ExxonMobil

2026

Global Outlook

Executive summary

The world will change a lot by 2050, but two things will remain constant — the need for **more energy** and **lower emissions**

This year's Global Outlook has been developed as events in the Middle East have led to one of the largest energy supply shocks in history, demonstrating the undeniable need for reliable access to affordable energy. While the full impacts may not be known for years, history shows that the global energy mix has remained largely unchanged for several decades.

Our Global Outlook projects that demand for energy will increase as economies expand, incomes rise, and living standards improve, even as global emissions peak and decline.

But more work is needed.

Today, half the world's people lack access to the energy needed for housing, infrastructure, jobs, and basic human needs. And yet progress toward emissions targets lags, climate policies have fallen short, and critical technologies remain underdeveloped.

Solving the "and" equation — meeting rising energy demand and reducing emissions — does not have to be a zero sum challenge. With the right policy and advancements in technology, the world can do both.

The opportunities for progress are abundant, but nothing happens without energy.

2026 Global Outlook
Our view to 2050

Key takeaways:

Economic growth drives growing demand for energy — and all energy types are needed:

- Renewables grow the fastest.
- Coal declines the most but remains important in many countries.
- Oil and natural gas still make up >50% of the global energy mix.

Industry and commercial transport underpin the global economy and will require growing supplies of energy.[1]

Rising living standards increase energy use by 25% in developing countries.

Electricity demand will grow ~65% by 2050, driven by improved living standards in developing countries, industrial activity, data centers, and electric vehicles.

Global CO_2 emissions fall 20%. Affordability and policy set the pace.

Sustained oil and natural gas investment is more critical than ever before.

Fueling the **future**

In 2050, developing countries will use 25% more energy than today as their living standards improve and populations grow.

GLOBAL OUTLOOK PROJECTIONS

More people and more prosperity in 2050

The world's population will grow by ~1.5 billion people, almost entirely in developing countries.

Global gross domestic product (GDP) will grow ~80%. Developing nations will expand their economies twice as fast as developed nations.

Average income per person will rise ~70% globally, improving quality of life.

Right now, more than 4 billion people live in countries without enough energy to meet modern standards of living.

In addition to the subsistence-level energy needed for individual households, the total energy needed for people to meet the basic needs of human development includes access to:

- Electricity.
- Clean cooking fuels.
- Reliable infrastructure.
- Mobility.
- Jobs that drive modern economies.

Using energy to do all these things adds up — and ultimately correlates with healthier and longer lives.

SENSITIVITY ANALYSIS

Providing the energy needed for the world to universally achieve basic living standards would require nearly **20% more energy** in 2050 than our Global Outlook projects, even with significant efficiency gains.

The actual consequences of energy poverty are **profound**[1]

Health:
Higher risk of respiratory and heart disease from indoor air pollution (e.g., from cooking fuel); reduced access to quality health care, medical equipment, and vaccines

Education:
Less study time and lower school attendance as children spend more time on basic needs; health-related absences; lack of lighting, transportation, equipment, and modern learning tools

Economic:
High costs of inefficient energy sources; lost time and labor; limited access to trade and commerce; restricted mobility; lower agricultural productivity

Social:
Isolation and reduced access to information and communications; increased gender inequality as women and girls bear the greatest burden from the gathering and use of lower-quality household fuels

Any approach to reducing global emissions must address society's fundamental need for energy.

~700M **people lack access** to electricity[2]

~3M **people die every year** from illnesses caused by indoor pollution, largely associated with dirty cooking fuels such as wood, dung, and charcoal[3]

Powering the **economy**

Oil and natural gas keep economies growing

Demand for the industries and products that make modern life possible will keep growing as populations grow through 2050.

These critical sectors have specific energy needs. Renewables and electricity alone cannot reliably or cost effectively provide the extremely high heat and energy density they require.

Heavy industry and manufacturing

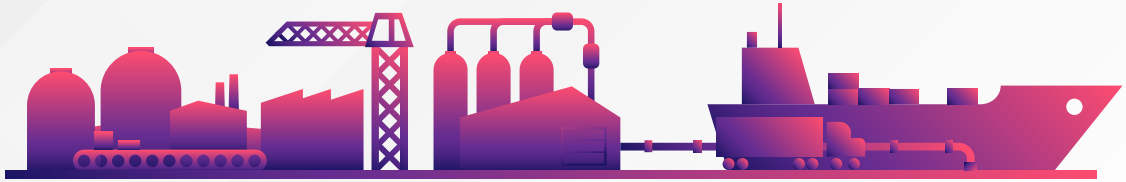
Energy-intensive products like steel, aluminum, and cement that are essential for shipbuilding, construction, and expanding critical infrastructure.

