Assumptions for *Annual Energy Outlook 2014:* Liquid Fuels Markets Working Group

AEO2014 Liquid Fuels Markets Working Group Meeting

Office of Petroleum, Natural Gas & Biofuels Analysis

July 24, 2013 | Washington, DC

WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES
DO NOT QUOTE OR CITE AS RESULTS ARE SUBJECT TO CHANGE

Discussion topics

- Imports and exports of petroleum liquids
- Transport network
- Process unit capacity expansion
- Technology assessments of alternative fuels
- Biofuels supply curves
- E15 market penetration options
- E85 pricing and availability assumptions
- RFS and LCFS

Imports and exports of petroleum liquids

- Petroleum product imports and exports will be endogenously determined
  - Initial import/export supply/demand curves will be supplied to LFMM by the International Energy Module (IEM)
  - Only 1 international supply region is represented. This may be expanded in the future.
- Crude export representation will be added
  - Dynamic functionality will be activated only for a side case
  - Exogenous assumptions will be made to reflect current reality

Transport network

- Crude and product transport between supply, refining, and consumption regions
- Ongoing effort to improve the transport network for crude and products (anticipated but not guaranteed for *AEO2014)*
  - Crude
    - Bakken
    - Canadian
  - Updating transport network data to include recent and upcoming projects
    - Pipelines
    - Marine vessels
    - Rail

Process unit capacity expansion

- Apply technological optimism and learn-by-doing to a wider set of new technologies
  - New: coal to liquids, gas to liquids
  - Continued: cellulosic ethanol, biomass to liquids, pyrolysis oils
- Better represent capacity expansion for technologies starting with low or no capacity
  - Allow initial growth potential to continue until a specified number of units are built

Technology assessment of alternative fuels

Technology updates

- **Using Fischer-Tropsch data**
  - Gas-to-liquids (GTL)
  - Coal-to-liquids (CTL)
  - Biomass-to-liquids (BTL)
- **Using data from demonstration facility**
  - Biomass pyrolysis

Financial	**Parameters**
Cost of capital	13.5%
Economic life of plant	15 years
Debt to capital ratio	40 %
Technology	**Parameters**
Plant Capacity	Technology dependent – Expert opinion
Plant location for base unit	Gulf coast (LFMM region 4)
Learning and scaling	Engineering design approach and historical data
Development stage for inclusion in Tech assessment	Successful completion of the demonstration plant

Biofuels supply curves

- Update Brazilian sugarcane ethanol supply curves
- Update domestic feedstock supply curves
  - Updated to USDA 2013 baseline
    - soy bean oil
    - corn
  - Updated based on historical data compiled by USDA Marketing Service
    - Yellow grease, white grease

E15 market penetration options

- At a minimum, establish a less optimistic projection
  - Allow a maximum penetration of 50% of motor gasoline pool by 2030 (versus by 2020 in AEO2013)
- Consider zero E15 over the projection period
  - based on current automobile warranty issues

E85 pricing and availability assumptions

- Relationship between E85 pricing and consumer demand must be robust under various scenarios
- Consumer choice function will be updated to represent latest findings (in Transportation module)
- Growth in E85 provides the opportunity for growth in advanced and cellulosic ethanol
- Seeking input on year-on-year maximum growth in the number of E85 stations (driven by consumer demand) under different market conditions

RFS and LCFS

- LFMM results for the national RFS and the California LCFS will likely not meet original targets
- E85 demand, biofuels technology assessments, and biofuels feedstock supply will drive the ability to meet RFS and LCFS. *AEO2014* will likely have more biofuels than *AEO2013*.
- EIA is in the process of updating RFS-related and LCFS-related parameters without specific statutory guidance
- Current challenges are:
  - modeling EPA decisions which are given flexibility in the RFS statute
    - yearly waivers for Cellulosic, Advanced, and Total volume targets
    - multi-year re-set of target volumes
  - modeling expected flexibility in the California LCFS

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Next Working Group Meeting

Planned for October 17, 2013.

Will present preliminary *AEO2014* results.

For more information

U.S. Energy Information Administration home page | www.eia.gov

Short-Term Energy Outlook | www.eia.gov/steo

Annual Energy Outlook | www.eia.gov/aeo

International Energy Outlook | www.eia.gov/ieo

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