

# The Outlook for Energy: A View to 2040

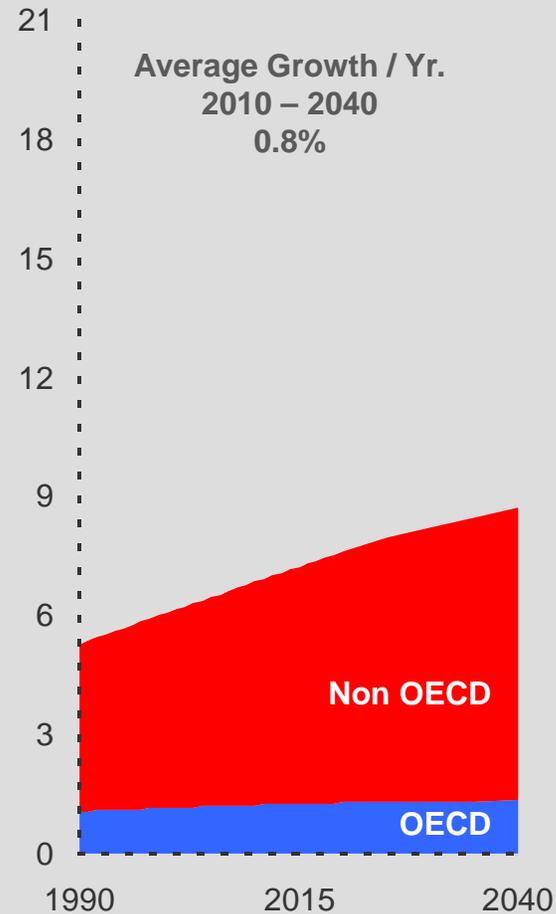
William Colton  
December 8, 2011

**ExxonMobil**

# Global Progress Drives Demand

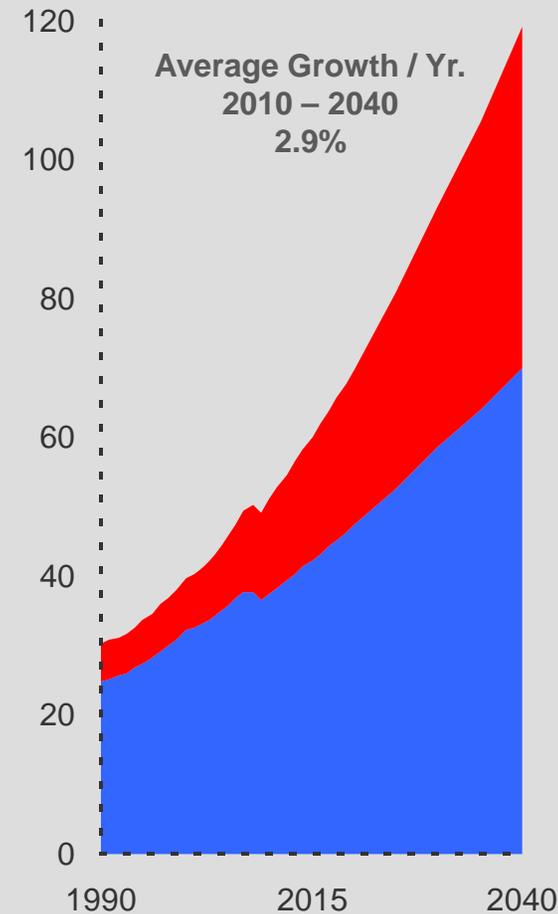
## Population

Billion



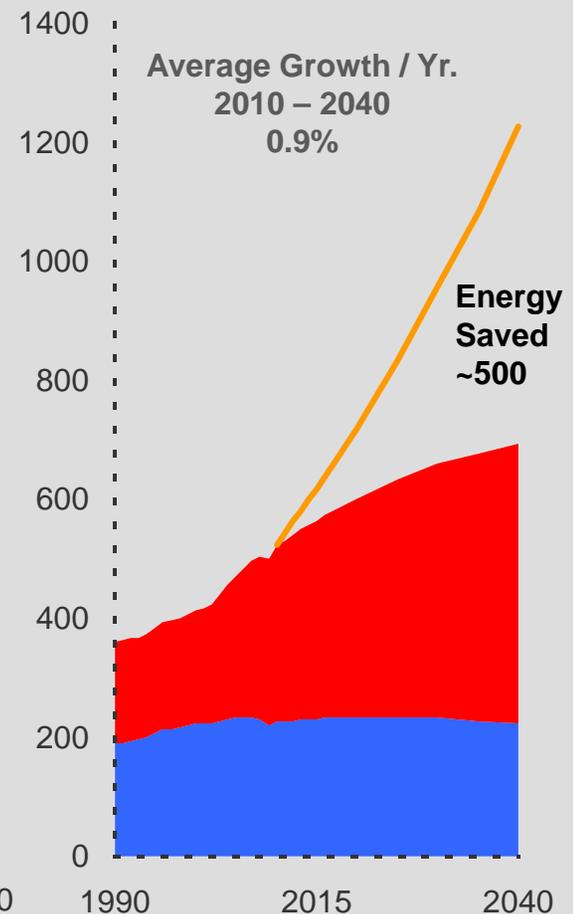
## GDP

Trillion 2005\$

