



The Outlook for Energy: A View to 2040

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Rail Energy Transportation Advisory Committee
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This presentation includes forward-looking statements. Actual future conditions (including economic conditions, energy demand, and energy supply) could differ materially due to changes in 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. The information provided includes ExxonMobil's internal estimates and forecasts based upon internal data and analyses as well as publically-available information from external sources including the International Energy Agency. This material is not to be used or reproduced without the permission of Exxon Mobil Corporation. All rights reserved.

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Energy Outlook Model

100 countries

15 demand
sectors

20 fuel
types

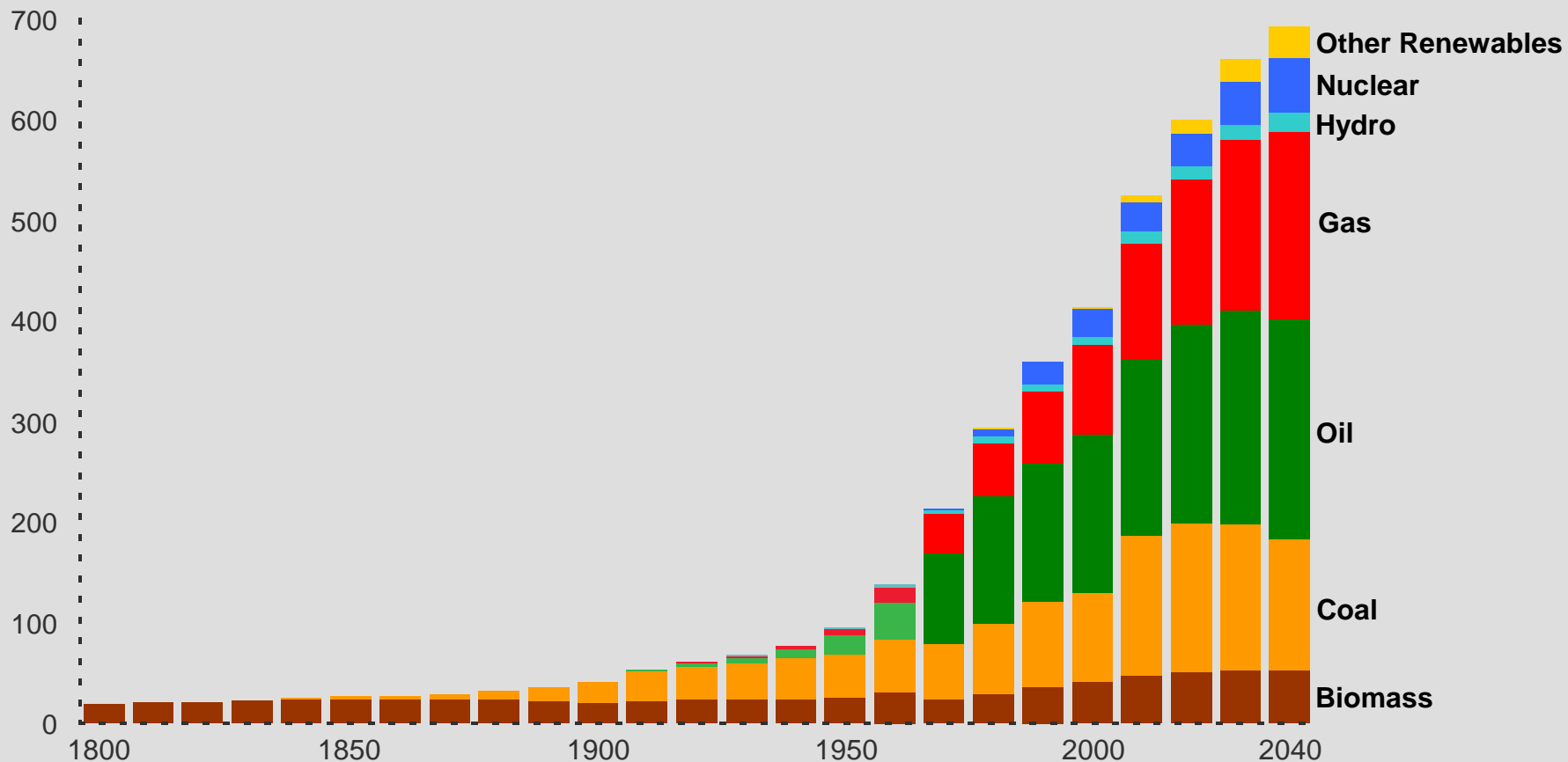
technology & policy

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Economic and Energy Evolution

Global Demand By Fuel

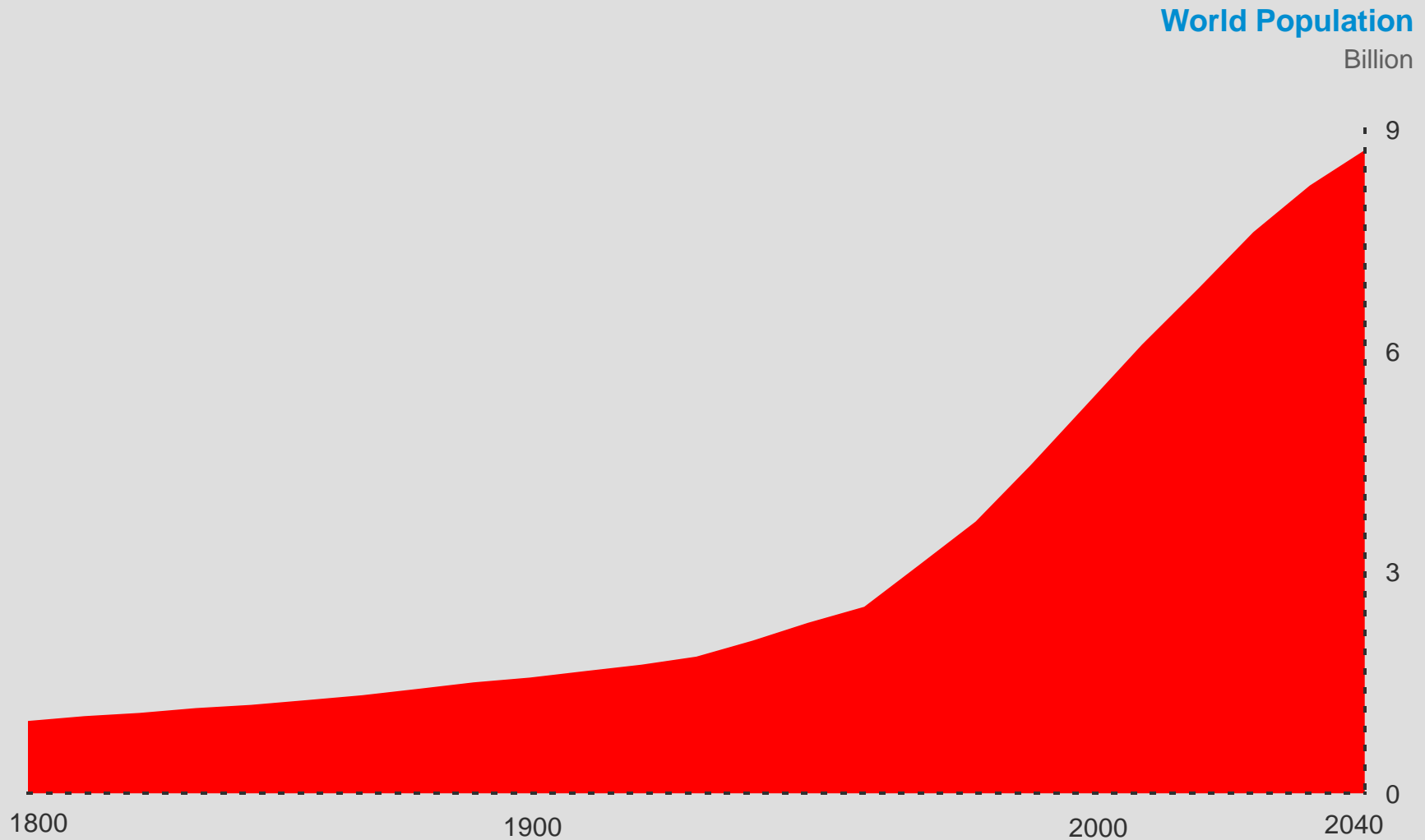
Quadrillion BTUs



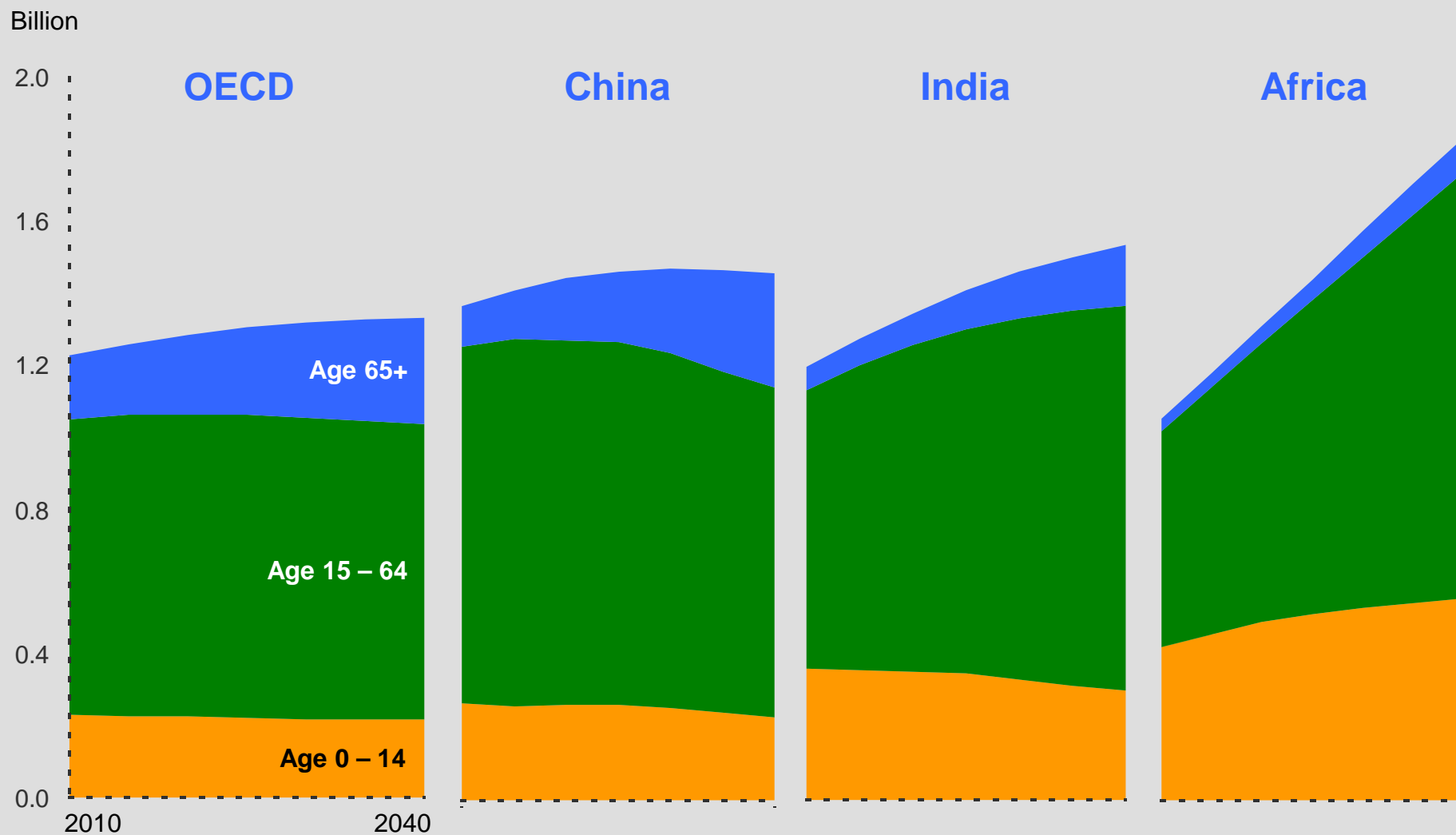
Source: Smil, *Energy Transitions* (1800-1960)

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Population Growth Drives Energy Demand



