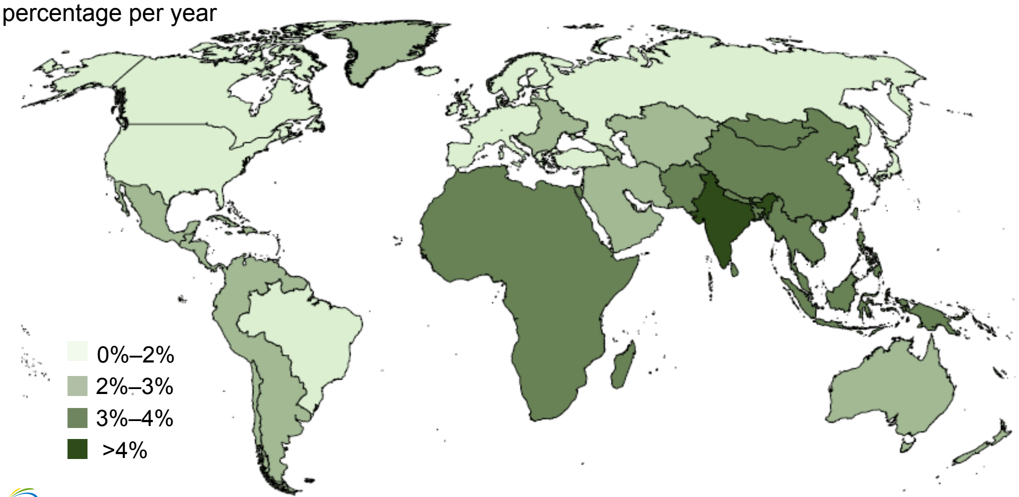
International Energy Outlook 2019 key takeaway

Manufacturing centers are shifting toward Africa and South Asia, especially India, resulting in energy consumption growth

Most economic growth happens in non-OECD countries, where GDP per person nearly triples from 2018 to 2050

Average annual percentage change in GDP (gross domestic product), 2018–2050

percentage per year

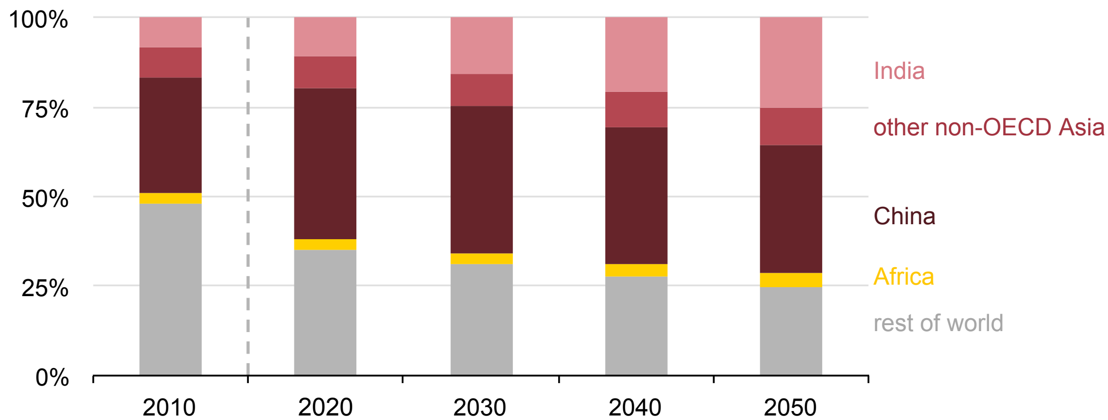


Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Most energy-intensive manufacturing shifts to non-OECD Asia and, increasingly, to India

