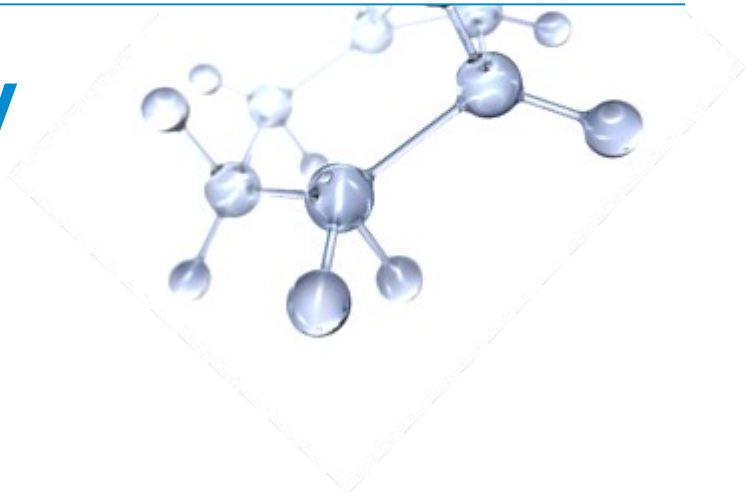
ExxonMobil

Taking on the world's toughest energy challenges.™

The Outlook for Energy a view to 2030



New York Energy Forum
June 16, 2011

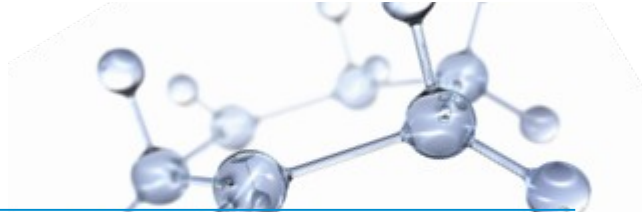
Tom Eizember
Planning Manager, Corporate Strategic Planning

