

Use one dashboard to drive your energy awareness and business objectives

PowerLogic® ION EEM
enterprise energy management software

For electric industry, buildings and infrastructure applications



Make the most of Your EnergySM



by Schneider Electric

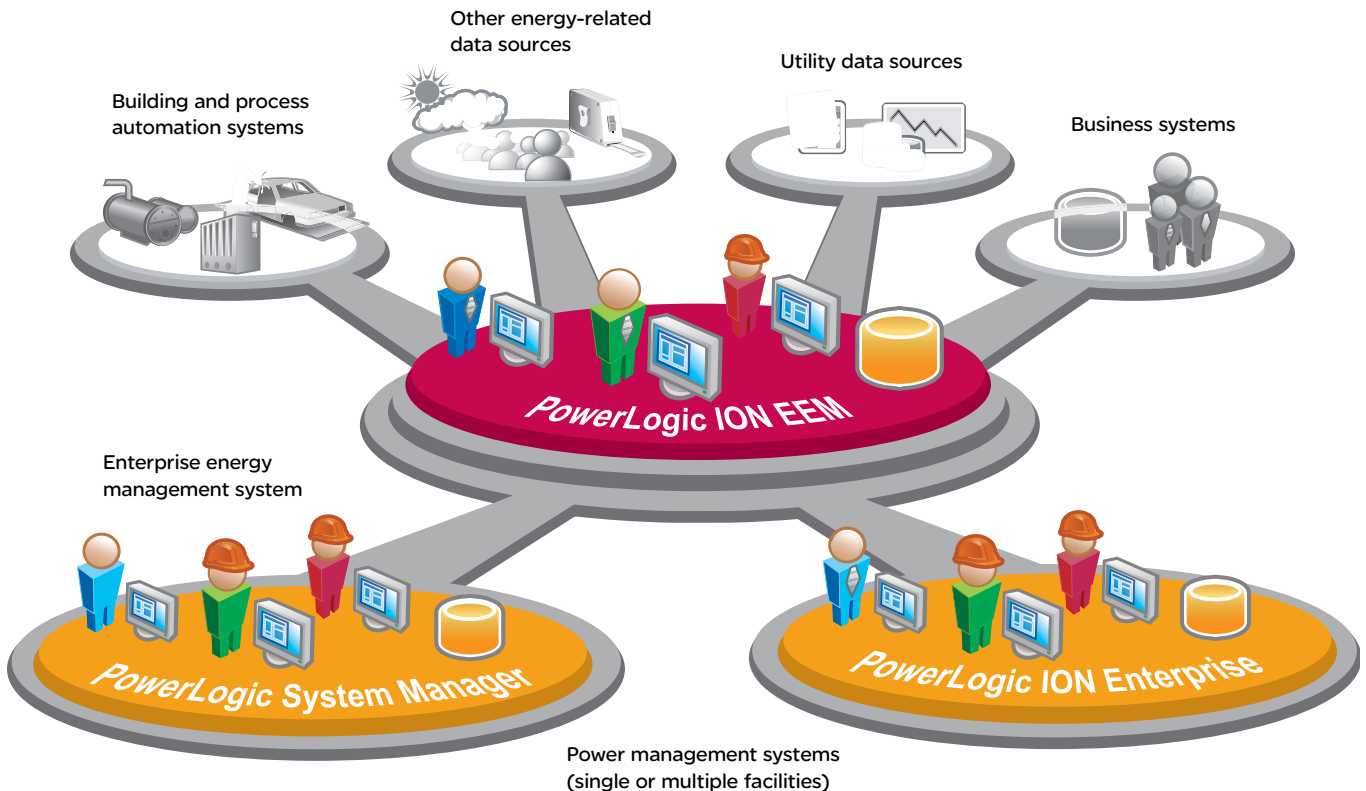
Make energy a variable, manageable cost

PowerLogic® ION EEM software exceeds the traditional boundaries of energy management by uniting business and energy strategies across your entire enterprise. Stakeholders from management to operations will be empowered by actionable energy intelligence to give true accountability to energy cost centers, reveal energy efficiency opportunities, isolate problems and drive cost and risk reduction strategies.

Key performance indicators and advanced analytics help you manage energy in financial terms. The software also makes energy-related emissions a manageable variable, helping you achieve “green” environmental initiatives by tracking emissions, isolating each contributor, and supporting reporting requirements for mandatory or voluntary GHG programs. The software will also help you gain unique insight into the impacts of power quality on your business and all energy assets.