Petrochemical production

Essential components in medical supplies, food packaging, cars and trucks, and more.

Commercial transportation

How the world moves the essential goods and services that power the economy.



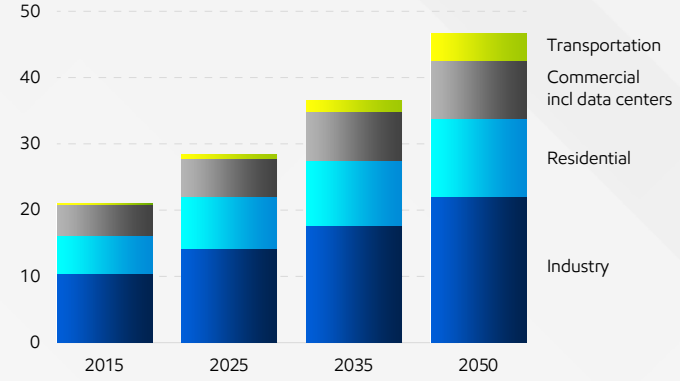
What role will electricity play?

Global electricity demand is expected to **grow 65% by 2050** (vs. 2025), driven by improving living standards in developing countries.

This growth is projected to be primarily in industry, with commercial buildings (including data centers), residential buildings, and transportation also contributing.

Global electricity demand by sector

K TWh



All energy types will be needed long term

TODAY
The global energy mix, made up mostly of traditional fuels like oil, natural gas, and coal, has remained largely constant since 2015.

2050 projections

Oil

Oil will remain the single largest part of the mix, driven by commercial transportation and industrial growth, particularly in developing economies.

We project that oil demand will reach ~105 million barrels per day in 2050, up from just over 100 million barrels per day in 2025.

Natural gas

Natural gas will continue to grow and displace coal due to its versatility and lower emissions intensity, even as many countries continue to rely on coal for energy security.

We project that natural gas demand will reach ~520 billion cubic feet per day in 2050, up from 440 billion cubic feet per day in 2025.

Lower-emission technology

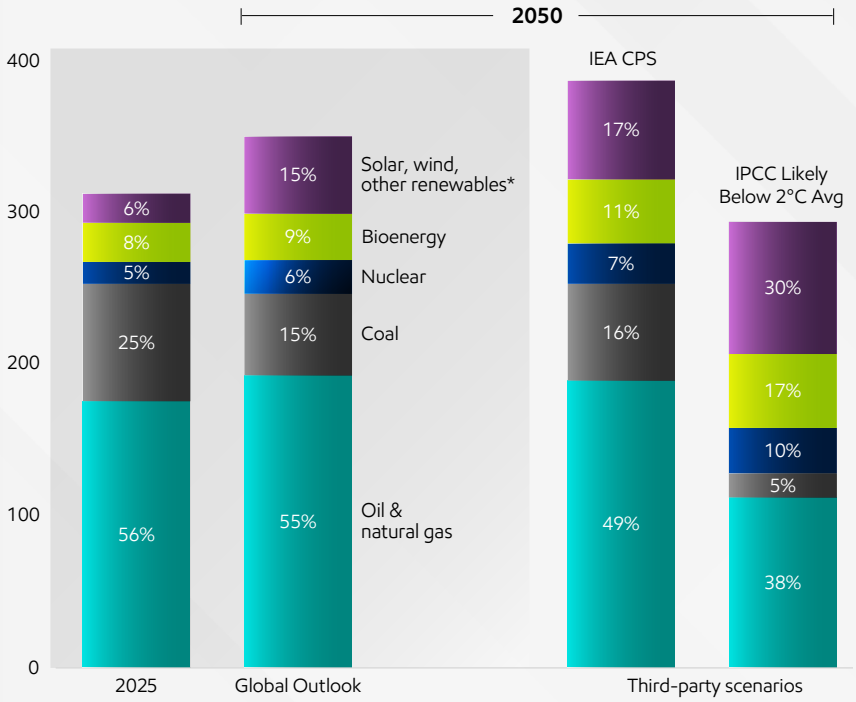
Lower-emission technologies like hydrogen, carbon capture and storage, and biofuels will become more important for industry and commercial transportation; however, the public policy needed to scale these technologies is lagging.

Electricity

Electricity from all sources will grow from ~20% of energy use today to ~30% in 2050, with renewables growing the fastest.