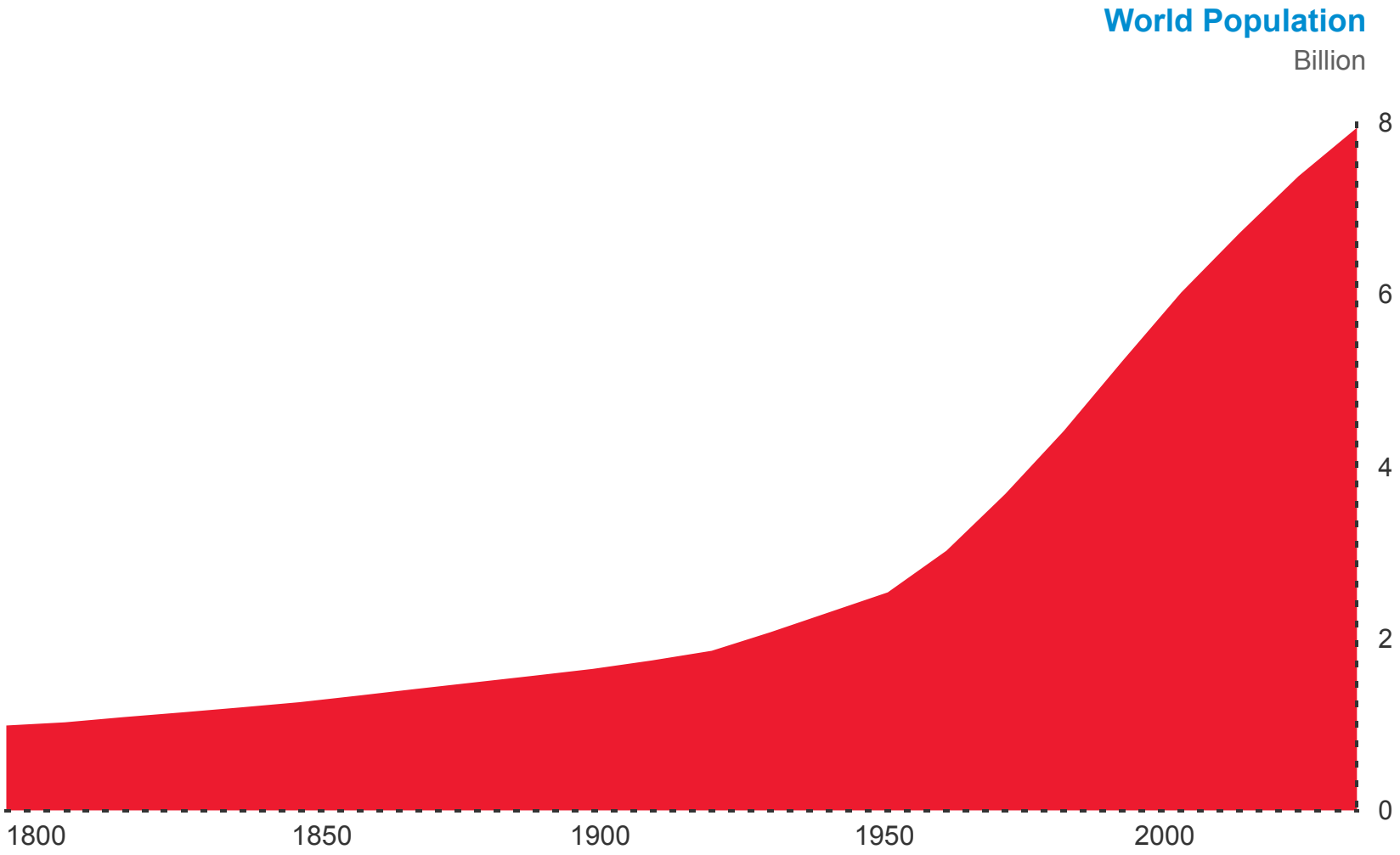
Economic and Energy Evolution

As societies and technologies develop over time…

… energy needs evolve as well

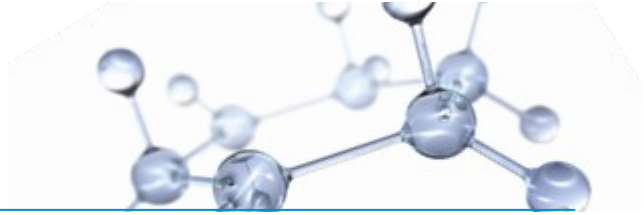
Global Population





Source: United Nations; ExxonMobil

Energy Evolution

