
Global Energy Trends and Where Alaska Fits



for

39th Annual Alaska Resource Conference

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by

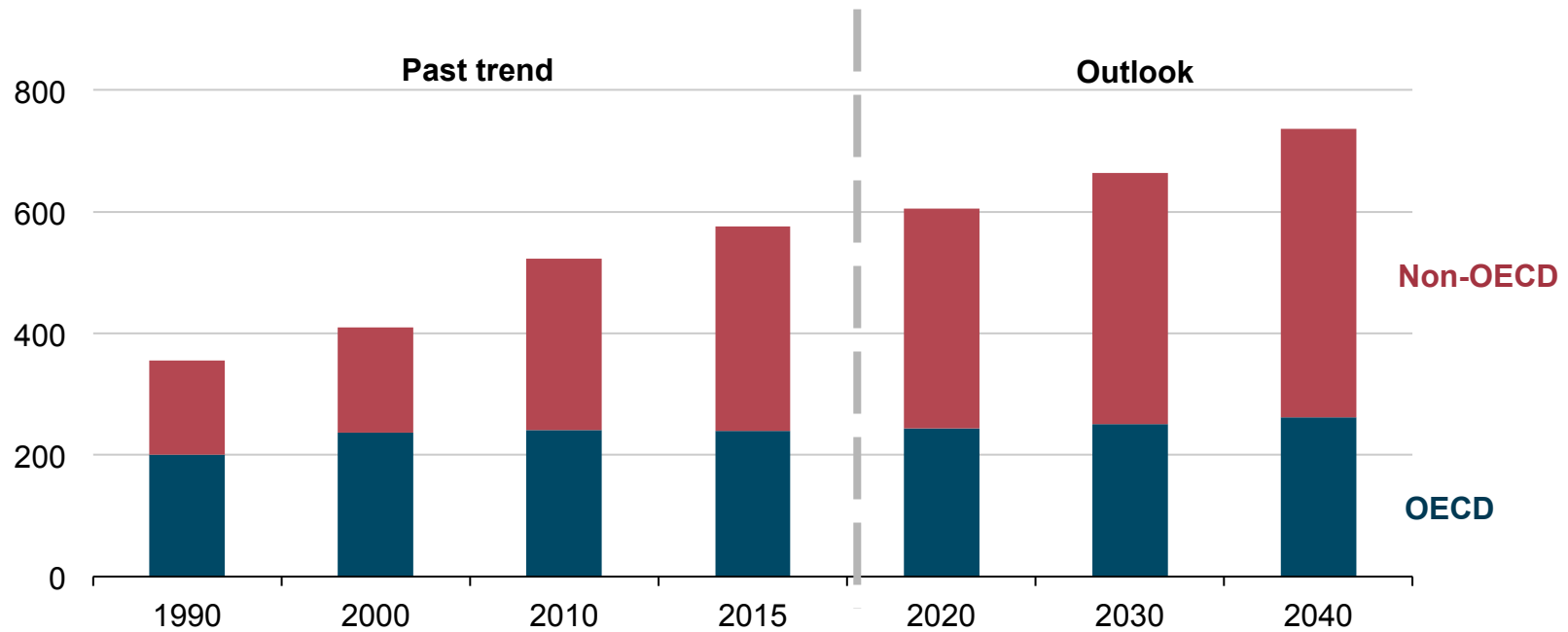
Dr. Ian Mead, Assistant Administrator for Energy Analysis

Key takeaways

- World energy consumption increases from 575 quadrillion Btu in 2015 to 736 quadrillion Btu in 2040, a 28% increase with more than 60% of the increase in non-OECD Asia
- Transportation energy use rises by nearly 30% between 2015 and 2040 with almost all of the growth occurring in non-OECD regions
- Fossil fuels remain dominant, supplying 77% of the world's energy consumption in 2040
- Recent Issues in Focus highlights possible levels of ANWR oil production
 - Base case shows production beginning in 2030 and peaking at 880,000 barrels/day in 2041
 - Reduction in U.S. imports range from 4% to 12% from 2031 through 2050 across cases

World energy consumption rises 28% between 2015 and 2040 in the Reference case with most of the increase occurring in non-OECD countries

