ION Enterprise & ION EEM Overview

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PowerLogic ION Enterprise

Helps engineering and management personnel meet operational goals:

- Improve efficiency and cut energy-related costs

- Assure reliability and reduce downtime

- Optimise equipment utilisation and reduce the cost of operations

# Data acquisition and integration

- Combined metering: electricity, gas, steam, air, water
- Monitor your distribution system, including:
  - PowerLogic meters
  - Circuit breakers
  - Protective relays

- Interface with third-party meters, transducers, PLCs, RTUs, power distribution or mitigation equipment:
  - Quickly add/configure Modbus RTU/TCP communications using templates
  - Connect transducers or other devices to the digital/analog inputs of PowerLogic meters.

- Integrate with other systems:
  - Energy management, SCADA, BAC, DCS, ERP
  - Use ODBC, XML, OPC, email, FTP, CSV, PQDIF, web services

Real-time monitoring
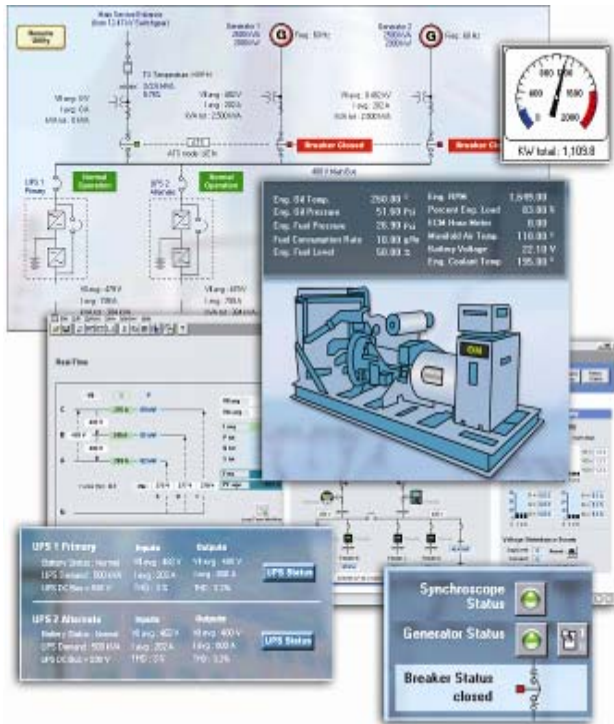
- View key distribution points
- Access from any workstation:
    - Real-time power and energy
    - Historical trends and data logs
    - Alarm conditions
    - Select pre-configured diagrams or easily create customised views
- Point-and-click navigation to reveal deeper layers of detail

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Reporting
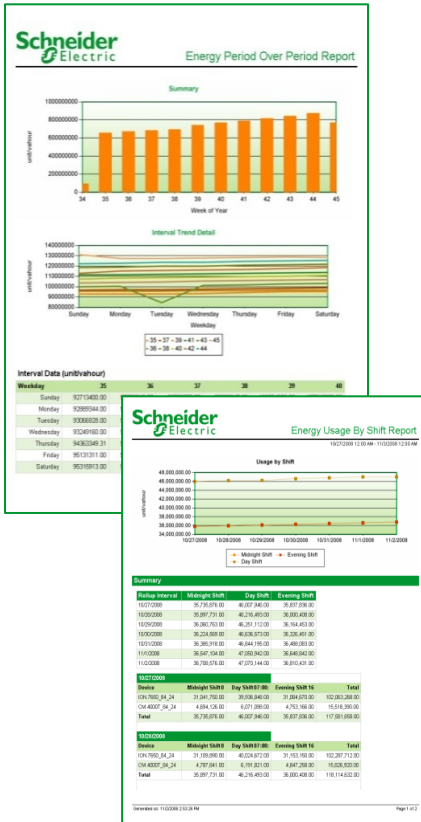
- Generate manually, scheduled or event-driven
- Distribute automatically as email, web, PDF, XML, and HTML
- Standard reports:
  - Aggregate energy and demand
  - Aggregate load profiles
  - Aggregated views of Energy usage by shift
  - IEC 61000-4-30 and EN50160 power quality compliance
  - Power Quality analysis
  - Multi-device energy usage
  - Tabular and Trend Views for any measurement
  - Alarm history
 - System Configuration Report