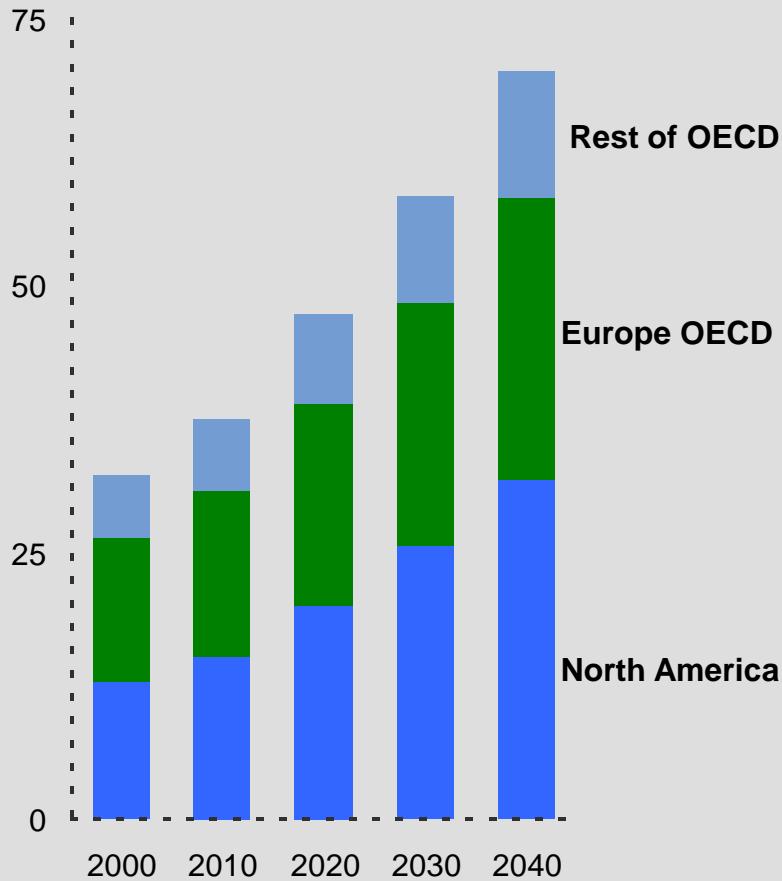
Demographic Shifts Alter Demand Profile



OECD Efficiency Moderates Demand

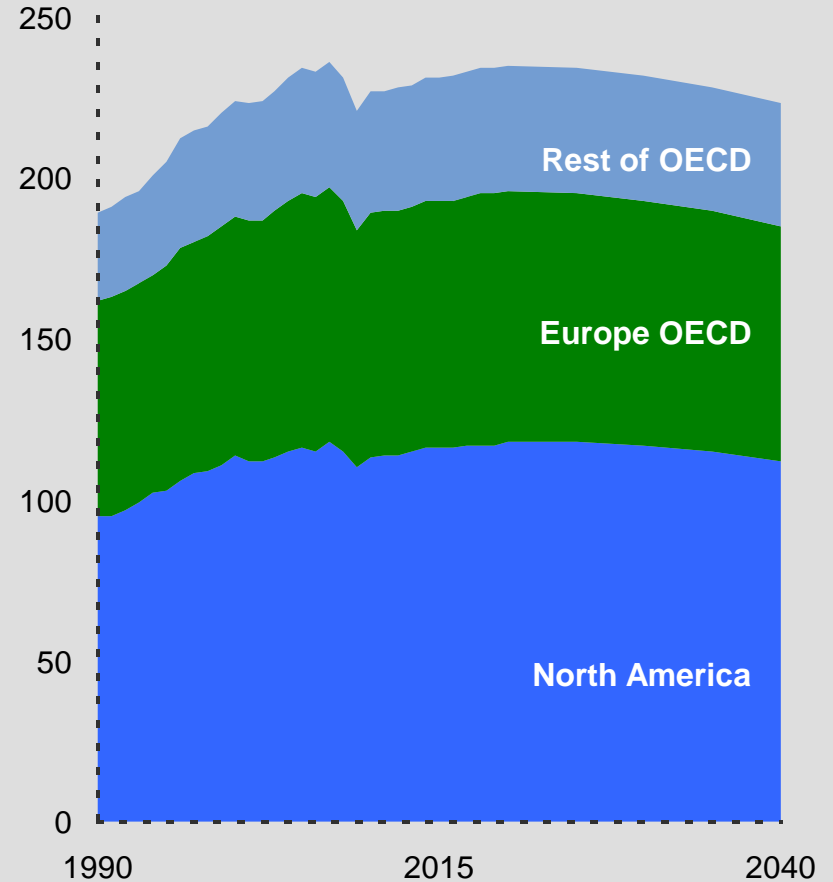
OECD GDP

Trillion 2005 \$



OECD Demand

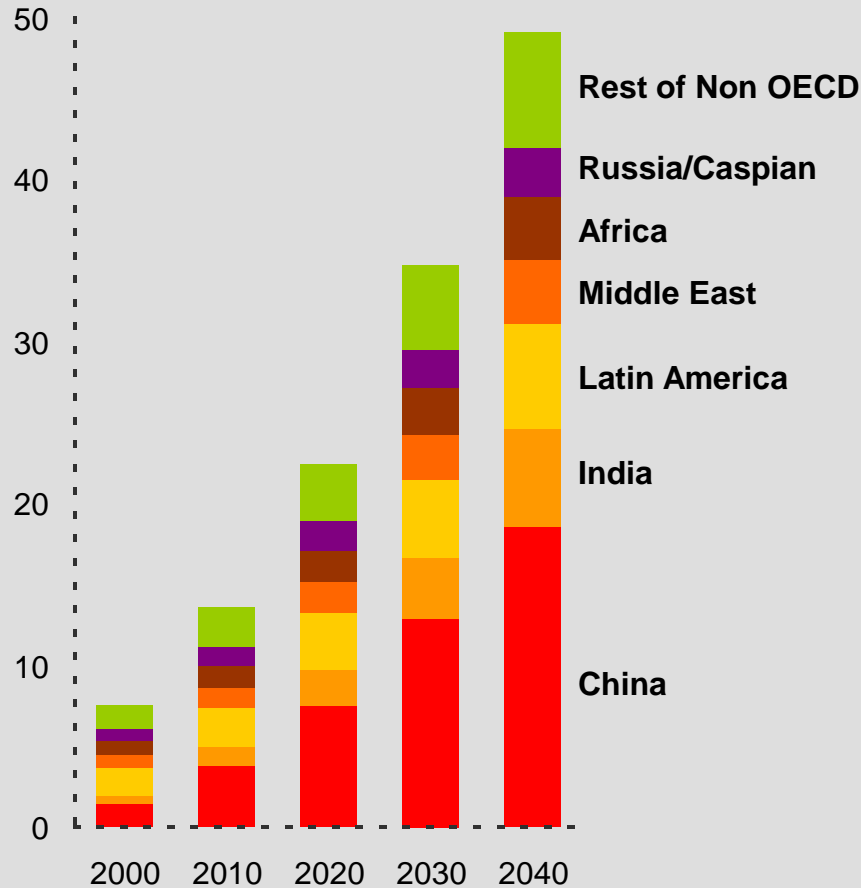
Quadrillion BTUs



Rapidly Expanding Economies Drive Demand

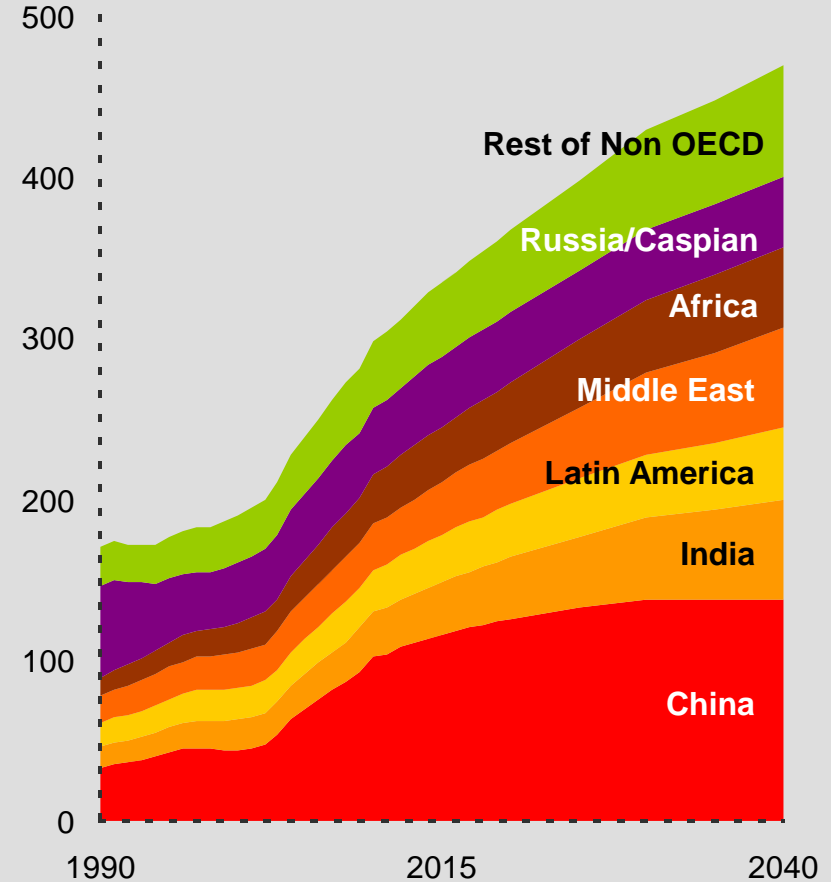
Non OECD GDP

Trillion 2005 \$



Non OECD Demand

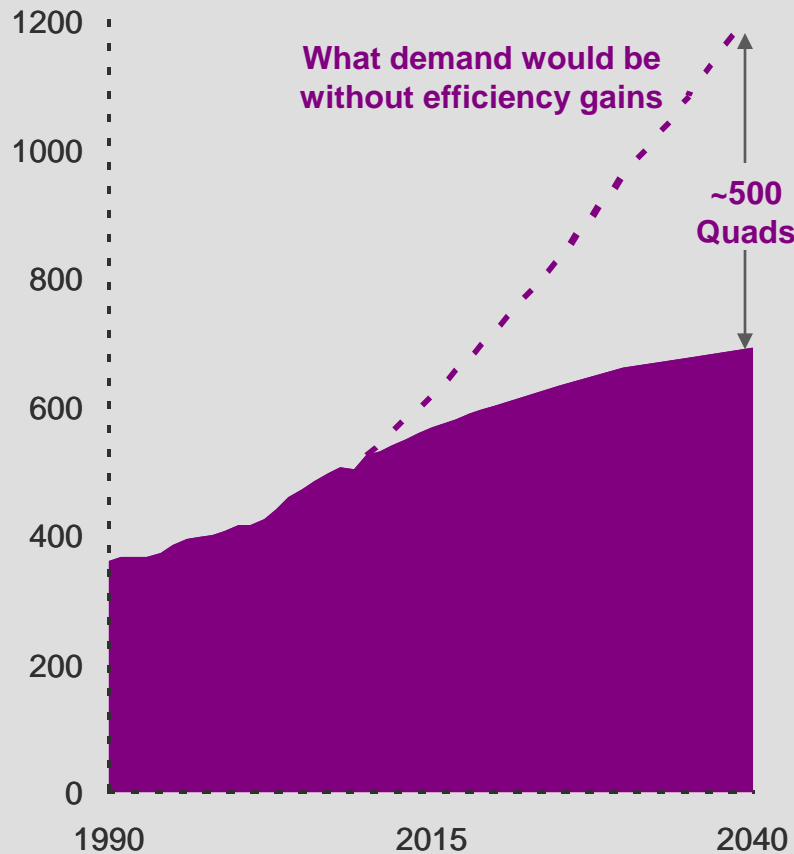
Quadrillion BTUs



Global Efficiency Minimizes Demand Growth

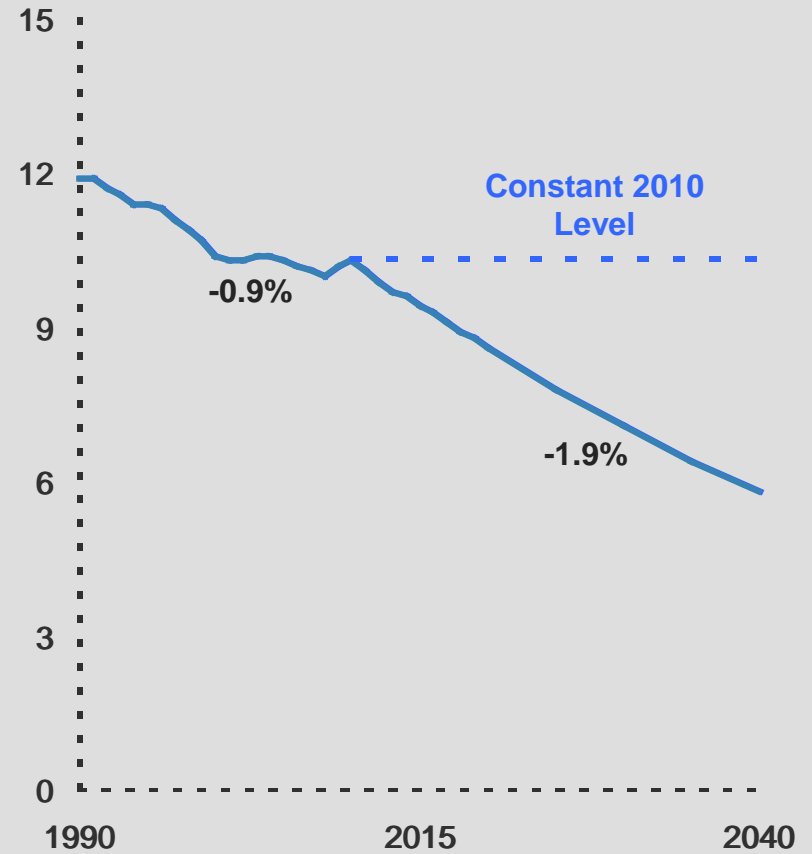
Demand

Quadrillion BTUs



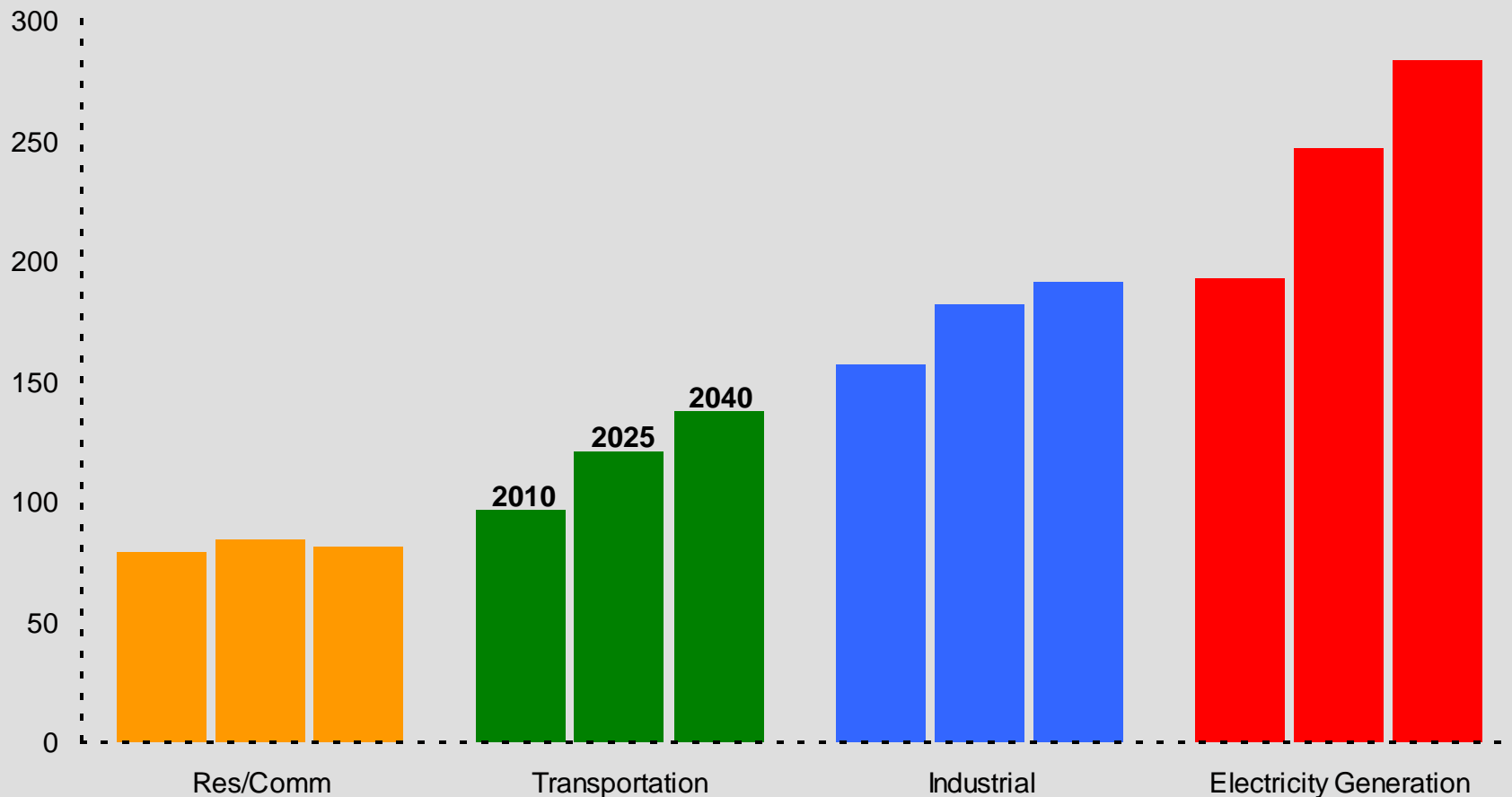
Energy per GDP

MBTU / 2005\$ GDP



Electricity Generation Leads Growth

Quadrillion BTUs



Transportation



90%

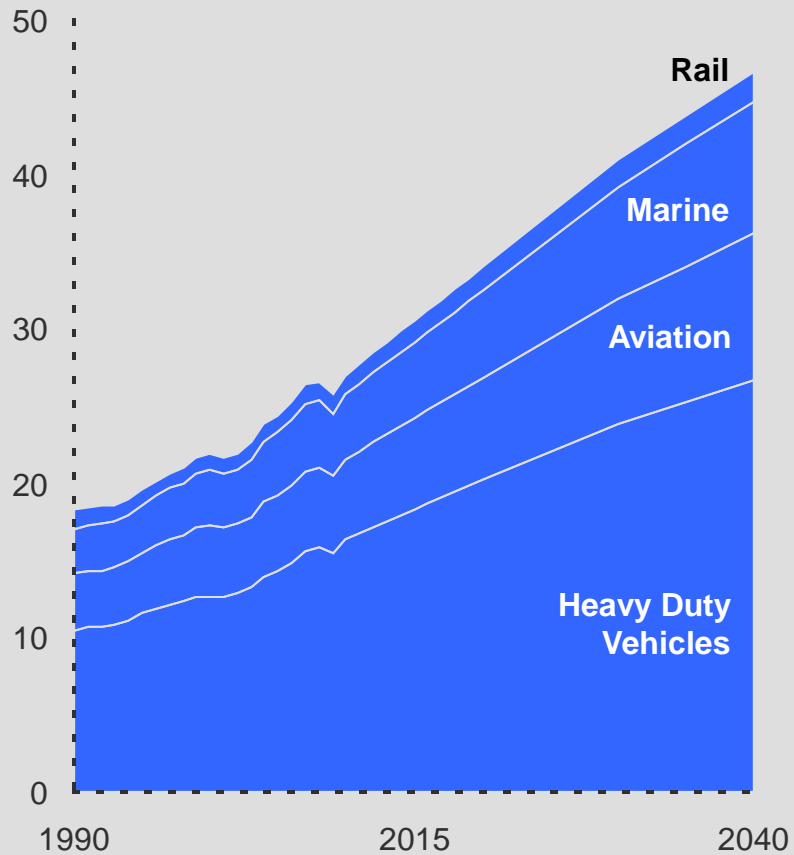
By 2040, 90% of transportation will run on liquid petroleum-based fuels.

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Commercial Transportation Drives Demand Growth

