

# *Annual Energy Outlook 2022*

*Prospective modeling and data updates in the transportation sector*



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*For*

*AEO2022 Second Transportation Working Group*

*September 30, 2021 | Washington, DC*

*By*

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*Office of Long-Term Energy Modeling*

## AEO2022 and COVID-19

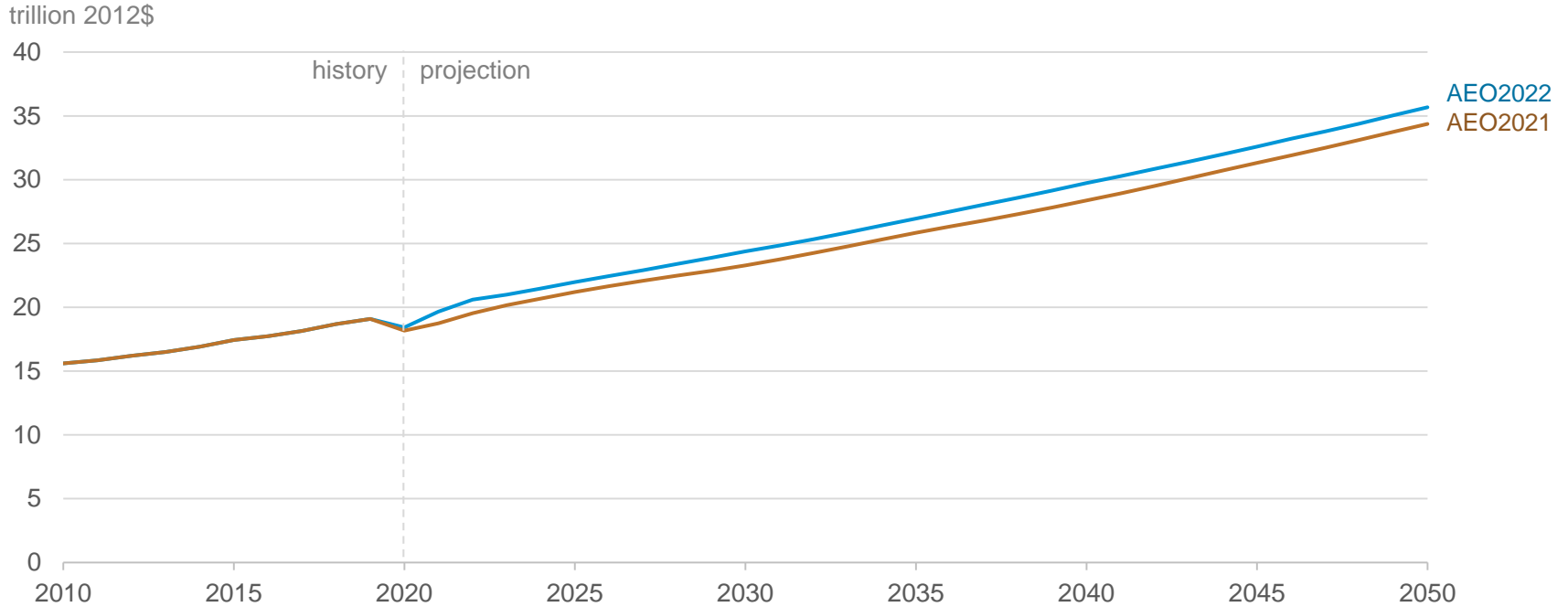
- AEO2022 reflects updated macroeconomic projections from IHS Markit (including vehicle sales)
- The forecasts in the *Short-Term Energy Outlook* (STEO) reflect the near-term impacts of the pandemic and subsequent mitigation efforts.
- We released an *Annual Energy Outlook Trends and Expectations* report that discusses some of the early impacts of COVID-19 on different energy sectors: [https://www.eia.gov/outlooks/aeo/trends\\_expectations.php](https://www.eia.gov/outlooks/aeo/trends_expectations.php)

# Outline

- Preliminary results from *Annual Energy Outlook 2022* (AEO2022) Reference case
  - Macroeconomic assumptions
  - Light-duty vehicles (LDV)
  - Heavy-duty vehicles (HDV)
  - Air travel
- Updates in progress
- Discussion

