

# Annual Energy Outlook 2016

*Modeling updates in the transportation sector*



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*For*

*AEO2016 Working Group*

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*By*

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# AEO2016 Transportation Demand Model Updates

- Domestic and international marine - International Convention for the Prevention of Pollution from Ships (MARPOL)
- On-road vehicles
  - Light duty vehicles (LDV)
  - Heavy duty vehicles (HDV)
- Side cases

# MARPOL impacts fuel and technology choice

- MARPOL emission controls and fuel standards
  - Reflect enacted standards for domestic and international vessels operating in Emission Control Areas (ECA)
  - ECAs extends up to 200 nautical miles from coasts of the United States (March 26, 2010)
  - Reflect ship efficiency improvements, shipping demand changes, and fuel price fluctuations

# MARPOL impacts fuel and technology choice

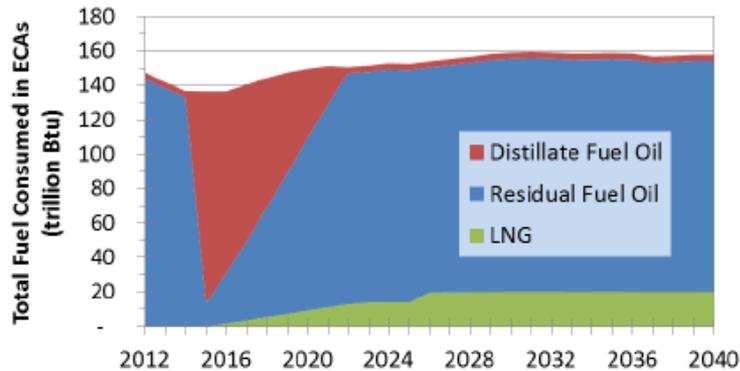


Figure ES- 2. Sample Projections of Fuel Consumed Within North American and U.S. Caribbean ECAs by NEMS Fuel Type

- ECA fuel standard or equivalent exhaust gas cleaning devices
  - Sulphur at 10,000 ppm in 2010
  - Sulphur at 1,000 ppm in 2015
- Global fuel standard or equivalent exhaust gas cleaning devices
  - Sulphur at 35,000 ppm in 2012
  - Sulphur at 5,000 ppm in 2020 (subject to change based on a 2018 fuel study)

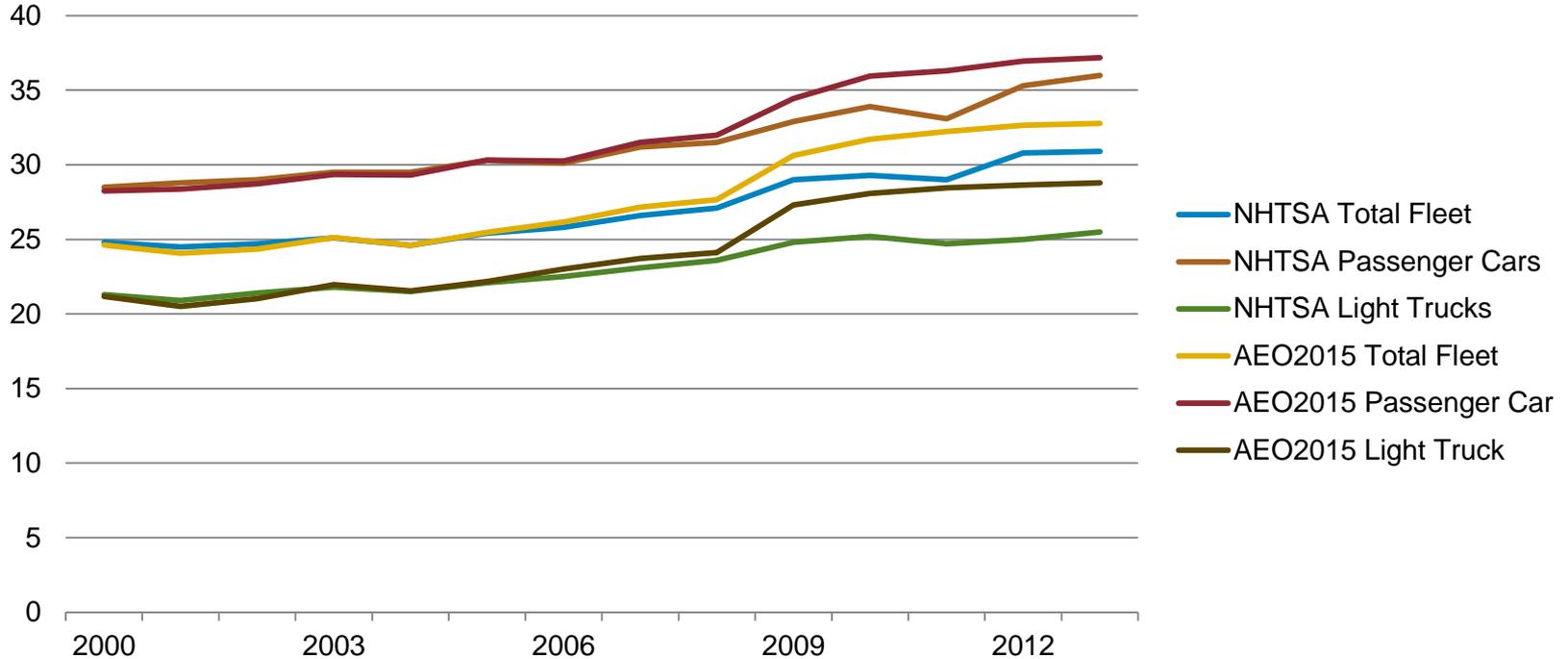
Source: EIA, *Marine Fuel Choice for Ocean Going Vessels within Emission Control Areas*, <http://www.eia.gov/analysis/studies/transportation/marinefuel/>