Power quality analysis
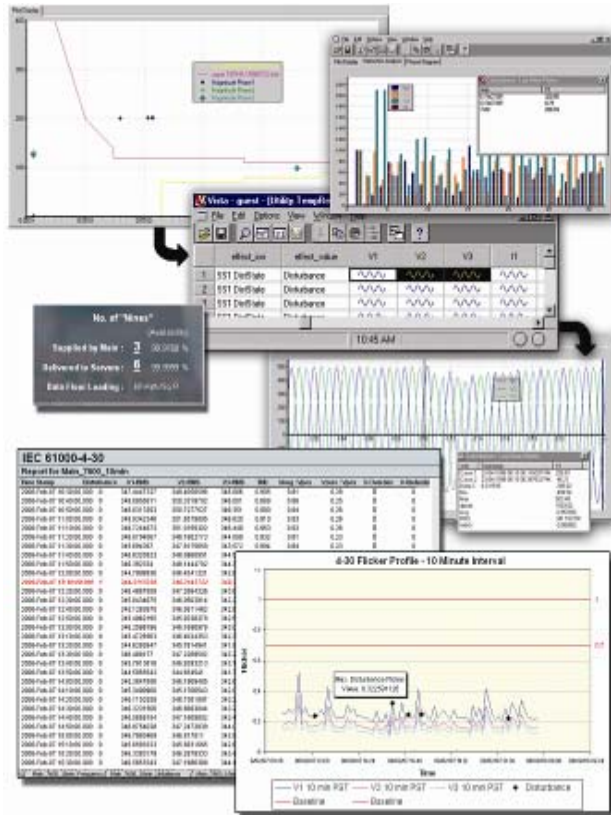
- Continuous, wide-area monitoring, data capture and reporting
- IEC 61000-4-30 and EN50160 compliance reports – view indices as numeric charts or graphic profiles
- Harmonic histograms, THD, K-factor, crest factor, phasors, symmetrical components
- Waveforms – long durations, overlays to correlate phase-to-phase
- Plot sags, swells, transients on industry-standard tolerance curves (ITIC/CBEMA, SEMI)
- Click on a time-stamped event to see more detail

Alarms and events
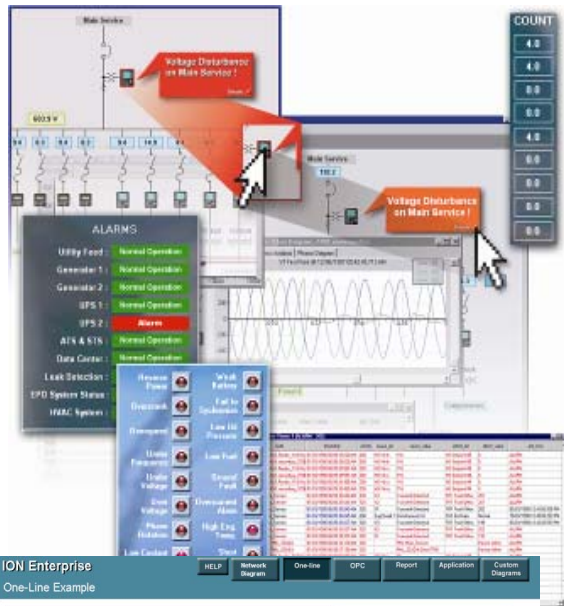
- Receive alerts to outages or impending problems
- Trigger on PQ events, thresholds or equipment conditions
- Trigger on complex/summary conditions
- Alarms from meters are immediately pushed to the system level
- Automatically:
  - Send out customised notifications to workstations, email, cell phone, PDA
  - Upload all associated event data
  - Generate a report
  - Log complete information (coincident conditions, waveforms, timestamps)
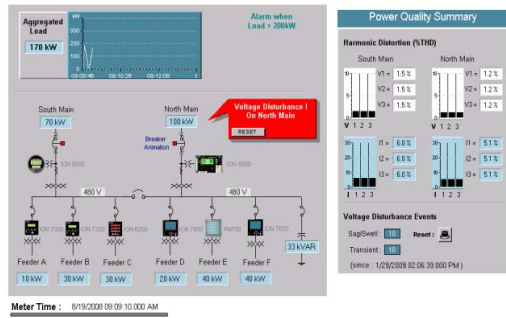
Manual and automated control
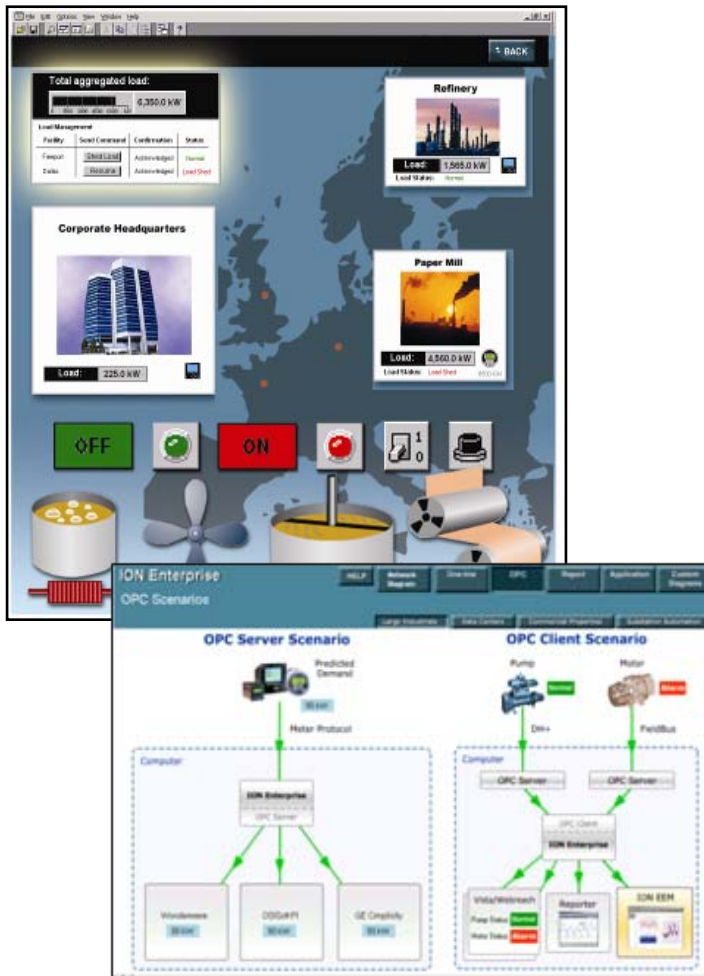
- Supervisory equipment control
- Perform manual control via on-screen trigger buttons
- Automated control:
  - Gathers data from multiple devices
  - Incorporates process variables
  - If predefined thresholds are exceeded, initiates coordinated control actions over multiple loads or other equipment