Even in the U.N's Intergovernmental Panel on Climate Change scenario pathways for keeping global temperature increases under 2°C, electricity only makes up ~40% of energy use by 2050.

Global energy mix
million oil-equivalent barrels per day



*Includes other non-biomass renewables including hydro and geothermal.

The International Energy Agency's Current Policies Scenario (IEA CPS) models a potential future based on a snapshot of policies and regulations that are already in place.

The U.N.'s Intergovernmental Panel on Climate Change (IPCC) models a range of hypothetical scenarios to keep global temperatures below 2°C above pre-industrial levels.

Across scenarios, oil and gas remain an important part of the energy mix through 2050.

Advancing a **lower-emission future**

Carbon emissions are expected to fall by 2050, but more progress is needed

In 2050, oil and natural gas will still make up **more than half of the world's energy supply**. But the world will also use more lower-emission technologies than it does today. This increase will help drive down emissions by 2050, even as energy demand grows.

Efficiency improvements and renewables are necessary but not a complete solution — all technologies must be on the table.

By 2050, CO_2 emissions are expected to fall ~20%, driven by efficiency improvements and a shift toward lower-emission solutions.

	2025 levels	Global Outlook 2050 projected levels	Level needed to meet global climate goals in 2050 (according to IPCC)**
Global CO_2 emissions*	36 billion metric tons	30 billion metric tons	11 billion metric tons
Solar energy	2,500 TWh	11,500 TWh ~5x today	22,000 TWh ~9x today
Carbon capture and storage	30 MMT CO_2	2,000 MMT CO_2 ~70x today	7,000 MMT CO_2 ~230x today
Hydrogen	2 MTA	55 MTA ~30x today	170 MTA ~100x today

* Energy-related CO_2 emissions
** IPCC: AR6 Scenarios Database hosted by IIASA release 1.0 average IPCC C3: "Likely below 2°C" scenarios

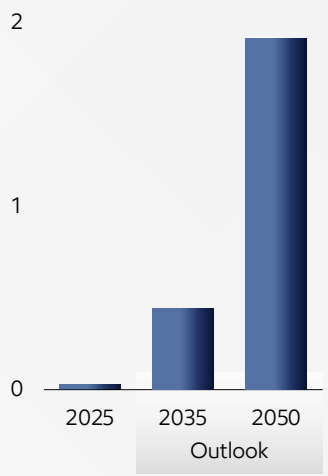
It will take **all solutions** to accelerate reductions in global emissions

Today, technologies like carbon capture and storage, low-carbon hydrogen, and biofuels are nowhere near reaching their full potential to reduce emissions on a global scale.

With rational and constructive policies and advancements in technology, these solutions will help move society closer to achieving its climate goals.

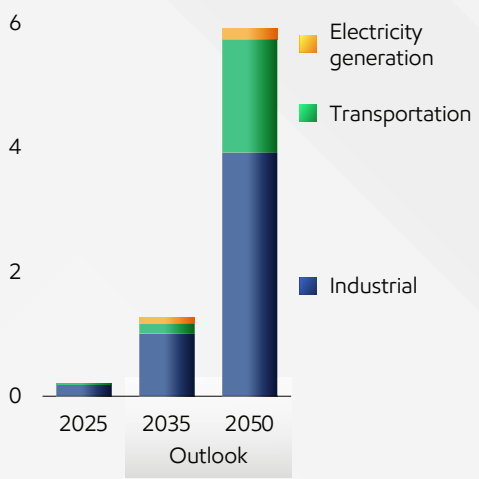
Carbon capture and storage

CO_2 billion metric tons per year



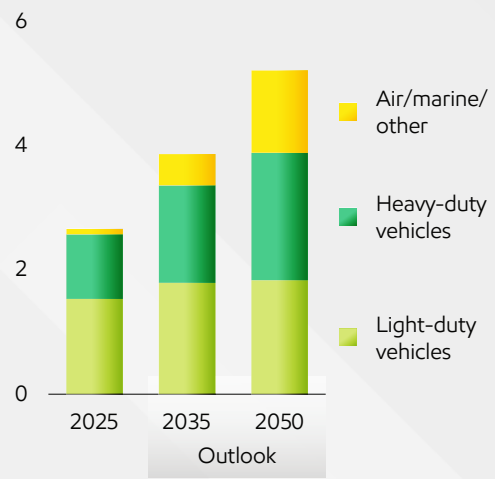
Low-carbon hydrogen

Quadrillion Btu



Biofuels

Million barrels per day of oil equivalent



A proven and safe technology that captures CO_2 emissions at the source and permanently stores them deep underground. One of the few proven technologies to help reduce emissions in critical, hard-to-decarbonize industrial sectors.

