

National Action Plan for Energy Efficiency

Scoping Study: Coordinating Energy Efficiency and Demand Response

Background, Approach, Outline

December 21, 2007

A. Background

The work plan for the second year of the National Action Plan for Energy Efficiency (Action Plan) states:

“expand[ing] the scope of the Action Plan to additional demand side management options. The second year of the Action Plan provides the opportunity to expand the components of the Plan to include more energy management options, choices and tools for both electricity providers and customers. A particular focus will be to determine how to incorporate energy efficiency and demand response in complementary ways such that customers have increased tools at their disposal with which to understand, manage and reduce their electricity use.”

A key issue for program administrators and policymakers is optimal strategies to coordinate demand response and energy efficiency programs in an overall resource portfolio. A key issue for customers is how to coordinate demand response and energy efficiency technologies, operational practices, etc., in their buildings and facilities in order to manage their energy costs.

Task Overview

Prepare scoping study report and presentations for the Action Plan Leadership Group on coordinating efficiency and demand response from a customer perspective as well as the perspectives of administrators and service providers of energy efficiency and demand response programs.

Target audiences include:

- 1) Policymakers who need a short and concise higher level summary of the issue;
- 2) Program administrator staff who are involved in design, marketing, and implementation of energy efficiency and demand response programs;
- 3) Regulatory staff who are responsible for overseeing and approving EE and DR program and tariff offerings;

- 4) Service provider organizations that are involved in energy efficiency and/or demand response and are considering strategies to facilitate increased coordination of service offerings

Approach: Review and synthesize the literature and existing studies on this topic and conduct interviews with a sample of facility managers and corporate energy managers, program administrators and EE and DR service providers to explore their perspectives on coordinating energy efficiency and demand response.

Partial list of topics that will be reviewed include:

1. Customer perspectives on how they see energy efficiency and demand response at the facility level, motivations for pursuing EE and/or DR projects, and how they work with utility EE and DR programs
2. Examples of technologies that can produce both efficiency improvements and demand reductions
3. Program design and organizational aspects of coordinating EE and DR faced by program administrators, including:
 - a. Co-marketing and co-branding of EE and DR offerings
 - b. Case study examples of successful and less-successful integrations
 - c. Targeted DSM for congestion that includes both EE and DR
 - d. Limitations to tighter integration of EE and DR, such as utility practices, regulatory policies, and/or funding mechanisms
4. Review/synthesis of studies on energy savings impacts of DR programs and peak reduction impacts of EE programs

B. Scoping Study: Outline

(Chapter and section titles are intended at this stage to be descriptive of the material to be covered, not the proposed literal titles)

Executive Summary

A short (2-4 page), high-level synopsis of the contents.

Chapter 1: Introduction

Purposes of this report

- To synthesize research to date on the relationship between energy efficiency (EE) and demand response (DR)

- To develop new information on the coordination of EE and DR
 - Addressing the planning, design, management, and marketing of EE and DR
 - Gathering and synthesizing the distinct perspectives of customers and program administrators
 - Focusing on current practices, opportunities, and barriers to coordination
- To help inform practitioners and regulators who are considering coordination of EE and DR programs that they implement or regulate

Organization of this report

Chapter 2: What is the Relationship Between Energy Efficiency and Demand Response?

(This chapter will largely draw on existing literature on, or related to, the topic. It is intended to collect what we know about the EE/DR relationship and to identify what we don't know. Some material from primary research [interviews] will be brought in where appropriate.)

Program typology

- Definitions of EE and DR
- Key policy goals addressed by EE and DR
- How strategies (and programs) are arrayed across an EE/DR continuum

(Sources: Several reports and papers have attempted to define and categorize EE and DR. For DR, we will use the definition in DOE's Feb. 2006 report to Congress on DR benefits. Will also refer to the conceptual framework developed by LBNL Demand Response Research Center.)

Impacts of EE and DR beyond their primary purposes

- EE impacts on peak load
- DR impacts on energy consumption

Coordination of EE and DR

- Types and levels of coordination
- Examples of coordination (from literature review and interviews)

- Coordinating assessments of potential and establishment of goals
 - Funding both out of the same pool of dollars
 - Housing both within the same part of the organization
 - Making program managers responsible for both
 - Designing tariffs that reward both
 - Marketing jointly
 - Linking program eligibility requirements
 - Providing unified technical assistance
 - Incentivizing installation of equipment with dual benefits
 - Delivering seamless packages of EE and DR
- Drivers/benefits of coordination (including system- or societal-level benefits)
 - Barriers to EE/DR coordination

(Sources for this section and the preceding one include York and Kushler's 2005 ACEEE report on the EE/DR relationship; King and Delurey [2005] and Nemptow, Delurey, and King [2007] articles in PUF; RMI 2006 white paper for SWEEP on DR)

Price structures that support both EE and DR

(Sources: DRRC Research Opportunity Notice on Pricing; CA Statewide Pricing pilot results (residential customer acceptance/satisfaction with inverted tier rates and critical peak pricing; Ahmad Faruqi; Action Plan Chapter 4)

Technologies that support both EE and DR

(Sources: Several LBNL Demand Response Research Center reports on building control strategies; Site Controls results)

Chapter 3: Customers' Views of EE/DR Coordination

(To be developed through interviews with large customers; may present as a series of case studies. Will also review and seek permission to use material from recent case studies of retail customers' views on DR that E Source prepared for a utility client. Will solicit suggestions from Leadership Group.)

Understanding of EE, DR, and their differences

Motivation/goals for participating in EE/DR

Barriers to participating in EE/DR

Pricing and program structures, marketing and positioning, and other factors that would encourage investment in EE/DR and participation in programs

Views of EE/DR coordination (pros and cons)

Chapter 4: Program Administrators' and Service Providers Views of EE/DR Coordination

(To be developed through interviews with a diverse set of retail utility implementers, public benefit organizations, non-utility administrators and selected energy service companies (ESCOs) and curtailment service providers (CSP); may present as a series of case studies.)

Reasons to coordinate EE and DR

Perceived barriers to EE/DR coordination or reasons not to coordinate

Perceptions as to the appropriate points or levels of coordination (i.e., should it extend all the way back to resource planning?)

Examples of how EE & DR are being coordinated today

- Planning
- Program design
- Management
- Marketing

Drivers of current level of EE/DR coordination

Intent to pursue EE/DR coordination in the future

Chapter 5: Lessons/Conclusions *(To be drawn from preceding chapters)*