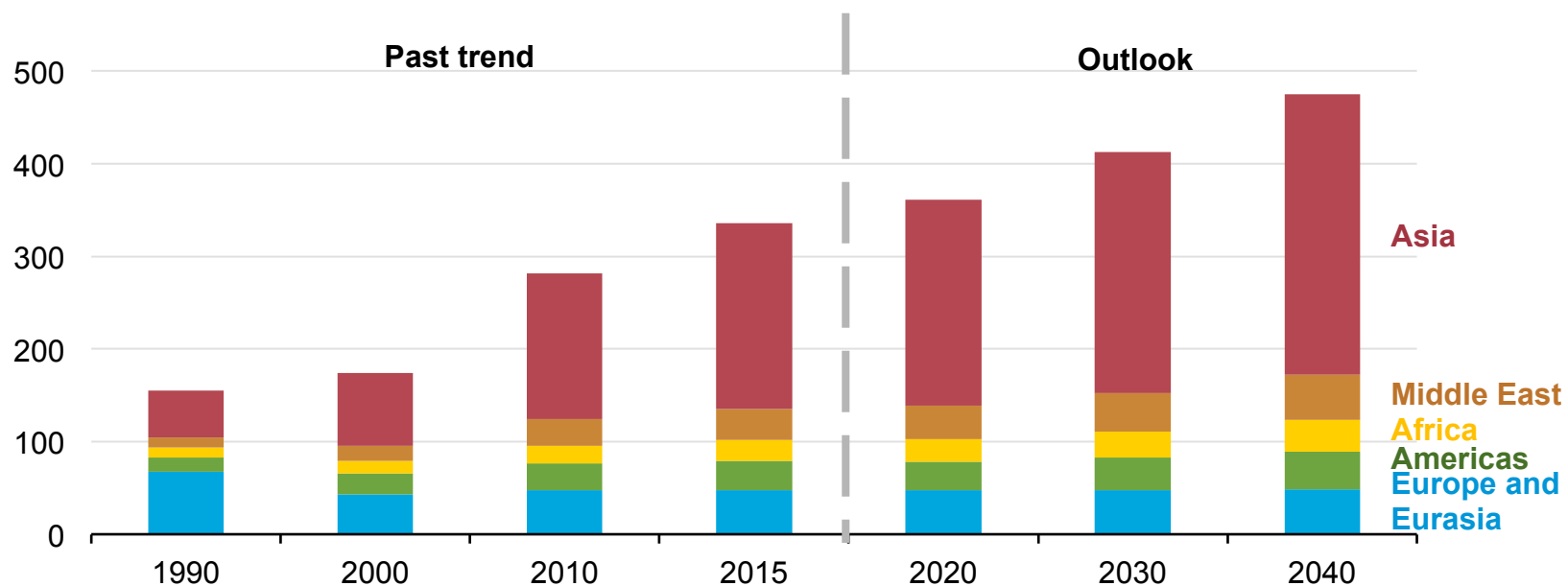
World energy consumption
quadrillion Btu



Source: EIA, International Energy Outlook 2017

Asia accounts for most of the increase in energy use in non-OECD regions in the Reference case

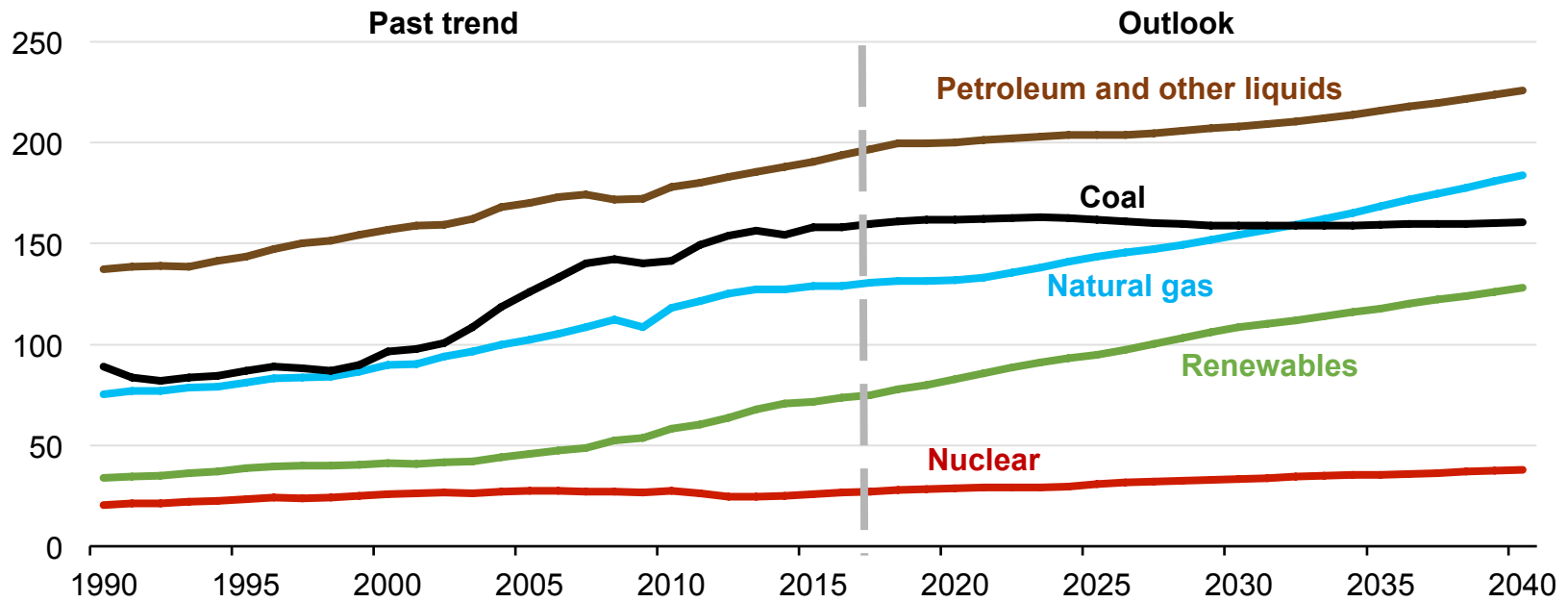
Non-OECD energy consumption by region
quadrillion Btu