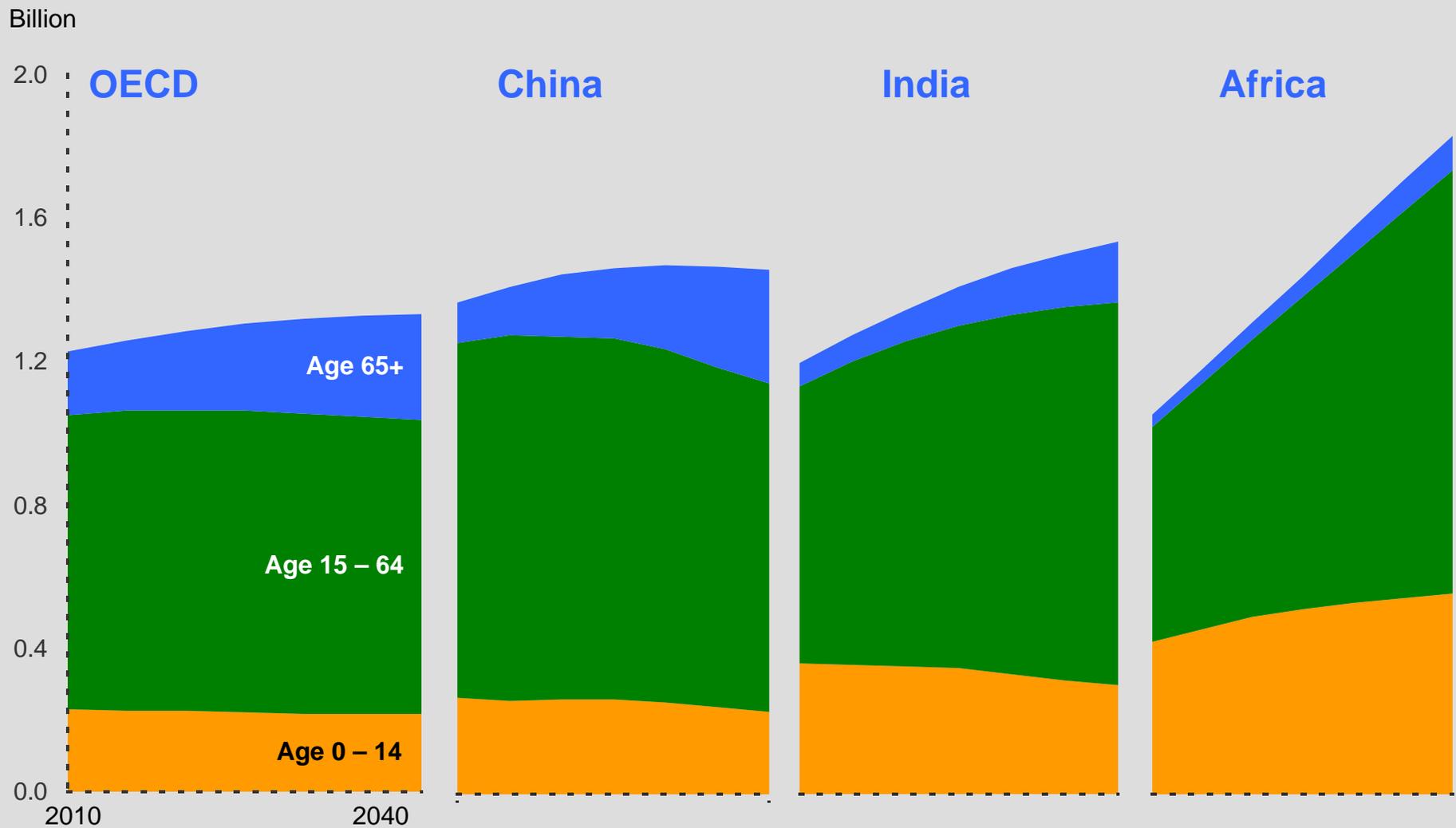


## Energy Demand

Quadrillion BTUs



# Demographic Shifts Alter Demand Profile

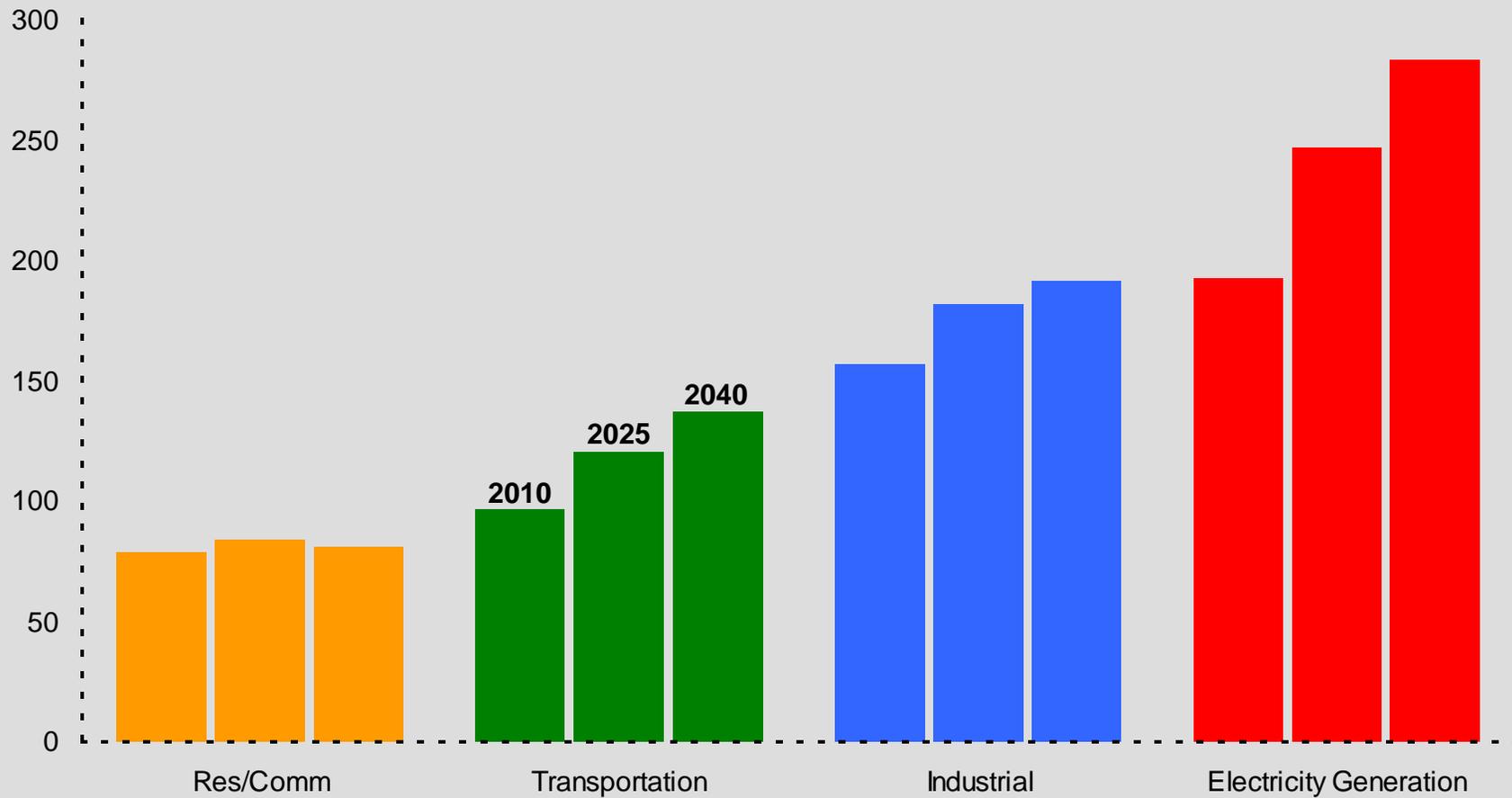


Source: World Bank

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# Electricity Generation Leads Growth

