



Network Manager MMS Comprehensive State-of-the-art Solutions for Electricity Markets

Power and productivity
for a better world™



Comprehensive State-of-the-art Solutions for Electricity Markets



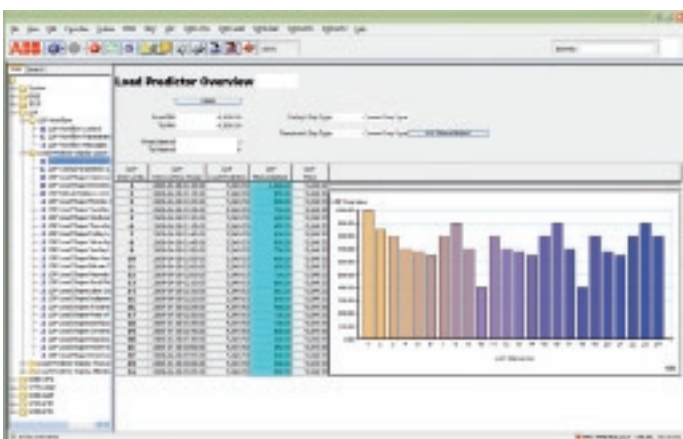
Successfully deployed and reliably supporting operations at major markets around the world including the largest economic regions in North America and Asia as well as key markets in Europe and Australia.

What is Network Manager MMS?

Network Manager MMS is a complete Market Management System for modern electricity markets. It includes a set of advanced applications and a modern IT infrastructure that supports all market related functions performed by Market/System operators including Independent System Operators (ISO), Regional Transmission Operators (RTO), and Transmission System Operators (TSO). Network Manager MMS is part of the Network Manager™ family of systems for SCADA, EMS, GMS, DMS, and MMS.

Network Manager MMS offerings cover:

- market clearing and congestion management for nodal and zonal markets:
 - Forward markets (day-ahead, hour-ahead, etc.)
 - Real-time markets
 - Balancing markets
- advanced applications:
 - Security Constrained Unit Commitment - providing both MIP and LR methodologies
 - Security Constrained Economic Dispatch
 - Smart Grid features (demand response, renewables, etc)
- market trading infrastructure:
 - wholesale trading
 - energy
 - ancillary services
 - transmission rights
 - capacity
 - participant registration systems
 - market rule administration
 - real-time publishing
 - instant messaging
- support for ETSO (now ENTSO-E) protocols and systems
- market surveillance
- meter data acquisition
- commercial reconciliation (settlements, prudential risk, accounting, billing)



Stability through Adaptation

Network Manager MMS provides the advantage of the flexibility and scalability required by market/system operators around the world. The system is built on open architecture and industry standards.

The Network Manager MMS easily adapts to changing market rules and business practices without extensive rework and without costly system downtime. The system runs on various configurations of hardware and operating systems and utilizes established third-party products. This flexibility offers our customers the lowest total cost of ownership.

ABB Network Manager MMS is built on a modern open, e-business architecture to provide maximum:

- flexibility
- scalability
- availability
- resilience
- performance
- stability
- security
- maintainability

It includes a secure Web-engineered operator interface that provides a rich set of user-friendly capabilities for both dynamic visualization of information and operator interaction. The system has a modular design that meets all modern architectural alignment requirements using standard interfaces and XML-formatted messaging with message-oriented middleware. This provides integration flexibility including SOA-based approaches through the use of proven industry standards like web services, JMS messaging and XML technologies. The system runs on an Oracle database.

Network Manager MMS is available fully integrated with ABB Network Manager SCADA/EMS and with a settlement/financial package. Alternatively, the system can be integrated with any other supplier's SCADA/EMS and/or settlement/financial package. Various configurations are already operational at many customer sites. This flexibility allows our customers to draw on ABB's state-of-the-art technology while building a complete solution that fits their unique needs without leaving any functionality behind. Examples of systems with which ABB Network Manager MMS has been interfaced include:

SCADA/EMS: ABB, AREVA, GE-Harris, and Siemens.

Metering: Itron, Navita, Samsung, and others.

Settlement: Oracle Lodestar, Navita, Cap Gemini, Ernst & Young, in-house systems.

ERP: Oracle Financials, SAP, Microsoft, Lawson.

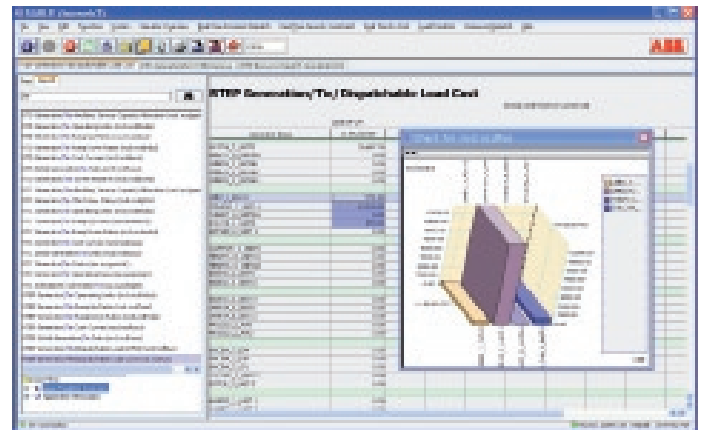
Advanced Functionality, Proven Technologies

The Network Manager MMS includes support for the highly advanced applications required to operate an energy market.

These applications represent the cutting edge in energy IT systems and include the following:

- Security Constrained Unit Commitment for Forward Markets
- Security Constrained Economy Dispatch for Real-Time Markets
- Automated Mitigation Process
- Web-based Interfaces and web services for Market Participants
- Locational Marginal Pricing (LMP)
- Support for transmission rights management (FTRs/CRRs).

These applications are developed by drawing on ABB's vast experience in field-proven solutions and state-of-the-art technologies, and have been put into practice in functioning energy markets around the world.



In many cases, ABB has had the challenge of developing IT solutions where none had previously existed. This spirit of innovation has produced a number of firsts in the industry. For example, the system implemented at New York Independent System Operator (NYISO) was the first to simultaneously optimize energy and ancillary services in calculating market clearing prices. This capability was subsequently included in FERC's initial Standard Market Design specifications, and the later Wholesale Power Market Platform.

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