Source: EIA, International Energy Outlook 2017

Energy consumption increases over the projection for all fuels other than coal in the Reference case with renewables being the fastest-growing energy source

World energy consumption by energy source
quadrillion Btu



Source: EIA, International Energy Outlook 2017

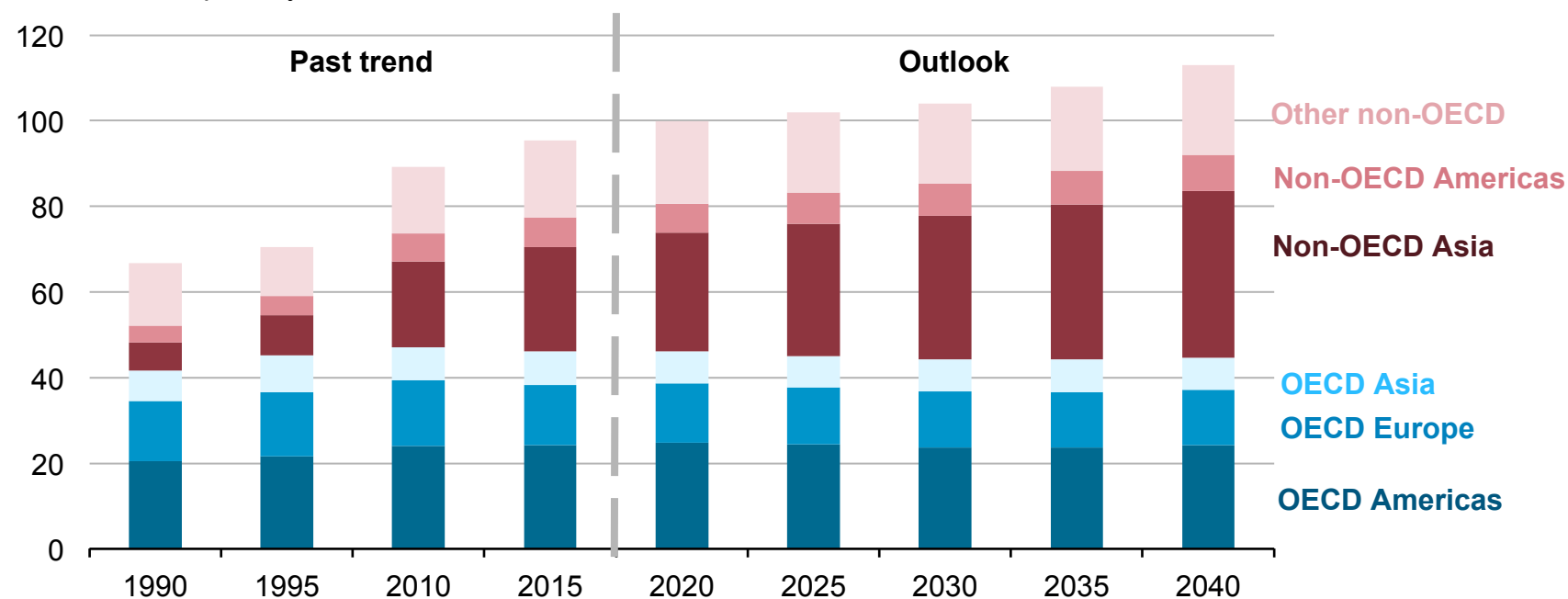


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Petroleum and other liquid fuels consumption grows by 18% between 2015 and 2040 in the Reference case because of growth in non-OECD regions