Quadrillion BTUs



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# Transportation

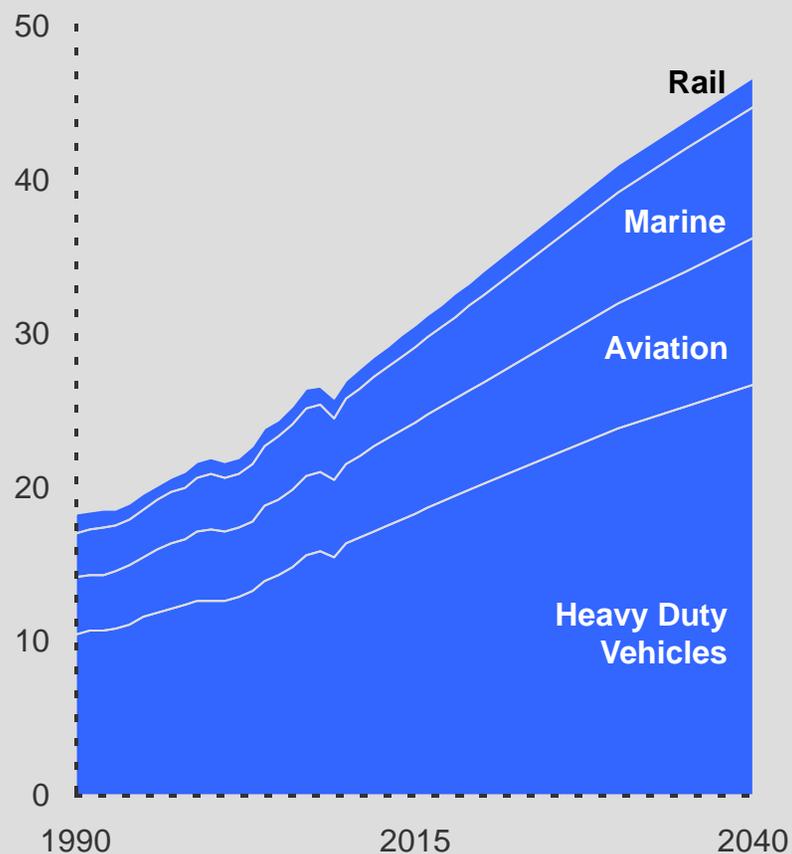
90%

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

# Commercial Transportation Drives Demand Growth

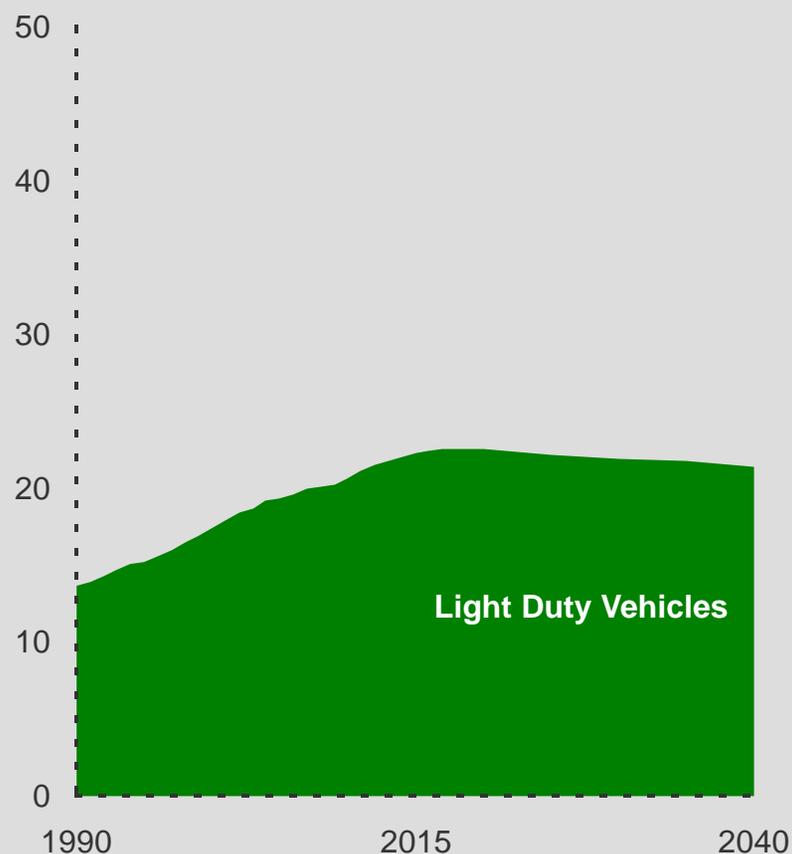
## Commercial

MBDOE



## Personal

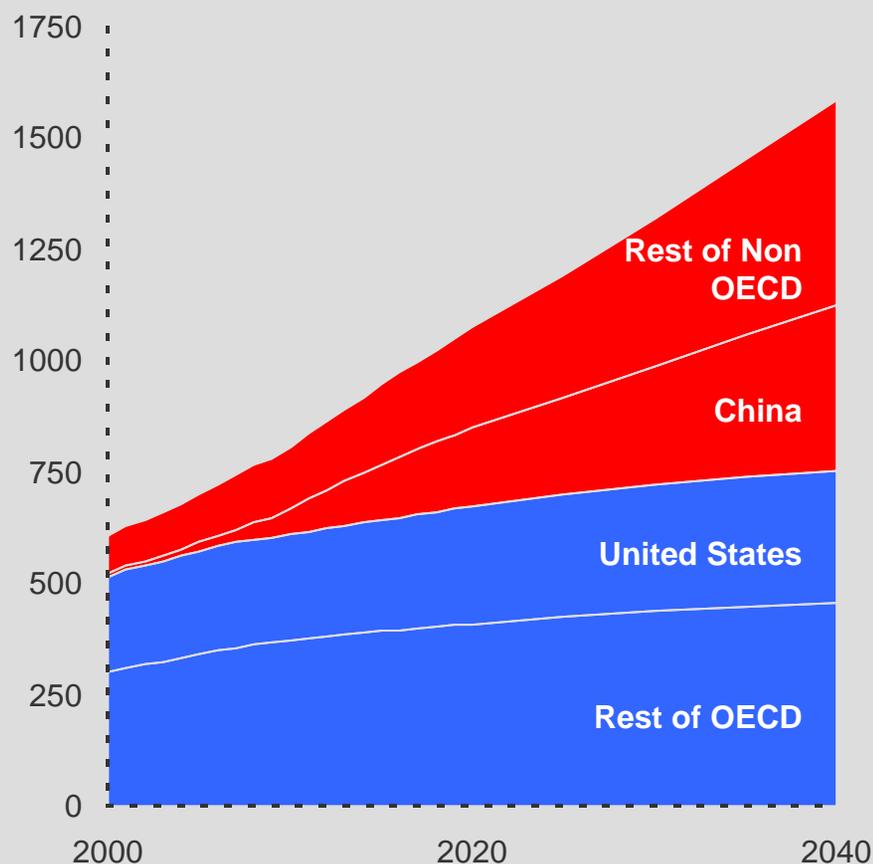
MBDOE



