Northwest Power and Conservation Council

August 1, 2007

MEMORANDUM

TO: **Council Members**

FROM: **Massoud Jourabchi**
Manager, Economic Analysis

SUBJECT: **Progress report on the long-term demand forecasting model**

BACKGROUND: The Power Act requires the Council to produce a 20-year forecast of regional demand for electricity. The forecasting tool also provides information that is needed to estimate conservation potential in the region as well as providing load information for the various models used during preparation of the Plan.

Last year we started work on a new Demand Forecasting System (DFS) system that forecasts demand for more fuels and end-uses and more business sectors. The forecasting system would forecast individual states as well as the regional loads. The DFS is designed to be flexible and integrated, so that it eventually can address future transmission and environmental policy and planning issues as they arise.

As a first step in developing the new DFS, we have focused in developing the demand module of the system. In this report we update you on activities since last year and will present the schedule for future activities.

About the Model:

The model selected for the new DFS, has a long track record for forecasting and policy analysis. The base model has been used in the United States, European Union, Canada as well as, by various State agencies in Massachusetts, Vermont, Wisconsin, Hawaii, and California among others to evaluate a wide range of policy issues and load forecasts. The model enables the council to conduct regional as well as state specific analysis. The new model enhances Council's capability to evaluate load and environmental impacts of various issues, including some emerging issues like:

- Residential entertainment loads (TV,VCR, DVD ,Computers);
- Residential air conditioning loads;
- Impact of electric vehicles loads.

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Activities since July 2006:

After approval from the Council, the consulting firm of Systematic Solutions Inc. was retained to customize the forecasting tool and assist Council staff in enhancing and refining the model to meet council's technical requirements. In this phase of the work, we have concentrated in enhancing the demand module of the model. Since July 2006:

- The commercial sector module was expanded to include more business sectors, to match the Council's conservation model (Procost);
- 2005 National Appliance Efficiency Standards were incorporated;
- The residential module was expanded to include for end-uses to match conservation model (Procost);
- Working with BPA, Energy Trust of Oregon and Northwest Energy Efficiency Alliance, the industrial module is currently being modified to reflect region's energy intensity characteristic;
- The model is currently being tested and backcasted to state level energy consumption details for years 1985-2003; and
- The Demand Forecasting Advisory Committee, consisting of representatives from investor owned utilities, public utilities, and state economists, and interested public was formed and the long-term modeling approach was presented to the group.

Schedule of planned activities:

Currently we are working toward the following milestones to prepare the DFS for use in the next power plan:

- Complete preparation of the Demand forecasting model by Jan 2008;
- Prepare economic and fuel price assumptions first quarter - 2008;
- Prepare preliminary draft forecast- second quarter 2008;
- Review of preliminary forecast second quarter 2008;
- Finalize load forecast - to be determined.

