



## 2018 Outlook for Energy: A View to 2040

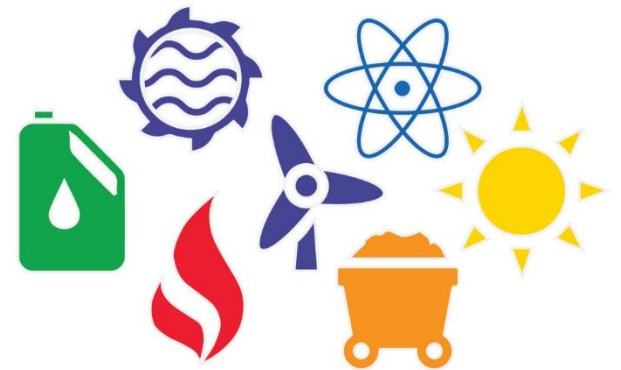
*The Outlook for Energy* includes Exxon Mobil Corporation's internal estimates and forecasts of energy demand, supply, and trends through 2040 based upon internal data and analyses as well as publicly available information from external sources including the International Energy Agency. Work on the report was conducted throughout 2017. This presentation includes forward looking statements. Actual future conditions and results (including energy demand, energy supply, the relative mix of energy across sources, economic sectors and geographic regions, imports and exports of energy) could differ materially due to changes in economic conditions, technology, the development of new supply sources, political events, demographic changes, and other factors discussed herein and under the heading "Factors Affecting Future Results" in the Investors section of our website at [www.exxonmobil.com](http://www.exxonmobil.com). This material is not to be used or reproduced without the permission of Exxon Mobil Corporation. All rights reserved.

S. Beau Waldrup

May 16, 2019

# The energy equation

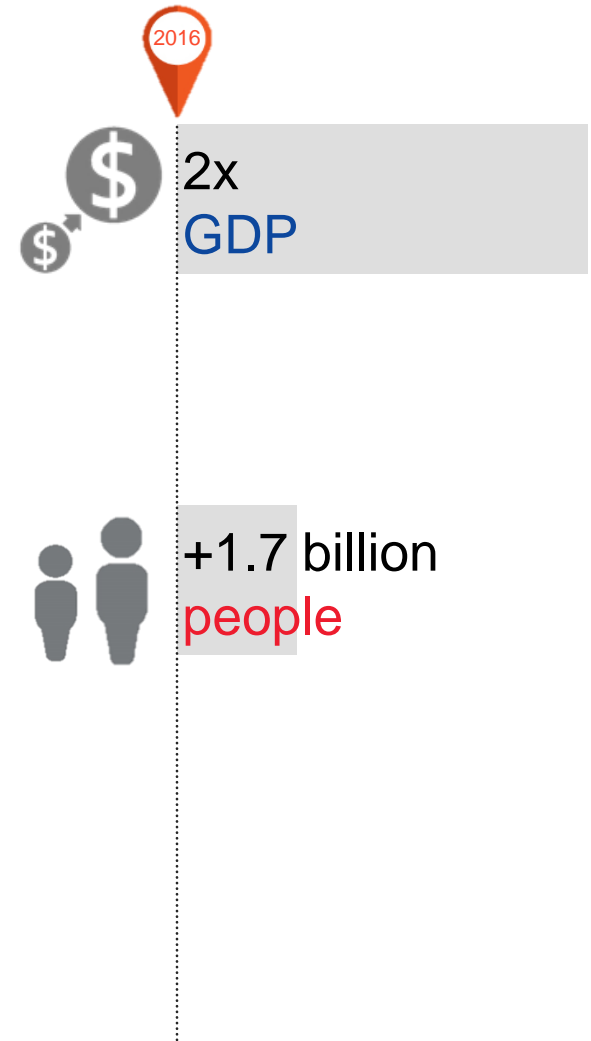
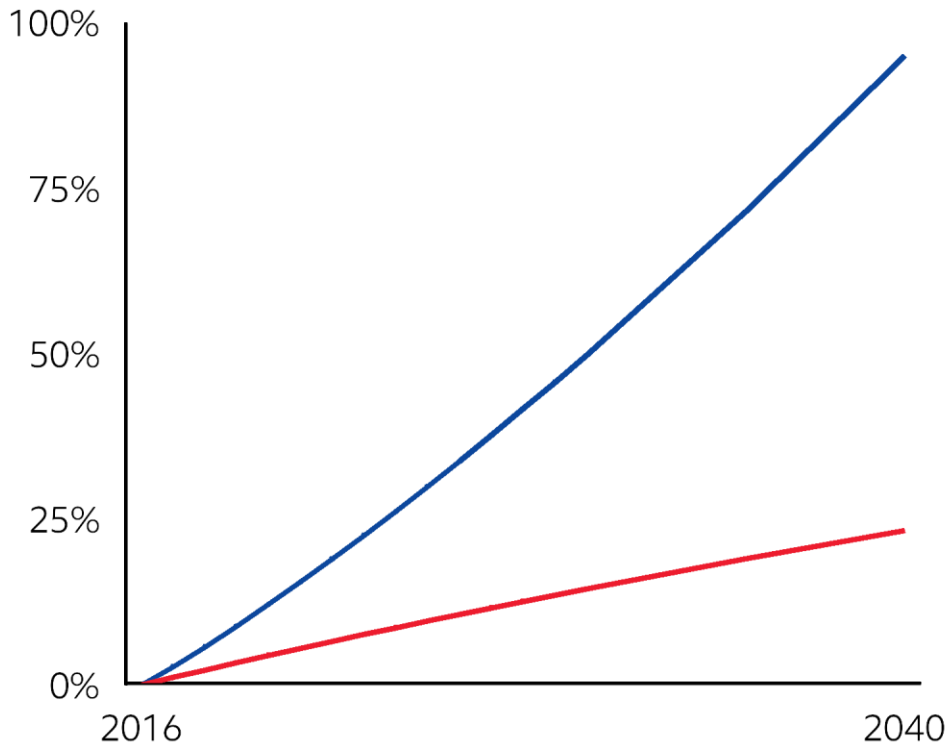
People  $\times$  living standards = energy needs



