

2022

Outlook for Energy

A perspective to 2050

ExxonMobil

This Executive Summary of the Outlook for Energy contains forward looking statements, including projections, targets, expectations, estimates and assumptions of future behaviors. Actual future conditions and results could differ materially due to a number of factors described in the cautionary language of the Outlook for Energy and under the heading "Factors Affecting Future Results" in the Investors section of our website at www.exxonmobil.com. For further details, see: [Legal Information | Outlook for Energy \(exxonmobil.com\)](#).

Executive summary

The 2022 Outlook for Energy is ExxonMobil's latest projection of energy supply and demand through 2050. To build the Outlook, we begin with current trends in economic development, technology, global policies and politics, and consumer behavior. Then we model how those trends might affect energy use.

The Outlook is one of several projections that help inform our long-term plans. We also consider third-party scenarios from the International Energy Agency and the U.N. Intergovernmental Panel on Climate Change, among others.



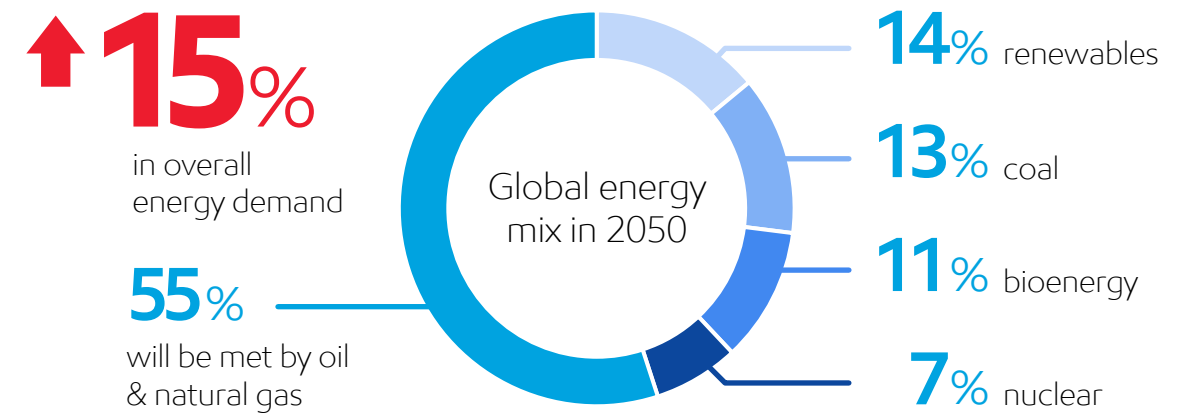
Energy's changing mix by 2050

The Outlook projects the world will use 15% more energy in 2050 than it does today. Though developed countries will become more efficient, developing countries, which represent 80% of the world's population, will use more energy as they pursue better living standards. **Many will gain access to reliable, affordable energy for the first time.**

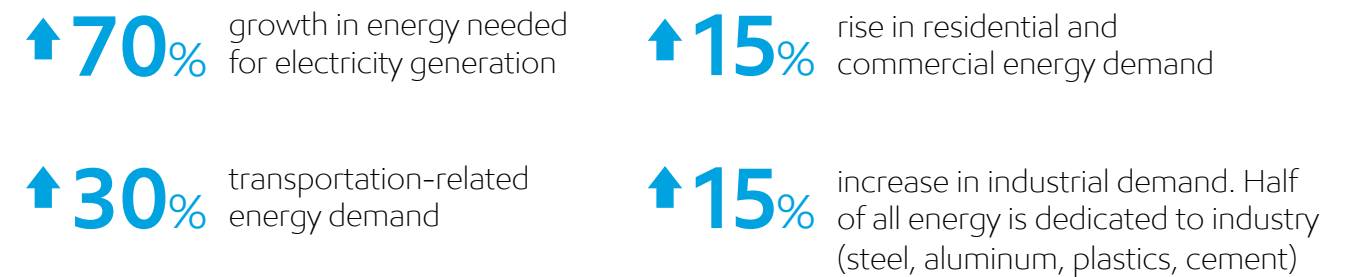
Other key projections

- All energy sources remain necessary through 2050, even in independent net-zero scenarios. The Outlook projects that oil and natural gas will account for 55% of the world's energy mix in 2050, with renewables mostly displacing coal. Natural gas demand rises, largely to help meet increasing needs for electricity and lower-emission industrial heat.
- Transportation energy demand will rise by 30% with two sectors going in opposite directions. Commercial transportation, such as trucks, ships, and airplanes, will use more oil as people become more prosperous and buy more goods. Light-duty passenger vehicles will use less oil as they become more efficient, and electric vehicles gain market share.
- Electricity demand will grow by more than 70%, with a decline in coal-fired generation and increases from other sources, including natural gas, solar, wind, and nuclear.

