

Annual Energy Outlook 2022

with projections to 2050

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#AEO2022

March 3, 2022
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March 2022











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Overview of U.S. energy markets

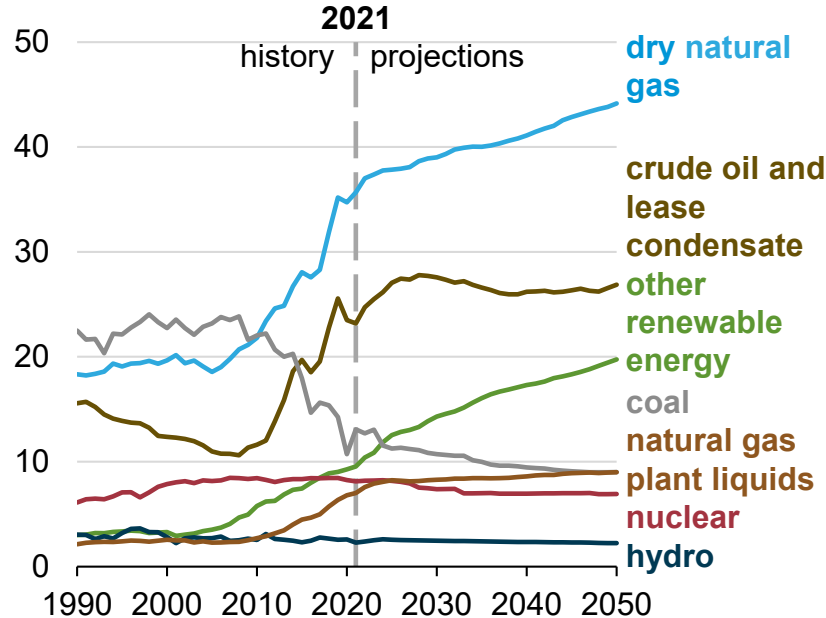


Energy production and consumption

Energy production by source

AEO2022 Reference case

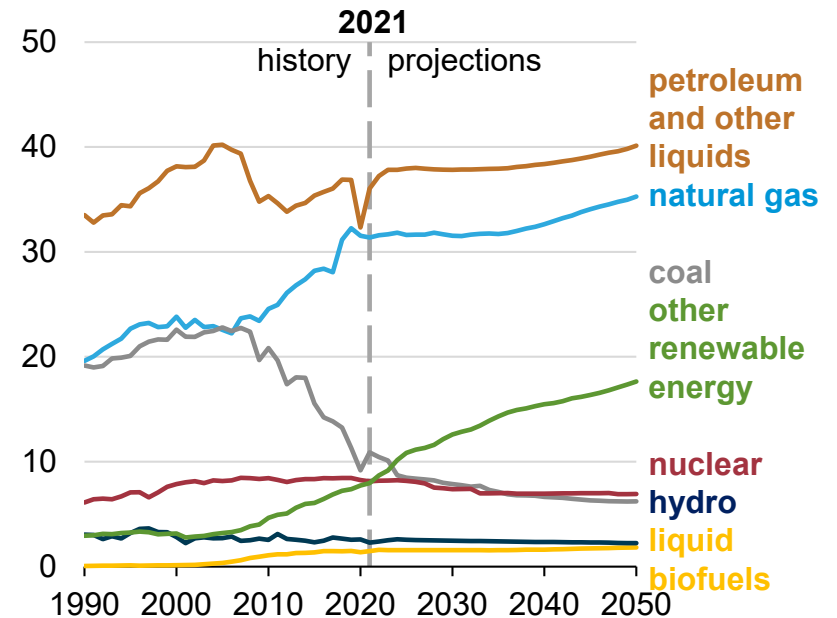
quadrillion British thermal units



Energy consumption by fuel

AEO2022 Reference case

quadrillion British thermal units



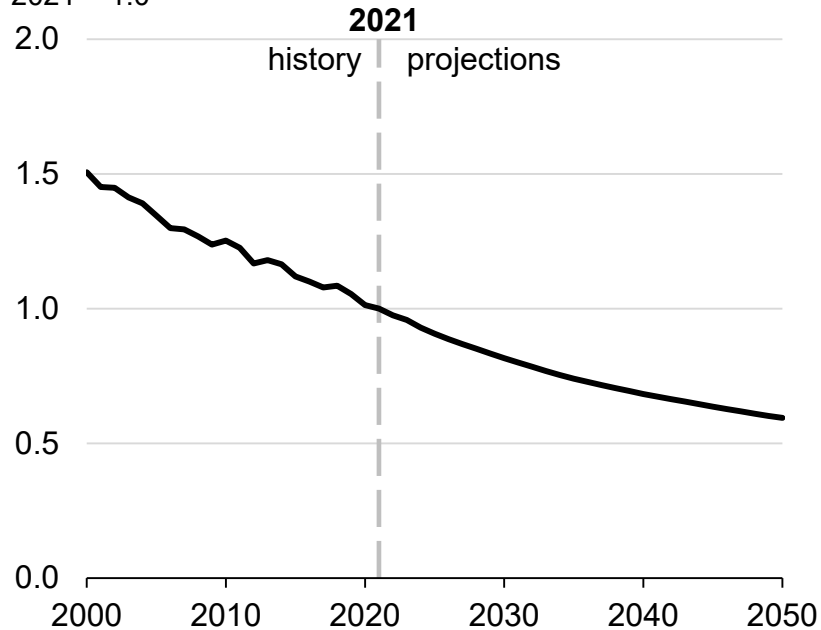
Note: Biofuels are shown separately and included in petroleum and other liquids.



