Macro-Industrial Working Group meeting 1: Industrial updates and some preliminary results

Macro Industrial Working Group (MIWG)

Industrial Team: Kelly Perl, Team Leader; Peter Gross, Susan Hicks, Paul Otis

December 3, 2015 | Washington, DC

Preliminary Results. Do not Disseminate.

AEO2016 additions for industrial

- Technology choice models complete; end of 5 year effort
- Benchmarking improvements
  - Individual industry benchmarking complete
  - On-going effort to coordinate reporting and benchmarking with refinery model (LFMM)
- Data updates
  - Non-manufacturing data updates (Economic Census)
  - Planned calibration using other data sets (EIA, Census, BENTEK) to improve precisions of projections
- Regulation updates

Technology choice for process flow industries

- General
  - Allow for technology choice within individual *process flows* for energy-intensive industries (e.g., anode production for primary aluminum smelting)
  - Technology choices based on relative capital and operating costs including fuel consumption/costs.
  - Technologies are primarily based on CIMS (Consolidated Impacts Modeling System) data from DOE's (PNNL) Pacific Northwest National Laboratory

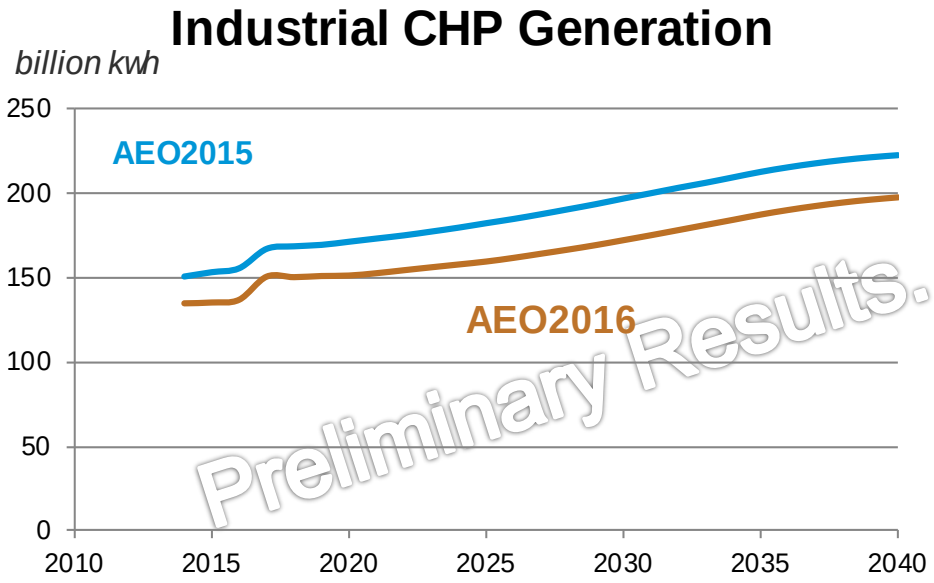
- All submodules complete: Cement & Lime (*AEO2012*), Aluminum (*AEO2013*), Glass (*AEO2014*) , Steel (*AEO2016*), Pulp & Paper (*AEO2016*)

- Technology choice models will allow for *AEO2016*'s new energy efficiency case and also potentially allow for carbon cases.

Data updates & regulation

- Data
  - Economic Census for nonmanufacturing – completed
  - Calibration to achieve greater precision in historic data and benchmarking; will start with natural gas
  - No 860/923 CHP data update this year
- Regulation updates
  - Updated motor efficiencies to reflect latest motor efficiency standards (10 CFR 431 Part B, Federal Register Cite FR 79 pp 30934-310104 (2014))
  - Industrial Combined Heat and Power (CHP) not affected by Clean Power Plan and not modeled in IDM

