

September 1, 2016

MEMORANDUM FOR: IAN MEAD
ASSISTANT ADMINISTRATOR FOR ENERGY ANALYSIS

PAUL HOLTBERG
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ANALYSIS

FROM: TRANSPORTATION CONSUMPTION AND EFFICIENCY
ANALYSIS TEAM

SUBJECT: Annual Energy Outlook (AEO)2017 Transportation Working Group
Meeting Summary (presented on 08-31-2016)

Attendees: David Daniels (EIA)
Mindi Farber-DeAnda (EIA)
Devi Mishra (EIA)
Alicia Birky (Energetics)
Sarah Garman (DOE)
David Gohlk (DOE)
Ken Katz (DOT)
Alan Kwan (DOE)
John Powell (DOE)
Paul Spitsen (DOE)
Tom White (DOE)

Attending by phone: Giedrius Ambrozaitis (Auto Alliance)
Daniel Bizer-Cox (EPA)
Scott Burgess (OMB)
David Choi (EPA)
Kevin Green (DOT)
Mike Hartrik (Auto Alliance)
Whitney Herndon (Rhodium Group)
Ken Howden (DOE)
Brianna Jean (DOT)
Bryan Just (API)
Ryan Keefe (DOT)
Siddiq Khan (ACEEE)
James Kliesch (Honda)
Michael Laughlin (Energetics)
Jennifer Li (DOE)
Rachael Nealer (DOE)

Mike Safoutin (EPA)
Michael Shelby (EPA)
Gurpreet Singh (DOE)
Tom Stephens (ANL)
Frances Wood (OnLocation)
Yan Zhou (ANL)

Presenters: Melissa Lynes
John Maples
Mark Schipper
David Stone

WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES ONLY DO NOT QUOTE OR CITE AS RESULTS SUBJECT TO CHANGE

The working group presentation provided a discussion of the preliminary projections for AEO2017 Reference case. An overview of the projections discussed is included in the presentation materials provided as a separate attachment.

Specific discussion/questions:

1. Can you further explain the revision for battery costs? Why is the historical price of batteries for electric vehicles changing?
 - a. The last time the model was updated was in 2010. At the time we projected the price of lithium-ion batteries would remain higher than it has. We are using updated information to determine the prices are lower than we originally projected.
2. Are the assumed costs total battery pack or just the lithium-ion cells?
 - a. Pack
3. Are the 2015 costs modeled? What sources were used to develop the costs?
 - a. The costs are based on several sources. Actual cost data from battery or automotive manufacturers are very difficult to obtain. EIA used published reports from NREL, the BATPAC model, Bloomberg, and the EPA.
4. What are the markups on the battery pack costs?
 - a. Assume a 20% markup. Participant feedback that this assumption is much lower than normal will be taken into account for model adjustments.
5. Will EIA be publishing the revised battery cost estimates?
 - a. There are currently no plans to publish the estimates. The estimates are preliminary and will likely change before the AEO2017 is finalized.
6. Is the light-duty vehicle choice model an in-house model or from one of the DOE labs?
 - a. The choice model was developed by ORNL in-house and is contained in NEMS.
7. Given the updates to base year and battery cost assumptions, are the calibration factors for the vehicle choice model going to be updated?
 - a. Yes.
8. Is there documentation available for the vehicle choice model?

- a. Yes, the AEO model documentation provides a description of the vehicle choice model and is available online ([Model documentation](#)). A more detailed white-paper description of model estimation developed by ORNL can also be made available.
9. Are class 2b considered light-duty vehicles or heavy-duty vehicles?
 - a. Class 2b vehicles are a separate category – ‘Commercial Light Trucks’ in the AEO. Their fuel economy is modeled with the other heavy-duty vehicles covered under Phase 1 and Phase 2 fuel efficiency standards.
10. How do the medium- and heavy-truck model categories compare to the regulation categories?
 - a. For modeling purposes we disaggregate vehicle sales by the regulatory categories so each size class within a regulatory category is its own model category (i.e. regulatory category 6-7 vocational is split into two model categories, class 6 vocational and class 7 vocational).
11. When looking at fuel efficiency improvement in Phase 2, is road grade taken into account?
 - a. No.
12. How do you take into account credits in the ZEV mandate since vehicles with longer ranges or early adoptions of electric vehicle receive more credits under the regulation?
 - a. The model gives more credits for vehicles with longer ranges and if they adopt earlier.
13. The regulation assumed approximately 1.5 million EVs on the road by 2025 based on EV100s. Now that more EV200s are available, which receive more credits, the new models show it will more likely only be 1.1 million EVs on the road by 2025. Is this similar to what you see?
 - a. Our estimations are similar to the lower estimates since we take into account the EV200s.
14. Is the heavy-duty stock model operating at more size classes than class 3, classes 4-6, and classes 7-8?
 - a. Yes, each size class is its own classification in the stock model.
15. Are you still planning to report at the 3 size classification level for heavy-duty vehicles?
 - a. Yes.
16. Why does projected battery cost level out in 2030?
 - a. This is partly due to the battery cost submodule projecting high-volume manufacturing by then, and partly due to vehicle sales leveling after compliance is reached in 2025
17. Since this is a short AEO year, will there be any side cases?
 - a. Yes – the AEO2017 will include the standard high and low: oil price, macro, and resource cases. It will likely also include reference cases with and without CPP.
18. Will there be any demand-based technology cases?
 - a. No, the technology case is a supply-side case.
19. Are preliminary oil price projections available?
 - a. Yes, slides will be posted to EIA’s website in coming weeks.

In this working group, EIA also reached out to attendees on obtaining further clarification of battery cost trends.