Energy intensity and consumption

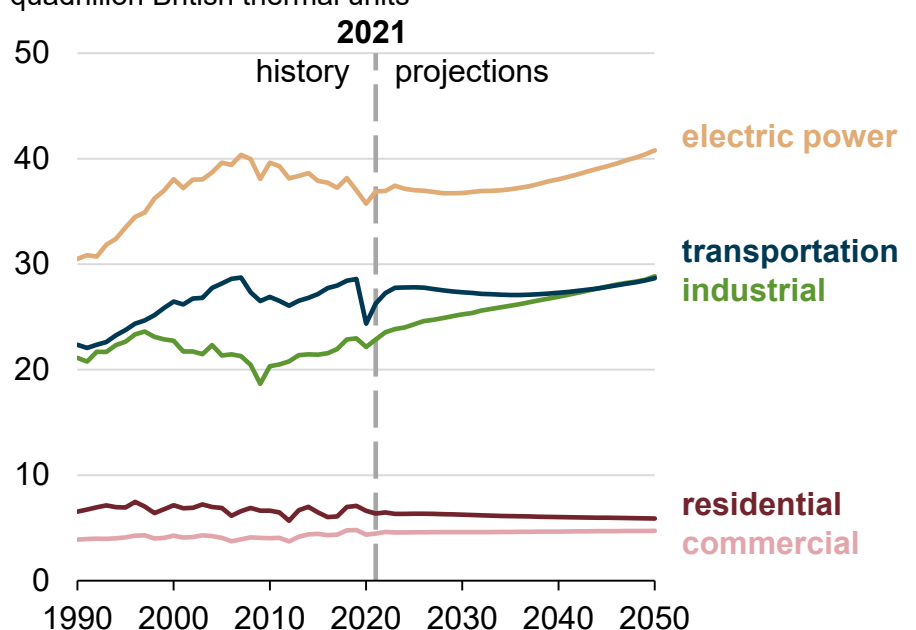
Indexed total energy intensity of the U.S. economy
AEO2022 Reference case

2021 = 1.0



Energy consumption by sector
AEO2022 Reference case

quadrillion British thermal units

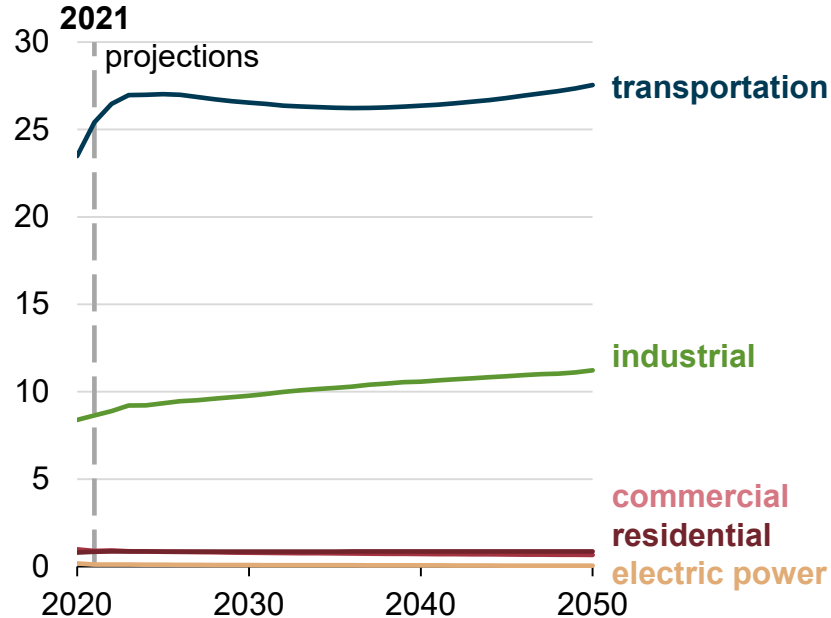


Note: Total energy intensity calculation reflects primary energy, which includes electricity losses.

