



### **Andrew Muir**

Offer Manager – Software and Managed Services Canada

### Responsibilities

- Power Monitoring Expert
- PowerSCADA Expert
- Segment Software Solutions
- Managed Services (support, training, other)

# Business Card Andrew MUIR SCHNEIDER ELECTRIC CANADA INC. North America Operations Offer Manager - Software and Managed Services - Energy & Sustainabili ... Marketing - Offer Management Location: Richmond (Sales, Plant & Service) Work Phone: +1 604-248-3791 Direct Dial:

Andrew.Muir@schneider-electric.com

+1 604-315-3753







Mobile: Office Fax:

Internet Address:

# PME Report Engine Overview

- PME report engine allows you to consolidate complex data from multiple devices (physical or virtual) or from hierarchy nodes from all around your facility into comprehensive easy-to-understand graphical reports
  - Simple web user configuration to set up reports
  - Ability to automate reports to be delivered on schedule or event
  - Deliver via Email, shared folder or printer
  - Output formats: Excel, PDF, HTML or XML
  - 22 default report templates





### **Advanced Features**

- Here are some of the most advanced features of PME report engine:
  - Rollover detection
  - Intervalization of cumulative measurements (including WAGES)
  - Data aggregation via Hierarchies
  - Measurement equivalency (smart mode measurements)
  - Definition of custom date ranges and formula based custom ranges
  - Flexible rate engine for energy billing cost allocation or bill verification applications
  - Report Development Toolkit (RDK 2.0) Develop custom reports with no need for C# programming.



# Default Report Modules in PME 8.0

Included by default on all PME 8.0 systems

### General



- · 100ms Report
- Data Export Report
- Event History Report
- System Configuration Report
- Tabular Report

### **Energy Management**



- Energy Cost Report
- Energy Period over Period Report
- Energy Usage by Shift Report
- Load Profile Report

### **Power Quality**



- EN50160:2000 Mains Signaling Report
- EN50160:2000 Report
- EN50160:2010 Mains Signaling Report
- EN50160:2010 Report
- Harmonic Compliance Report
- IEC61000-4-30 Report
- Power Quality Report

### **Usage Trending**



- Hourly Usage Report
- Multi Device Usage Report
- Single Device Usage Report
- Trend Report
- Multiple Trend



# **General Reports**

- 100ms Report
  - Summarizes 100ms measurements from Power Logic Circuit Monitors for applications such as preventive maintenance: acquisition of a motor startup curve, etc
- Data Export Report
  - Extract large amounts of historical data from your PME system into a CSV file
- Event History Report
  - Create a report of events or alarms that have occurred in the system
- System Configuration Report
  - Allows the user to display a high-level inventory of their system with key information
- Tabular Report
  - Compare multiple devices and multiple measurements across defined time ranges

### General



- 100ms Report
- Data Export Report
- Event History Report
- System Configuration Report
- Tabular Report

# **Power Quality Reports**

- EN50160 2000/2010
  - European standard that defines the voltage characteristics of the electricity supplied by public distribution systems
- Harmonics Compliance Report
  - Makes sure harmonic distortion levels for voltage and current in your facility are within compliance in order to minimize interference with electrical equipment (Default levels in accordance to IEEE519)
- IEC61000-4-30 Report
  - Create a report of events or alarms that have occurred in the system
- Power Quality Report
  - Allows the user to display a high-level inventory of their system with key information

### Power Quality



- EN50160:2000 Mains Signaling Report
- EN50160:2000 Report
- EN50160:2010 Mains Signaling Report
- EN50160:2010 Report
- Harmonic Compliance Report
- IEC61000-4-30 Report
- Power Quality Report

# **Energy Management Reports**

### Energy Cost Report

- Used to report on energy consumption and peak demand levels over a period of time, categorized by time of use. The Energy Cost report definition uses energy and demand measurements.
- Energy Period over Period Report
  - Compare energy consumption between two time ranges for aggregation intervals (daily, weekly, monthly, yearly)
  - For example "This week vs. same week last year"
- Energy Usage by Shift Report
  - Compare energy consumption from one shift to other shifts. See an individual device breakdown for each shift as well as an overall total
- Load Profile Report
  - See an individual device breakdown for each shift as well as an overall total (Highlights peak loads on graphs)

### **Energy Management**



- Energy Cost Report
- Energy Period over Period Report
- Energy Usage by Shift Report
- · Load Profile Report



# **Usage Trending Reports**

### Hourly Usage Report

- produces a tabular display of usage of various types of quantities (such as consumption of Water, Natural Gas, etc.) per hour for a specific day
- Multi Device Usage Report
  - Used to view consumption information for multiple devices. View energy usage for single period, or compare two periods, for example, this month versus last month.
- Single Device Usage Report
  - Used to view energy information for one device. View energy usage for a single period, or compare two periods, for example, this month versus last month
- Trend Report
  - Used to create a report that displays trend information in a line, column, bar, or pie chart. You choose devices and measurements for a selected period of time
- Multiple Trend Report
  - enables two source/measurements, two 'Y' axes to help enable applications such as PF Correction and Energy consumption vs. temperature

### Usage Trending



- Hourly Usage Report
- Multi Device Usage Report
- Single Device Usage Report
- Trend Report
- Multiple Trend



# Advanced Report Modules in PME 8.0

These are optional (paid) modules

### **Advanced Energy Awareness**



- Consumption Ranking
- Energy Comparison
- Energy Usage (for Dashboard KPI's)
- Energy Usage by TOU