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, building and process automation systems, utility information systems, weather services, spot-market energy pricing feeds, and enterprise business applications. Data is automatically acquired, cleansed and warehoused. Personalized, browser-based dashboards and innovative visualization and modeling tools help you accurately monitor, validate, predict and ultimately control all energy-related expenses.

Convergence of data





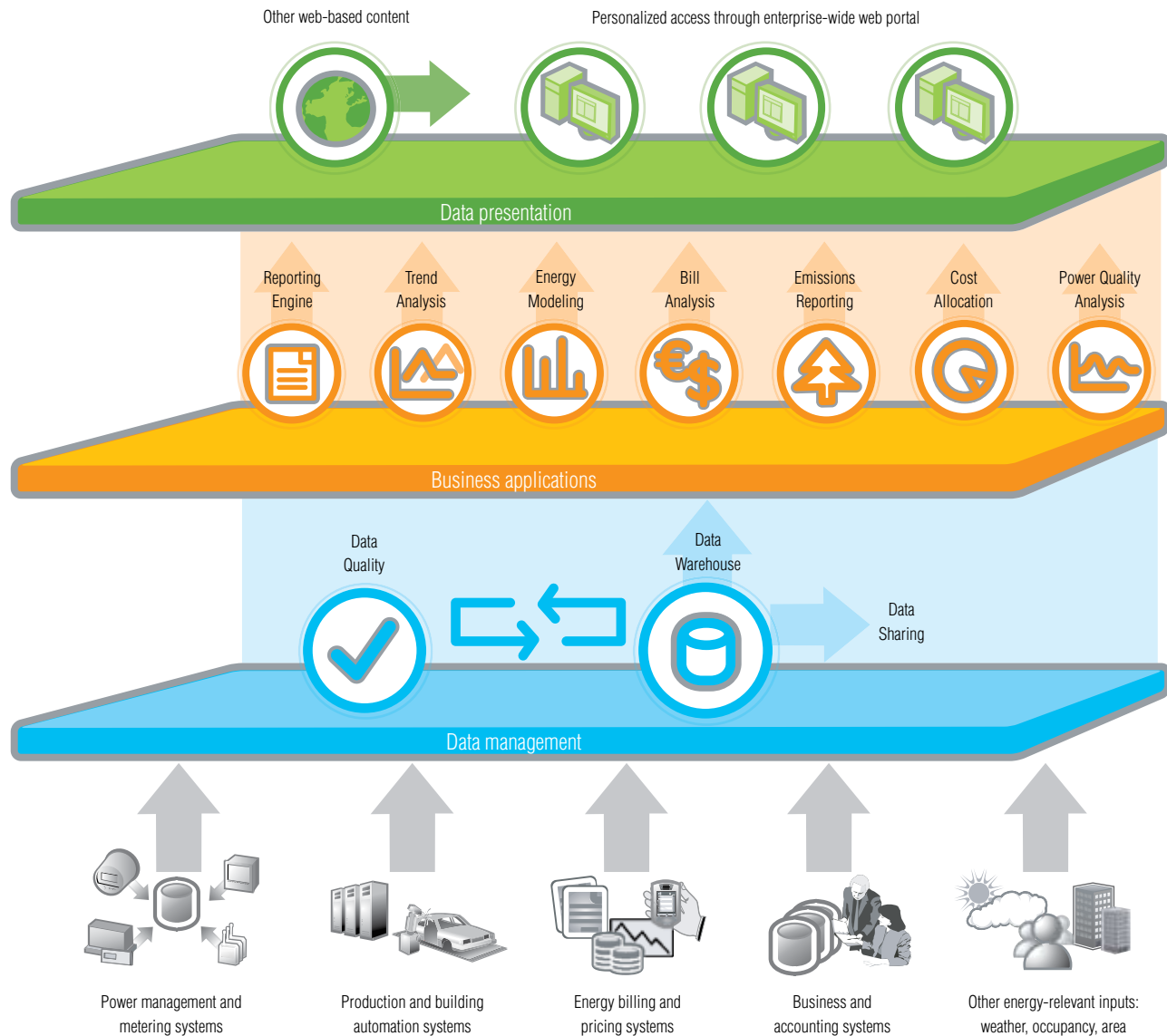
Typical applications

- Energy efficiency and cost
 - Benchmark and compare efficiency to reveal opportunities, set a performance baseline and verify savings
 - Track and manage GHG emissions
 - Allocate energy costs to departments or processes
 - Reduce peak demand surcharges
 - Reduce power factor penalties
 - Strengthen rate negotiation with energy suppliers by forecasting needs, comparing rate structures and aggregating loads
 - Identify billing discrepancies
 - Enable participation in load curtailment programs (e.g. demand response)
- Energy availability and reliability
 - Validate that power quality complies with the energy contract
 - Verify the reliable operation of equipment
 - Improve response to power quality-related problems
 - Leverage existing infrastructure capacity and avoid over-building