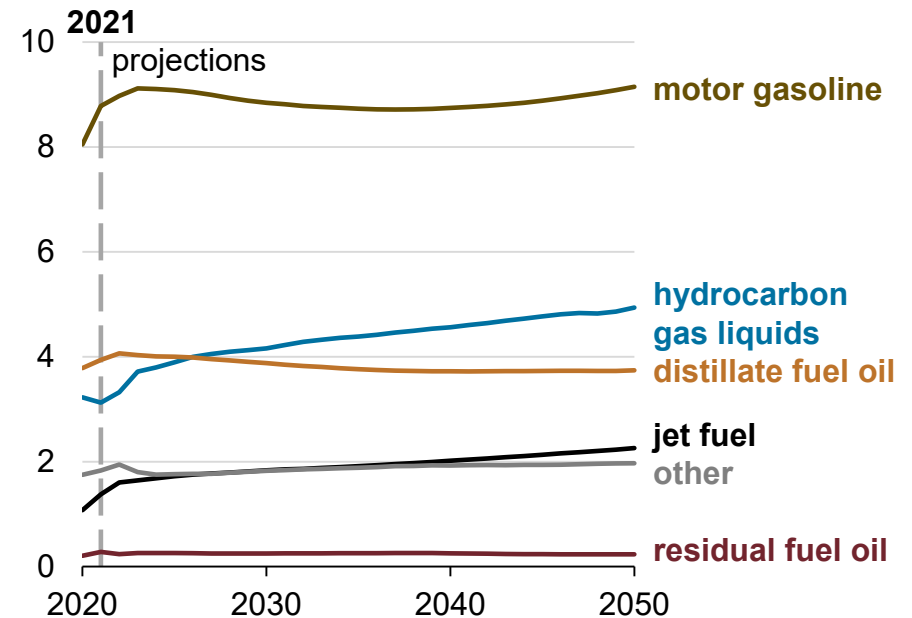


Petroleum consumption by sector and fuel type

Petroleum and other liquids consumption by sector
AEO2022 Reference case
quadrillion British thermal units



Petroleum and other liquids consumption by fuel type
AEO2022 Reference case
million barrels per day



