CHAPTER 17: MODEL CONSERVATION STANDARDS

Contents

INTRODUCTION

The Northwest Power Act directs the Council to adopt and include in its power plan model conservation standards (MCS) applicable to (i) new and existing structures; (ii) utility, customer, and governmental conservation programs; and (iii) other consumer actions for achieving conservation. The Act requires that the standards reflect geographic and climatic differences within the region and other appropriate considerations. The Act also requires that the Council design the MCS to produce all power savings that are cost-effective for the region and economically feasible for consumers, taking into account financial assistance from the Bonneville Power Administration and the region's utilities.

In addition to the requirements set forth in the Act, the Council believes the model conservation standards in the plan should produce reliable savings and that the standards should, where possible, maintain and improve upon the occupant amenity levels (e.g., indoor air quality, comfort, window areas, architectural styles, and so forth) found in typical buildings constructed before the first standards were adopted in 1983.

The Power Act provides for broad application of the MCS. In the earlier plans, a strong emphasis was needed to improve residential and commercial building construction practices beyond the existing codes. Beginning with the first standards adopted in 1983, the Council has adopted a total of six model conservation standards. These include the standard for new electrically heated residential buildings, the standard for utility residential conservation programs, the standard for all new commercial buildings, the standard for utility commercial conservation programs, the standard for conversions to electric heating systems, and the standard for conservation programs not covered explicitly by the other model conservation standards.[1] Since the Council adopted its first standards, all four states within the Northwest have adopted strong energy codes that incorporate the model conservation standards set forth in previous plans.

OVERVIEW

Since there are few cost-effective measures beyond current and proposed building energy codes in the region, the Seventh Power Plan MCS focuses on the other aspects of the Power Act provision: utility, customer, and governmental conservation programs, and other consumer actions for achieving conservation. The MCS for the Seventh Power Plan has two main components. The first is an expansion of the standard for utility conservation programs. The utility conservation program standards are the same as in the Sixth Power Plan at a high level, but the Council adopts three specific components to the existing standard to ensure adoption and implementation. The specifics include (1) standards to achieve full participation in programs, (2) incorporation of voltage optimization in distribution systems, and (3) enhancement of codes and standards. Second, it provides the standard for conversions (similar to prior MCS) from an electric space or water heating system from another fuel.

[1] This chapter supersedes the Council's previous model conservation standards and surcharge methodology.

CONSERVATION PROGRAM STANDARDS

This model conservation standard applies to all conservation actions except those covered by the standard for electric space conditioning and electric water heating system conversions. This model conservation standard is as follows: All conservation actions or programs should be implemented in a manner consistent with the long-term goals of the region's electrical power system, as established in the Seventh Power Plan. In order to achieve this goal, the following objectives should be met:

1. Conservation acquisition programs should be designed to ensure that regionally cost-effective levels of efficiency are economically feasible for the consumer.
2. Conservation acquisition programs should be targeted at conservation opportunities that are not anticipated to be developed by consumers.
3. Conservation acquisition programs should be designed so that their benefits are distributed equitably.
4. Conservation acquisition programs should be designed to secure all measures in the most cost-efficient manner possible.
5. Conservation acquisition programs should be designed to take advantage of naturally occurring "windows of opportunity" during which conservation potential can be secured by matching the conservation acquisitions to the schedule of the host facilities or to take advantage of market trends. In industrial plants, for example, retrofit activities can match the plant's scheduled downtime or equipment replacement; in the commercial sector, measures can be installed at the time of renovation or remodel.
6. Conservation acquisition programs should be designed to capture all regionally cost-effective conservation savings in a manner that does not create lost-opportunity resources. A lost-opportunity resource is a conservation measure that, due to physical or institutional characteristics, will lose its cost-effectiveness unless actions are taken now to develop it or hold it for future use.
7. Conservation acquisition programs should be designed to maintain or enhance environmental quality. Acquisition of conservation measures that result in environmental degradation should be avoided, mitigated or minimized.
8. Conservation acquisition programs should be designed to enhance the region's ability to refine and improve programs as they evolve.

The focus of the Seventh Power Plan MCS is on three areas intended to improve program design and delivery. These include

- Ensuring full participation in programs;
- Achieving voltage optimization; and,
- Enhancing codes and standards.

Standard to Ensure Full Participation in Programs

The model conservation standard to ensure full participation in programs is as follows: To ensure that the region captures all regional cost-effective savings, utilities should secure proportional

savings from hard to reach populations. Implementation of Action Plan item MCS-1 is required to satisfy this standard.

The data collected by the Council through the Regional Technical Forum's Regional Conservation Progress report show that the region has exceeded the Council Plan's targets every year since 2005. However, this does not necessarily mean that the region has captured all-cost effective savings identified in the Plan. In pursuing all cost-effective conservation, there are segments of the population that typically participate in programs at lower rates than others, often due to cost barriers. These segments can be classified as "hard to reach (HTR)" or "underserved". Although low-income customers are often an underserved segment, other hard-to-reach (HTR) segments may include: mid-income customers, customers in rural regions, small businesses owners, commercial tenants, multifamily tenants, manufactured home dwellers, and industrial customers if they are unable or unwilling to participate in conservation programs.

The up-front cost required to purchase or install higher efficiency products or technology is often a significant barrier to HTR consumer adoption of energy-efficient measures, particularly for low- and moderate-income customers. Regional entities (including Bonneville, utilities, Energy Trust of Oregon, Northwest Energy Efficiency Alliance [NEEA]) frequently provide financial incentives to consumers to overcome this barrier, but these financial incentives usually only cover a portion of the measure's cost. The requirement for "cost-sharing" and other program design elements or marketing approaches limits the number of consumers who can participate in energy efficiency programs and thus the amount of cost-effective savings that can be achieved.