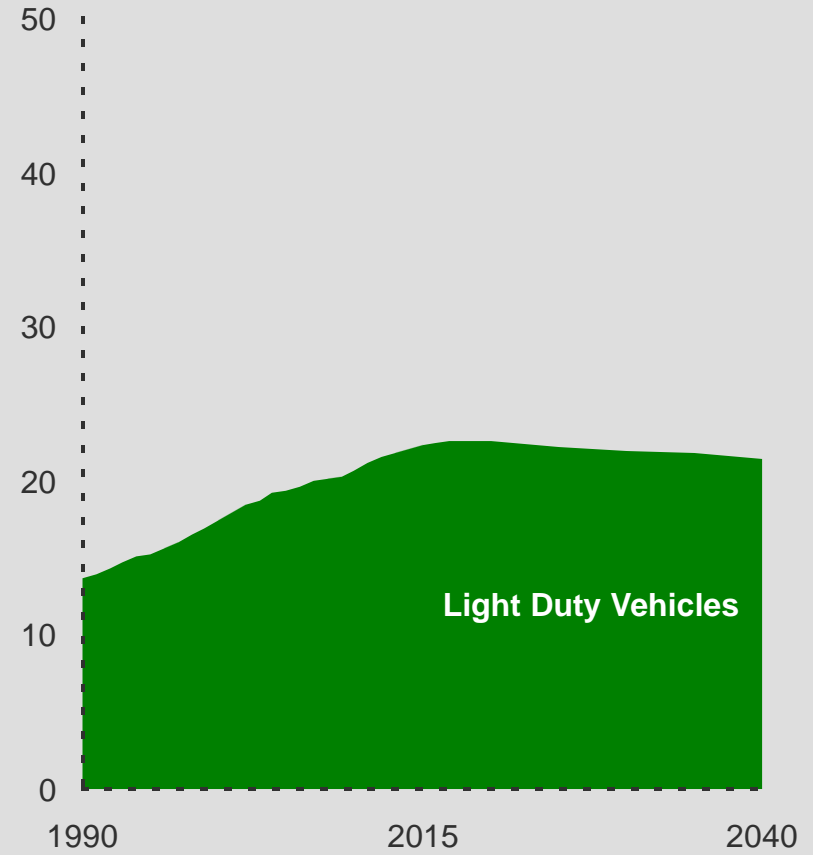
Commercial

MBDOE



Personal

MBDOE

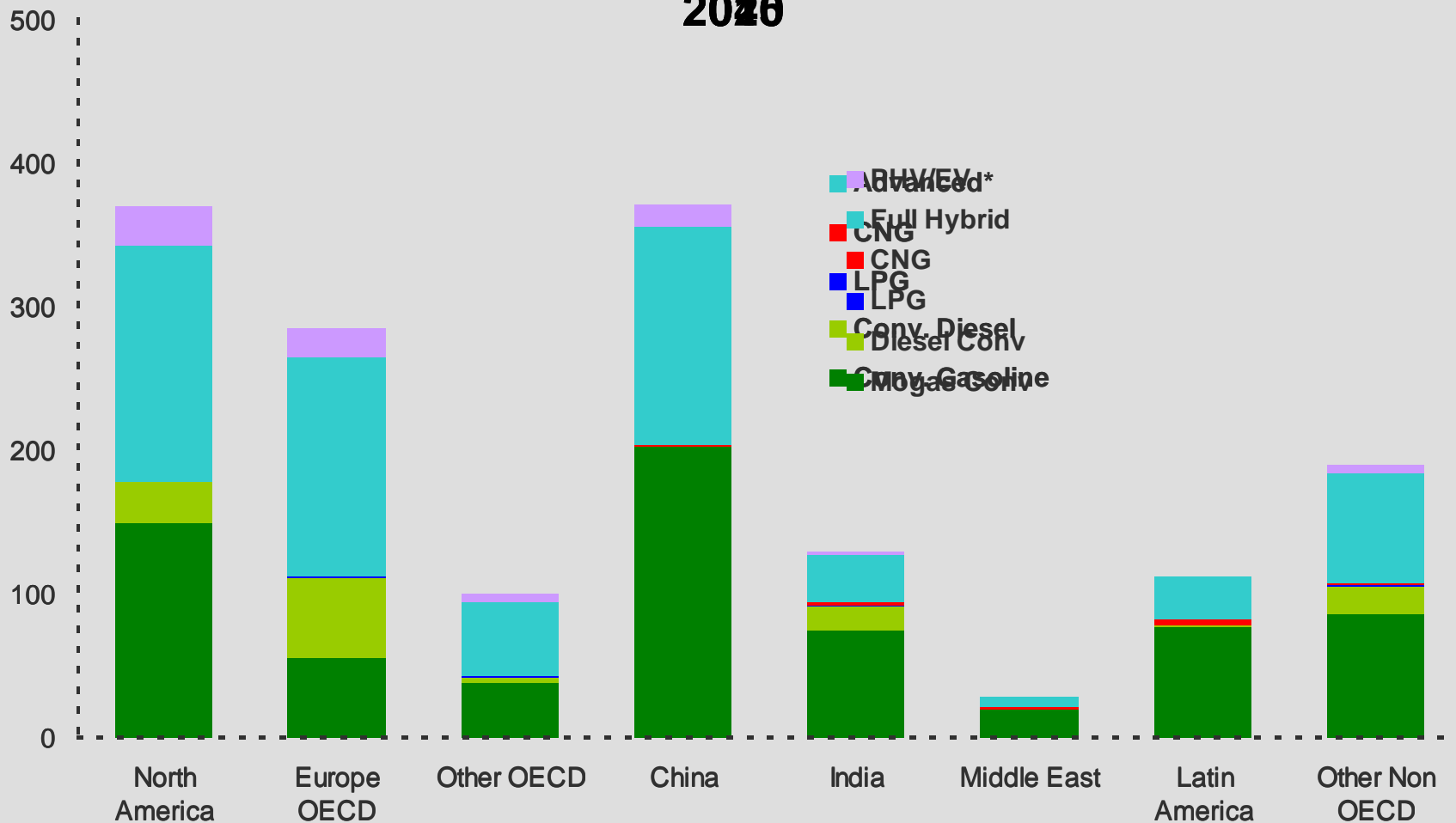


Light Duty Vehicle Fleet Grows, Mix Changes

Powertrain Technology

Millions of Vehicles

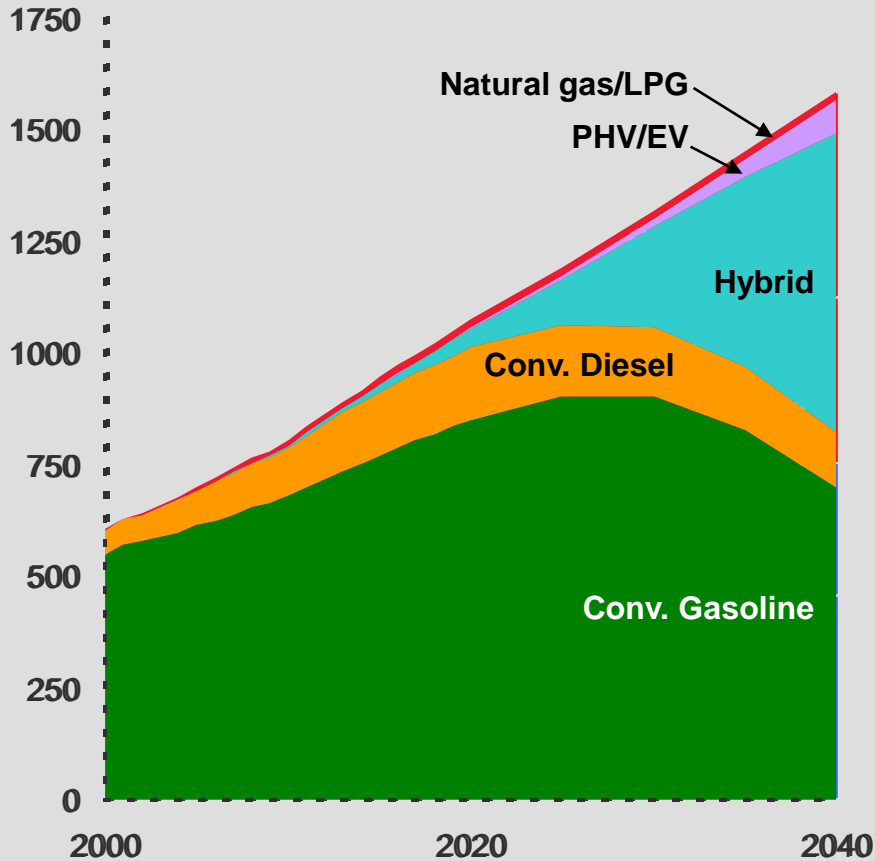
2020



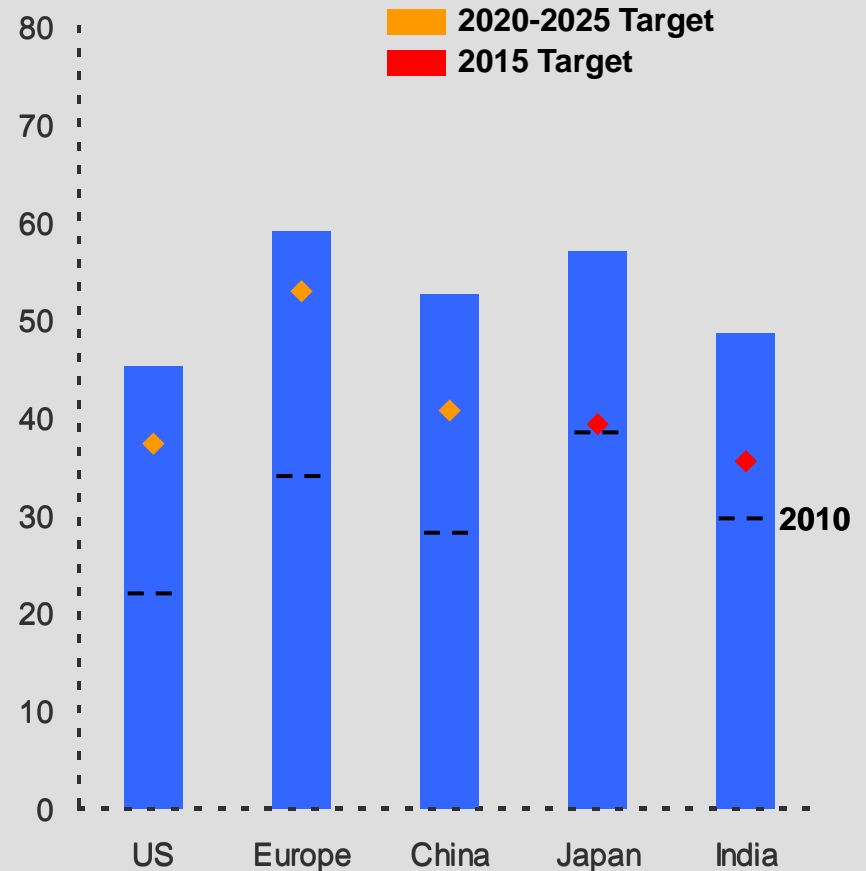
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Impact of Global Fleet Shift on Efficiency

Light Duty Vehicle Fleet by Region
Million Vehicles



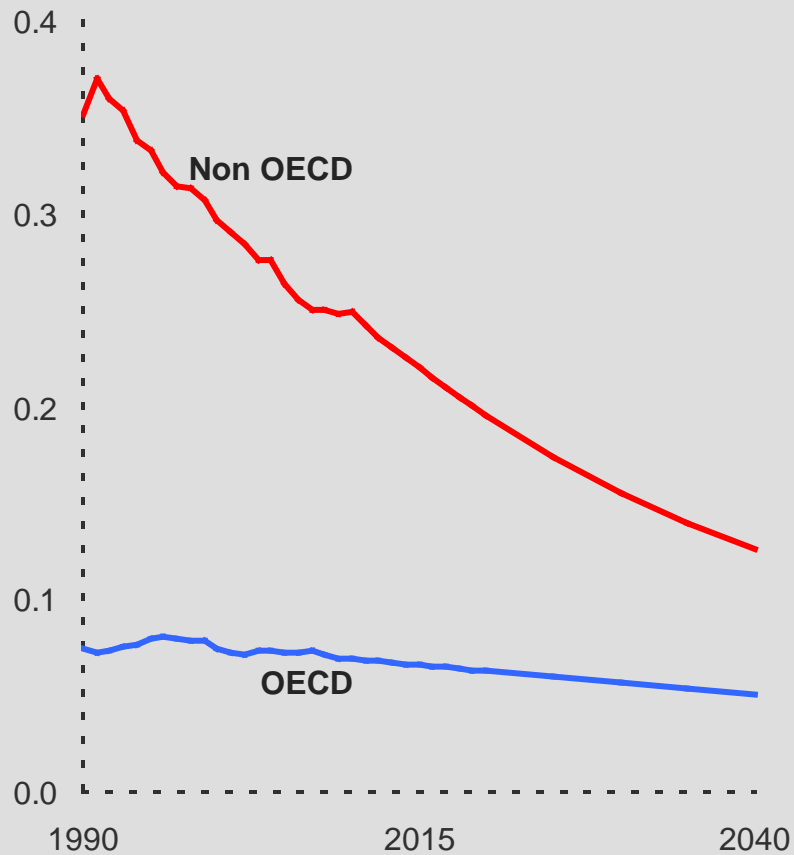
Avg New Car Fuel Efficiency in 2040
On-Road MPG



Heavy Duty Efficiency Tempers Growth

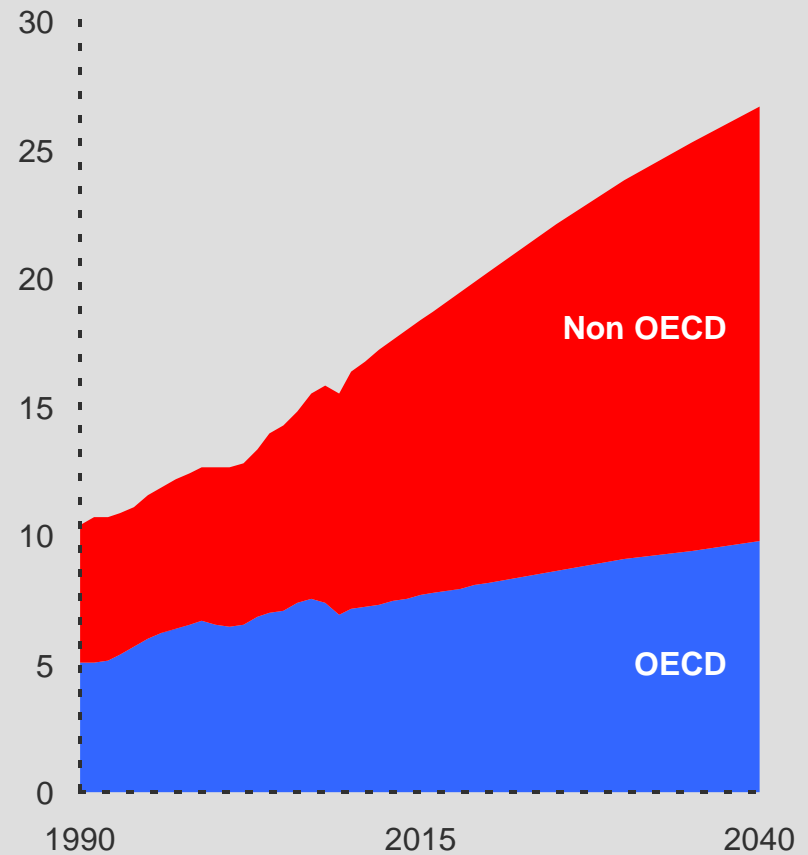
Intensity

BOE / 2005\$k GDP



By Region

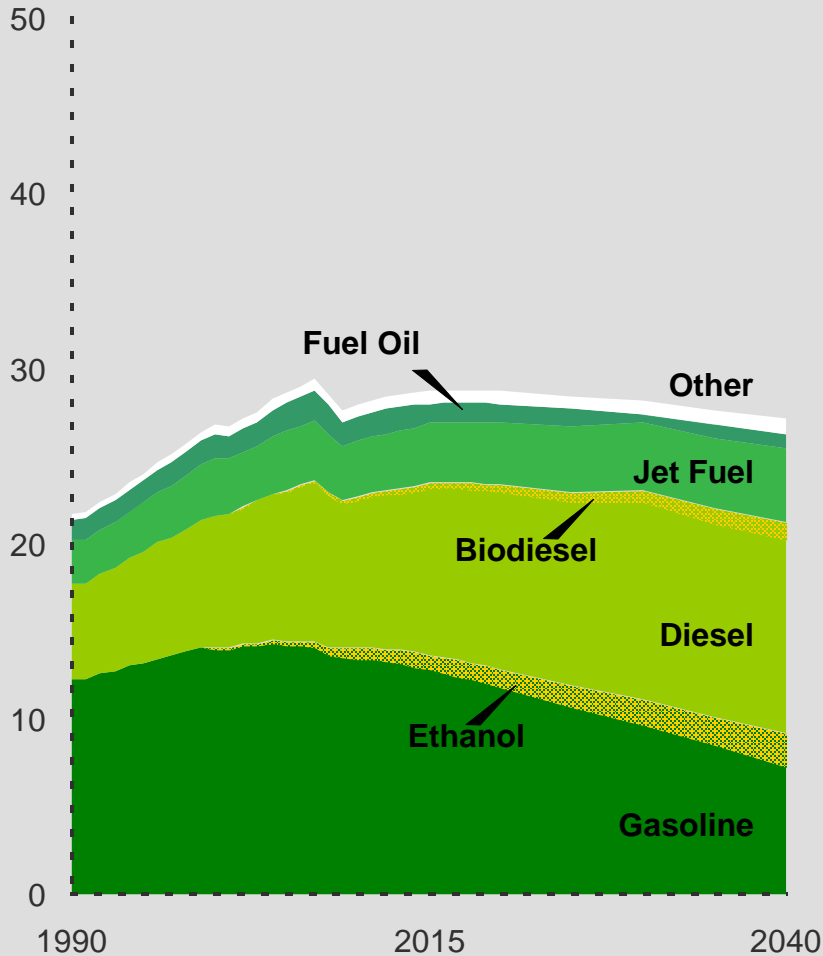
MBDOE



Transportation Fuel Demand Shifts to Diesel

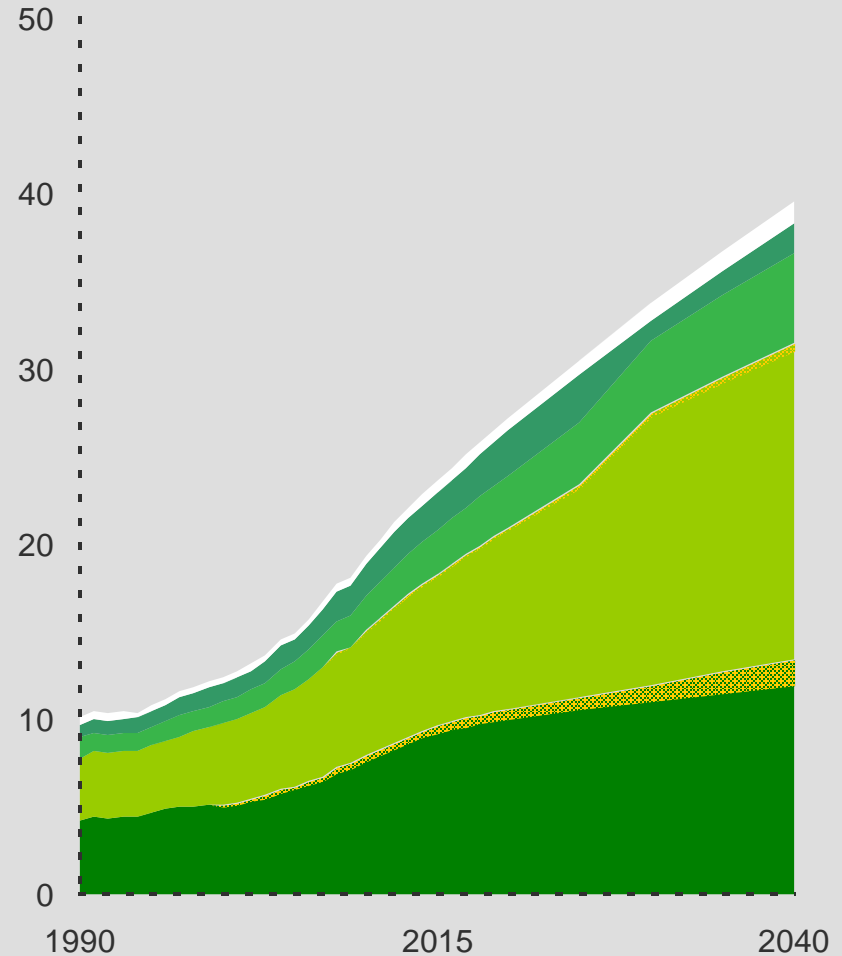
OECD

MBDOE



Non OECD

MBDOE



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Industrial



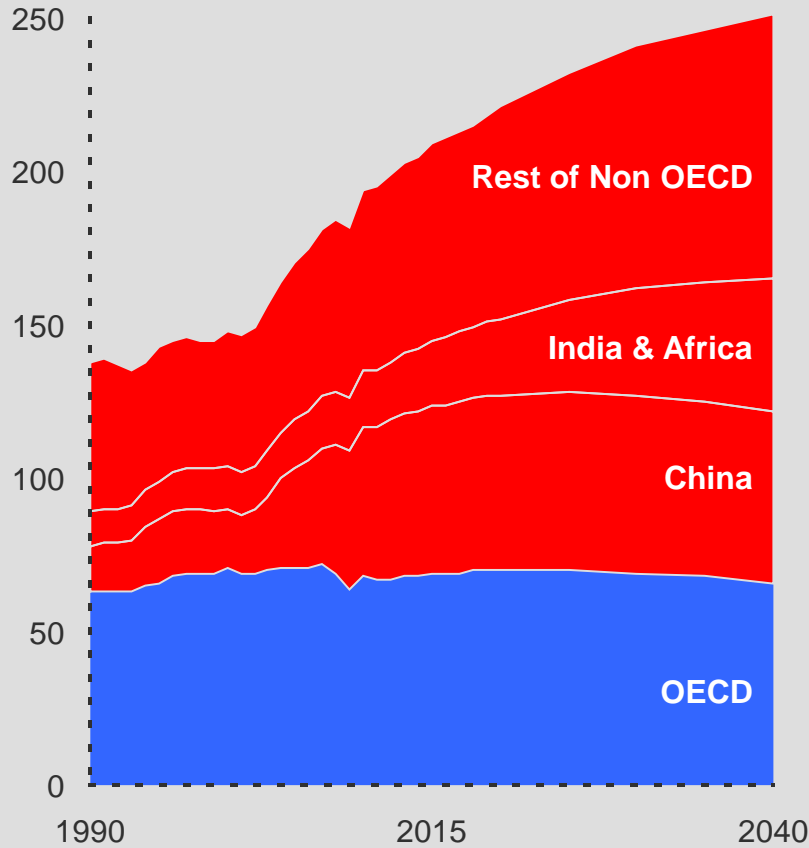
30%

Global Industrial
demand grows by 30%
from 2010 to 2040.