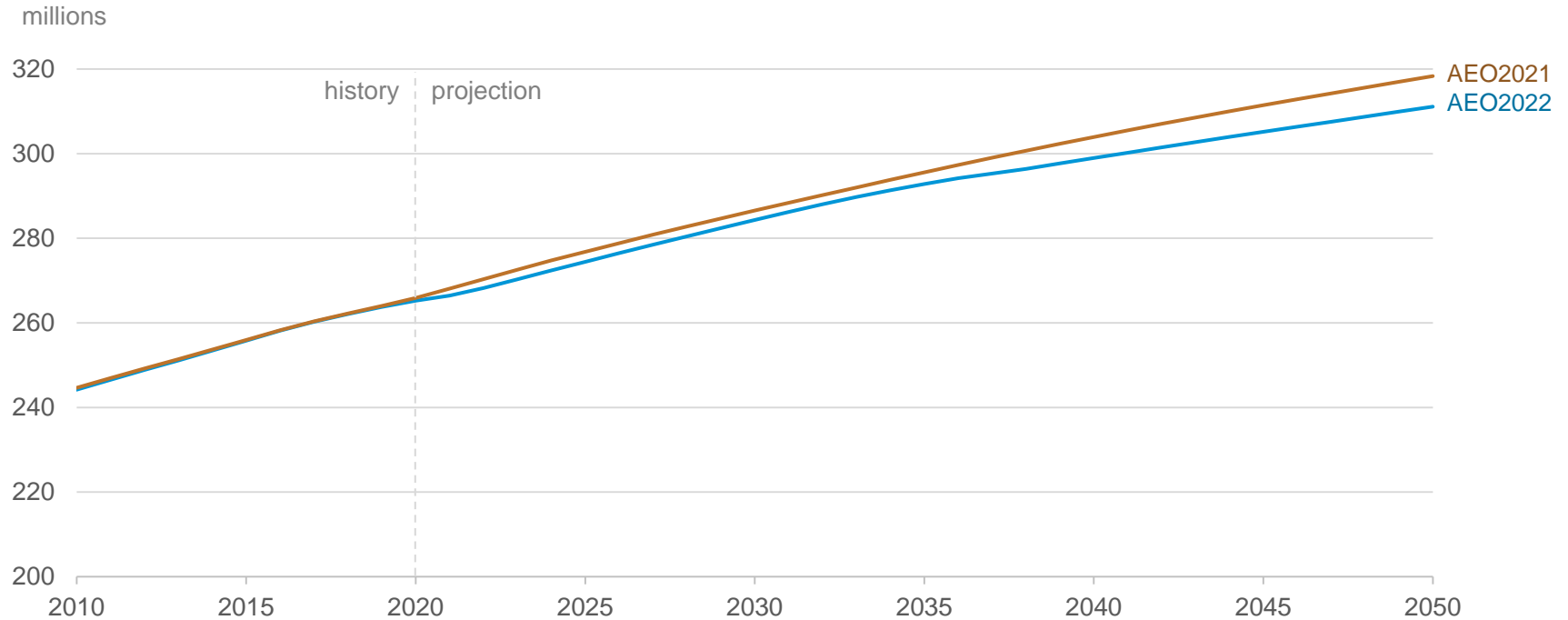
# Macroeconomic Assumptions

# Higher real GDP



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

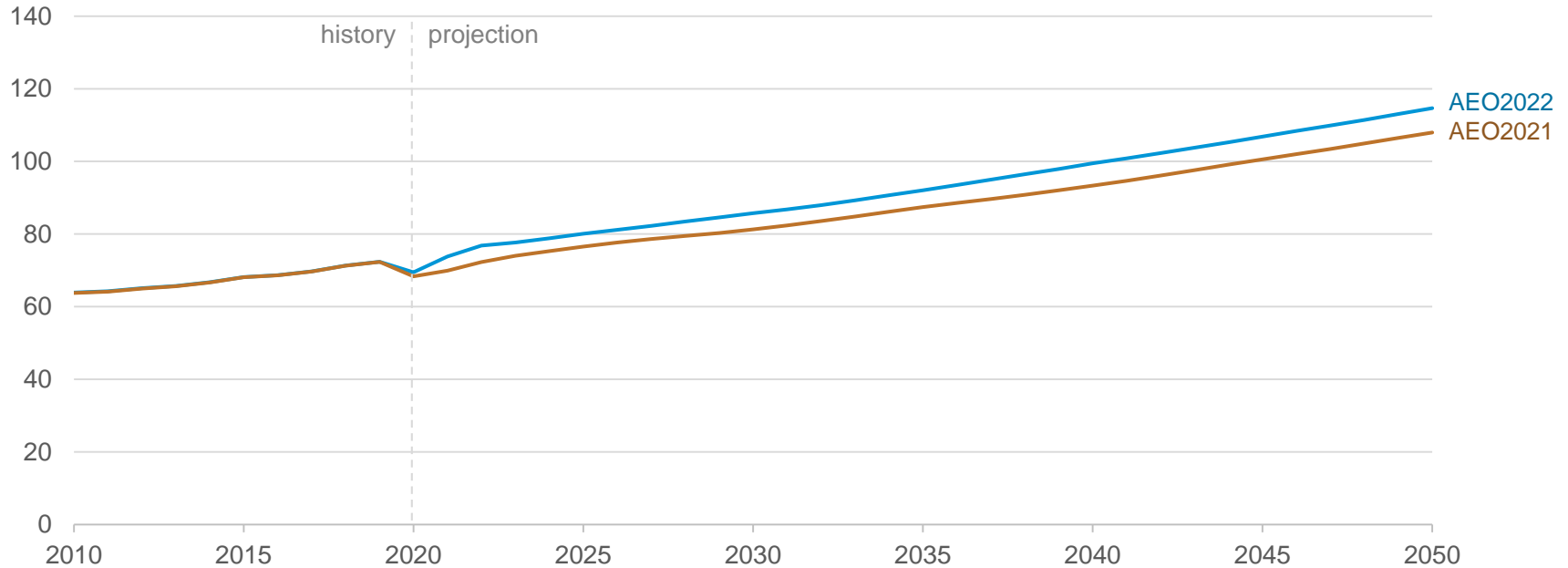
# Lower 16+ population in AEO2022



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

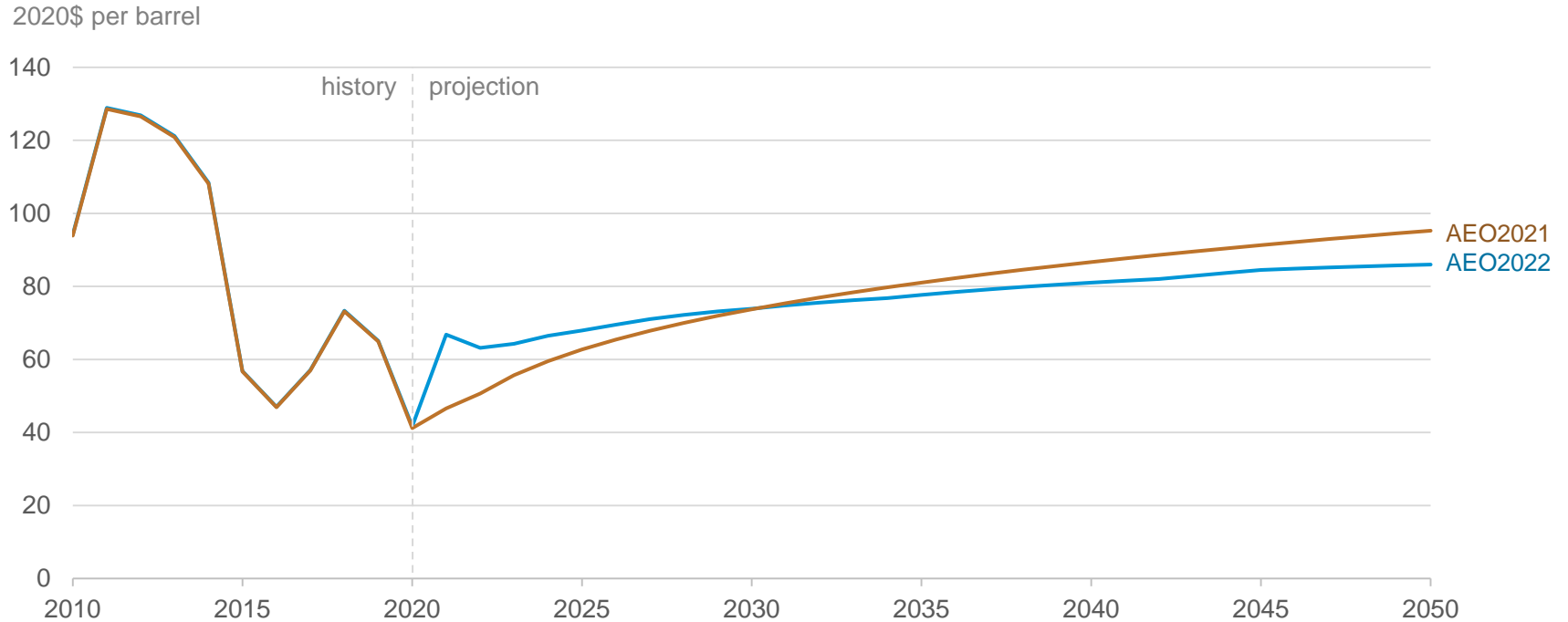
# Higher resulting GDP per capita

thousand 2012\$



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Faster recovery, slower growth in World Oil Price