Hydrogen generates water vapor when combusted — and no CO_2. Expected to become a key for replacing traditional furnace fuel. Has potential to lower emissions when used in commercial transportation in the long term.

A lower-emission alternative to fossil fuels when combusted. Expected to become especially important in aviation, where batteries are too heavy to be feasible.

Affordability is the primary obstacle to faster global emissions reductions

In today's world, most lower-emission technologies are expensive. That's part of the reason why today's efforts to reduce emissions have fallen behind ambition.

Alternative fuels for heavy trucking are **>1.5x more expensive** than traditional fuels.[1]

Sustainable aviation fuel is **3x more expensive** than traditional jet fuel.[2]

Lessons from Europe

Under the EU's high-regulation, high-cost approach to lowering emissions:

- Industrial production, a critical sector in Europe's economy, is declining.[3]
- Energy prices in heavy industry and commercial transportation are rising.[4]

This trend is not slowing. If anything, it's accelerating, as a growing number of stringent regulations — including new methane measurement, reporting, and verification rules — risks undermining the EU's energy security.[5]

As a result, public support for lower-emissions technology needed to reach EU climate goals is also wavering.[6]

Higher energy costs affect everyone — in every economy.

When consumers lose confidence in the economy, they also lose confidence in social and political institutions. When a political administration enacts a policy that makes energy too expensive, it risks losing the support of the electorate. If the lower-emission solutions lose electoral support, global emission-reduction ambitions will grow further out of reach.

The opposite is also true. When lower-emission options are cost competitive, they are more readily adopted. This is where technology-neutral and market-forming policies can help, because when governments avoid picking winners and losers, companies can develop and deploy a full range of solutions.

Ineffective policy that **drastically raises costs** for consumers and businesses is another obstacle to reducing emissions and meeting society's energy needs

Public policy support

Policy should be designed to avoid energy price spikes that will shake consumer confidence. Instead, policy frameworks should support all solutions and focus on reducing carbon intensity of energy and products, rather than constraining supply. Policies that unnecessarily raise cost by increasing tax burdens or otherwise reduce financial support constrain supply below the point needed to meet demand. This can drive up costs for everyone and create unnecessary energy shortages.

Technology advancements

Policy works best when it works in tandem with innovation, so progress toward one objective doesn't undermine another. Accelerating deployment of lower-emission solutions and meeting global energy needs requires an "all of the above" approach supported by technology-neutral policy. Over time, this will reduce technology costs, further improving affordability.

Market-driven solutions

Where no market exists and initial costs are high, incentives are helpful. But governments should only use them as a bridge to market-driven incentives. Markets select the most cost-effective technologies for companies and consumers. One fundamental requirement for any market to work is a transparent and consistent carbon emissions accounting system, where participants can evaluate both the cost and carbon intensity of products and energy.

Effective policy recognizes that reliability and affordability are foundational — not trade offs.

Climate and energy-related policies have proliferated in the two decades since the Kyoto Protocol was adopted, and they accelerated even more after the Paris Agreement in 2015.

- The International Energy Agency tracks more than 10,000 climate policies in effect today.[1]
- Hundreds of new policies are adopted every single year.

Yet global energy-related CO_2 emissions rose 1% in 2025[2], a rate unchanged from the 20-year average.

Clearly, a different policy approach is needed.

Changes in the world's energy mix **are coming**

Global Outlook projections

Renewables are projected to grow the most.

Solar and wind will grow from 3% today to more than 11% of the world's energy mix by 2050.

Demand for natural gas will grow significantly.

Growing electricity demand and industrial activity in developing countries will drive an ~20% increase in natural gas, which emits much less CO_2 than coal.

Coal use will decline the most.

By 2050, the world will use 30% less coal than it does today, as it's replaced by renewables and natural gas.

But it will remain an essential part of the energy mix in many countries.

Electricity demand will expand, a lot.

Electricity demand will grow ~65% by 2050, driven by improved living standards in developing countries, industrial activity, data centers, and electric vehicles.

Commercial transportation and industrial activity will make up ~45% of emissions in 2050 (up from ~40% today).

To decarbonize these sectors, the world will have to develop lower-emission technologies beyond renewables such as biofuels, CCS, and hydrogen.

