

Highbrook Head Office

An Energy Efficiency Showcase

Scott Noyes
Energy Management Specialist

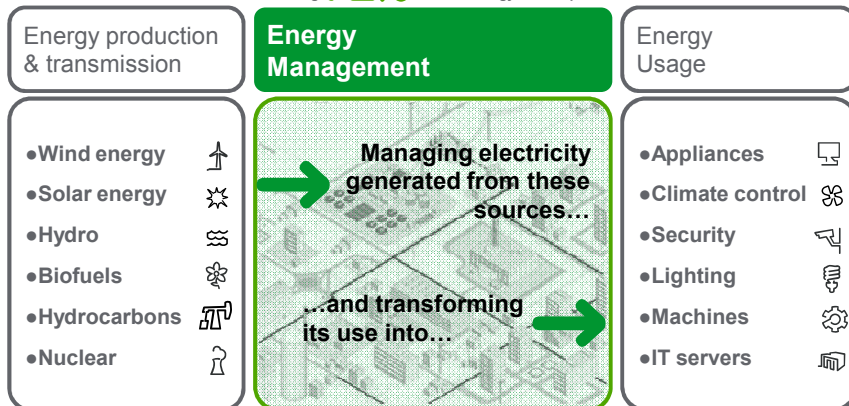


Schneider
Electric

Global Specialist in Energy Management

up to
30%
energy saving

Covering **72%** of World Energy consumption



**Making energy...
Safe, reliable, efficient, productive and green**

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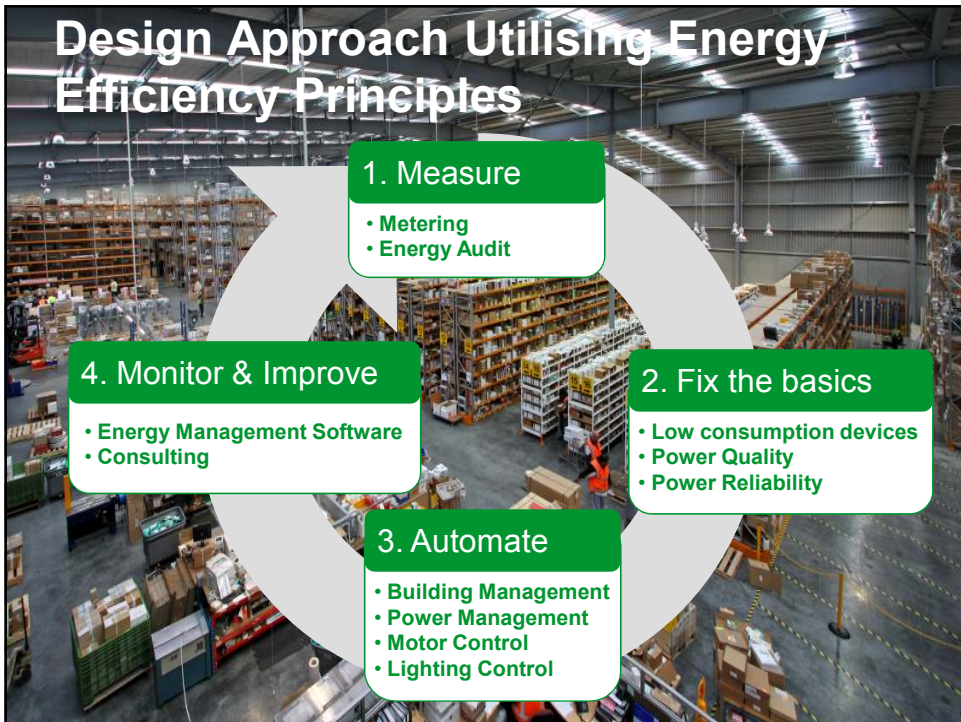
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Design Intent...

