# Memorandum

TO: AEO STAKEHOLDERS

FROM: DAVID WHITE, PHD AND PATRICK LUCKOW

DATE: FEBRUARY 24, 2016

RE: AEO BUILDINGS WORKING GROUP MEETING NOTES – FEBRUARY 18, 2016

## AEO Buildings Working Group Meeting Notes

The second Buildings Working Group meeting for AEO2016 was held on the afternoon of February 18, 2016.

The purpose of this second meeting was to identify the assumptions that will be used for AEO2016 and to review some preliminary results. Some of the key items discussed were:

**Modeling Scope –** AEO2016 will be a full version with many side case alternatives considered. The Reference case will include the Clean Power Plan (CPP) requirements, but there will be a suite of non-CPP cases as well. Some preliminary results may be available, but there will not be an early release of the Reference case as in the past.

**Clean Power Plan –** AEO2016 cases that include the effects of the CPP will affect the building sector mainly via rebates for major end-use equipment. AEO2016 will also include an *Issues in Focus* discussion of the CPP.

**Federal Standards –** The assumptions will be updated to reflect the most recent federal standards. For equipment standards, these are: residential boilers, commercial packaged air conditioners and heat pumps, commercial warm air furnaces, commercial pumps, general service fluorescent lamps, commercial ice makers, commercial beverage vending machines, and commercial oil-fired water heaters. Energy Star standards will include: televisions/displays, set-top boxes, and dehumidifiers. Improved motor standards will be reflected in the equipment that uses them.

**Building Codes –** States are assumed to meet goals defined in the American Recovery and Reinvestment Act (ARRA), and then continue trends in code adoption. But there are no plans to capture the effects of specific state codes.

**Tax Credits –** The recent extension of the 2016 investment tax credits for solar PV will be represented. The residential credits will phase out in the early 2020s, but commercial credits continue indefinitely at a 10 percent level.

**Commercial Buildings –** The new floor space modeling methodology is no longer using proprietary data. The net effect is a slight increase in the overall growth rate of floor space from 1.0 percent to 1.1 percent, although some categories such as educational buildings increase at a much higher rate. The 2012 Commercial Building Energy Consumption Survey (CBECS) data is not ready for this AEO, so data from the 2003 survey will be used again.

**Distributed Generation –** Cost performance updates for PV are in alignment with those in the electricity sector, which are down considerably compared to last year. EIA is considering alternative modeling approaches for residential solar PV penetration to deal with hurdle rate issues and other factors.

**Preliminary Results –** Overall building sector energy consumption is greater than both the AEO2015 Reference and AEO2015 CPP cases. Major factors are lower natural gas and solar costs which out-compete energy efficiency in the modeling. Also choices of major end-use equipment have long-term effects.

**We see the following as current priority issues:**

- **CPP implementation:** A major change is the representation of some utility energy efficiency programs as part of the evaluation of the CPP. How this is done will have a major effect on the results going forward. The chosen implementation should properly account for Clean Energy Investment Program (CEIP) credits.
- **Other electricity use –** This has been a big catchall in the buildings sector and it would be useful to have a better understanding of what this represents. However this will probably need to wait for the 2012 CBECS data.

We plan to follow up on these issues with EIA. Please send us any questions, comments, or suggestions you have at this stage of the AEO2016 development process.

**David White & Patrick Luckow, Synapse Energy Economics, 2/20/16**