# Impact of Global Fleet Shift on Efficiency

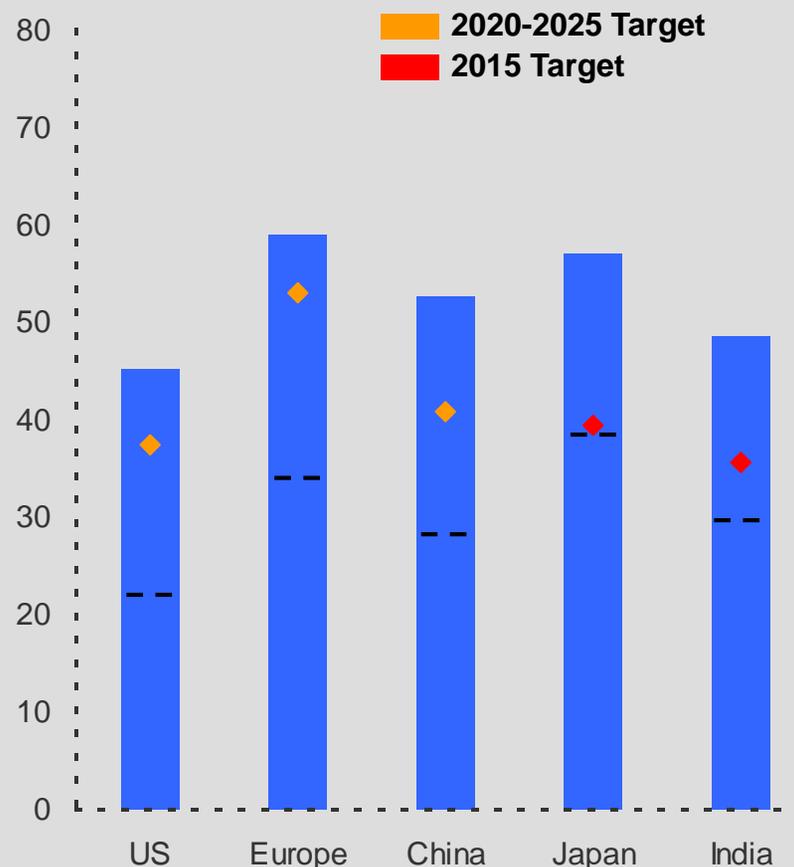
## Light Duty Vehicle Fleet by Region

Million Vehicles



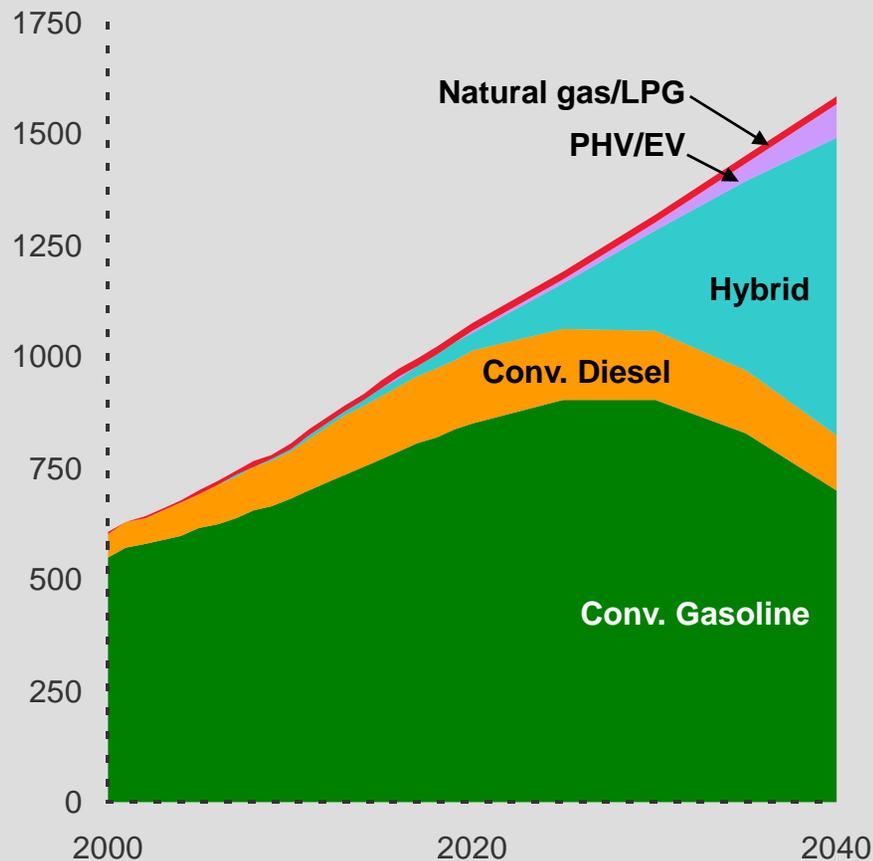
## Avg New Car Fuel Efficiency in 2040

On-Road MPG

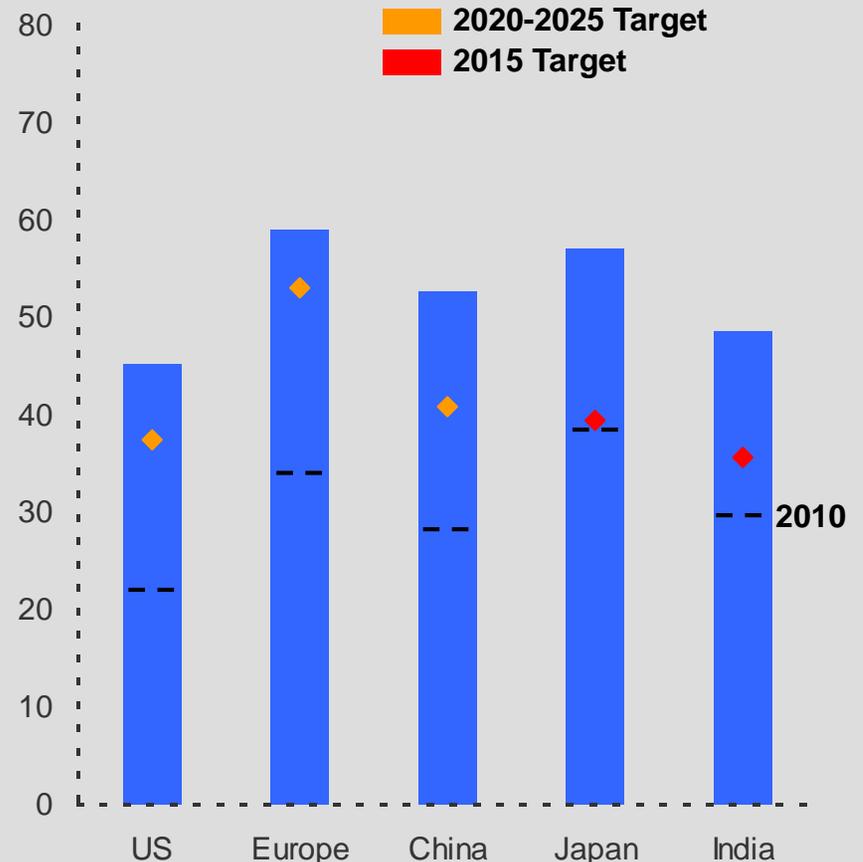


# Impact of Global Fleet Shift on Efficiency

**Light Duty Vehicle Fleet by Type**  
Million Vehicles



**Avg New Car Fuel Efficiency in 2040**  
On-Road MPG