- Target 100 kWh/m²/yr
- Maximise Natural Light
- Minimise Solar Gain
- Motivational work environment
- Energy Efficiency showcase
- Sustainable approach
- “Walk the Talk”

David Deane - Permindo Institute



Design Approach Utilising Energy Efficiency Principles

- 1. Measure**
 - Metering
 - Energy Audit
- 2. Fix the basics**
 - Low consumption devices
 - Power Quality
 - Power Reliability
- 3. Automate**
 - Building Management
 - Power Management
 - Motor Control
 - Lighting Control
- 4. Monitor & Improve**
 - Energy Management Software
 - Consulting

Energy Efficiency Showcase



What was achieved...

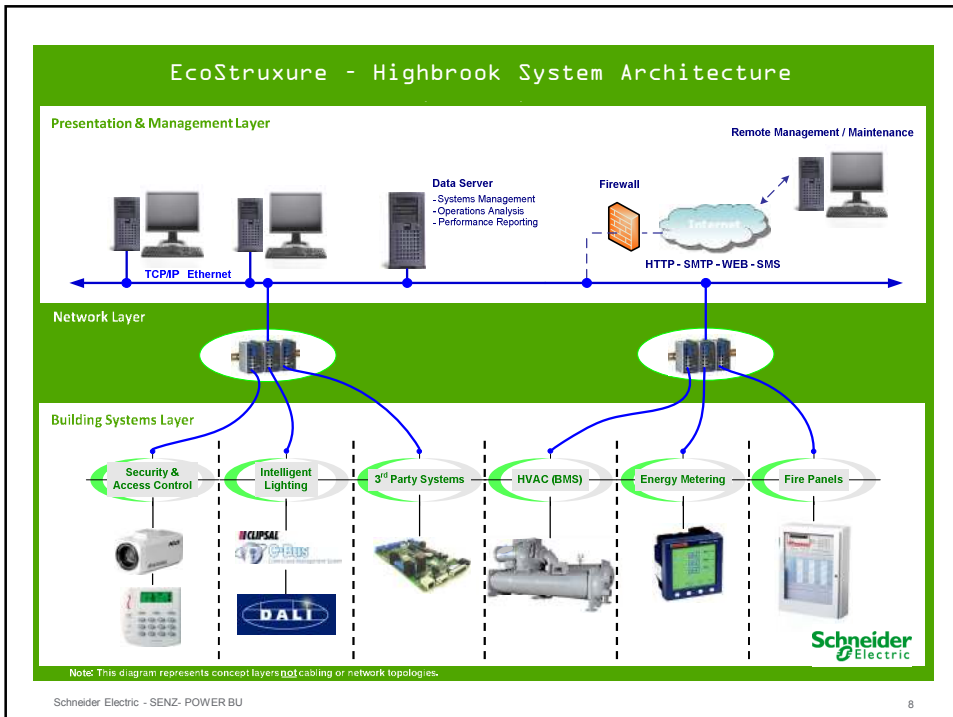
- Currently 91 kWh/m²/yr
- Property Council 2010 Excellence Award
- 2000 plus EE Tourists since July 2009
- 2011 Carbon Emission 7% lower than 2010



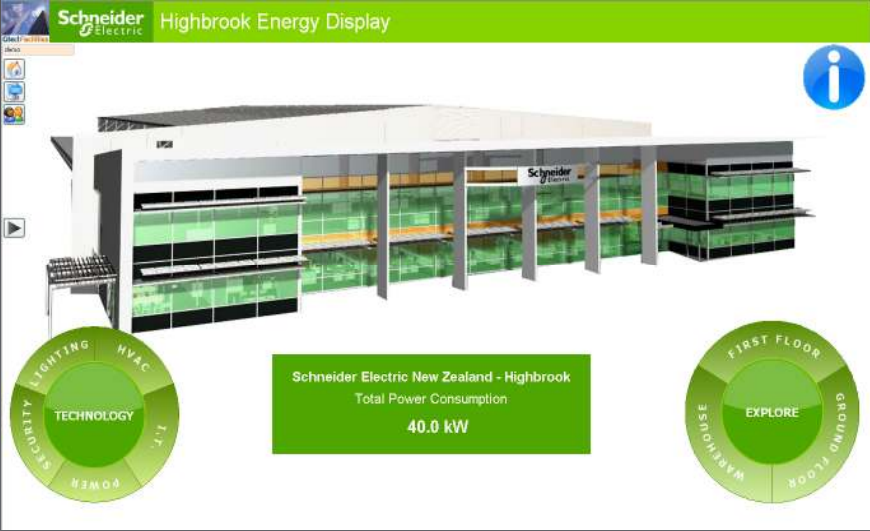


Integrated Systems:

- Daylight Harvesting
- Energy Metering
- BMS Optimised HVAC operation with CO2 controlled fresh air supply
- Integrated Security and Access Control
- Occupancy Sensing
- Graphical User Interface
- Remote Energy Management Service
- Power Factor Correction



Graphical User Interface



Real Time Energy Performance



Historic Consumption



Daylight Harvesting



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Daylight Harvesting – Warehouse Lighting



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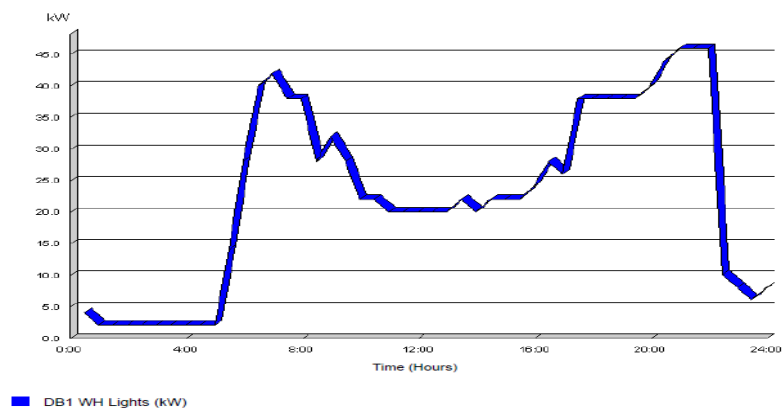
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Energy Savings from Lighting Control

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Load Profiles

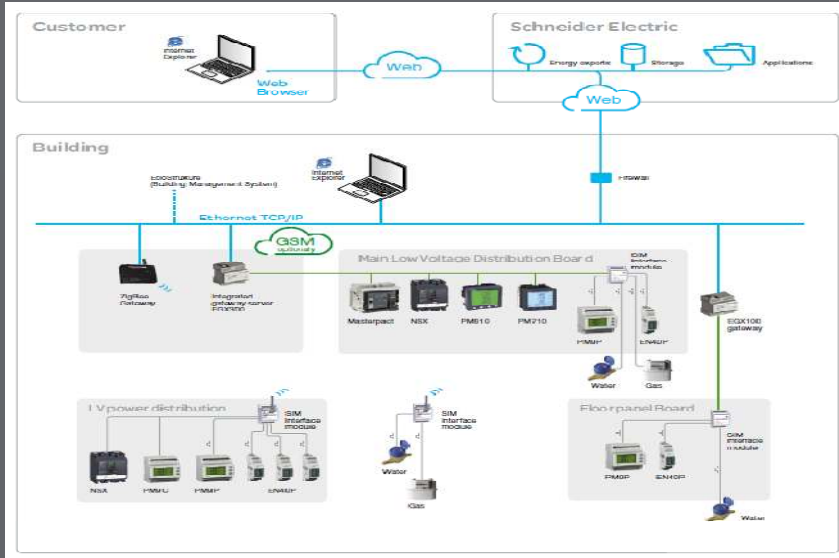
Profile for Selected Meters on Friday, 21/01/2011



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Energy Metering System Architecture



Gateway Real Time Data

Highbrook - Microsoft Internet Explorer provided by Schneider Electric

http://10.189.102.230/

Highbrook

Monitoring | Documentation | Control | Diagnostics | Maintenance | Setup | Logout