Petroleum and other liquids consumption

million barrels per day

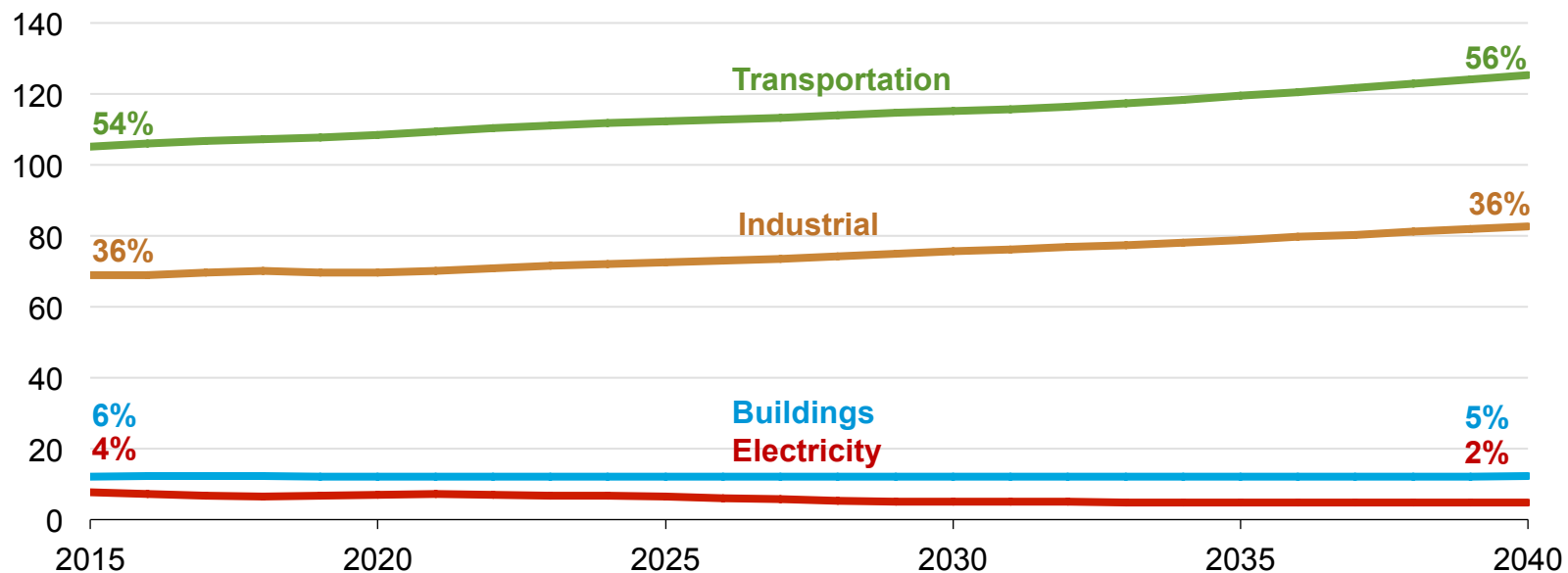


Source: EIA, International Energy Outlook 2017

Sectoral shares of world liquids use hold relatively constant in the Reference case even as total consumption increases

