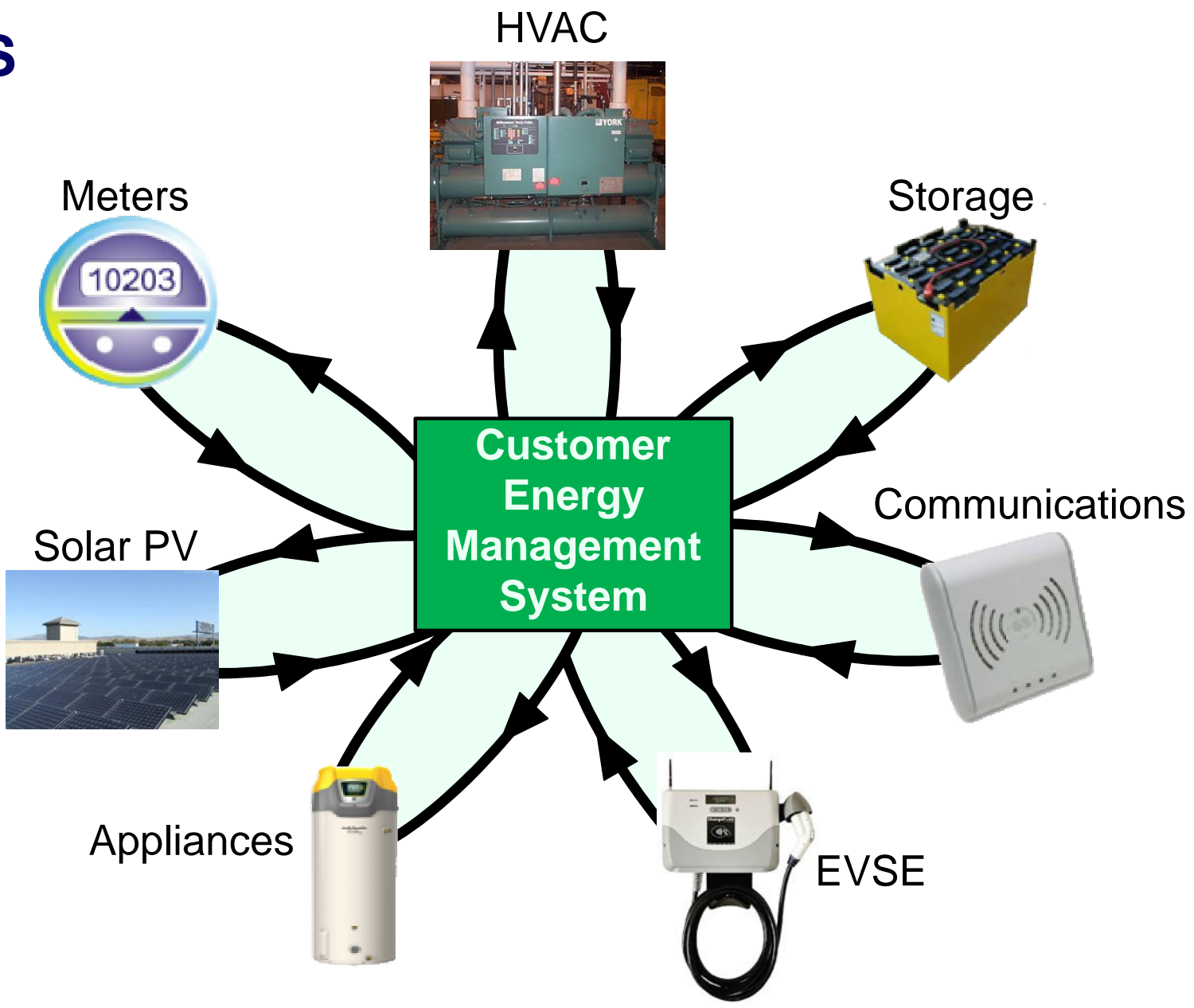


Integrating Electric Vehicle Supply Equipment (EVSE) into a Grid-Enabled CEMS

Nick McLellan
Johnson Controls, Inc.
December 8th, 2011

The EIS Alliance was formed to identify requirements and promote standards around energy information needed to allow residential, commercial, and industrial buildings to intelligently participate in the management of the building's energy consumption.