# Global trends continue to evolve

Growth from 2016 level

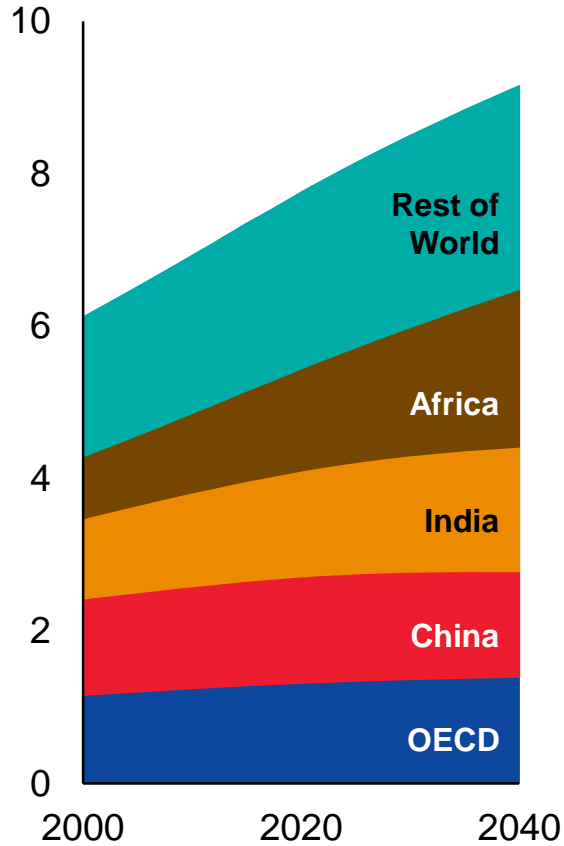
Percent



# Energy Drivers – Population & Households

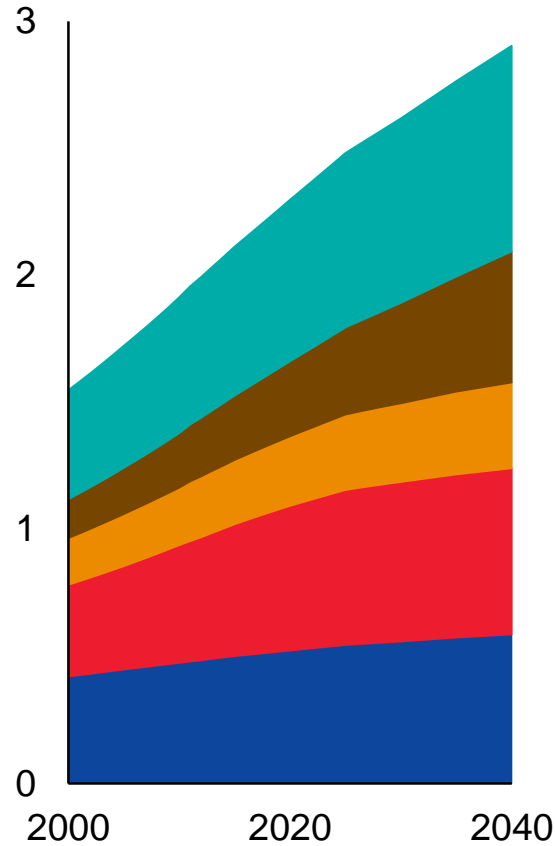
**Population**

Billion



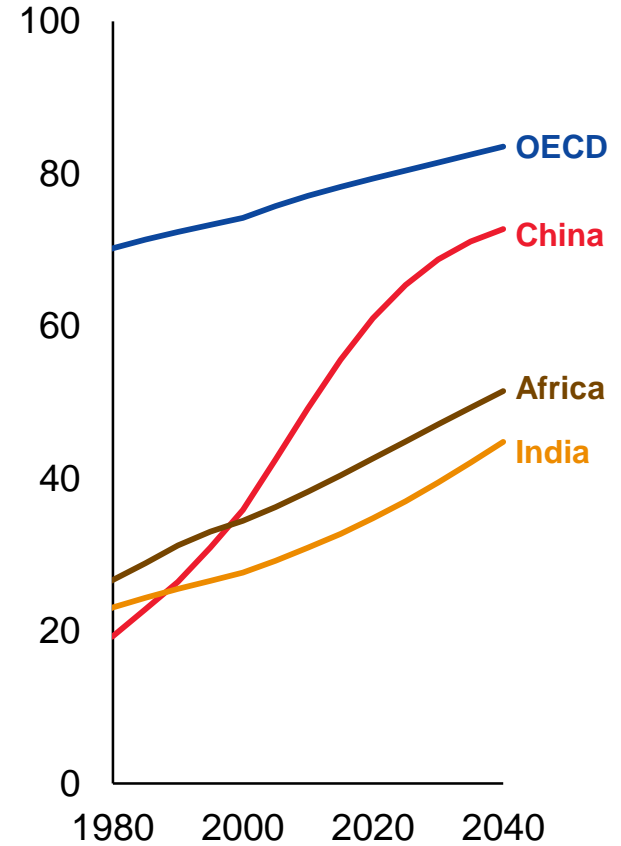
**Households**

Billion



**Urbanization**

% Population



Source: United Nations

# Demographic Shifts Alter Demand Profile

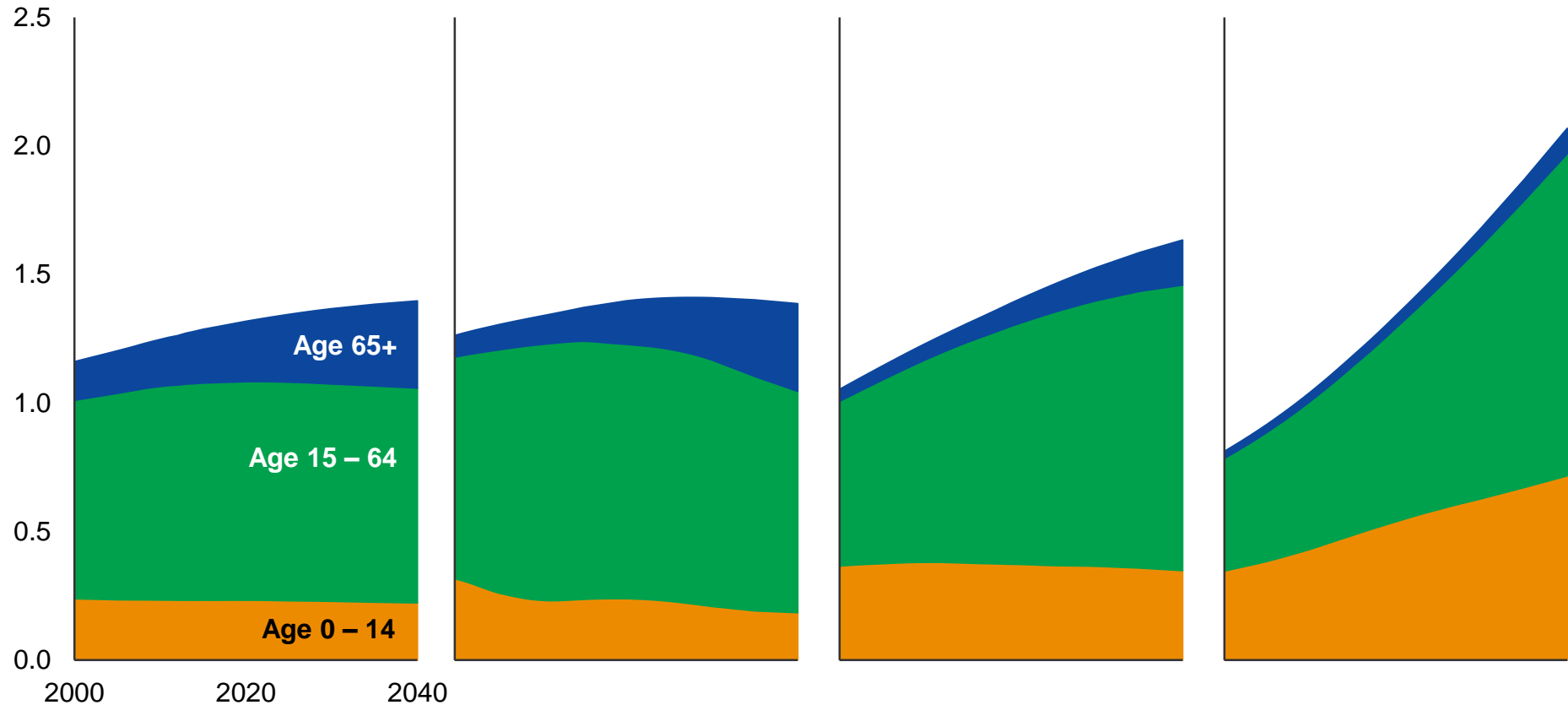