Refined petroleum and other liquids consumption by end-use sector

quadrillion Btu

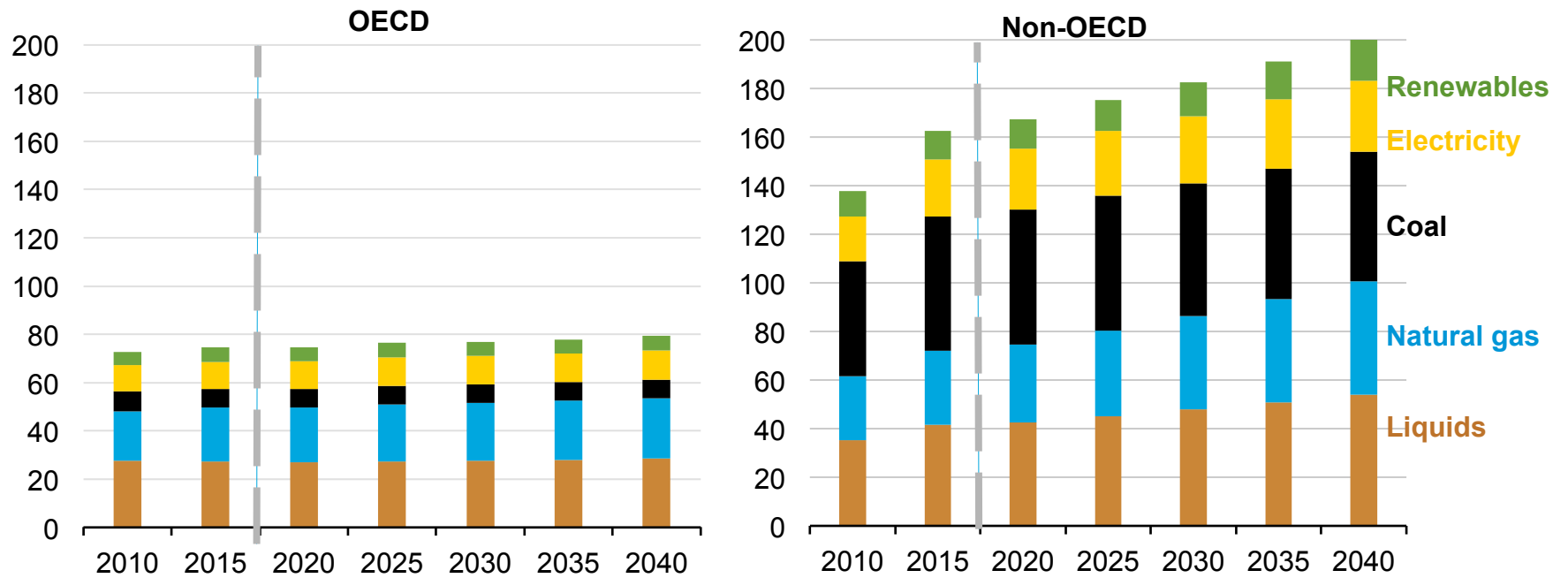


Note: Percentages express a sector's liquids consumption compared to total use of these fuels across all end uses.

Source: EIA, *International Energy Outlook 2017*

In non-OECD regions, industrial coal consumption declines slightly as natural gas and liquids consumption increases in the Reference case

Industrial energy consumption by fuel
quadrillion Btu



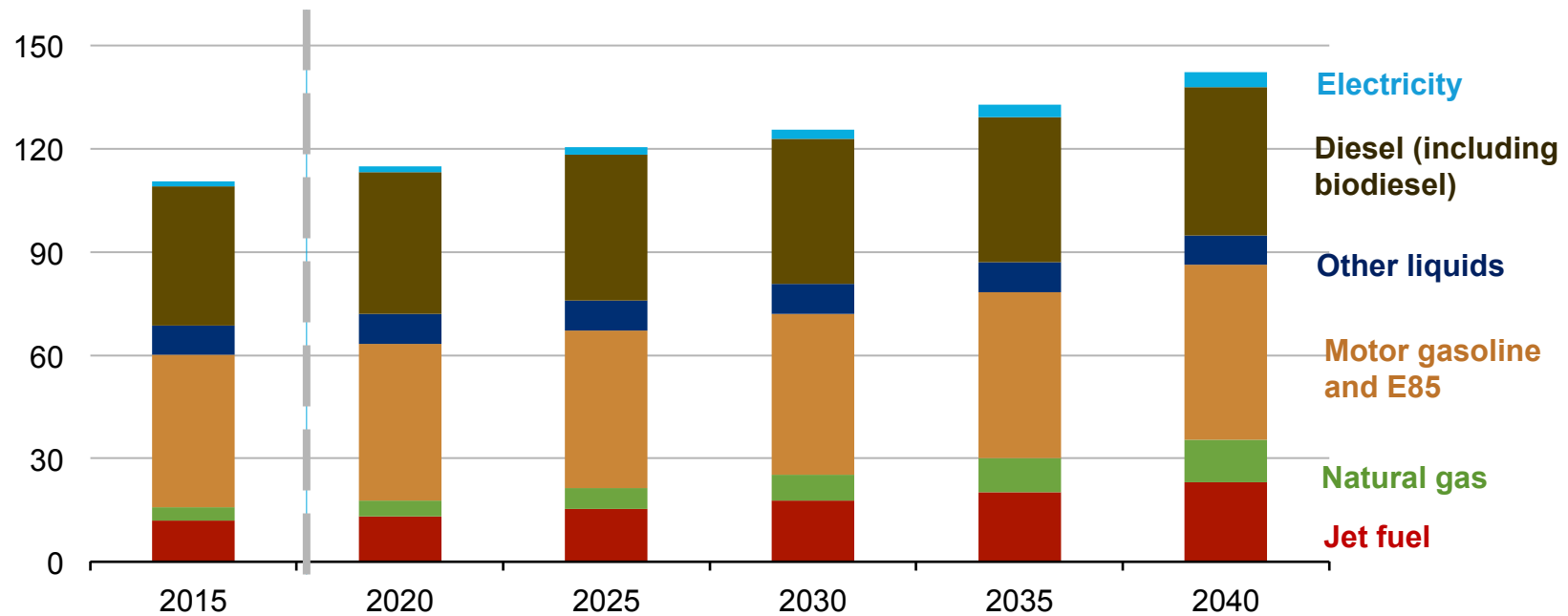
Source: EIA, International Energy Outlook 2017