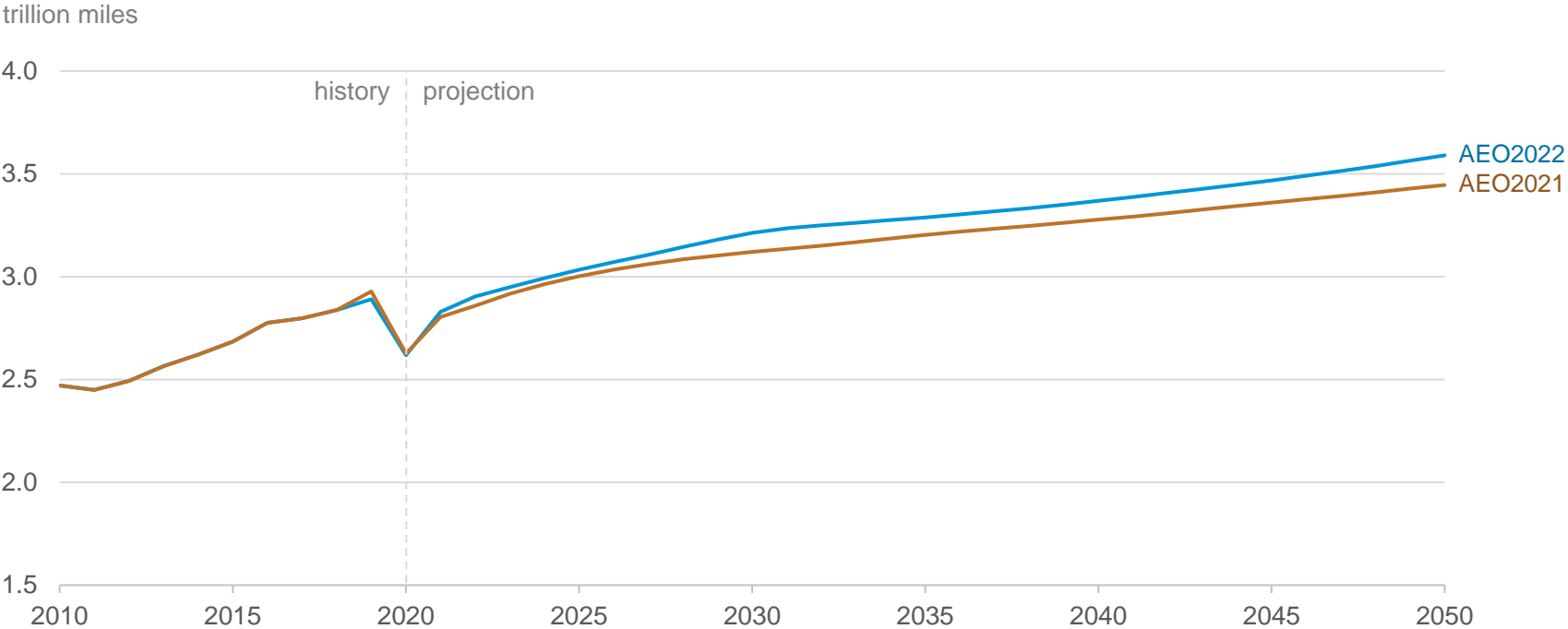


Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a



# Light-duty vehicles

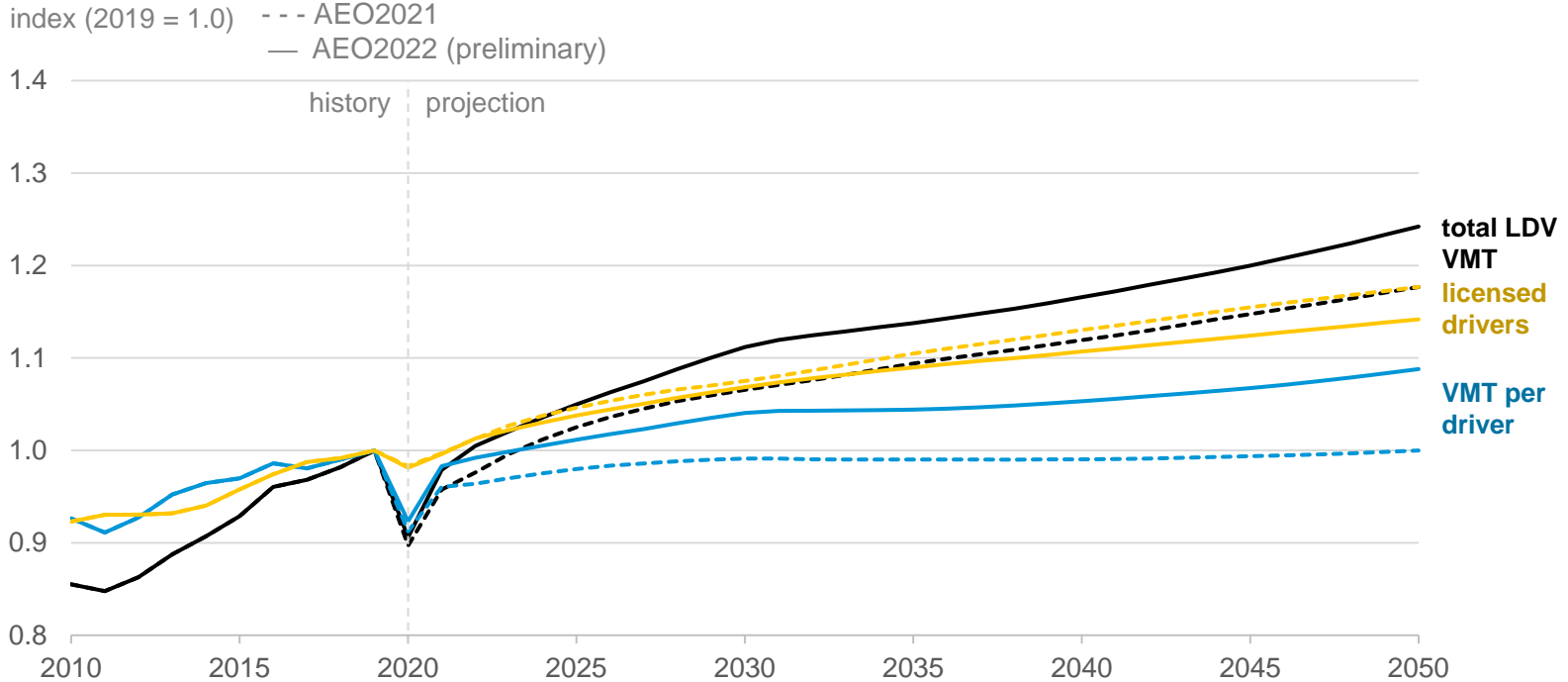
# Increase in total LDV vehicle miles traveled (VMT)



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

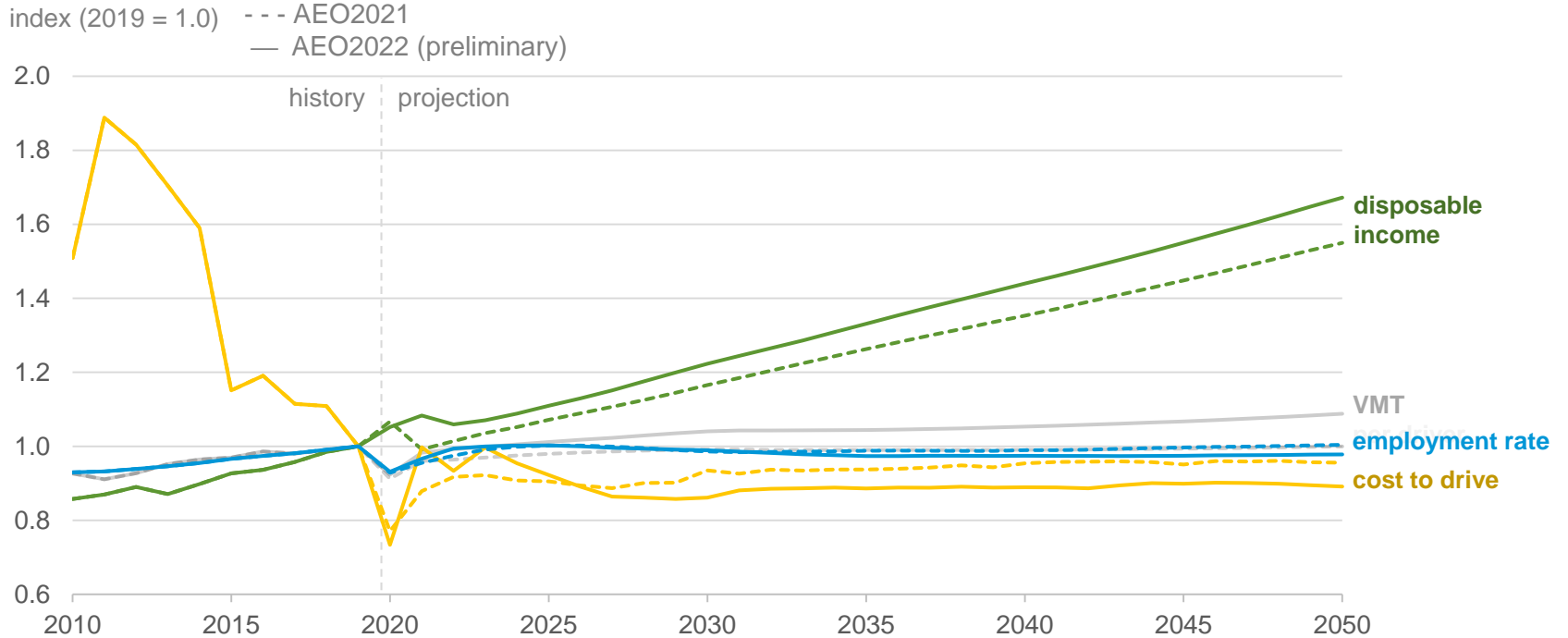


# Lower population offset by increased VMT per driver



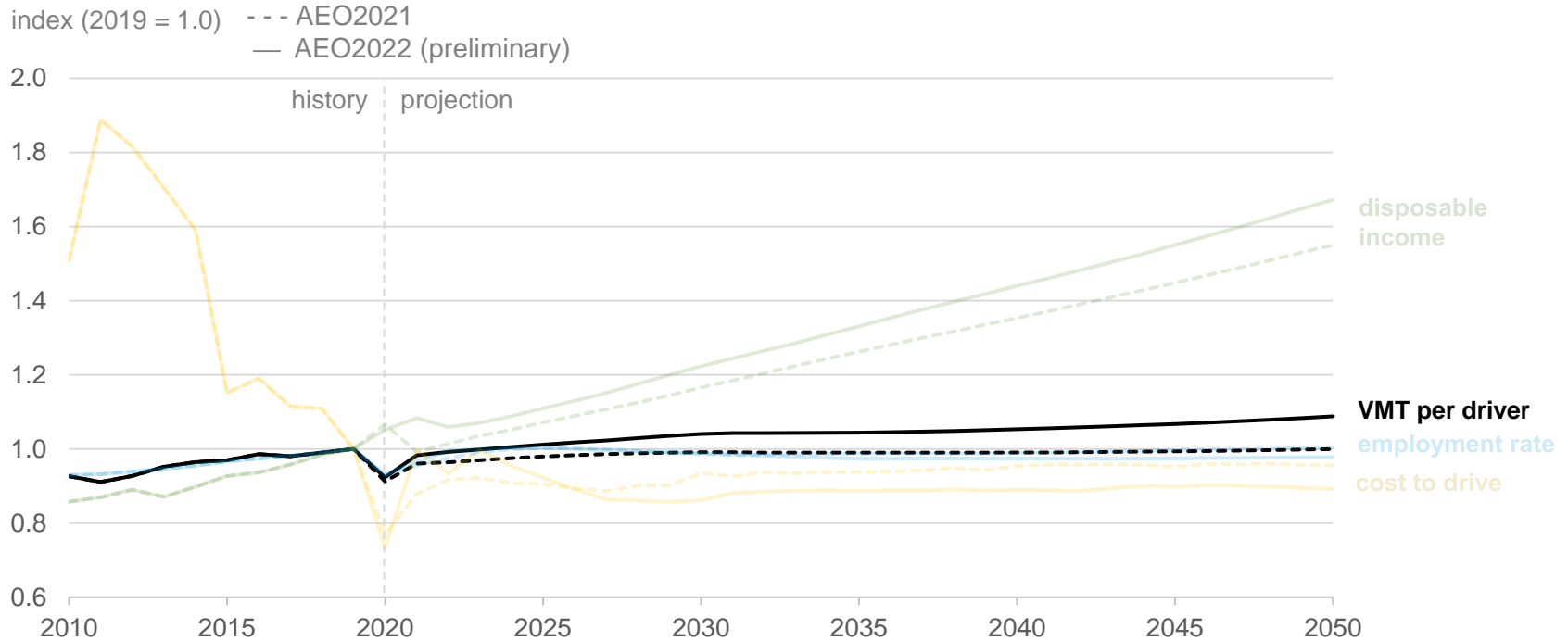
Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# VMT per driver