The CEMS



Why EIS Alliance?

Without EIS Alliance

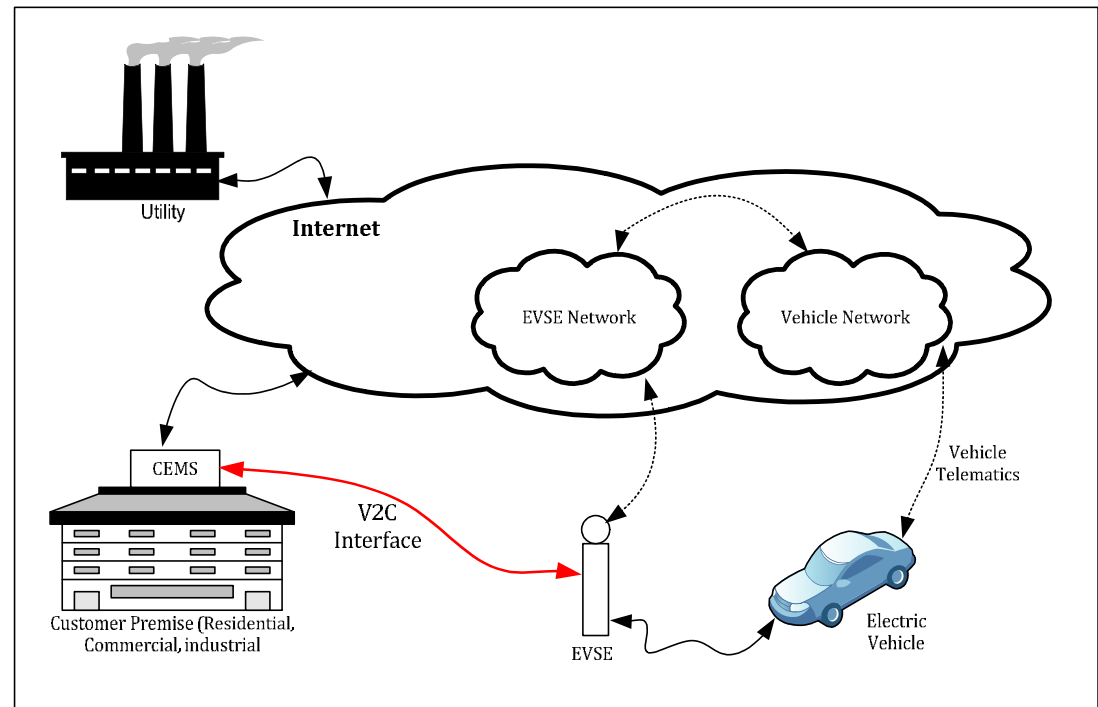
- Multiple Competing CEMS Standards
- Non-Interoperable Smart Building Systems
- Slow Adoption

With EIS Alliance

- Guide Specification to Drive Standards
- Support from major CEMS vendors
- Faster adoption of interoperable products

Goal of EIS Use Case Development:

- Foster an open discussion and brainstorming forum between EVSE vendors
- Create information model and use case set for data passed between a commercial energy management system and an electric vehicle supply equipment
- Assist development of smart grid standards



What is an EVSE?

- A device designed to supply power to an electric vehicle
- Multiple power levels

Charge Level	Voltage	Amperage	Power (kW)
AC Level 1	120	12	1.44
AC Level 2	240	80	19.2
CHAdeMO (DC)	480	125	60