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
- Energy Modelling: regression analysis, normalization, correlation, integration of all relevant drivers and contextual data
- Bill Analysis: built-in rate engine and rate wizard
- NEW! Emissions Reporting: reports on energy-related emissions from direct and indirect sources, aggregates all locations, breakdowns by fuel type, compares performance of business units, regions, buildings, facilities, departments
- NEW! Cost Allocation: allocates energy costs for all utility types to cost centres, departments, production lines, or for user-defined time periods
- Integration: import data for all consumed utilities (water, air, gas, electricity, steam), emissions, production or business process data from enterprise system databases (e.g. metering, BAC, ERP); export data to other enterprise business or automation systems.
- Power Quality Analysis: wide-area event monitoring, classification, filtering, correlation

Enterprise software platform



Data presentation tier

- Web portal delivers personalized dashboards, reports, detailed analytics, and integration of other web-based content.

Business applications tier

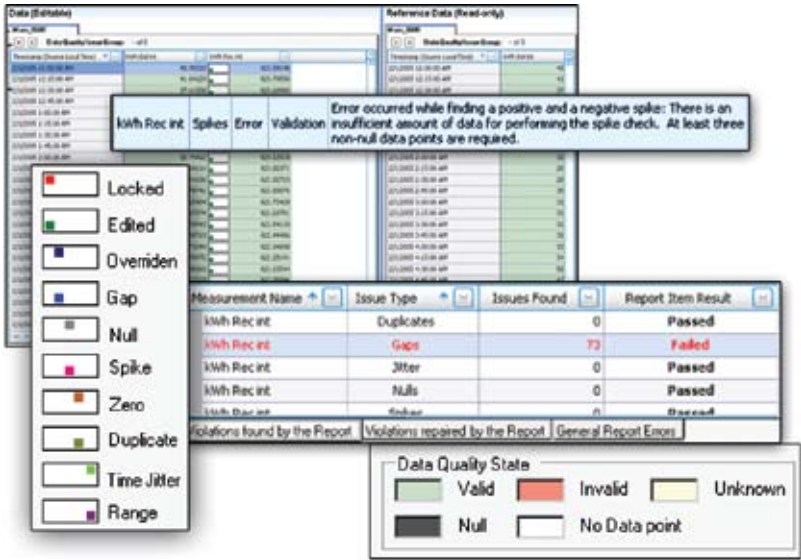
- Advanced analytics and reporting on every driver and relationship affecting energy cost and reliability.
- Tailors functionality to specific needs with a choice of included and optional modules: reporting, trend analysis, energy modelling, bill analysis, emissions reporting, cost allocation and power quality.

Data management tier

- Seamless integration of data from a wide range of sources:
 - PowerLogic or third-party power management and metering systems: consumption data for all consumed resources, monitoring of all energy assets including power distribution and reliability equipment, generators, loads.
 - Building and process automation systems: BAS, EMS, DCS, and SCADA
 - Energy billing and pricing systems: real-time pricing feeds, manual input of energy bills, and handheld devices
 - Line-of-business systems: ERP, EAM, accounting
 - Other energy-relevant sources: weather, occupancy, area
- 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 or corporate standards to automatically validate all data inputs: meters, weather or pricing feeds, 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.



