

## Integrated Energy Management System

Design, implementation, project management & remote management

### Project Background

Auchan China had tried to reduce store energy usage by implementing one-off energy retrofit projects and manual, process-based initiatives, but had not achieved meaningful and sustainable decreases in energy consumption.

In late 2006, Baseline was contracted to design and implement a technology-based step-change program to integrate all of the elements required to intensely manage Auchan store energy usage across the entire chain. This program was dubbed PEMS, short for Proactive Energy Management System.



### Baseline's Role

Baseline was contracted to conceptualise and design the new program and to write the specifications and guidelines for each PEMS element: a fully integrated digital facility management system (FMS), remote management tools and facilities, and dedicated PEMS roaming engineers. Baseline then managed the implementation of PEMS in five pilot stores during 2007.

Based on the success of the program in those pilot stores Auchan decided to implement PEMS into every new store moving forward, and also to retrofit PEMS elements to its 14 existing hypermarkets.

The goals of this project were to:

- Reduce store energy usage and electricity-based carbon emissions;
- Extend the useful life of the store equipment;
- Implement and enforce chain-wide indoor comfort standards;
- Provide data to enable fact-based assessments for engineering design decisions and equipment selection;
- Reduce the impacts of store operations on the environment in support of Auchan's sustainable development program.

### Baseline's Services To Meet Those Goals

1. Program conception and design;
2. FMS project management in each store;
3. Training and implementation at national and store level;
4. Management of the PEMS Control Centre;
5. Supply and management of dedicated PEMS Roaming Engineers.

### Key Technologies Used

- Fully integrated FMS to control and remotely manage all major mechanical and electrical systems;
- Light level, occupancy and time of day lighting control;
- Variable frequency drives for all HVAC motors over 3kW;
- Demand ventilation control;
- Continuous remote management and commissioning;
- Digital work order system and follow up procedures.

### Summary

*In 2006 Baseline was contracted by Auchan, a major hypermarket chain, to design and implement a fully-integrated energy management platform. This program was dubbed PEMS, short for Proactive Energy Management System. PEMS elements include a fully integrated digital facility management system, a remote management control centre and roaming engineers all dedicated to intensely managing the energy usage of each Auchan hypermarket.*

*PEMS has been successfully implemented in all of Auchan's hypermarkets in China is included as the standard for all new stores*

*PEMS has helped Auchan reduce store energy usage by over 25.5% since 2007. This equates to energy savings of RMB 193 million to the end of 2013.*



### Project Results and Benefits

- RMB193,000,000 in energy savings from 2007 to the end of 2013.
- 25.5% decrease in energy usage and electricity-based carbon emissions.
- Improved indoor conditions for customers and staff.
- Transparency into store and chain-wide energy performance.
- Remote validation of fire protection system equipment status.
- Refrigerated fixture temperature compliance and validation.
- Increased useful life span of major equipment and systems.