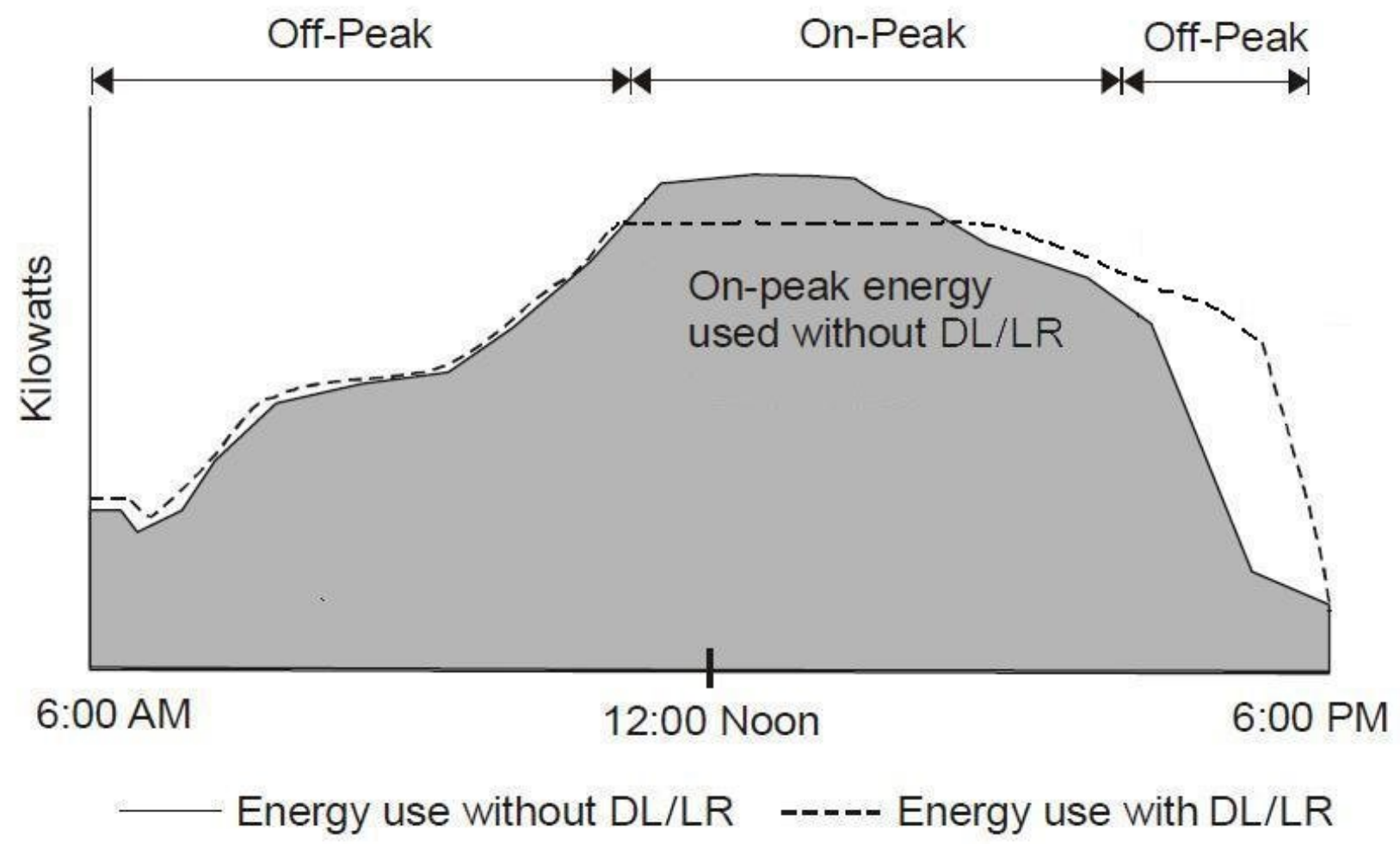


Name	Description
Access Control	This use case describes the process for verifying that the vehicle operator / vehicle combination have been authorized to use a particular EVSE.
Fleet Management	This use case describes the information needed to facilitate the EVSE specific information that a fleet management system can use to evaluate the performance and extend the life of an EV/PHEV.
V2C Storage and Regulation	This use case describes the interactions between a CEMS and an EVSE system while using electric vehicles as energy storage for a facility or campus or as energy regulation services for a facility, campus, or the grid.