Billion People

**OECD**

**China**

**India**

**Africa**

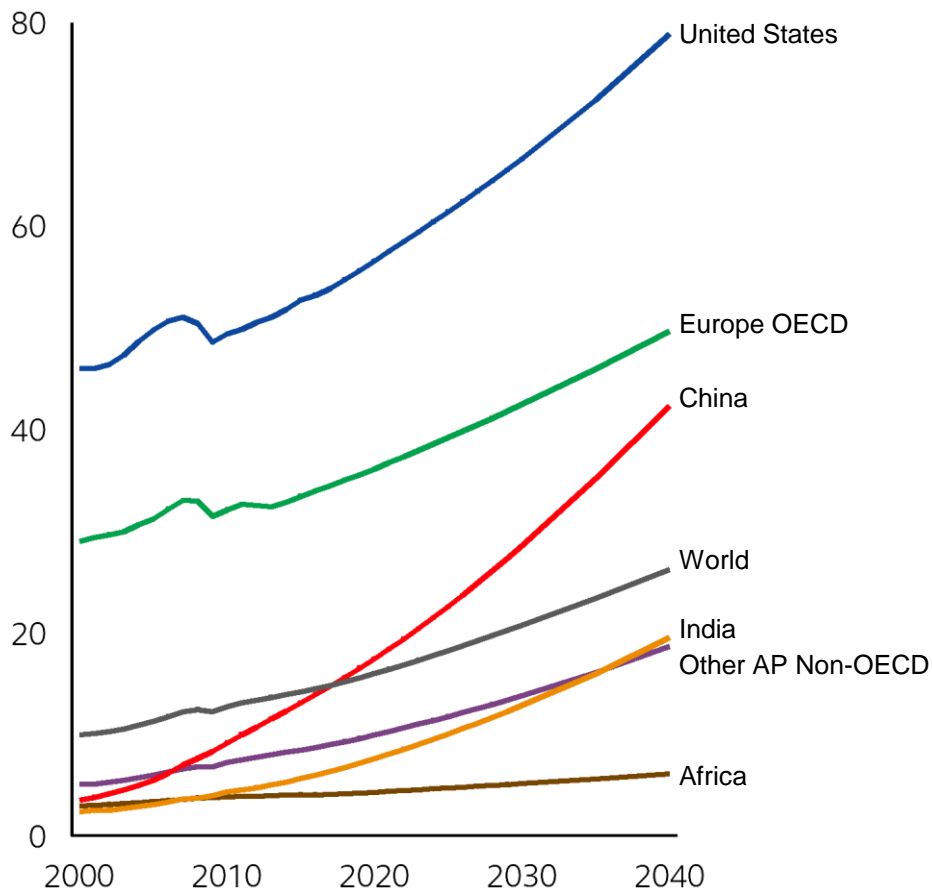


Source: World Bank, ExxonMobil estimates

# Purchasing power expands

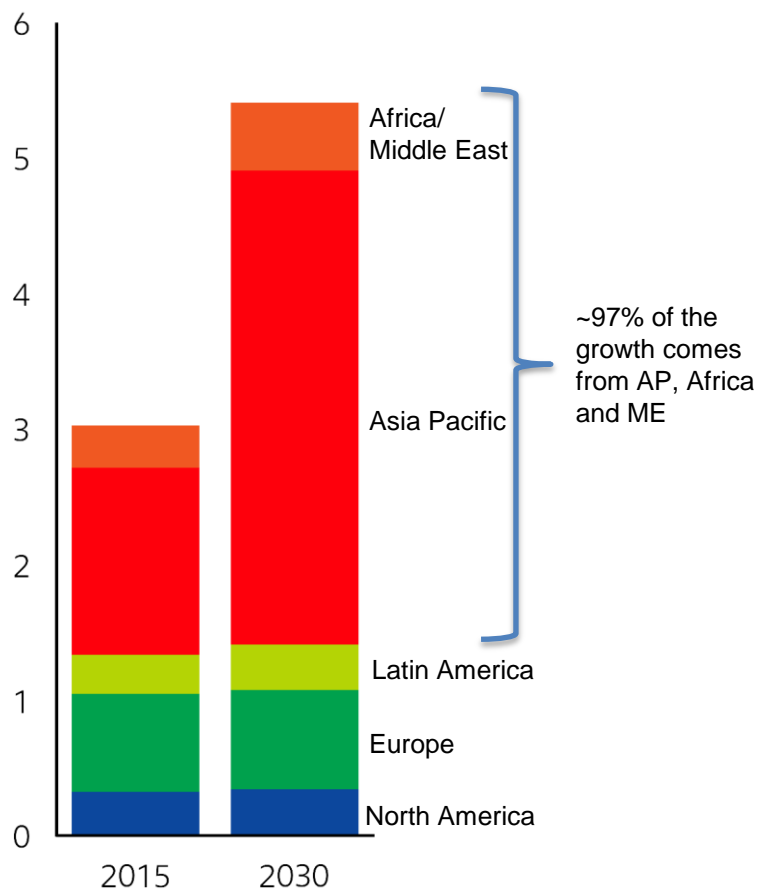
## GDP per capita

Thousand PPP\$



## Global middle class

Billion people

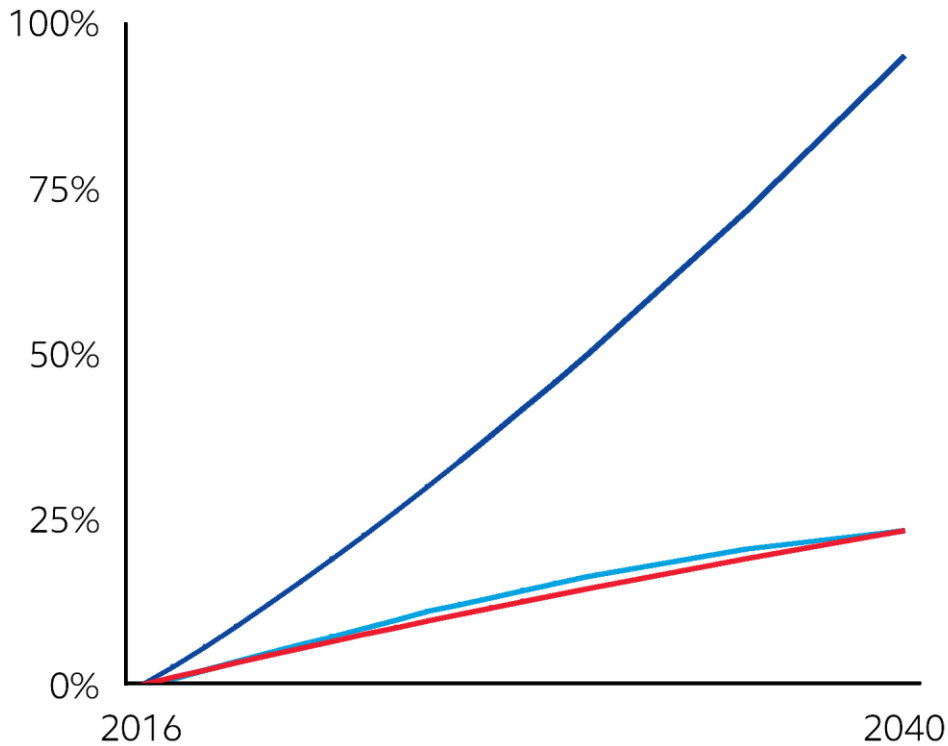


Source: The Brookings Institution