### **Energy Analysis**



- Calendar Load Profile (week, Month)
- · Duration Curve
- Scattered Plot (XY Regression)

### **UPS** Performance



- UPS Monitoring and Testing Report
- UPS auto-test Report
- UPS Battery Health Report

### **Breaker Performance**



LV Breaker Aging Report

### **Energy Billing**



- Billing Report
- Billing Summary Report
- Multiple Billing Report
- Multiple Billing Export Report
- Rate Editor



# Advanced Energy Awareness Module

Raise energy awareness to achieve conservation goals with enhanced dashboard and reporting capabilities

- Consumption Ranking Report
  - Quickly build energy awareness through relative visualization
  - Create competitive environment with dynamic rankings
  - Normalize consumption data by a static scalar to facilitate fairer comparisons
- Energy Comparison Report
  - Used to compare energy usage by load type, area, building, facility etc. with the ability to normalize by a static scalar and convert to common energy units
- Energy Usage Report
  - Displays energy usage data in a variety of display formats (gauges, bar charts, stacked line etc.)which can be used by the web image gadget to host in your dashboards
- Energy Usage by TOU Report
  - View any usage broken down into time of use schedule periods. Bars automatically change colour to highlight exceeding defined limits

### Advanced Energy Awareness



- Consumption Ranking
- Energy Comparison
- Energy Usage (for Dashboard KPI's)
- Energy Usage by TOU



# **Energy Analysis Module**

Conduct energy analyses for improved efficiency with enhanced data analysis capabilities

- Calendar Load Profile Report
  - Easy trend interpretation at a glance
  - Identify out of hours usage, Benchmark performance targets, Identify peak and off peak usage patterns, Trend any logged measurement
- Duration Curve Report
  - Statistical analysis for reducing peak demand or lowering base load, validating performance characteristics, transformer capacity modelling
  - Duration Curve Direct Plot with configurable limit value for overlay in chart and act as a filter in the data table and selectable % crossing indicator in the chart
- Scattered Plot (XY Regression) Report
  - Link energy usage to weather or any other variable using regression analysis.
     Quickly identify drifts from expectations

### **Energy Analysis**



- Calendar Load Profile (week, Month)
- Duration Curve
- Scattered Plot (XY Regression)



# **UPS Performance Module**

Understand how your UPS is functioning and managed testing before you need to rely on it during a critical outage

- UPS Monitoring and Testing
  - Global overview of UPS status/grouping showing whether in emergency mode/auto-test mode. Allows for the automated testing of battery and showing remaining life of the battery
- UPS auto-test Report
  - Embedded monthly Battery Auto-test
    - Slow 1 day discharge (Battery stand alone, UPS through Capacitor bank, Voltage comparison according battery brand data sheet)
    - Short discharge up to -25% of the Battery capacity (duration is depending of the connected load)
- Battery Health Report
  - Battery signature comparison in any UPS emergency mode status
    - By using the selected reference waveform and any number of previous waveforms, the report can illustrate the changing characteristics of the battery over time.

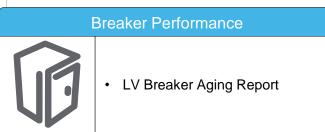
# UPS Performance



- UPS Monitoring and Testing Report
- UPS auto-test Report
- UPS Battery Health Report

## **Breaker Performance Module**

- LV Breaker Aging Report
  - Provides a report that displays aging and wear for all breakers defined in the system and real-time summary screens that display breaker aging and wear parameters by group or equipment.
    - Breaker aging monitoring based on
      - Electrical data
      - Mechanical endurance
      - Environmental condition
  - There is also a VIP framework that can be configured to provide real-time status alarms in the vista diagrams





# **Energy Billing Module**

Allocate energy costs and share energy billing data and prevent unnecessary utility charges

- Billing Report
  - Create accurate energy allocation reports for departments or tenants
  - Verify utility bill is correct with no errors
  - Powerful rate engine supports custom utility rates and charges
  - Configurable line items for flexible report output
  - Supports net metering, meter splitting and common area allocation
  - Supports any energy measurement (WAGES)
- Billing Summary Report
  - Aggregate several entities or tenants into a single report
  - Summarize charges to departments or tenants
  - Show the grand total of all entities in the summary
- Multiple Billing Report
  - Only one report to configure to produce energy bills for any combination of entities or tenants
- Multiple Billing Export Report
  - Automatically save or email tenant billing data
  - Customizable output formats via XML transforms

### **Energy Billing**

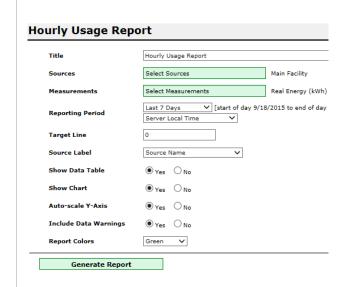


- · Billing Report
- Billing Summary Report
- Multiple Billing Report
- Multiple Billing Export Report
- Rate Editor



# Simple Report Customization

- Supports an optional limit/target line in charts
- Support for additional chart types
- Flexible chart options: lock chart at zero, auto-scale Y-axis
- Report elements can be toggled on/off to enable simple report customization
- Support for additional aggregation periods
- Support for hierarchies in more reports





# **Advanced Report Customization**

- Power user which allows:
  - Support for any data/time range to be selected to better accommodate billing cycles (custom xml)
  - Report logo customization
  - Report colour customization<sup>1</sup>



<sup>1</sup> colours are customized through settings in the database, technical support and/or application engineer support is recommended

# Questions?





