

Annual Energy Outlook 2017

Modeling updates in the transportation sector



For

AEO2017 Transportation Working Group

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By

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Updates to the *Annual Energy Outlook 2017*

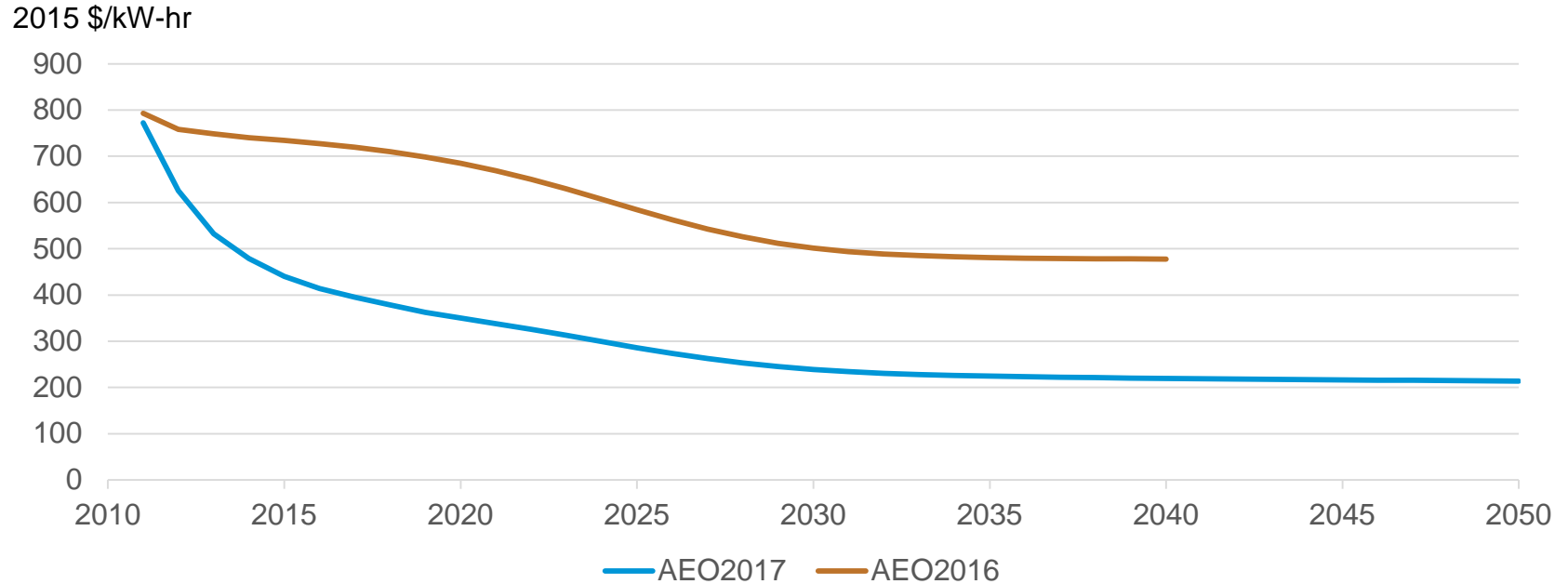
- Transportation demand model highlights
 - 10-year extension of last-year projection, AEO2016 is 2040 and AEO2017 is 2050
 - Battery costs for electric vehicles
 - Phase 2 greenhouse gas and fuel efficiency standards for medium- and heavy-duty engines and vehicles
 - Freight travel updates
 - Air travel updates

Light-duty vehicle (LDV) submodule

Light-duty vehicle mandates and data updates

- Update CAFE compliance and vehicle attributes for model years 2010-14
- Update light-duty AFV historical sales and attributes
 - Choice model re-calibrated to reflect historical sales data for FFVs, Diesels, HEVs, PHEVs, HFCs, and EVs
 - Includes behavior adjustments to reflect current issues associated with diesel vehicle sales
 - Increased EV range to reflect new models
- Incorporate latest California ZEV mandates
 - Includes Section 177 (CAA) states adopting all California emission regulations:
 - CD1: Connecticut, Maine, Massachusetts, Rhode Island, Vermont
 - CD2: New Jersey, New York
 - CD5: Maryland
 - CD9: Oregon
- Update historical lithium-ion battery costs and cost projection sub-module

EV100 Lithium-Ion Battery Costs



Discussion purposes only DRAFT ESTIMATES - Do not cite or circulate

Light-duty vehicle fleet module

- Update fleet vehicle stocks through 2014 using IHS-Polk data
- Include diesel vehicles in sales algorithm

Freight transportation submodule

HDV sales, stocks, and GHG/fuel economy standards

- Add alternative fuel vehicles to sales, stocks, and fuel economy modules for classes 2b – 8
 - EVs, PHEVs, HEVs, FFVs, FCVs
 - NG and LPG (for class 2b)
- Disaggregate size classifications for sales and fuel economy in Phase 1
- Update model to incorporate final Phase 2 rule making fuel efficiency requirements and technology assumptions
- Add fuel efficiency credit allocation and banking
- Not planning to add trailers in AEO2017

Freight transportation submodule

- Update total freight ton-mile and vehicle miles traveled data and regional freight ton-mile data for truck, rail, and marine
- Freight rail efficiency and domestic waterborne freight energy efficiency were also updated
- Use higher disaggregation/representation of industry gross outputs (shipments) representation for freight drivers

Air travel submodule

Air travel submodule

- Update air travel demand (domestic and international travel for 13 world regions) and aircraft fleet efficiency
 - Re-estimate U.S. and non-U.S travel demand functions
- Update exogenous estimates of aircraft load factors, new technology characteristics, and aircraft specifications
- Update aircraft stock
 - Stock is made up of three types of aircraft: wide-body, narrow-body, and regional jets

Discussion/questions

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