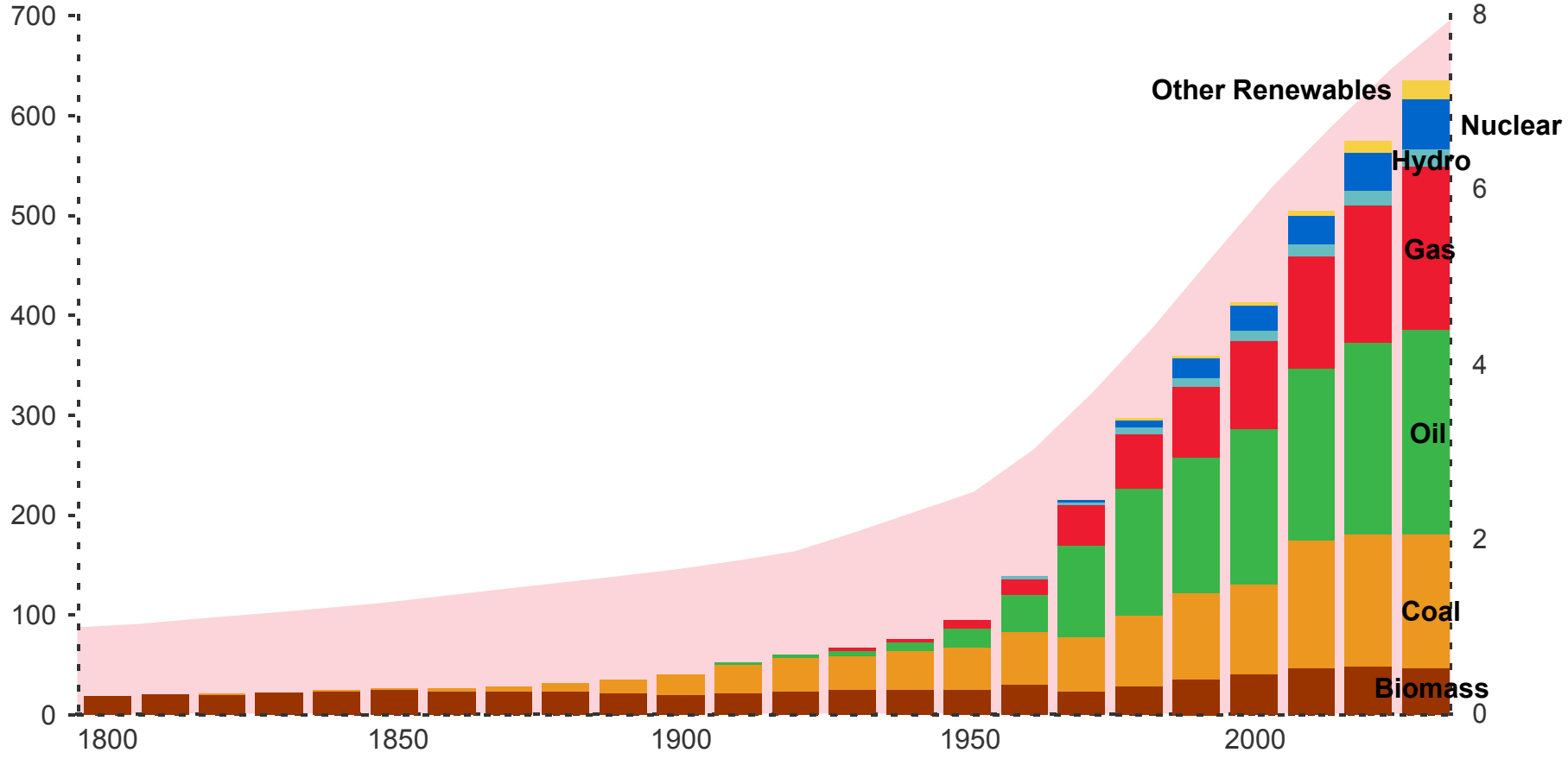


Global Demand By Fuel

Quadrillion BTUs

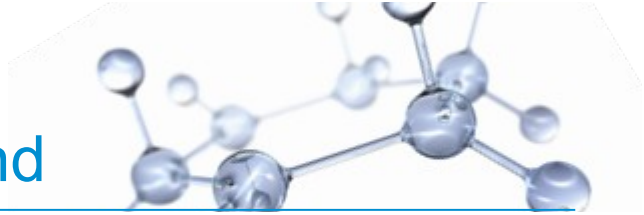
World Population

Billion

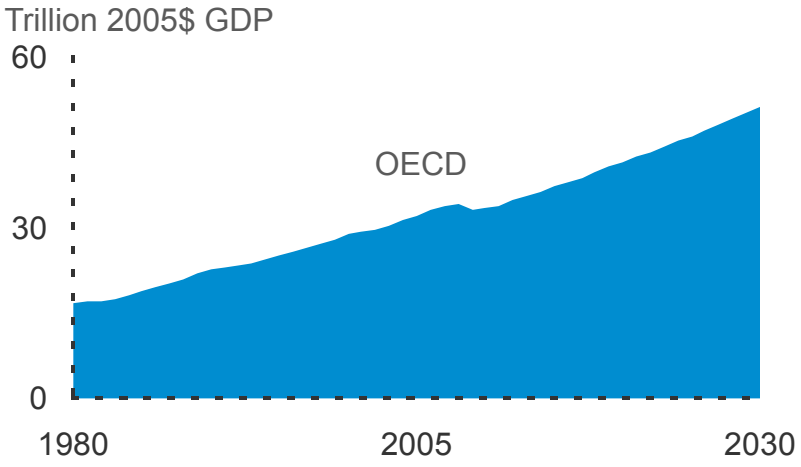


Source: Smil, *Energy Transitions;* ExxonMobil

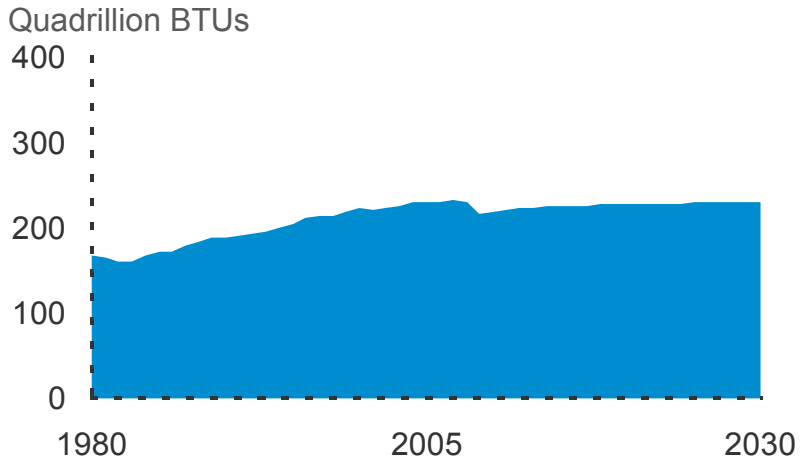
