provide complete process control and information management for the Number 6 line. ABB's Cement Information Management Solutions (CIMS) will link production, quality and maintenance data on the new line.

Siam Cement is one of the largest cement producers in the world with a total annual production of over 20 million tons. The \$5 billion Siam Cement Group is focused on the cement industry, which represents over 30% of its total volume. Siam Cement produces cement and ready-mix concrete as well as aggregate and sand used in ready-mix products. Siam Cement meets over 40% of the total domestic demand for cement and related products. Four of its five cement production plants have already received ISO 9002 certification.

for results in cement manufacturing.

Rüdersdorfer Zement GmbH



Mr. Peter Kehl
Managing Director
Rüdersdorfer
Cement Works

"ABB was able to supply the latest technologies, assist our management with the cultural transition that accompanied competitive goals, and work in real partnership to fully realize the potential of our new plant."

"My challenge was to modernize and automate so that Rüdersdorfer would achieve full competitive advantage by the time competitors in the Eastern part of Germany with labor cost advantages were forced to modernize."

Today, Rüdersdorfer Zement has the capacity to produce 7,000 metric tons per day of clinker. The plant's modernization project has required the complete replacement of outdated, up to 30-year-old technology from existing production lines. In the same period, the new 5,000 tons-per-day Number 5 line has been built and put into production.

Rüdersdorfer Zement, located in Rüdersdorf near Berlin (formerly in the GDR), is the leading producer of ready-mix cement in Germany, and among the largest in Europe. Under state ownership since its founding, the company was acquired in 1990 by ReadyMix Group.

The Rüdersdorfer Zement electrical department developed the concept jointly with ABB. Beginning in 1991, departments were totally renewed electro-technically. ABB's comprehensive ESCM approach facilitated a transformation from outdated conventional electrical technology to integrated electrical, process control, operating and information management solutions.

The plant now has over 2,000 drives supporting three clinker production lines, four raw mills, two coal mills, five cement mills and 20 cement silos. The ABB Advant Cement System has over 30,000 I/O and features an extensive CIMS installation integrating information plant-wide.

As a key partner in the modernization program, ABB has helped move Rüdersdorfer Zement from the inefficiencies of an outdated plant to its current status as a leading, state-of-the-art profitable cement supplier.



Engineering

Excellence in cement plant engineering depends on in-depth experience. ABB uses a functionally integrated team approach to produce professional engineering documentation, designing the electrical interfaces with the client's appointed consultants, engineers, and mechanical and civil partners.

Engineering design concepts are established early for guidance and conformance during project execution. This integrated engineering delivers maximum concept standardization with re-use design for multinational, multilingual detailed design teams.

Engineered standardization also generates benefits in terms of spare parts inventories, simplified staff training and reduced maintenance expenditures. ABB's engineering processes integrate your staff and other contractors into the design and engineering teams.

The result is not only an efficient, low-cost start-up and commissioning, but the foundation for optimum maintenance and support once production is underway.



Supply

As a leading global manufacturer of industrial electrical equipment, we have an intimate, working knowledge of the technologies that make up your plant. The result is a level of end-to-end plant connectivity and efficiency that can only come from designing the equipment we install. ABB is your single, responsible source for your plant engineering *and* hardware needs.

The logistical challenges you face in coordinating local and international procurement are immense, as equipment and services markets for the cement industry globalize. ABB's vast experience in international procurement means that your equipment is properly specified and obtained from a global vendor list.

We're able to act on your behalf in conformance with the highest international standards—from negotiating your terms and conditions for delivery and performance, to insurance, packaging and forwarding. And we solve the challenges of bridging finance, bonds, and investor guarantees which are critical on complete plant projects that have delivery periods measured in years.

**Power Distribution
Drives Applications
Automation Applications
Equipment Installation**



LV Switchgear
MV - HV Switchgear
Power Factor Compensation & Filtering
Power System Analysis
Emergency Power Plant
Large Fan Systems
Gearless Mill Drives
Fixed & Variable Speed Drives
Control Systems (Open and Distributed)
Instrumentation
Process Optimization
Management Information Systems
Laboratory Systems
Cable Systems
Heating, Ventilation & Air Conditioning
Civil & Mechanical Interfacing
Fire Detection & Protection
Lighting & Small Power
Communications Systems



ABB
**Experience
and
Responsibility**

**Manufacturing & Supply
Quality Assurance
Buying
Shipping
Bridging Finance**

Expediting
Inspection & Shop Tests
Supply Management
Packing
Insurance
Certification



Site Administration

Safety

Skilled & Unskilled Labor

Plant & Machinery / Tools

Supervision

Scheduling

Documentation Control

Functional Tests

Special Tests

Performance Tests

Production Commissioning

Start-up & Acceptance

Process Tuning & Optimization



Site Management

Erection

Supervision

Commissioning & Start-up



Time

Money

Compliance

Customer Liaison

Quality

Quantity

Performance

Scheduling

Forecasting

Recovery

Resource Management

Budgeting

Cost Control



Construction

Prior to delivery, ABB is establishing the site organization. Short, effective and standardized procedures are planned for site supervision. Stores are organized for incoming goods. Insurance, safety and transport matters are settled before they become issues.

