Northwest Power and Conservation Council

August 1, 2007

MEMORANDUM

TO: Power Committee

FROM: Terry Morlan and Jeff King

SUBJECT: CO_2 Footprint of the NW Power System

At the July Power Committee and Council meeting, staff presented the results of an analysis of the CO_2 production from the Northwest power system. We have now drafted the attached paper describing the analysis and results in more detail. We will describe the paper for the Power Committee and brief the Council on its findings.

The analysis includes some very interesting findings and clarifies some important facts about CO_2 trends and how they might be affected by various actions in the region. Some important results include:

- CO_2 production from the Northwest energy system, when adjusted to average hydroelectric conditions increased by 34 percent from 1990 to 2005. Although regional electricity use was nearly the same in these two years, partly due to successful conservation efforts, the region closed the Trojan nuclear plant, reduced the capability of the hydroelectric system, and built additional gas-fired generation during the interim.
- The region's hydroelectric base makes it a relatively low CO_2 emission system. The Pacific Northwest accounts for about 22 percent of the WECC electricity consumption, but only 14 percent of the CO_2 production from power generation.
- The aggressive conservation and renewable resource acquisitions in the Council's Fifth Power Plan are expected to reduce the rate of growth in CO_2 production, but will not eliminate it. Between 2005 and 2024 CO_2 production from power generation in the region is projected to increase by 22 percent.
- The analysis shows how difficult it will be to reduce CO_2 production back to 1990 levels, as some policies have recommended. Analysis of a number of scenarios shows, for example, that achieving the renewable portfolio standard goals and eliminating all summer spill at the dams, would reduce the region's projected increase in CO_2 production by 2024 by less than half, even when counting the resulting net CO2 reduction in the entire WECC. Failure to achieve the conservation targets in the plan, or removing the Lower Snake dams and replacing the power in a manner consistent with the 5^{th} Power Plan, could more than offset the potential savings from the scenarios that reduce CO_2

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production. The effects of the various scenarios analyzed in the paper have positive or negative effects on CO_2 production that are the equivalent of only1 to 2 coal plants whereas the forecast regional CO2 production for 2024 in the Fifth Plan case exceeds 1990 levels by an amount equivalent to nine typical coal units.

- Approximately 85 percent of current CO_2 production from power generation in the region comes from existing coal plants. Achieving reductions of CO_2 production to 2005 or 1990 levels will require replacing some of these existing coal fired-fired power plants with low CO2-emitting resources.

We will be asking Council permission to distribute the CO_2 Footprint Paper for public comment. The Power Committee will want to make a recommendation to the Council regarding that request.

Attachment