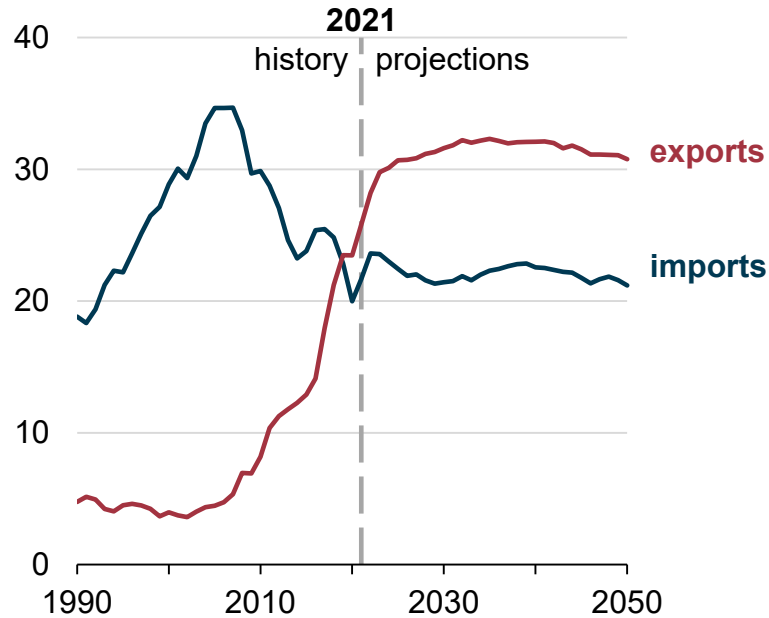


Energy imports and exports

Gross energy trade

AEO2022 Reference case

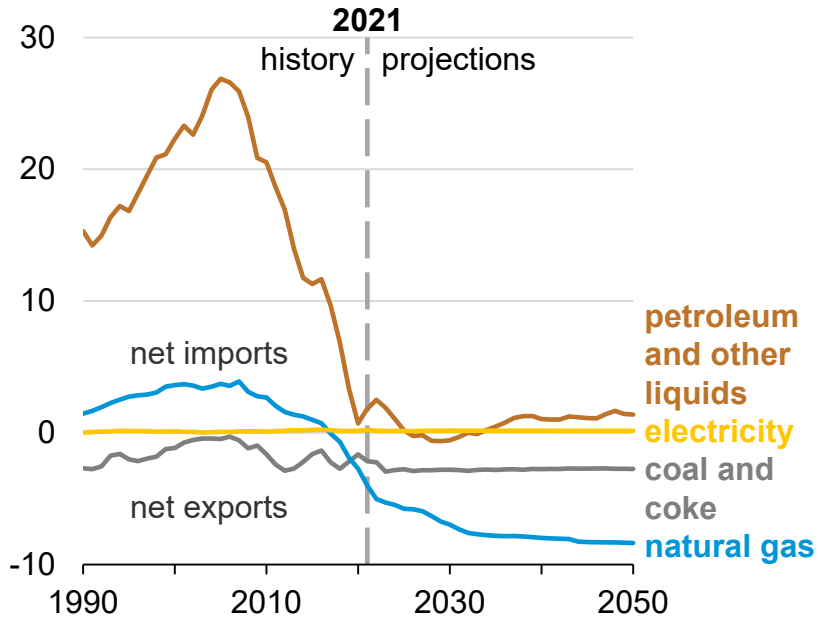
quadrillion British thermal units



Net energy imports

AEO2022 Reference case

quadrillion British thermal units



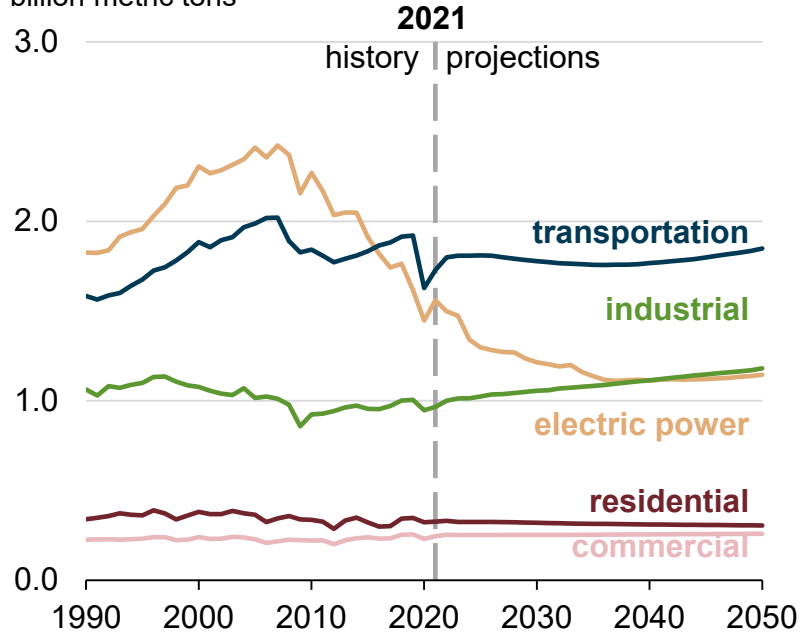


Energy-related CO₂ emissions by sector and fuel source

Energy-related CO₂ emissions by sector AEO2022

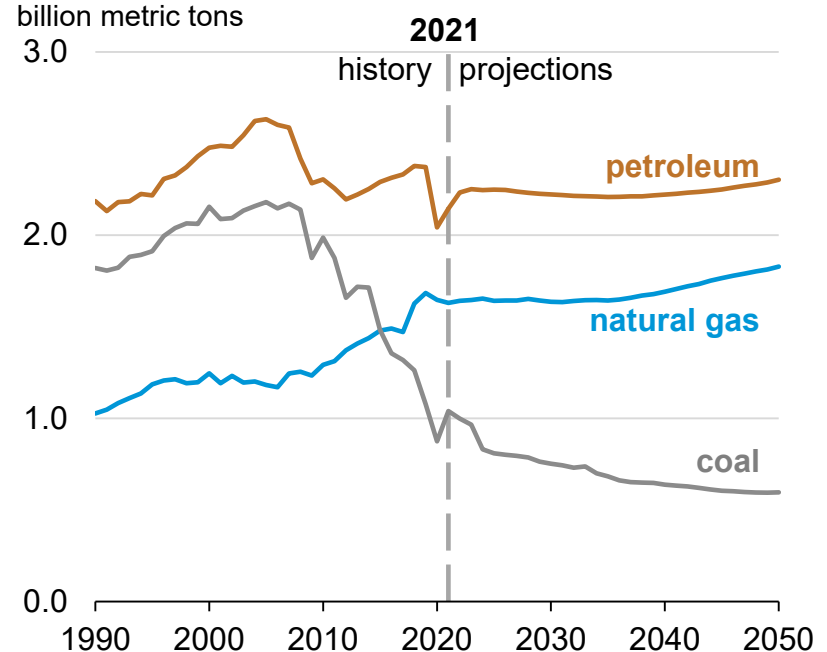
Reference case

billion metric tons



Energy-related CO₂ emissions by fuel source AEO2022 Reference case

billion metric tons



Note: Series does not include greenhouse gases other than CO₂. Industrial sector CO₂ emissions do not include process emissions, such as the emissions from cement clinker production.



