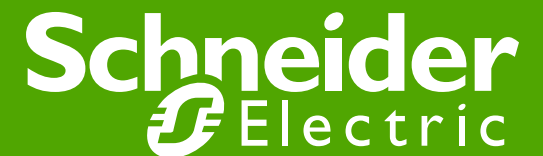


Industry Trends

Brian Kingham
Utility Market Manager
Power Monitoring and Control



Power Monitoring and Control (PMC)



- **Around 600 employees in three main offices (Grenoble, LaVergne & Victoria)**
- **Also more than 200 dedicated sales people & 250 after-sales service people in Schneider Electric country organisations (not PMC employees)**

PMC Overview

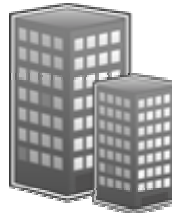
- **Our Approach: 4 Vertical Markets**

- Electric Utilities



- Buildings

- Commercial
- Residential



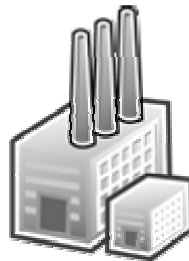
- Critical Power

- Data Centers
- Hospitals



- Industrial

- Automotive
- Pulp&Paper
- Oil&Gas
- ...

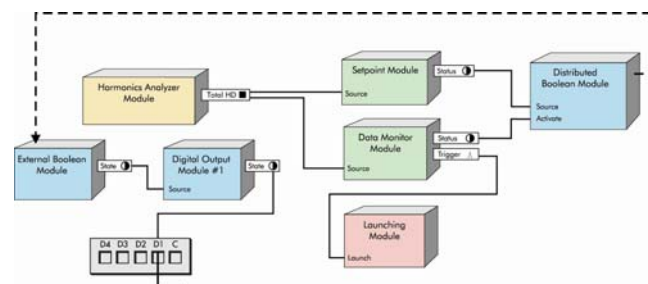




Market Trends – Supply Side

Revenue Metering

- Increased communications security, legislated in some markets
- Higher system accuracy requirements driven by higher energy costs
- Standardization of protocols
 - IEC standard protocol support (DLMS, 60870)
 - ANSI C12.22?
- Customized solutions
 - Reports
 - Algorithms
- Improved definition/integration of Automatic Meter Reading (AMR), Advanced Metering Infrastructure (AMI) and Meter Data Management (MDM)

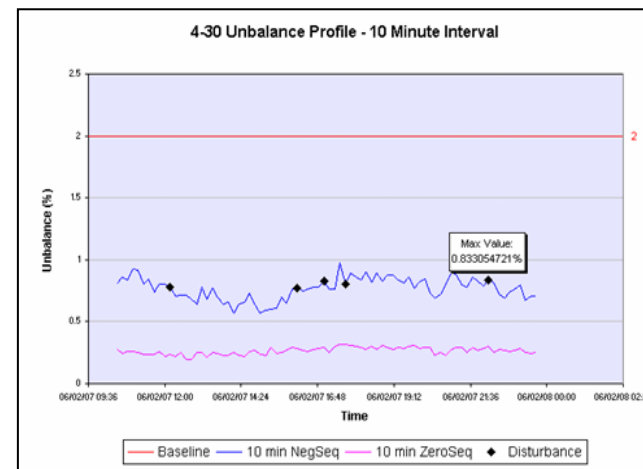




Market Trends – Supply side

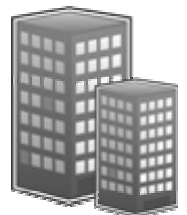
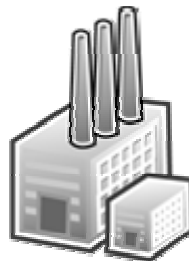
Power Quality

- Strict adherence to standards
 - IEC 61000-4-30 / ANSI 1159 Compliance
- Artificial Intelligence / Fault Classification accepted
- NERC Reliability Requirements
 - EPACT in US gives FERC authority to require utility compliance
- EU requires compliance reporting at MV and HV levels in Europe
- Independent Power Producers, renewable energy sources and large industrials require PQ monitoring at point of common coupling