# Electricity Generation

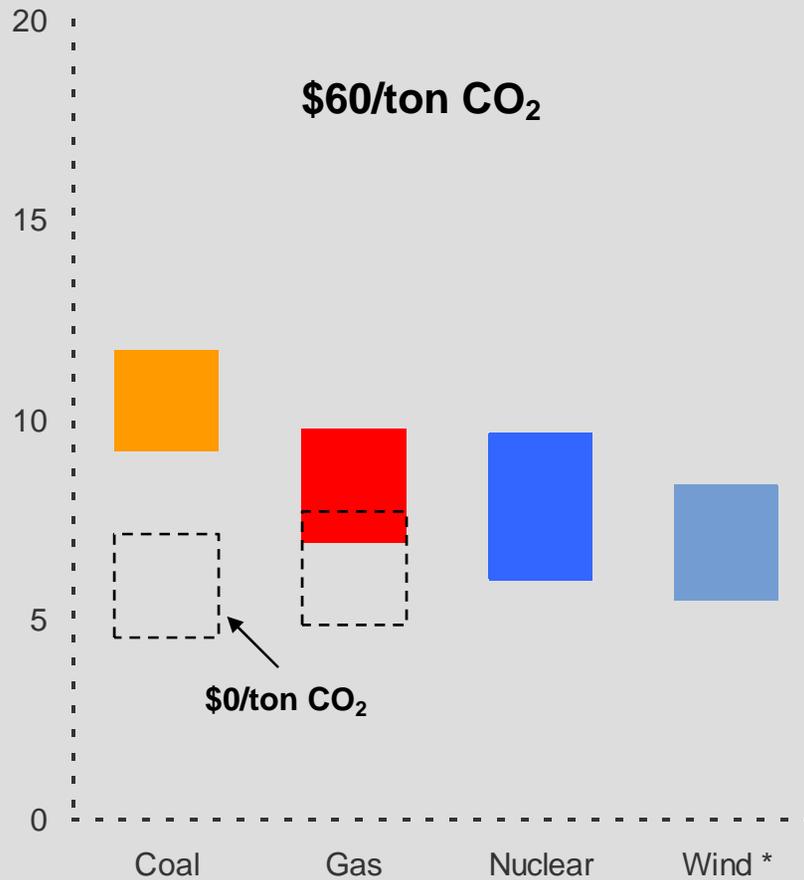
**+80%**

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

# Electricity Demand Continues to Surge

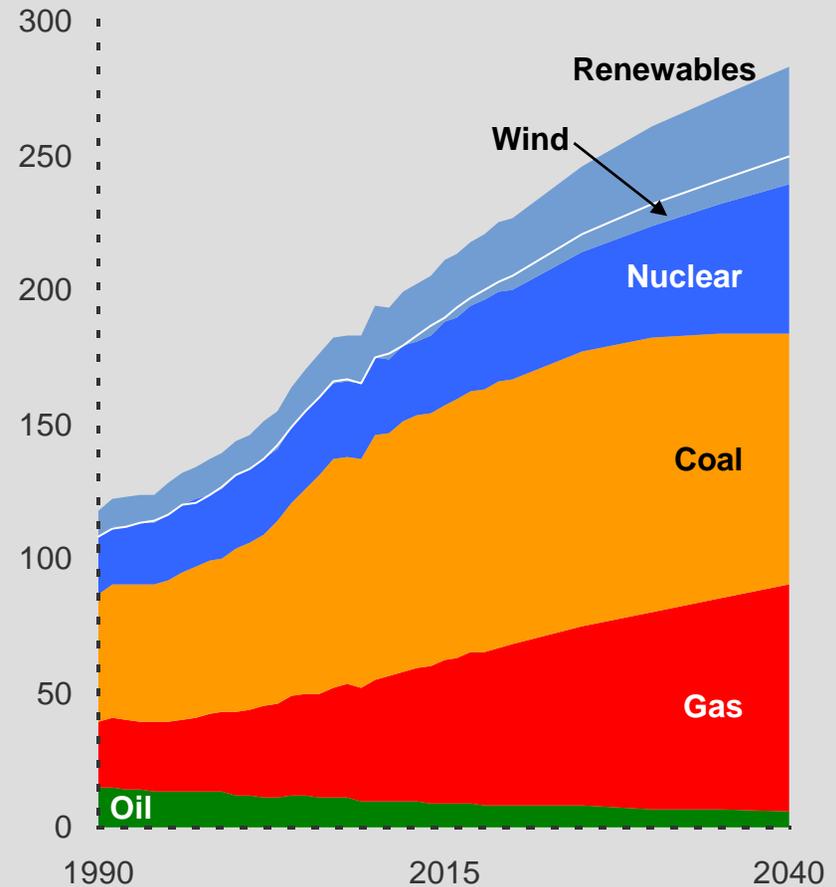
## Baseload, Startup 2030

2011 cents/kWh



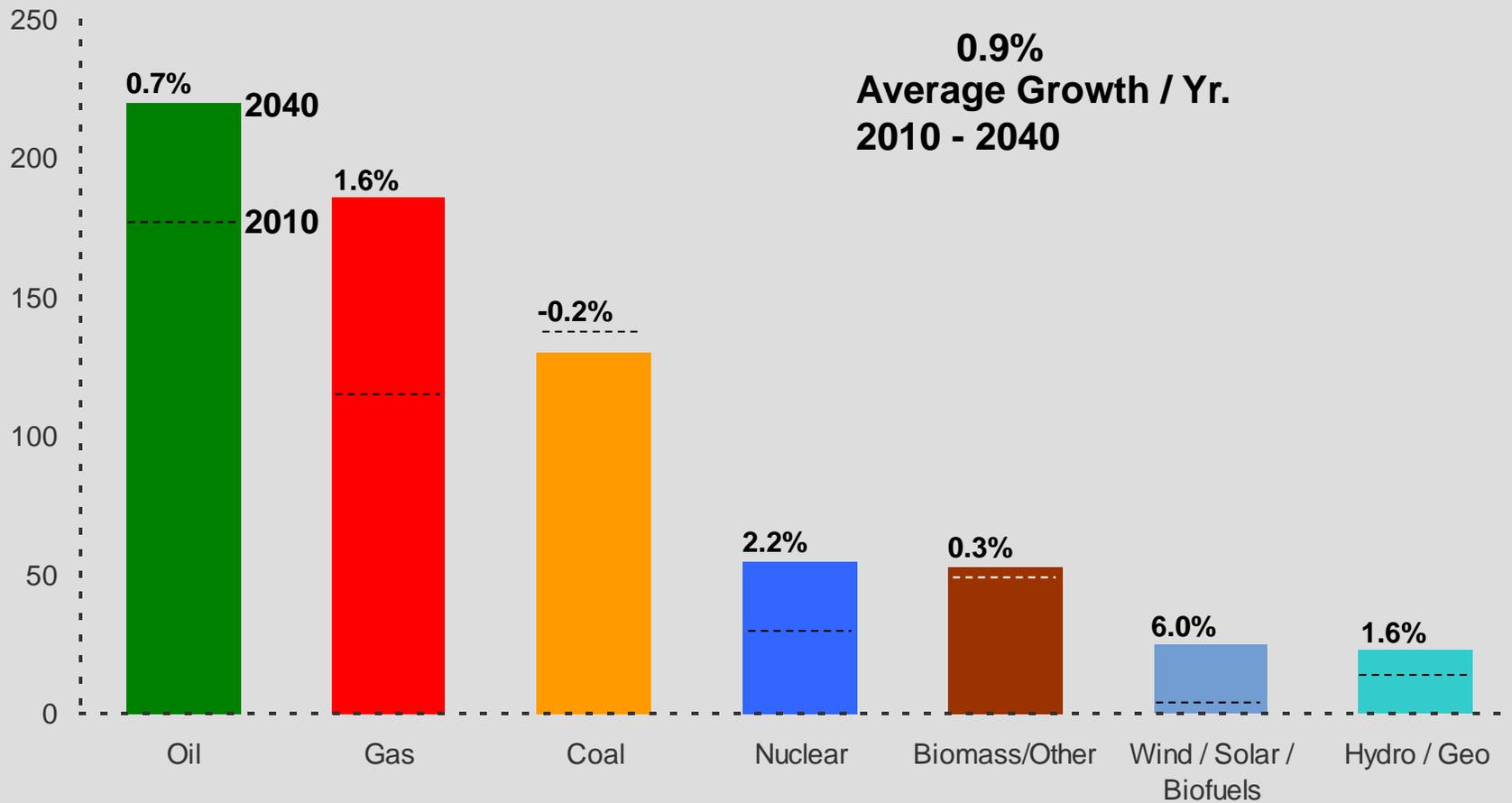
## Fuel Into Electricity Generation

Quadrillion BTUs