# Global trends continue to evolve

Growth from 2016 level

Percent



2x  
GDP



+25%  
demand

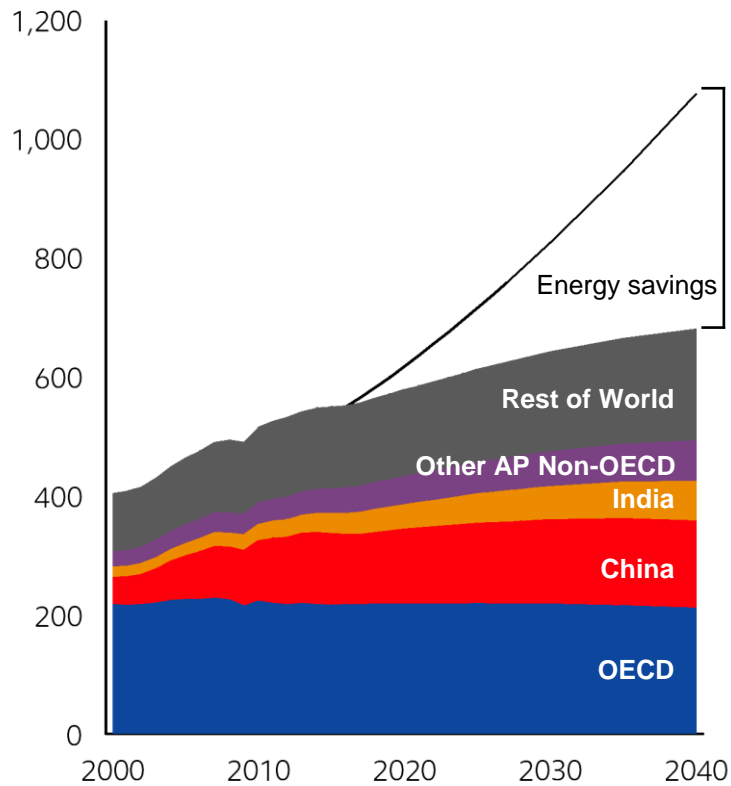


+1.7 billion  
people

# Energy demand varies by sector

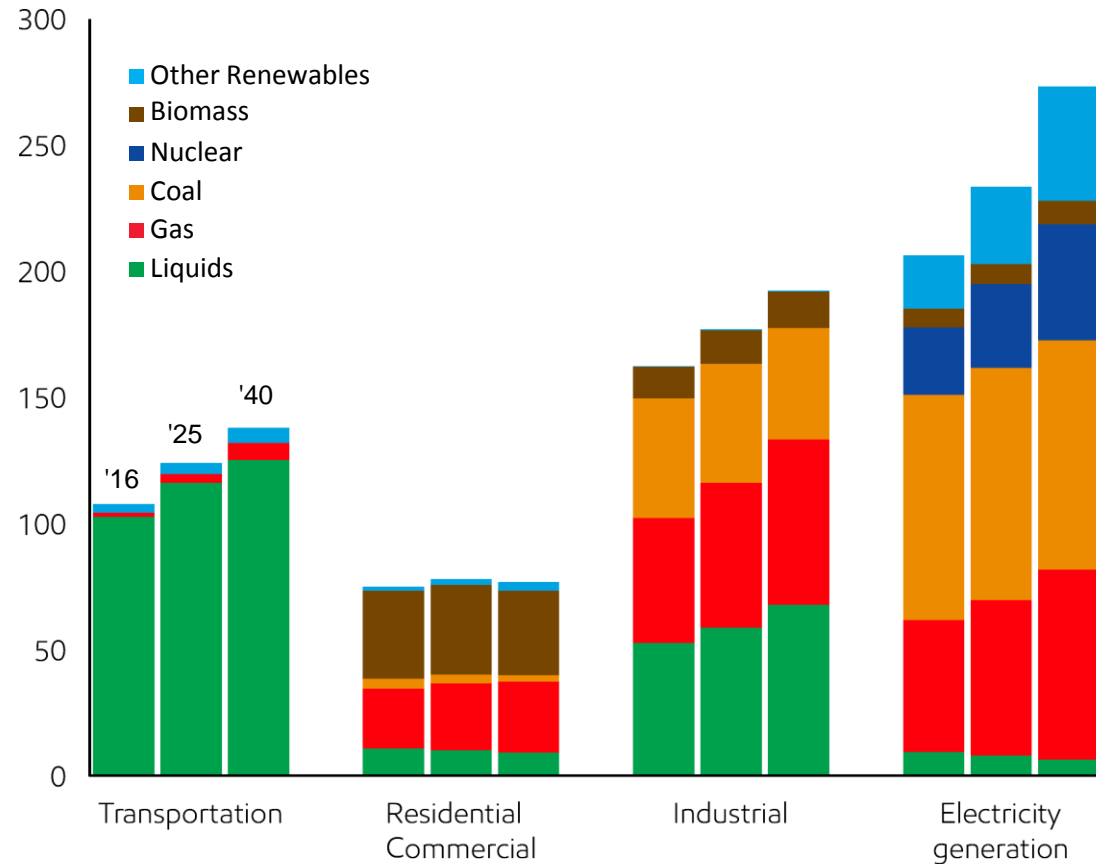
## Energy demand

Quadrillion BTUs



## Primary energy demand by sector

Quadrillion BTUs

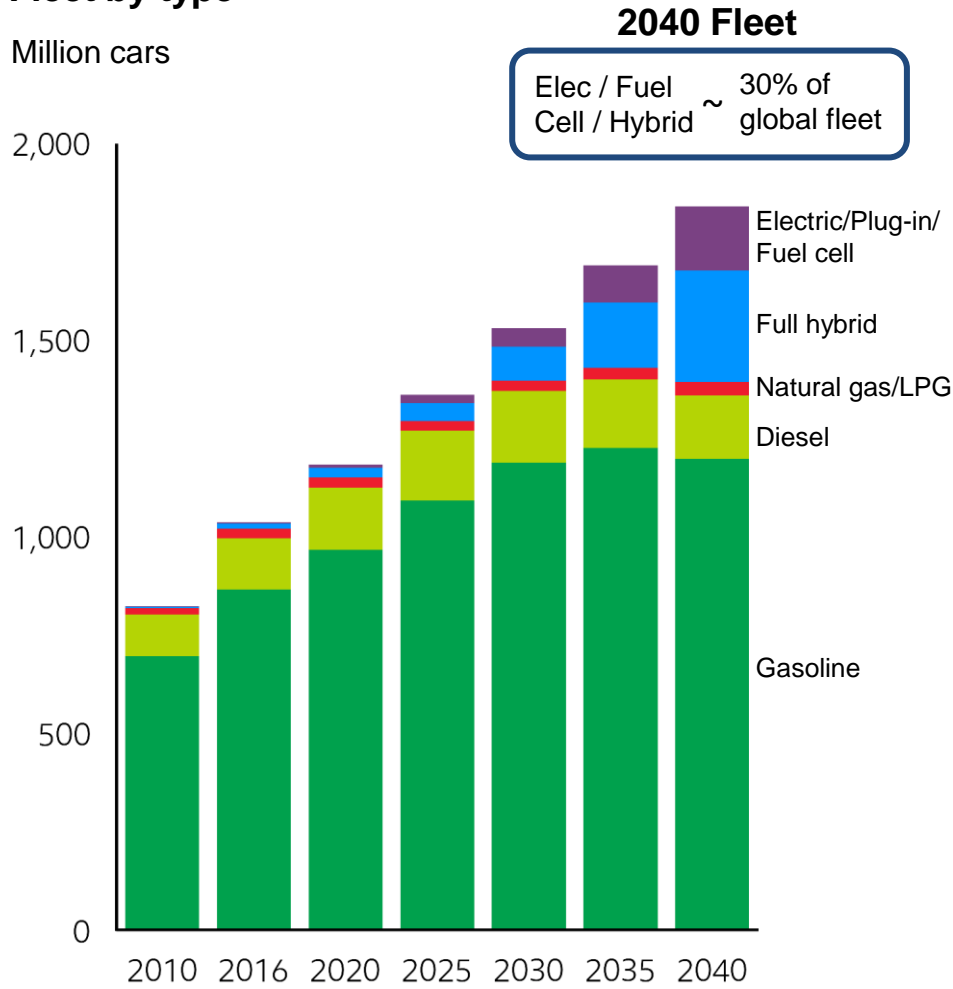




