

September 21, 2020

MEMORANDUM FOR: Angelina LaRose
Assistant Administrator for Energy Analysis

FROM: Jim Turnure
Director, Office of Energy Consumption and Efficiency Analysis

SUBJECT: Summary of AEO2021 Transportation Working Group held on Thursday, September 17, 2020

This memorandum summarizes the presentation given at the *Annual Energy Outlook 2021* (AEO2021) Transportation Working Group meeting as well as the ensuing discussion. The Transportation Working Group presentation highlights the planned historical transportation data updates and planned transportation modeling updates for the National Energy Modeling System (NEMS) used for the U.S. Energy Information Administration's (EIA) AEO2021 Reference case, as directly relate to the Transportation Demand Module (TDM). After the presentation, meeting participants commented on additional model or data issues. The presentation for this meeting is available in a separate document on EIA's website.

Model updates (AEO2021)

EIA staff presented planned updates in two separate categories:

- *Historical data*—bus and passenger rail travel, light-duty vehicle stock and technology menu data, heavy-duty vehicle stocks, vehicle miles traveled for light-duty vehicles and motorcycles.
- *Model*—new light-duty vehicle technologies and fuel economy standards; fuel choice for transit bus, recreational boating fuel use, aviation fuel efficiency methodology, stock model, and travel demand equations; and COVID-19 impacts across all of the transportation modes.

Highlights from the presentation relate to planned updates, which include model improvements to capture new light-duty vehicle technologies and fuel economy standards, fuel choice in public transit, aviation model updates, COVID-19 impacts on transportation, and historical data updates across all of the transportation modes.

Discussion

During the discussion, participants' questions mainly focused on modeling updates.

Model updates:

EIA staff received a general question about what regulatory cases and side cases we plan to release. EIA staff explained that AEO2021 is a *light year*, in which we complete only a core set of side cases that comply with current laws and regulations unless we receive a formal request to report on proposed regulations. EIA staff also explained that a Reference case for NEMS represents current legislation, environmental regulations, and international protocols, including recent government actions for which implementing regulations were available.

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Attendees asked for clarification on whether the November 2020 Presidential election results will change the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, and more specifically, on whether it is feasible to show side cases with past regulations. EIA staff responded that the AEO2021 Reference case will reflect current laws and regulations, including the SAFE law and regulation. If requested, EIA will perform analysis on proposed policy.

Attendees asked about EIA's efforts to incorporate California's Zero Emission Vehicle (ZEV) requirement for heavy- and medium-duty trucks because several states are considering adopting the rule. EIA staff did not have a response and will look further into the requirement to determine whether the regulation is enforceable and whether California requires a federal waiver to enforce the enacted ZEV sales requirements.

Participants asked if we are planning any modeling changes for forecasting plug-in electric vehicle sales because AEO2020 projections for sales are less than those projected by most publicly available sources and not in line with manufacturer announcements. EIA staff explained technology reflected in AEO2020 is derived from the 2012 Corporate Average Fuel Economy (CAFE) Standards. EIA is working with staff from the U.S. Department of Transportation's Volpe Center to understand inputs used for the Volpe Center's transportation model to develop technology and cost updates to align EIA's transportation model with the March 2020 SAFE regulation. EIA also plans to implement a battery cost update that will affect projected sales of electric vehicles as a result of lower battery cost and better battery performance. The result of the updates are unknown because the updates are not complete.

Attendees asked for clarification on the impact of decreased business travel on the price of leisure passenger trips. Specifically, attendees asked whether the price of normal passenger trips might increase based on a scenario where business travel is initially reduced as a result of COVID-19 mitigation efforts and subsequent cost-saving business strategies. EIA staff explained that in previous years EIA could obtain air travel data with breakouts for business and passenger travel; however, those data breakouts are no longer available. Modeling the impacts of COVID-19 mitigation efforts is providing an additional challenge because limited data are available.