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

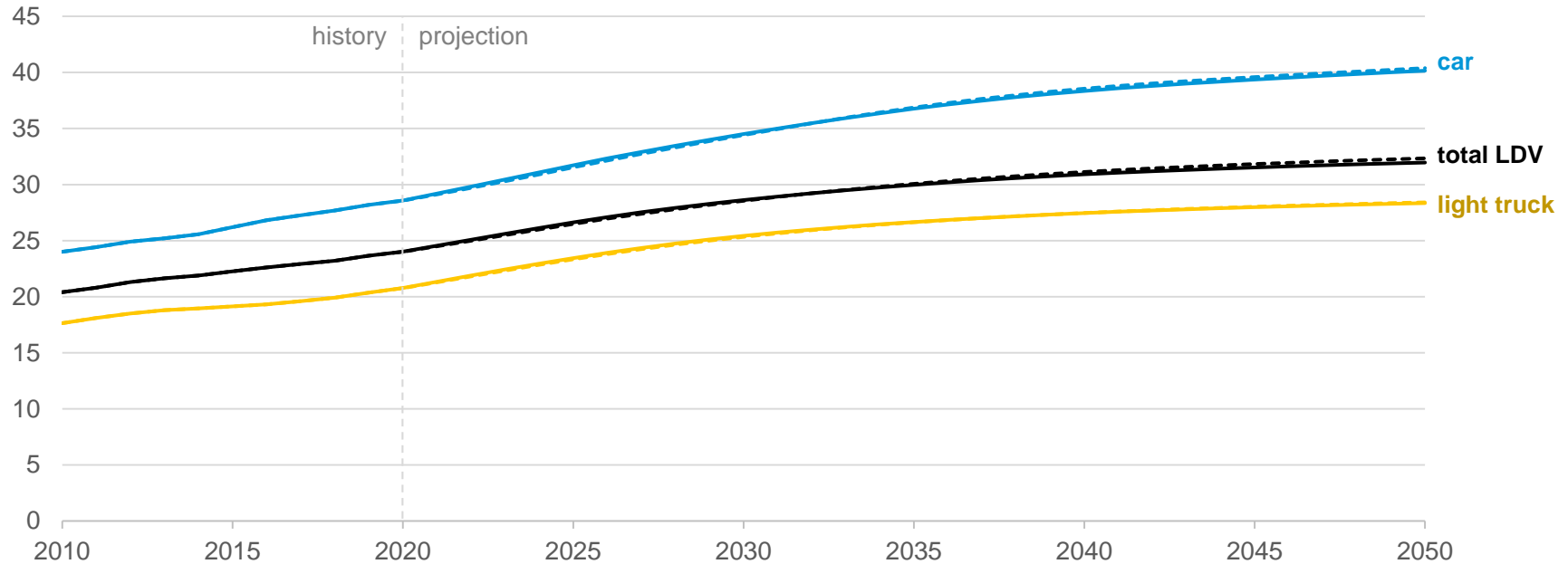
# VMT per driver



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

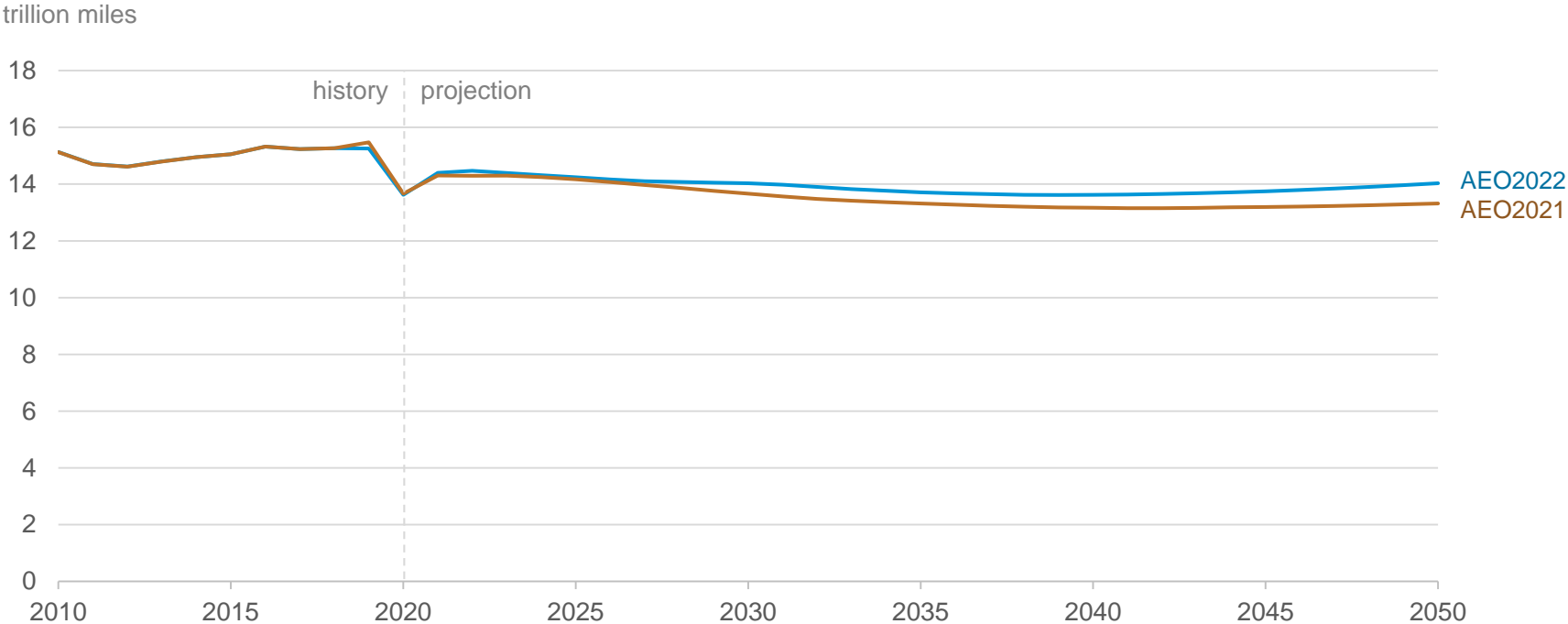
# Stock fuel economy similar to AEO2021

miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Higher total LDV energy consumption due to increased travel demand



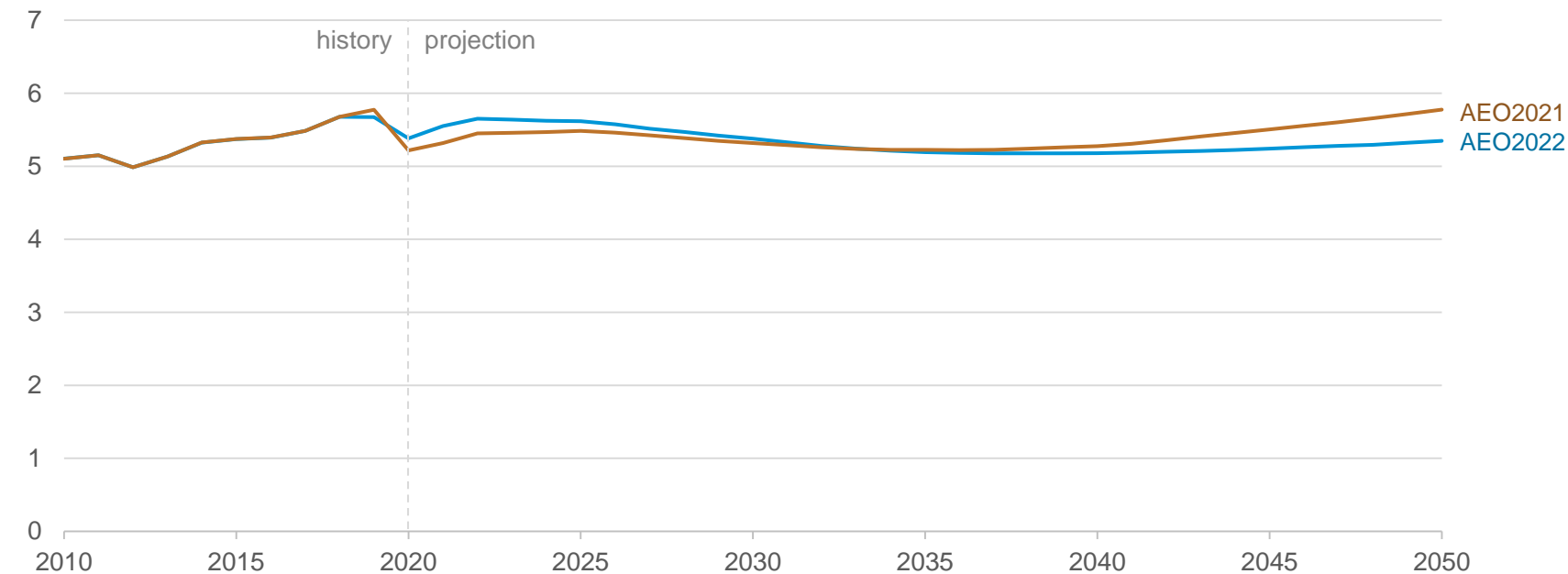
Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Medium- and heavy-duty trucks