Industrial Fuel Demand Diversifies

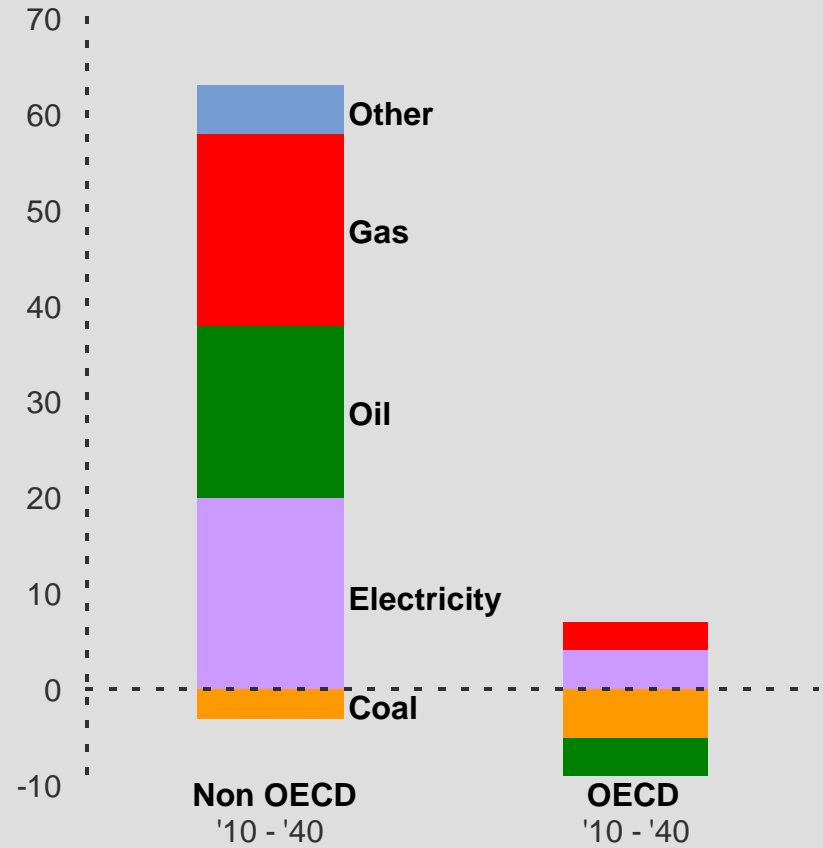
By Region

Quadrillion BTUs



Fuel Growth

Quadrillion BTUs



Residential / Commercial

A nighttime photograph of a cityscape. In the background, several tall, modern high-rise apartment buildings are illuminated with warm yellow lights, their windows glowing. In the foreground, there are lower-rise residential buildings, some with balconies and lit-up interiors. The streets are dark, but streetlights and light trails from moving vehicles are visible. The overall scene is a mix of urban density and residential life.

40%

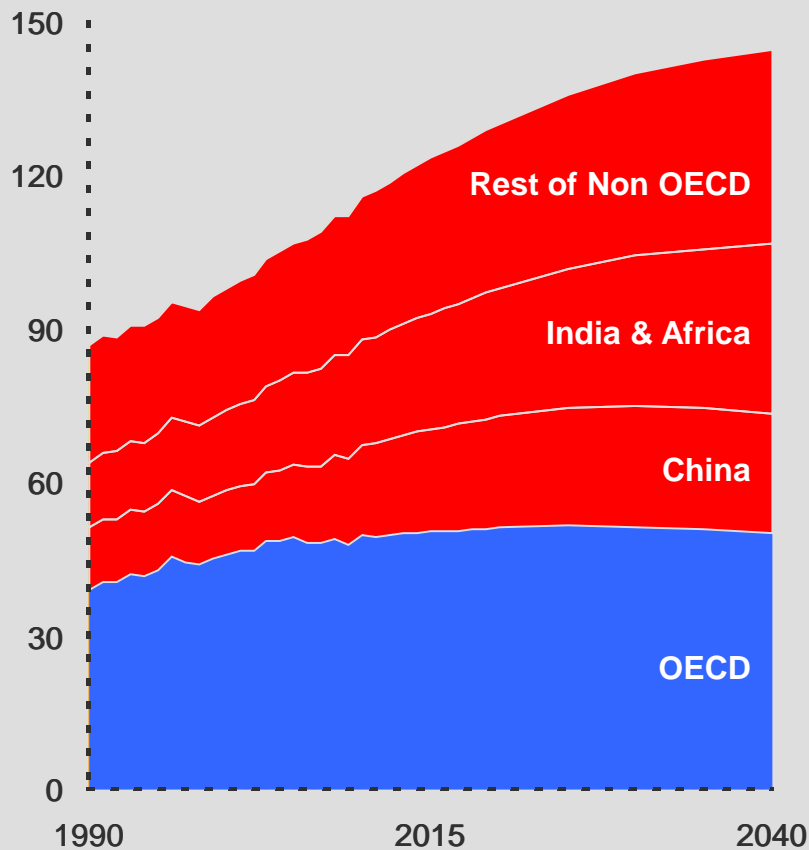
By 2040, electricity will fuel 40% of the world's residential & commercial demand.

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Residential/Commercial Demand Grows

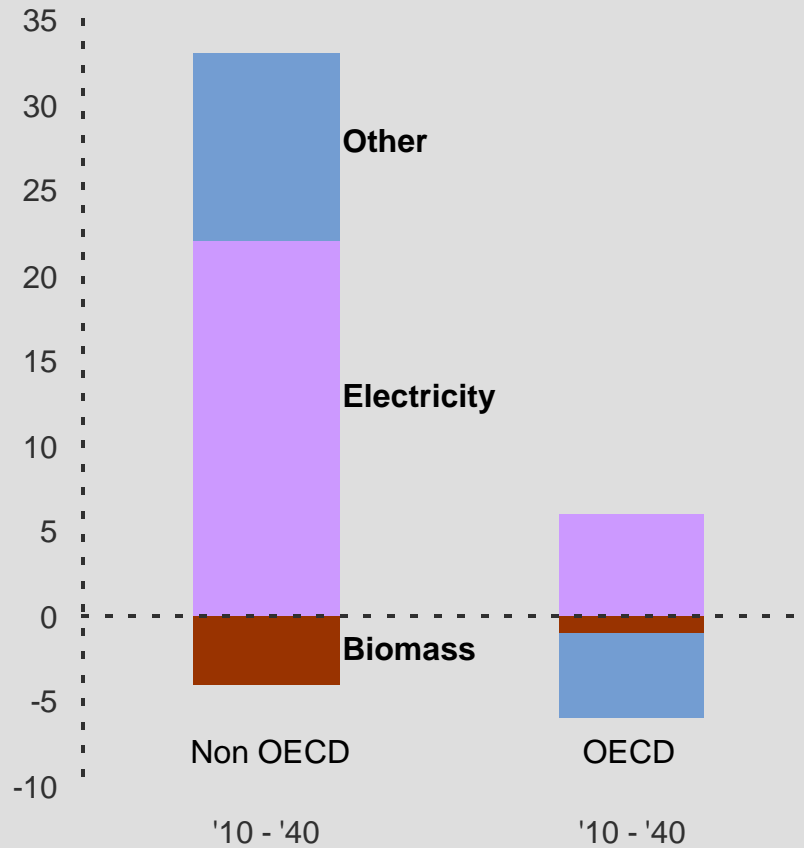
By Region

Quadrillion BTUs



Fuel Growth

Quadrillion BTUs



Electricity Generation

The background of the slide features a series of high-voltage power transmission towers, also known as pylons, silhouetted against a bright, hazy sky at sunset or sunrise. The towers are arranged in a perspective that recedes into the distance, creating a sense of depth. The sky transitions from a pale yellow near the horizon to a light blue at the top. The overall mood is industrial and forward-looking.

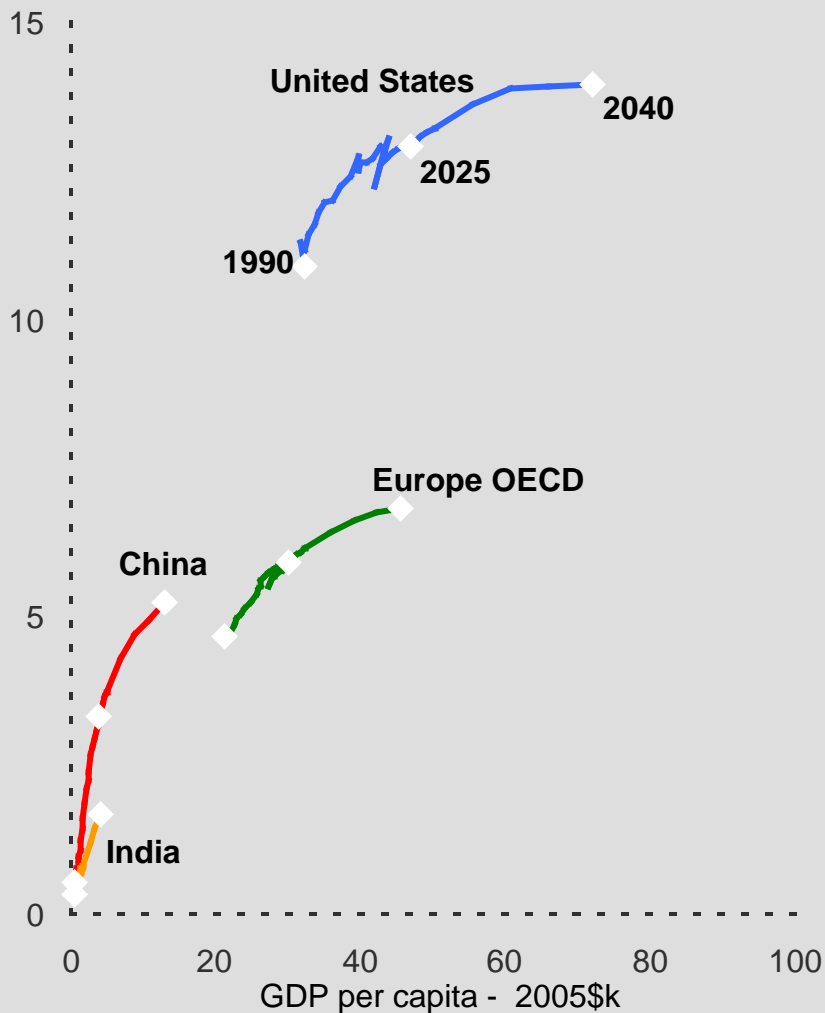
+80%

By 2040, worldwide
electricity demand will be
80% higher.

