

TO: Natural Gas Core Team and CEC Modeling Team

FROM: Thomas Carr and Doug Larson

DATE: February 25, 2005

SUBJECT: Summary of February 16, 2005 Conference Call

Joining the call were: Jim Fore, Leon Brathwaite, Jairam Gopal, Mark DiGiovanna (CEC); Ines Piccinino (BC); Bruce Wilhelm (SK); Phil Carver (OR); Pete Konesky (NV); Grace Anderson (CA); Doug Larson and Tom Carr (WIEB).

The CEC Modeling Team discussed the following changes they are incorporating into the natural gas model: (1) Demand elasticity specifications; (2) Pipeline transportation costs; and (3) Production profile revisions.

- Demand elasticity specifications -- The model will incorporate new specifications for residential, commercial, and industrial end-use sectors. The demand-side specifications and assumptions are based on the work of Ken Medlock.
  - *Residential demand* in regional nodes will be specified as a function of price of gas, income, population, and weather (heating degree days). The model will allow price to change with repeated iterations of model runs. The price elasticity value is assumed to be -0.2270. A lag variable will represent the demand adjustment over time from the short-run to the long-run.
  - *Commercial demand* will be specified with the same variables as in the residential demand function – price of gas, income, population, and weather. The parameter values in the commercial demand will differ from residential demand. Commercial demand is more sensitive to income, and less sensitive to weather and population. The price elasticity specified for the commercial demand is -0.214.
  - *Industrial demand* will be divided between a “chemical” sector and “all other industrial” sector. Industrial demand in the chemical sector and all other industrial will be a function of price of gas, industrial production, price of oil, and a lag variable. The parameters of the chemical demand function will differ from the all other industrial demand function.
  - *Power generation demand* will remain fixed internally to the natural gas model. The CEC Modeling Team plans to coordinate iterative modeling runs with a separate CEC electrical sector model to reflect gas price induced changes in the power generation sector. Specification of power generation gas demand depends largely on the assumptions of the existing

and future power plants in the electrical sector. WIEB staff is in the process of collecting and comparing information from power plant databases from SSG-WI, WECC, CEC and the NWPP. The WIEB database comparison project seeks to improve the information available for modeling efforts by SSG-WI, the CEC, and other regional energy modeling efforts. WIEB will provide the CEC with findings from the database comparison when that analysis is completed. Until such time as the scrubbed database on power plants is available, the Modeling Team will use existing and proposed power plants from the CEC database.

- Pipeline Transportation Costs -- The CEC Modeling Team is updating the methodology of pipeline transportation costs. The new approach will apply a discount to under-utilized pipeline corridors and a premium to over-utilized pipeline corridors.
- Production Profiles -- The earlier Strawman specification assumed the same production profile for all producing regions. The CEC Modeling Team is reviewing and revising production profiles for each respective basin. This adjustment should fine tune the model and better represent the direction that natural gas flows across regions.

## **NEXT STEPS**

1. Mark DiGiovanna of the CEC will prepare and distribute a written description of the demand-side model specifications discussed in the call.
2. The CEC Modeling Team will conduct model runs of the reference case that incorporate the changes discussed above. Before the next conference call in mid-March, the CEC Modeling Team will prepare a written description of results and outline scenarios and sensitivity analysis.
3. The CEC Modeling Team is targeting a presentation of reference case results to the WIEB Board and CREPC meetings tentatively set for April 20, 2005 in San Jose.

Next conference call is targeted for mid-March. The specific date and time will be determined later in coordination with the progress of the CEC Modeling Team. The Core Team will be notified by email of the date and time of the next call.

- TO CONNECT TO THE CALL DIAL 973-935-2026.
- THE PASS CODE IS 311861.