Critical drivers

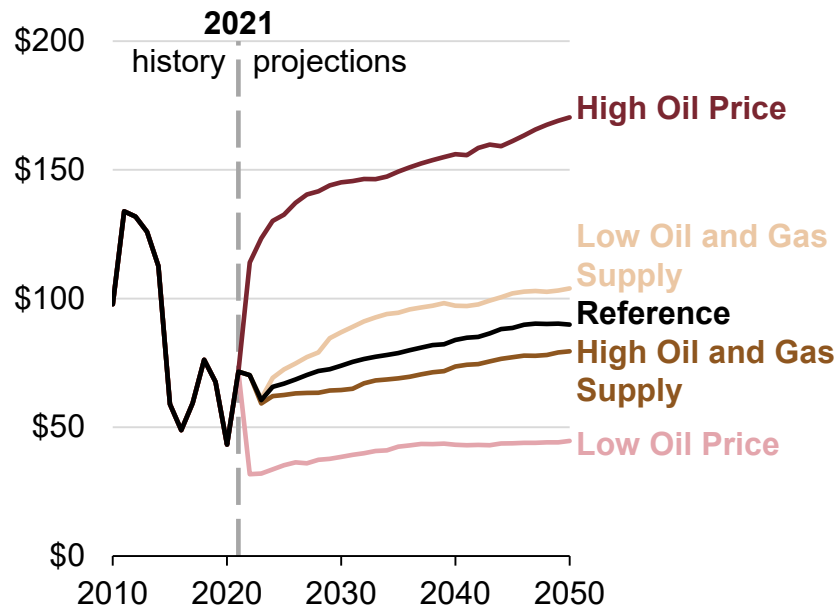


Crude oil price projections and natural gas price projections

North Sea Brent crude oil price

AEO2022 side cases

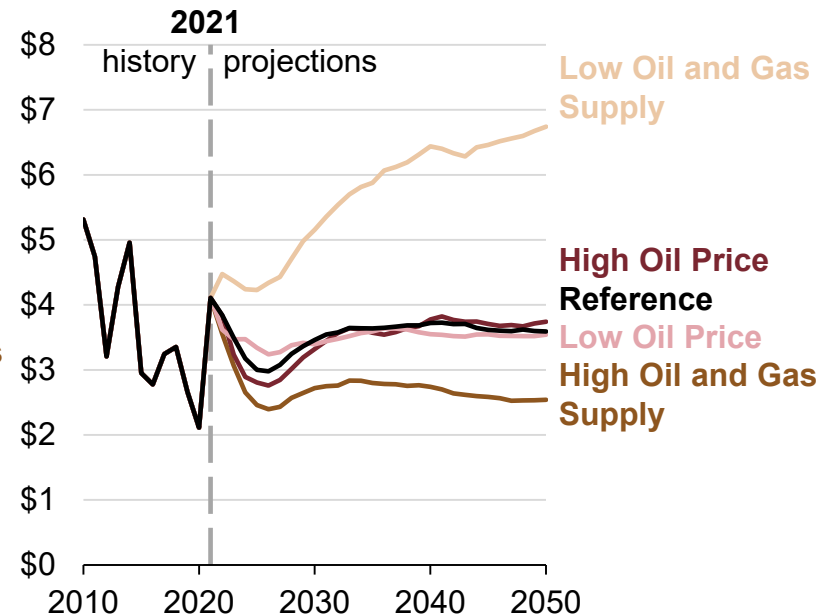
2021 dollars per barrel



Natural gas price at Henry Hub

AEO2022 side cases

2021 dollars per million British thermal units



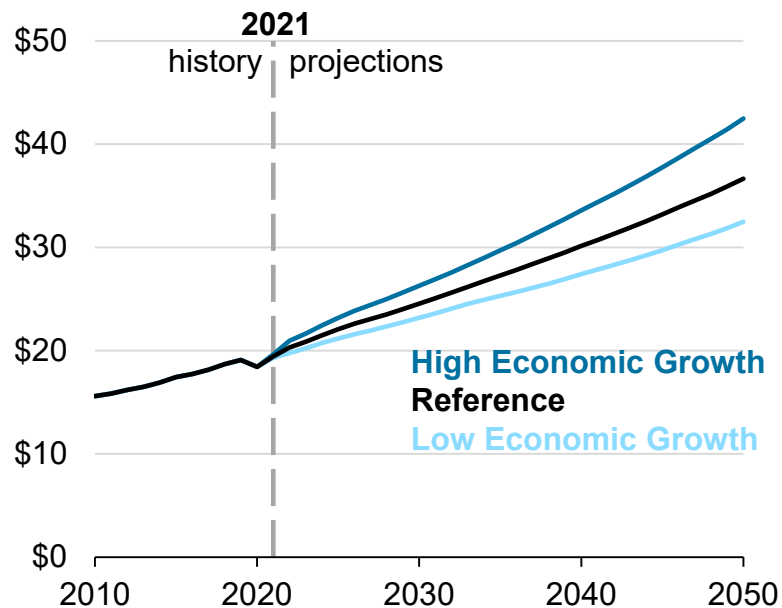


GDP and population growth assumptions

U.S. gross domestic product assumptions

AEO2022 economic growth cases

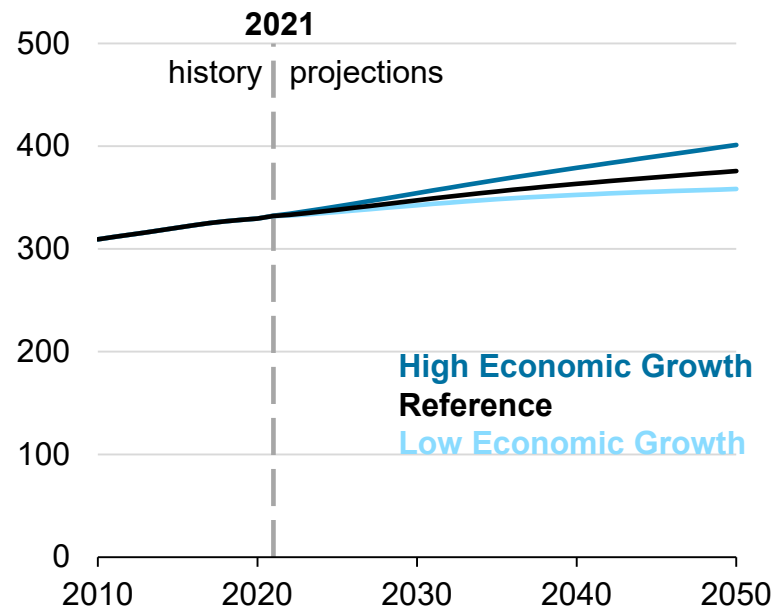
trillion 2012 dollars