PowerLogic ION EEM

Enterprise Energy Management (EEM)

- EEM provides:
  - Identification, justification, & prioritization of energy savings projects
  - Auditing
    - Performance reporting: Actual vs Baseline vs Target
    - Evidence of success: Return on Investment (ROI)
  - Early detection of poor performance
    - Energy modeling
  - Support for energy budgeting & forecasting
  - A tool for achieving and maintaining a rating (ex: Energy Star, LEED)
  - A tool for supporting the financial valuation of assets

PowerLogic ION EEM: Applications

■ PowerLogic EEM supports:

Energy Conservation

Environmental Management
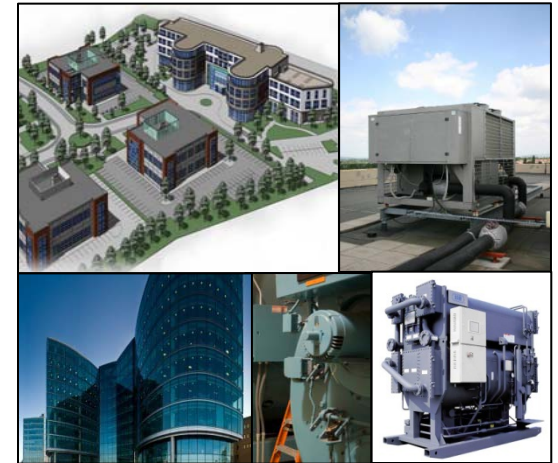
Operational Excellence

PowerLogic ION EEM: Energy Conservation

- Drive energy awareness and behavior
- Allocate energy usage and/or costs to Cost Centers/Customers
- Audit Utility bills
- Optimize energy procurement
- Identify, prioritize, justify, & audit energy savings projects
- Normalize, compare, and track energy usage, intensity, and costs
- Model, baseline, compare, and track equipment/process/plant/generation efficiency
- Forecast energy usage and costs
- Track actual usage vs budget vs target

