Northwest Power and Conservation Council

March 29, 2004

MEMORANDUM

TO: Council Members

FROM: John Fazio and Dick Watson

SUBJECT: The State of the Science and Policy regarding Climate Change and Implications for the Pacific Northwest

There is still much debate surrounding the scientific data regarding climate change. A preponderance of scientific opinion, based on empirical data and large scale climate modeling, holds that the Earth is warming, albeit slowly on a human time-scale. Many believe that actions need to be taken to mitigate climate or, at minimum, be prepared to adapt to significant changes, although these conclusions are subject to some uncertainty.

On a regional scale, the precision with which global climate change can be estimated is even less. Global climate change models all seem to agree that Northwest regional temperatures will be higher but they disagree on levels of precipitation. Some models suggest that the Northwest will be drier while others indicate more precipitation in the long term. Current thinking by Northwest scientists leans toward warmer and wetter scenarios, meaning that along with a shift in the timing of precipitation, the amount would increase slightly. During winter months, the region would receive less snow and more rain as the result of warmer temperatures. Winter electricity demands would decrease with warmer temperatures, easing the Northwest's peak requirements. In the summer, demands would rise and while late spring and summer runoffs would be diminished, potentially force the region to compete with southern California for diminished electricity resources.

Beyond the impacts on the Northwest climate and hydrology, there are other potential impacts for the electricity industry arising from efforts to mitigate climate change. Current scientific knowledge holds that global warming largely results from increased production of carbon dioxide and other greenhouse gasses due to human activities. Because of the widespread use of fossil fuels to produce electricity, the electricity industry worldwide is a principal contributor to the growing atmospheric concentration of carbon dioxide and would be affected by any initiatives to reduce carbon emissions.

Many nations and government agencies are already taking actions. Canada and major European countries, for example, have signed on to the Kyoto agreement. Implementation,

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however, has been slow and many major countries, including the US, have not ratified the agreement. A pilot cap-and-trade system for CO2 is to be implemented in Europe in 2005 with a mandatory system in place by 2008. On the state level, Oregon, Massachusetts and New Hampshire require offsets for new fossil power plants and the Washington EFSEC has required offsets on an ad-hoc basis while considering the establishment of mandatory offsets. However, these steps are relatively small. The kinds of actions that would be required to significantly reduce greenhouse gas emissions raise serious economic questions. These questions and the uncertainty inherent in climate change science have effectively stymied most mitigative and adaptive actions.

Nonetheless, it is probably unwise to ignore the potential for policy actions that would restrict greenhouse gas emissions. The analysis for the Fifth Power Plan is incorporates climate change mitigation policies as an uncertainty that imposes risks on some resource choices.

Because of the potential importance of this issue, we have asked two experts in the field to brief the Council on the state of the science and policy related to climate change. Dr. Phil Mote is the Washington State Climatologist, a Research Scientist with the Climate Impacts Group at the University of Washington and an Affiliate Professor in the Atmospheric Science Department. Two papers by Dr. Mote are attached. Dr. Mark Trexler is the principal at Trexler and Associates (TAA). TAA is an internationally recognized leader in the emerging field of climate change risk management and in identifying and implementing greenhouse gas emissions reduction and offset strategies. TAA is one of just a few companies worldwide that specializes in climate change mitigation policies, technologies, and projects.
