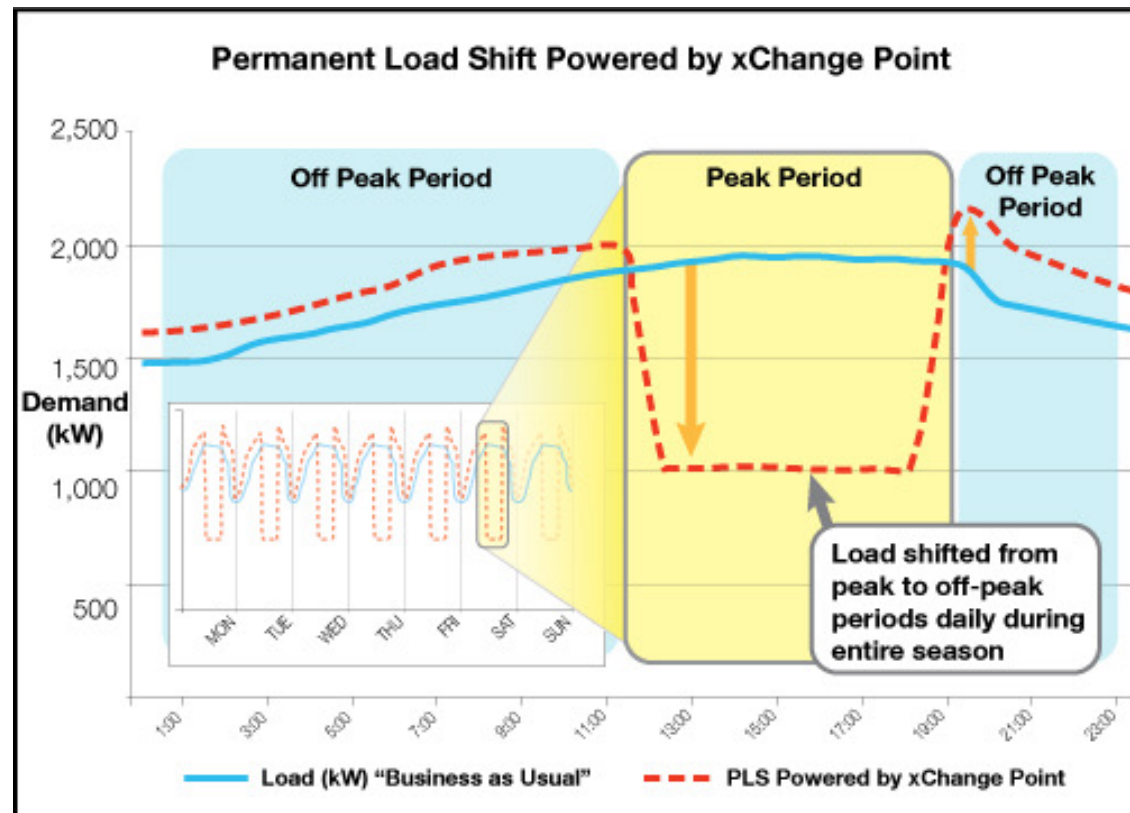

Demand Response for Energy Auditors

Course No. ENGR 58

Management and Operation of an Electric Grid

- A. Balance of load management strategies
- B. Role of utilities and California Independent System operator
- C. Benefits to California

Load factor and billing data analysis for Demand Response and Load Shifting

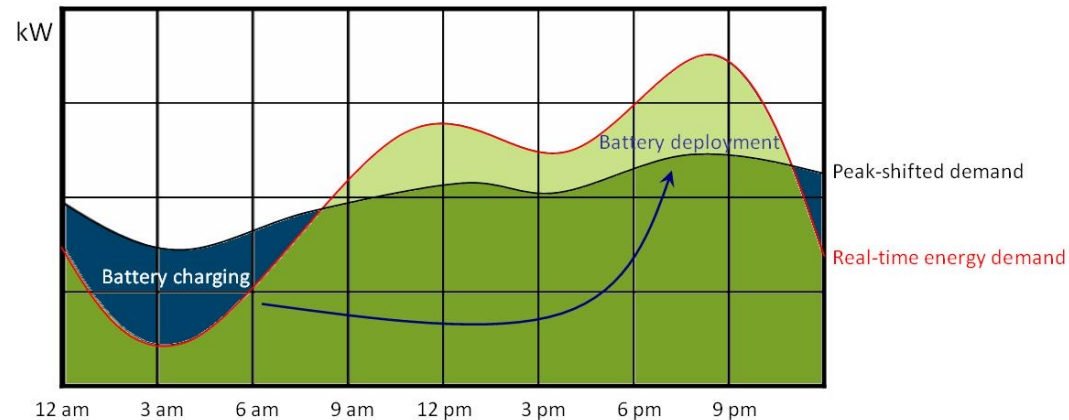


Implementation issues, benefits and challenges of various demand response strategies:

- Global temperature adjustment
- Supply air temperature increase
- Chilled water temperature increase
- Cooling valve limit
- Duct static pressure decrease
- AC cycling controllers
- Chiller demand limit
- Fan VFD limit
- Fan quantity reduction
- Turn off lights in specific zones
- Dimmable ballasts
- Stepped or bi-level lighting controls
- Addressing miscellaneous equipment
- Alternative work schedules
- Demand limit strategy

Peak Load shedding or shifting

- Daylighting controls
- Thermal storage
 - Chilled water
 - Ice
 - Solid materials
 - Phase-change materials
 - Chemical storage
- Night flushing/pre-cooling
- Equipment charging

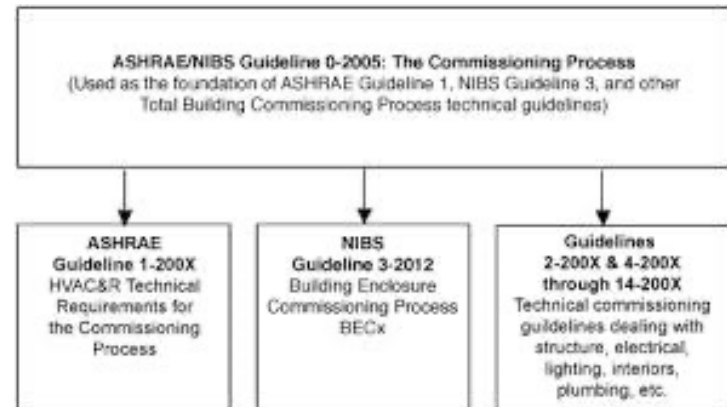


Back-up generation and co-generation

- Applications
- System integration issues
- Air quality regulations



Commissioning of load management systems



Utility pricing signals and auto demand response

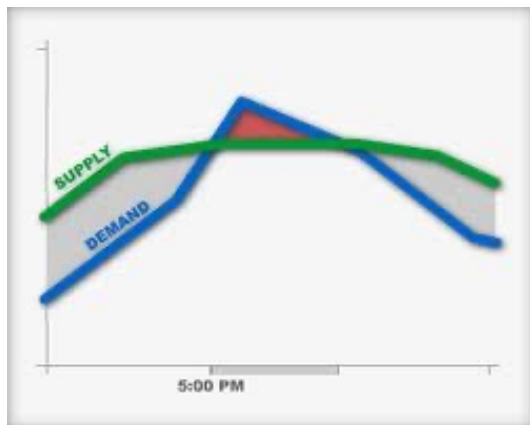


Learning Outcomes

- Assess the importance of load management and demand response in limiting peak load across the electrical grid
- Calculate and analyze load factor for various facilities as part of an effort to determine the impact of demand response or load shifting strategies
- Synthesize information on the variables that inform load management and demand response projects including utility rates, climate, facility type, facility usage patterns and occupant satisfaction
- Evaluate specific facilities for the potential application of various load management and demand response measures
- Integrate back-up generators and alternative work-force schedules into demand response strategies, and consider the challenges these measures introduce
- Assess the value of automating demand response strategies to speed up response time and eliminate human errors

COURSE DESCRIPTION

5% of California generation is only utilized for 40 hours over a year. The power plants represented in this 5% are the dirtiest and most expensive in the state. We can eliminate the need for this generation through the use of demand response (DR) and load management. This class explores the applicability of various DR strategies including global temperature adjustment, global dimming for lights, pre-cooling and load control devices. DR rates and incentive types will be covered. Other topics include thermal storage and other load shifting systems, AutoDR, persistence and commissioning of these systems.



BEST Center Curricula, Resources & Recordings

Academic Programs

Georgia Piedmont Technical College - Building Automation Systems

Milwaukee Area Technical College - Sustainable Facilities Operations

Laney College - Commercial HVAC Systems

City College San Francisco - Commercial Building Energy Analysis & Audits

Professional Development Materials, Presentations & Videos

National Institutes

Building Automation Systems Instructor Workshops

Webinars (e.g., BEST Talks)

Faculty Profile Videos

Reports & Case Studies

Marketing Resources

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