Economic Activity and Energy Demand

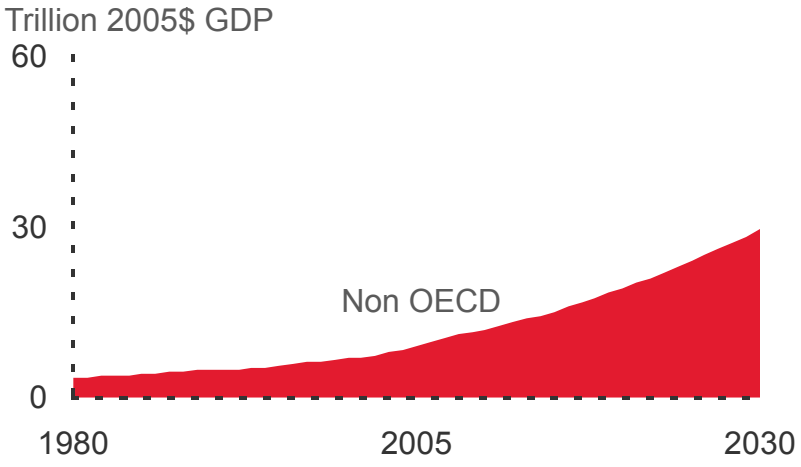


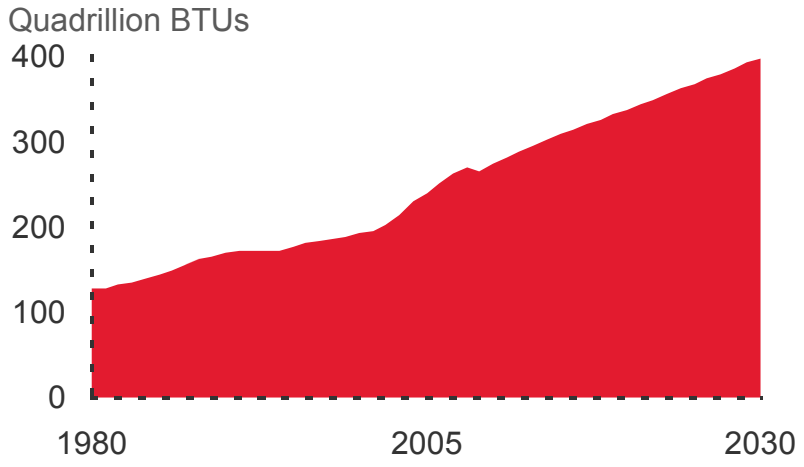
GDP



Demand

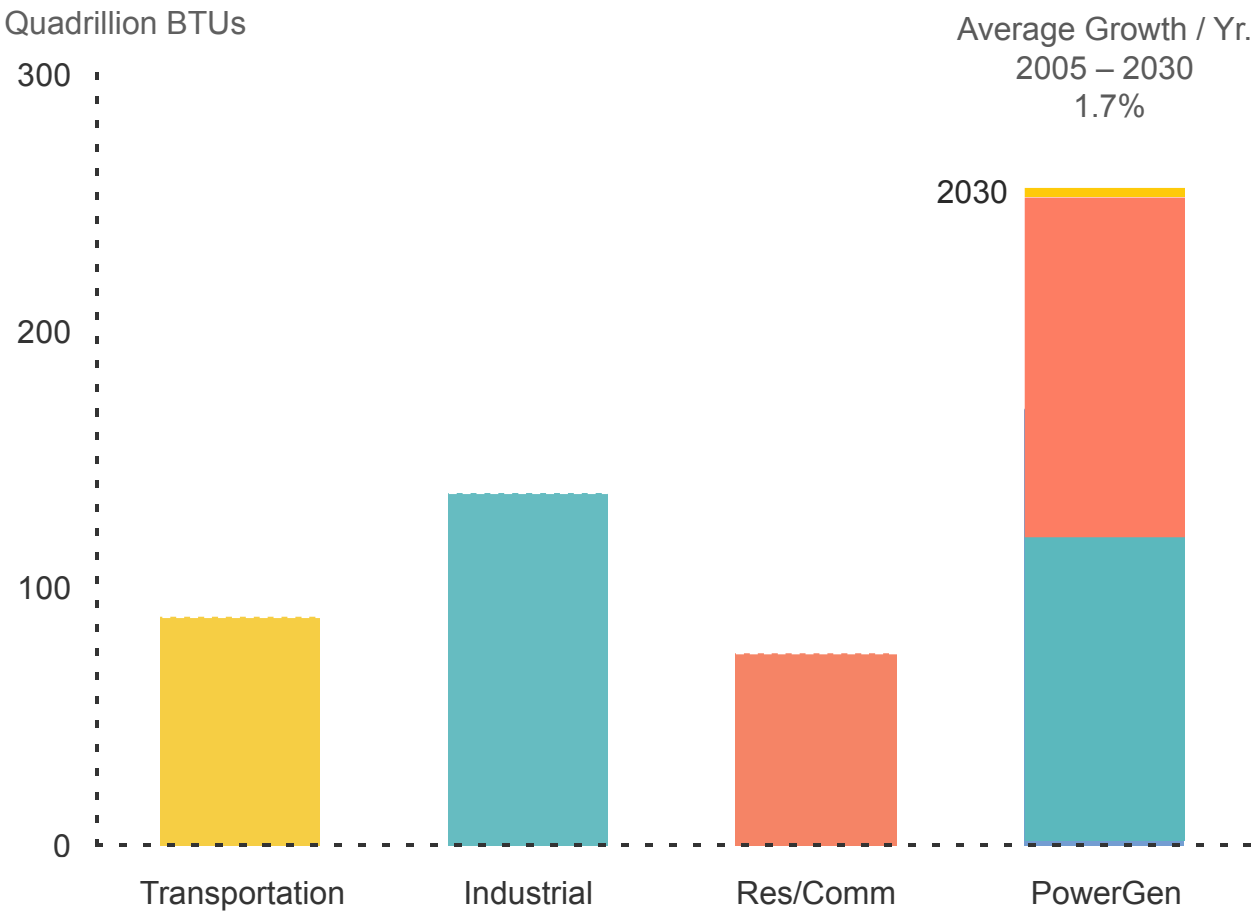




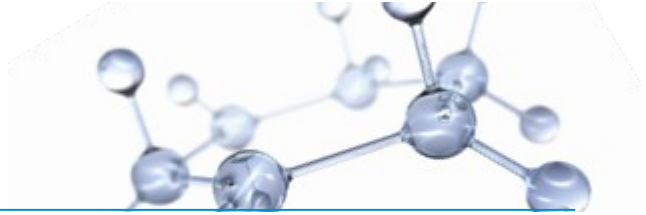


Global Energy Demand

