

October 10, 2012

MEMORANDUM FOR: JOHN CONTI
ASSISTANT ADMINISTRATOR FOR ENERGY
ANALYSIS

ANGELINA LAROSE
TEAM LEADER
NATURAL GAS MARKETS TEAM

JOHN STAUB
TEAM LEADER
EXPLORATION AND PRODUCTION TEAM

FROM: EXPLORATION AND PRODUCTION and NATURAL GAS
MARKETS TEAMS

SUBJECT: Second AEO2013 Oil and Gas Working Group Meeting Summary
(presented on 10-04-2012)

Participants:

Alan Wilson (ENCANA)	via WEBEX
Bill Pepper (ICFI)	via WEBEX
Evelyn Dale (NETL)	via WEBEX
John Pyrdol (FE)	via WEBEX
Bob Hugman (ICFI)	via WEBEX
David Shin (API)	via WEBEX
Dana Van Wagener (EIA)	via WEBEX
Changzeng Liu (ORNL)	via WEBEX
Chris Nichols	via WEBEX
Daniel Velez (RFF)	via WEBEX
Carol Lenox (EPA)	via WEBEX
David Schmalzer (cox.net)	via WEBEX
Charlie Sheppard (EOG Resources)	via WEBEX
Jose Benitez (NETL)	via WEBEX
Geoffrey Brand (API)	via WEBEX
John Steelman (NRDC)	via WEBEX
Neeraj Nandurdikar (IPAGLOBAL)	via WEBEX
Starla Yeh (NRDC)	via WEBEX
Taylor Malone (ADV_RES)	via WEBEX
Tom Mead	via WEBEX
Dale Nesbitt (Deloitte)	via WEBEX
Philip Budzik (EIA)	

Barbara Mariner-Volpe (EIA)
Samuel Gorgen (EIA)
James O'Sullivan (EIA)
Justine Barden (EIA)
Phyllis Martin (Self)
Chetha Phang (EIA)
Jennifer Lee (DOE PI)
Michael Scott (EIA)
Joe Benneche (EIA)
Tom White (DOE)
John Staub (EIA)
Aloulou Fawzi (EIA)

Presenters: John Staub and Joe Benneche

Presentation: The presentation provided an overview of the latest NEMS results under consideration for *AEO2013* in the Oil and Gas Supply Module (OGSM) and the Natural Gas Transmission and Distribution Module (NGTDM). The following are comments shared by participants, questions asked, a summary of our responses and written comments received from participants following the meeting.

Questions and answers regarding the OGSM:

- 1) Are “Lower 48 unproved tight oil resources” Gas in Place or Technically Recoverable Resources?

EIA response: They are Technically Recoverable Resources and EIA follows USGS methodology such as the use of EURs and well counts.

- 2) What is EIA definition of tight oil? The Austin Chalk and Spraberry plays used to be considered low-permeability conventional oil plays and are now treated as tight oil plays in OGSM. Switching the “tight” oil definition between AEOs, wherein previous AEOs only focused on “new” tight oil plays, while the AEO2013 includes both the new tight oil plays and the old conventional plays that are now redefined as tight oil. What should be the OGSM definition for what constitutes a “tight” oil play, and should other conventional oil plays also be moved to the tight oil category within OGSM?

EIA response: Tight oil is frequently commingled with “conventional” oil and includes condensate. It can come from shales, carbonates, chinks, tight sandstones and other low permeable formations.

- 3) What projects are you assuming for US LNG exports from the Gulf of Mexico? I am not convinced about Alaska LNG.

Comment: Western Canada LNG exports should be cheaper than Alaska LNG exports, and so did not believe that any LNG exports would come from Alaska. The same commenter, however, noted that they did not expect any future LNG exports from the U.S. or Canada, regardless of whether it was from East Coast or West Coast.

EIA response: The projects EIA are assuming from the Gulf of Mexico region are the two Cheniere trains starting in 2016. NEMS shows that it is economical to have US LNG export from Alaska, but we limit it to an earliest start date of 2021 and to 4 trains, due to pipeline constraints. While the costs of the necessary infrastructure in Alaska are relatively high, their production costs are very low and their shipping costs to Japan are relatively low compared to alternatives sources.

- 4) In the High Oil Price Case, why is LNG projected to be exported from the South Atlantic? Also, why are total LNG exports much higher in the High Oil Price Case than they are in the Reference Case? Why would high world oil prices increase world LNG demand, thereby increasing the demand for U.S. and Canadian LNG exports?