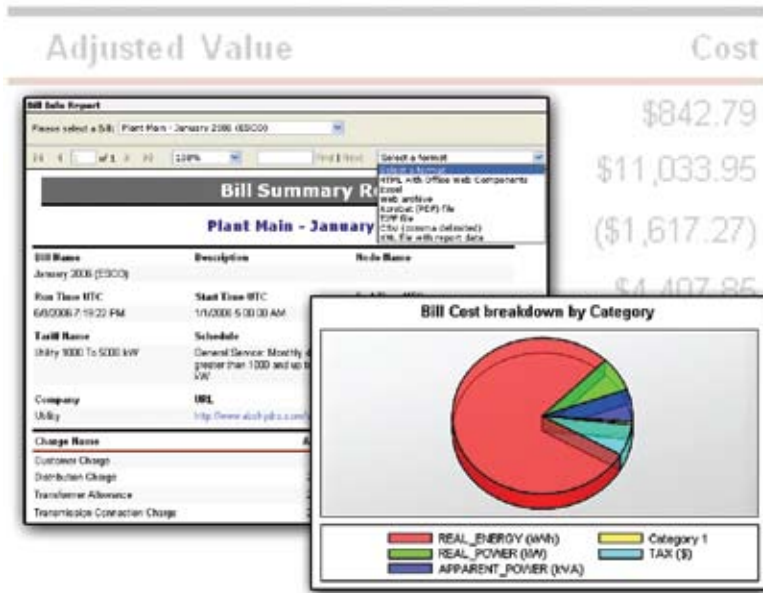
Validation, editing and estimation tools cleanse all inputs, ensuring data is accurate and trustworthy to support dependable decision making and billing.

Web Portal

- User/group security model manages access by employees, customers, suppliers, 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, facility 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® or PowerLogic® System Manager™ software, or third-party web-based automation systems for monitoring and management of loads, generators or other equipment.



Personalized dashboards help management and operations personnel monitor all aspects of energy use and respond to opportunities or threats.



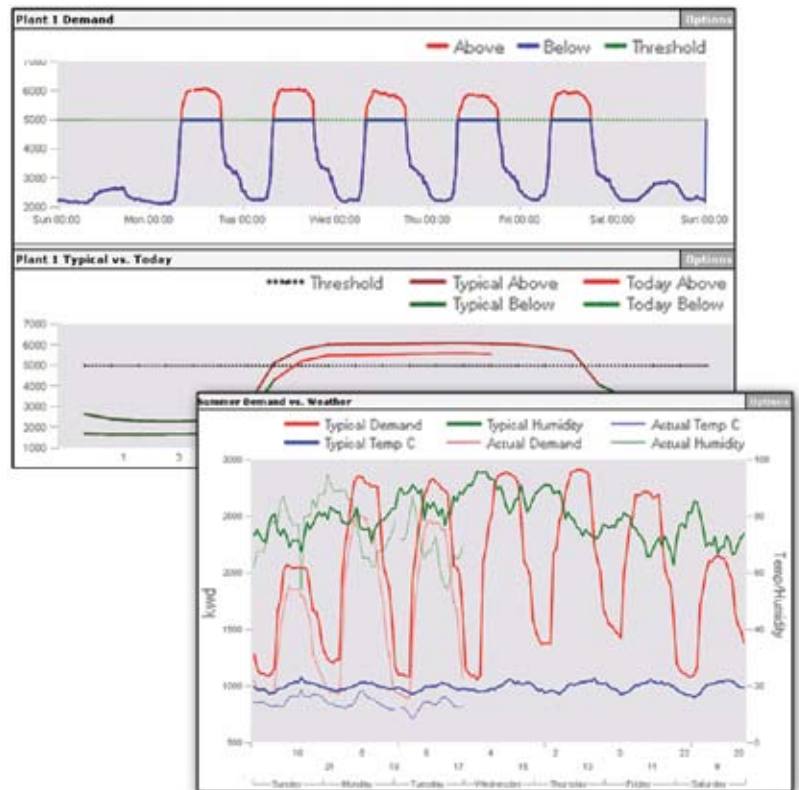
Reporting Engine

- Rich billing, 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 e-mail or HTML format with notification.
- Our Services team can assist you with custom report development.