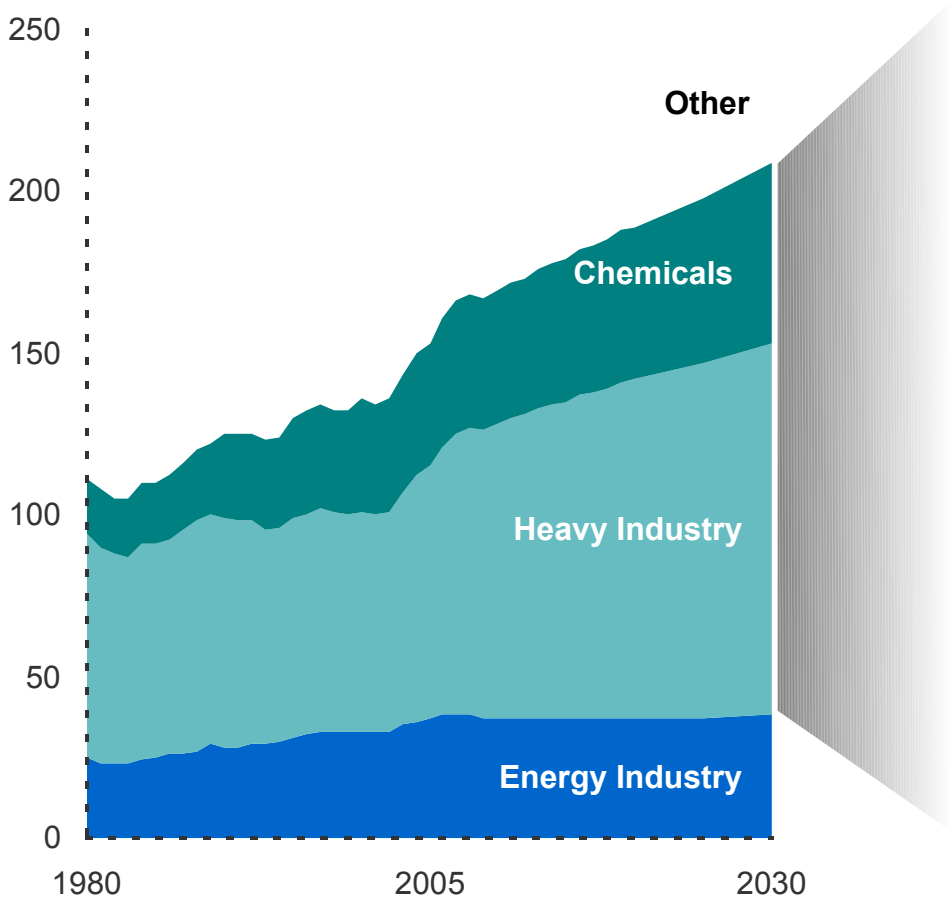
By Sector



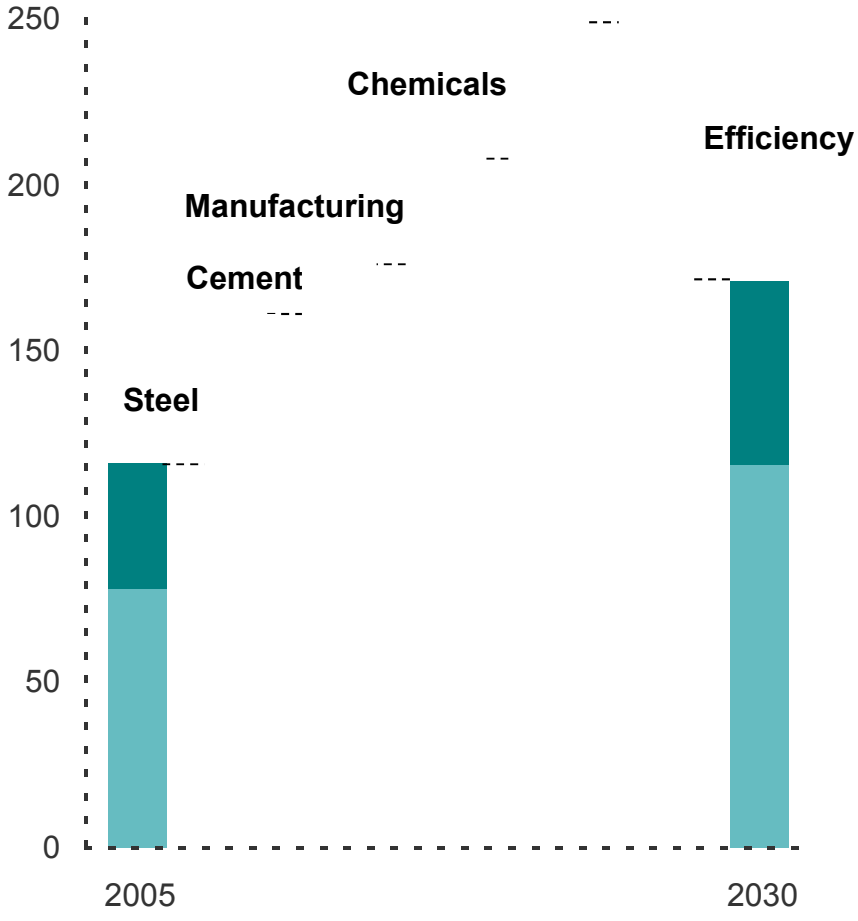
Industry Energy Demand



Demand
Quadrillion BTUs

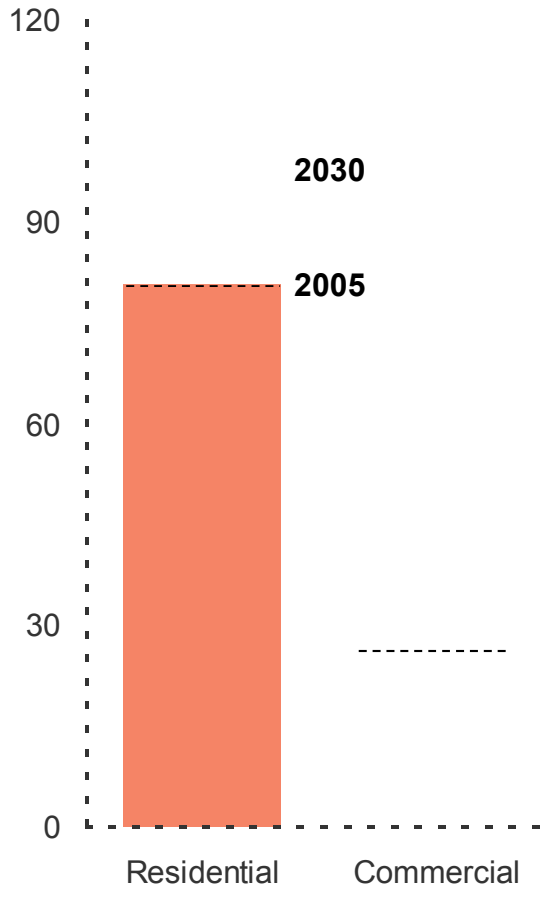


Heavy Industry & Chemicals Demand Changes
Quadrillion BTUs

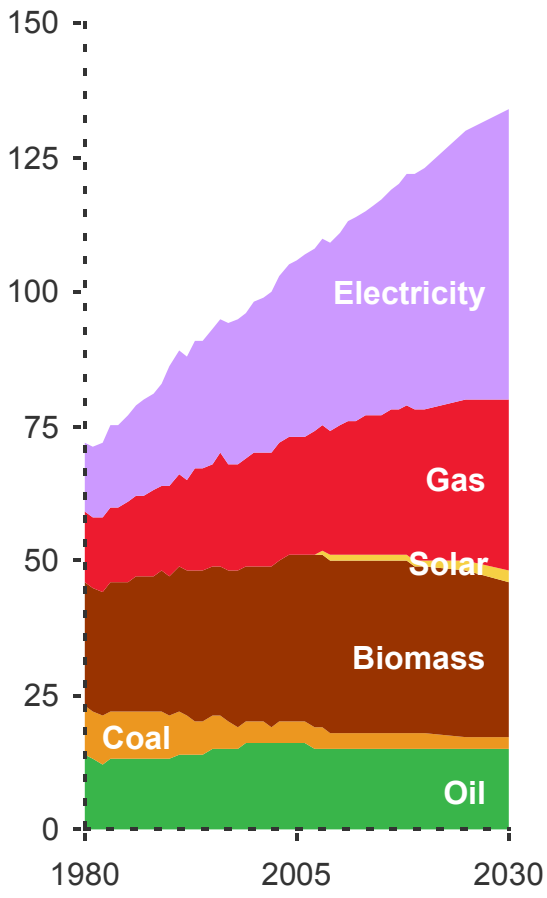


