

## MEMORANDUM

**SUBJECT:** Summary of AEO2017 Electricity Working Group Meeting held on September 1, 2016

**DATE:** September 29, 2016

**TO:** Ian Mead  
Assistant Administrator for Energy Analysis

Jim Diefenderfer  
Director,  
Office of Electricity, Coal, Nuclear, and Renewables Analysis

Paul Holtberg  
Team Leader,  
Analysis Integration Team

**FROM:** Thad Huetteman  
Team Leader for Electricity Analysis Team

**PRESENTERS:** Thad Huetteman, Chris Namovicz, Nancy Slater-Thompson

**ATTENDEES:** 32 external, 15 EIA (see attached list)

The first AEO2017 Electricity Working group presentation covered policy assumptions and critical model updates for 2017, including 1) extension of the projection horizon to 2050, with consequent issues raised, including prospects for nuclear re-licensing, 2) continued inclusion of Clean Power Plan in Reference Case, 3) enhancement of modeling coal unit performance, and 4) the impact of distributed generation on load. The presenters emphasized that AEO2017 would be a shorter version, similar in concept with AEO2015 (*i.e.*, with a limited number of alternative scenarios).

### **Extension of Projection Horizon to 2050/Nuclear Re-licensing**

One of the participants expressed concern that it would be difficult to evaluate the range of possible alternatives which could arise for consideration by extending the projection to 2050 during the shorter AEO cycle. The participant further noted that the need to consider nuclear plant re-licensing would become particularly significant in that time frame. A second participant noted that the extension to 2050 should be the occasion for broadening EIA's analysis across a wider range of choices for the industry, given the significance of 2050 as a nominal target date for emissions reductions. They further noted that some of the options that should be included were currently considered somewhat speculative, such as the use of carbon capture and storage with biofuels.

EIA responded that it was aware of the importance of the nuclear re-licensing during the extended timeframe and discussed the possibility of developing a graduated approach to addressing the issue over the next few AEO cycles, beginning with a most likely retirement case in AEO2017. EIA also

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described its plan to work with a contractor to evaluate the prospects for nuclear plant relicensing at a unit level, with the potential to use the results of that study to support AEO2018.

### **General Issues Related to Nuclear Power**

In addition to the focus on long term nuclear relicensing, there was also a discussion of a variety of issues related to nuclear power. One participant asked if EIA had retained its assumption of a fixed amount of generic (as opposed to unit-specific) retirements in the near term, and if so what was the time frame for those retirements. EIA responded that the AE2017 would include near term generic retirements, and that they would be distributed across the early years of the projection, from 2018-2022. The participant also inquired as to whether nuclear uprates were modeled endogenously, and EIA indicated that for the current cycle they would be specified exogenously.

Another participant questioned if EIA included small modular reactors (SMR) as a new technology choice option, noting that there were initial projects underway internationally. EIA noted that with the early stages of this new technology there was not reliable cost information to include it as an endogenous technology choice. Another participant noted that the issue of how to handle retirements and uprate decision as generic issues ran the risk of ignoring the complex unit-by-unit decisions that must be made, which EIA acknowledged.

### **Improving Modeling of Renewable Generation**

EIA outlined the enhancement for the AEO2017 cycle which involved modeling the generation profile of distributed photovoltaics (PV) to make it consistent with the approach for utility scale PV; this will also enable better representation of the affected end-use load shapes. One participant asked how EIA represented transmission capacity expansion in considering additions of renewables generating capacity, which they noted was a critical element in their decision as to whether or not to invest in specific renewables projects. EIA noted that while it does not explicitly model transmission in the NEMS EMM model, a cost for incremental transmission investment is included in the supply curve representation for the cost of renewable generation additions. EIA also discussed its intent to model energy storage in subsequent cycles of the AEO.

### **Modeling of State compliance approaches to the Clean Power Plan**

One participant questioned EIA's choice of allocating Clean Power Plan allowances to load-serving entities, given some of the cross-cutting regulatory and procedural issues that would pose for some states. EIA noted the focus on minimizing the impact of tighter CO2 standards on ratepayers in both the Northeast's RGGI and California's AB 32 rulemaking processes, and the precedent of the California approach to the mandatory use of AB 32 allowance auction revenues.