Oil production remains essential.

Most of the world's oil is used for things other than gasoline for cars – including commercial transport and industry.

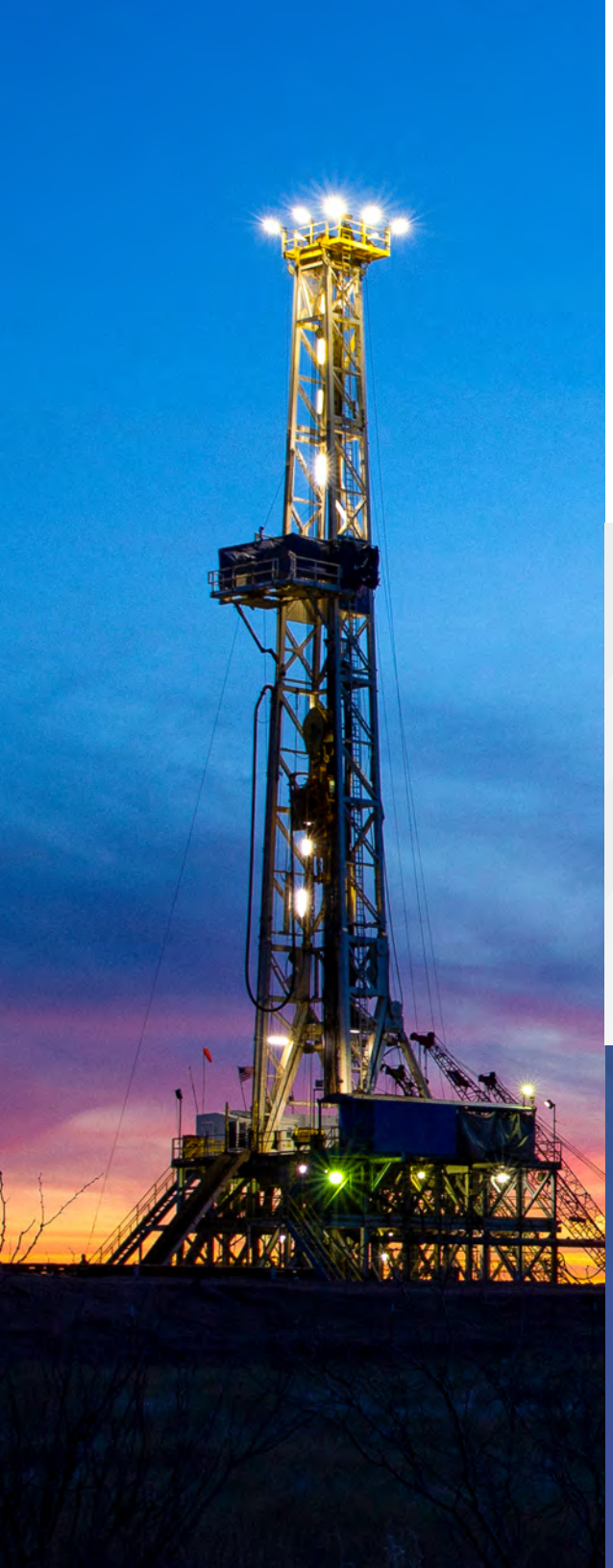
Gasoline demand will shrink by ~15%, but oil will still be ~30% of the global energy mix in 2050.

Oil and natural gas remain essential to meet the world's energy needs.

We project that oil and natural gas will make up more than half of the global energy mix in 2050, driven by the demand for energy in manufacturing, plastics and other chemicals, and heavy-duty transport.

Oil demand is projected to stabilize after 2030, remaining above 100 million barrels per day through 2050. Demand for natural gas, however, will rise by ~20% — driven by higher industrial activity and electricity demand.

All major credible scenarios include oil and natural gas as a dominant energy source in 2050. Even in the average IPCC Likely Below 2°C scenarios, where non-biomass renewables will grow to 30%, oil and natural gas will still make up more than a third of the energy mix.



Sustained oil and gas investment gets **more important** every year

SENSITIVITY ANALYSIS

Oil supply declines with no new investment

Our Global Outlook estimates oil production naturally declines at a rate of about 15% per year. This decline rate reflects the world's shift toward "unconventional" sources of oil supply, which are produced mainly from shale and dense rock formations that have a faster rate of decline versus other sources.

What would happen with no new investment? If all investment stopped today, no more capital was deployed, and producers simply squeezed what they could from existing wells, global oil supply would fall short of demand by about 80 million barrels a day in the next ten years.

