

***The UC/CSU Experience:
Lessons Learned in 2001
in Energy Efficiency and Reliability***

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The UC/CSU Experience: Lessons Learned in 2001 in Energy Efficiency and Reliability

- Background
- Energy Efficiency
 - Efforts
 - Results
- Demand Responsiveness
 - Efforts
 - Results
- Observations
- Lessons Learned

Background

- UC/CSU active in EE for many years
- Efforts/resources vary by campus
- Decentralized decision making structure
- Several campuses active in Summer Initiative and AB 970 EE programs
- Cal. energy crisis not conducive to orderly planning and integration of EE and PLM

Energy Efficiency Efforts

- CPUC's Summer Initiative Program
- Regular utility programs
- CEC's AB 970 Program
- Non-programmatic efforts

Energy Efficiency Efforts

- Summer Initiative and AB 970

- 15 campuses participated
- HVAC
- Lighting
- VSD

Energy Efficiency Results

- *Estimated savings*

- Summer Initiative
 - 25 million kWh savings (16 million more went unfunded)
 - 7.3 MW peak demand reduction
- AB 970
 - 7 million kWh savings
 - 13.1 MW peak demand reduction
- Combined savings represent:
 - 3% of UC/CSU electricity use
 - 4% of UC/CSU peak demand

Demand Responsiveness

–Programmatic Efforts

- ISO's Demand Relief Program
 - 11 campuses participated
 - ~ 9 MW peak reduction commitment
- CPUC's OBMC Program
 - 3 campuses participating
 - Mandated 15% drop during Stage 3

Demand Responsiveness

–Non-Programmatic Efforts

- Observance of DGS peak reduction protocols (as per “Memo 01-05”)
- Variety of lighting, HVAC, VFD retrofits
- New and expanded EMS
- Reschedule campus hours
- Additional voluntary conservation efforts
- Central plant curtailments
- TES systems
- New cogeneration facilities

Demand Responsiveness

- *Results*

- ISO's DRP:
 - 13 MW calculated performance vs. 9 MW commitment
- CPUC's OBMC
 - Performed adequately (i.e., achieved measured 15% drop)
- Non-Programmatic
 - 60 MW from post-AB 970 efforts
 - 153 MW from pre-AB 970 efforts

Observations

- *Energy Efficiency Programs*

- Summer Initiative and AB 970 models more streamlined than regular utility programs
 - SI: one M&V methodology for all
 - Payments more front loaded
 - Awards less dependent on recipient co-pays (SI: some; AB 970: not at all)

Observations

- *Energy Efficiency Programs*

- No apparent extra weighting given by CPUC to EE measures that offered greater peak savings
- Distinct EE (SI, AB 970) and DR program offerings not well integrated
- Simpler program designs offered by SI and AB 970 programs made quick implementation possible.
- UC/CSU still have backlog of cost-effective EE projects – 4 campuses alone have over \$15 million unfunded projects

Observations

- *DR Program Processes*

- **Too many:**
 - regulatory actors
 - programs
- **Too little:**
 - interagency coordination
 - time for program design and development of measurement methodologies
 - Upfront consultation with potential participants
- **Too much** uncertainty re:
 - level of compensation
 - which programs would actually be offered,
 - which customers would gain (or regain) protection from rotating outages)

Observations

- *DR Program Design*

- Performance calculation methodologies
 - Bad for temperature-sensitive loads (the ones that create midday peaks!)
 - OBMC campuses had to double or triple performance in order to prevent penalties!
 - Perverse incentives problem: Failure to account for demand reductions occurring prior to a program's "trigger point" led to:
 - Penalizing the efficient and rewarding the inefficient.
 - Penalizing the early actor and rewarding the "just-on-time" actor.

Lessons Learned

- *Energy Efficiency Programs*

- EE implementation, and more of it, can happen very quickly with the right program design.
- Common M&V protocol and front-loaded funding both extremely beneficial.
- Multi-year programs and budgets are needed to avoid “stop-start” inefficiencies.

Lessons Learned

- Demand Responsiveness Programs

- Develop more accurate and fair performance calculation methodologies for DR programs.
- Start earlier to prepare the next year's programs.
- Send consistent, reasonable signals to the marketplace and provide adequate stability.
- Offer multi-year programs so that upfront costs can be better amortized.

Lessons Learned

- *Overall*

- Everyone's got a lot of work to do to integrate EE and DR efforts and programs. IRP-like perspective is needed.
- Long term focus is needed for both.
- Public agencies need to coordinate with each other and define respective roles.