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June 29, 2006

MEMORANDUM

TO: Power Committee

FROM: Ken Corum

SUBJECT: Progress toward a demand response initiative in the Pacific Northwest

Staff brought this issue to the Power Committee last in April. At that time we had had a conference call including Power Committee members and staff, state utility commissioners, Mike Weedall, Rich Sedano of the Regulatory Assistance Project (RAP), Rhys Roth of Climate Solutions and Dick Watson, exploring the possibility of a regional initiative to stimulate demand response. RAP has conducted variations of such a process in New England and the Mid-Atlantic states, and there is a prospect of federal financial support for RAP to play a similar role if our region decides to launch such an initiative. Following the conference call, I talked to as many of the region's utility commissioners as wanted to discuss the issue, and other people with comparable influence on utility policy, to hear what they would want to get out of a "Pacific NW Demand Response Initiative."

I've now talked with most of the public utility commissioners of the 4 states, as well as representatives of Bonneville and two of the largest public utilities, Seattle City Light and Snohomish PUD. I'd characterize the general attitude I heard toward a regional initiative to stimulate demand response as cautiously positive, and curious about just what benefits it would offer. There was a fairly wide range of opinions about what would be useful in stimulating demand response. Several commissioners said we shouldn't get bogged down in process -- that our process should be "focused and action-oriented," and directed at a limited number of high priority issues.

Based on this discussion, I've put together a proposal for further testing and focusing interest in issues that could be taken up by an initiative process (attached). I'd like the Power Committee's comments and guidance on this proposal.

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A Scoping Proposal for a PNW Regional Initiative for Demand Response

Ken Corum, NW Power and Conservation Council (NWPCC)

Introduction

This document outlines a regional examination of demand response, with the goal of accelerating its development. By “demand response” we mean voluntary adjustments in the loads that customers place on the regional power system, when the power system is stressed. Some examples of demand response are utility-controlled air conditioners or water heaters, interruptible contracts, day-ahead bidding for customers to provide reserves to the system, time-varying prices for electricity, or customers’ backup generation that can be operated for the power system when needed.

While demand response in the form of interruptible contracts has existed in the region for a long time, we are now considering it as a resource that is used more often and for different purposes than in the past. The Northwest Power and Conservation Council’s 5th Power Plan included demand response for the first time, and called for the confirmation of 500 MW of demand response over the 2005-09 period. As part of the Council’s Action Plan we’ve hosted a series of workshops on demand response, attended by public utility commission staff and staff-level people from utilities and other organizations.

Recently it’s been suggested that we should elevate the discussion to include policymakers such as public utility commissioners, to stimulate faster development of the resource. The Regulatory Assistance Project (RAP), with financial support by the U.S. Department of Energy and others, has coordinated initiatives in New England and the Mid-Atlantic States to pursue this goal. It could perform the same service here if we in the Pacific Northwest decide it would be useful.

Process

The Regulatory Assistance Project, with assistance from the NW Power and Conservation Council, would facilitate the process. The goal would be the crafting of specific actions to confirm and develop demand response in the region, actions that the four public utility commissions and Bonneville Power Administration (BPA) could support.

Participants in the process would include the four state utility commissions, BPA, NWPCC, regional utilities with interest and/or experience in demand response, environmental organizations and other interested parties. At least one public utility commissioner from each state would need to make a personal commitment to the process. This commitment will encourage other participants such as utilities to make their own commitments of people and effort.

In initial conversations, several utility commissioners expressed concern that an initiative process could absorb too much time and energy of the commissions and their staffs. They suggested a special effort to focus on a limited number of the most important issues, issues whose resolution would lead to actions by commissions and utilities. To respond to this concern, we propose an

initial screening of topics, by a group of commissioners (or their delegated staff), and representatives of Bonneville, the Council, RAP, and Climate Solutions. The goal of this screening is to identify three or perhaps four most important issues to be the topics of the ongoing process. If we are successful in resolving these issues, we might choose to take up others, but that decision could be made when the process has been successful with the initially selected issues.

Potential Topics

A number of topics have been proposed for examination in a regional initiative process. We will need to select a limited number of issues to pursue. In this selection we will need to consider the potential advantage of addressing each issue as a region rather than on a state-by-state or utility-by-utility basis. RAP could arrange for experts to discuss the experience and thinking on each issue elsewhere. Topics to consider include:

Advanced Metering Infrastructure (AMI)

Advanced metering technology is a necessary precondition for many demand response programs. The technology also offers other benefits (e.g. reduced meter-reading costs), which makes it more attractive, but which also complicates the evaluation of AMI investments. The Mid-Atlantic Distributed Resources Initiative (MADRI) has produced an AMI “toolbox” that should be helpful to our region. The toolbox could meet our needs, or at least serve as a base for further work.