# Energy Mix Continues to Evolve

Quadrillion BTUs

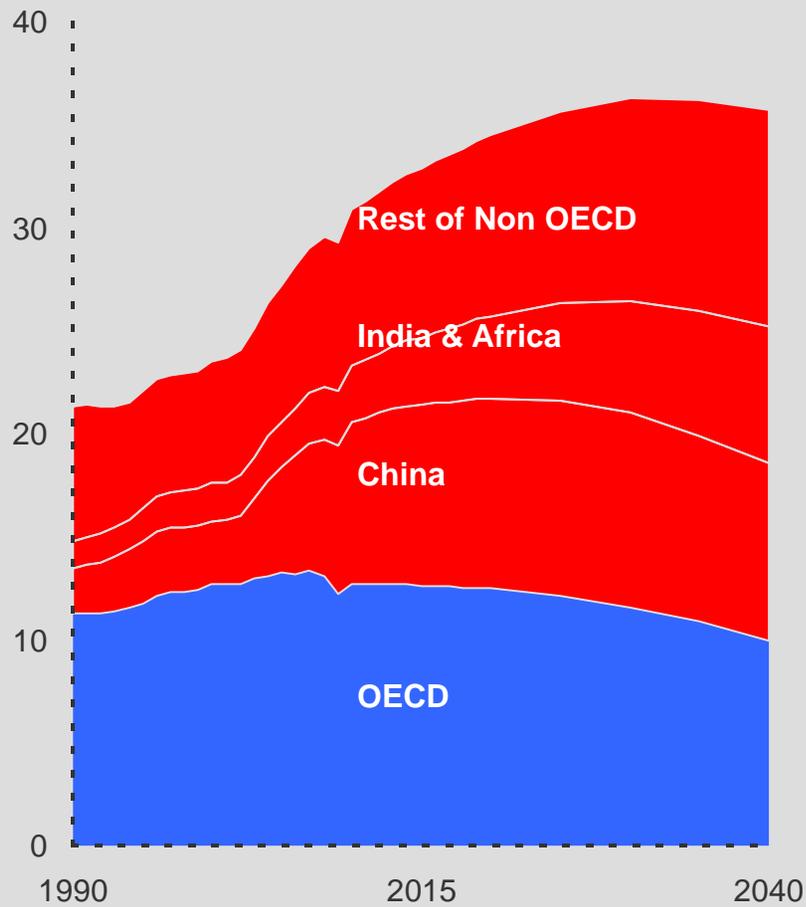


**0.9%**  
Average Growth / Yr.  
2010 - 2040

# CO<sub>2</sub> Emissions Plateau

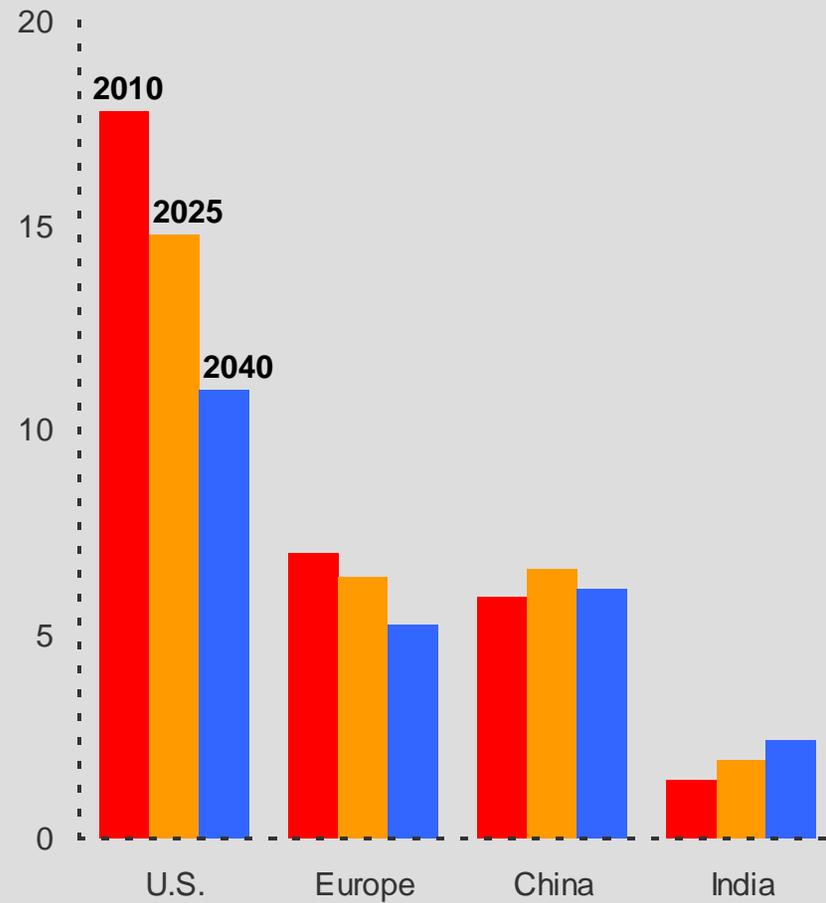
## By Region

Billion Tons



## Emissions per Capita

Tons per Person



# Supply

By 2040

**60%**

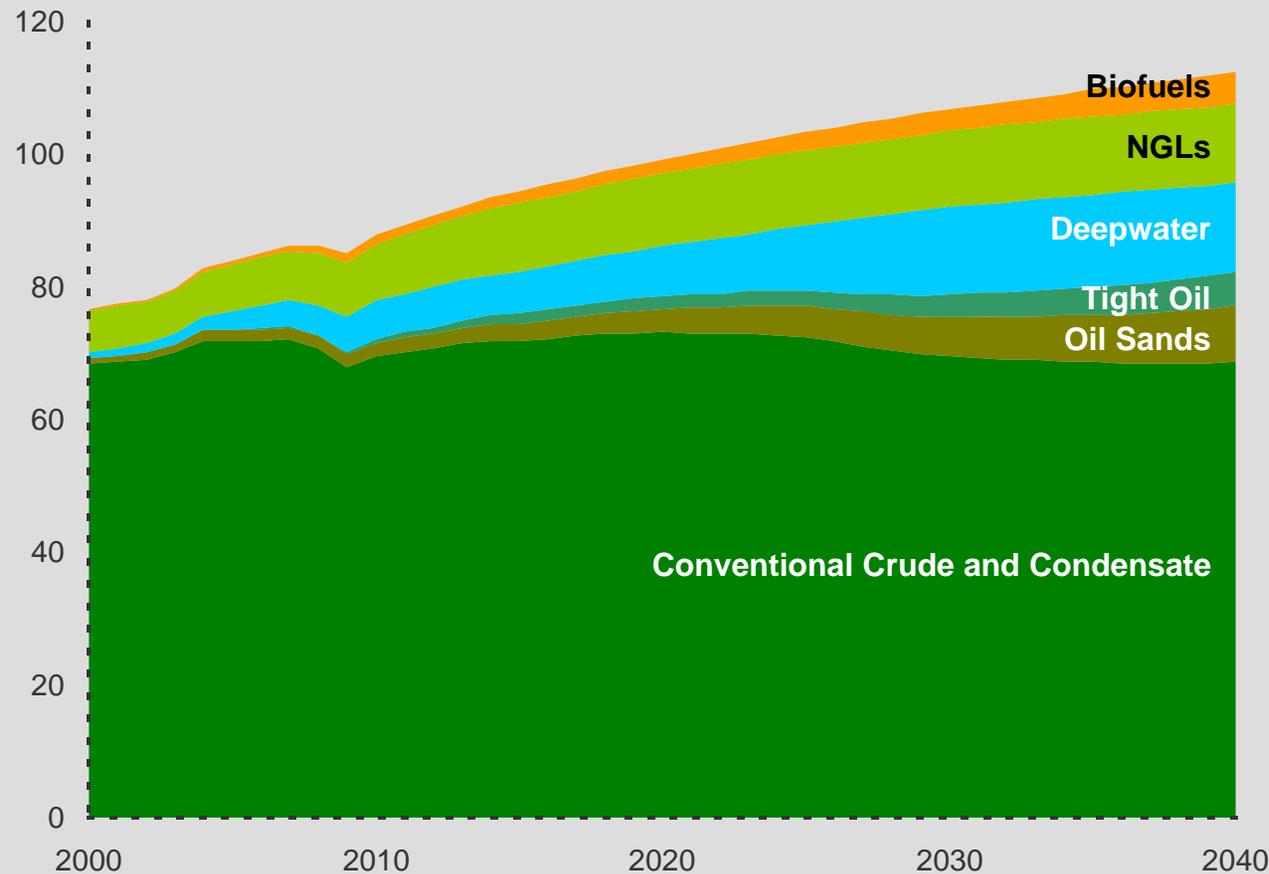
of global demand will be  
supplied by oil & gas.