Energy-intensive manufacturing gross output[1] by region

share



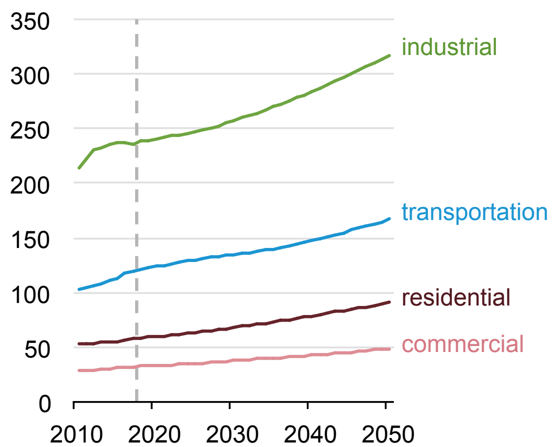
[1]Measured in purchasing power parity

Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

The industrial sector is the largest consumer of energy, and energy-intensive manufacturing is the largest component in the sector

End-use energy consumption by sector

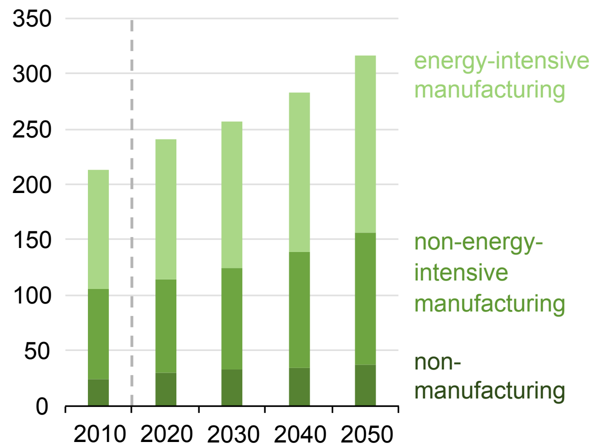
quadrillion British thermal units



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Energy consumption by industrial subsector

quadrillion British thermal units



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Note: OECD is the Organization for Economic Cooperation and Development.

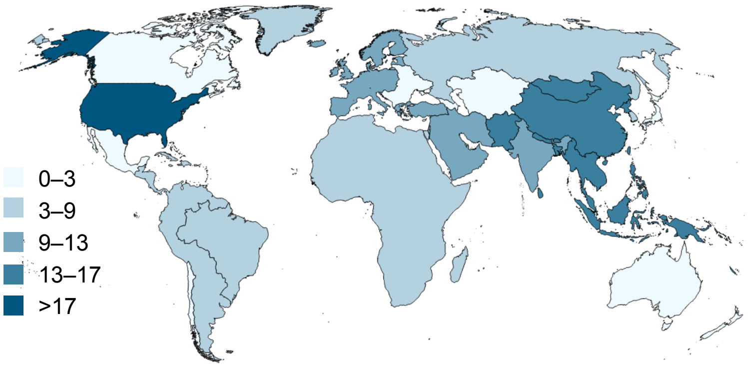
Source: *International Energy Outlook 2019* (IEO2019)

International Energy Outlook 2019 key takeaway

Natural gas and petroleum product consumption is rising in Asia faster than supply is growing, potentially shifting trade patterns and infrastructure investments

Consumption of liquid fuels increases 22% between 2018 and 2050, driven by Asia and Africa

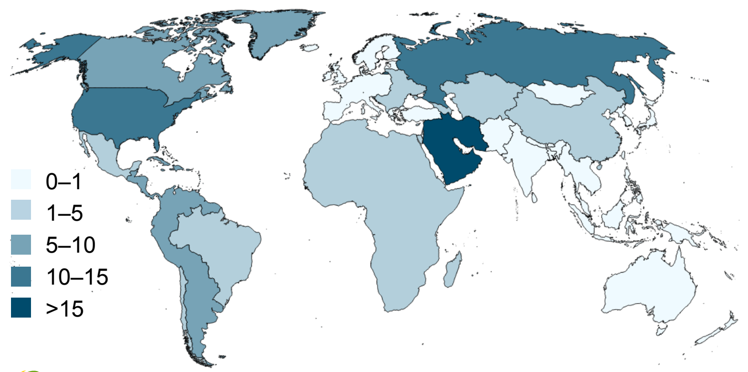
Consumption of liquid fuels in 2050
million barrels per day



