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June 12, 2012

MEMORANDUM

TO: Power Committee

FROM: Massoud Jourabchi

SUBJECT: Enhancing Natural Gas Demand Forecasting Capabilities

The Sixth Power Plan called for improving natural gas forecasting to better include the interplay between the natural gas and electricity demand as more gas-fired generation enters the picture and new uses of natural gas emerge. The need for consistent and interconnected electricity and natural gas forecasts is becoming more important. This was identified in the Action Plan at action item ANLYS-8.

ANLYS-8: Improve natural gas demand forecasting. Work with regional gas utility demand forecasters to fine-tune gas forecasting capabilities of the load forecasting model.

Staff has started to work on this action item. The presentation will discuss the status of this action item, and will show some preliminary results. A preliminary comparison of the natural gas demand forecast produced through Council's long-term demand forecasting model and demand forecast from Northwest Natural Gas Association shows the two forecasts are close.

The presentation maps out the next steps in enhancing the natural gas analytical capabilities at the Council.

Massoud Jourabchi
Missoula Montana

NATURAL GAS MODELING A STEP TOWARD NATURAL GAS ELECTRIC UTILITY INTEGRATION

Action Plan item 8 Called for

- § Improve natural gas demand forecasting. Work with regional gas utility demand forecasters to fine-tune gas forecasting capabilities of the load forecasting model
- § This presentation reports on status of this action item.

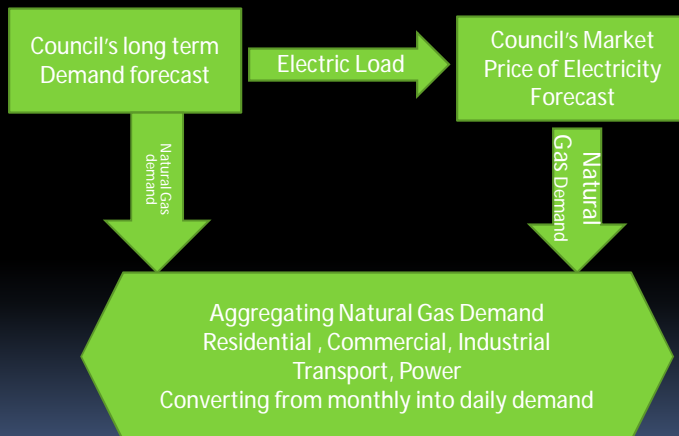
Why are we doing this

- § Need for Natural gas and electric power integration is becoming more evident.
- § There is no single regional source for a consistent natural gas and electric power forecast.
- § Council has the analytical tools to shed light on the issue.

Background

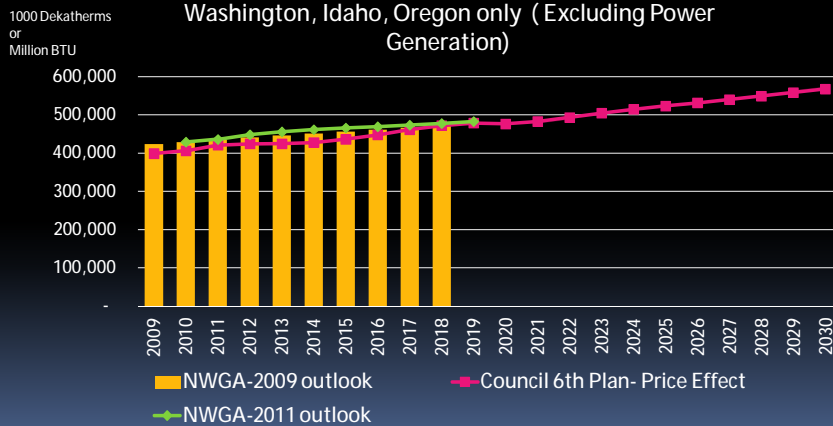
- § Currently Council's long-term model produces annual forecast for natural gas at the state and regional level for each sector
 - ú Residential
 - ú Commercial
 - ú Industrial
 - ú Transportation.
- § Council's electricity price forecasting model, produces forecast of gas demand consistent with electric load.

Overview of analytics for natural gas demand forecast



Comparison of Regional forecasts (Preliminary)

Council 6th Plan and 2009 and 2011 NWGA Outlook
Washington, Idaho, Oregon only (Excluding Power Generation)



In general our forecasts are close.

Natural Gas Demand from Power Generation Sector

- § At the moment we are working on getting natural gas demand from Power Generation sector.
 - ı For each electricity market price forecast we would have a forecast for natural gas demand.
 - ı We would be able to evaluate impact of conservation, DR, RPS, CO2 policies on the demand for natural gas in the region.
 - ı Natural gas demand would be both location-based and load based.
 - ı We will be focusing on location based. In other words, natural gas demand in each state, regardless of the where the generated power is going to end up (outside or inside the region)

Additional details

- § Our goal is to produce forecast of demand for natural gas to help the regional planning in :
 - ı Future new pipeline capacity or Storage planning
 - ı Identify potential bottlenecks for gas supply
 - ı Produce consistent regional forecasts for electric and natural gas.

Next Steps

- § Share goals, methodology and work with:
 - ú Council's Demand Forecast Advisory Committee
 - ú PNUCC system advisory group
 - ú Demand forecasters and planners at Natural gas LDCs
- § Prepare the analytical tools for the 7th plan
- § Preparing for update to data
 - ú Residential Building Stock Assessment
 - ú Commercial Building Stock Assessment

Questions?