# Liquids Supply Continues to Diversify

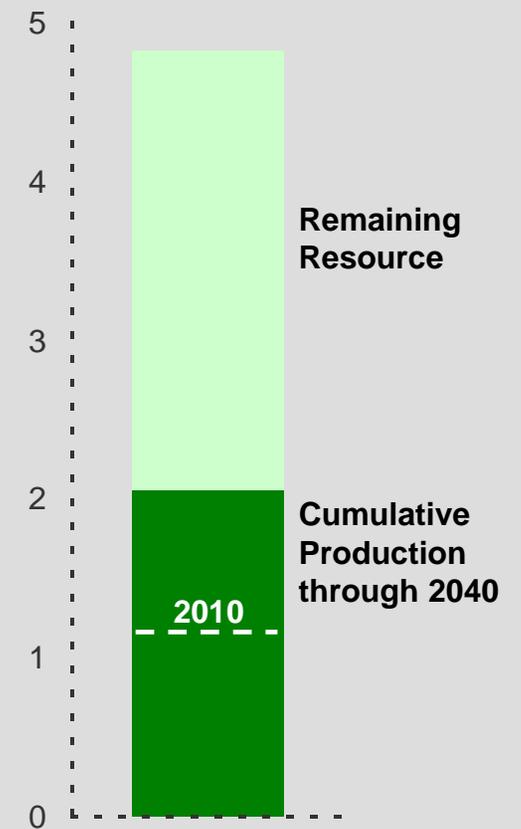
**Liquids Supply**

MBDOE



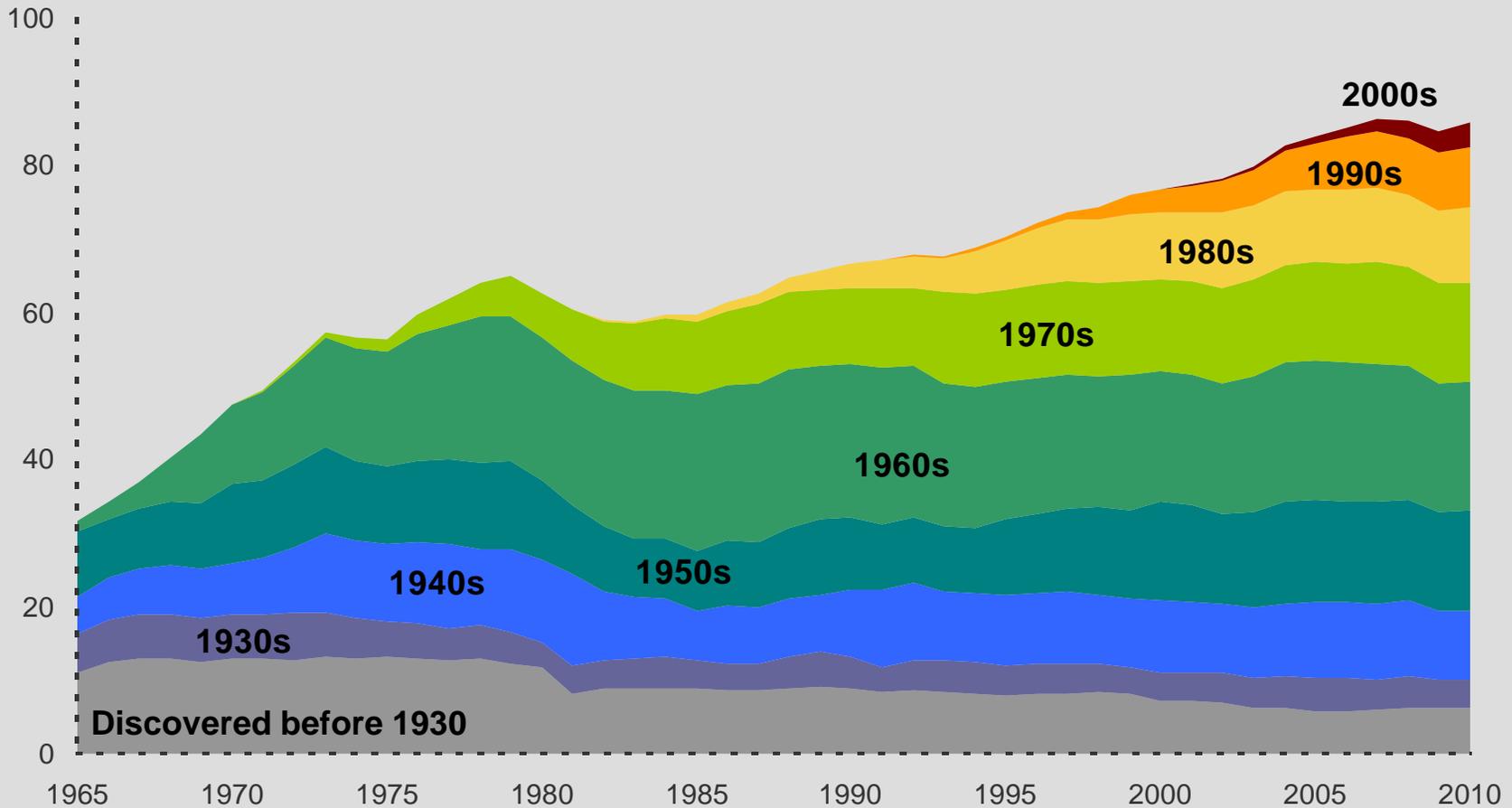
**Resource \***

TBO



# Global Oil Production by Discovery Date

MBDOE

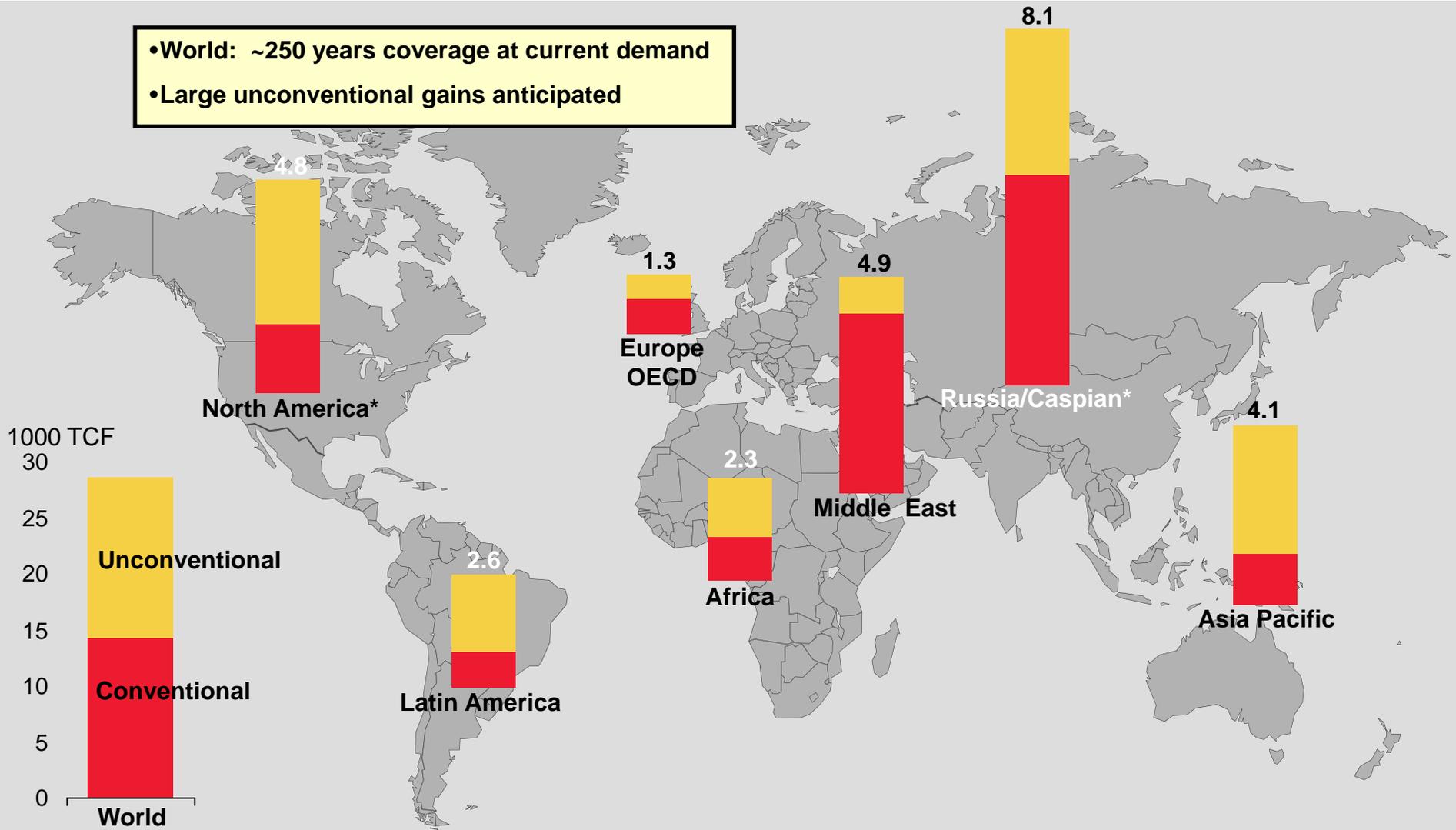


Source: ExxonMobil estimates based on Wood Mackenzie Limited & Nehring Associates data