# Light duty vehicle updates impact fuel usage and regional analysis

- Update historical new light-duty vehicle attribute and fuel economy data through 2013
- Update light-duty vehicle stock, sales and travel demand by Census division through 2014
- ZEV mandates
  - Update model to reflect current ZEV mandates and credits

# Light-duty vehicle CAFE compliance

miles per gallon



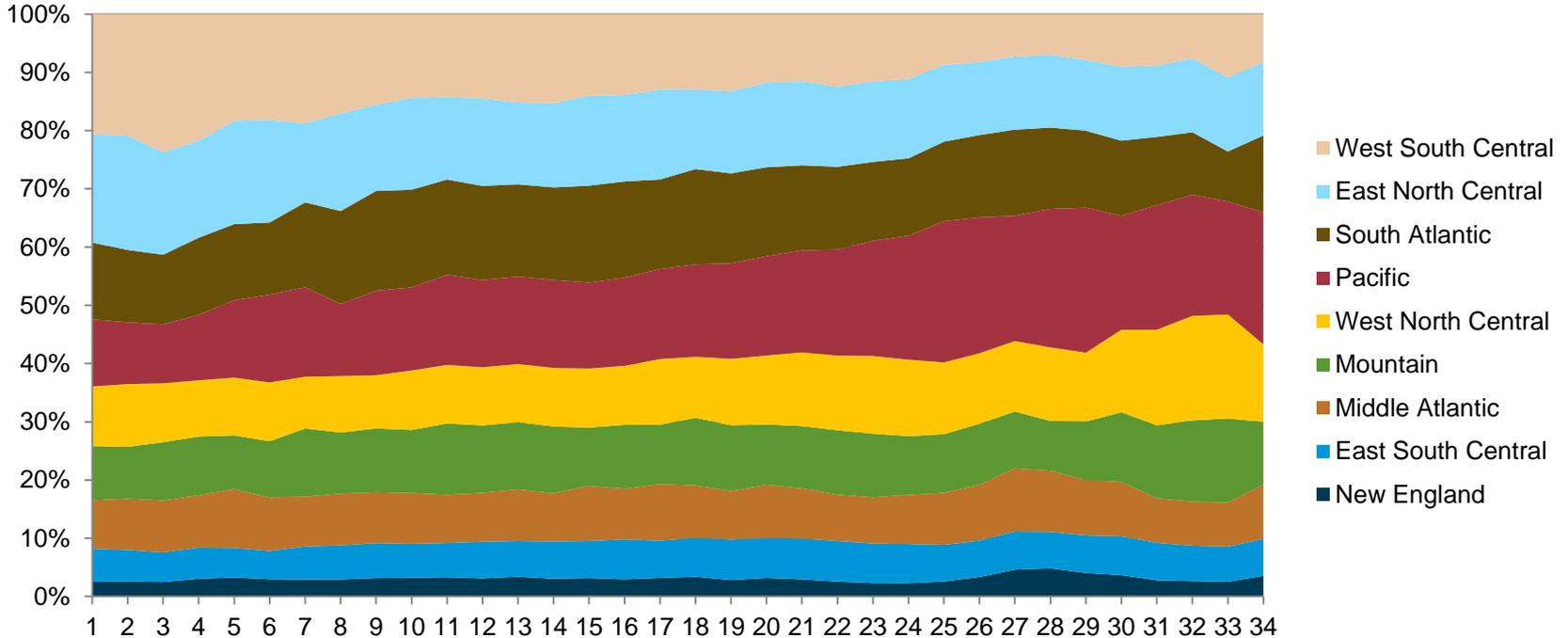
Source: U.S. Department of Transportation, Summary of Fuel Economy Performance, 2014

