

TO: WIEB Natural Gas Core Team

FROM: Tom Carr and Doug Larson

DATE: November 12, 2004

SUBJECT: Summary of November 8, 2004 Conference Call

Joining the call were: Dave Maul, Jim Fore, Leon Brathwaite, Jairam Gopal, Mark DiGiovanna (CEC); Larry Charach (AB); Carmine Vertone (BC); Phil Carver (OR); Pete Koneski, Dick Burdette (NV); Hal Chappelle (Consultant); Doug Larson, Alison Wilson and Tom Carr (WIEB).

- A draft report is attached on the recommendations from the expert advisory panel examining scenario development and sensitivity analysis based on the workshop held October 12-13 in Rancho Cordova, CA. Core Team members should review and provide comments.
- The CEC modeling group reported that it is pursuing changes or updates in the specification of the strawman reference case in the following areas:
  - The oil price forecast will be revised to reflect the recent increase in world oil prices.
  - The size of natural gas reserves will be reviewed and adjusted in accordance with available information on reserves.
  - The cost of supply for specific producing regions is based on NPC data. CEC requests review and comments from states/provinces with knowledge about these estimates.
  - Arctic natural gas and LNG assumptions will be adjusted to reflect new information on the time period when certain projects are expected to be completed.
  - Provided a list of future power plants in each state from the California Energy Commission, Electricity Analysis Office's natural gas demand forecast. The power plant list is attached in the Excel document. Mark DiGiovanna (CEC) will prepare a page describing assumed electricity growth rates by region. Core Team members should review and provide comments back to Mark DiGiovanna at the CEC. Below are the code/acronyms used in the attached spreadsheet:

ST = Steam Turbine  
CG = Cogen  
CC = Combined Cycle  
GT = Gas Turbine  
IC = Internal Combustion  
CCDF = Combine Cycle w/ duct firing  
CGST = Cogen Steam Turbine

- The Core Team discussed demand assumptions including estimates for GDP and electric load growth. In the electric sector, CEC estimates on future power plants were based on the growth of electric load after adjusting for RPS levels in states/provinces. A concern was raised about the high number of forecasted power plants in OR. The CEC explained that this particular number reflected future load growth for the entire Pacific Northwest, not just OR.
- The CEC is also reviewing how to integrate demand price elasticity into the model.
- The CEC is preparing a document describing the assumptions about the natural gas infrastructure (pipelines and storage) covering Canada, U.S. and Mexico. The CEC requests that the Core Team review the infrastructure document and provide feedback on the specific pipelines and capacity levels within the respective state/province.
- The CEC will prepare a draft sensitivity analysis framework that will identify 6-7 cases with qualitative and boundary numbers for future analysis. The CEC anticipates a draft by December or January for review by the Core Team.
  - During the Oct. 12-13 expert panel workshop, participants identified 80 potential factors and voted on the most important factors influencing the natural gas market. The top ten factors receiving votes were as follows: carbon policy (34); LNG development (27); coal build (27); gas potential (size of resource) (24); global gas demand (24); public land policy (22); technology (22); terror (19); environmental legislation (18); crude oil and foreign exchange (15).
  - During the conference call, a concern was raised that unconventional resources, such as Canadian oil sands and coal bed methane, are important factors for sensitivity analysis but received only 5 votes. The subsequent discussion noted that similar factors can be grouped to assess the relative importance, e.g. combining “unconventional” with “gas potential (size of resource)” yields 29 votes, and even more if the “technology” factor is included. The specific details for identifying and ranking the factors for sensitivity analysis will be addressed in the CEC draft and Core Team review of the framework document on sensitivity analysis. In December or January, the CEC modeling team will provide qualitative and boundary numbers on unconventional resource assumptions.

- The expert panel workshop of Oct. 12-13 identified natural gas availability and environmental policy as the two most important factors on the future natural gas market. Based on variations of these two factors, four broad scenarios were proposed:
  - Blue Flame (high gas supply and weak environmental policy);
  - Low Carbon Bridge (high gas supply and restrictive environmental policy);
  - Coal Nation (low gas supply and weak environmental policy); and
  - Supply Blues in a Green Environment (low gas supply and restrictive environmental policy).

After Thanksgiving, the CEC modeling team will be completing a matrix on factors to be considered in the four scenarios. (The draft matrix was distributed prior to the call.) The modeling team would welcome suggestions on appropriate numbers in the matrix that will be used to define the scenarios.

- Next conference call for the Core Team was set for **December 15 at 4:00 p.m. Mtn/ 3:00 p.m. Pac.**
  - TO CONNECT TO THE CALL DIAL 312-461-0833.
  - THE PASS CODE IS 383973.

Attachments:

1. Draft Report of the Expert Advisory Panel  
(a.k.a. Case Development SubGroup: Actions, Outcomes and Recommendations for Scenario Development and Identification of Sensitivity Analysis)
2. Future Power Plants by State, CEC, Electricity Analysis Office