Web Portal
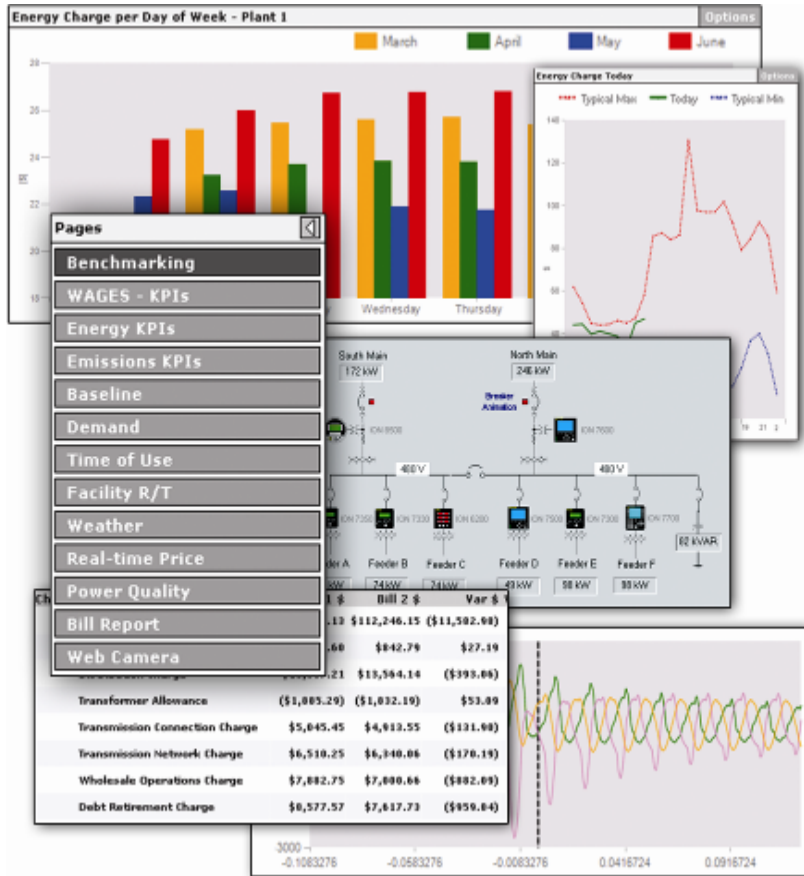
- User/group security managed access
- Browser-based access, personalised dashboards
- Variety of data formats, integration of external web content
- "Drill-down" analysis
- Real-time content from PowerLogic ION Enterprise™ or PowerLogic System Manager™ software, or third-party systems

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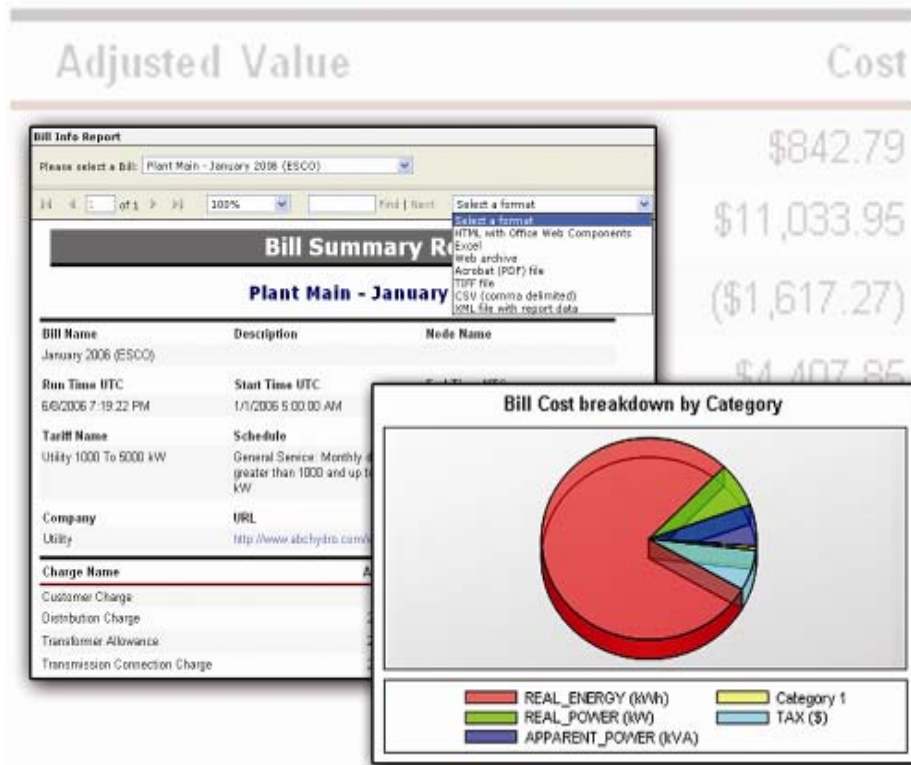
Reporting Engine

- Rich reporting features with graphics
- Generate billing, energy or power quality reports
- Zoom, search and export
- E-mail or HTML delivery, scheduled
- Custom report development from Schneider Electric services group