Residential/Commercial Demand

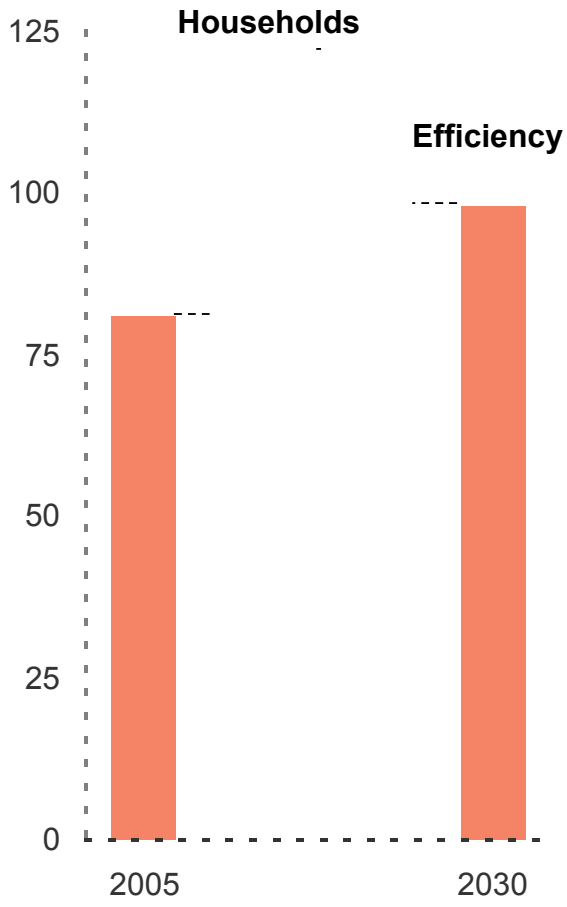
By Sector
Quadrillion BTUs



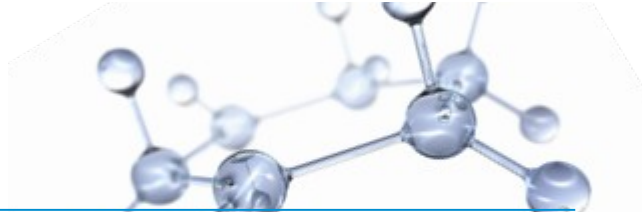
By Fuel
Quadrillion BTUs



Residential Demand Changes
Quadrillion BTUs

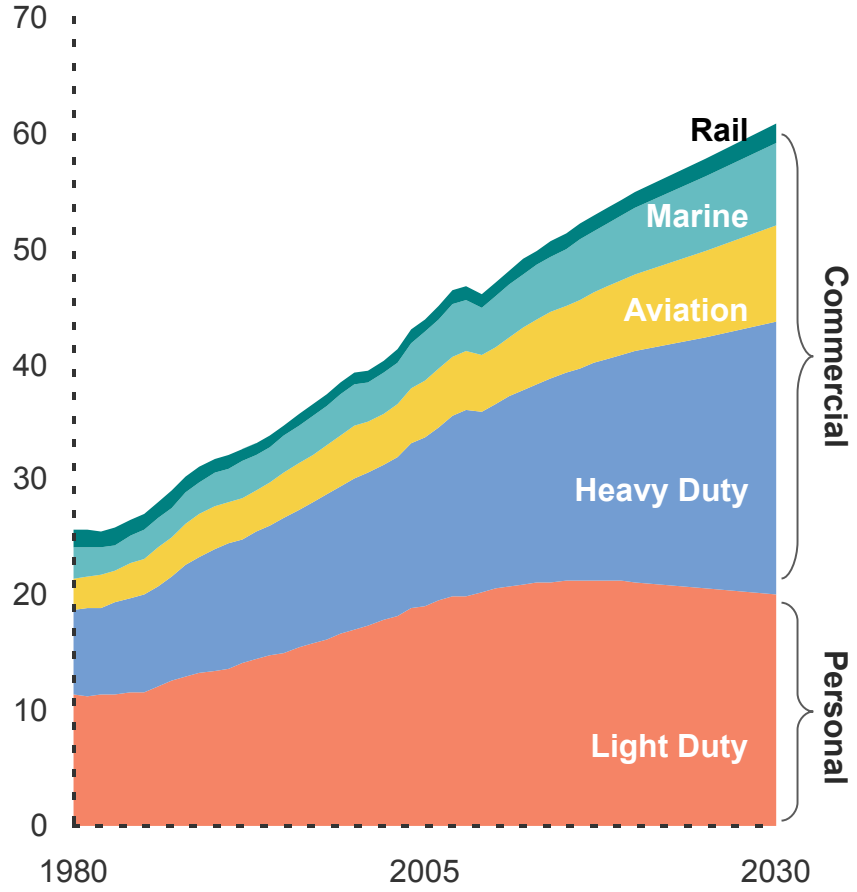