Electricity Consumption

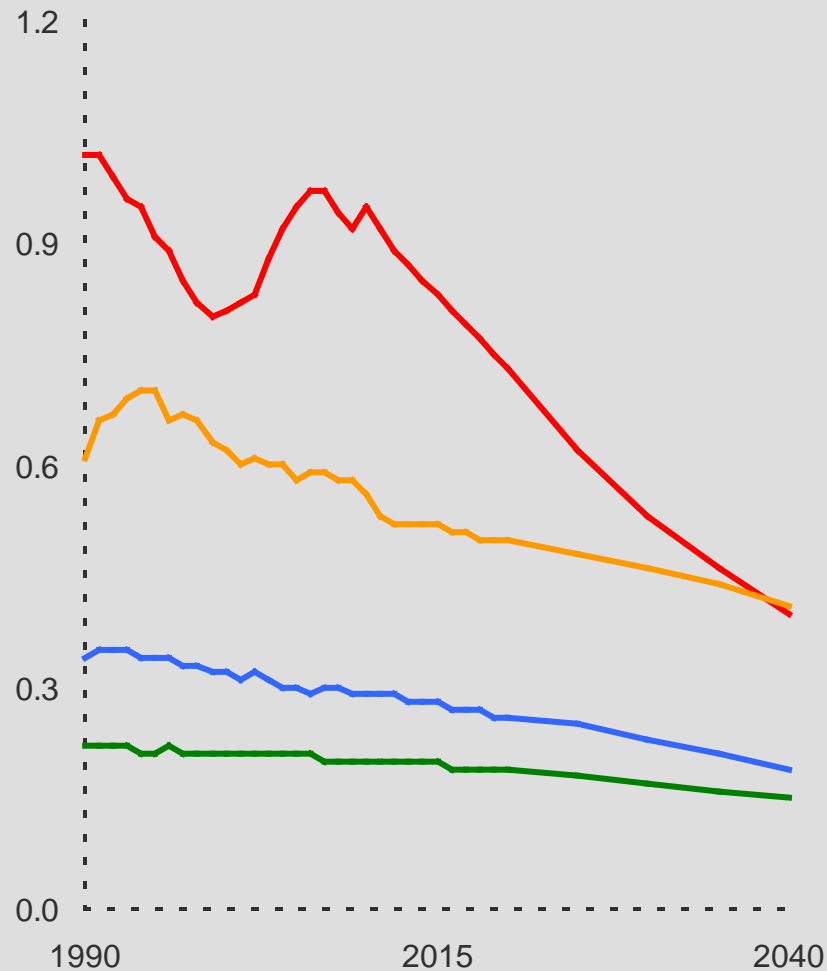
Electricity per Capita

MWh per capita



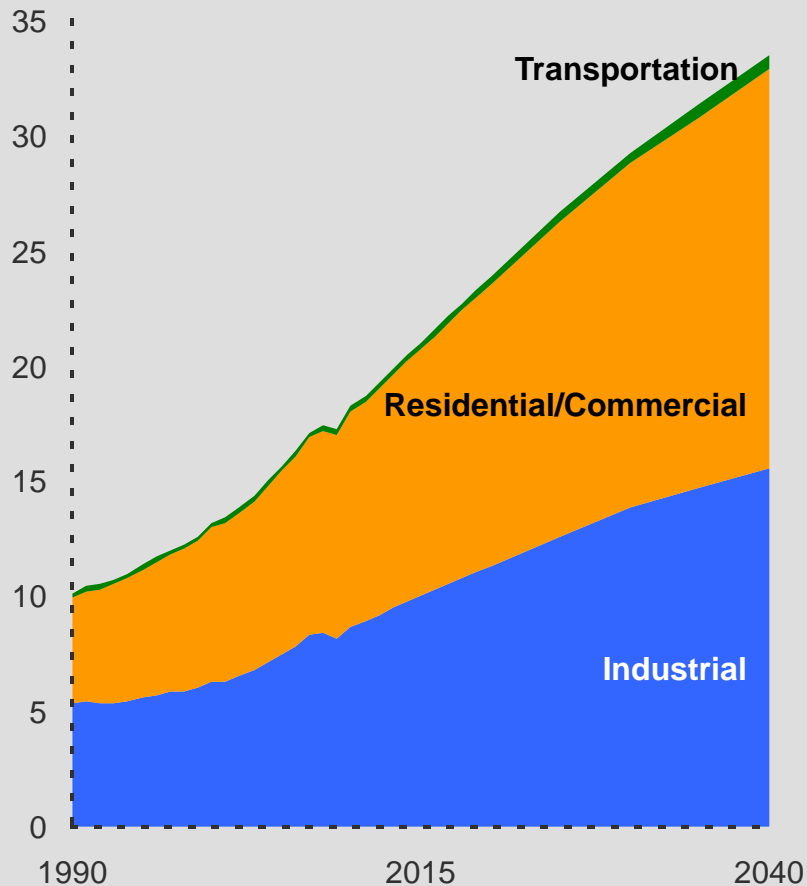
Electricity per GDP

MWh / 2005\$k

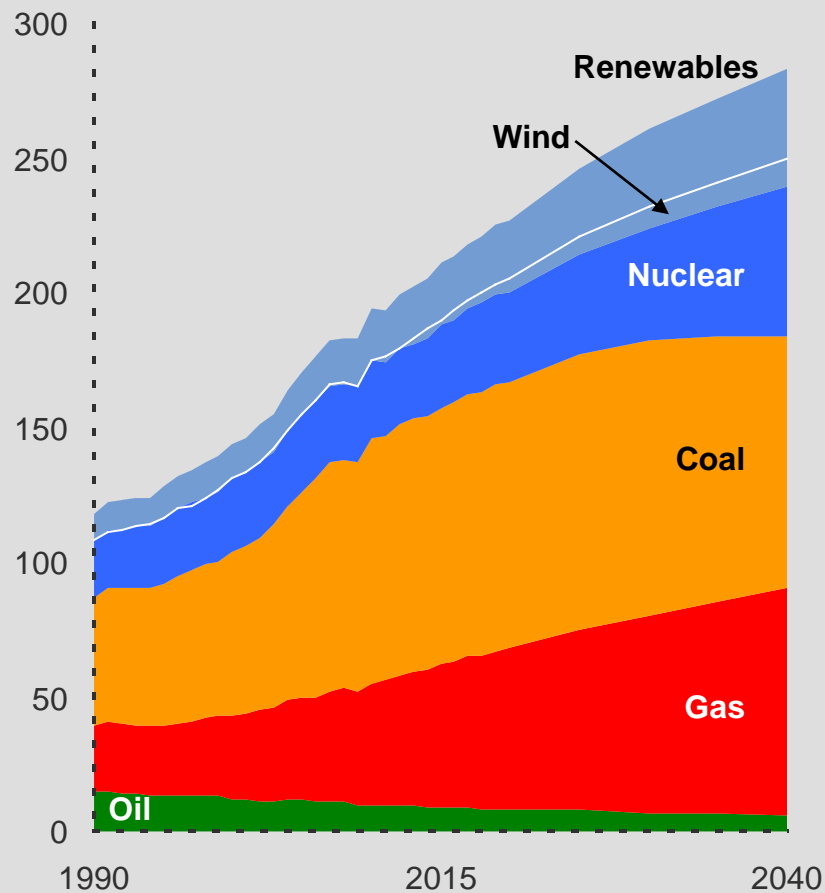


Electricity Demand Continues to Surge

By Sector
k TWh



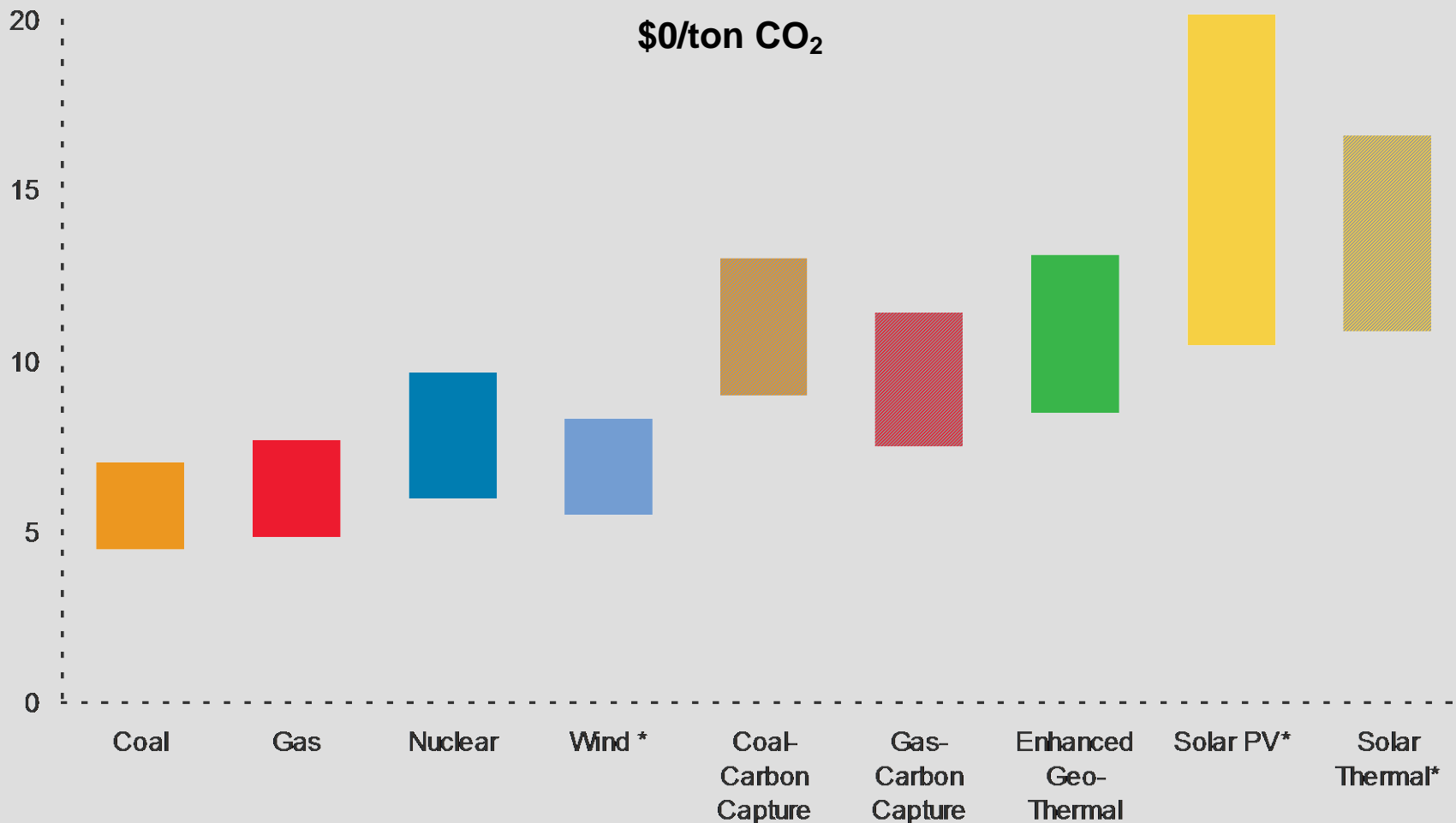
Fuel Into Electricity Generation
Quadrillion BTUs



Economic Choices for U.S. Electricity

Baseload, Startup 2030

2011 cents/kWh



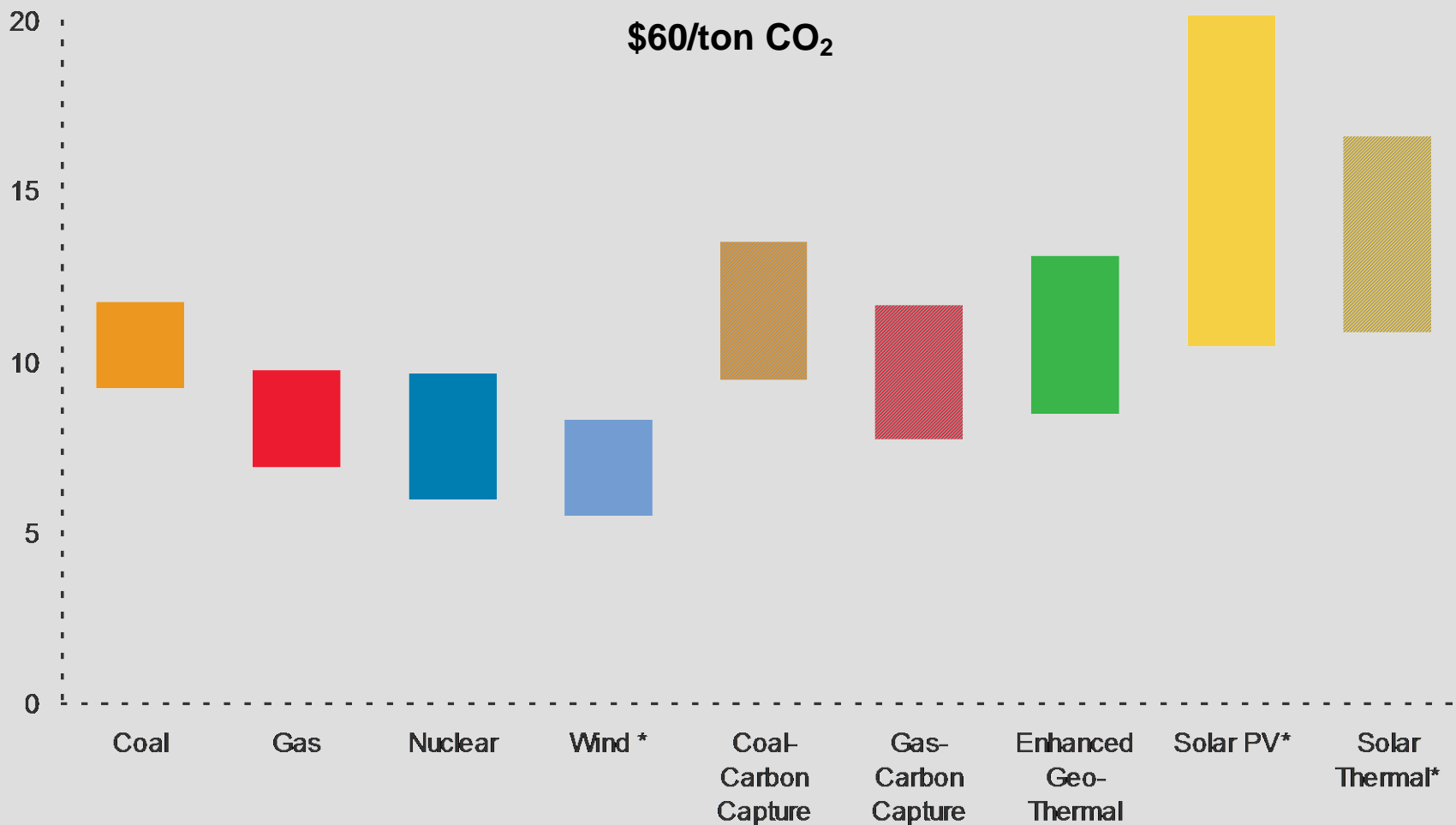
*Wind and solar exclude costs for backup capacity and additional transmission

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Economic Choices for U.S. Electricity

Baseload, Startup 2030

2011 cents/kWh



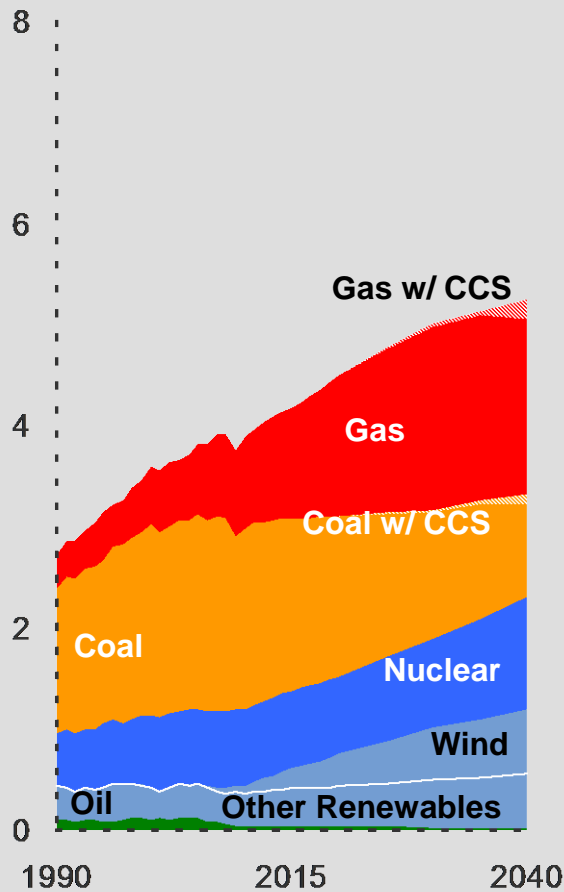
*Wind and solar exclude costs for backup capacity and additional transmission

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Electricity Supply Varies Globally

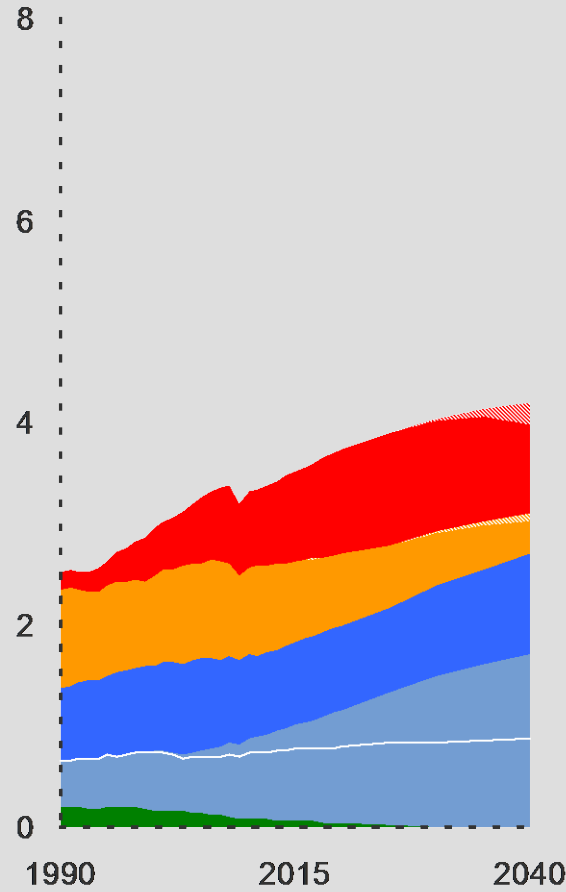
United States

k TWh



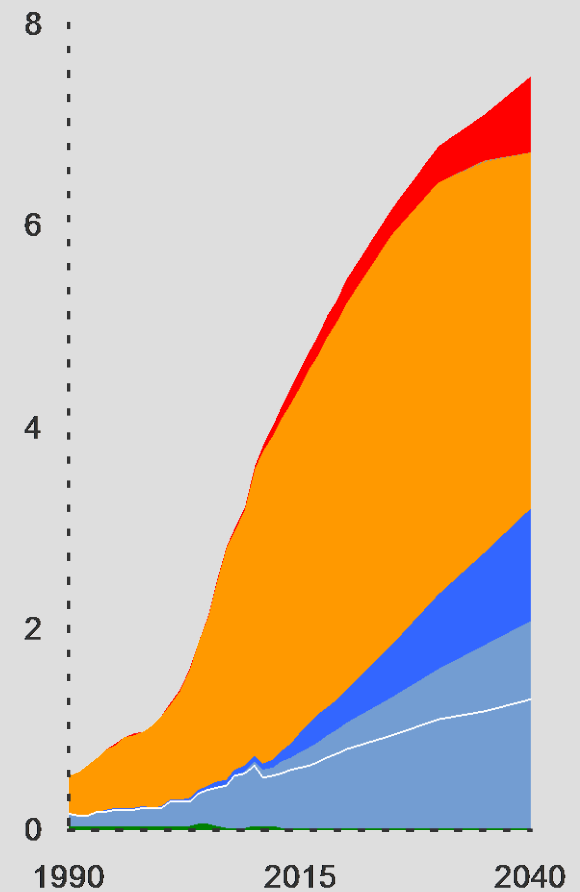
Europe

k TWh



China

k TWh

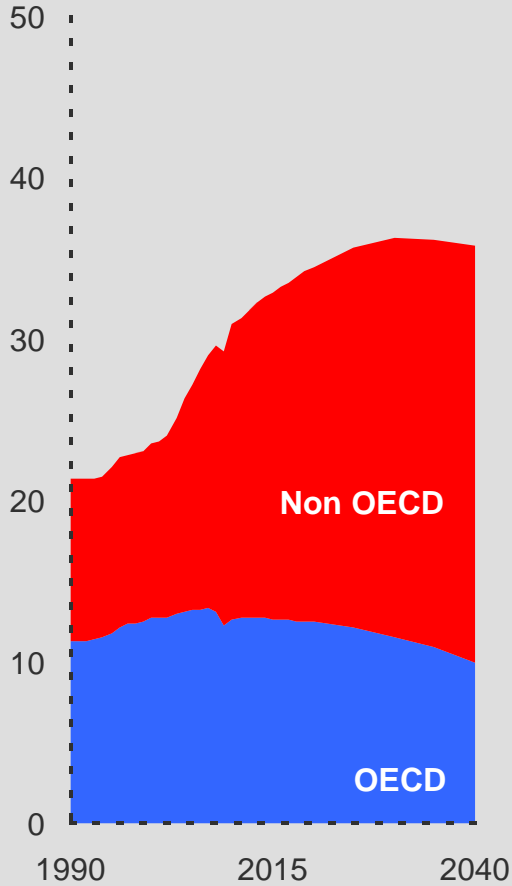


* Generation by Type

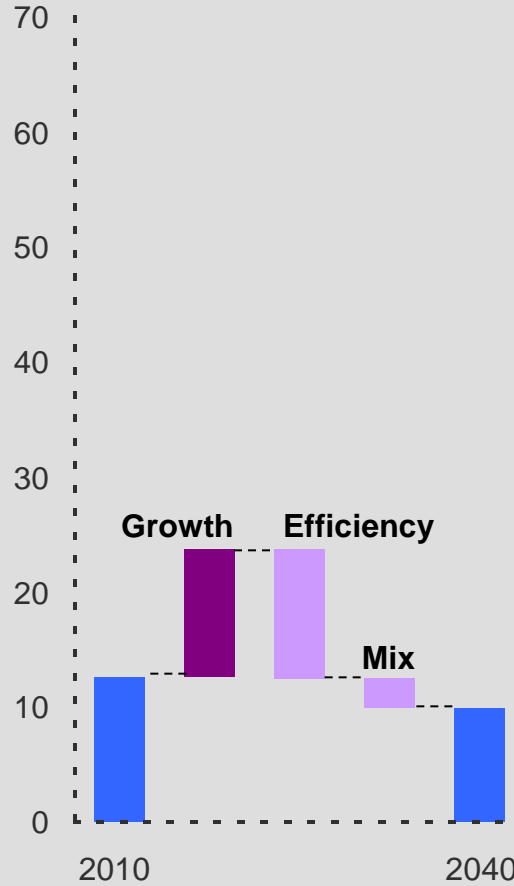
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CO₂ Emissions Moderate

