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July 7, 2015

MEMORANDUM

TO: **Power Committee**

FROM: **Charlie Grist, Tom Eckman, Tina Jayaweera, Kevin Smit**

SUBJECT: **Model Conservation Standards for the Seventh Power Plan**

BACKGROUND:

Presenter: Charlie Grist, Tom Eckman

Summary

The Power Act requires the Council to set forth a general strategy for implementing conservation measures and developing resources as part of the power plan. This includes Model Conservation Standards (MCS). The standards are intended to produce all electricity savings that are cost-effective for the region and are to be designed to be economically feasible for consumers, taking into account financial assistance from Bonneville and the region's utilities.[i]

Staff will summarize the purpose, requirements and implementation of the MCS along with an historical review of previous model standards adopted by the Council. The presentation will also summarize proposed MCS for the Seventh Plan and discuss feedback received to date on the proposed MCS. The proposed MCS was discussed at the June 24, 2015 Conservation Resources Advisory Committee (CRAC) meeting. A draft of the proposed MCS for the Seventh Power Plan is attached.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

Purpose, Requirements and Implementation of the MCS

The model conservation standards are one tool available to help the region implement a plan to produce all power savings that are cost-effective for the region and economically feasible for consumers. The Regional Act outlines three areas that the MCS should include. These are model standards for:

- New and existing structures
- Utility, customer, and governmental conservation programs, and
- Other consumer actions for achieving conservation

Historically, the MCS have been focused on the first area - improving specific provisions of state building energy codes such as minimum insulation levels for new and remodeled buildings. The adoption of the MCS in 1983 Plan was a key factor in establishing the first significant building energy codes improvements adopted in Washington and Oregon. Over the years, subsequent model conservation standards have helped to advance the adoption of building efficiency standards adopted in all four states.

In addition to building codes recommendations, past MCS have also recommended standards for the design of utility, Bonneville and state conservation programs. These program design standards contain specified elements to include in the design and operation of utility conservation programs to assure that all cost-effective conservation is achieved. Past MCS have also specified standards for buildings converting to electric heating or electric water heating such that all cost-effective electric savings can be achieved.

The MCS Surcharge

The Act also requires the Plan to include a recommendation to the Bonneville Administrator regarding whether a failure to achieve MCS savings should be subject to a surcharge on Bonneville's utility customers where such savings did not occur. The surcharge is intended to be a cost-recovery mechanism for costs incurred on the electric system because projected energy savings attributable to MCS conservation measures have not been achieved. Implementing a surcharge is a major undertaking with specific actions to be taken by the Council and Bonneville. It is only considered when there is a failure to achieve cost-effective MCS savings identified in the plan.

Bonneville has never had to implement a surcharge. Instead, typically either state building codes are revised or Bonneville and utility conservation programs are adopted to achieve equivalent savings. For example, in the 1983 Plan, the Council recommended that if the building energy performance standards for new homes in the Plan MCS were not adopted by states or local jurisdictions by 1986, then BPA should impose a 10% surcharge on utilities serving non-complying areas. The Council's action was enough to spur Bonneville and utilities to offer programs until building codes were eventually changed.

Proposed Seventh Plan MCS

For the Seventh Plan, staff is not recommending specific MCS provisions for state building code improvement for site-built homes and commercial buildings. This is because all four states have a well-functioning process for continual improvement in minimum codes for new and remodeled buildings that is likely to incorporate all measures expected to be cost-effective in the Council's Seventh Plan. However, it is imperative for the state code processes to continue to identify and adopt cost-effective improvements and for utilities to support the adoption of and compliance with of cost-effective improvements in codes. The proposed MCS for program design calls this out.

The Sixth Plan's MCS for program design are proposed to be expanded in the Seventh Plan to include more specificity on how these programs can ensure adoption of all cost-effective conservation. Specifically, utility, Bonneville and state conservation programs should:

- Better reach underserved customers;
- Ensure utilities will adopt Conservation Voltage Regulation (CVR) or Volt/VAR Optimization (VVO); and,
- Continue to work toward enhancing codes and standards.

Staff proposes to maintain previous plan MCS requirements for homes and businesses converting to electric space or water heat and for the design and implementation of all other conservation programs.

Surcharge Recommendation

Staff does not recommend that any of the MCS be subject to a surcharge at this time. The Council's Action Plan will call for reporting on progress toward achieving the three items above. If there is insufficient progress toward reaching these goals, the Council may reconsider a surcharge recommendation to Bonneville.

Stakeholder Feedback and Recommendations

CRAC members were generally supportive of the proposed MCS items, with most discussion focusing on the details of how to achieve these objectives, which will be covered in the Action Plan. With respect to designing programs to reach underserved customers, some CRAC members suggested that the low- and moderate-income customers be treated separately from other underserved customers, particularly residents of manufactured housing. Members also cautioned about including MCS language that is too vague.