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

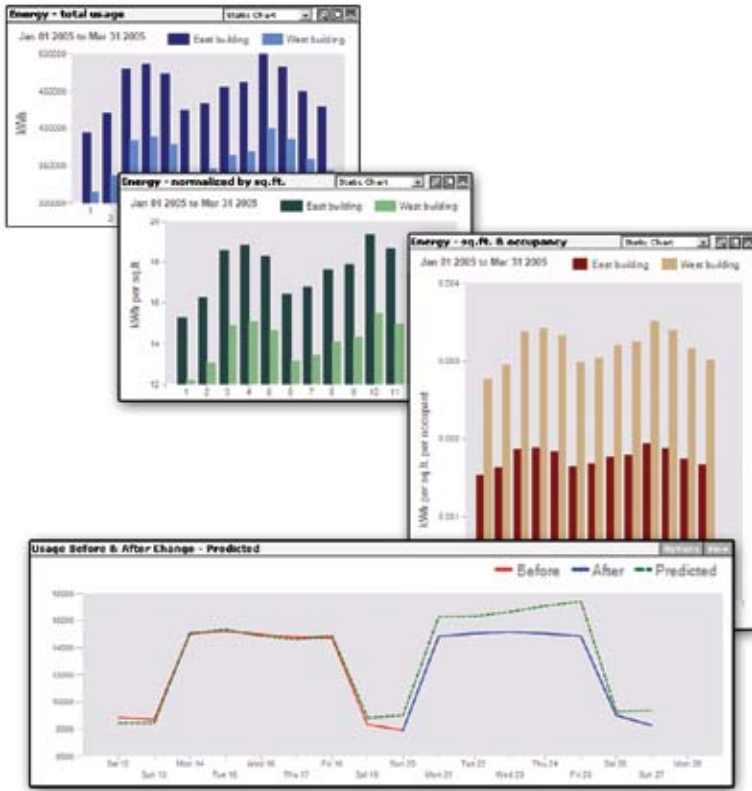
Trend Analysis module

- Applies powerful business intelligence concepts to energy analysis through easy-to-use setup and visualization tools.
- Aggregates data from different sources and organizes it into multiple hierarchical views to support each user's needs: cost centers, business units, locations, buildings, infrastructure, etc.
- Reveals complex relationships between different influences: energy, demand, voltage, current, power factor, temperature, pricing, power quality, equipment conditions, and more.
- Displays historical or predicted trends in different time dimensions: days of the week, seasons, production shifts or lines, 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.



Plot different parameters against multiple axes to reveal trends, future needs, hidden capacity, cost impacts of energy supplier choices, or potentially dangerous conditions.

Energy Modeling module (optional)



Modeling helps derive more accurate 'per unit' comparisons, exposing true issues and costs. Analyze complex non-linear relationships between utility or onsite power, weather, energy pricing, processes and infrastructure changes.

- Advanced algorithms accurately model energy performance based on historical characteristics and all relevant drivers.
- Enables more accurate benchmarking and comparison of facilities or processes against one another, baselining of performance and validation of actual savings, and forecasting of energy needs.
- Regression and correlation based on *ASHRAE Guideline 14, Measurement of Energy and Demand Savings*.
- Normalizes energy consumption data by removing multiple independent variables such as: weather conditions across different times or locations, square footage of different facilities, or production volume for different plants.
- Provides context by integrating external data on equipment, building or other assets such as: load/performance/efficiency ratings, age, total/leasable space, occupancy rates, and more.
- Allows variables to be changed to gauge dependencies and outcomes.

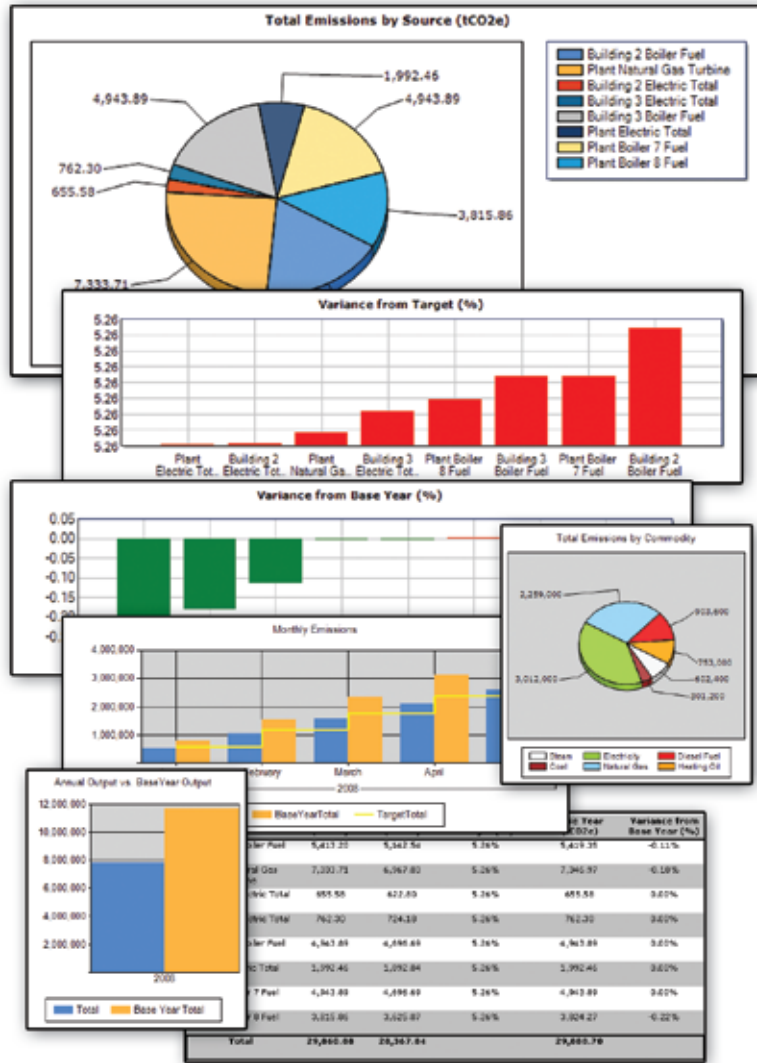
Bill Analysis module (optional)