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Supply of crude oil increases 21% between 2018 and 2050, and production remains high in OPEC, Russia, and the United States

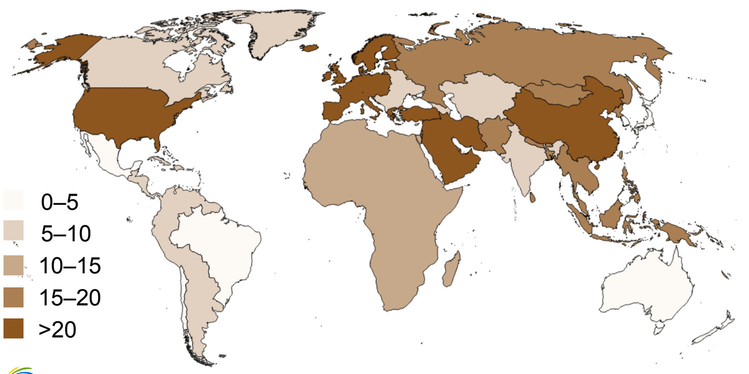
Supply of crude oil in 2050
million barrels per day



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Natural gas consumption rises in Asia, even as regional production stays flat

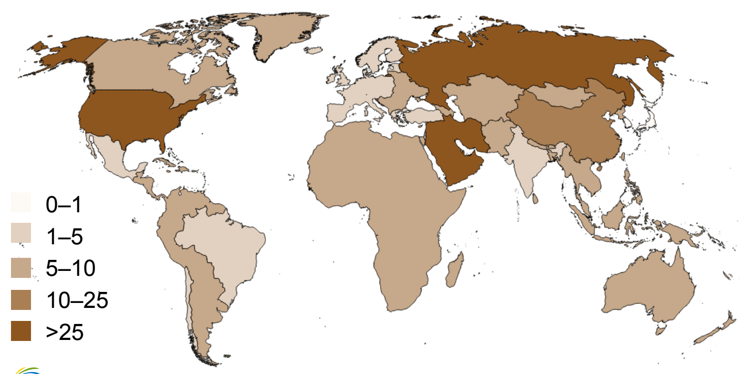
Consumption of natural gas in 2050
trillion cubic feet



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

The United States remains the world's largest natural gas producer through 2050

Supply of natural gas in 2050
trillion cubic feet



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Note: OPEC is the Organization of the Petroleum Exporting Countries.
Source: *International Energy Outlook 2019* (IEO2019)

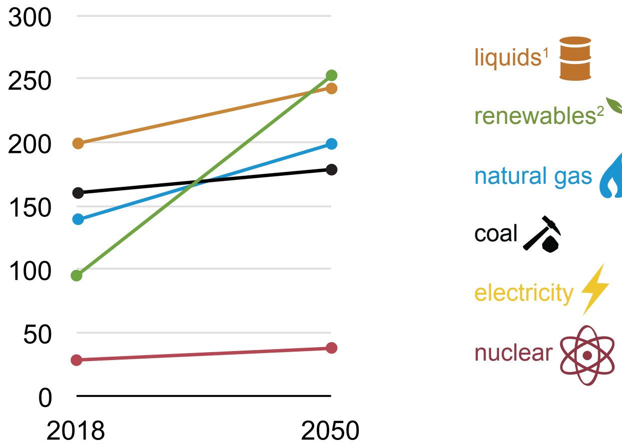
International Energy Outlook 2019 key takeaway

End-use consumption is increasingly shifting toward electricity

Renewables displace petroleum as the most used energy source, as electricity use grows faster than any other end-use fuel