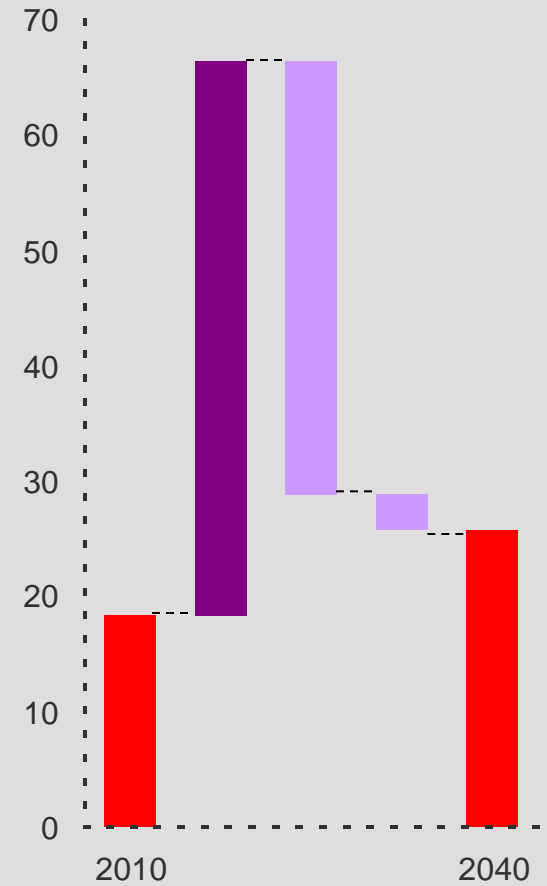
World
Billion Tons



OECD
Billion Tons

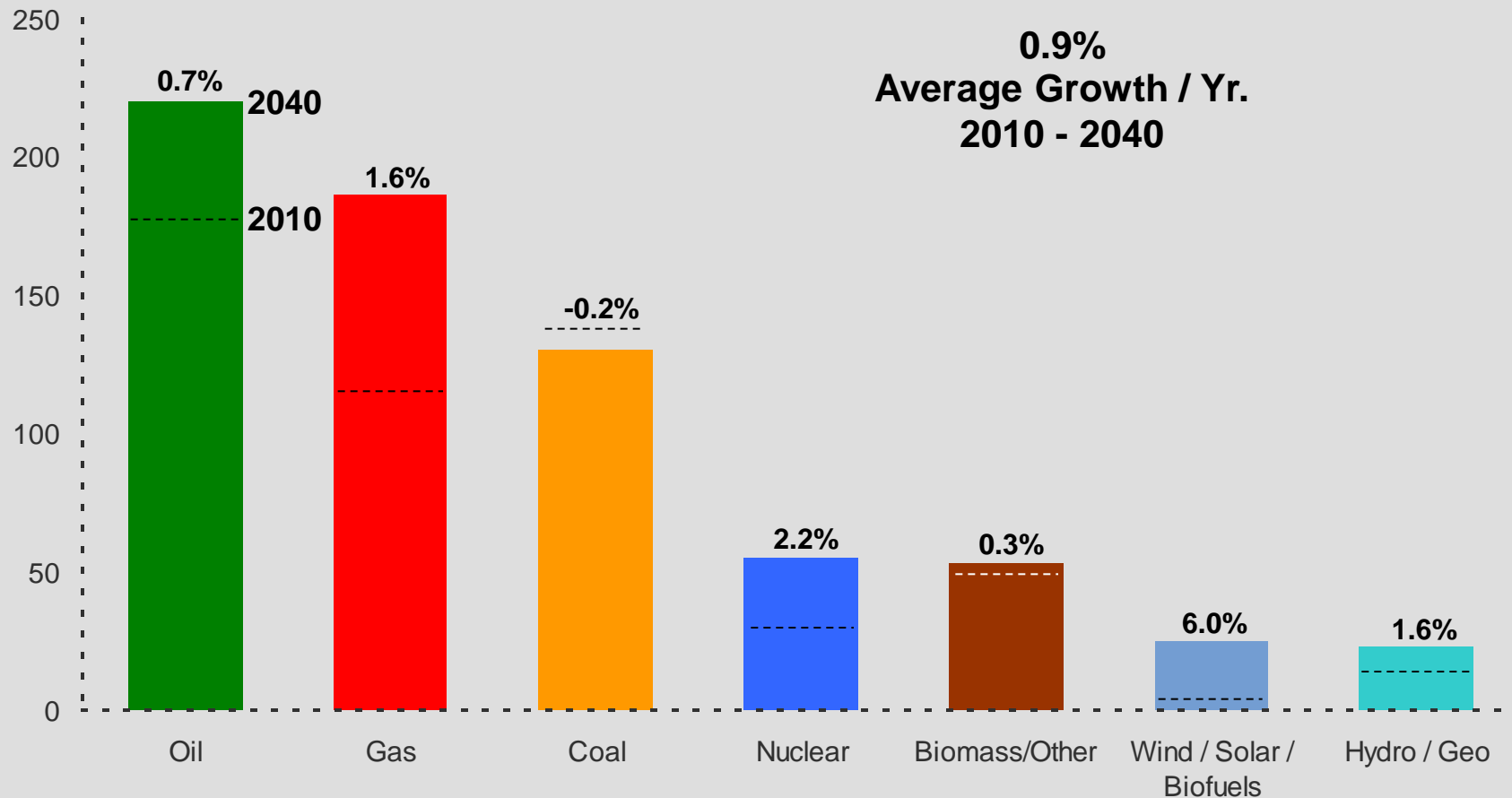


Non OECD
Billion Tons



Energy Mix Continues to Evolve

Quadrillion BTUs



Supply

By 2040

60%

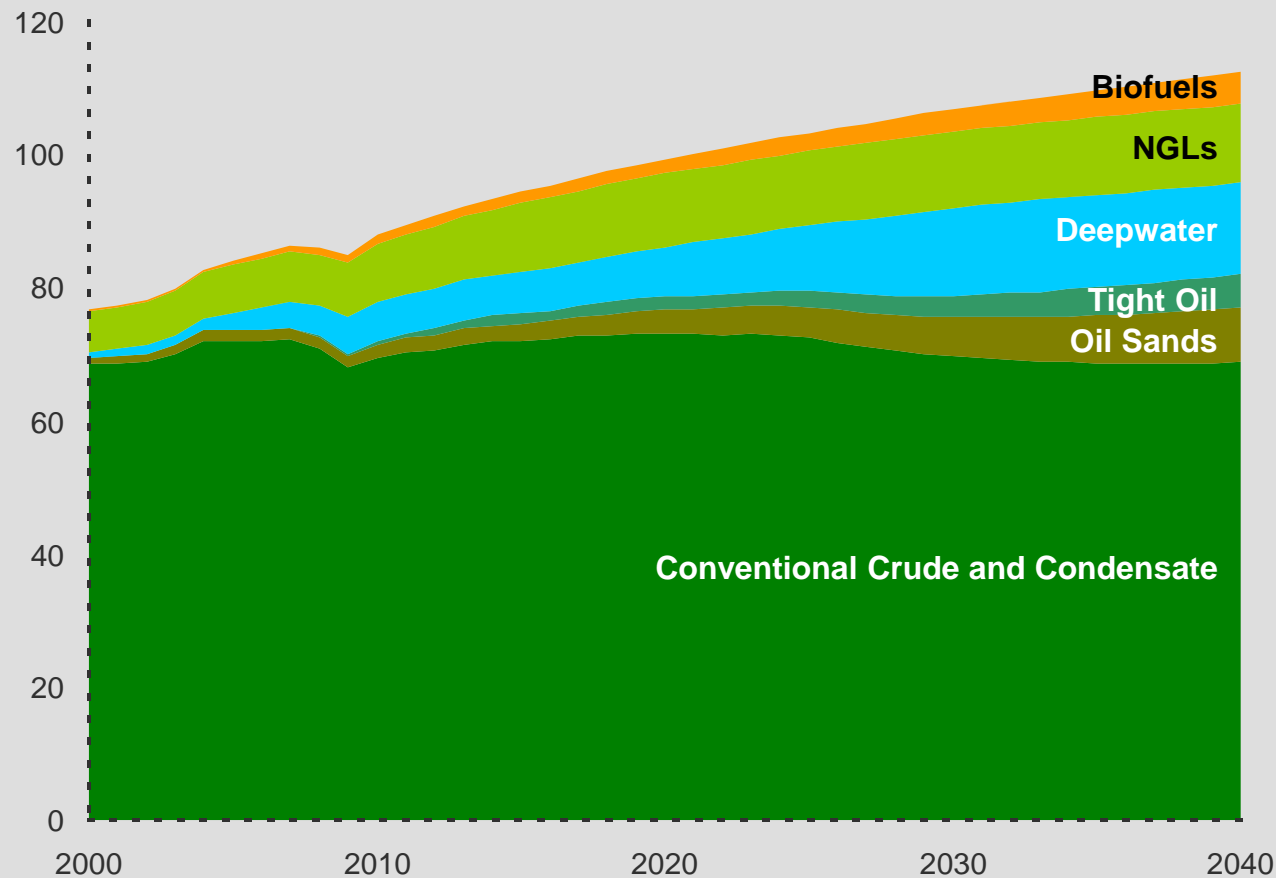
of global demand will be
supplied by oil & gas.



Liquids Supply Continues to Diversify

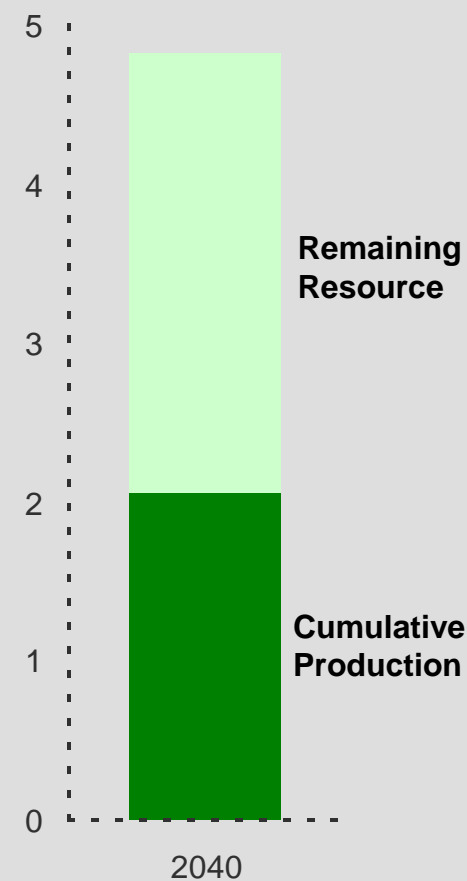
Liquids Supply

MBDOE



Resource *

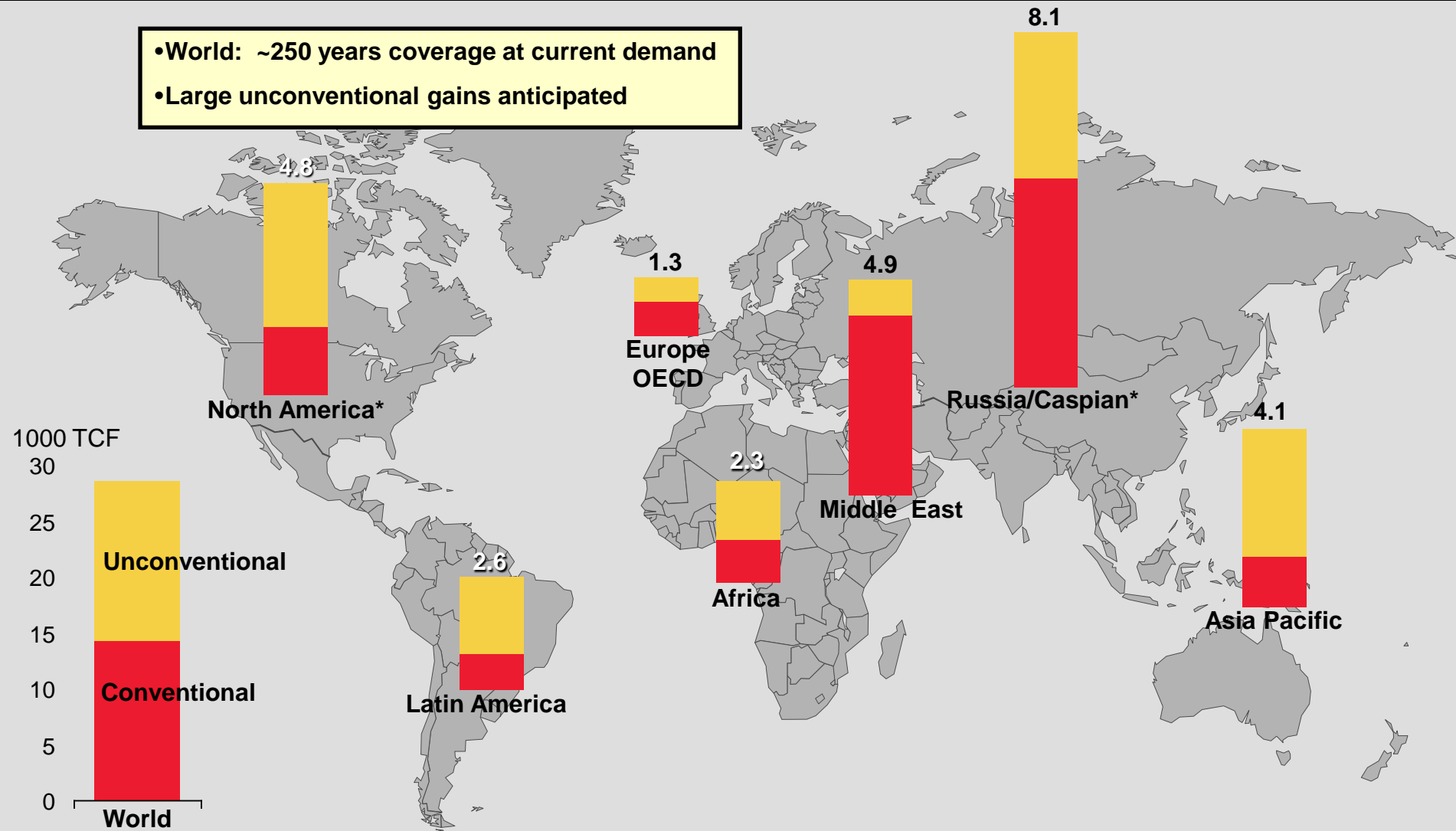
TBO



* Source: Total resource from IHS Inc. The use of this content was authorized in advance by IHS.

Global Gas Resource

- World: ~250 years coverage at current demand
- Large unconventional gains anticipated

