Northwest **Power** and **Conservation** Council

May 3, 2016

DECISION MEMORANDUM

TO: Council members

FROM: Tina Jayaweera, John Ollis

SUBJECT: Authorization to release issue paper on the proposed formation of a demand response advisory committee and system integration forum.

PROPOSED ACTION: Council staff recommends the release of an issue paper for public comment on the proposed formation of a demand response advisory committee and system integration forum. The public would have approximately 30 days to provide comment.

SIGNIFICANCE: The formation of a demand response advisory committee, including the consideration of enabling technologies such as smart grid, is recommended in the Seventh Power Plan's Action Plan, item COUN-1.

BUDGETARY/ECONOMIC IMPACTS

There are no budgetary impacts associated with this decision. A potential follow-up decision regarding the formation of the Demand Response Advisory Committee would incur expenses associated with advisory committees (note taking, unreimbursed travel, etc.) of around $5,000.

BACKGROUND

The action item recommending the formation of a demand response advisory committee is as follows:

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COUN-1 Form Demand Response Advisory Committee. [Council] A major finding of the Seventh Plan is that the region would benefit from the development of demand response (DR) resources. To facilitate this, the Council should establish a Demand Response Advisory Committee to assist in the identification of strategies to overcome regional barriers to DR implementation and the quantification of DR potential. The scope of this committee's activities should be to facilitate the deployment of demand response resources in the region by serving as a forum for sharing program experience and data. This committee should be chartered by the Council by the end of FY2016. In drafting the charter, technologies that enable or function in a similar fashion to demand response should be considered, such as distributed standby generation, distributed energy storage, transactive energy, and other specific "smart grid" or "grid edge" technologies.

ALTERNATIVES

Staff recommends release of this issue paper for public comment. The alternative is to for the Council to decide on the proposed formation of the advisory committee and forum without public input.

ATTACHMENTS

Draft Issue Paper: Demand Response Advisory Committee Scope

Issue Paper: Demand Response Advisory Committee Scope

May 2016

Introduction

This issue paper set forth a proposal to form a Demand Response Advisory Committee to advise the Council on issues associated with achieving the Seventh Power Plan's goal for development of demand response resources. It also proposes the formation of System Integration Forum to enhance the Council's evaluation and analysis of emerging technologies that could potentially reduce the cost of integrating existing and new resources with customer demands.

Demand Response Advisory Committee

One of the key findings from the Seventh Power Plan is the region needs to develop capacity resources to meet its growing demands. One resource identified to meet this capacity need is demand response (DR).The analysis indicates a minimum of 600 MW of additional DR resources would be cost-effective to develop as soon as possible; significantly more than currently developed or planned. However, the region has limited commercial experience with DR and thus there is a general lack of understanding and confidence in how to effectively deploy these resources.

The Council proposes the formation of a demand response advisory committee (DRAC), whose role will largely be to focus on demand response implementation, barriers, and supply curve development. The scope of the DRAC will include:

(A) Assisting the Council in identifying technical, cost, environmental, institutional, and other barriers to the development of demand response resources.

(B) Assisting the Council in developing policies and actions to resolve barriers to the development of demand response resources.

(C) Assisting the Council by providing feedback and suggestions for improving the effectiveness of the demand response resource development programs and activities in the region.

(D) Assisting the Council in implementing elements of the Seventh Plan demand response action plan.

(E) Assisting the Council in assessing: 1) the current performance, cost, and availability of demand response resources; 2) technology development trends; and 3) the effect of these trends on the future performance, cost, and availability of demand response resources.

(F) Assisting the Council in development of the Eighth Plan's assessment of regional demand response potential.

(G) Assisting the Council in development of the Eighth Plan's demand response action plan.

For the initial period, the DRAC will focus on understanding the barriers to development of demand response in the region and how best to leverage existing infrastructure to expand demand response programs (items (A) through (D) above). This will help the region develop a common understanding of demand response and what will be required to implement the Seventh Plan. Upon charter renewal (anticipated summer 2018), the DRAC will likely shift focus to more technical aspects of demand response, leading to supporting the Council in development of the supply curves for the Eighth Power Plan (items (E) through (G) above).

System Integration Forum

There are emerging opportunities that can be used to integrate existing resources more effectively across the grid. Some of these offer the potential for complementing DR and other capacity-focused resources. For example, the advent of lower cost energy storage technologies along with the wide-spread adoption of “smart grid” and “transactive energy” could both expand the options for demand response and reduce their cost.

Currently in the region, most wholesale power is sold in hourly, or scheduled in heavy and light load period blocks of power. Neither of these time frames match either variable energy resource output or instantaneous power system load. While some of the uncertainty regarding weather impacts and consumers’ actions that produce this mismatch can be mitigated via more granular scheduling and dispatch practices (as are implemented in other regions), uncertainty remains. This remaining uncertainty requires system integration, in the form of resources that are flexible enough to provide intra-schedule balancing, as well as frequency support, contingency power, and other services. Traditionally, due to cheap, abundant, and flexible hydropower in the region, there has been little market for resources that derive much of their value from system integration. In other regions without significant amounts of flexible hydropower, there are more mature markets for services such as frequency support and contingency reserves.

While DR is one resource with system integration value, it is not the only resource providing an explicit system integration impact that results in limiting regional energy costs. If the region achieves the Council’s conservation targets, the regional power system is anticipated to be broadly sufficient on an average energy basis through 2021 (per the Seventh Power Plan). However, with the potential need to integrate more renewables due to increases in state renewable portfolio standards and the announced retirement of resources that currently provide some system integration, the regional power system may be approaching its limits to adequately provide both the peaking and flexibility capability needed for a reliable power supply. In the recent past, gaps in regional system integration need have been filled by adding flexible fossil fuel generation resources built close to a transmission line with available capability. With a continued focus on emissions reduction and market conditions that lead to increasing costs of building traditional resources like fossil fuel generation (e.g. low market prices that lead to less revenue offsetting expenses), there is a need to evaluate alternatives. Some of these alternatives include energy storage (distributed and utility-scale), distributed generation (renewable and not), smart grid, and transactive energy.

Given this, the Council is recommending the formation of a forum that will focus on how to incorporate the evaluation of potential system integration technologies into various aspects of the power system to improve planning, analysis, and modeling from a holistic perspective. This forum is intended to provide a venue for members from all of the Council's advisory committees to coordinate on power system attributes that might apply across many resource types. For topics that either clearly, or may involve, more than one advisory committee, a meeting of a System Integration Forum will be called. That meeting will focus on the topic to ensure it is appropriately considered for the power plan. Additional experts will be invited to help in this consideration as needed. The advisory committees will then incorporate any results or recommendations from the forum into their work.

Questions for reviewers

1. Is the scope of the proposed demand response advisory committee sufficient?
    a. Do you agree with the focus of the advisory committee in both the near- and long-term?
2. Is it appropriate to convene a separate forum to discuss smart gird, storage, and other enabling technologies?
    a. Do you agree that a forum is the appropriate venue for these topics (versus an advisory committee)?