# Freight truck energy consumption decreases due to changes in industrial output

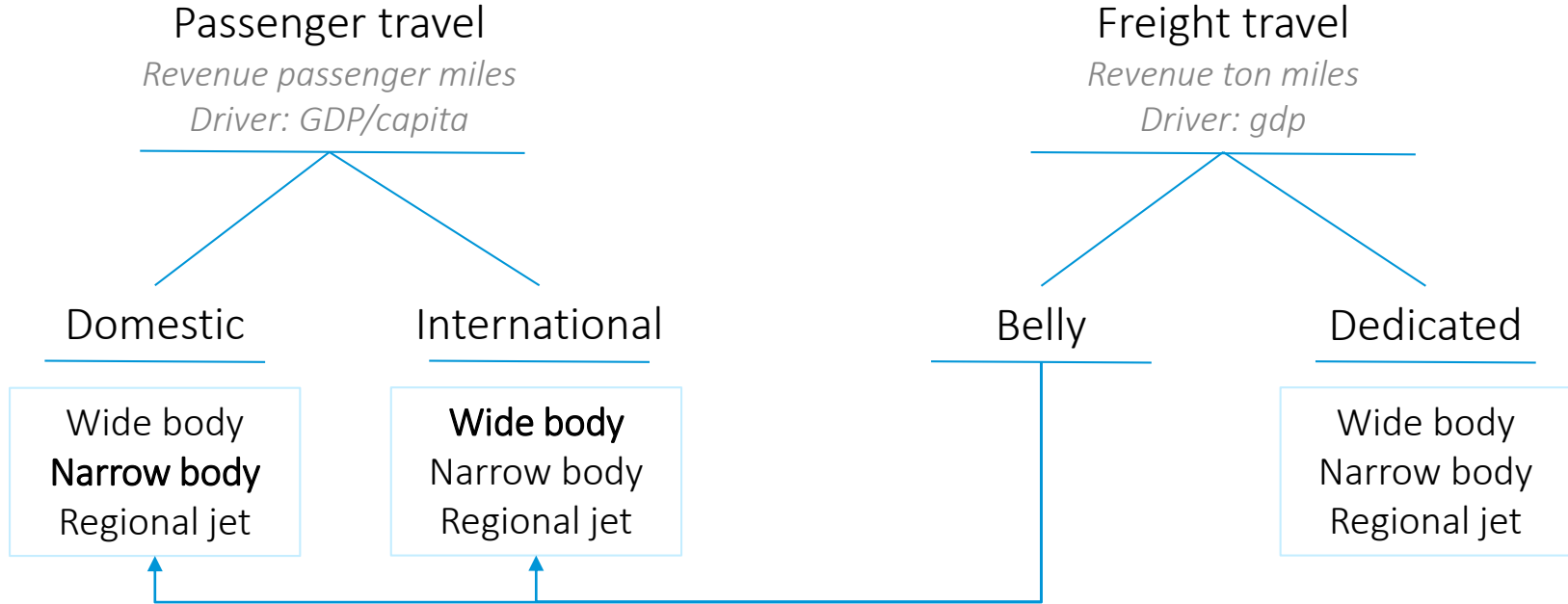
quadrillion British thermal units



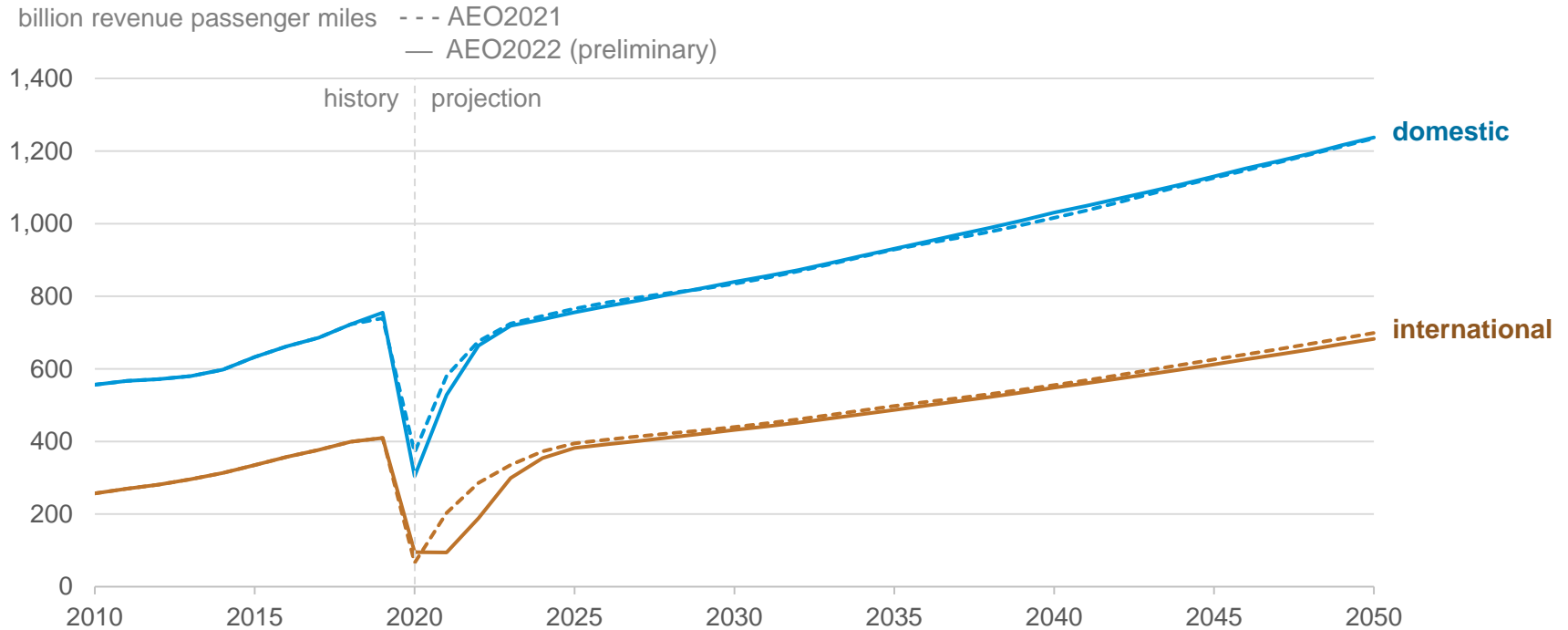
Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Air travel