Erection with skilled and unskilled labor places high demands on ABB site staff, who are well-qualified to bring solutions in the most demanding situations.

With electrical equipment in place, ABB progressively energizes systems in unison with mechanical and client site staff. As-built documentation is smoothly integrated through to hand-over, optimization and routine maintenance.

Maintenance and operating staff are trained on ABB's latest technology, empowering them to operate, service and optimize with confidence and total competence. Support procedures are put into place, and hotlines to leading-edge expertise are arranged.



Management

ABB focuses on helping our clients effectively manage their projects in terms of contract compliance, time and money. From start to finish, ABB applies modern, process-oriented methodologies. The smooth transition from one project phase to the next is assured by your ABB project manager's attention to the communication and documentation requirements of everyone involved.

The phase-to-phase interdependence that is a given in any project is controlled by a project management team which ensures that engineering documents flow methodically through the procurement phase into construction, commissioning and operations.

At each stage, we manage risks, responsibility and warranty requirements in strict accordance with our clients' and partners' safety and quality demands. ABB's project oversight enables early recognition of potential issues and substantially mitigates the risks you face. It is the foundation for your targeted return on investment.



Cement leaders recognize...



ABB specializes in bringing process-based, large project expertise when building integrated electrical, automation and information management solutions.

ABB's comprehensive ESCM approach ensures start-up results by combining internationally supported resources with single-source responsibility.

Operating results grow year by year when electrical installations with standardized engineering concepts are harmonized with operating procedures.

ABB's commitment to ongoing support with regular investments in new, open technologies builds security for the future.

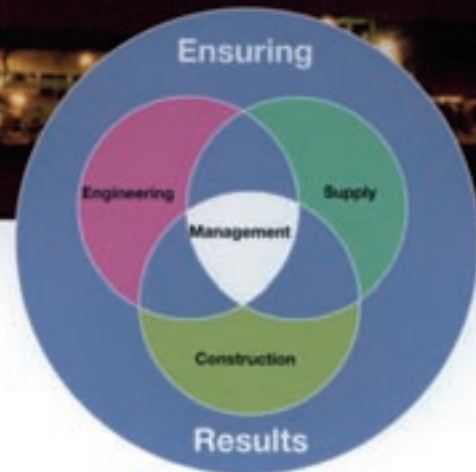
ABB masters the critical elements of ESCM integration with a team of experienced cement industry engineers.

Responsible team leaders have the product, process and services knowledge developed from hundreds of successful installations.

ABB's project teams tailor an effective electrification package with integrated engineering, supply, construction and management activities.

Interdisciplinary client-supplier teams learn to unleash the real power of ESCM integration working hand-in-hand toward start-up results.

the power of integrated ESCM.



Open future gates with integrated electrical solutions.

Include ABB in your interdisciplinary investment teams.

Let ABB take responsibility and deliver results.

*ABB ensures results in cement manufacturing through constant attention to **time**, **money** and **compliance** with the world-leading ESCM approach.*

ESCM Equals Excellence

The ABB team is committed to the success of your cement investments. Our expert engineering, supply, construction and management (ESCM) services, and our in-depth experience of the production process, ensure results.

As a world leader, we accept our responsibility to deliver the best deal within the client's time, money and compliance restraints.

We seek to involve the client in the ESCM assurance process. ABB is continually alert for opportunities to improve the client's solution and return on investment.



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Power System Analysis
Emergency Power Plant
Large Fan Systems
Geared MG Drives
Fixed & Variable Speed Drives
Control Systems (Open and Distributed)
Instrumentation
Process Optimization
Management Information Systems
Laboratory Systems
Cable Systems
Heating, Ventilation & Air Conditioning
Civil & Mechanical Interfacing
Fire Detection & Protection
Lighting & Small Power
Communications Systems



ABB
Experience
and
Responsibility



Exporting
Inspector & Shop Tools
Safety Management
Packing
Insurance
Certification



Manufacturing & Supply Quality Assurance Buying Shipping Bridging Finance

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Site Management Erection Supervision Commissioning & Start-up



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