Real Time Data

Basic Readings AKL Main+Main Meter (PM800) 2011-04-07 19:48:06

Load Current (A) | Power | Voltage LL | Voltage LN

65 Real (kW) | -11 Reactive (kVAR) | 66 Apparent (kVA)

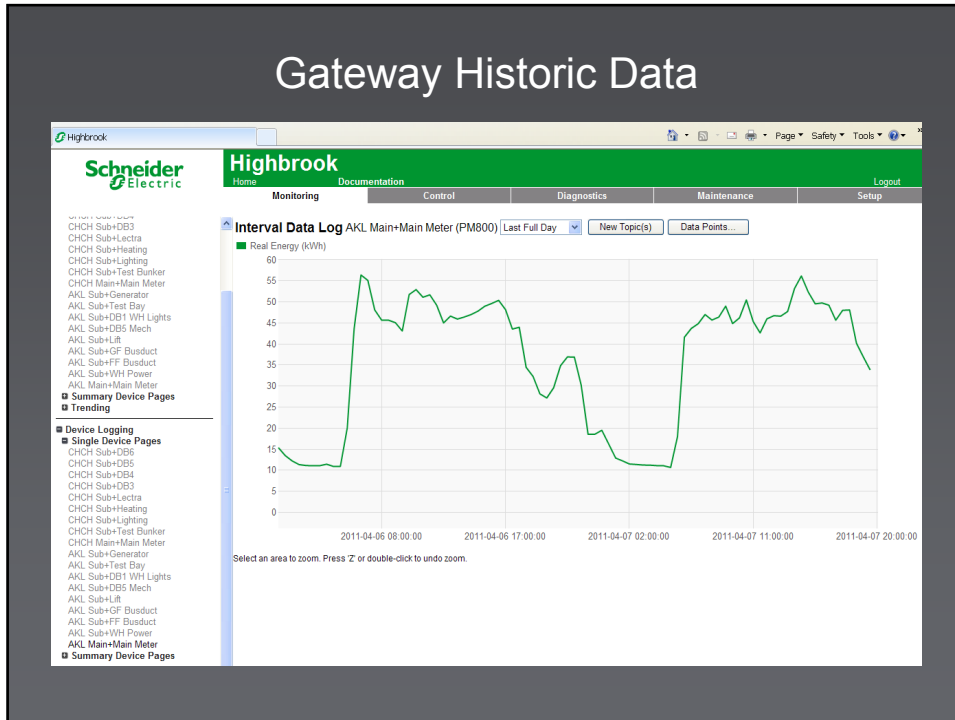
Parameter	Minimum	Present	Maximum
Load Current (A)			
Ia	26	98	---
Ib	---	84	---
Ic	---	95	306
I Avg	---	92	---
Ia	---	31	---
Ig	---	---	---
Power			
Real (kW)	18	65	147
Reactive (kVAR)	-81	-11	151
Apparent (kVA)	18	66	199
Power Factor Total	1.000	0.987 cap	0.616
Voltage			
Vab	---	414	---
Vbc	---	416	---
Vca	403	414	421
VLL Avg	---	415	---
Van	---	239	---
Vbn	232	240	243
Vcn	---	239	---
VLN Avg	---	239	---

Zap's screen grabber

Prepare screen for grabbing, then press "Grab".