# NEMS air travel module (*TRANAIR*)

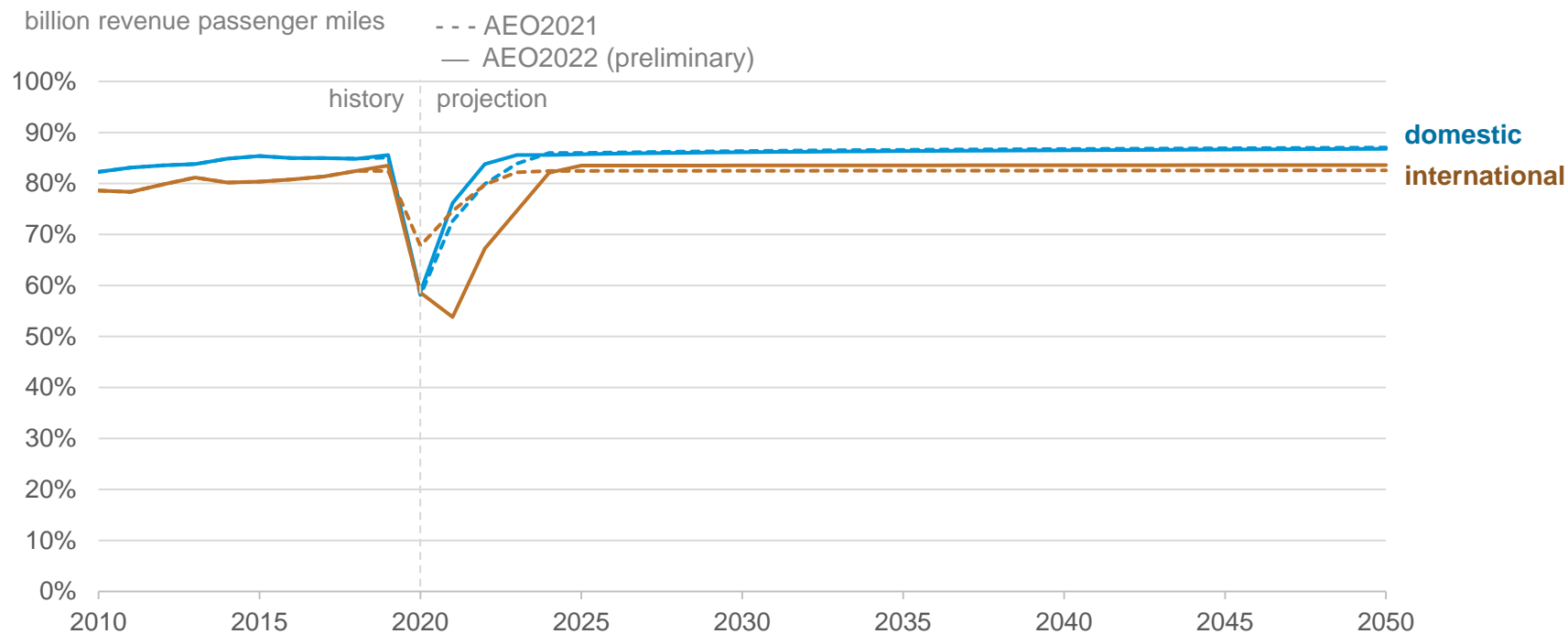


# Lower travel demand in the short term



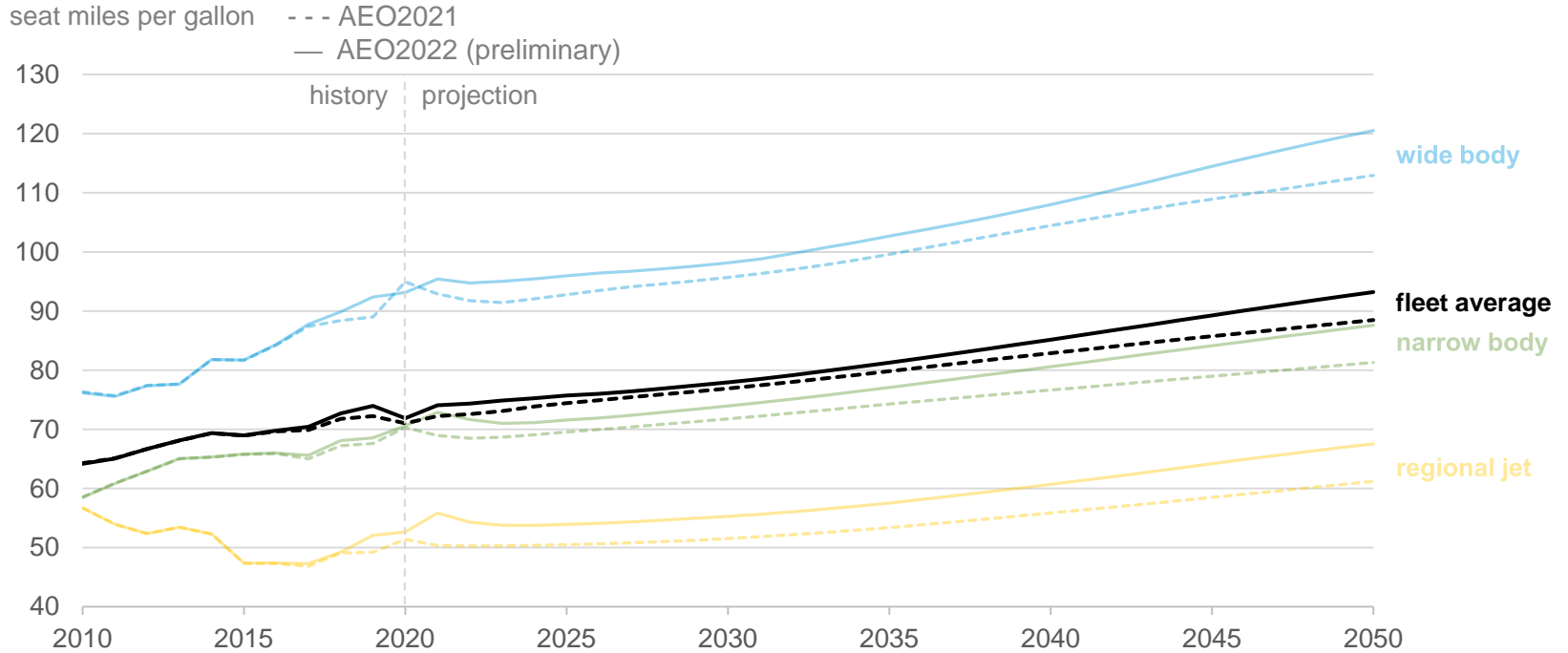
Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Load factors lower than AEO2021, particularly for international flights



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

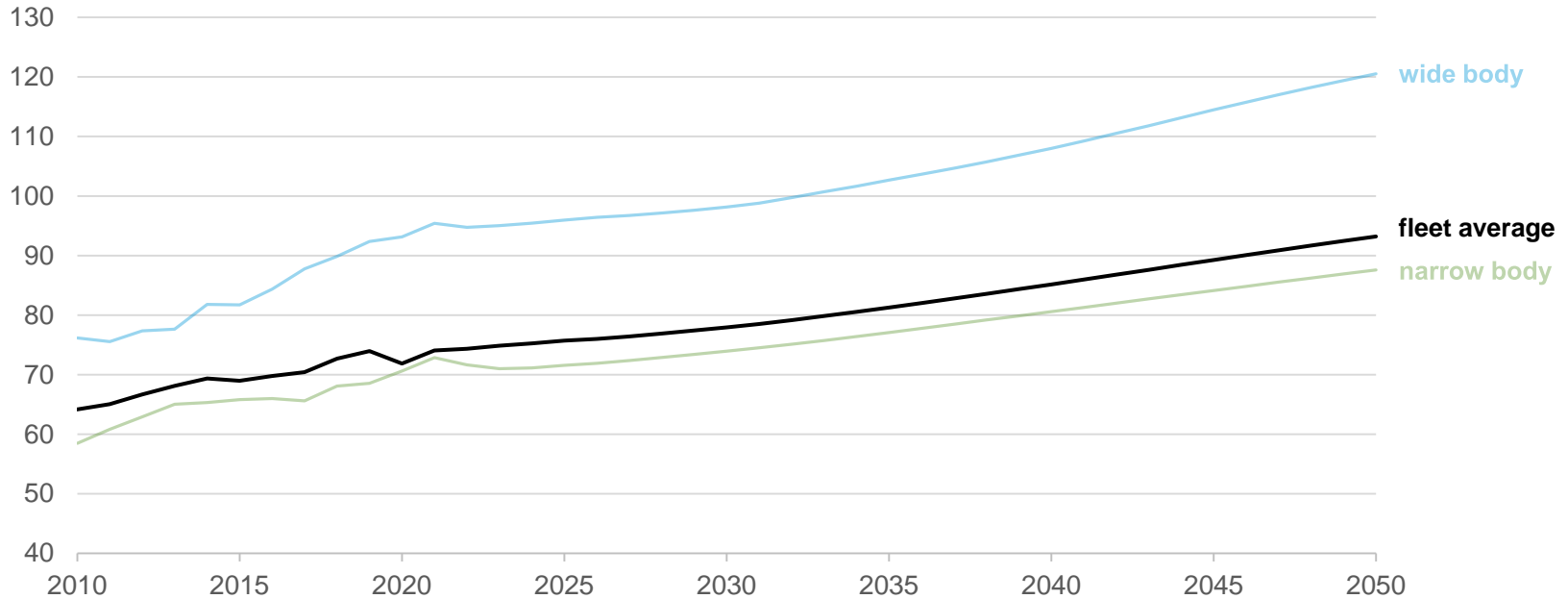
# Higher fleet efficiency in AEO2022



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# AEO2022 fleet efficiency

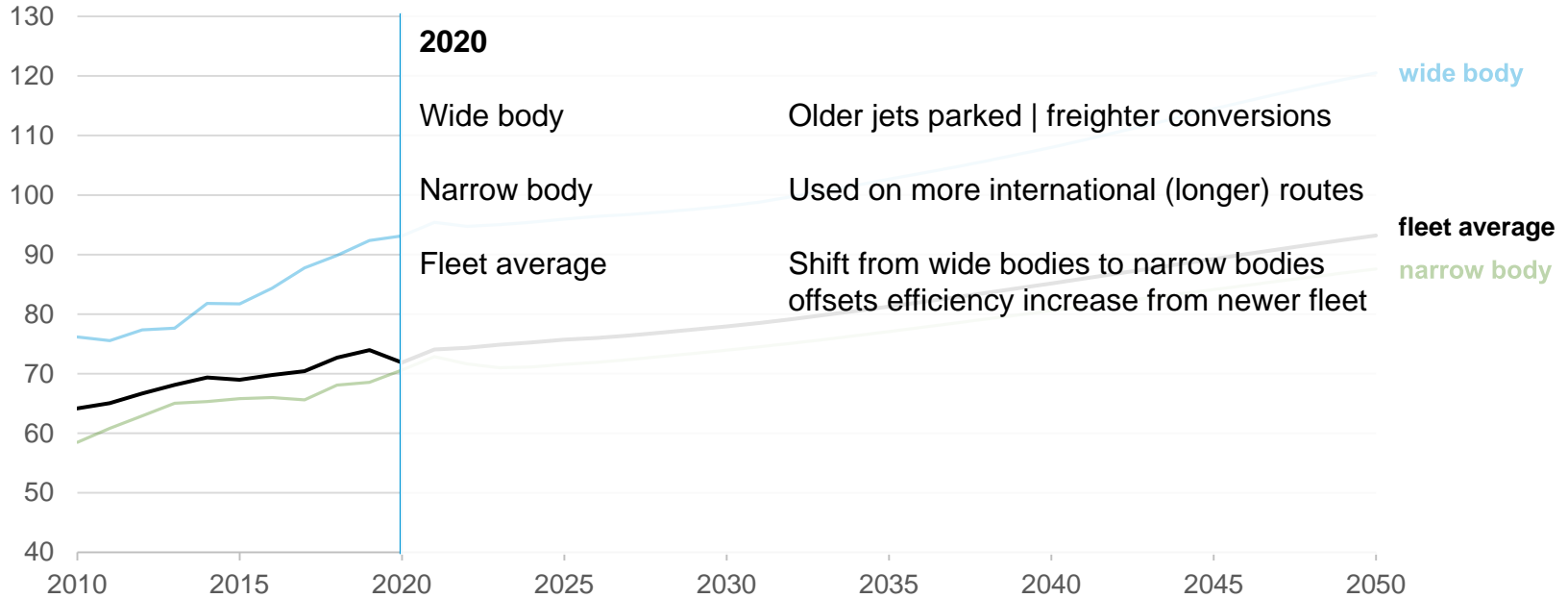
seat miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# AEO2022 fleet efficiency