EIA response: First of all, remember that these are preliminary and will possibly come down. The relative costs for exporting out of existing import facilities in the South Atlantic is not significantly different that in the Gulf. Cheniere in the Gulf has the initial advantage of having obtained the necessary permits first. There are several issues of much uncertainty here. How rapidly will the market move away from contracts based on oil prices? How and how fast might industry step in to take advantage of such a large differential between oil and gas prices (e.g., natural gas vehicles, increased gas generation, gas-to-liquids)? How rapidly will gas production increase in other areas of the world, such as in shale plays? The degree to which there is a slow response in these areas, the greater the window of opportunity for U.S. LNG exports, particularly at such high world oil prices.

- 5) Comment: Projected natural gas prices do not exhibit the high degree of volatility that has been experienced in recent history.

EIA response: Projected natural gas prices do not exhibit price volatility because the model assumes “normal historical” weather and storage trends, which are responsible for much of the historic price volatility. The projected long-term gas prices largely reflect the marginal cost of incremental gas supply. Near-term gas price volatility comes from the STEO gas price projections.

EIA presenter noted that a new approach was taken in the AEO2013 projections regarding average wellhead gas prices and the Henry Hub spot gas price. Previously, the U.S. average wellhead price was projected in the model and the Henry Hub price was estimated from the wellhead price based on the historical relationship between these two prices. Because the EIA no longer collects wellhead gas price data, a Henry Hub spot price will be estimated in the model, based on a regional spot price.

- 6) Why is there a significant rise and fall (i.e., “blip”) in electric power natural gas consumption during the 2016-2018 timeframe?

Comment: Projected natural gas consumption in the electric power sector seems too low.

EIA response: The first couple of years we are trying to align with STEO results. I suspect that we will not see the 2016-2018 blip in the final projections, as I suspect they are still working on this. Unfortunately you may need to attend a separate working group to get a definitive answer.

[Answer from electricity group – Natural gas is typically the marginal fuel and balances out the increases or decreases in other fuels. Coal consumption has a similar but opposite pattern and has environment regulations that hit in 2012 and 2016, which contributes to the spikes in gas in those years (along with the low gas prices in 2012). But coal recovers a little once the retrofits have been made on the plants that remain. Some planned nuclear plants come online between 2015-2020 that provide a big boost to generation, along with the steady increase in renewables, both of which contribute to natural gas use going down after 2016. Eventually gas use picks up to meeting growing electricity demand.]

- 7) Why does residential natural gas consumption fall in the AEO2013 projections relative to the higher consumption levels projected in the AEO2012?

EIA response: The lower residential consumption levels in AEO2013 are largely due to benchmarking to updated historical figures.

The EIA presenter noted that the preliminary AEO2013 industrial gas consumption is higher than in the AEO2012 projections largely due to the inclusion of gas-to-liquids consumption.

- 8) Has there been any discussion in EIA regarding a policy run that shows an “aggressive natural gas policy,” which would require, for example, greater natural gas consumption in transportation?

EIA response: EIA does not propose energy policy and usually only runs proposed policy case runs on request from Congress. I encourage you to look at some of the scenarios we ran in AEO2012, particularly one which showed greater use of gas in vehicles. For the most part, the AEO side cases are used to highlight areas of uncertainty rather than policy issues.

- 9) Comment: In the natural gas production projections, it would be useful to distinguish between the associated-dissolved (AD) natural gas produced from conventional oil, as separate from the AD gas produced with tight oil.

- 10) Why does transportation natural gas consumption start increasing significantly after 2030?

EIA response: The growth in transportation natural gas consumption is due both to a reclassification of vehicles and a more optimistic view of the growth in LNG trucks.

- 11) Why are EIA Henry Hub and CERA Henry Hub projections in the slide different?

EIA response: We do not know the reasons for the difference between CERA and EIA Henry Hub projections.

- 12) Why don't you show us a slide on energy mix to get a better idea of natural gas share?

EIA response: This working group is largely focused on oil and natural gas supply issues, while the energy mix is on the demand side. We can send you a slide if you send us an email.

- 13) Do you have a slide showing the count rigs and oil price similar to the slide on natural gas?

EIA response: We can develop one.

Comments from a working group participant following the meeting:

A working group participant sent EIA an email to express concern regarding EIA's projection for LNG exports, as well as the projected level of natural gas consumed in the electric power sector.

The participant's analysis suggests that North American originated LNG is not marketable and that exports of LNG from North America are quite small because places around the world have lower cost, gas indexed alternatives. Specifically regarding LNG exports, the points that were raised in the email concerned:

- A. North American export sensitivity to oil prices in EIA's projections
- B. EIA's Canadian LNG export levels compared to Alaskan LNG export levels
EIA's assumptions on: the market structure and marketability of Canadian and Alaskan gas in Asia; the production of indigenous shale gas and other alternative supply sources throughout Asia; and the monthly or term structure of this Alaskan and Canadian gas in Asia or elsewhere.