Energy supply by source in 2050



Energy demand by sector in 2050

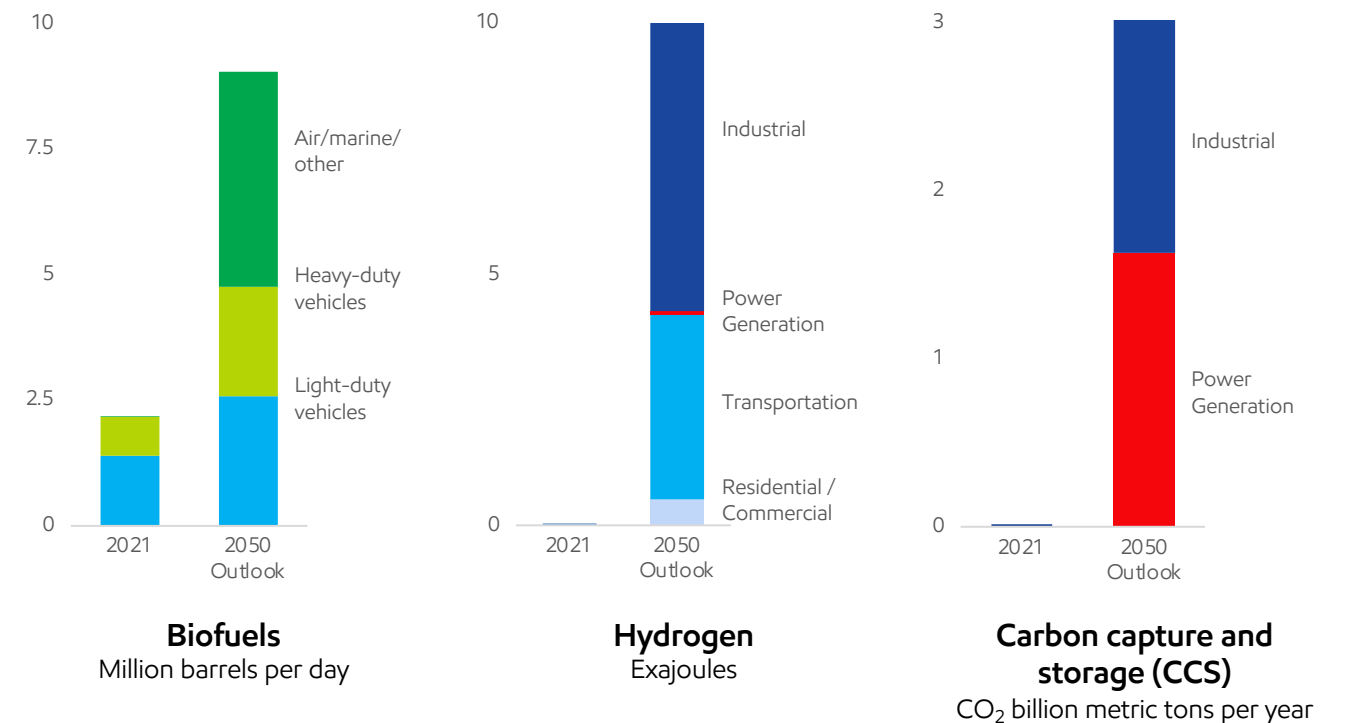


Reducing emissions with a focus on Low Carbon Solutions

In the energy transition, all net-zero carbon scenarios require society to meet its energy demands with fewer, or even negative, emissions. That will take multiple low-carbon technologies deployed at scale. ExxonMobil plans to invest \$15 billion through 2027 on initiatives to lower greenhouse gas emissions in our own operations and to deploy technologies that we believe can have great impact in industries where reducing emissions is extremely difficult:

- Carbon capture and storage collects industrial CO₂ emissions at the source and injects it deep underground for safe, permanent storage.
- Hydrogen, when coupled with carbon capture and storage technology, can generate the extreme heat needed in the industrial sector without releasing CO₂ into the atmosphere.
- Biofuels are expected to more than quadruple by 2050 and play a big part in reducing transportation emissions. They are likely to be the primary transition fuel for heavy transportation and aviation.

Biofuels, hydrogen, and CCS offer lower-emission solutions for hard-to-decarbonize sectors



Strengthening energy security and advancing the energy transition

The Outlook and other projections suggest that global energy-related emissions will peak later this decade and then begin to decline. The next 10 years will be critical to reaching climate goals, as the world is not currently on a net-zero pathway.

There is also a need for a better understanding that no scenario has a view that renewables alone can take us to net zero by 2050. Oil and natural gas will need to play a role in the energy transition.

The projections in our Outlook for Energy reinforce the view that governments, companies, and other stakeholders will have to work together to achieve the goals of the Paris Agreement. We have begun applying our advantages in scale, technology, functional excellence, and people to play a leading role in the energy transition.

For 140 years, we have been a leader in innovation, supplying products people need to live healthy, prosperous lives in an ever-changing world. We will continue to evolve to help meet the world's needs for reliable and affordable energy and products, while creating long-term value.

Explore our 2022 Outlook for Energy at [exxonmobil.com/outlookforenergy](https://www.exxonmobil.com/outlookforenergy)