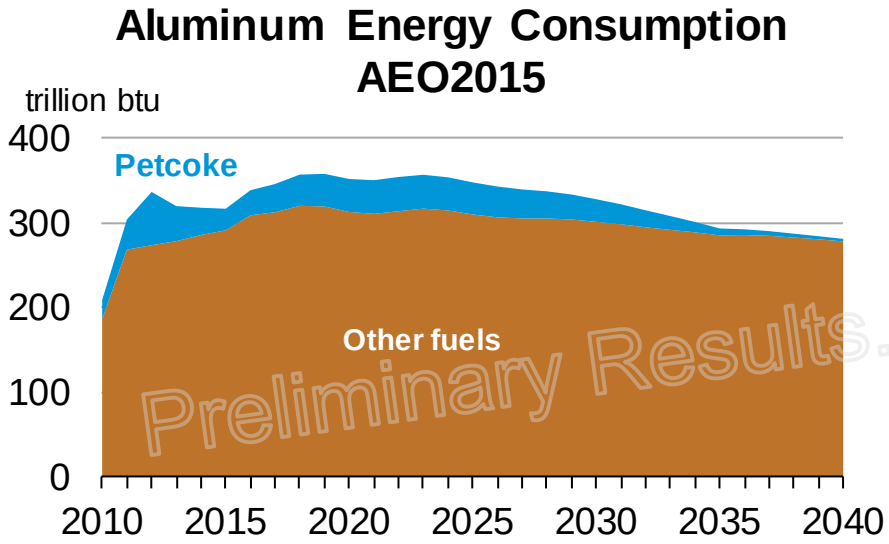
Changes to Combined Heat and Power Modeling & Preliminary results

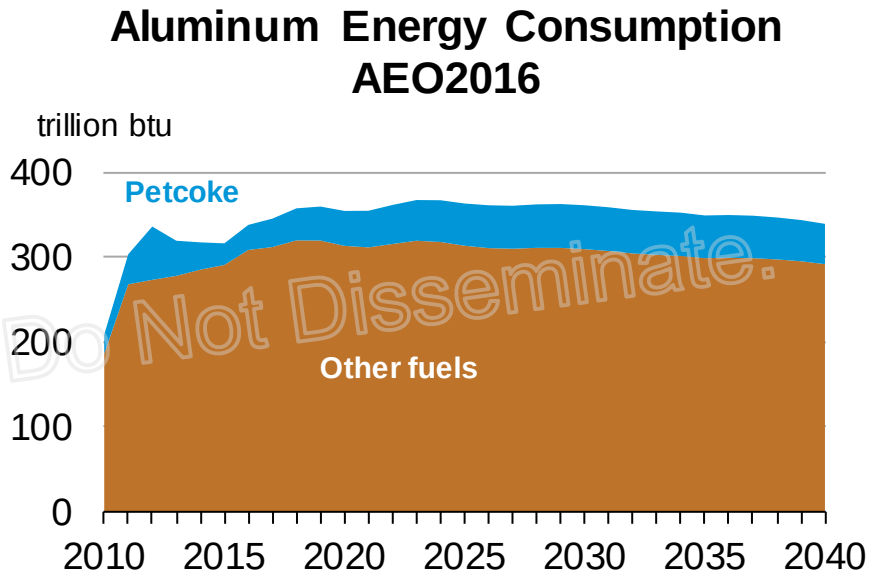


- CHP for Iron and Steel and Paper submodules now calculated outside boiler/steam/cogen (BSC) component
- Majority of CHP generation decline between AEO2015 and AEO2016 result of declines in paper CHP generation
- Renewables share of paper CHP significantly higher in AEO2016 (11 pp in 2015; 20pp in 2040)

Source: AEO2015 Ref2015.0219a & AEO2016 Ref2016.1130a run Table 44, energy consumption by sector

Aluminum submodule: delaying significant inert anode penetration increases energy use by 20% by 2040, mostly in petcoke





Source: AEO2015 Reference case & AEO2016 Ref2016.1201b

Memo on this meeting and presentation can be found here in about a month:

http://www.eia.gov/forecasts/aeo/workinggroup/macroindustrial/

Thank you for your attention!

Macro Team:

Kay Smith (202) 586-1132 | kay.smith@eia.gov

Vipin Arora (202) 586-1048 | vipin.arora@eia.gov

Russell Tarver (202) 586-3991 | russell.tarver@eia.gov

Elizabeth Sendich (202) 586-7145 | elizabeth.sendich@eia.gov

Industrial Team: EIA-OECEAIndustrialTeam@eia.gov

Kelly Perl (202) 586-1743

Peter Gross (202) 586-8822

Susan Hicks (202) 586-4388

Paul Otis (202) 586-2306