# Global passenger vehicles increase and diversify

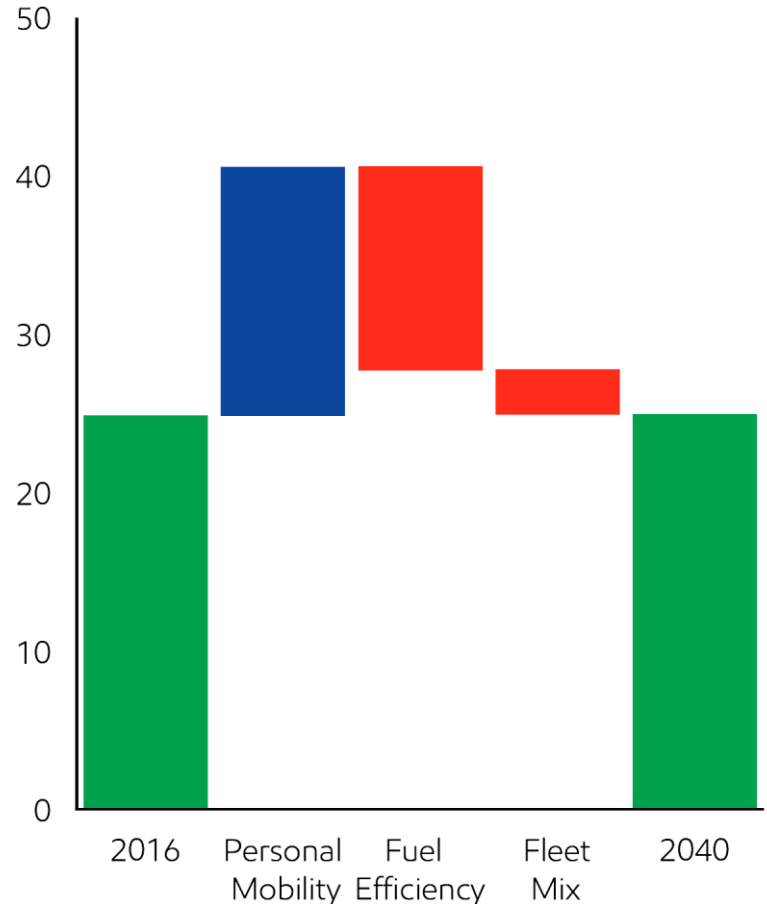
## Fleet by type

Million cars



## Efficiency curbs demand growth

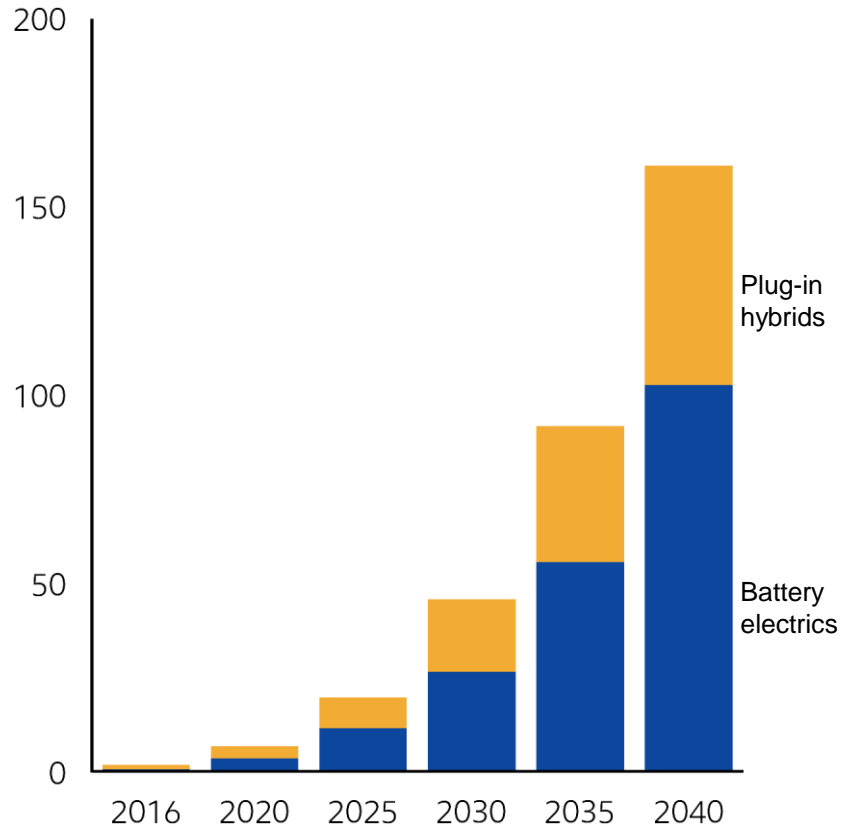
MBDOE



# Policy and consumer choices impact demand

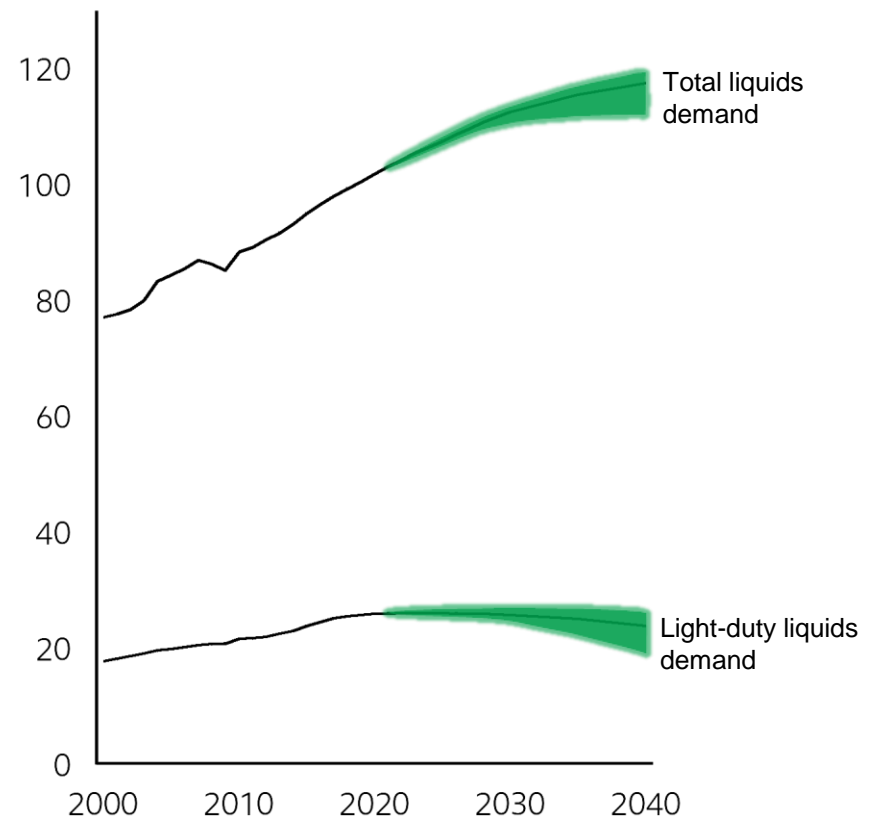
## Electric vehicles grow rapidly

Million cars



## Liquids demand remains resilient

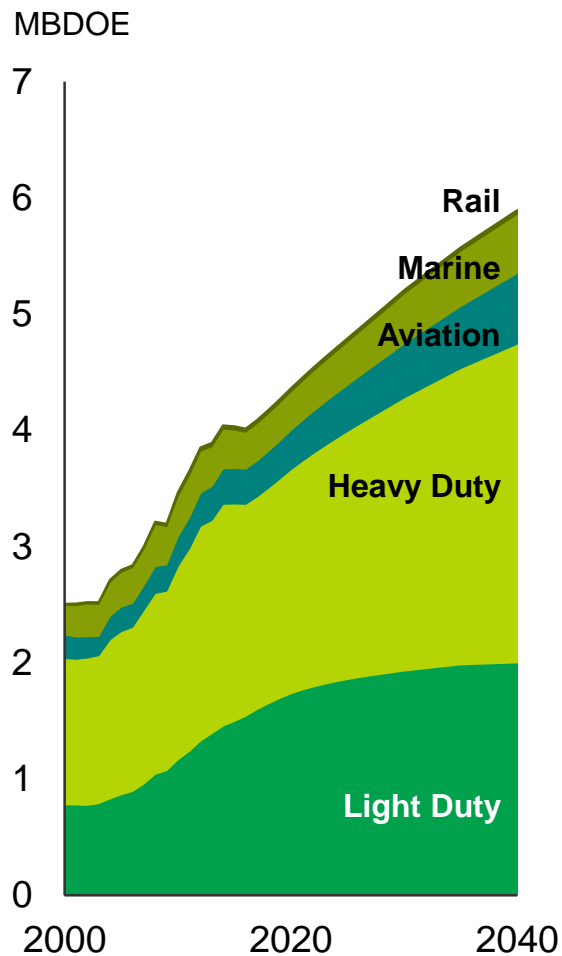
