

WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES  
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August 2, 2012

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ANALYSIS

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FROM: MACROECONOMIC & INDUSTRIAL ENERGY  
CONSUMPTION & EFFICIENCY ANALYSIS TEAMS

SUBJECT: First AEO2012 Macro-Industrial Working Group Meeting Summary  
(presented on 07-24-2012)

Attendees: Aaron Bergman (ORM)  
Frances Wood (OnLocation)  
Keith Jamison (Energetics)  
Liwayway Adkins (DOE-PI)  
Neal Elliott (ACEEE)  
Tom Lorenz (EIA)  
Bob Adler (EIA)  
Vipin Arora (EIA)  
Russ Tarver (EIA)  
Kevin Lillis (EIA)  
Joe McGervey (SRA – International)  
Prakash Rao (LBNL)  
Don Hanson (Argonne)  
Amelia Elson (ICF)  
Skip Laitner (ACEEE)  
Gale Boyd (Duke University)

Presenters: Kay Smith, Elizabeth Sendich (Macro)  
Kelly Perl, Mark Schipper, Peter Gross (Industrial)

*Macro:* The macro presentation provided a viewing and discussion of GI's (Global Insights') long-term forecast of GDP. There was no presentation of specific industrial output projections because the EIA macro team has not yet received GI's industrial output forecasts. Highlights for *AEO2013* macro model changes included additional gross output detail in the food and chemical sectors which would be available to the industrial model, better representation of the influence of energy exports (e.g., coal, LNG) quantities on the macro model, and implementation of a dynamic price driver (comprised of the oil/natural gas price) for the organic chemical output forecast.

Specific discussion/questions:

1. It was commented that Moody's Analytics has published a GDP forecast that has a significantly lower growth rate than GI's. This commentator made the point that there may be a paradigm shift in store for the U.S. economy which would require a forecast of GDP to go well beyond a trend analysis, and in particular they pointed to Moody Analytics' assumptions regarding a very different (lower) productivity growth in the future than has been witnessed historically. Kay Smith responded that this was interesting, but that a) EIA does not do forecasts, but rather projections and b) a low macro economic growth side case will be published which would likely approximate Moody Analytics' own forecast. Kay Smith also said that she and her team welcome comparing other macro forecasts with GI's, but that EIA does not subscribe to Moody Analytics.
2. Two participants asked if the oil/natural gas price ratio was sufficient as a price driver for organic chemical shipments forecast, and Peter Gross and Elizabeth Sendich responded that this price driver is a stepping stone to more detailed NGL (natural gas liquid) price drivers (e.g., ethane, propane) which are to be provided soon by the LFMM and would be used by the macro module in *AEO2014*. Elizabeth Sendich also pointed out that the lack of specificity in the proposed oil/natural gas price driver was not necessarily a limiting assumption given the lack of detail in GI's organic shipment forecast which covers a broad swath of both organic and petrochemicals.

*Industrial:* The industrial part of the working group presentation provided general model development plans associated with major changes/updates for the *AEO2013* version of the Industrial Demand Module (IDM). These included:

- (1) implementing the new aluminum process flow model;
- (2) implementing the models for non-manufacturing sectors including construction, coal mining, oil & gas extraction, and other mining;
- (3) enhancing the CHP model diversified utilization to include industrial sub-sectors and four census regions;
- (4) updating of the CHP database with preliminary 2011 data from EIA's Office of Energy Statistics (OES);
- (5) expanding the chemical model to include price-drive feedstock choices from NGLs ;

- (6) implementing the environmental regulations from Assembly Bill 32 (State of California) and Boiler MACT.

Specific discussion/questions:

1. A participant asked how the “old” detailed chemical model which was replaced by a simpler version for AEO2012 would be re-instated for AEO2013. Peter Gross responded that the “old” model would be partially rehabilitated for AEO2013 in that econometrically-derived demands for basic petrochemicals would be included. These product demands would specifically drive feedstock demands of NGLs and naphtha.
2. It was asked if comparisons with previous AEOs would still be possible given the changes in adding new macro and industrial detail. Elizabeth Sendich replied yes, in particular the aggregate energy consumption and macro tables would still be completely amenable to direct comparison with previous AEOs, although there would be slight changes in specific industrial tables (the recent change to cement with the inclusion of lime production was mentioned) with on-going model changes to the IDM.
3. One participant inquired if, given the implementation of Boiler MACT, there were any levers within the IDM to further incentivize boiler fuel switching to natural gas other than the existing price-driven logit-based fuel share function. Mark Schipper replied no, and that no such specific retirement driver/lever currently exists to address fuel switching. Steam demand in the industrial model is a function macro shipments, MECS-based steam intensity, Technology Possibility Curves (TPCs) which drive down the energy intensity, and CHP builds. An extra coal boiler environmentally-driven retirement lever is not something the industrial team plans on adding, either, for AEO2013. Lastly, the reconsidered Boiler MACT rule is still at the Office of Management and Budget and had been expected to be published in the Federal Register in June 2012, but that date was changed to July 2012.
4. A question was raised about a link or driver in the IDM between steam production and electricity (i.e., could prices of industrial electricity affect steam demand?). This issue was new to the EIA presenters, as none had any knowledge of such a link in the IDM, perhaps because the discussant thought that such a link might have been included in the IDM from 5 years back or so. Mark Schipper and Peter Gross will review and provide a complete answer for ACEEE.
5. A participant asked if Boiler MACT was applicable to the cement industry given as Mark Schipper had mentioned in his presentation given that the cement industry has only process heating and not boilers. This participant said that he thought cement emissions from process heaters would fall under the EPA’s National Emissions Standards for Hazardous Air Pollutants (NESHAP) instead. Mark Schipper said he would investigate this as part of the effort to regionalization the cement and lime submodule.
6. One participant mentioned that some of his own work on industrial energy efficiency might be informative for the IDM. The EIA industrial team thanked this

participant and will look at their work. Mark Schipper pointed out that this work would be more relevant to energy efficiency (EE) side cases and that any authoritative EE research is welcomed by EIA.

The next scheduled joint macro-industrial work group meeting is on September 11, 2012.