The Outlook for Energy includes ExxonMobil Corporation’s internal estimates of both historical levels and projections of energy demand, supply, and trends through 2040 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 include a number of third party scenarios such as the EMF 27 scenarios and the IEA’s Sustainable Development Scenario. Third-party scenarios discussed in this report reflect the modeling assumptions and outputs of their respective authors, not ExxonMobil, and therefore do not reflect ExxonMobil’s views or likelihood. Work on the Outlook and report was conducted during 2018 and the first half of 2019. The report contains forward looking statements, including projections, targets, expectations, estimates and assumptions of future behaviors. Actual future conditions and results (including 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 and other related materials due to changes in 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, the development and enforcement of global, regional or national mandates, and other factors discussed herein and under the heading “Factors Affecting Future Results” in the Investors section of our website at www.exxonmobil.com. This material is not to be used or reproduced without the permission of ExxonMobil Corporation. All rights reserved.
Global energy mix shifts to lower-carbon fuels

Global energy mix
Quadrillion BTUs

- Oil
- Natural gas
- Coal
- Electricity
- Other renewables
- Nuclear
- Wind/Solar

Percent of primary energy (%)

- Other renewables
- Wind/Solar
- Nuclear
- Natural gas
- Oil
- Coal

Electricity

Quadrillion BTUs

2017

2040
Emissions vary with policy and technology assumptions

**Global energy-related CO\textsubscript{2} emissions**

Billion tonnes

EMF27-FT cases include CO\textsubscript{2} emissions from energy and industrial processes

EMF27 full technology scenarios data downloaded from: https://secure.iiasa.ac.at/web-apps/ene/AR5DB
Technology key to reducing societal costs of 2°C pathway

2017 energy-related direct CO₂ emissions by sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>OECD</th>
<th>Non OECD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential/Commercial</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Light-duty transportation</td>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Commercial transportation</td>
<td>3.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Industrial</td>
<td>5.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Power generation</td>
<td>4.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Technology Breakthrough Opportunities

- Power grid reliability & long-duration storage: Batteries, chemical storage, hydrogen
- Lower-carbon commercial transport: algae & cellulosic biofuels, fuel cells, batteries
- Lower-carbon industrial processes: carbon capture, hydrogen, process intensification
- Advanced, less carbon-intensive materials for efficient buildings and infrastructure
- Negative emissions: bioenergy with carbon capture, direct air capture, CO₂ utilization
ExxonMobil technology investments

• Long-standing commitment to fundamental science, research and development
• Developing breakthrough technologies
  – Transportation: advanced algae and cellulosic biofuels
  – Power generation: economically-competitive carbon capture
  – Manufacturing: lower-emission processes and catalysts
• Leveraging partnerships with universities, U.S. national labs, venture funds, and private companies
• Continuous monitoring and routine assessments of external developments
Assessed 2°C scenarios: 2040 global energy mix

EMF27 full technology scenarios data downloaded from: https://secure.iiasa.ac.at/web-apps/ene/AR5DB

*IEA WEO 2018 SDS includes CCS but breakdown by energy type is not readily identifiable
Supply / demand gap warrants investment

Global oil supply and demand
MBDOE

- High demand based on assessed 2ºC scenarios
- Average demand based on assessed 2ºC scenarios
- Low demand based on assessed 2ºC scenarios

Decline without investment

New supply required

Global natural gas supply and demand
BCFD

- High demand based on assessed 2ºC scenarios
- Average demand based on assessed 2ºC scenarios
- Low demand based on assessed 2ºC scenarios

Decline without investment

New supply required

Excludes biofuels; Source: IEA, EM analyses
Assessed 2ºC scenarios based on EMF27 full technology/450ppm cases targeting a 2ºC pathway

Source: IHS, EM analyses
Assessed 2ºC scenarios based on EMF27 full technology/450ppm cases targeting a 2ºC pathway
EXXONMOBIL 2019 OUTLOOK FOR ENERGY

Supply / demand gap warrants investment

Global oil supply and demand
MBDOE

Outlook demand
- High demand based on assessed 2°C scenarios
- Average demand based on assessed 2°C scenarios
- Low demand based on assessed 2°C scenarios

Decline without investment

New supply required

Global natural gas supply and demand
BCFD

Outlook demand
- High demand based on assessed 2°C scenarios
- Average demand based on assessed 2°C scenarios
- Low demand based on assessed 2°C scenarios

Decline without investment

New supply required

Excludes biofuels; Source: IEA, EM analyses
Assessed 2°C scenarios based on EMF27 full technology/450ppm cases targeting a 2°C pathway

Source: IEA, EM analyses
Assessed 2°C scenarios based on EMF27 full technology/450ppm cases targeting a 2°C pathway
### ExxonMobil CAPEX profile and plans

<table>
<thead>
<tr>
<th>Segment ('19-'20 CAPEX)³</th>
<th>Focus Areas</th>
<th>April 2019 Update⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UPSTREAM</strong> ($46-48 billion)</td>
<td><strong>GUYANA</strong>¹</td>
<td>~5.5 Boeb; 750 Kbd by 2025</td>
</tr>
<tr>
<td></td>
<td><strong>BRAZIL</strong></td>
<td>2.3 million net acres</td>
</tr>
<tr>
<td></td>
<td><strong>PERMIAN</strong>²</td>
<td>&gt;1,000 Koebd by 2024</td>
</tr>
<tr>
<td></td>
<td><strong>LNG</strong></td>
<td>PNG, Mozambique, Golden Pass</td>
</tr>
<tr>
<td><strong>DOWNSTREAM</strong> ($9 billion)</td>
<td><strong>LOGISTICS</strong></td>
<td>Permian infrastructure</td>
</tr>
<tr>
<td></td>
<td><strong>REFINING</strong></td>
<td>Start up 6 major investments by 2025</td>
</tr>
<tr>
<td><strong>CHEMICAL</strong> ($8 billion)</td>
<td><strong>PROJECTS</strong></td>
<td>13 new facilities, 7 online by YE 2018</td>
</tr>
<tr>
<td></td>
<td><strong>SALES</strong></td>
<td>Deliver 30% growth by 2025</td>
</tr>
</tbody>
</table>

¹ Guyana volumes and resource gross
² Permian volumes net
³ 2019-2020 CAPEX profile from 2019 Investor Day presentation
⁴ See 2019 Investor Day presentation for details and supplemental information