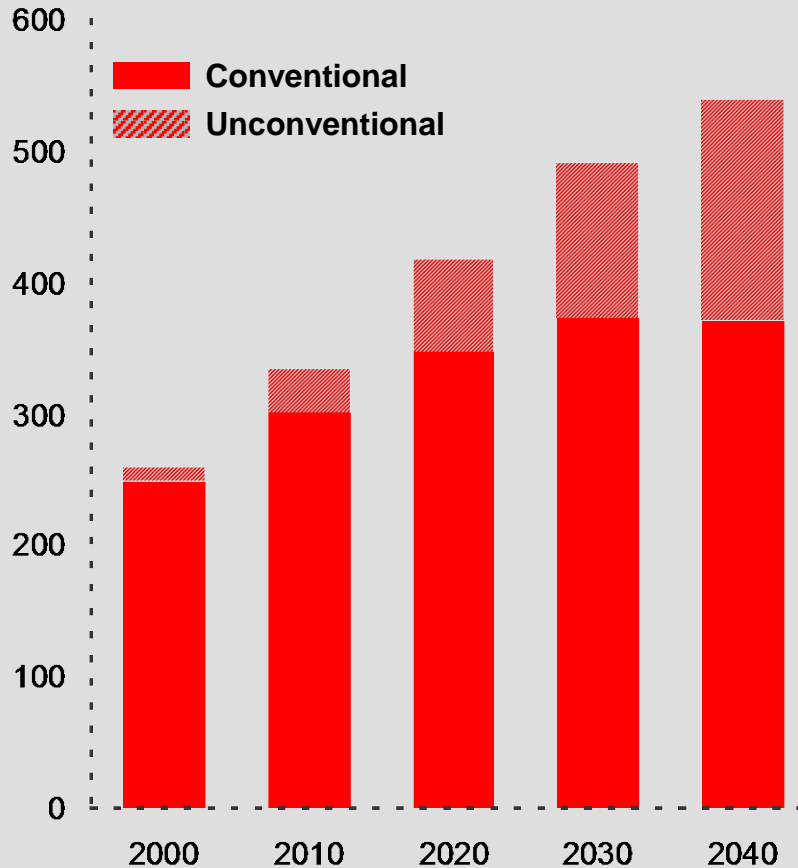


Source: IEA; * Includes Europe Non OECD

Unconventional Gas Contribution Increases

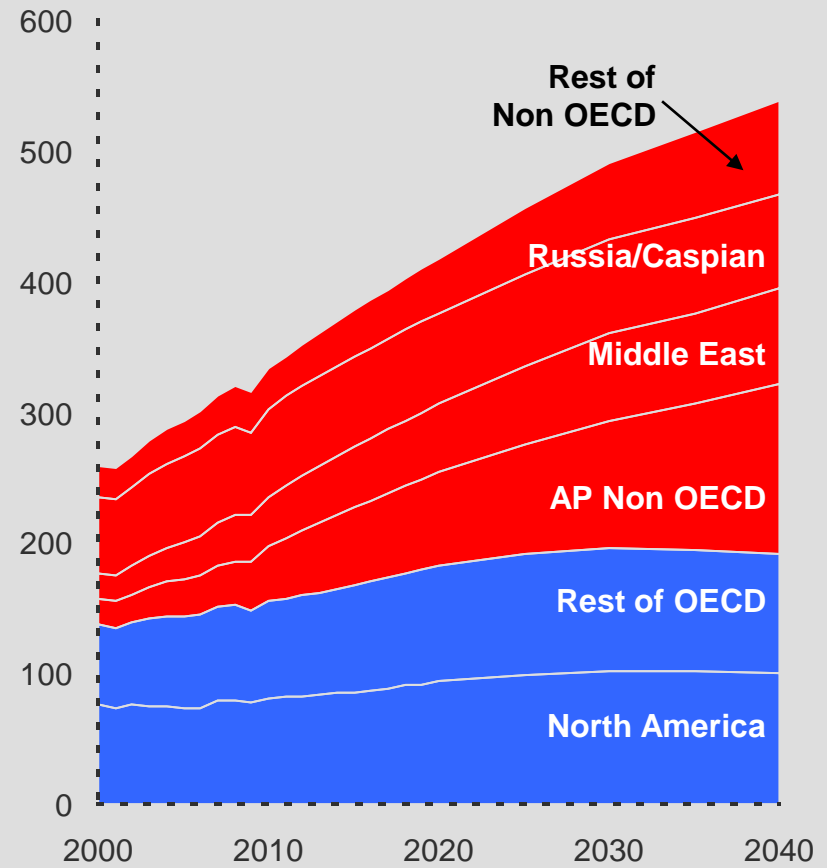
Production by Type

BCFD



Demand by Region

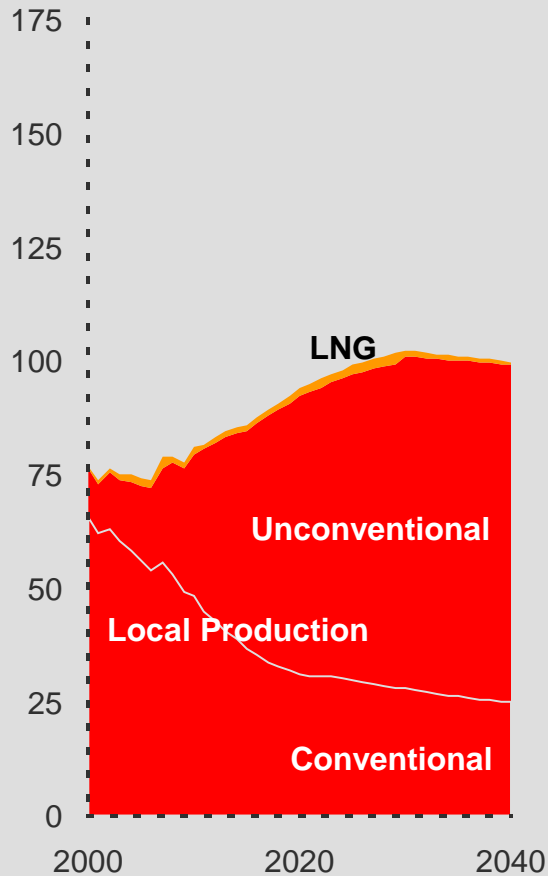
BCFD



Gas Supply Grows and Diversifies

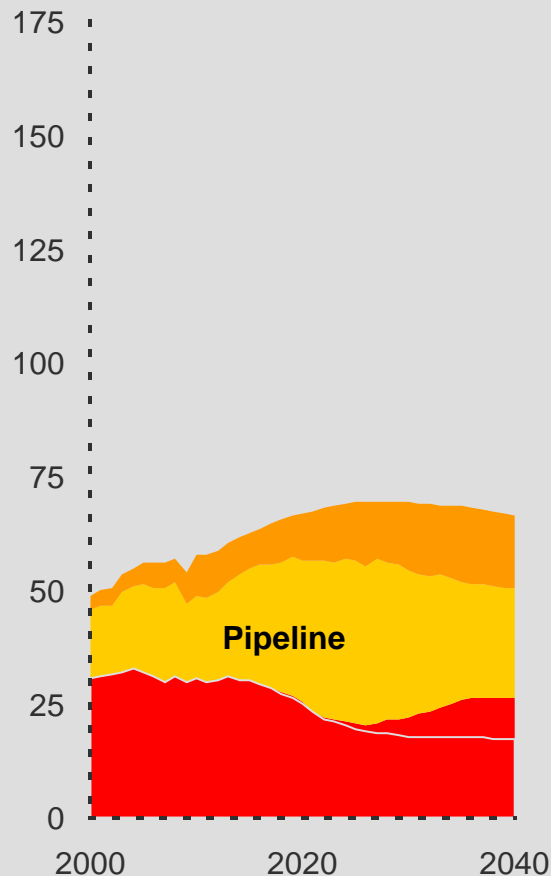
North America

BCFD



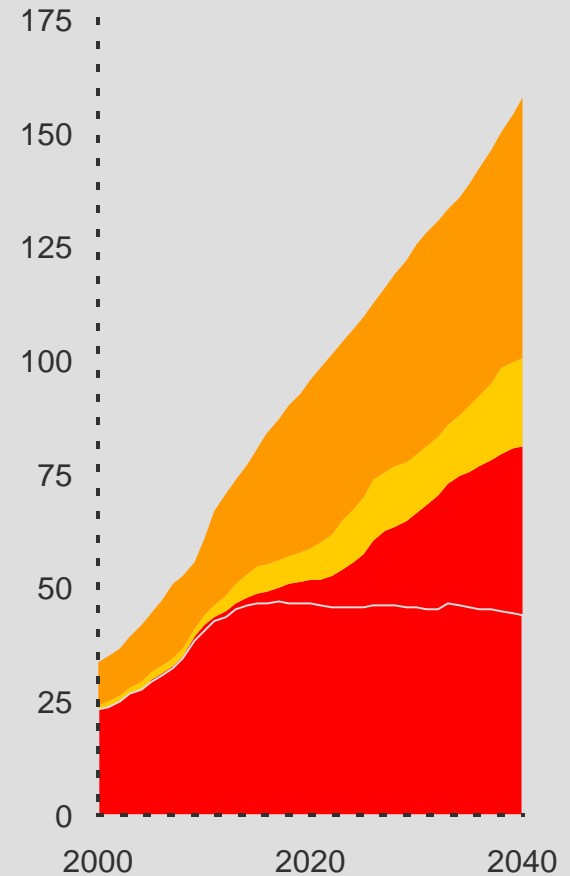
Europe

BCFD



Asia Pacific

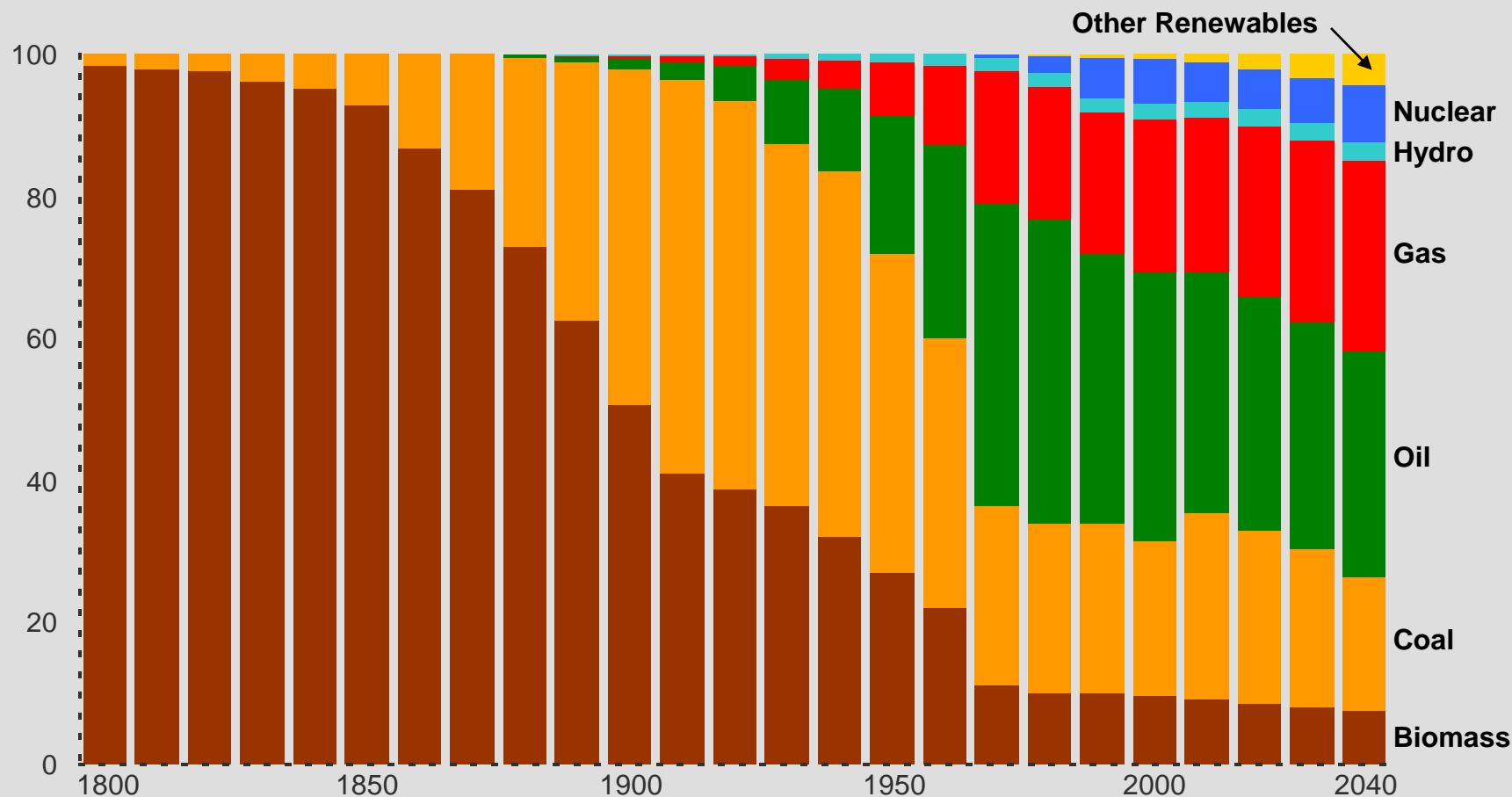
BCFD



Energy Use Evolves Over Time

Global Percent Mix of Fuels

Percent



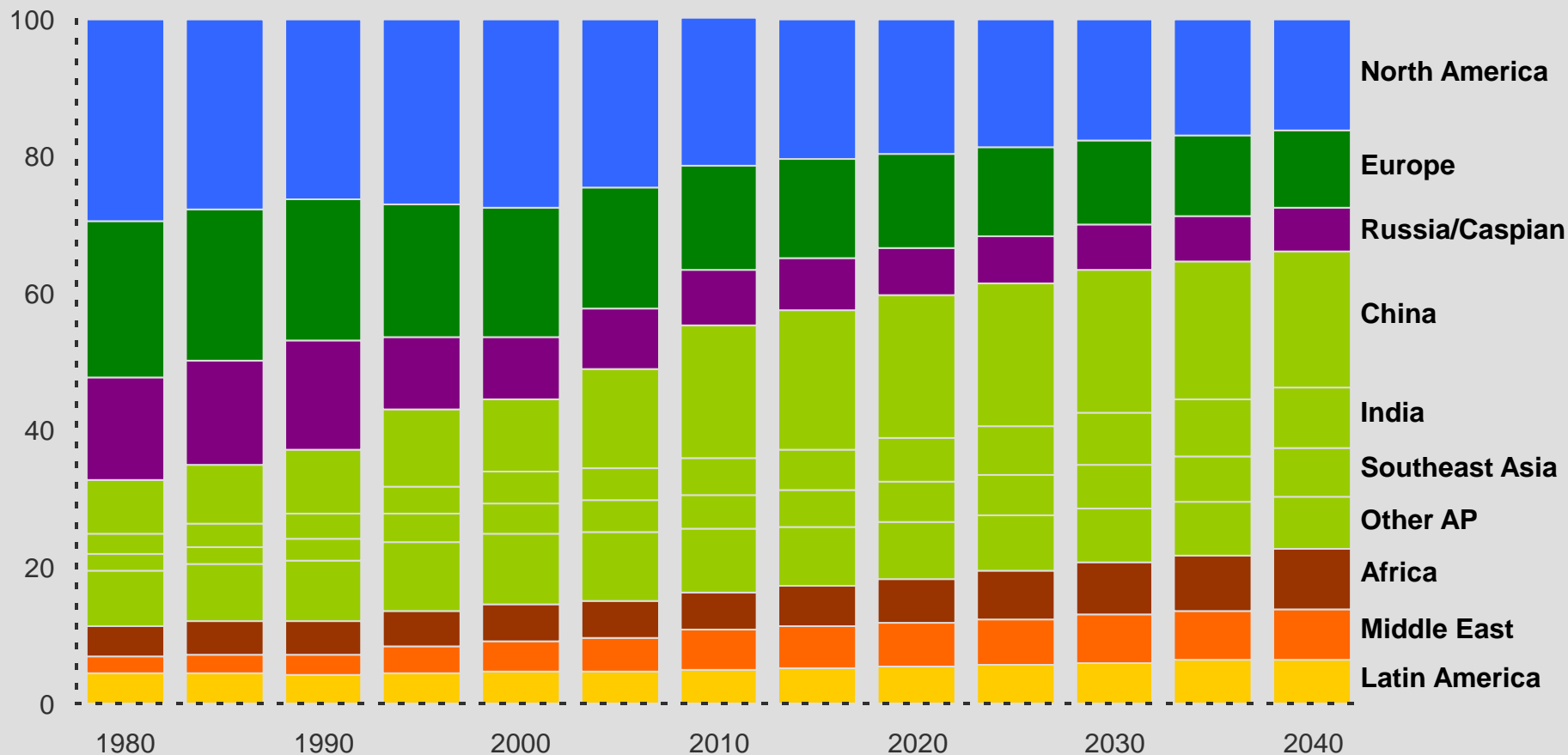
Source: Smil, *Energy Transitions* (1800-1960)

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Regional Energy Trends Evolve