Two additional items for inclusion in the MCS were proposed by stakeholders. First, the MCS should be used as a backstop to ensure that public utilities attain the 25% self-directed funding that Bonneville is counting on to achieve its share of the Council's conservation target. Staff does not recommend this approach for the MCS. Bonneville is obligated to assure that the public power share of all cost-effective conservation identified in the Council's plan is captured as part of its obligation to act consistent with the plan – regardless of what is in the MCS.

The second MCS item proposed by stakeholders was to include improved minimum code specifications for new manufactured housing. For manufactured homes, minimum codes are established by the U.S. Department of Housing and Urban Development and cannot be exceeded by state or local codes under federal law. Thus no MCS for new building codes for manufactured homes is proposed. However, some efficient heating equipment measures may be cost-effective in new manufactured homes, and if so, utilities and Bonneville programs should offer programs to capture those savings.

Relevance The Model Conservation Standards and surcharge recommendations are a required element of the Seventh Power Plan.

Workplan: 1D. Prepare for Seventh Power Plan and maintain analytical capability

Background: Meeting materials from the June 24, 2015 Conservation Resources Advisory Committee can be found here: http://www.nwcouncil.org/energy/crac/home/

More Info: Attached draft MCS chapter

[i] [Northwest Power Act Sections 839b(e)(2), 839b(e)(3)(A), and 839b(f).

Model Conservation Standards and Surcharge Recommendations

Power Committee

July 14, 2015

Northwest Power and Conservation Council

SEVENTH NORTHWEST POWER PLAN

What is the MCS?

- Section 839b(f)1 of the Power Act:

"Model conservation standards to be included in the plan shall include, but not be limited to, standards applicable to (A) new and existing structures, (B) utility, customer, and governmental conservation programs, and (c) other consumer actions for achieving conservation."

Northwest Power and Conservation Council

SEVENTH NORTHWEST POWER PLAN

What is the "SURCHARGE" Policy"?

- Surcharge is intended to be a cost recovery mechanism for costs incurred on the system
- The Council's Plan must contain a recommendation to the Administrator regarding whether a utility's failure to achieve MCS savings should be subject to a surcharge on all of its power purchases from Bonneville
  - "Such surcharges shall be established to recover such additional costs as the Administrator determines will be incurred because such projected energy savings attributable to such conservation measures have not been achieved;
  - Surcharges may not be less than 10%, nor greater than 50% of Bonneville's rate"

Model Conservation Standards – Decision Criteria

- The Act requires that the MCS be set at levels that:
  - achieve ***all regionally cost-effective power savings***; and,
  - that are ***economically feasible for consumers***, taking into account financial assistance that may be made available through Bonneville

The MCS - A Short History: Chapter 1

- Council adopted first MCS April 27, 1983
  - Established space heating performance targets for new electrically heated residences for three Northwest Climate Zones
    - Less than 6,000 Heating Degree Day (HDD)
    - 6000 – 8000 HDD*
    - More than 8000 HDD*
  - MCS requirements were 40% better than toughest existing energy codes in region
  - Recommended that MCS be adopted by January 1, 1986 or BPA impose 10% surcharge on utilities serving non-complying areas

*Now Zone 2 = 6000 – 7499 HDD, Zone 3 = 7500 HDD and greater

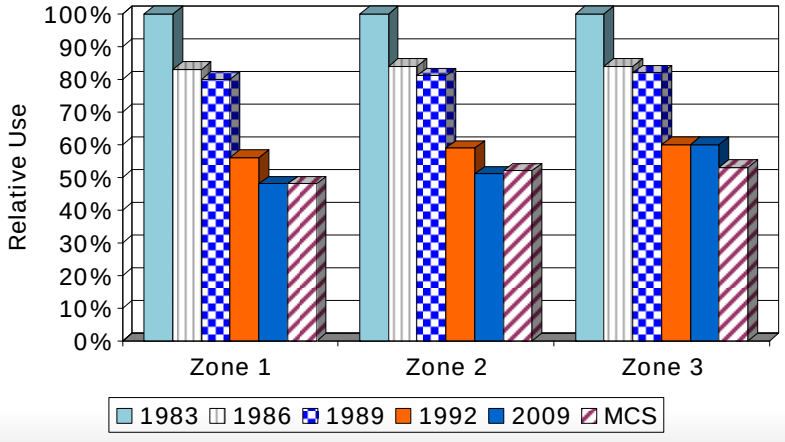
The MCS – A Short History: Chapter 2

- 1983 – 1991
  - Council sued by Seattle Master Builders contesting legality and level of the MCS
    - ***Conclusion – Ninth Circuit Rules for Council***
  - Utilities demand that Bonneville sponsor "R&D" project (RSDP) to test "cost-effectiveness" of MCS
    - ***Conclusion – Bonneville finds MCS cost-effective***
  - Bonneville, following Council's Plan, sponsors "early code" adoption and "energy efficient" new homes marketing program (Super Good Cents)
    - ***Conclusion – Tacoma adopts MCS, multiple WA and ID cities and counties follow . . .***