Similarly, the participant felt that the use of new source complement to avoid "leakage" to new combined cycle generators was legally problematic. EIA noted that the alternative to the use of the new source complement was for EIA to specify actions that individual states might take to ensure that leakage did not occur. This approach would require EIA to make policy-decisions that it is not in a position to make and would likely result in a patchwork results that could be highly variable based on adjustments in compliance position.

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## **Additional Issues**

- One participant noted that among the issues that must be considered with the extension of the projection horizon was the impact of aging on fossil steam plants. A principle focus of aging is understanding how the increased cycling of coal-fired plants affects their cost and performance. EIA noted that the Coal and Uranium Analysis Team has created a separate task to study the impact of aging on coal-fired generators, with the intent of improving the modeling of coal units in subsequent AEO cycles. In addition, EIA reiterated that the coal unit heat rates can now be modelled at the load segment level, providing a better representation of unit operation.
- EIA noted the efforts in this AEO cycle to reflect the impacts of the significant installation of control technologies to comply with EPA's Mercury and Air Toxics Standards. One participant questioned how EIA reflects the operating costs for new control technologies, which can be significant in the case of certain options. EIA noted that it generally reviews the cost assumptions in conjunction with the publication of EPA's regulatory impact analysis.
- One participant asked if EIA was addressing the subsidy of New York's nuclear power plants under its new long term clean energy policy. EIA indicated that there was not enough detail at the time to include these changes.
- Another participant noted that many states in the Northeast were currently considering long term carbon goals, including possible economy-wide approaches, and EIA acknowledged that it was tracking such policies and considering ways to represent them as they become more concrete.

**Industry/Industry Representatives**

1	Arguello, E	Colorado Springs Dept Public Utilities
2	Bowles, Mark C	Entergy
3	Frauenheim, Steve	Edison Electric Institute
4	Holdsworth, Eric	Edison Electric Institute
5	Fisher, Emily	Edison Electric Institute
6	Williams, Alison	Edison Electric Institute
7	James, Reavis	Nuclear Energy Institute
8	Crozat, Matt	Nuclear Energy Institute
9	Eyster, Jerry	GE Capital
10	Katofsky, Ryan	Advanced Energy Economy
11	Goggin, Michael	American Wind Energy Association
12	Coleman, Leslie	National Mining Association
13	Nethercutt, Elliott	North American Electric Reliability Corporation
14	Roche, Madelyn	NRECA
15	Baca, Justin	Solar Energy Industries Association

**Consumer Advocacy**

16	Vahling, Julie	AARP
17	Shields, Daniel	Office of Ohio Consumer Counsel

**Consultant/Academia**

18	Schmalzer, David	Argonne
19	Showalter, Sharon	OnLocation
20	Wood, Frances	OnLocation
21	Wright, Evelyn	DecisionWare
22	Luckow, Patrick	Synapse Energy
23	Gülen, Gürcan	The University of Texas at Austin
24	Sattler, Sandra.	Union of Concerned Scientists
25	Tsai, Chenhao	University of Texas

**Other Government**

26	Spitsen, Paul (HQ)	DOE
27	Schmitt, Robert	DOE
28	Zelek, Charles A.	DOE
29	Anderson, Robert (HQ)	DOE
30	Hagen, Ronald (HQ)	DOE
31	Satsangi, Ann (HQ)	DOE
32	Smith, Alex	FERC

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## **EIA Participants**

1	Jones, Jeffrey	EIA
2	Martin, Laura	EIA
3	Hodge, Tyler	EIA
4	Manzagol, Nilay	EIA
5	Jell, Scott	EIA
6	Namovicz, Christopher	EIA
7	Adams, Greg	EIA
8	Slater-Thompson, Nancy	EIA
9	Gospodarczyk, Marta	EIA
10	Jones, Ayaka	EIA
11	Kearney, Diane	EIA
12	Johnson, Elias	EIA
13	Bowman, Michelle	EIA
14	Huetteman, Thaddeus	EIA
15	Diefenderfer, Jim	EIA

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