U.S. population assumptions

AEO2022 economic growth cases

millions



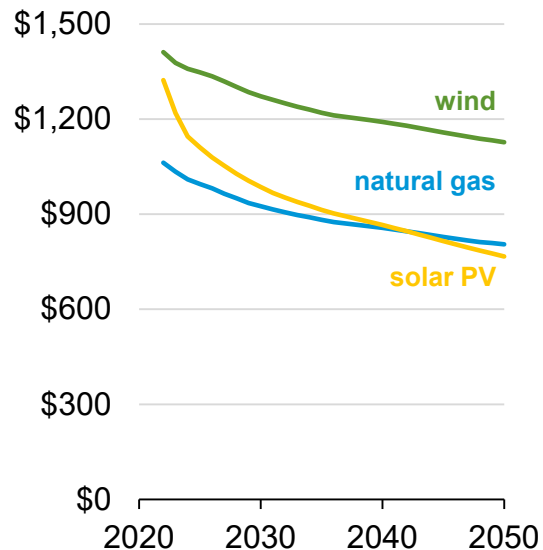


Installation cost for solar photovoltaic (PV), wind, and natural gas capacity in renewable cost cases

Overnight installation cost, AEO2022 renewables cost cases

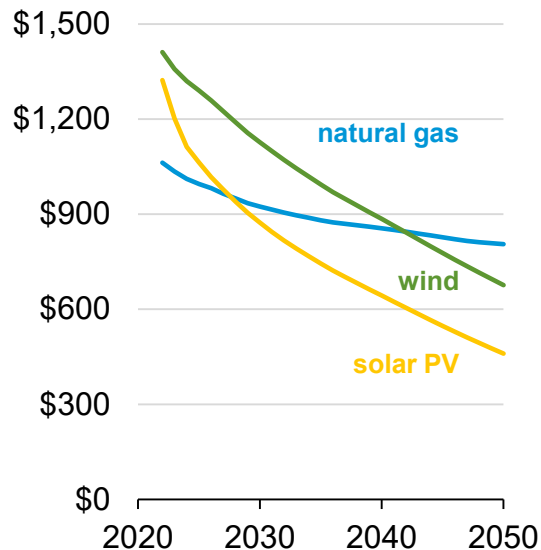
Reference case

2021 dollars per kilowatt



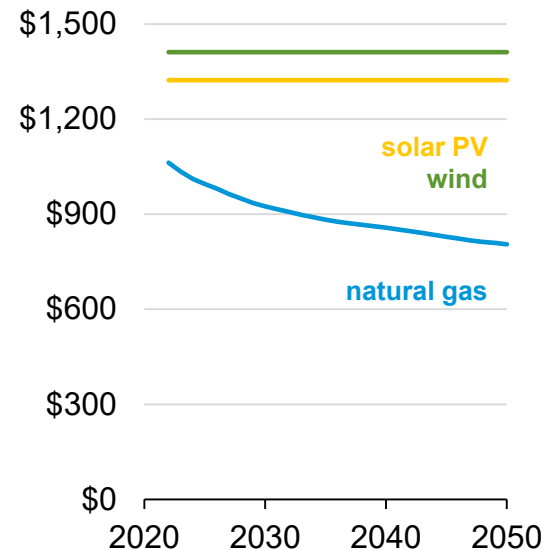
Low Renewables Cost case

2021 dollars per kilowatt



High Renewables Cost case

2021 dollars per kilowatt



Note: Series begin in 2022.