The MCS – A Short History: Chapter 3

- 1986
  - Washington State Legislator enacts state energy code that achieves about 50% of the savings called for by the MCS
  - Oregon Energy Conservation Board revises state energy code that achieves about 40% of savings called for by MCS beginning in 1987 and 55% beginning in 1989
- 1991/92 – Oregon and Washington update codes to near MCS levels
- 2009 – Idaho and Montana adopt codes roughly equivalent to MCS

The MCS – A Short History: Chapter 3a



The MCS – A Short History: Chapter 4

- Sixth Plan MCS included:
  - Recommendations for residential building codes with suggested minimum R-values
  - Minimum requirements for new commercial buildings, at least equivalent to current ASHRAE Standard 90.1
  - Cost-effective measure requirement for fuel conversion to electric space/water heat
  - Objectives for all other conservation programs

MCS – Next Steps

- What should the MCS be for the Seventh Plan?
  - Act provides for broad application
  - Focus on conservation program design
  - Keep all cost-effective measure requirement for fuel conversion to electric space/water heat
  - No specific language on code provisions given robust code improvement cycle in all four states

Staff Proposal

- Expand upon 6P Objectives for conservation programs
- Add that programs should:
  - Better reach underserved customers
  - Ensure utilities will adopt Conservation Voltage Regulation (CVR) or Volt/VAR Optimization (VVO)
  - Continue to work toward enhancing codes & standards

Comments Received

- Low-income should be treated separately from other hard-to-reach (HTR) customers, particularly those in manufactured homes.
- Concern on ability to classify HTR segments
- Recognize that CVR/VVO is secondary to reliability issues.

Why Hard-to-Reach?

- To achieve *all* cost-effective conservation, *all* customers must be able to participate in EE programs
- Regional discussion around improving low-income energy efficiency
  - BPA Low Income EE Workgroup
  - Stakeholder feedback (utilities, advocates, implementers)
    - Specifically, regarding service to low and moderate income
- Energy Trust of Oregon (and others) have identified other underserved markets (e.g. small business, multifamily tenants)
- Region needs better understanding of where achievement gaps exist then develop and implement strategies to close those gaps

Other Ideas

- Use MCS to ensure public utilities are acquiring their share of target
  - This is not needed as MCS
  - BPA has an obligation to acquire its share under the Act
- Include code language for manufactured housing
  - Federal HUD code preempts state codes
  - New proposed HUD code is high for shell, though equipment installed can be improved
  - Region has low rate of new manufactured housing

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

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for conversions, 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.

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 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.
2. 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.
3. Conservation acquisition programs should be designed to secure all measures in the most cost-efficient manner possible.

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

4. Conservation acquisitions programs should be targeted at conservation opportunities that are not anticipated to be developed by consumers.
5. Conservation acquisition programs should be designed to ensure that regionally cost-effective levels of efficiency are economically feasible for the consumer.
6. Conservation acquisition programs should be designed so that their benefits are distributed equitably.
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.

Full Participation in Programs

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". While low-income customers are included in the HTR category, other customer classes such as moderate income, manufactured home owners, multifamily building managers, small businesses, commercial customers who are tenants, rural, and large industrial customers in a small utility's service area may also be included in the HTR category if they are unable or unwilling to participate in conservation programs.

The up-front cost often 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, 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. The standard requires utilities secure proportional savings from the HTR population.

Action plan items (Note: Reference to specific Action Items will be added) call for an assessment of progress toward achieving conservation in HTR markets and recommendations to remedy any shortfalls.

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Voltage Optimization

Significant savings could be garnered by optimizing the distribution system using technologies such as Volt/VAR Optimization (VVO) or conservation voltage regulation (CVR), per the analysis of distribution system savings for the conservation supply curves (see Chapter 12 and Appendix G). The standard requires utilities to assess and implement all cost-effective potential for voltage optimization. Action plan items (Note: Reference to specific Action Items will be added) call for evaluation of savings on utility distribution circuits and implementation of all cost-effective conservation within a reasonable timeframe.

Enhance Codes and Standards

One of the most cost-efficient ways to ensure adoption of conservation measures is through their enactment as codes and standards. The standard requires states and programs to continue to work together to provide conservation options that could be included in future code and standards updates. 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

Action plan items (Note: Reference to specific Action Items will be added) call for a review of state codes, improved federal test procedures utilizing data from the region, pilot program for emerging technologies that may be included in codes and standards, regional input on federal standards updates, and development of best practices guides for process not covered by codes or standards.

CONVERSION TO ELECTRIC SPACE 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 electric water heating were upgraded to include all regionally cost-effective electric space conditioning and electric 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 which have not, implemented conservation

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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

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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.

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