- Inputs raw energy data for electricity and multiple other commodity types (gas, water, etc.), combining this with utility tariffs to generate business-relevant financial values. Also supports manual billing data entry.
- Built-in rate engine with RateWizard™ accurately models and matches complex utility rate structures.
- Helps validate utility bills to identify anomalies and compare billing charges between or within organizations.
- Helps run 'what-if' scenarios by simulating charges from different tariffs to compare cost impacts.
- Can be configured to share energy cost data with ERP or other enterprise applications.

Use advanced bill analysis functions to support energy procurement and validate contract compliance.

Emissions Reporting module (optional)



Track CO2-equivalent emissions from purchased energy and onsite sources to help achieve your environmental goals, support mandatory or voluntary GHG reporting, and establish a "green" image for your company.

- Converts energy data into useful, actionable greenhouse gas emissions information by applying CO2-equivalent (CO2e) emissions factors to all energy sources and showing the relationship between consumption and associated emissions.
- Adheres to the framework of the *International GHG Protocol*, accurately monitoring, modeling and reporting on emissions from all sources defined under Scope 1 and 2:
 - Direct emissions: from sources owned or controlled by your company, such as from combustion in boilers or furnaces, from vehicles, or from chemical production.
 - Indirect emissions: from the use of electricity or steam purchased from local suppliers, representing the equivalent greenhouse gases (CO², CH⁴, N²O) emitted as fossil fuels are burned to produce heat and power.
- Summarizes corporate emissions performance by aggregating data from all business units.
- Tracks how well your organization's emission reductions projects are performing by comparing monthly CO²e output to targets and base year totals, with breakdowns of CO²e output by commodity (fuel type).
- Calculates and compares emissions performance of different business units, regions, buildings, facilities, departments, etc.
- Together with the Trend Analysis module, enables trend graphing of emissions data alongside other relevant measurements including energy consumption, production levels, temperature variations, etc.
- Uses the concepts of slowly changing dimensions to manage the complex relationships between emissions factors, servicing utilities, fuel types, and locations, even as assets are acquired and divested.
- Flexible architecture, with a dedicated administrative user interface for managing emissions factors and targets.



Cost Centers - By Commodity

Monday, January 01, 2007 to Saturday, March 31, 2007

Chilled Water

Description	Consumption		Cost
	Actual	Adjusted	
Building 2	21,056,691.09	21,056,691.09	\$179,425.04
Building 3	1,556,323.97	1,556,323.97	\$72,942.73
Facility	30,611,117.43	30,611,117.43	\$252,367.77

Cost Centers - By Source

Monday, January 01, 2007 to Saturday, March 31, 2007

Building 2

Commodity	Consumption		Cost
	Actual	Adjusted	
Chilled Water	21,056,691.09	21,056,691.09	\$179,425.04
City Water	889,079.60	889,079.60	\$7,455.61
Electricity	283,075.60	283,075.60	\$7,455.61
Gas	1,066,299.73	1,066,299.73	\$98,872.34
Other	.00	.00	\$0.00

City Water

Description	Consumption		Cost
	Actual	Adjusted	
Building 2	889,079.60	889,079.60	\$7,455.61
Building 3	8,485,744.40	8,485,744.40	\$72,942.73
Facility	9,374,824.00	9,374,824.00	\$803,892.87