Global Transportation Demand



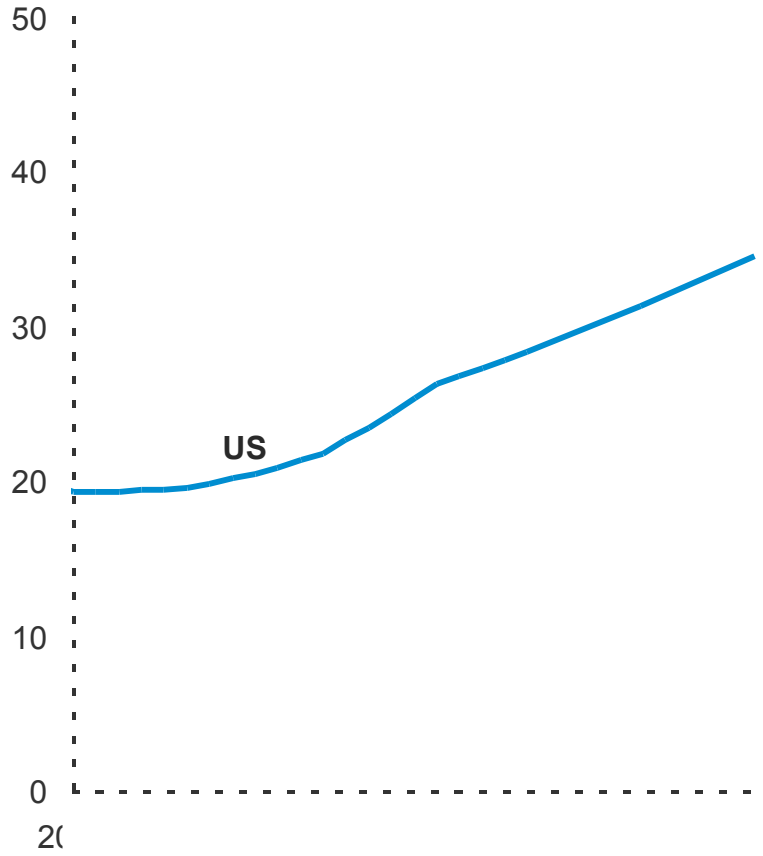
Demand

MBDOE



Average New Car

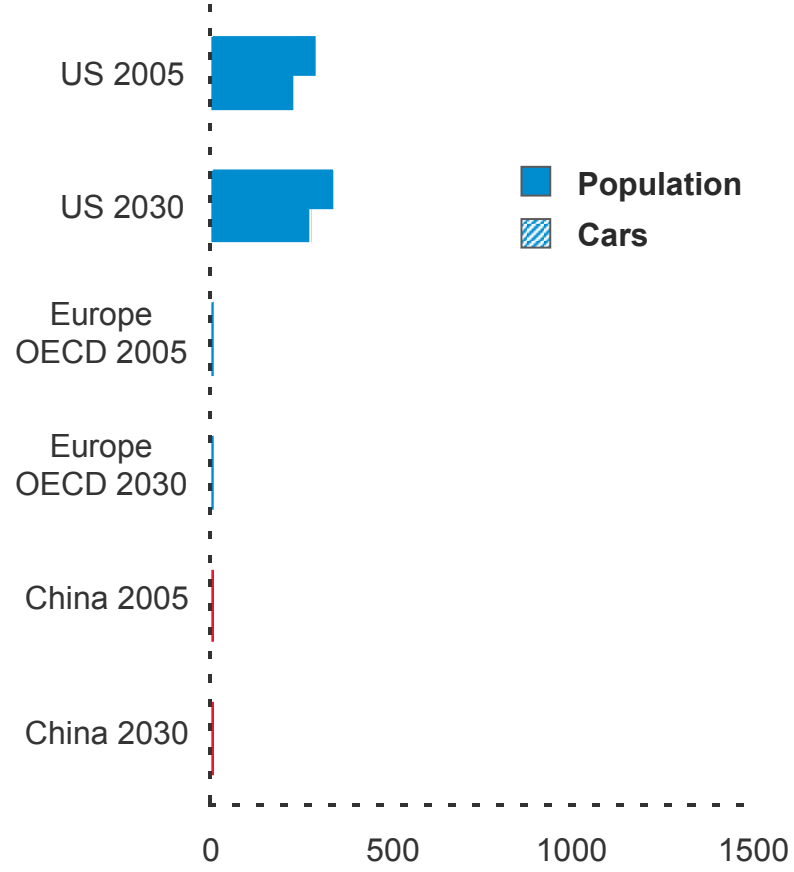
MPG



Personal Vehicle Fleet

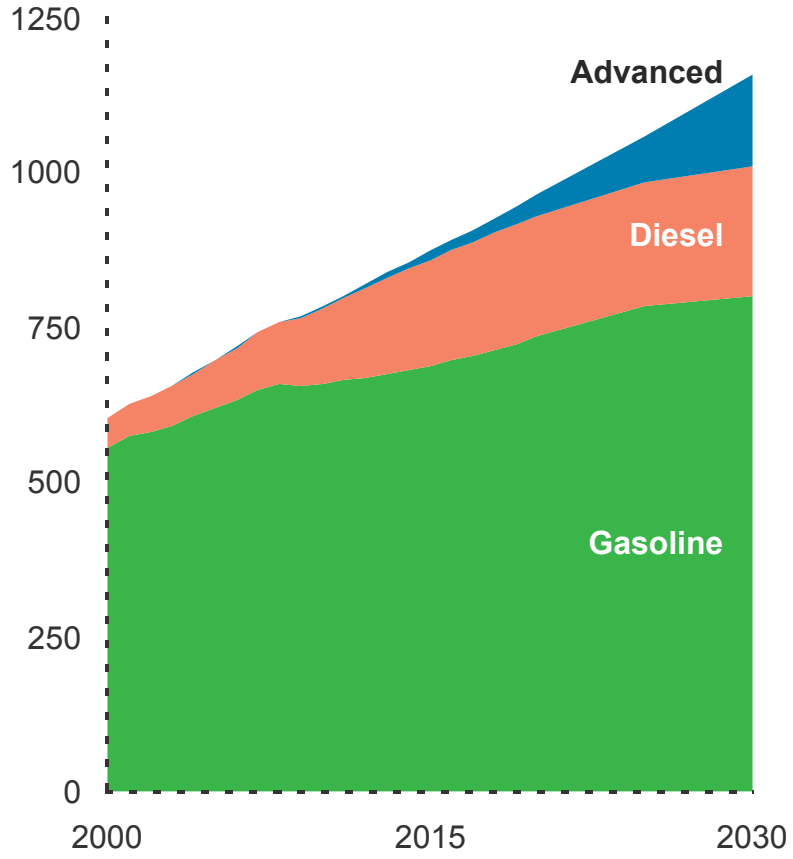
Vehicle Penetration

Cars and Population (millions)