As our Outlook shows, sustained investment in oil and natural gas development is needed to meet the world's needs. This is true even as companies like ExxonMobil invest billions to lower greenhouse gas emissions in their products, their operations, and for their customers.

The Global Outlook is a projection. It is also a **call to action**

The Global Outlook is not an endorsement of a particular outcome. Different outcomes are possible as the conditions that shape global investment and deployment evolve. But ambitions untethered from scientific, economic, and operational reality are ineffective at best and harmful at worst.

Meeting society's needs requires more secure, affordable energy and fewer emissions at the same time. Passing laws designed to reduce supply ignores economic impact, emphasizing the desire to reduce emissions over the needs of the wider economy. Doing both — **increasing energy supply and reducing emissions** — is the only reasonable plan.

To do it, the world needs advancements in technology and markets supported by rational, constructive policy — free from ideology — that:

Delivers stability

Delivers **stability and predictability** for long-lived investments so that energy needs are met.

Enables competition

Enables **technology-neutral** competition that avoids picking winners and losers so that companies can develop and deploy a full range of strategies and products.

Activates markets

Activates markets and aligns incentives using frameworks such as **product-level carbon-intensity standards** informed by ledger-based carbon emissions accounting.

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How we develop the Global Outlook

Our Global Outlook is our latest view of demand and supply for energy and products through 2050. It forms the basis for the company's business planning and is scientifically grounded in our deep understanding of long-term market fundamentals.

In addition to assessing trends in economic development, technology advances, and consumer behavior, the Outlook seeks to identify potential impacts of climate-related and other government policies.

The Outlook is a projection, helping to inform decisions by highlighting the future that appears most probable. It is not an endorsement of a particular outcome. Key unknowns include yet-to-be developed government policies, international relations, and advancements in technology that may influence the cost, pace, and potential availability of certain pathways. What also remains uncertain is how quickly and to what extent businesses and consumers will be willing to pay for deeper carbon reductions in the products and services they use.

We consider a range of scenarios — including those we view as remote — to help inform strategic thinking. Because the energy system will be influenced by many uncertainties, no single pathway can be reasonably predicted.

Many scenarios start with a hypothetical outcome in mind and then apply the necessary assumptions, regardless of cost. These scenarios can provide an illustration of the multitude of possible pathways to achieve alternative outcomes and ambitions, but they serve a different purpose than the real-world view of the Outlook.

Legal information

The "Global Outlook" portion of the website is an interactive version of the Company's 2026 Global Outlook. Some of the hyperlinks embedded in this section link to other parts of the Outlook, and some take the reader to other articles and information on the Company's website.

Cautionary statement

The Global Outlook includes ExxonMobil Holdings Corporation's internal estimates of both historical levels and projections of challenging topics such as global energy demand, supply, and trends through 2050 based upon internal data and analyses as well as publicly available information from many external sources including the International Energy Agency. Separate from ExxonMobil's analysis, we discuss a number of third-party scenarios such as the Intergovernmental Panel on Climate Change Likely Below 2°C and the International Energy Agency scenarios. Third-party scenarios discussed in this report reflect the modeling assumptions and outputs of their respective authors, not ExxonMobil, and their use and inclusion herein is not an endorsement by ExxonMobil of their results, likelihood, or probability. Work on the Outlook and report was conducted during 2025 and 2026. The report contains forward-looking statements, including projections, targets, expectations, estimates, and assumptions of future behaviors. Actual future conditions and results (including but not limited to energy demand, energy supply, the growth of energy demand and supply, the impact of new technologies, the relative mix of energy across sources, economic sectors and geographic regions, imports and exports of energy, emissions, and plans to reduce emissions) could differ materially due to changes in a number of factors, including: economic conditions, the ability to scale new technologies on a cost-effective basis, unexpected technological developments, the development of new supply sources, changes in law or government policy, political events, demographic changes and migration patterns, trade patterns, trade tariffs and trade sanctions, the development and enforcement of global, regional or national mandates, changes in consumer preferences, escalating geopolitical volatility, including regime changes, war, civil unrest, and other political or security disturbances, including disruption of land or sea transportation routes, decoupling of economies, realignment of global trade and supply chain networks, and disruptions in military alliances and other factors discussed herein and under the heading "Factors Affecting Future Results" in the Investors section of our website at https://corporate.exxonmobil.com/

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Footnotes

Page 2 [1] The World Bank: World Development Indicators https://wdi.worldbank.org/table/4.2 (accessed July 2026)

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