seat miles per gallon

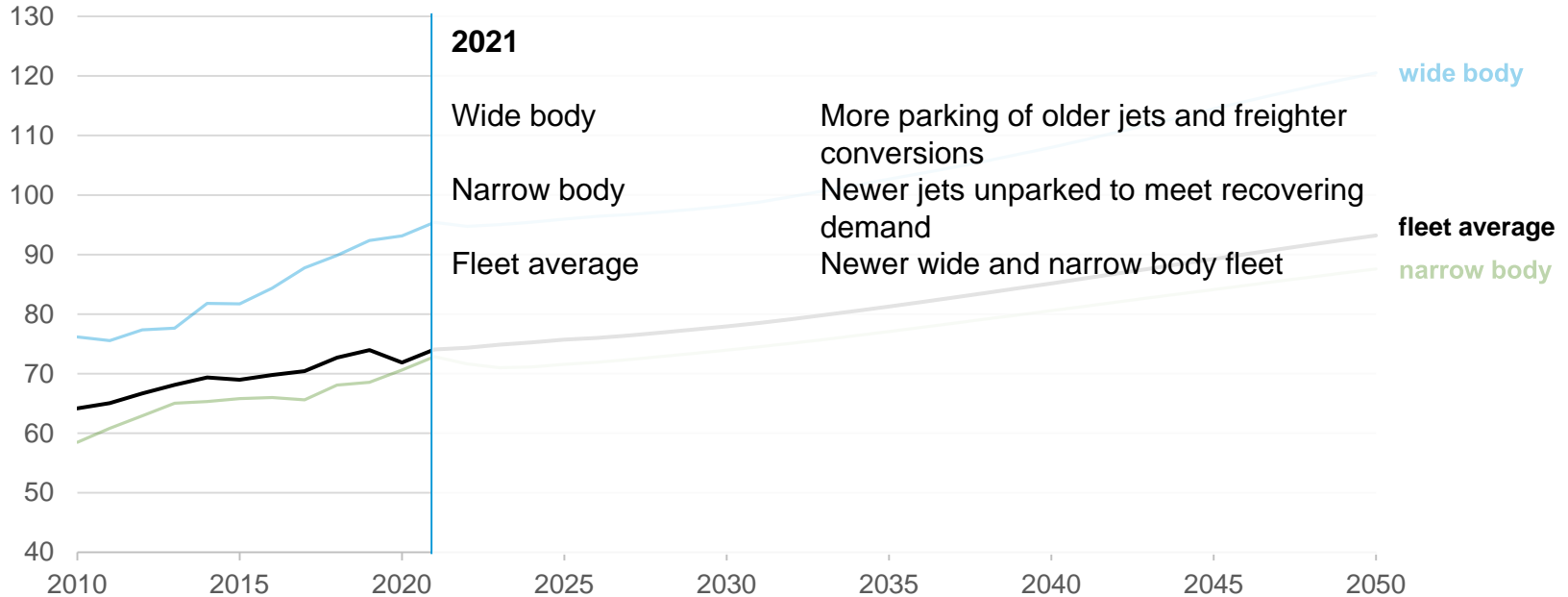


Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a



# AEO2022 fleet efficiency

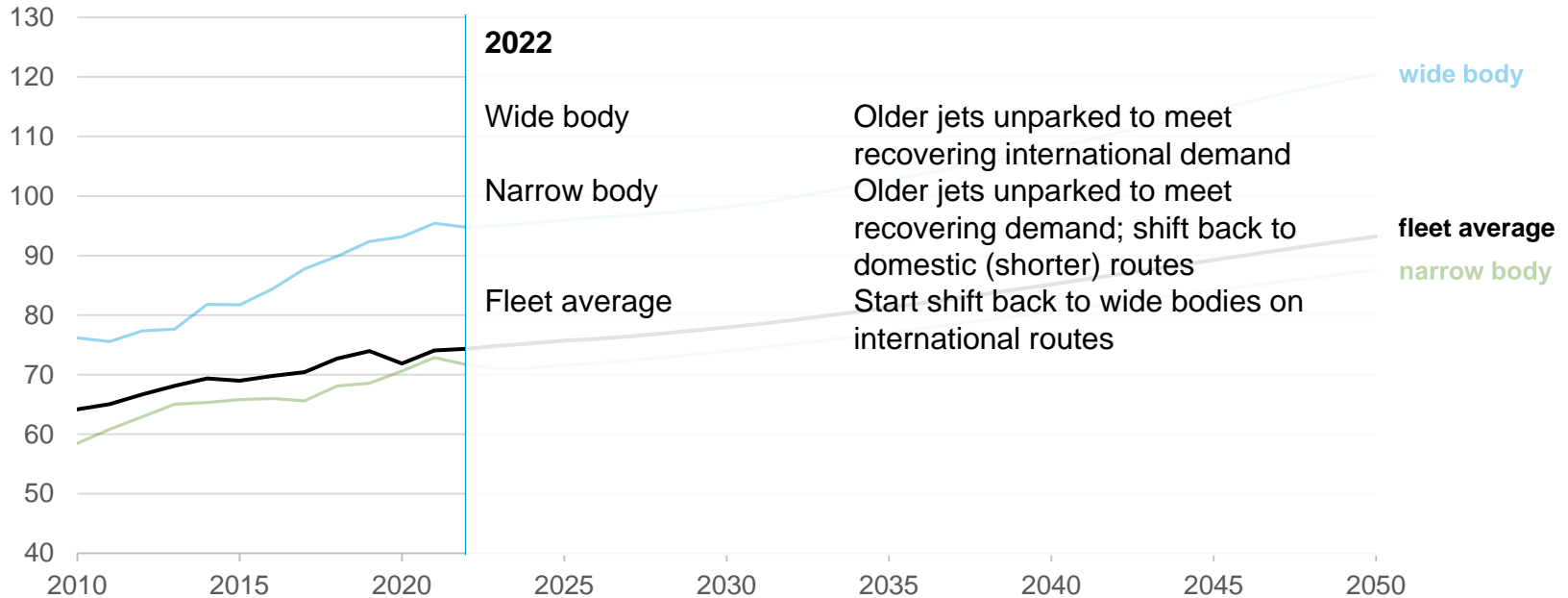
seat miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# AEO2022 fleet efficiency

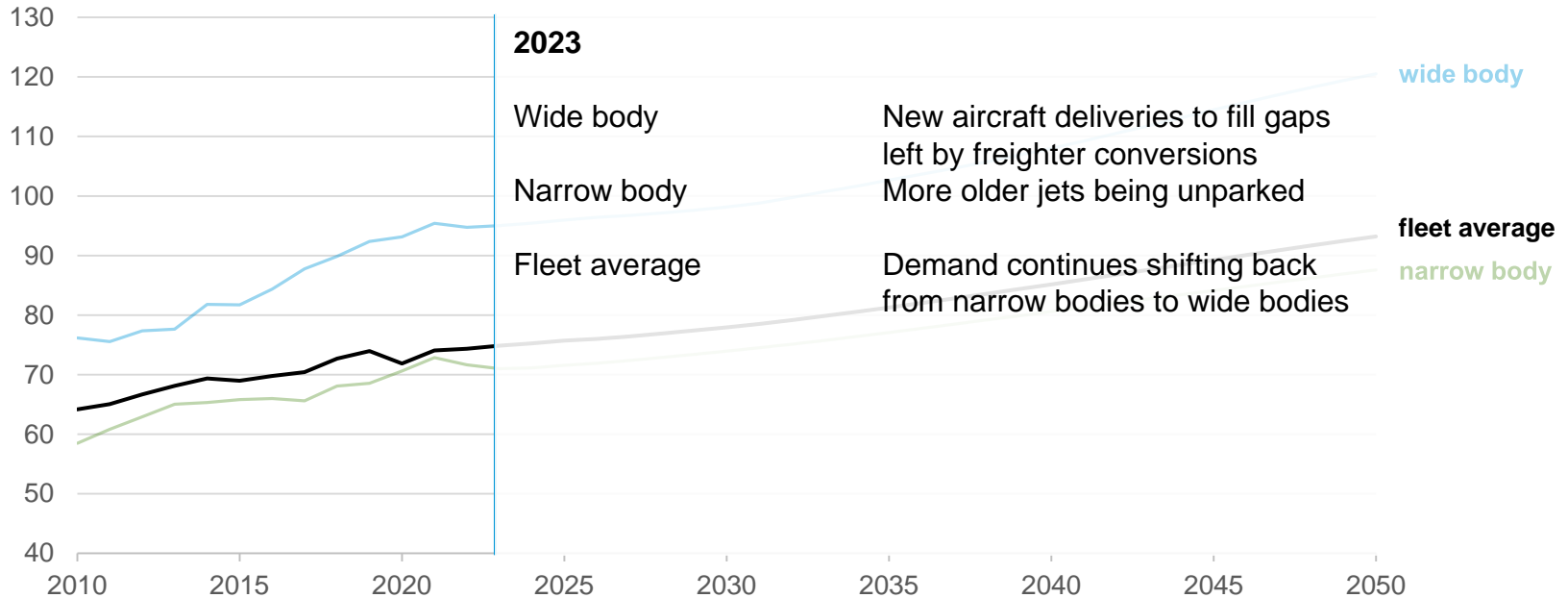
seat miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# AEO2022 fleet efficiency