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Motor gasoline and diesel continue to dominate the transportation fuel mix, but jet fuel, natural gas, and electricity grow fastest in the Reference case

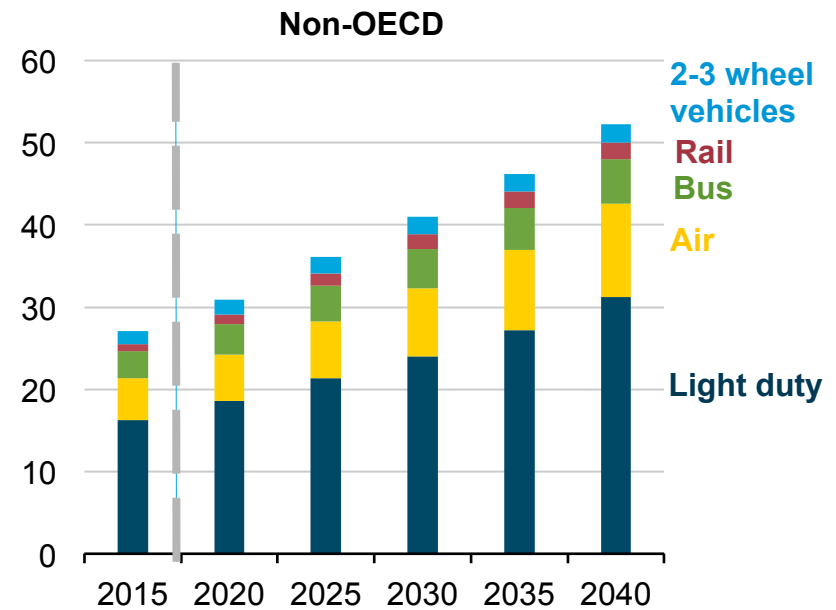
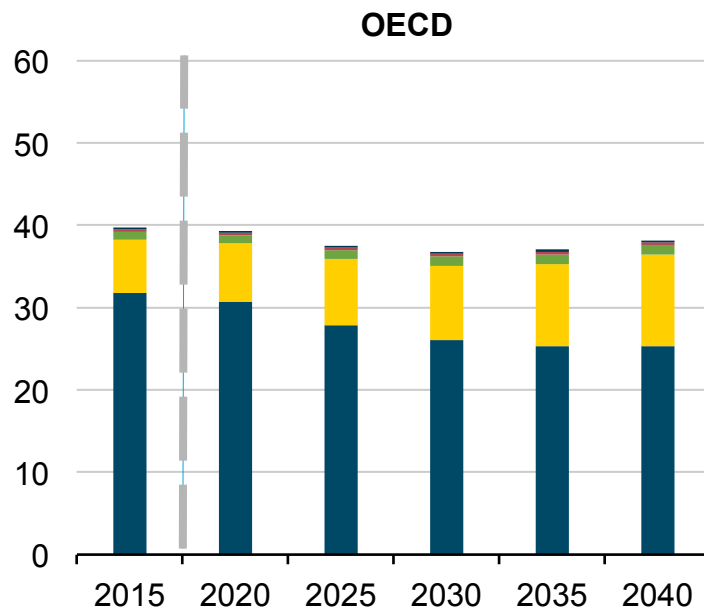
Transportation sector delivered energy consumption by source
quadrillion Btu



Source: EIA, International Energy Outlook 2017

In non-OECD countries, light-duty vehicle energy consumption grows rapidly; in OECD countries, portion related to air transportation increases