Building 3

Commodity	Consumption		Cost
	Actual	Adjusted	
Chilled Water	1,556,323.97	1,556,323.97	\$72,942.73
City Water	8,485,744.40	8,485,744.40	\$72,942.73
Electricity	1,239,899.40	1,239,899.40	\$693,892.87
Gas	.00	.00	\$0.00

Campus Cost Allocation Summary

Monday, January 01, 2007 to Saturday, March 31, 2007

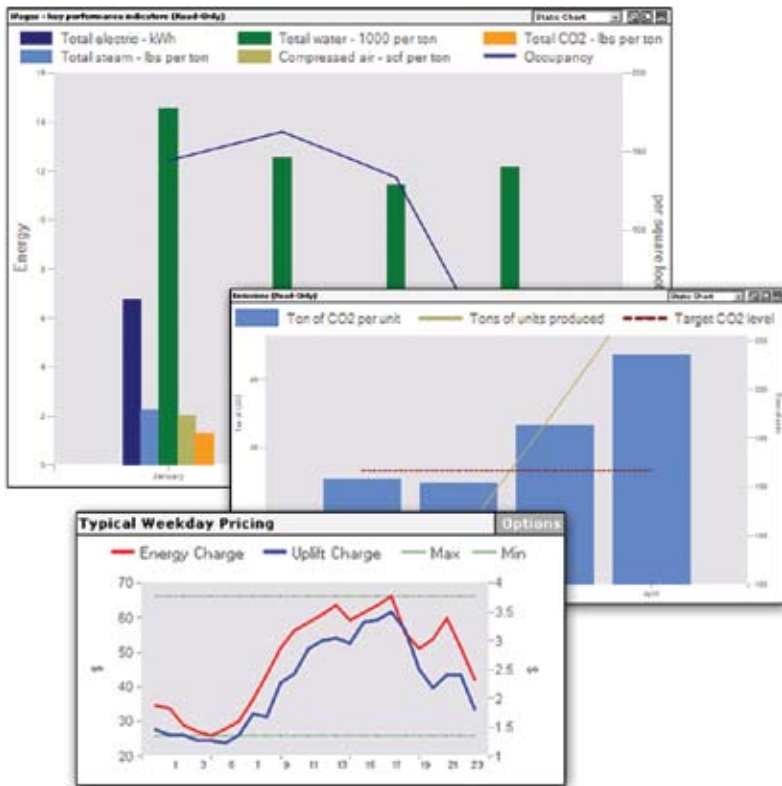
Cost Center	Description	Consumption		Cost
		Actual	Adjusted	
BB436	Administration	414,728.0000	414,094.4279	\$28,899.32
FA743	College of Engineering	2,380,325.0000	2,501,305.7322	\$165,003.30
BS449	College of Nursing	\$149,216.0000	\$149,216.0000	\$98,001.38
PC247	Medical Center	3,967,080.0000	4,402,245.2023	\$275,056.96

Cost Center	Description	Consumption		Cost
		Actual	Adjusted	
BB436	Administration	187,198.0000	218,893.9729	\$13,014.84
FA743	College of Engineering	1,190,162.5000	1,250,652.8661	\$82,501.65
BS449	College of Nursing	74,108.0000	74,108.0000	\$49,000.69
PC247	Medical Center	2,018,621.5000	2,068,581.2638	\$137,484.90

Cost Allocation module (optional)

- Accurately allocates energy costs by cost centre, department, production line or user-defined time periods, based on actual energy usage.
- Allocates and breaks out charges for each utility type (e.g. electricity, steam, gas, others) and supports virtual metering (values derived from other meters)
- Simplifies the cost allocation process and ensures total utility costs are allocated by using a blended energy rate (total utility bill cost divided by the total energy usage) that captures all energy charges, demand charges, fees, and taxes in a single energy rate.
- Applies adjustment factors to any energy values that have not been metered:
 - In cases where the sum of the sub-meters does not equal the energy recorded by the main meter.
 - Compensates for system losses.
- Integrates charges with other analysis tools and dashboards, including making cost allocation results available to the Trend Analysis module for further evaluation.
- Distributes cost allocation reports via e-mail or web.

Drive energy accountability down to each department or process to influence behavior and support corporate-wide energy efficiency initiatives.