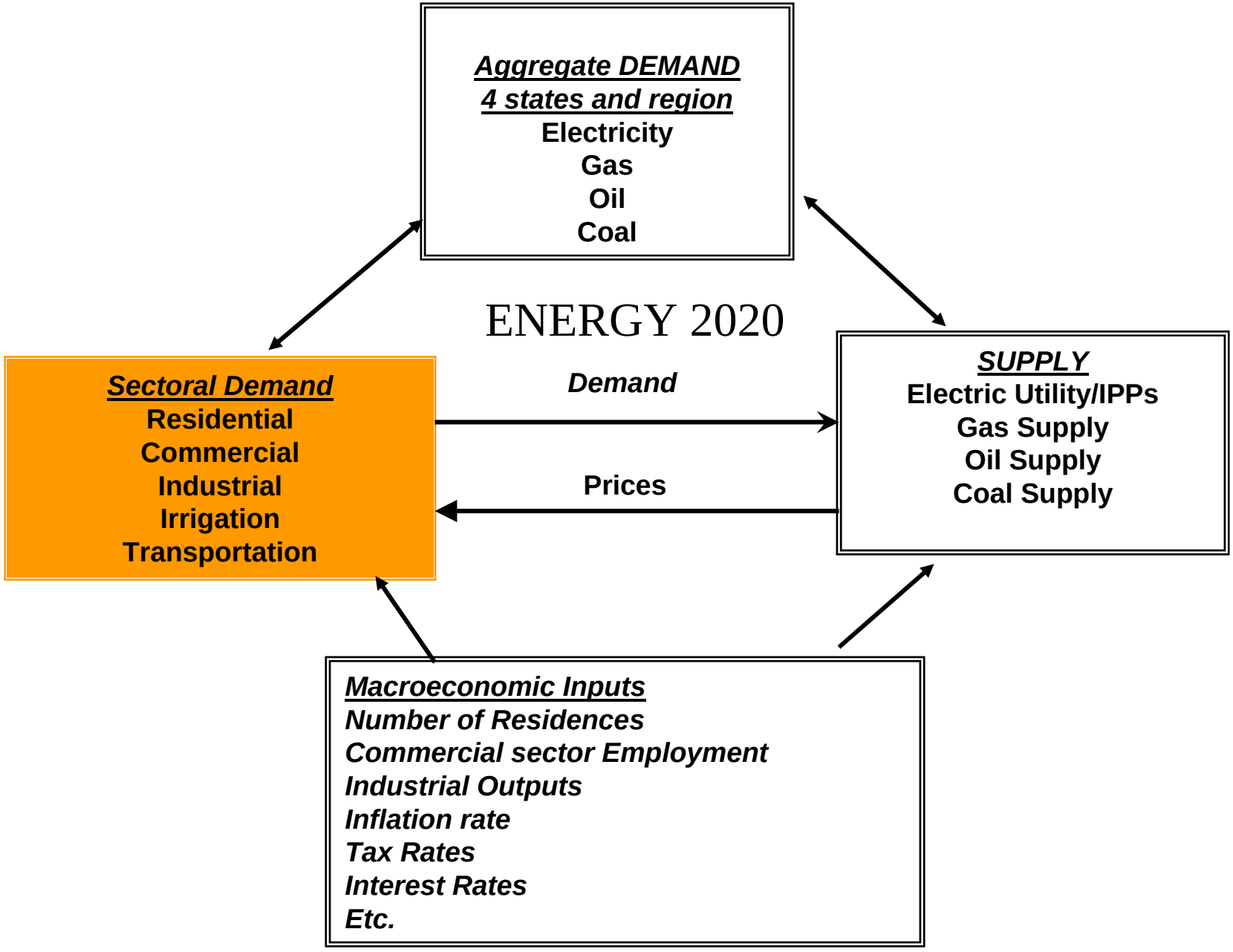
Progress report on the long-term demand forecasting model

August 14th 2007

Why do we need long-term demand forecast?

- 20-Year demand forecast required by the Act as part of the power plan
- Conservation potential assessment
- Assessing long-term impact of policies, standards, on electric demand
- Assessing impacts across sectors and fuels

Overview of Model's Modules



Energy Demand Structure

Investments

Energy Demand

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Current Status

- Commercial module was expanded to include more business sectors, to match the conservation model (Procost)
- 2005 National Appliance Efficiency Standards were incorporated
- Residential module was expanded to include for end-uses to match conservation model (Procost).
- Working with BPA, Energy Trust of Oregon and Northwest Energy Efficiency Alliance, industrial module is currently being modified to reflect region's energy intensity characteristic.
- Updated enduse load-shapes
- Model is currently being tested and backcasted to state level energy consumption details for years 1985-2003.
- Demand Forecast Advisory Committee, consisting of representatives from investor owned utilities, public utilities, and state economists, was formed and the long-term modeling approach was presented to the group.

Future ISSUES OF INTEREST

- Residential ENTERTAINMENT Load (TV,VCR,DVD,COMPUTERS,…)
- ELECTRIC VEHICLE penetration rates
- Capacity adequacy (summer)
  - Residential AC penetration rates

Preliminary Time-line

- Complete preparation of the Demand Forecasting System by Jan 2008.
- Prepare Assumptions for Preliminary forecast Q1- 2008
- Prepare preliminary draft forecast- Q2 2008
- Review of preliminary forecast- Q2 2008
- Finalize load forecast - TBD