Trend Analysis
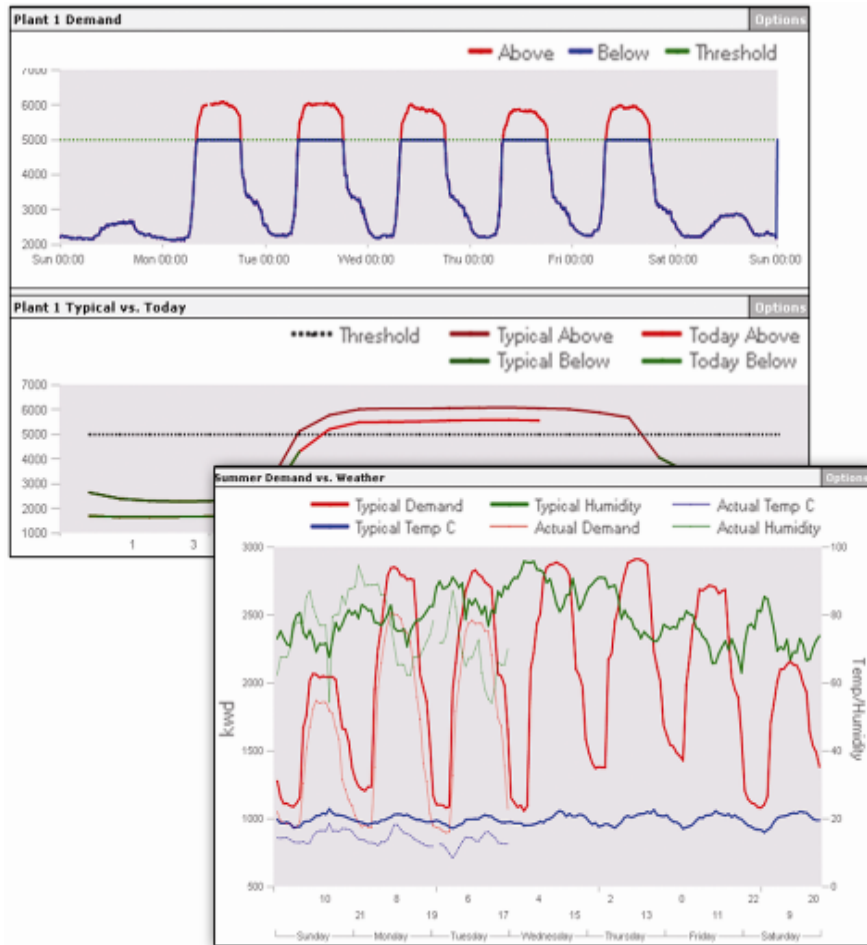
- Easy-to-use visualisation tools
- Applies business intelligence concepts to energy analysis
- Aggregates data from different sources
- Hierarchical views: cost centres, business units, buildings, etc.
- Reveals complex relationships between the influences on energy efficiency and cost
- Displays historical or predicted trends in different time dimensions
- Colour coding and overlays
- Reduces time series data to statistical rollups of information.