**ExxonMobil**

# Global Gas Resource

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

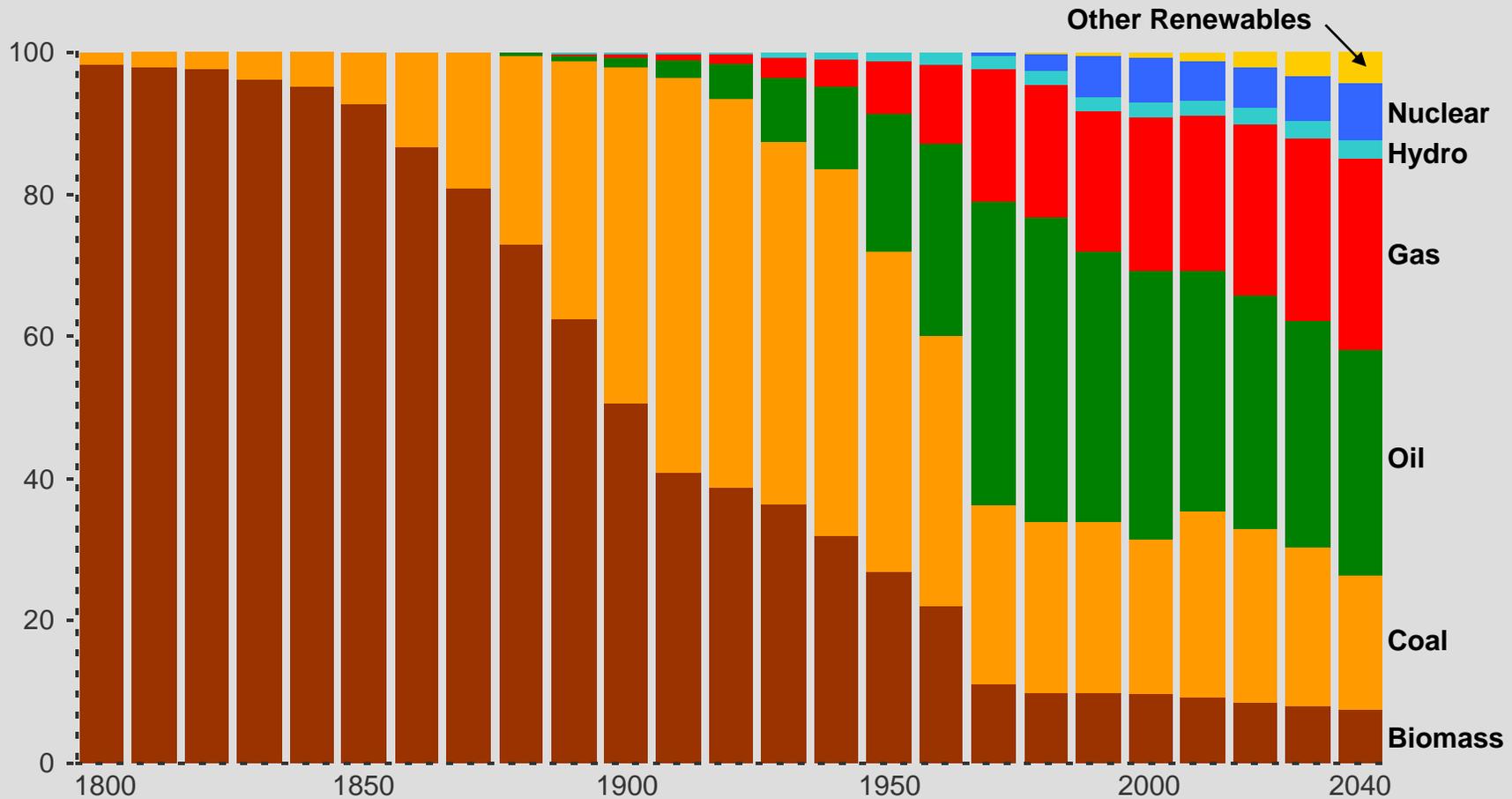


Source: IEA; \* Includes Europe Non OECD

# Energy Use Evolves Over Time

## Global Percent Mix of Fuels

Percent



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

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