Voltage Optimization Standard

The model conservation standard for voltage optimization is as follows: The standard requires utilities to assess and implement all cost-effective potential for voltage optimization on their distribution systems. Significant savings could be acquired by optimizing the distribution system using optimization of voltage and reactive power (known as Volt/VAR Optimization or VVO) or conservation voltage regulation (CVR), per the analysis of distribution system savings for the conservation supply curves (see Chapter 12 and Appendix G). Completion of Action Plan item MCS-2 that calls for evaluation of savings on utility distribution circuits and implementation of all cost-effective conservation within a reasonable timeframe are required to satisfy this standard.

Enhance Codes and Standards

The standard requires states and utility-funded programs, including NEEA, to continue to work together to develop conservation options that could be included in future codes and standards updates. Implementation of Action Plan items MCS-3 through MCS-7 that call for a review of state codes, improved federal test procedures utilizing data from the region, pilot programs for emerging technologies that may be included in codes and standards, regional input on federal standards updates, and development of best practices guides for processes not covered by codes or standards are required to satisfy this standard.

One of the most cost-efficient ways to ensure adoption of conservation measures is through their enactment as codes and standards. Some examples include:

- Commercial building energy reductions – include variable refrigerant flow systems, low lighting power densities, and dedicated outside air systems
- Industrial processes, including indoor agriculture and data centers – develop best practice guides to run processes as efficiently as possible
- Federal standards test procedures – develop data in support of the federal standard test procedures to accurately predict in-field energy use of regulated products

CONVERSION TO ELECTRIC SPACE CONDITIONING AND WATER HEATING

The model conservation standard for existing residential and commercial buildings converting to electric space conditioning or water heating systems is as follows: State or local governments or utilities should take actions through codes, service standards, user fees or alternative programs or a combination thereof to achieve electric power savings from such buildings. These savings should be comparable to those that would be achieved if each building converting to electric space conditioning or water heating were upgraded to include all regionally cost-effective electric space conditioning and water heating conservation measures.

SURCHARGE RECOMMENDATION

The Power Act authorizes the Council to recommend a surcharge and the Bonneville Administrator may thereafter impose such a surcharge on customers that have not implemented conservation measures that achieve energy savings comparable to those which would be obtained under the Model Conservation Standards in the plan. The Council does not recommend a surcharge to the Administrator under Section 4(f) (2) of the Act at this time.

The Council intends to continue to track regional progress toward the Plan's MCS and will review its decision on the recommendation, should accomplishment of these goals appear to be in jeopardy. Should utilities fail to enact these standards, then Bonneville may need the ability to recover the cost of securing those savings. In this instance the Council may wish to recommend that the Administrator be granted the authority to place a surcharge on that customer's rates to recover those costs.

Surcharge Methodology

Section 4(f)(2) of the Northwest Power Act directs the Council to include a surcharge methodology in the power plan. The surcharge must, per the Act, be no less than 10 percent and no more than 50 percent of the Administrator's applicable rates for a customer's load or portion of load. The surcharge is to be applied to Bonneville customers for those portions of their regional loads that are within states or political subdivisions that have not, or on customers who have not, implemented conservation measures that achieve savings of electricity comparable to those that would be obtained under the model conservation standards.

The purpose of the surcharge is twofold: 1) to recover costs imposed on the region's electric system by failure to adopt the model conservation standards or achieve equivalent electricity savings; and 2)

to provide a strong incentive to utilities and state and local jurisdictions to adopt and enforce the standards or comparable alternatives. The surcharge mechanism in the Act was intended to ensure that Bonneville's utility customers were not shielded from paying the full marginal cost of meeting load growth.

As stated above, the Council does not recommend that the Administrator invoke the surcharge provisions of the Act at this time. However, the Act requires that the Council's plan set forth a methodology for surcharge calculation for Bonneville's administrator to follow.

Should the Council alter its current recommendation to authorize the Bonneville administrator to impose surcharges, the method for calculation is set out below.

Identification of Customers Subject to Surcharge

The administrator should identify those customers, states or political subdivisions that have failed to comply with the model conservation standards set forth within this chapter.

Calculation of Surcharge

The annual surcharge for non-complying customers or customers in non-complying jurisdictions is to be calculated by the Bonneville administrator as follows:

1. If the customer is purchasing firm power from Bonneville under a power sales contract and is not exchanging under a residential purchase and sales agreement, the surcharge is 10 percent of the cost to the customer of all firm power purchased from Bonneville under the power sales contract for that portion of the customer's load in jurisdictions not implementing the model conservation standards or comparable programs.

2. If the customer is not purchasing firm power from Bonneville under a power sales contract, but is exchanging (or is deemed to be exchanging) under a residential purchase and sales agreement, the surcharge is 10 percent of the cost to the customer of the power purchased (or deemed to be purchased) from Bonneville in the exchange for that portion of the customer's load in jurisdictions not implementing the model conservation standards or comparable programs.

If the customer is purchasing firm power from Bonneville under a power sales contract and also is exchanging (or is deemed to be exchanging) under a residential purchase and sales agreement, the surcharge is: a) 10 percent of the cost to the customer of firm power purchased under the power sales contract; plus b) 10 percent of the cost to the customer of power purchased from Bonneville in the exchange (or deemed to be purchased) multiplied by the fraction of the utility's exchange load originally served by the utility's own resources.

Evaluation of Alternatives and Electricity Savings

A method of determining the estimated electrical energy savings of an alternative conservation plan should be developed in consultation with the Council and included in Bonneville's policy to implement the surcharge.