

February 10, 2016

MEMORANDUM FOR: John Conti
Assistant Administrator for Energy Analysis

Jim Diefenderfer
Office Director
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Paul Holtberg
Team Leader
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FROM: Chris Namovicz
Acting Team Leader for Electricity Analysis Team

SUBJECT: Summary of AEO2016 Electricity Working Group Meeting held on
February 10, 2016

PRESENTERS: Thad Huettelman and Chris Namovicz

ATTENDEES: 14 EIA, 27 external (list provided following meeting summary)

Presentation topics included respond to issues raised by stakeholders; a discussion of recent developments/updates to generator status and capital costs; and a presentation of preliminary AEO2016 model results. The results shown include electricity sales, coal and nuclear retirements, electricity and feedstock prices, generation by type, solar and wind capacity addition, and CO₂ emissions.

The biggest concern raised by the working group participants was the recent decision by the Supreme Court to stay the implementation of the Clean Power Plan, which is the current basis for the AEO2016 Reference Case. Specific topics were as follows:

Clean Power Plan (CPP)

A participant asked whether it would be possible to have two reference cases—with CPP and without CPP—since both cases are getting attention. EIA staff indicated that having two Reference cases is not a feasible solution. While EIA doesn't have currently a resolution on how best to handle CPP in AEO2016 in light of the recent Supreme Court ruling, EIA is actively discussing the subject. Regardless of which case is used as the Reference case, EIA will present results from both a "with CPP" and "without CPP" case in the AEO. Another participant expressed that it could be perceived as the EIA is weighing in on the policy if EIA doesn't consider the CPP. EIA responded that a CPP case will definitely be included in AEO2016. [EIA has subsequently decided to include the CPP in the AEO 2016 Reference case, and will also prominently feature a No CPP case]

CPP Energy Efficiency Allowance Set-Aside

A participant asked if EIA has examined how EPA's clean energy incentive program (CEIP) allowances will be awarded as a sensitivity case, and how that it would affect the RGGI allowance allocation. EIA indicated that, while EIA has examined energy efficiency as a potential compliance option in CPP analysis, EIA did not explicitly model EPA's CEIP due to a lack of clarity as to how it would be handled.

Renewable Generation under the CPP

A participant inquired if EIA will see more renewable energy additions under the rate-based compliance cases with the CPP. EIA staff indicated that preliminary model results indicate larger renewable energy additions under a rate-based rule than a mass-based rule. The incentive structure implicit in the CPP emissions-rate based standard tends to encourage construction of new zero-emitting generators, such as renewables and nuclear units. The rate target is set equal to CO₂ emissions from affected sources divided by (generation from affected sources + generation from new clean energy sources.) So zero emitting sources both offset emissions from affected plants and increase generation from clean sources. On the other hand, under a mass-based plan the contribution made by renewables is accounted for simply by the offsetting of emissions from existing sources.

111(b) Compliance

A participant asked if EIA will represent a 111(b) new source compliant coal generating technology in AEO2016. EIA responded that the provisional new-source-compliant technology for the AEO is ultra-supercritical pulverized coal (USC) with 30% carbon removal. In the past, for carbon capture and sequestration (CCS), EIA has assumed 90% carbon removal. Another participant asked about retrofitting and CCS. EIA clarified that the model allows for CCS retrofits.

Overnight Capital Costs

A participant asked if EIA will still include a 3% premium to the capital cost for coal-fired. EIA responded that the 3 percentage point cost-of-capital premium for coal-fired plants will be included, which for this AEO will be applied to the 111(b) compliant USC with 30% CCS. EIA believes that there is still substantial uncertainty in the market over future carbon regulation that could be even more stringent than 111(b)/111(d), and that this may be reflected in more cautious lending to relatively high-carbon emitting technologies. The 30% CCS technology in the model is substantially more carbon-intensive than the natural gas combined cycle technologies modeled, and EIA expects that it would be affected by this uncertainty over future regulation.

Side cases for AEO2016

A participant asked if the side cases listed on the slide were exclusive and if other cases, such as low technology cost cases, would be considered. The participant further stated that there would be interests in helping with the design of the side cases. EIA staff clarified that the list is not comprehensive, EIA had not finalized the side cases at the time, and that it does not entertain requests for side cases.

Preliminary Results

A participant wondered if economic growth projection affects electricity prices. EIA responded that macroeconomic factors have some effect on electricity prices though there is less direct correlation between the two series than in the past since the CPP and renewable tax credits are driving much of the market. Another participant asked if MATS (Mercury and Air Toxic Standards) is included in the projection. EIA confirmed that AEO2016 includes MATS assumptions.

Coal Retirement

A participant asked why there is no economic pressure to retire more coal generating units. EIA staff pointed out that the number of coal retirements has increased in the run-up to the MATS compliance deadline of April 2016; however, even with lower gas prices, coal units are still needed to serve a certain percentage of the baseload. Therefore, it is more economic for them to stay on, but EIA is looking at this topic in more detail.

Nuclear Retirement

A participant asked about the criteria in which EIA uses to determine generic nuclear retirement. EIA staff indicated he will get back to the group on this question. EIA assessed the potential for early nuclear reactor retirements due to financial uncertainty. The assessment was based on a review of available external financial analyses. Nuclear power plants in unregulated markets face various risk factors such as competition from lower-cost energy sources like natural gas and wind and lower revenues from electricity production. Declining electricity demand also threatens prices in wholesale electricity markets. The AEO 2016 will include 3 GW of potential accelerated nuclear power plant retirements to reflect existing financial uncertainty in unregulated markets.

Another participant asked if there's any interest into doing more research into nuclear retirements. EIA responded that there is a plan for additional research regarding nuclear retirements, but not for the upcoming release of the AEO.

Electricity Generation by Source

A participant pointed out that there looks to be a big drop in gas generation for the AEO2016 Reference Case and wondered if it is correlated to the wind addition or something else. EIA explained that the drop is due to increasing competition from wind and solar induced by the tax credit extensions, while the load growth has been virtually stagnant.

Nuclear Generation

A participant asked about EIA's assumption for nuclear license renewal. EIA indicated that the AEO assumes 80 years, but a detailed study of nuclear generation that will include 60-year and 80-year license renewal as well as potential retirements due to financial uncertainty is being planned.

Leakage Issue under CPP

A participant asked if mass-based case include new sources. EIA indicated that the AEO models mass-based from all source, since this is a clear-cut way to avoid leakage ("the shifting of generation to unaffected sources".)

CO₂ Emissions

A participant asked how CO₂ reduction in AEO2016 Reference case compared to the one without CPP. EIA pointed out that there is no preliminary results to show for the one without CPP yet, but it's safe to say that CO₂ emission will be less with the CPP than without the CPP. Another participant asked if EIA tracks allowance prices for the CPP. EIA confirmed that the model will determine a credit price for mass-based CPP allowances, and is examining the modeling of emission reduction credits (ERCs) for rate-based regulation.

Solar Capacity Addition

A participant asked if EIA only considered utility-scale solar. EIA staff clarified that capacity additions show all solar: utility-scale and distributed generation.

PARTICIPANTS

(* denotes non-EIA, + denotes online participant)

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