

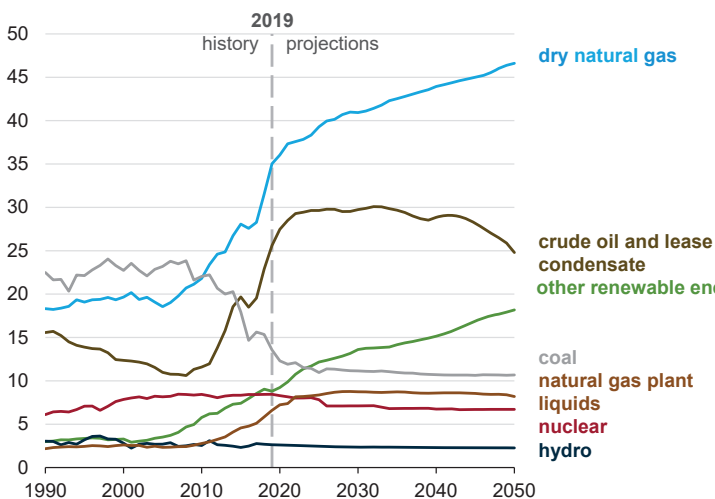
# Overview of energy markets

In the Reference case, strong domestic energy production coupled with slow growth in domestic energy demand leads the United States to remain a net energy exporter through 2050. Energy-related carbon dioxide emissions, driven by changes in the electricity generation fuel mix and increasing activity in the transportation and industrial sectors, experience modest growth in the later part of the projection period after falling in the 2020s.

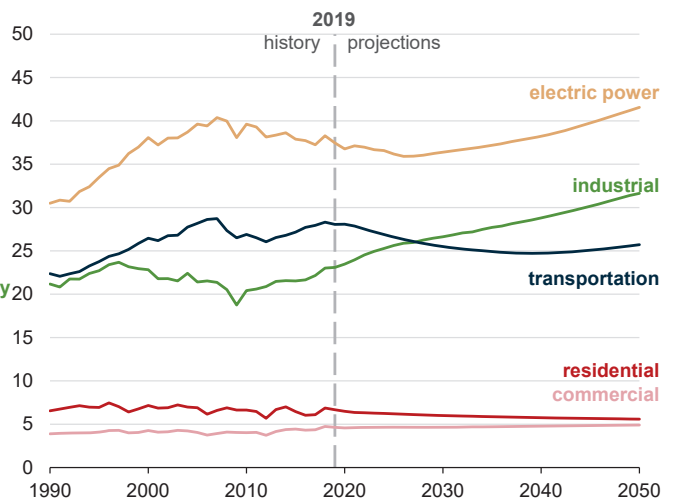


## U.S. energy production grows significantly, but consumption grows moderately under the AEO2020 Reference case assumption of current laws and regulations

**Energy production (AEO2020 Reference case)**  
quadrillion British thermal units



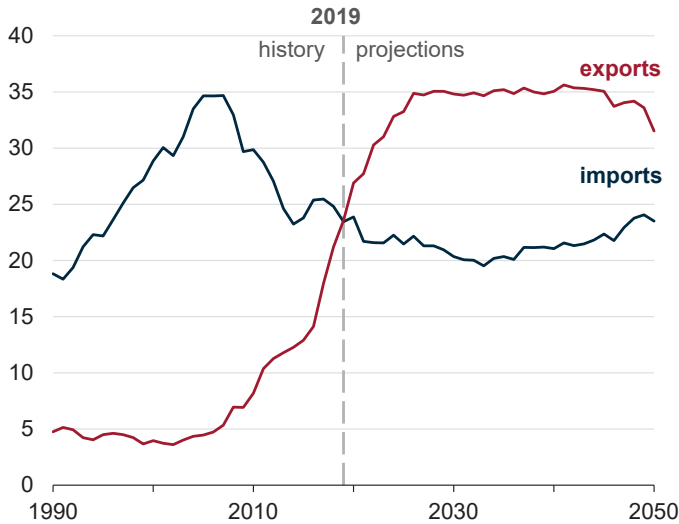
**Energy consumption by sector (AEO2020 Reference case)**  
quadrillion British thermal units