Cost Allocation module

- Accurately allocates energy costs by cost centre, department, production line or user-defined time periods, **based on actual energy usage**
- Breaks out charges for each utility type
- Simplifies the cost allocation process and ensures total utility costs are allocated
- Adjusts for system losses and cases where the sum of sub-meters does not equal main meter
- Makes cost allocation results available for trending, etc.
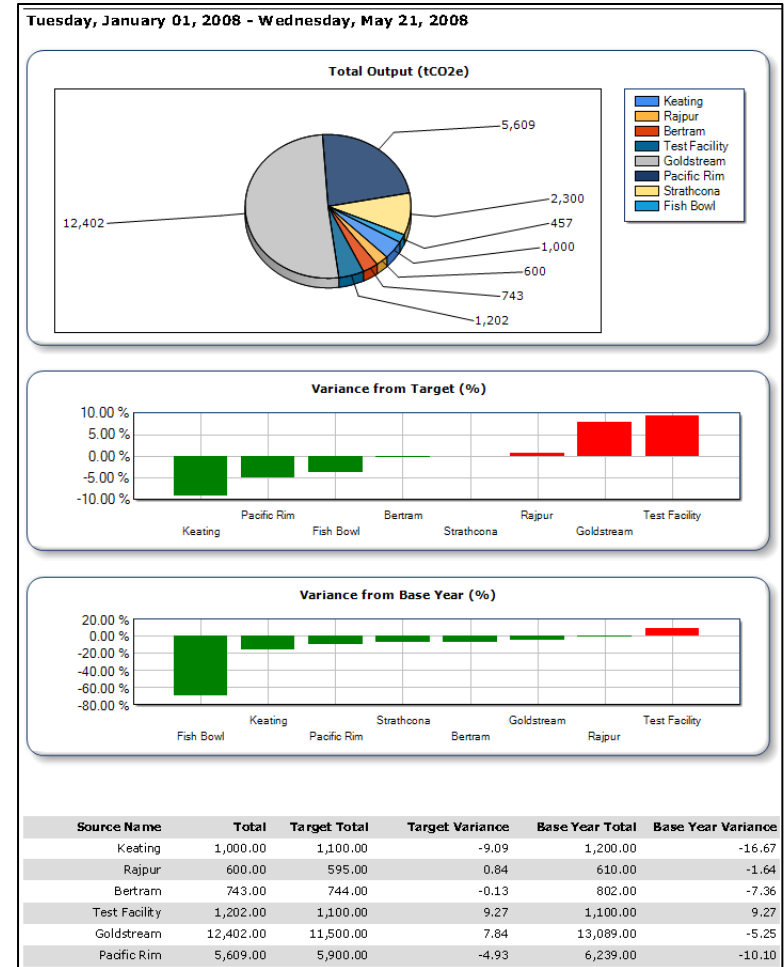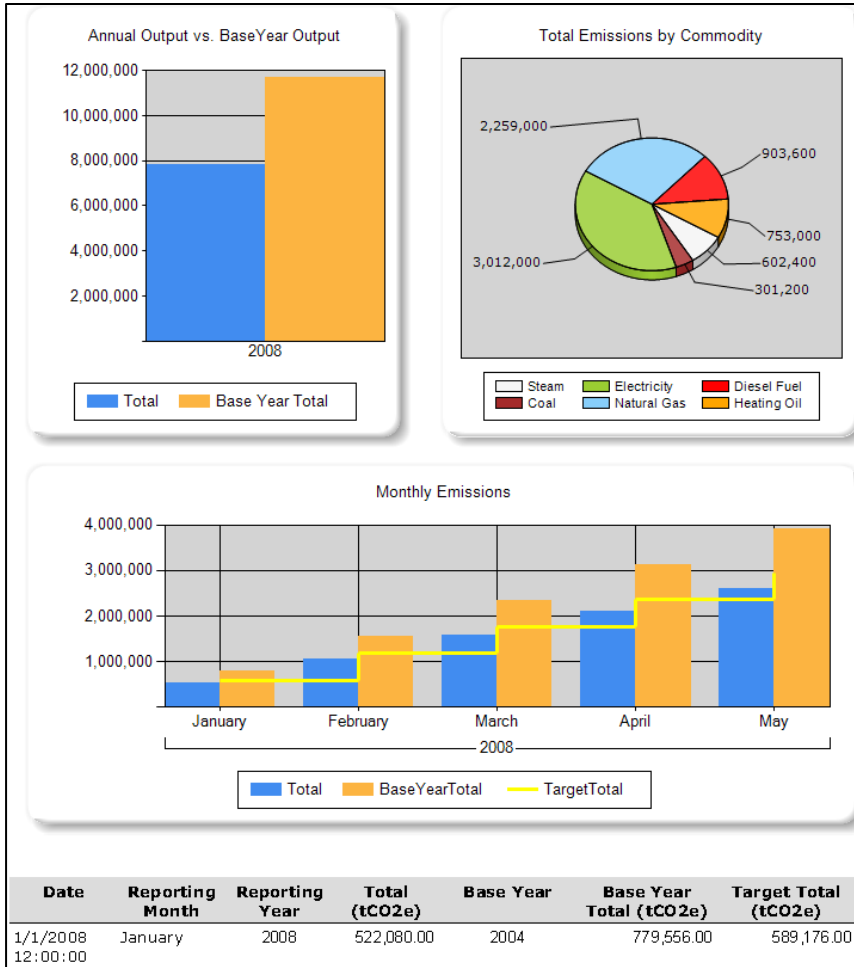- Distributes reports via e-mail or web
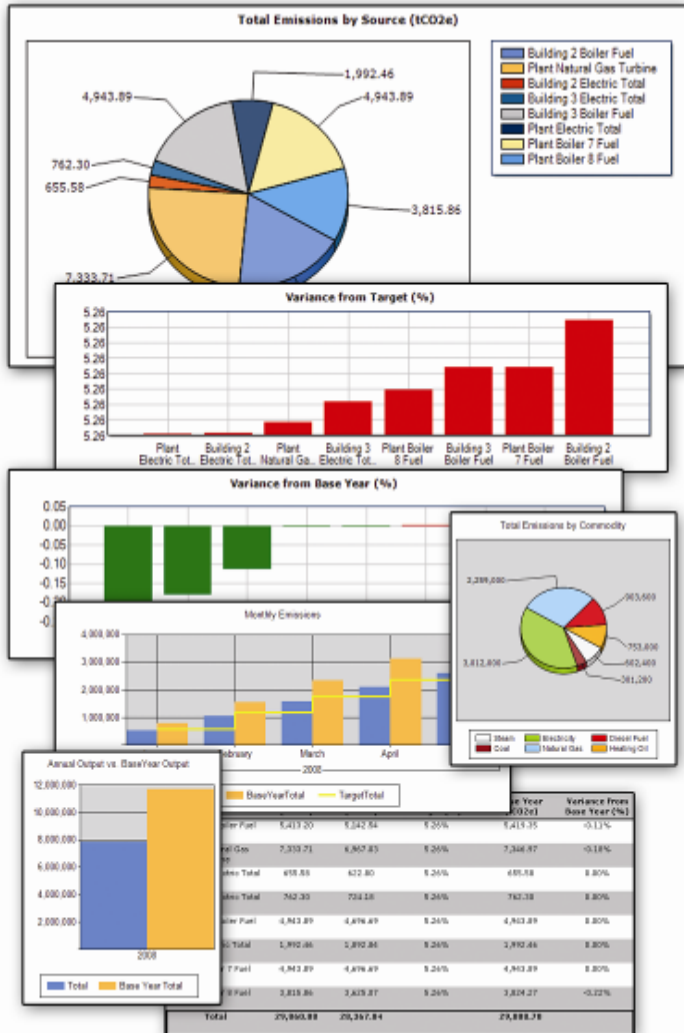
PowerLogic ION EEM: Environmental Management