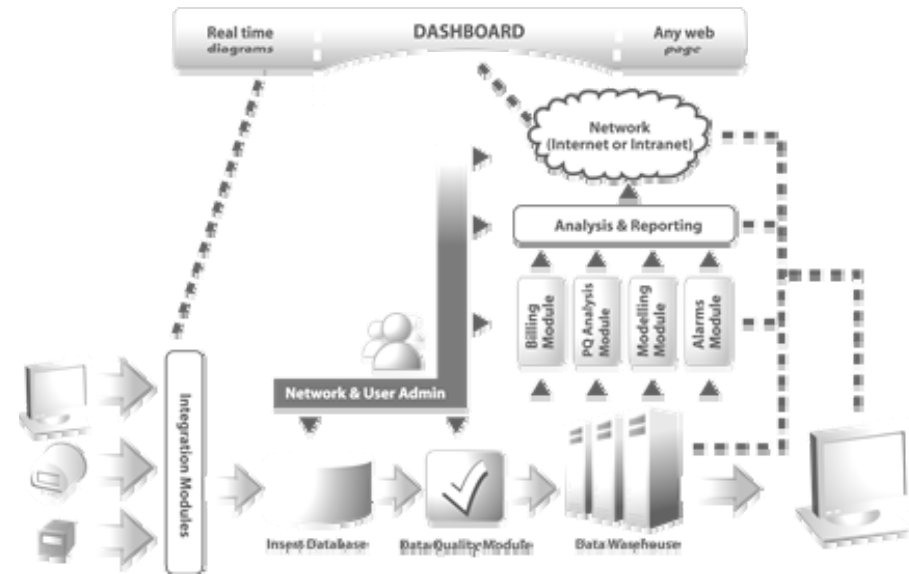
Market Trends – Demand Side

- Potential Legislation for Data Center Efficiency
- Carbon Emission Regulation and Trading
- IEC61850 in Industry (O&G/MMM), note also creeping into large hospital segment (with MV loops).
- Greenhouse Gas reporting.
- Government mandated energy reduction targets.
- Interoperability also in Industry with Process SCADA/DCS systems.



Market Trends – Cross-market

- IEC 61850
 - Utility SCADA
 - Industrial Electrical Distribution
- Data and Application Integration
- Wireless Communications



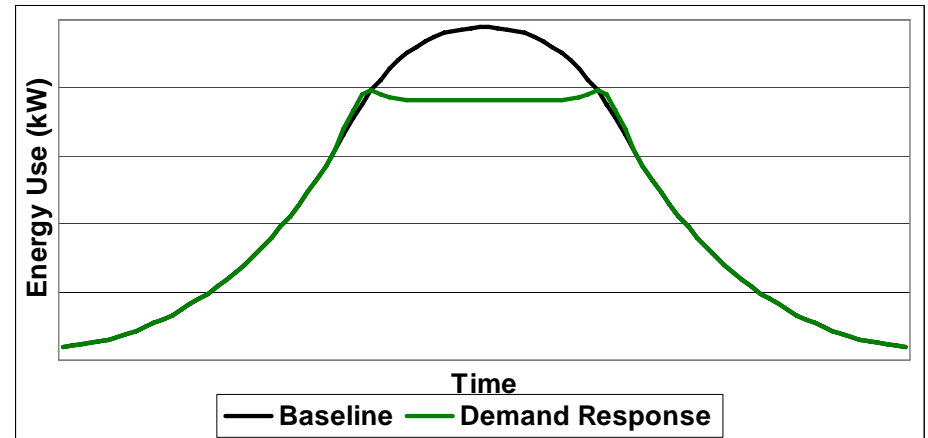
Cost of Energy

● Environmental

- leads to Carbon tracking and trading
- leads to Renewables
- leads to Energy Efficiency initiatives
- leads to Demand Response

● Financial

- Lack of generation, ageing T&D infrastructure
- leads to Renewables
- leads to Energy Efficiency initiatives
- leads to Demand Response



Cumulative Energy Management