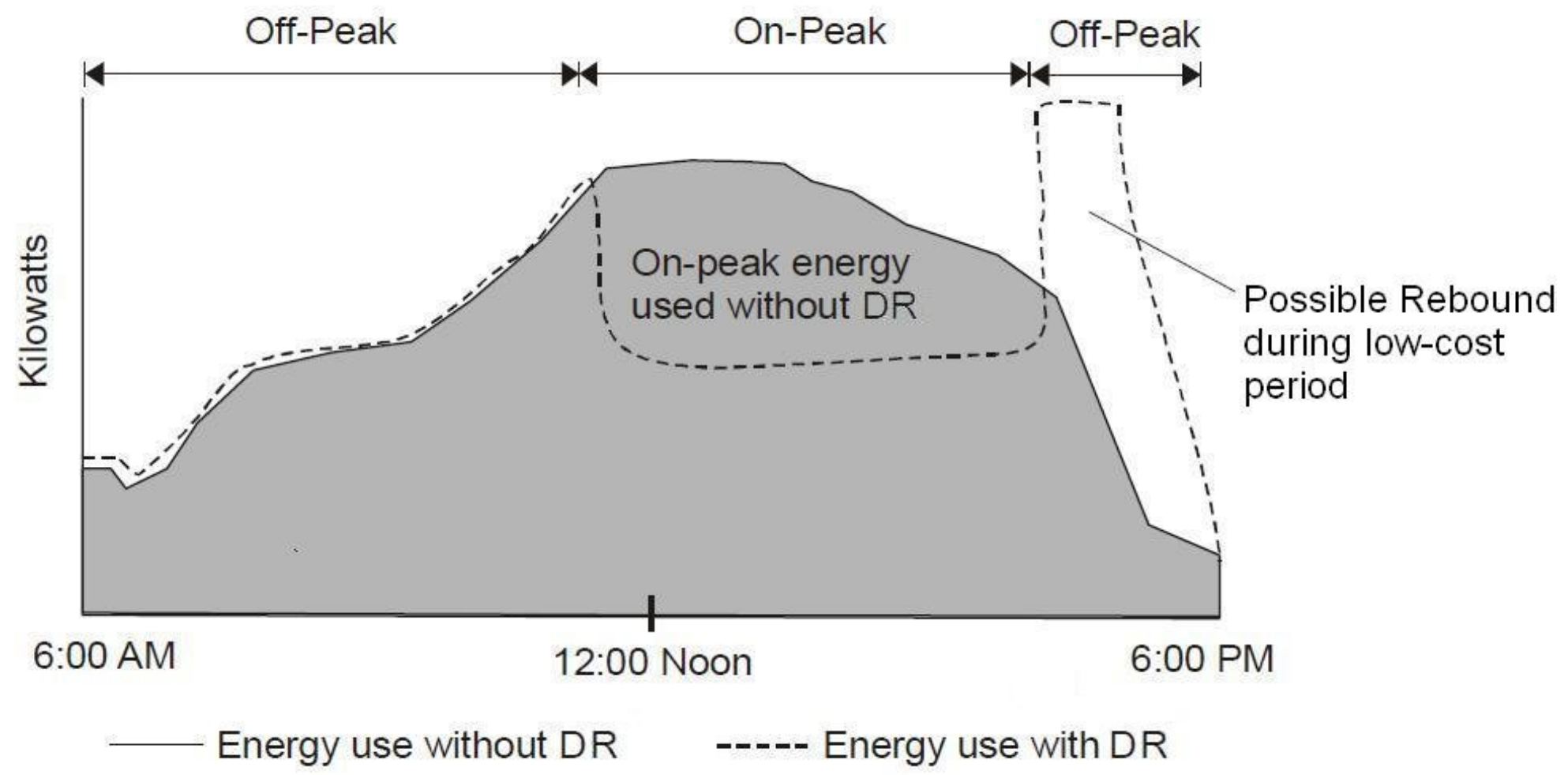
Advantages of V2C Integration:

- Maintain a consistent building-level load profile
- Utilize electric vehicles in demand response programs
- Ancillary Services - Frequency Regulation