MBDOE



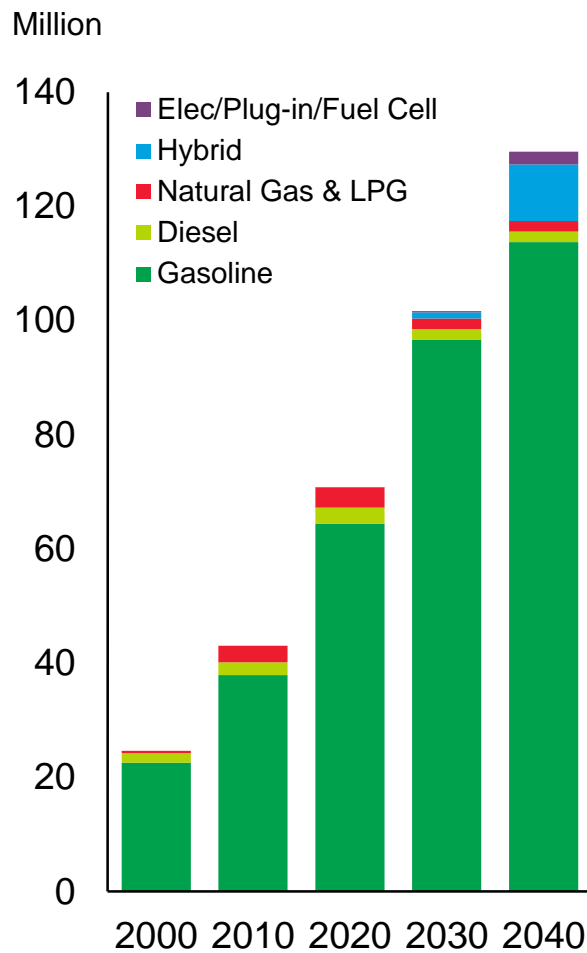
Shaded ranges are indicative of potential shifts in demand relative to base Outlook

# L. America Transportation Demand & Fleet Shift

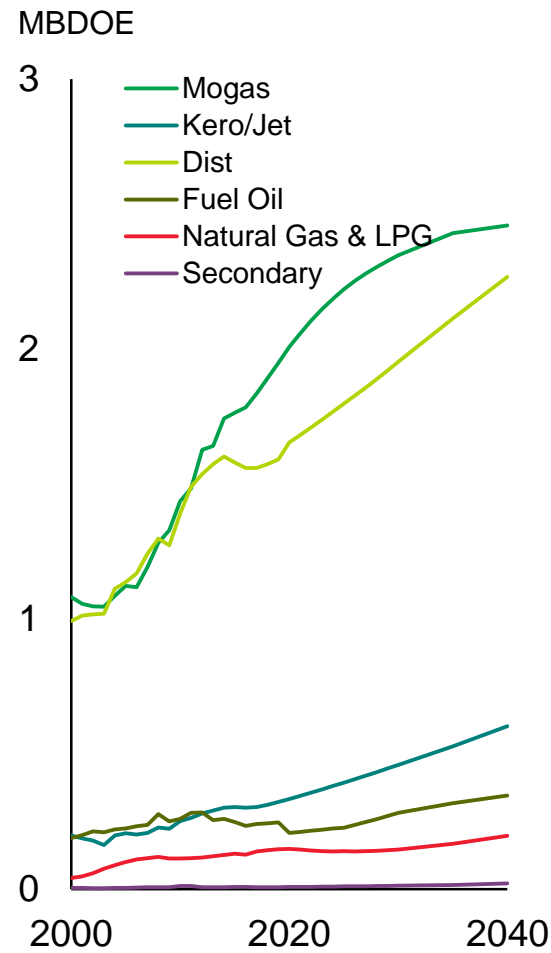
Transportation Demand



Passenger Vehicles



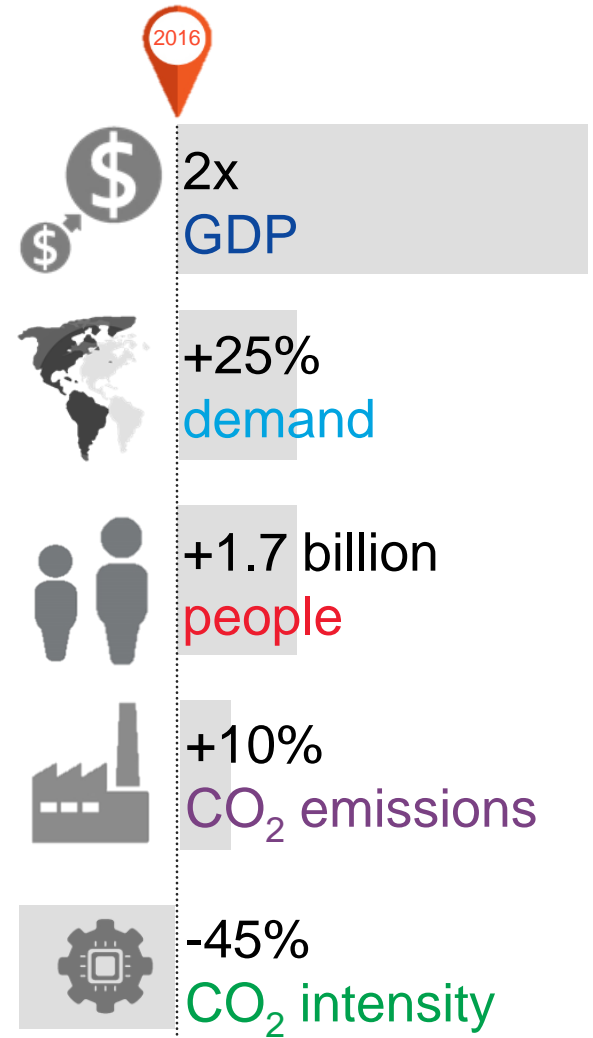
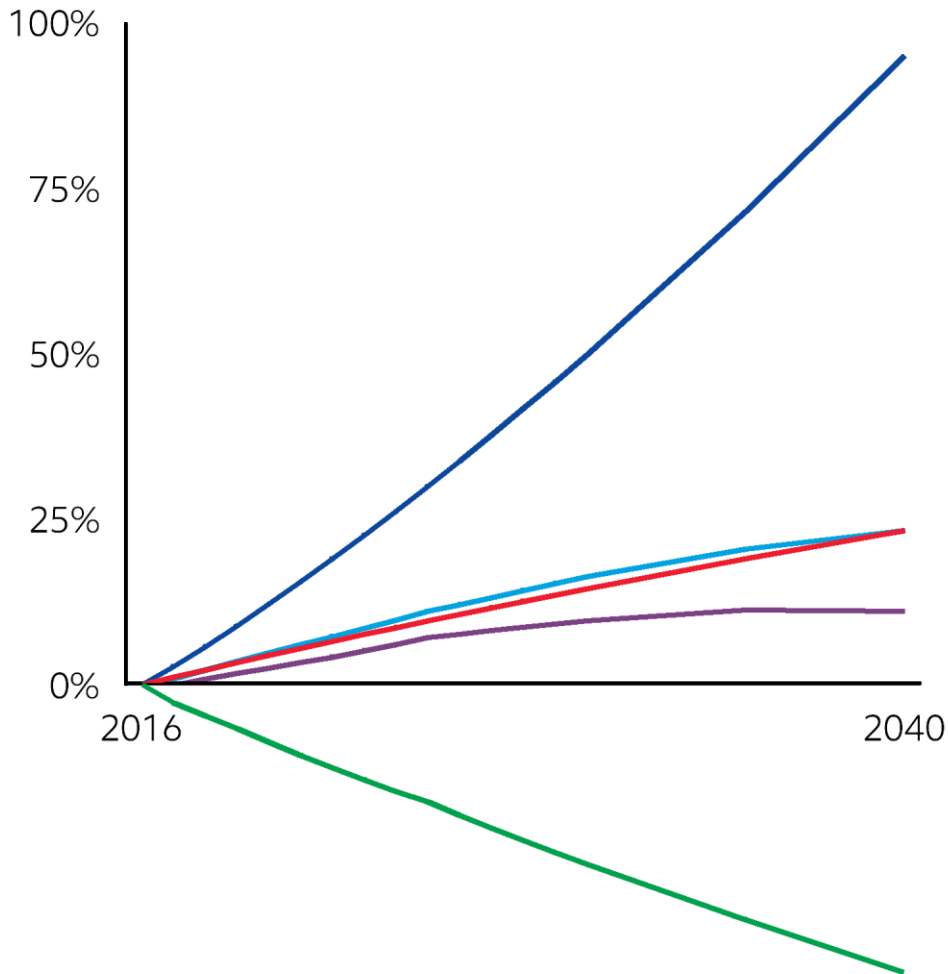
By Fuel