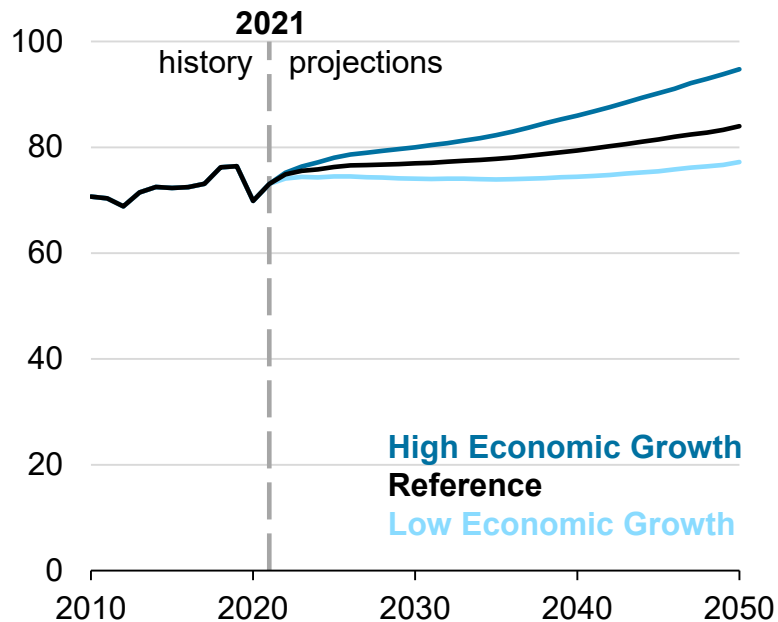


Delivered energy

Delivered energy across end-use sectors

AEO2022 economic growth cases

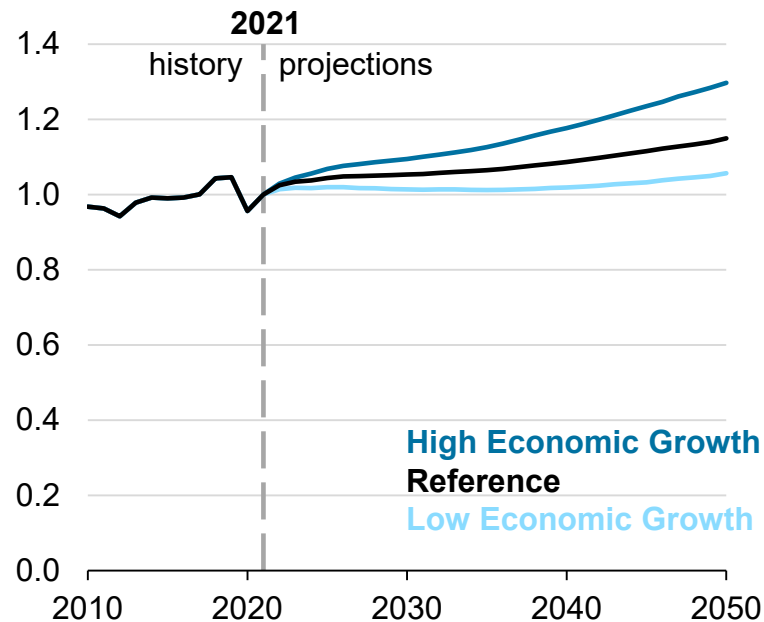
quadrillion British thermal units



Indexed delivered energy across end-use sectors

AEO2022 economic growth cases

2021 = 1.0



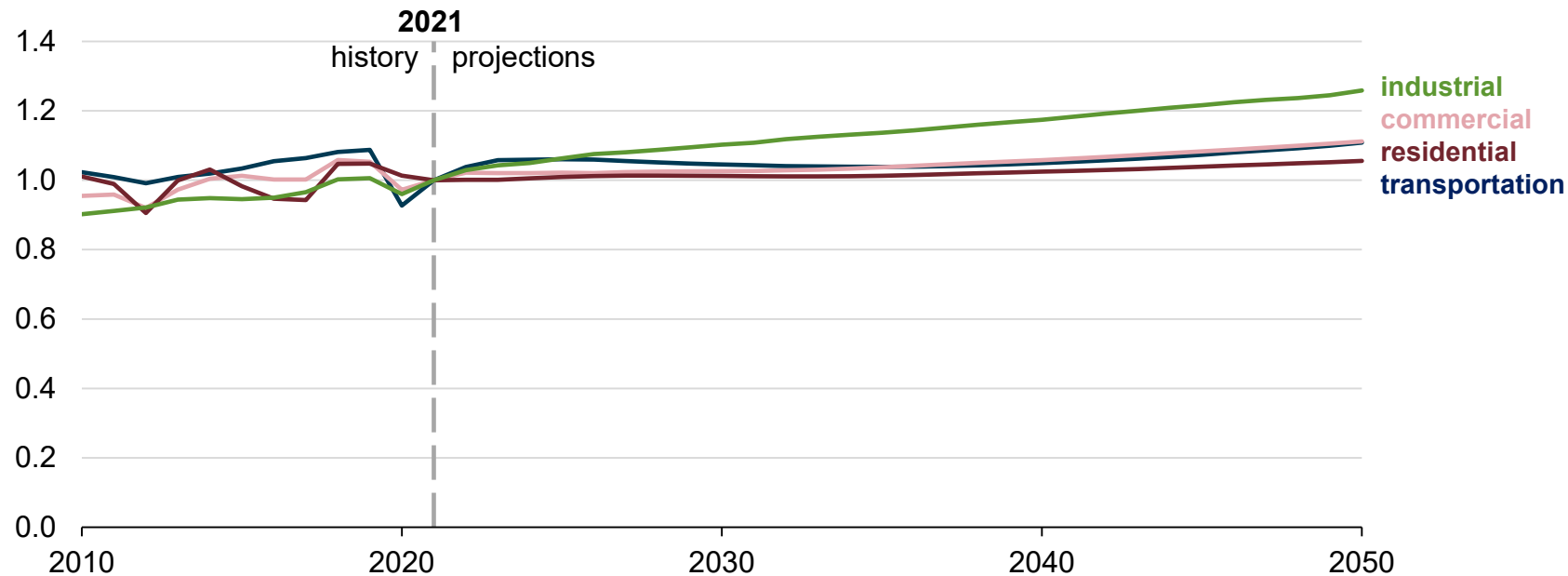


Delivered energy by end-use sector

Indexed delivered energy by end-use sector

AEO2022 Reference case