Peak Demand Limiting and Load Rolling

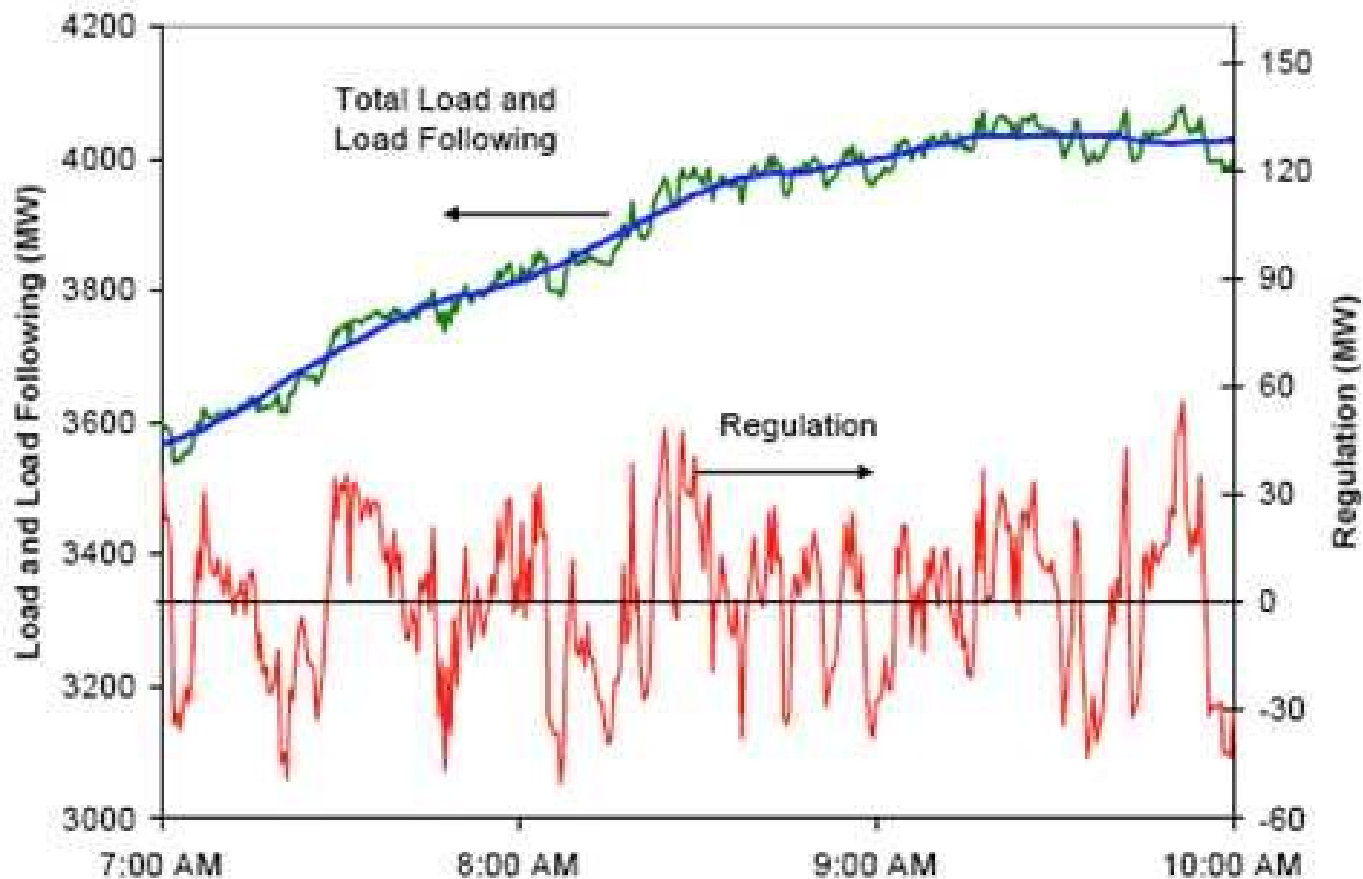


Demand Response



Frequency Regulation:

Regulation is a zero-energy service that compensates for minute-to-minute fluctuations in total system load and uncontrolled generation.¹



¹Kirby, Brendan, *Frequency Regulation Basics and Trends*, December 2004.

ASHRAE SSCP135 BACnet Committee:

- Alliance has decided to pursue the ASHRAE SSCP135 BACnet committee as its first instantiation of the EVSE data model
- Submitted proposal during the fall 2011 BACnet meeting
- Asked to build and submit a BACnet object compliant to SPC201 information model



www.eisalliance.org

EIS Alliance Board Member Companies

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EIS Alliance Associate Member Companies