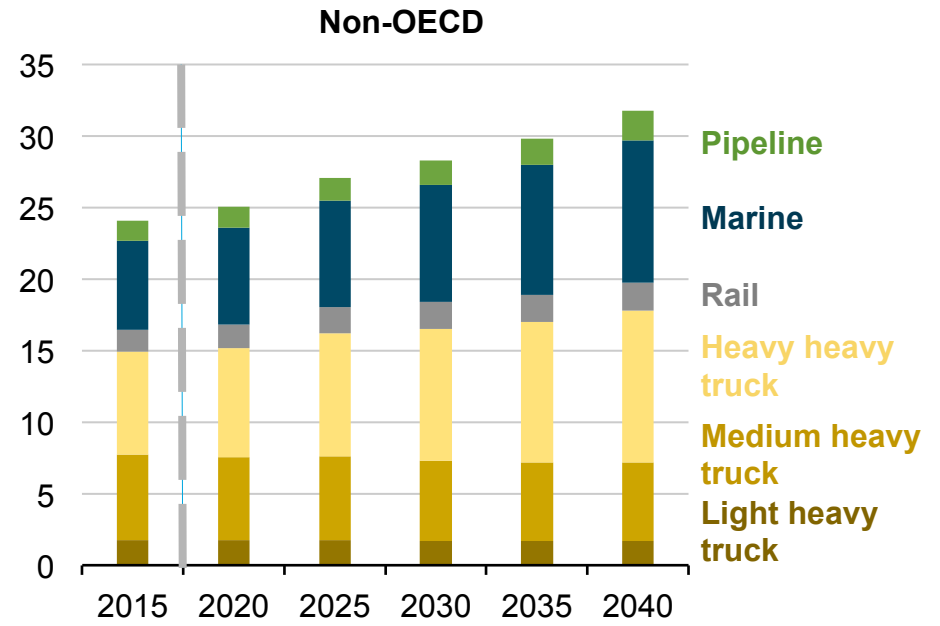
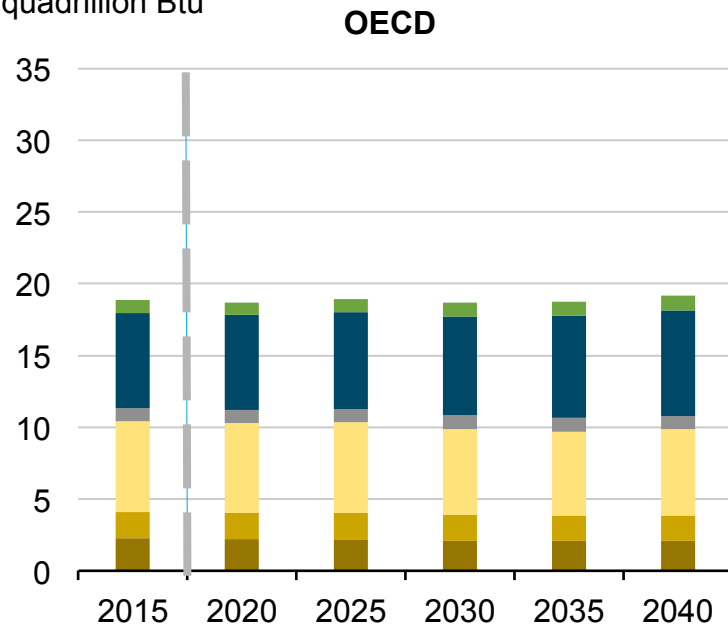
Passenger transportation energy consumption
quadrillion Btu



Source: EIA, International Energy Outlook 2017

Freight transportation energy consumption remains relatively constant in OECD countries while international marine transportation grows in non-OECD countries