# Global trends continue to evolve

Growth from 2016 level

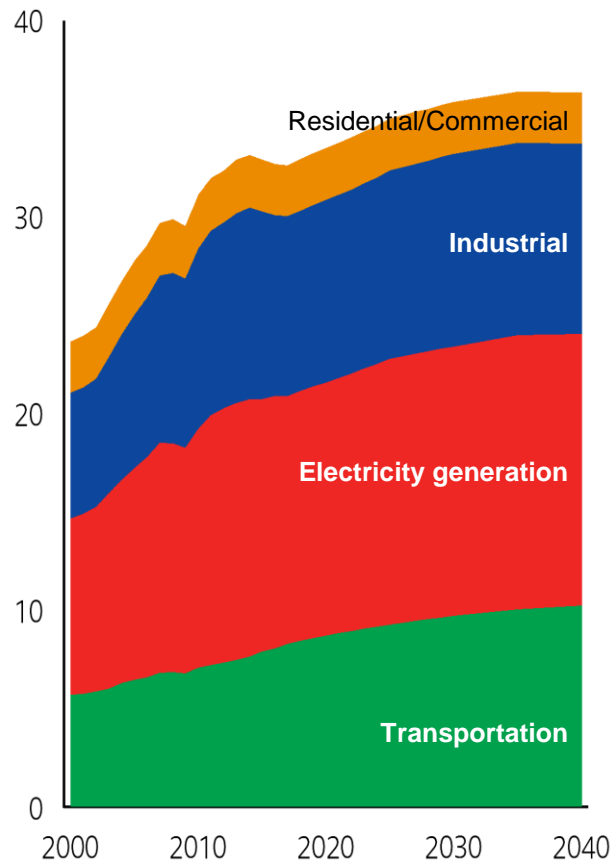
Percent



# Energy-related CO<sub>2</sub> emissions

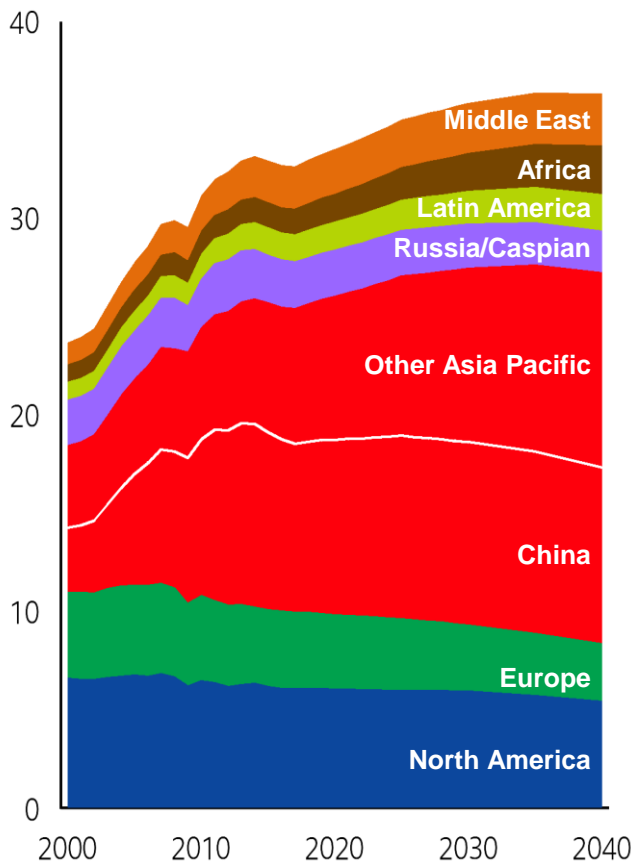
**Energy CO<sub>2</sub> emissions by sector**

Billion tonnes



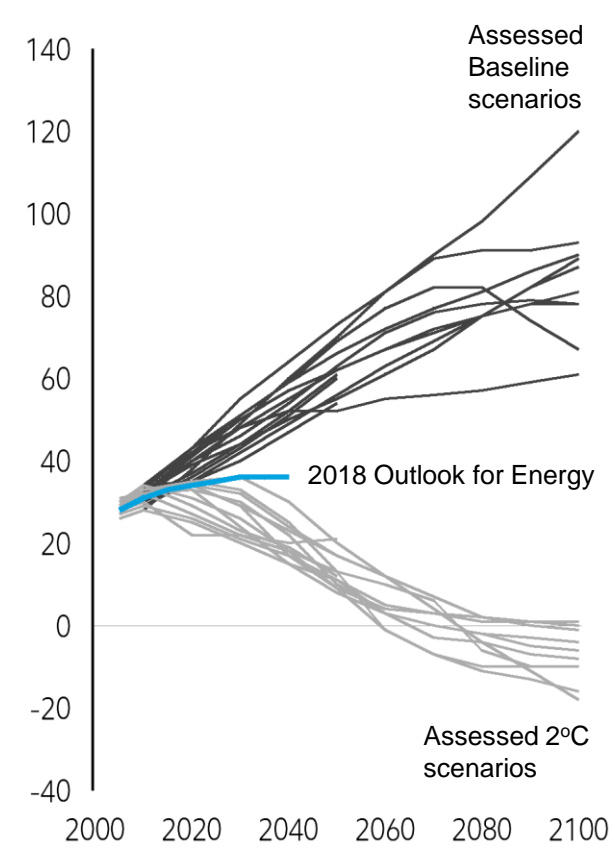
**Energy CO<sub>2</sub> emissions by region**