- **Environmental reporting**
    - Greenhouse gases
    - Airborne pollutants
    - General waste
    - Process waste (ex: landfill, organic, recycling)
- **Regulation compliance reporting**
    - Boilers
    - Onsite generators
    - Industrial processes

Emissions Reporting

Emissions Reporting

- Converts energy data into GHG emissions by applying CO2-equivalent (CO2e) factors
- Accurately reports on emissions from:
  - Direct sources: boilers, furnaces, vehicles, chemical production, etc.
  - Indirect sources: purchased electricity or steam
- Aggregates data from all business units
- Tracks success of reduction projects:
  - compares monthly CO2e to targets, base year
  - breaks down CO2e by commodity (fuel type)
- Compares different business units, regions, buildings, departments, etc.

PowerLogic ION EEM: Operational Excellence

- Identify, analyze, resolve, and track power quality issues that affect process/equipment reliability

- Identify, track, and minimize electrical losses
    - Current harmonics
    - Distribution
    - Power factor

- Capacity planning

- Equipment & infrastructure troubleshooting, preventative maintenance, & optimization

- Determine optimal run schedules for HVAC and generation equipment

Energy Modelling Module
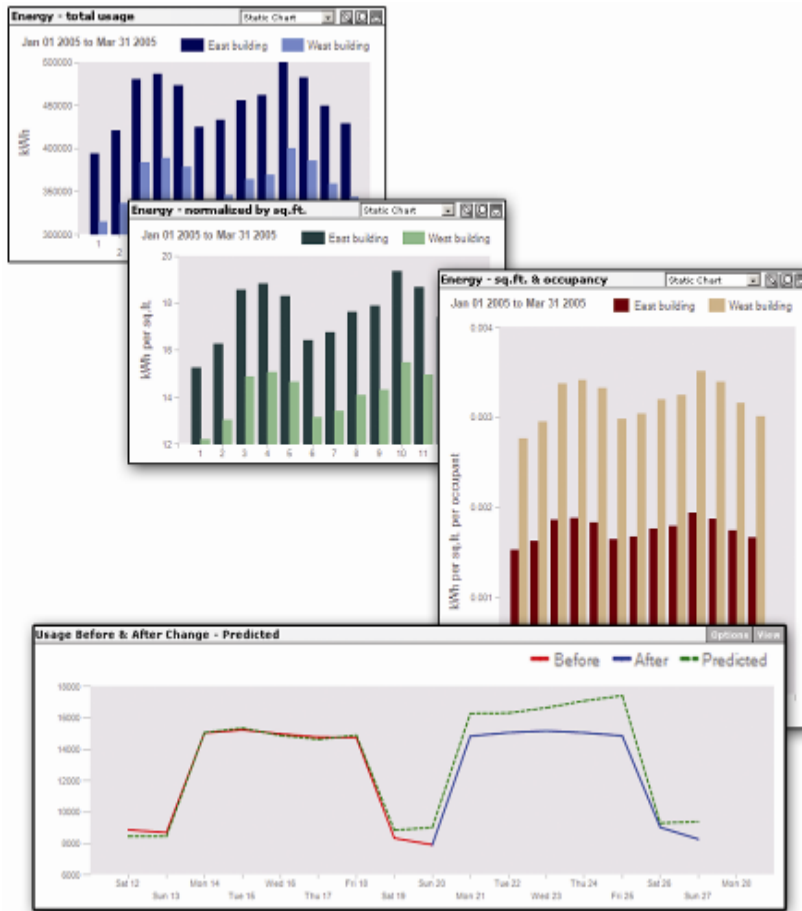
- Models energy performance based on all relevant drivers
- Increases accuracy of:
  - benchmarking and comparison of facilities or processes
  - validation of savings against a baseline
  - forecasting of energy needs
- Regression and correlation*
- Normalises energy by weather, square footage, production volume, etc.
- Integrates relevant external data, e.g. equipment efficiency ratings, age, total/leasable space, occupancy, etc.
- Gauges dependencies and outcomes