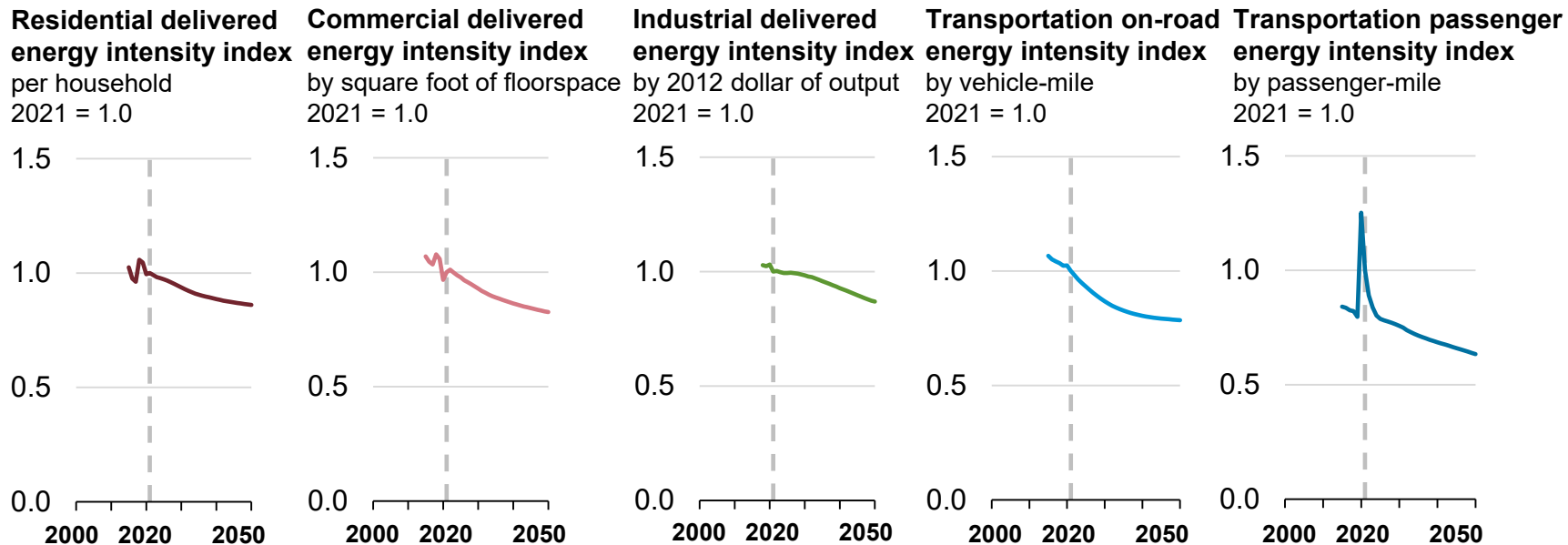
2021 = 1.0





Delivered energy intensity by sector

Indexed delivered energy intensity by sector AEO2022 Reference case



Note: Energy intensity at the end-use sector level is typically measured as energy use relative to an indicator that most directly affects delivered energy consumption within the sector (for example, energy use per household is a key energy intensity indicator for the residential sector).