Billion tonnes

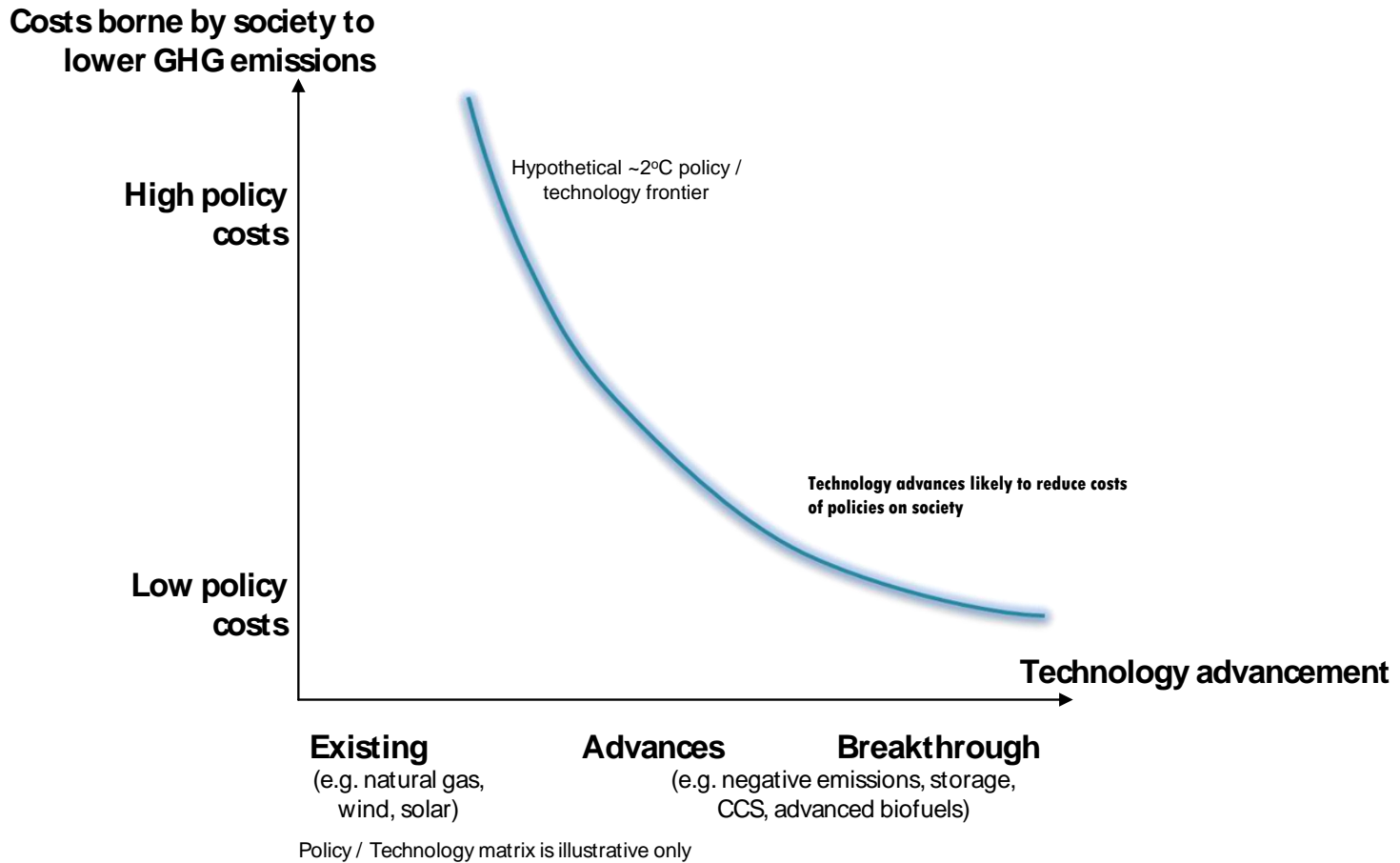


**Global energy-related CO<sub>2</sub> emissions**

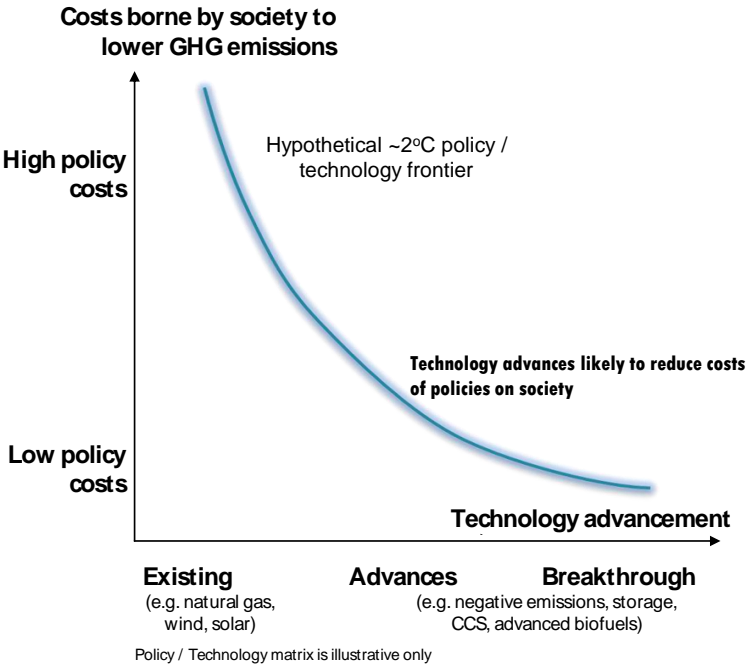
Billion tonnes



# Technology opportunity landscape



# Technology opportunity landscape



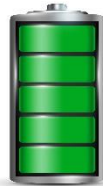
## Res/Comm



Solar PV



Fuel cell / hydrogen?



Energy Storage?



Digital

## Transportation



Advanced biofuels



BEVs



Energy storage



Fuel cells



Digital

## Industrial



Hydrogen



Energy Storage?



Digital



CCUS

## Power Generation



Solar PV



Nuclear



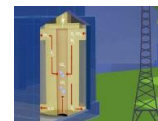
Wind



Energy storage



Digital



CCUS

**Technology to drive efficiency gains**

Key takeaways

# At a glance

Key trends that will play a defining role in our global energy landscape through 2040.



**Energy powers modern economies and living standards**



**Global energy needs rise about 25%, led by non-OECD nations**



**Electricity demand nearly doubles in non-OECD nations**



**Electricity from solar and wind increases about 400 percent**



**Natural gas expands role to meet a wide variety of needs**



**Oil plays a leading role to aid mobility and modern products**



**Decarbonization of the world's energy system will accelerate**



# Stay energy informed.

At ExxonMobil, we continually provide information and insight to help broaden your understanding of the issues shaping the world's energy needs. You can stay informed by following us online and through our social channels.

 Visit [exxonmobil.com/energyoutlook](https://www.exxonmobil.com/energyoutlook)

 Subscribe to [energyfactor.com](https://www.energyfactor.com)

 Visit [exxonmobilperspectives.com](https://www.exxonmobilperspectives.com)

 Follow [@exxonmobil](https://twitter.com/exxonmobil)

 Follow [linkedin.com/company/exxonmobil](https://www.linkedin.com/company/exxonmobil)

 Follow [facebook.com/exxonmobil](https://www.facebook.com/exxonmobil)

 Follow [instagram.com/exxonmobil](https://www.instagram.com/exxonmobil)

**ExxonMobil**