* based on *ASHRAE Guideline14, Measurement of*

Bill Analysis module

- Inputs data for all commodity types (electricity, gas, water, etc.), combines with utility tariffs, generates business-relevant financial values

- Built-in rate engine with RateWizard™ accurately models and matches complex utility rate structures

- Validates utility bills

- Compares charges between or within organisations

- Runs 'what-if' scenarios to compare cost impacts of different tariffs

- Shares cost data with ERP or other applications

Power Quality module

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
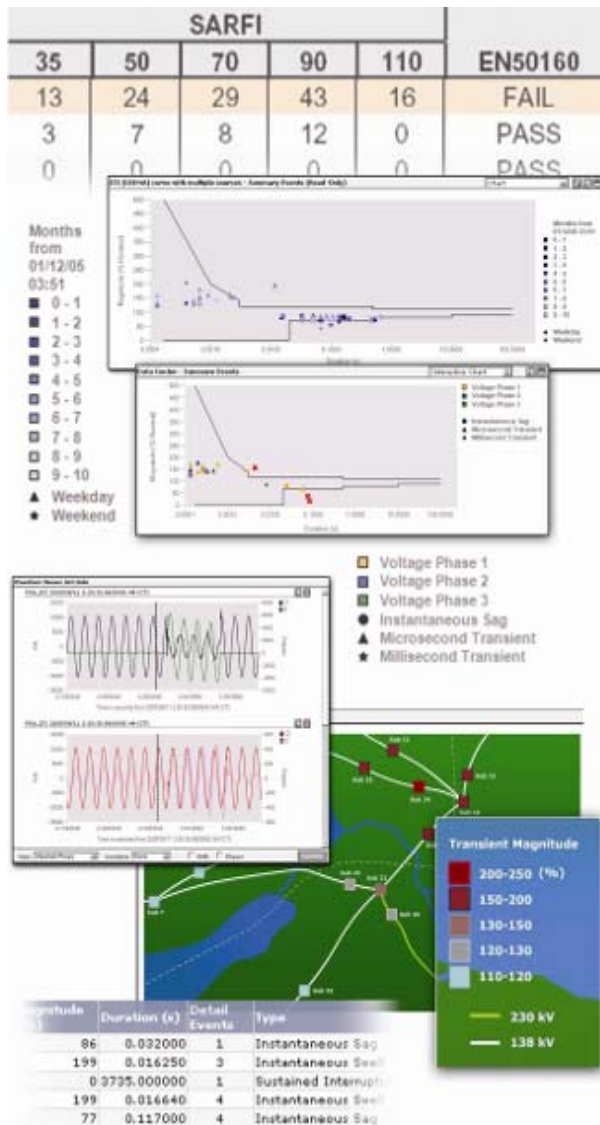
- System-wide power quality and reliability analysis helps isolate problems
- Reports on international standards compliance (e.g. SARFI, EN50160, IEEE 1159)
- Trends performance over time
- Plots events against tolerance curves (ITI, CBEMA, SEMI-F47)
- Geographically maps events indicating age or severity
- Reduces data by visually categorising, classifying and correlating events with root causes
- Graphic waveform analysis with zooming, stacking and RMS overlays