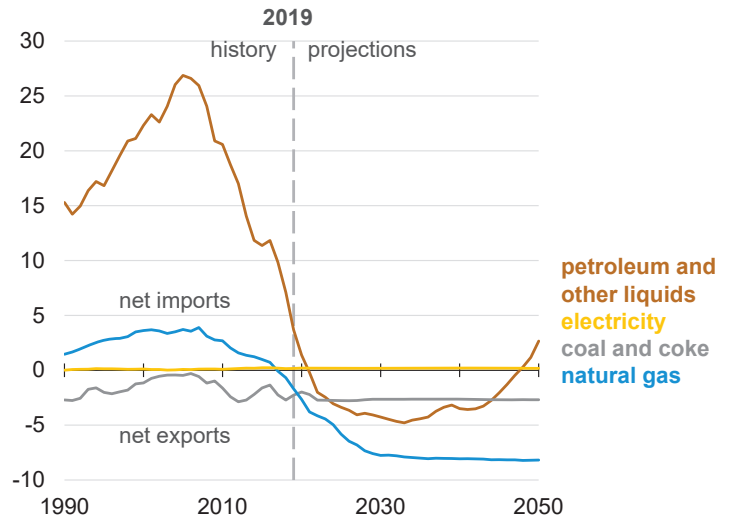


## The United States becomes a net energy exporter on an annual basis by 2020 in the AEO2020 Reference case—

**Gross energy trade (AEO2020 Reference case)**  
quadrillion British thermal units



**Net energy imports (AEO2020 Reference case)**  
quadrillion British thermal units



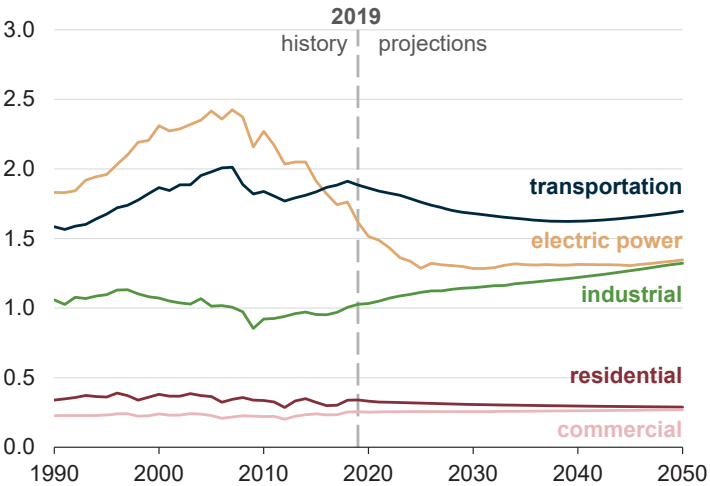
## —but the United States continues to import and export energy throughout the projection period

- The United States imported more energy than it exported annually since 1953, but continued growth in petroleum and natural gas exports results in the United States becoming a net energy exporter in 2020 in all AEO2020 cases.
- In the AEO2020 Reference case, the United States exports more petroleum and other liquids than it imports annually starting in 2020 as U.S. crude oil production continues to increase and domestic consumption of petroleum products decreases. Near the end of the projection period, the United States returns to importing more petroleum and other liquids than it exports on an energy basis as a result of increasing domestic gasoline consumption and falling domestic crude oil production after 2047.
- The United States became a net natural gas exporter on an annual basis in 2017 and continued to export more natural gas than it imported in 2018 and in 2019. In the AEO2020 Reference case, liquefied natural gas (LNG) exports to more distant destinations will increasingly dominate the U.S. natural gas trade, and the United States is projected to remain a net natural gas exporter through 2050.
- The United States continues to be a net exporter of coal (including coal coke) through 2050 in the AEO2020 Reference case, but coal exports remain at the same level because of competition from other global suppliers that are closer to major world consumers.



AEO2020 energy-related carbon dioxide emissions increase in the industrial sector, increase as a result of natural gas consumption, but remain relatively flat in other sectors and fuels through 2050

**Energy-related CO2 emissions by energy sector (AEO2020 Reference case)**  
billion metric tons



**Energy-related CO2 emissions by fuel (AEO2020 Reference case)**  
billion metric tons