By Region

Percent

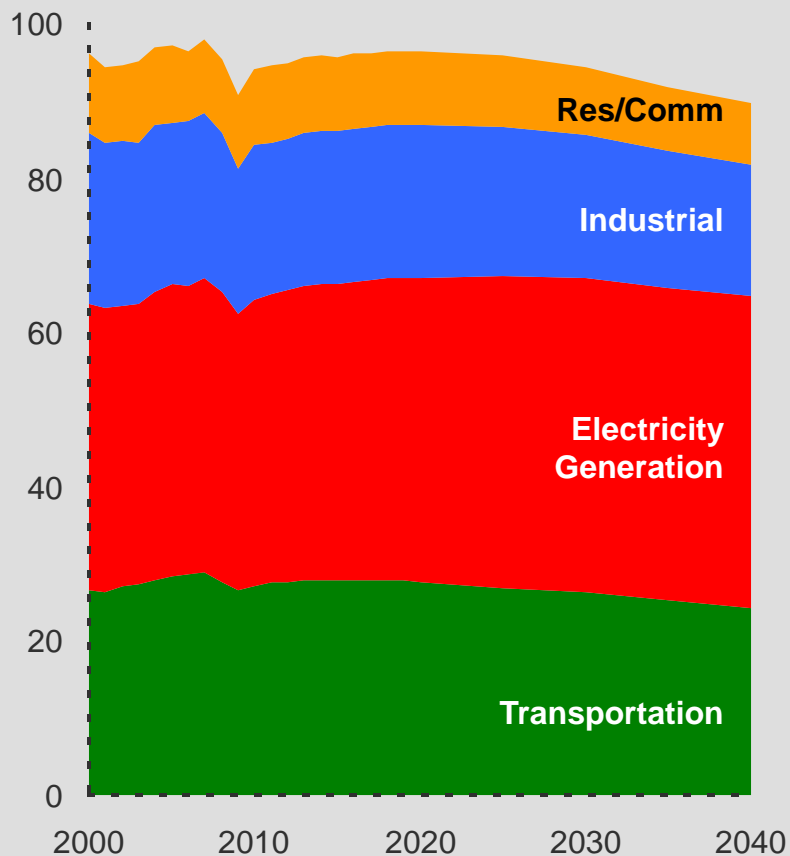


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US Energy Demand and Supply

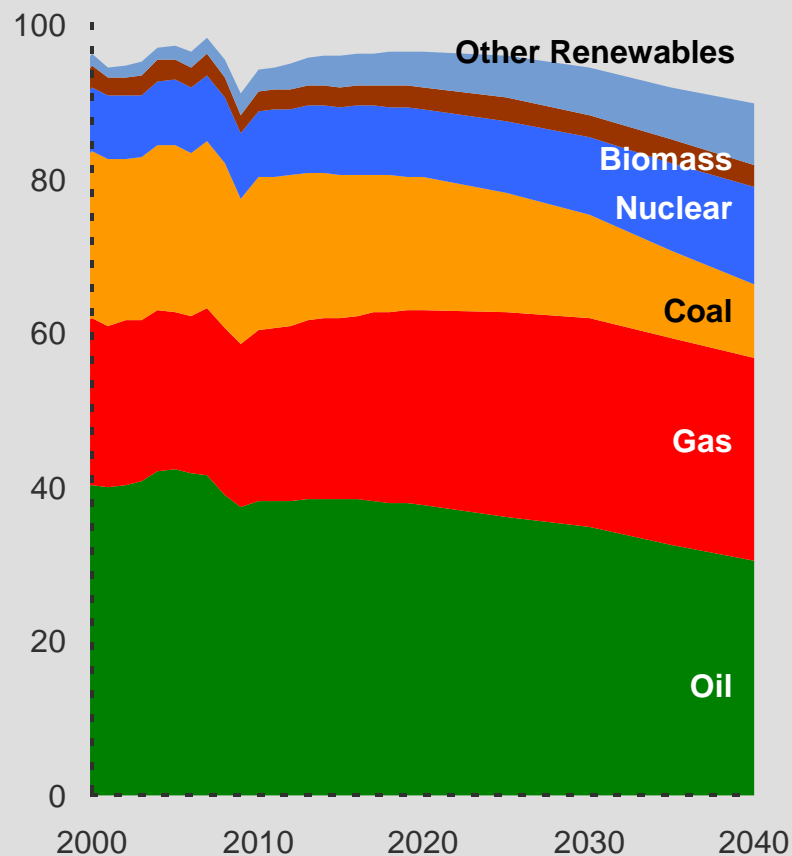
By Sector

Quadrillion BTUs



By Fuel

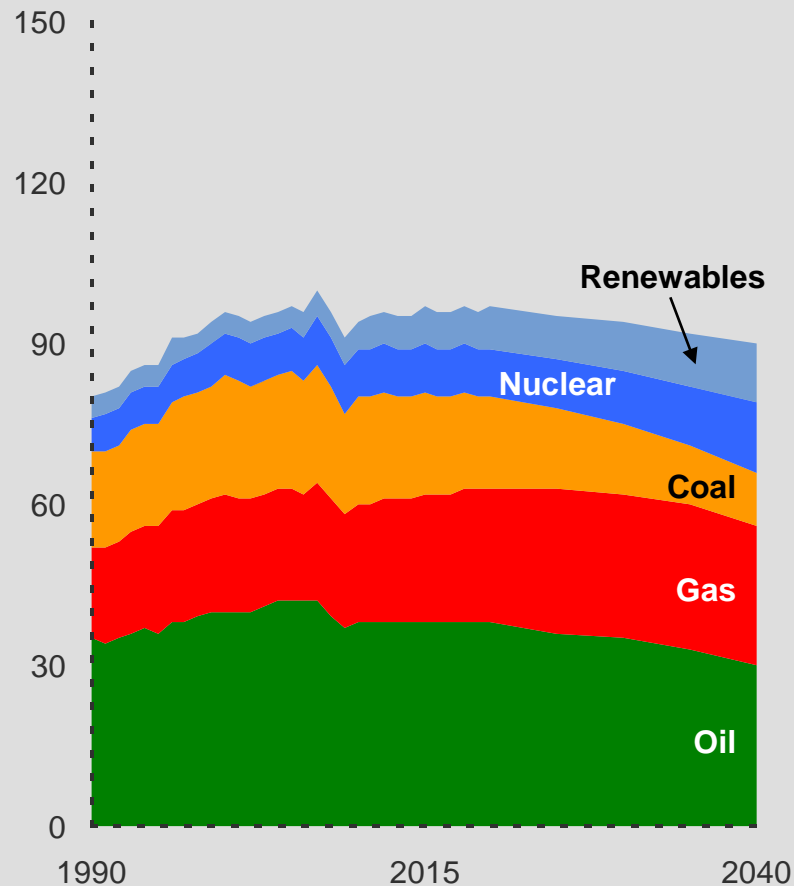
Quadrillion BTUs



Fuel Demand Differs Between U.S. & China

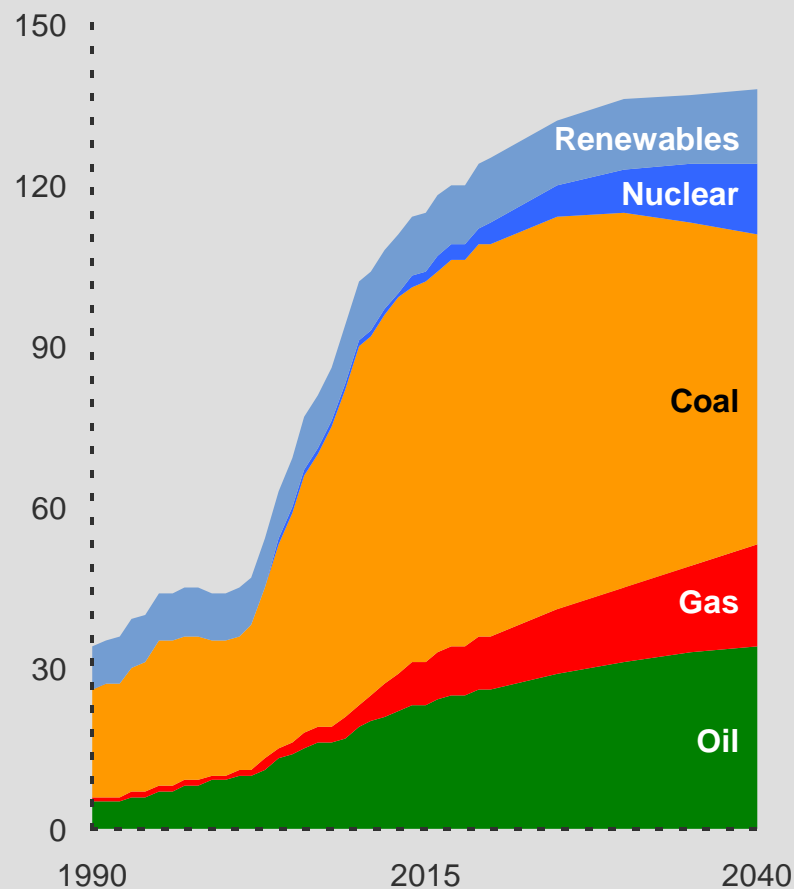
U.S.

Quadrillion BTUs



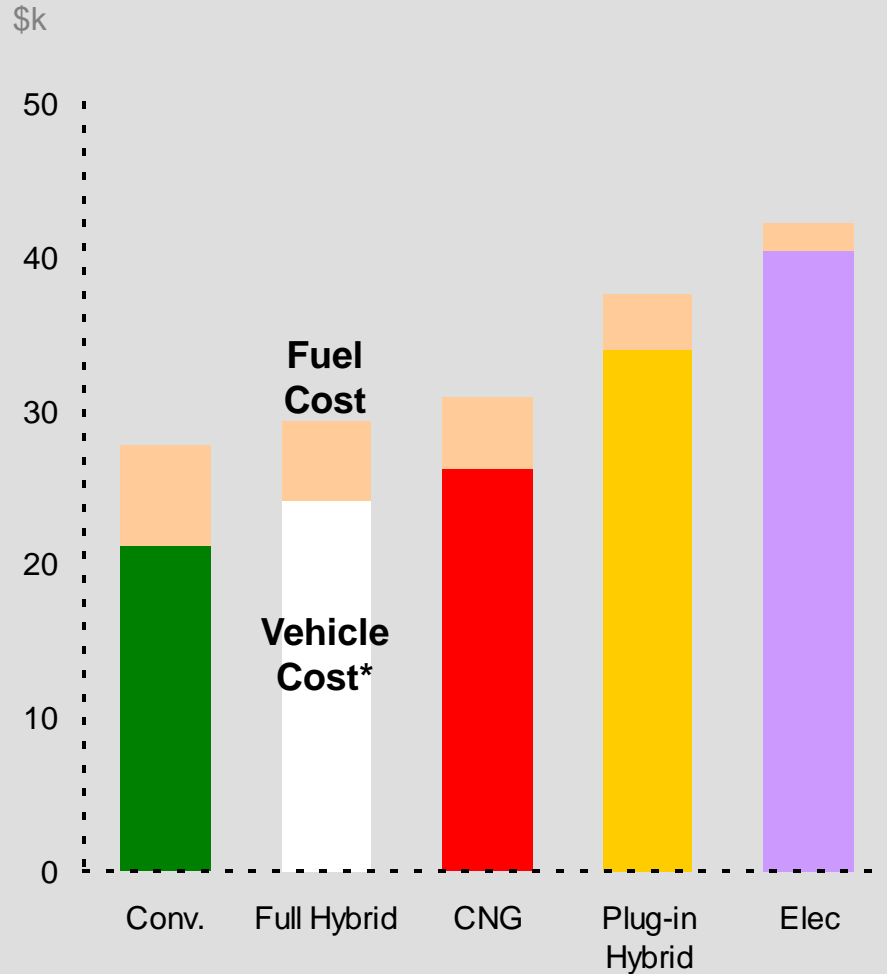
China

Quadrillion BTUs

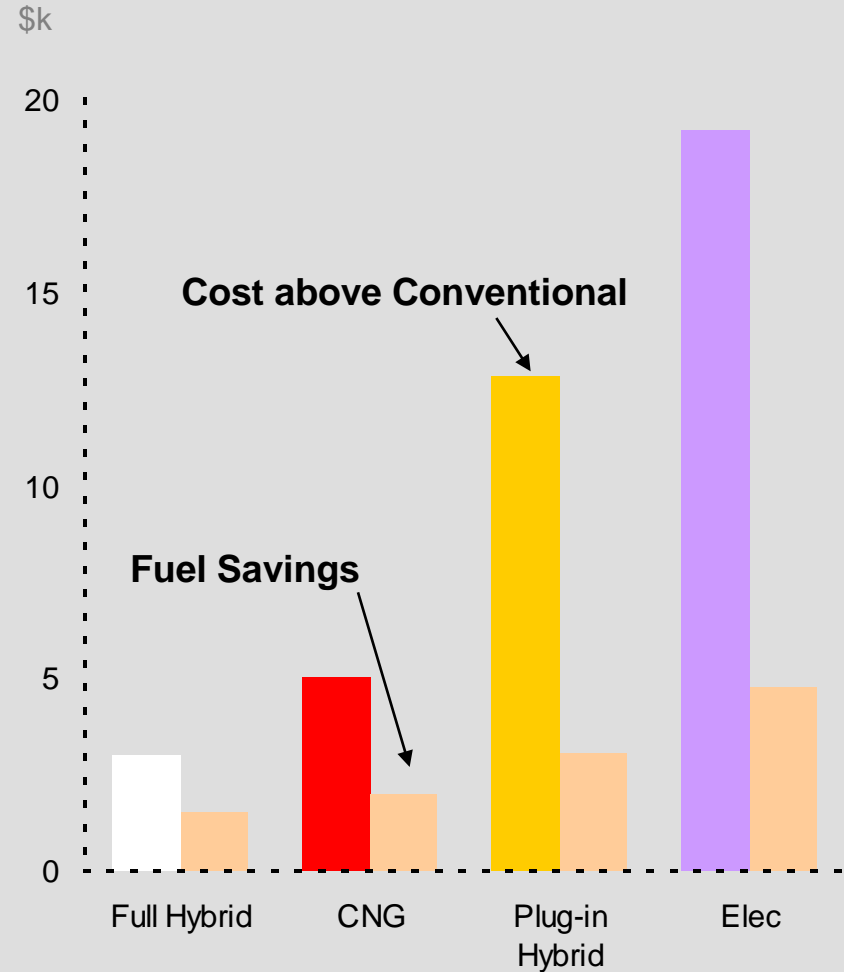


Today's Vehicle Technology Choices

5-Year Cost of Ownership



Cost & Savings



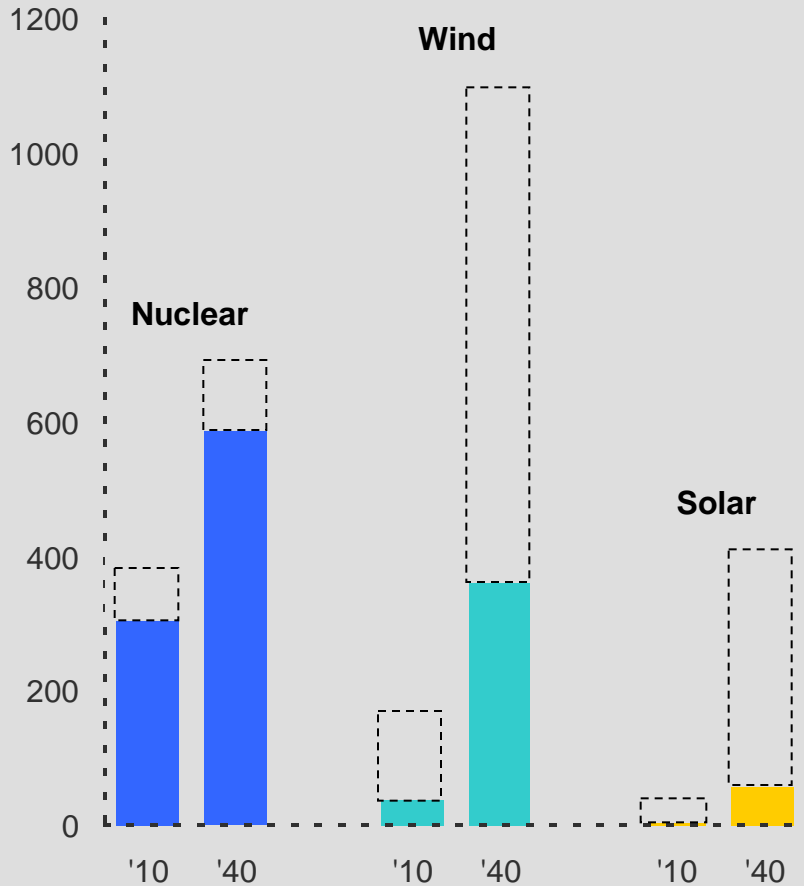
*Excludes Maintenance and Insurance



Global Electricity Generation Mix Evolves

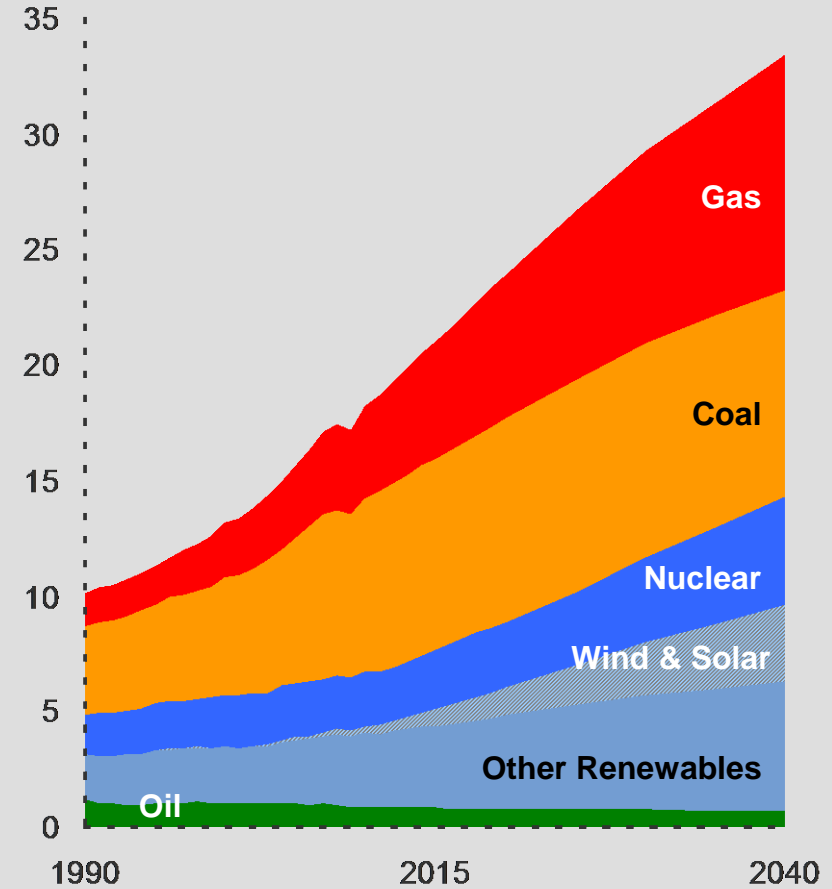
Global Capacity Utilized

GW



By Generation

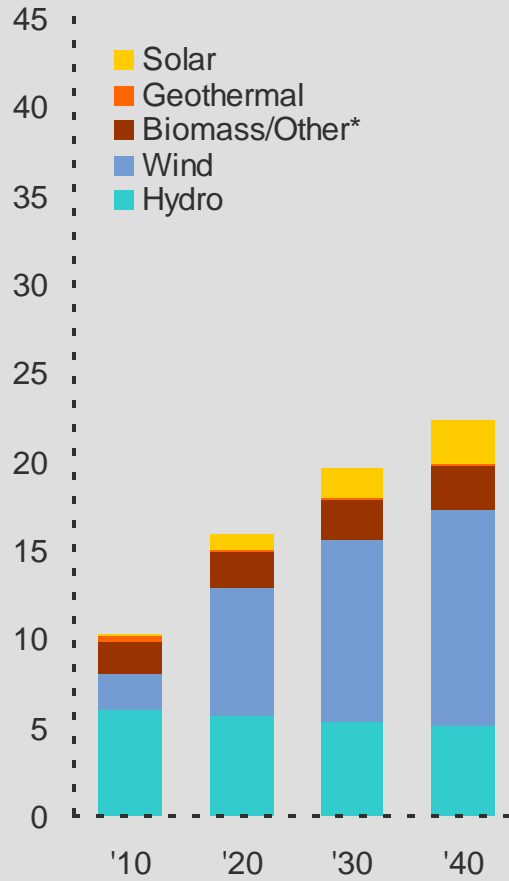
k TWh



Renewables Gain Share

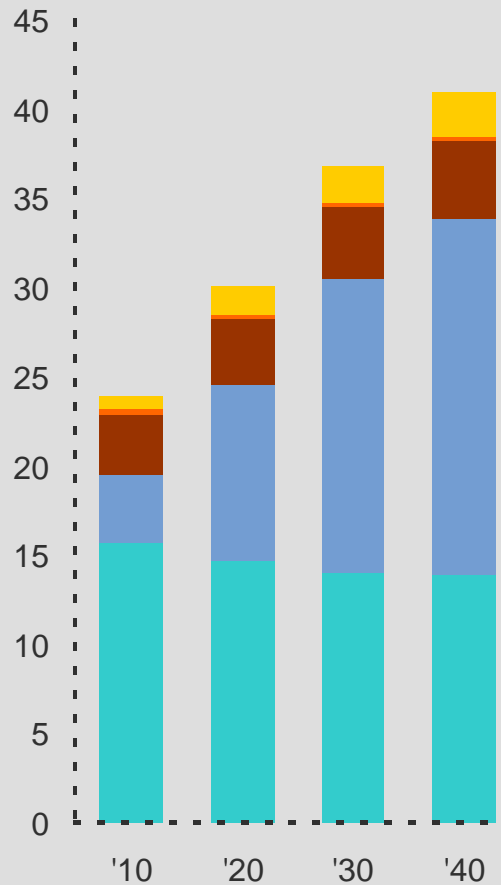
United States

Percent of TWh



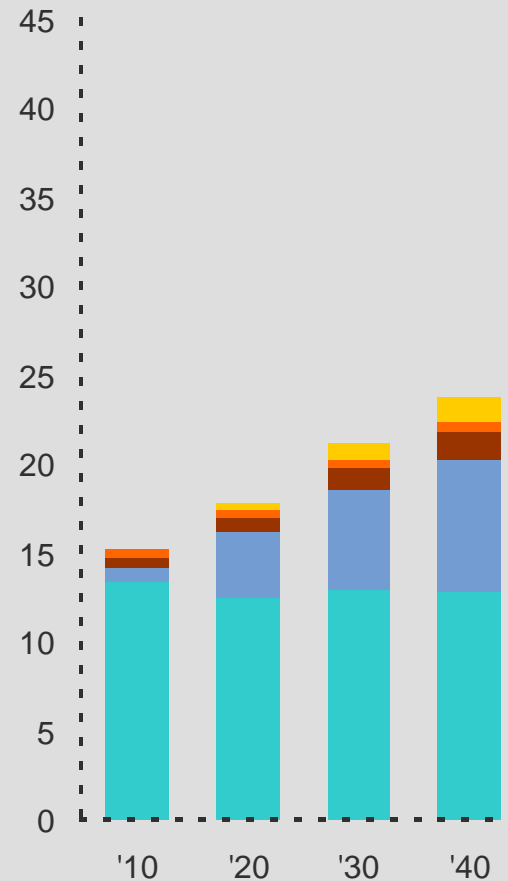
Europe

Percent of TWh



Asia Pacific

Percent of TWh



*Biomass includes Municipal Solid Waste