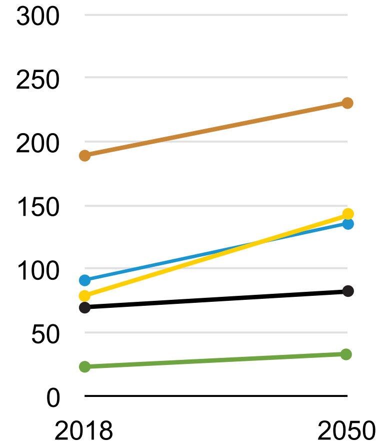
Primary energy consumption

quadrillion British thermal units



End-use energy consumption

quadrillion British thermal units



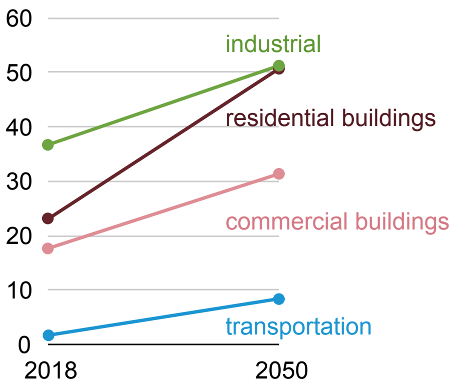
1. Includes petroleum and liquid biofuels 2. End use is largely biomass

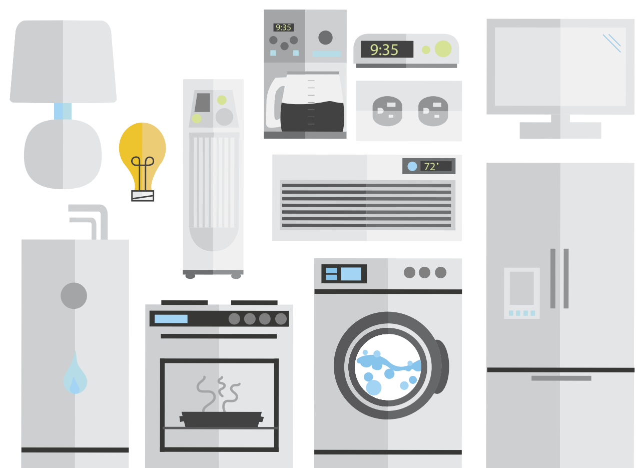
Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Electricity use grows in the buildings sectors, as access to electricity and electrical appliance use increases in non-OECD countries

Electricity use by sector

quadrillion British thermal units



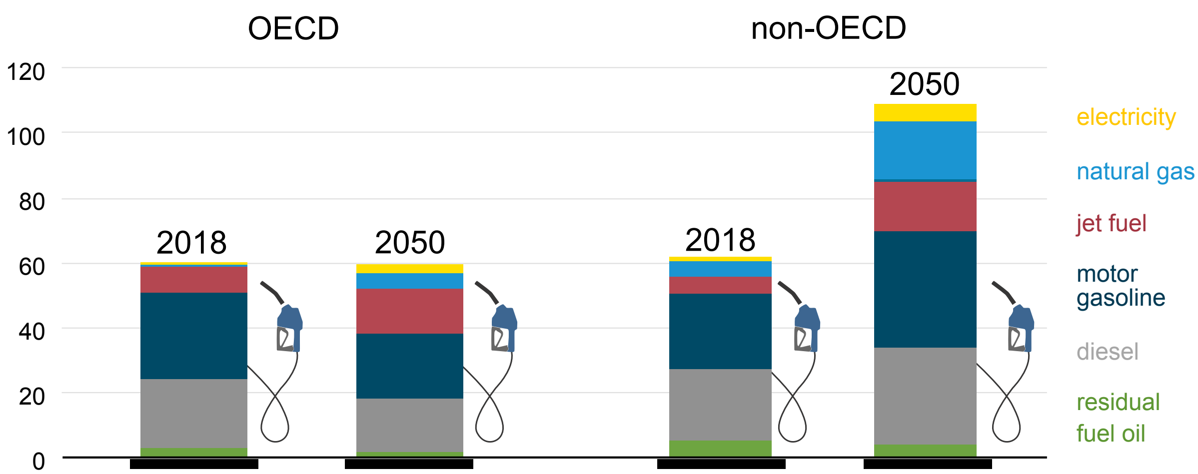


Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Motor gasoline and diesel continue to be the dominant transportation fuels, but the consumption of jet fuel, natural gas, and electricity all increase