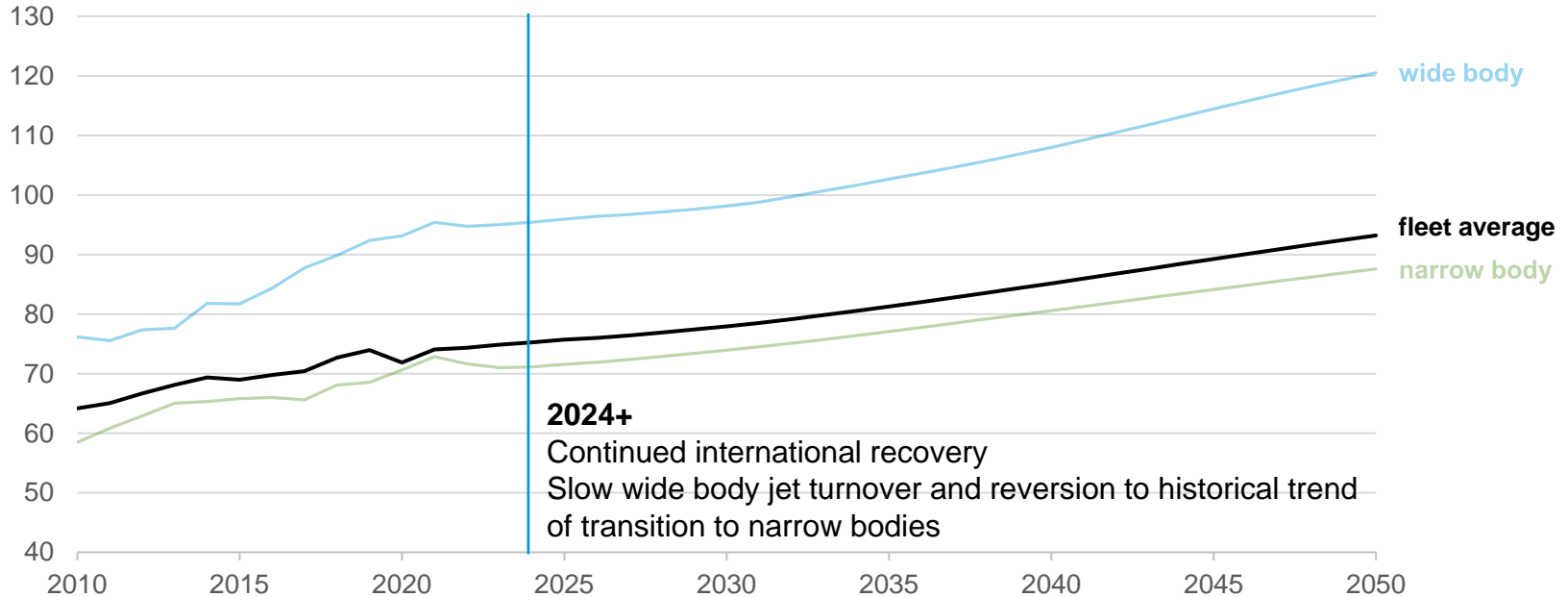
seat miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# AEO2022 fleet efficiency

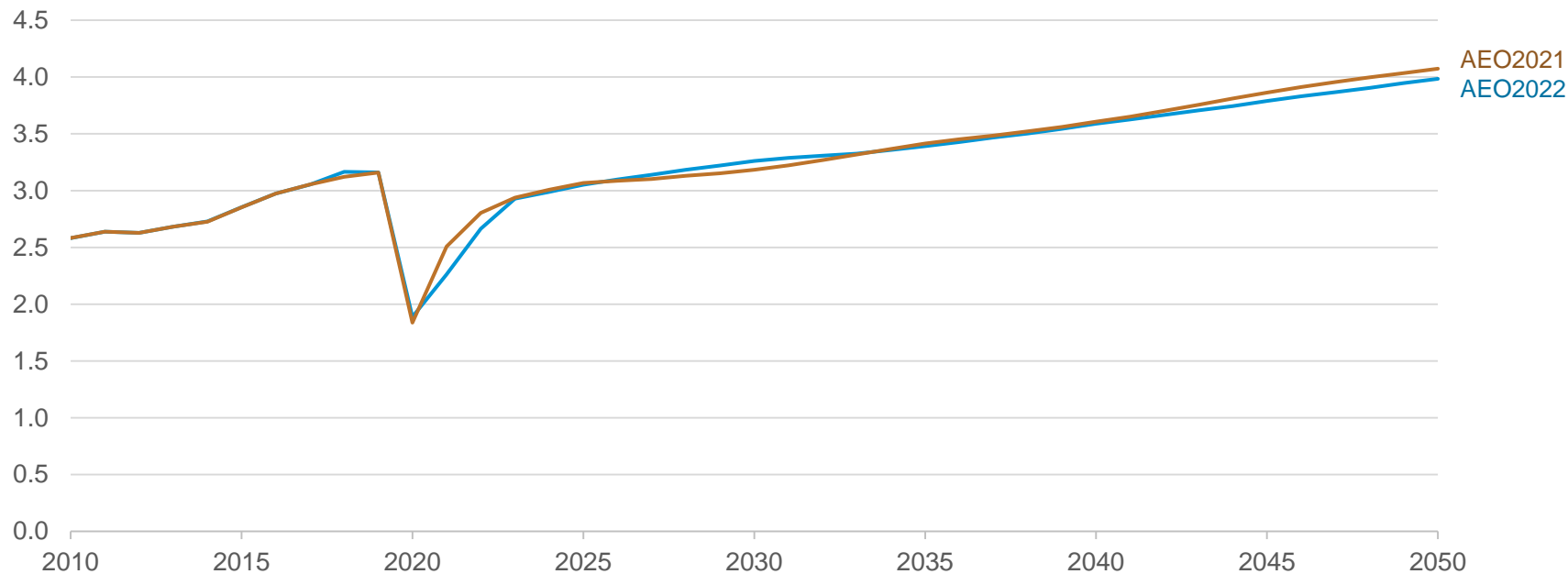
seat miles per gallon



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Lower commercial jet fuel consumption due to increase in efficiency

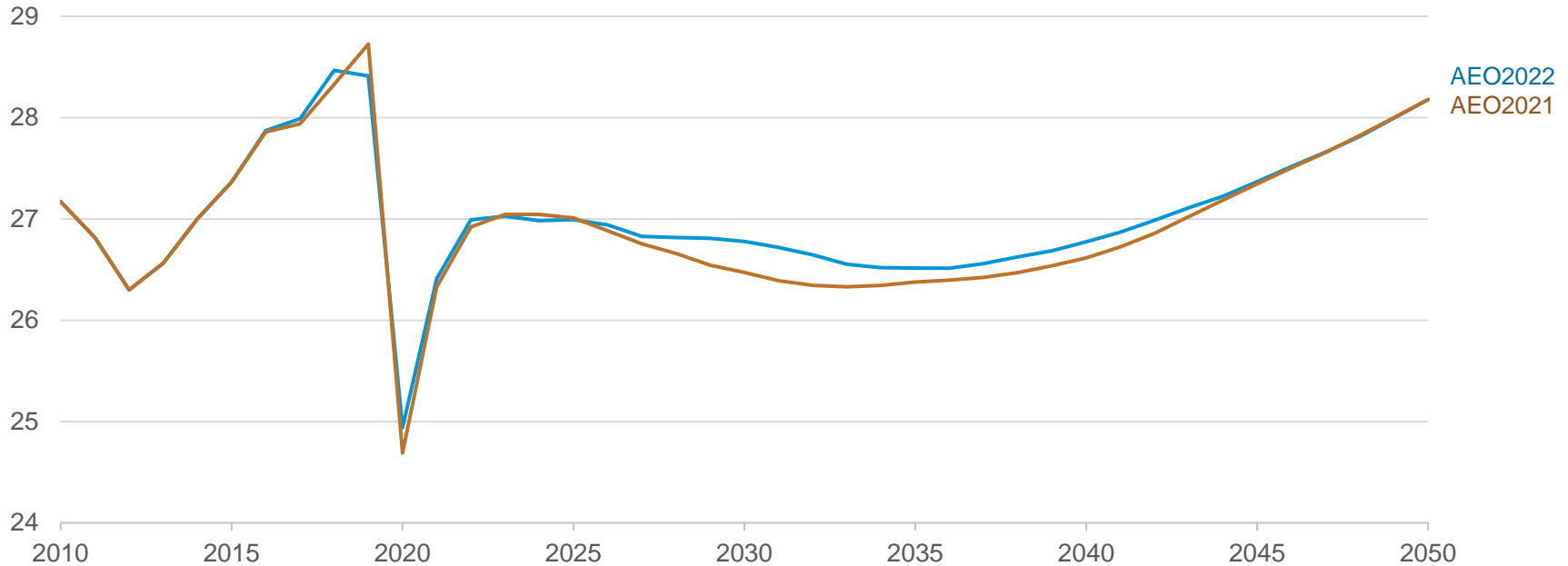
quadrillion British thermal units



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

# Total transportation energy consumption

quadrillion British thermal units



Sources: EIA, AEO2022, ref2022.0927e; AEO2021, ref2021.1130a

## In progress

- Updated battery cost model
- On-road vehicle stock update (adding 2019 and 2020 registration data)
- Covid-19 impacts and recovery (LDV, transit)

# Discussion



# Contact information

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*Annual Energy Outlook* | [www.eia.gov/outlooks/aeo](http://www.eia.gov/outlooks/aeo)