Grab | Exit

Gateway Historic Data

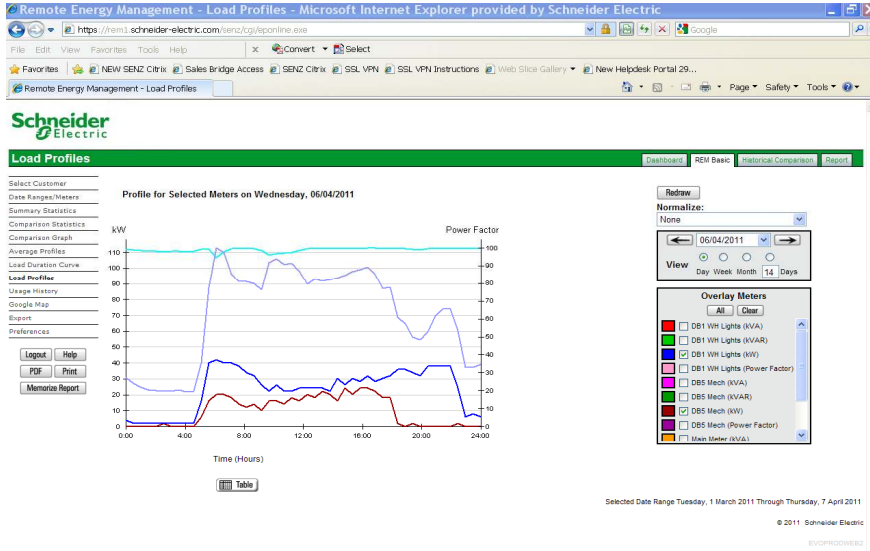


Remote Energy Management

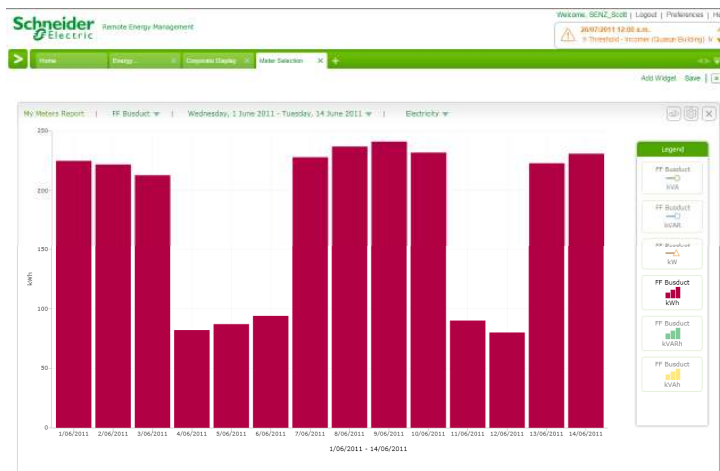
- Customised Dashboard
- Off Site Data Integrity
- Standardised Widgets
- Dynamic Reporting



REM Load Profile



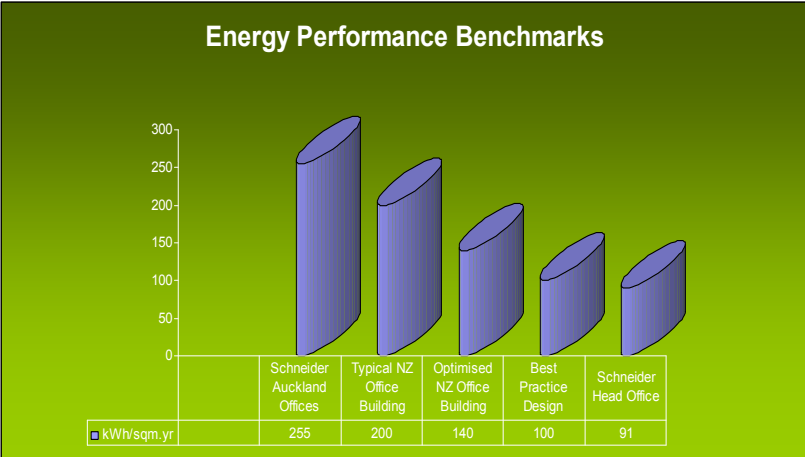
REM Consumption Data



REM iGoogle Widget



ENERGY PERFORMANCE COMPARISON



Dynamic Environment



High spec glass
Shades in summer and solar heats in winter.

North Face
Maximising natural light and solar gain.

Shades and blinds
Automated to control glare.

Daylight harvesting
C-bus control system monitors and controls lighting levels based on occupancy and natural light.

Integrated building management system
Designed to optimise energy usage.

Air Quality
Variable refrigerant volume moderates temperature through building. Evaluates air and injects O₂.

- Dimming and LED task lighting
- Meeting Rm Scheduling System
- Energy Consumption Alerts

- Access Controlled Building Modes
- Greater Energy Use Awareness
- Standby Power Control

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.....Thank You.



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