Transportation energy consumption

quadrillion British thermal units



Source: U.S. Energy Information Administration, *International Energy Outlook 2019*

Note: OECD is the Organization for Economic Cooperation and Development.
Source: *International Energy Outlook 2019* (IEO2019)

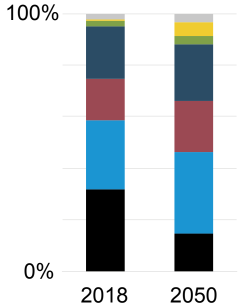
eia

Falling costs, demand growth, and policy all work together to shift the electricity generation mix

Share of net electricity generation

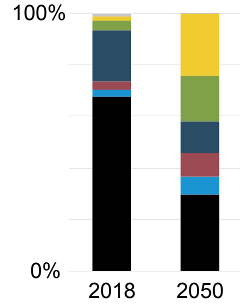
other
solar
wind
hydro
nuclear
natural gas
coal

Non-OECD Europe and Eurasia

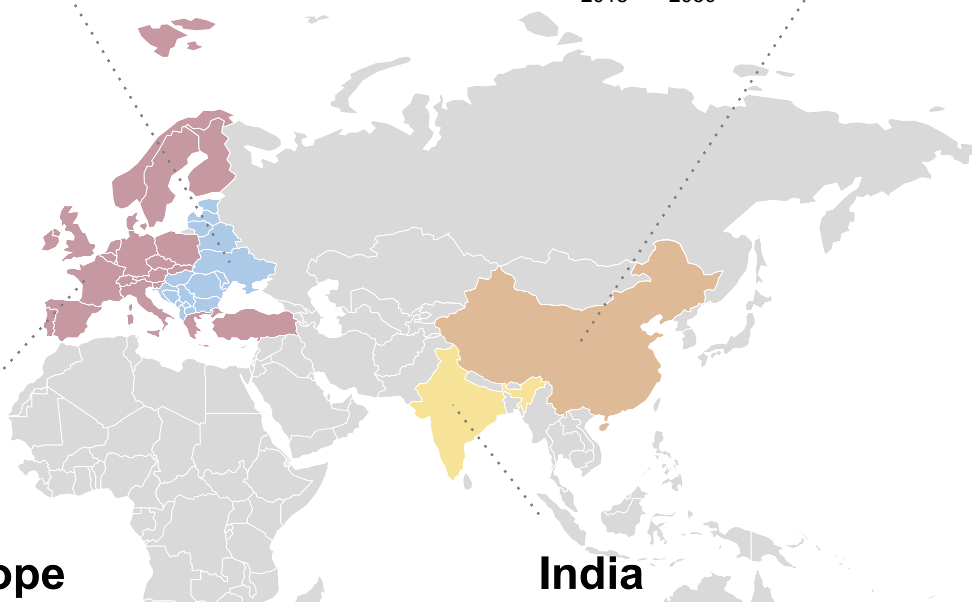


In non-OECD Europe and Eurasia, low demand growth and fewer policy incentives result in a slower changing electricity mix

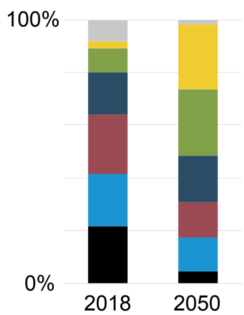
China



The electricity mix in China changes through a combination of growth and policy incentives

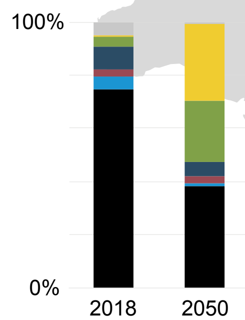


OECD Europe



In OECD Europe, emission policies drive adoption of solar and wind, and they slow growth of natural gas and coal

India



In India, rapid demand growth, declining renewables costs, and policy incentives drive adoption of coal, solar, and wind

Note: OECD is the Organization for Economic Cooperation and Development.
Source: *International Energy Outlook 2019* (IEO2019)