# Heavy duty vehicle updates impact fuel usage and regional analysis

- Update heavy-duty vehicle stock, sales and travel demand by Census division through 2014
- Heavy duty vehicle model updates
  - New technologies
  - Expand and realign compliance classifications from 13 to 20 (including trailers)
  - Restructure industrial output categories
- Side case
  - Phase 2 of the MDV/HDV GHG and fuel efficiency standards
    - Still trying to determine how to handle trailers in model
    - Will be reaching out to the EPA to discuss drive cycle changes

# Percent diesel heavy duty vehicles on road by Census division

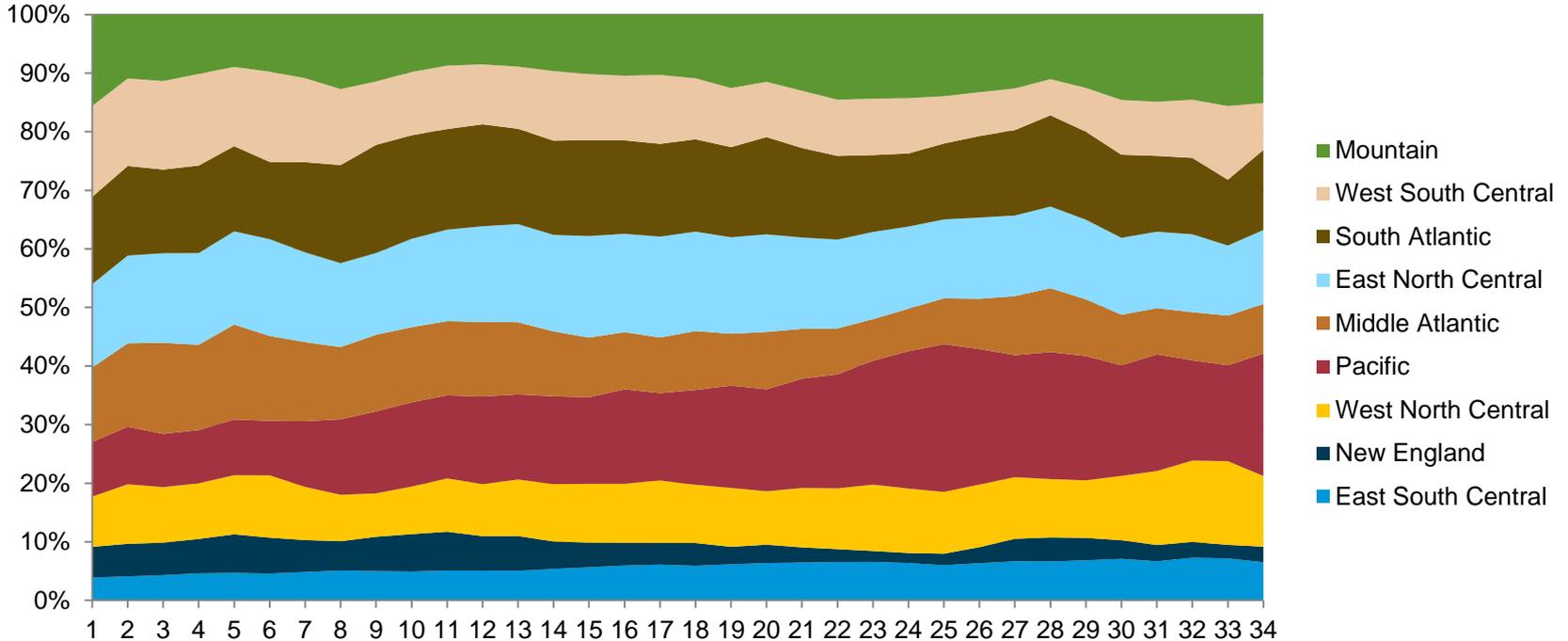
percent heavy-duty vehicles by vintage



Source: 2014 Polk data

# Percent gasoline heavy duty vehicles on road by Census division

percent heavy-duty vehicles by vintage



Source: 2014 Polk data

## Comments/discussion

- Pressing suggestions for AEO2016
- Comments or suggestions for AEO2017
  - Contact Transportation Team if interested in taking part in topical Working Group meetings next year

# Discussion/questions

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