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April 29, 2009

MEMORANDUM

TO: Power Committee

FROM: Ken Corum

SUBJECT: Council's strategy for the smart grid

We've discussed the treatment of "Smart Grid" technologies in Appendix K of the 6th Power Plan at the February and April Power Committee meetings. These technologies are very promising, offering potential benefits in enabling demand response, in reducing operating costs, improving the reliability of the power system, and in saving capital costs. However, they are at an early stage in their development and it is impossible to predict with any confidence which technologies will be most successful and where and how much benefit will result.

Given this situation, the staff is proposing a strategy of monitoring developments and learning more about the practical application of these technologies. We would propose two items (below) for the Implementation Plan. The first item is to follow the development of the technologies and experiences with them elsewhere in the nation and world. The second item is to conduct pilot projects to gain experience with smart grid technologies in the Pacific Northwest.

A good example of such a project is the "Regional Smart Grid Test Bed Project" that Bonneville has proposed and for which Bonneville is seeking partners. The test bed project is conceived as involving Bonneville and perhaps 5-6 partners, with 50% cost sharing by the U.S. Department of Energy. Several distribution feeders would be converted to "smart feeders" with other upgrades that create "vertical slices" of the smart grid that extend from generators to end-users. This project would test the ability of the upgraded system to automate demand response technologies, to integrate distributed generation, to achieve distribution automation and reconfiguration, and to test the interoperability of equipment from different manufacturers.

Action items related to the smart grid:

1. The Council and others should monitor the development of smart grid technologies and experience with those technologies elsewhere in the U.S. and elsewhere in the world.
2. The Council, the region's utilities and regulators, and others should support pilot projects to get experience with smart grid technologies in the Pacific Northwest. Bonneville's proposed "Regional Smart Grid Test Bed Project" is one such project and proposes to enlist participation by several utilities in the region. Further, all parties should explore the possibilities of connections between this project and other pilot programs related to demand response and smart grid technologies in the region.