How do electric utilities manage energy?

PowerLogic® ION EEM enterprise energy management software

For electric utility applications
Advanced wide-area analytics for isolating risks to reliability and driving cost reduction strategies.

Make the most of Your Energy℠
Manage the risks to reliability across your entire network

PowerLogic® ION EEM software exceeds the traditional boundaries of power operations software by helping you perform wide-area analysis of events and conditions. Key performance indicators and advanced analytics help you manage risks and efficiencies by gaining unique insight into the impacts of power quality on your business and all energy assets. Stakeholders from management to operations will be empowered by actionable energy intelligence to reveal opportunities, isolate problems and drive cost and risk reduction strategies.

PowerLogic® ION EEM software is a unifying application that complements and extends the benefits of existing energy-related data resources. These can include power monitoring and control systems, metering systems, substation automation and SCADA systems, EMS and other enterprise business applications. Data is automatically acquired, cleansed and warehoused. Personalized, browser-based dashboards and innovative visualization tools help you accurately monitor, validate and ultimately control the reliability and continuity of your grid.

Conceptual view
Typical applications

- Improve T&D network reliability
- Maximise the use of existing infrastructure
- Verify compliance with new power quality standards
- Analyze and isolate the source of power quality problems
- Help customers manage reliability using operational and power quality data

Key features

- True enterprise-level software architecture: data quality assurance, data warehouse, web framework
- Web Portal: personalized dashboards, key performance indicators, charts, trends, real-time conditions
- Reporting Engine: rich and customized content, support for complex data and graphics, scheduled distribution
- Trend Analysis: advanced visualization, dimensional analysis, prediction, statistical roll-ups
- Power Quality Analysis: wide-area event monitoring, classification, filtering, correlation
- Integration: import measurement and status data from enterprise system databases for remote metering, SCADA, DCS, EMS
Enterprise software platform

- **Data presentation tier**
  - Web portal delivers enterprise-wide access through personalized dashboards, reports, detailed analytics, and integration of web-based content.

- **Business applications tier**
  - Tailors functionality to specific needs with a choice of included and optional modules: reporting, trend analysis, power quality, integration.
  - Advanced analytics and reporting on every driver and relationship affecting reliability and efficiency.

- **Data management tier**
  - Seamless integration of data from a wide range of sources:
    - metering and monitoring systems (PowerLogic, ION or third party)
    - manual data input or handheld devices
    - energy assets (power generation, transmission, distribution and reliability equipment)
    - line-of-business systems (SCADA, EMS, EAM)
  - Data quality module assures complete and reliable data from all inputs.
  - Data warehouse based on Microsoft SQL Server, efficient data management tools, interoperable with other enterprise systems.
Data Quality module

- Uses utility standards to automatically validate all data inputs: meters, databases, manual entry.
- Validates data in batches at specified intervals, identifies many types of data quality problems (gaps, nulls, time jitter, duplicates) and sends notification when limits are exceeded.
- Compensates for problems using a streamlined workflow of automated or manual techniques, providing an audit trail of changes and configurable data quality reports.

Web Portal

- User/group security model manages access by employees, customers, or partners inside or outside a corporate firewall.
- Personalized dashboards deliver quick, browser-based access to key performance indicators, supporting data, and analysis.
- Displays disparate information in a variety of formats: numeric, historical trends, charts, tables, reports, grid or substation views, external web pages, and more.
- “Drill-down” analysis to reveal increasing levels of detail.
- Integrates real-time content (e.g., measurements, status and alarm indicators) from PowerLogic® ION Enterprise® software, or third-party web-based automation systems for monitoring and management of substation equipment, distributed generation, and more.
Reporting Engine

- Rich energy and power quality report generation capabilities with multiple pages and composite charts, tables, logos, images, hyperlinks or data from other systems.
- Zoom, search and export tools.
- Schedule-driven delivery via email or HTML format with notification.
- Our services team can assist you with custom report development.

Trend Analysis module

- Applies powerful business intelligence concepts to energy or power quality analysis through easy-to-use setup and visualization tools.
- Aggregates data from different sources and organizes it into multiple hierarchical views to support each department's needs: power quality, operations, load studies, etc.
- Reveals complex relationships between different influences: energy, demand, voltage, current, power factor, temperature, power quality, equipment conditions, and more.
- Displays historical trends in different time dimensions: days of the week, seasons, time-of-use period, and more.
- Uses custom color coding and overlays to clearly highlight: data series, time ranges, thresholds and limits.
- Reduces time series data to statistical rollups of information.

Integration modules [optional]

- Integrate data from any source, including Web services, third-party databases, Microsoft Excel files, etc.
- Integrate with other power quality files or systems through standard formats and protocols: PQDif, Comtrade, ION.
- Acquire data from remote devices using MeterM@il™ e-mail communications, working within firewall restrictions.
- Export data to other enterprise business or automation systems.
- All custom integration is implemented through our services group.

Produce aggregate power quality, load profile or forecasting reports to help inform stakeholders and track results against goals.

Plot different parameters against multiple axes to reveal historical trends, losses, inefficiencies or potentially dangerous conditions.
Use wide-area power quality mapping and monitoring to track the propagation of disturbances, evaluate risk factors, benchmark performance, determine impacts on customers and equipment, and validate contract compliance.

Power Quality Analysis module

- Power quality and reliability analysis helps quickly identify and isolate problems and correlate events with their sources across an entire service area.
- Detailed analysis of steady state RMS voltages, current, power, frequency, imbalance, harmonic distortion, sags/swells, transients, phasor diagrams, and symmetrical components.
- Categorizes events, reports on compliance with international standards (e.g. SARFI, EN50160, IEEE 1159) and trends performance over time.
- Plots events against industry-standard or custom tolerance curves (ITI, CBEMA, SEMI-F47), geographically maps events indicating their age or severity, and lists events in tabular form.
- Innovative dimensional tools help reduce data and correlate multiple events with a root cause:
  - Summarize events within a time range or other dimension to produce a single representative event, and then click on a selected summary event to reveal the list of supporting events.
  - Visually delineate events using combinations of symbols and colors to indicate phase, type, age (most recent = darker) or other dimension.
  - Classify events by different attributes, add a custom annotation (e.g. "capacitor bank switch"), and then filter on that classification.
- Graphic waveform analysis with zooming, stacking, RMS overlays, and phasor diagrams.

Use advanced power quality analytics to categorize disturbances, quickly isolate problem sources, and confirm return-on-investment for system improvements.

Study voltage or current waveforms associated with one or more events, analyze and compare time-aligned plots to reveal key characteristics and potential causes.
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**Engineering services**

Our services team can help you with system selection, project management, integration, custom reporting, documentation, and training to meet your organization's unique needs.

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