Freight transportation energy consumption
quadrillion Btu



Source: EIA, International Energy Outlook 2017

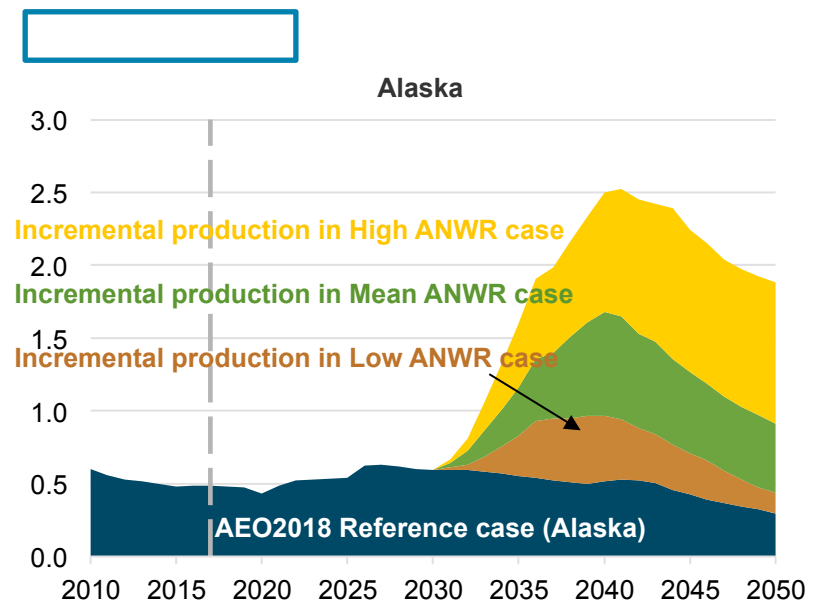
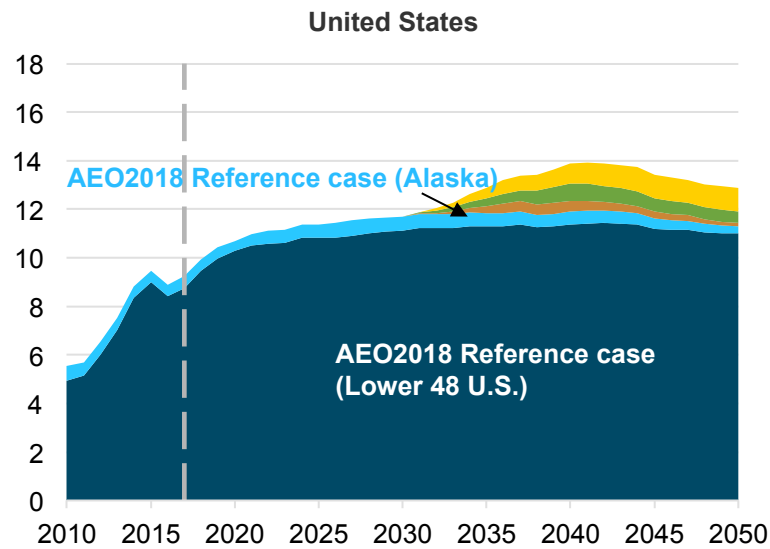
Alaskan National Wildlife Refuge

- Three cases related to lifting of drilling moratorium (high, medium, and low)
- Key assumptions
 - First lease sale in 2021 and 10-year time line for first production
 - Fields take 2-3 years to peak for 3-4 years before declining
 - Potential production based on profiles of similar fields
- Cases highlight uncertainty associated with future production

Case studies show range of range of 2 million barrels a day at peak production

Crude oil production

million barrels per day

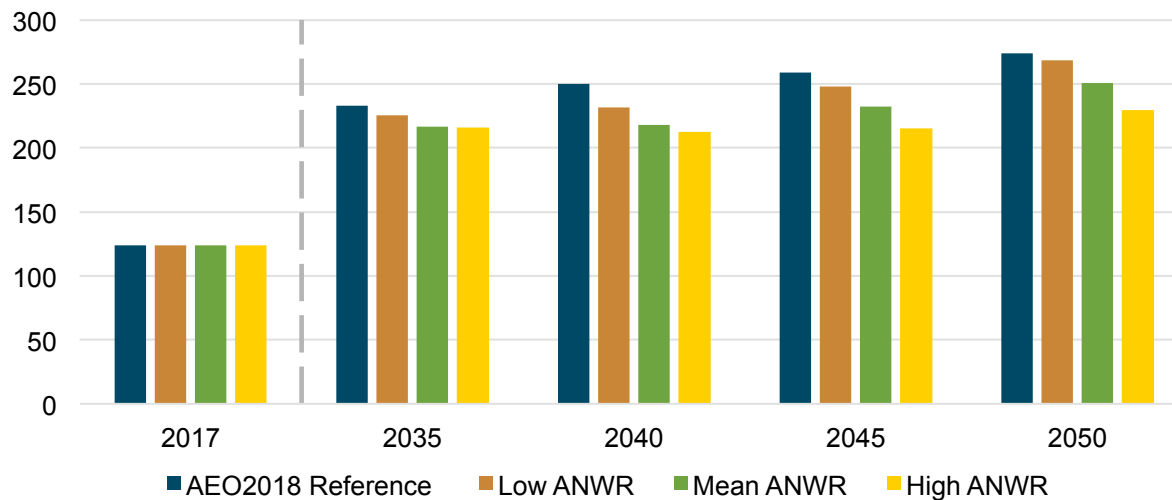


Source: EIA, *Annual Energy Outlook 2018*

Reduction in U.S. imports range from 4% to 12% from 2031 through 2050 across cases

Expenditures for imports of crude oil and petroleum products

billion of dollars



Source: U.S. Energy Information Administration, *Annual Energy Outlook 2018*

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