Retail Price Mechanisms

Pricing mechanisms that better convey the actual cost to the power system of providing electricity under different conditions have been advocated as means of stimulating demand response. They have not been widely adopted in our region as yet for a number of reasons, including concerns about fairness and variability of bills. MADRI has discussed the concept of a model pricing tariff. Our region might find that such a model, and the discussion that underlies it, could resolve some of the concerns and allow us to move ahead on some form of pricing policy. Pilot programs (see below) would likely be necessary in resolving concerns as well.

Reliability of Demand Response

Utility system operators have great concern about the reliability of the resources they depend on to provide electrical service to the region. They have preferred demand response programs that give them direct control over load reductions or firm contractual rights for reductions, to programs that offer incentives for load reductions that customers can respond to without obligation.

These latter programs provide less certain results for the utility operators, but are more attractive to customers and should get participation from customers who would not participate otherwise. One approach to such programs is to give them credit for avoided spot purchases of energy, but no credit for avoided investments in capacity. But if we can agree on some basis for giving capacity credit as well, long term integrated resource plans would call for less capacity investment. This is basically an empirical problem (see pilot program topics below).

Cooperative Pilot Programs

We are in an early stage of understanding and developing demand response. At this stage, pilot programs are important, but can be costly. Coordination among the states' commissions and utilities in the design, conduct and evaluation of pilot programs could improve the quality of information obtained, share the expense and avoid the wasteful duplication of effort resulting from each state pursuing the objective separately. Attractive subjects of coordinated pilot programs include:

1. exploration of responsiveness and reliability of demand response that until now has been regarded as "non-firm" (e.g. day-ahead bidding programs such as Demand Exchange and Energy Exchange), and
2. responsiveness of electricity users to retail pricing options such as time of use pricing, real time pricing and critical peak pricing.

Application of DR to T&D Issues

Most of the early thinking about demand response in our region focused on meeting energy and generating capacity requirements, but we also recognize that demand response can help deal with problems of transmission and/or distribution capacity. Bonneville's "Non-wires Solutions" effort has explored the potential of demand response to avoid or defer investments in increased transmission capacity for several years. Accounting for the full value of demand response (avoided generation, transmission and distribution) is essential for the identification of the appropriate level of demand response to be developed.

Model Interconnection Standards for Small Generators

MADRI developed model interconnection procedures for its participants. These model procedures could help this region develop its own standards (processes are already underway in Washington and Oregon). In conversations with utility commissioners, some are of the opinion that since some commissions have already taken up this topic, it is better left out of regional discussions. Other commissioners think that the benefits of whatever regional agreement that can be reached make it worthwhile to discuss this topic regionally, even if it means covering some ground twice.

Regional Potential for Demand Response

In contrast to our understanding of energy efficiency, which has developed over 25 years or so of experience and analysis, our current picture of the potential for demand response is fragmentary. A more comprehensive estimate of potential could help avoid unnecessary investments in generation, transmission and distribution capacity. There are a number of conceptual and analytical issues that make an estimation process different than for energy efficiency.

Meeting EAct's requirements

The Energy Policy Act of 2005 (EAct 2005) requires electricity regulatory commissions to investigate time-based pricing and other demand response programs, and reach decisions as to whether it is appropriate to adopt such programs. While each state commission must reach its own decision, it may be more efficient to gather and consider information about these options together.

Measuring Cost Effectiveness of Demand Response

In some cases cost effectiveness of demand response can be measured in the same way as energy efficiency -- that is, "Is the cost avoided by the demand response program or measure greater than the cost of the program or measure itself?" Even in such cases, there are questions as to whether the long-term or short-term perspective is appropriate, what means of estimating avoided cost should be used, etc. But in some cases (e.g. when customers receive a lower level of service, without compensation) there is question whether cost effectiveness itself is appropriate to guide policy decisions. The Demand Response Resource Center at Lawrence Berkeley Laboratory is supporting study on this topic. Agreement in this area among our region's commissions would make it easier to guide ongoing demand response work.

Next Steps

This proposal is to be circulated to the state commissions and Bonneville for their comments and suggestions. If it (with agreed amendments) is acceptable to them, we can proceed with the initial meetings to select the highest priority issues, based on the list of potential topics presented above, and possibly others proposed by participants.

The selected three or four topics will be submitted to the utility commissioners and Bonneville representative for approval. Having been approved, the topics will be the subject of working groups that will be open to any interested parties. The working groups will report their progress to the commissioners and the Bonneville representative, who will make the ultimate judgments to adopt (or not) recommendations into policy.