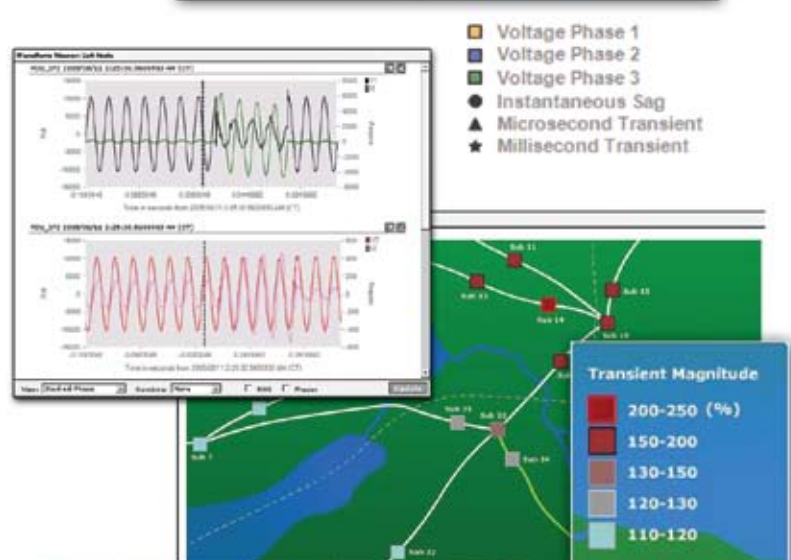
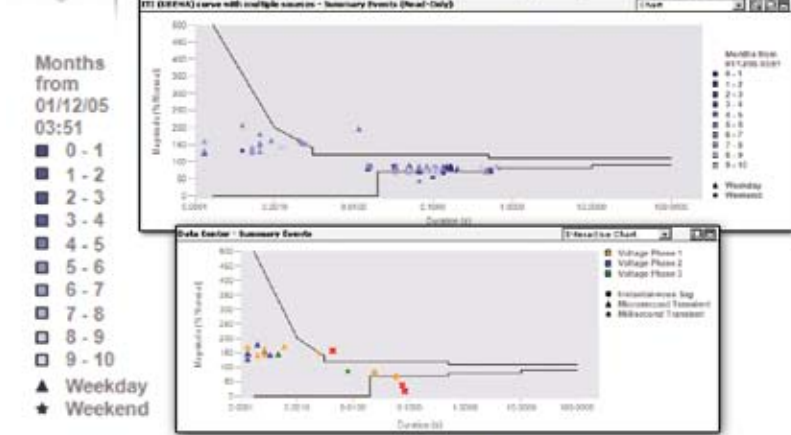


Integration modules (optional)

- Integrate data from any source, including Web services, third-party databases, Microsoft Excel files, etc.
- Integrate all data sources for all consumed utilities (water, air, gas, electricity, steam), emissions, production or business processes.
- Integrate data from online weather services or real-time pricing feeds.
- 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.

Integrate with virtually any device, component, system or data feed to consolidate information and analysis, generate composite billing, or respond to spot market pricing to support energy buy or sell decisions.

SARFI					EN50160
35	50	70	90	110	
13	24	29	43	16	FAIL
3	7	8	12	0	PASS
0	0	0	0	0	PASS



Magnitude (%)	Duration (s)	Detail Events	Type
86	0.032000	1	Instantaneous Sag
199	0.016250	3	Instantaneous Swell
0.3735.000000		1	Sustained Interruption
199	0.016640	4	Instantaneous Swell
77	0.117000	4	Instantaneous Sag

Power Quality Analysis module (optional)

- System-wide power quality and reliability analysis helps quickly identify and isolate problems and correlate events with their sources.
- Detailed analysis of steady state RMS voltages, current, power, frequency, imbalance, harmonic distortion, sags/swells, transients, phasors, 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 and RMS overlays.

Monitor power quality risk factors, benchmark performance, determine impacts, validate contract compliance, isolate problem sources, and confirm return-on-investment for system improvements.

Features	Standard	Optional
SQL data warehouse	■	
Data Quality module	■	
Web Portal	■	
Reporting Engine	■	
Trend Analysis module	■	
Energy Modeling module		■
Bill Analysis module		■
Emissions Reporting module		■
Cost Allocation module		■
Integration modules		■
Power Quality Analysis module		■

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.

Please contact your local sales representative for ordering information.

Visit www.powerlogic.com for more information on other PowerLogic products, applications and system solutions.

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