Participants also asked about aviation model updates. For example, how is EIA managing the response to COVID-19 in our aviation forecast? Is there an estimate of when a vaccine will be available? Will travel behavior permanently change as a result of the pandemic? EIA staff explained that the current model, which is based on gross domestic product per capita, has been updated to capture the short-term travel impact from COVID-19 mitigation efforts. EIA will continue to adjust the model to reflect new information and data. COVID-19 vaccine availability is, hopefully, a short-term issue that EIA's *Short-Term Energy Outlook* incorporates into its forecasts. Next, in regard to a permanent change in travel behavior, most experts forecast a permanent change. For example, International Air Transport Association (IATA) projects a baseline of 15% lower global revenue passenger miles in their projection. EIA has implemented long-term model updates that reflect similar changes in projected air travel behavior.

Attendees asked if we were aware of any changes or updates to information pertaining to biofuels, E85 consumer choice, and E85 retail outlets. EIA staff responded that infrastructure for E85 retail outlets are reflected in the Liquid Fuels Market Module (LFMM). Consumer choice and final demand for transportation fuel are reflected in the TDM. The current consumer choice algorithm in TDM was

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developed using revealed preference data EIA received from states that had high E85 sales. EIA would welcome any new or current consumer behavior information so we can update NEMS. Participants also suggested that EIA should not only look at a price relationship between ethanol and gasoline but also consider the geographical distribution of ethanol blends. In addition, EIA should look at recent investments in new production capacity within the biodiesel and renewable diesel fuels.

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Attendees

Guests (Webex/phone)

Alicia Birky	NREL
Daniel Bizer	EPA
Kevin Bolon	EPA
Austin Brown	UC DAVIS
Christopher Carr	C2E2 Strategies
Ernest Carter	USDA
Angela Cullen	EPA
John Davies	DOT
Stacy Davis	ORNL
Dominic DiCicco	Ford
Ben Ellies	EPA
Carl Fulper	EPA
Katya Garcia-Israel	DOT
Dave Gohlke	ANL
Kevin Green	DOT
Michael Hartrick	Alliance for Automotive Innovation
Whitney Herndon	Rhodium Group
Ken Howden	DOE
Aaron Hula	EPA
Darek Imadi	OnLocation
Raphael Isaac	Energetics
Bryan Just	API
Ken Katz	DOT
Ryan Keefe	DOT
Ben King	Rhodium Group
Jim Kliesch	Honda
Hanna Kolus	Rhodium Group
Amanda Levin	NRDC
Jennifer Li	DOE
Zhenhong Lin	ORNL
Paul Machiele	EPA
Avi Mersky	ACEEE
John Meyer	Leidos
Tiffany Mo	EPA
Robin Moran	EPA
Anthony Neam	EPA
Steven O'Malley	Leidos
David Pace	DOT
David Pickeral	Virginia Tech University
Hannah Pitt	Rhodium Group
Steve Plotkin	ANL
Kara Podkaminer	DOE
Chris Ramig	EPA
Michael Schaal	OnLocation
Michael Shelby	EPA

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Gurpreet Singh	DOE
Eric Singley	USACE
Tom Stephens	ANL
Kevin Stork	DOE
Jennie Thomas	USACE
Wyatt Thompson	University of Missouri
Barbara Treat	Infrastructure World
Clayton Vernon	Sunoco
Jacob Ward	DOE
Jarrett Whistance	University of Missouri
Frances Wood	OnLocation
Steven Yates	USACE
Starla Yeh	NRDC
Joann Zhou	ANL
Arthur Yip	NREL

EIA Attendees (Webex/phone)

Caroline Campbell
Nicholas Chase
Jim Diefenderfer
Michael Dwyer
Mindi Farber-DeAnda
John Maples
Mark Schipper
Estella Shi
Nicholas Skarzynski
Michael Stanley
John Staub
Russell Tarver
James Turnure