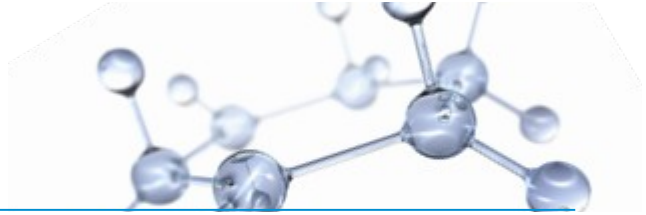


Fleet by Car Type

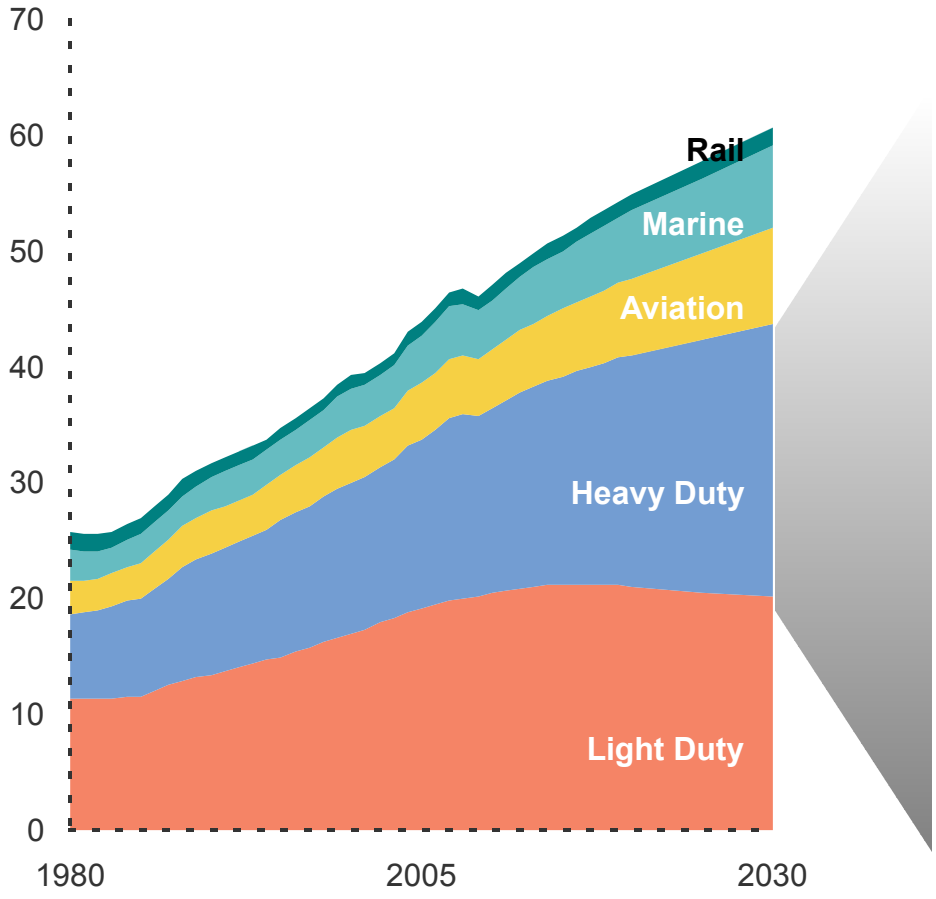
Million Cars



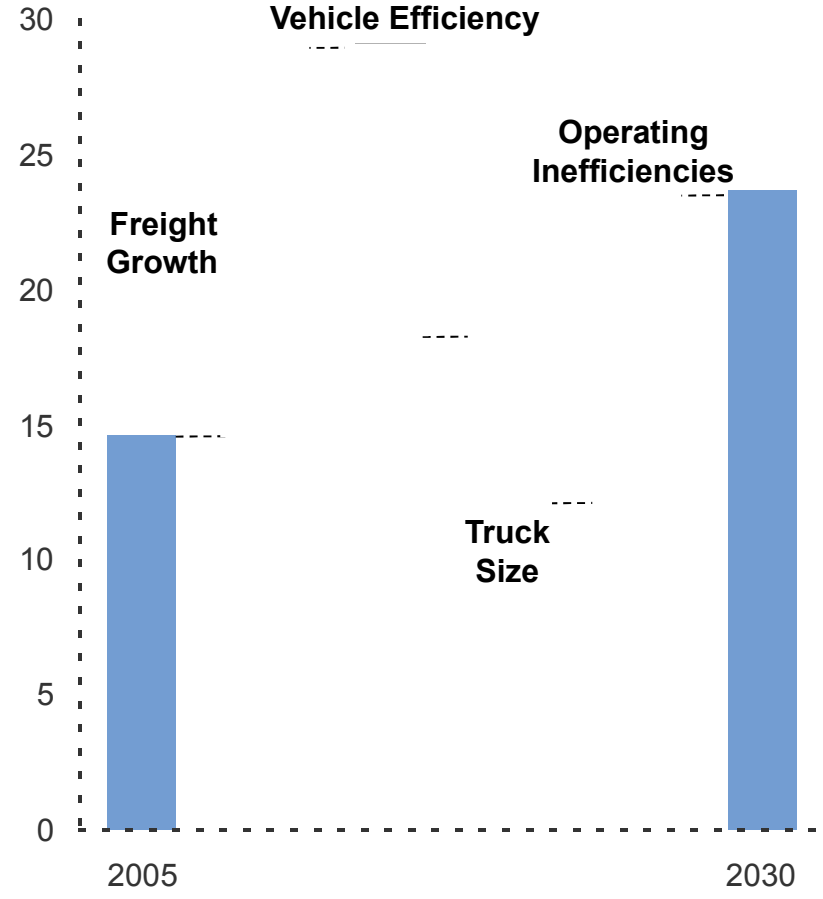
Heavy Duty Demand



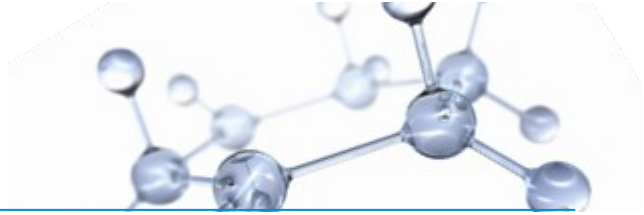
Demand
MBDOE



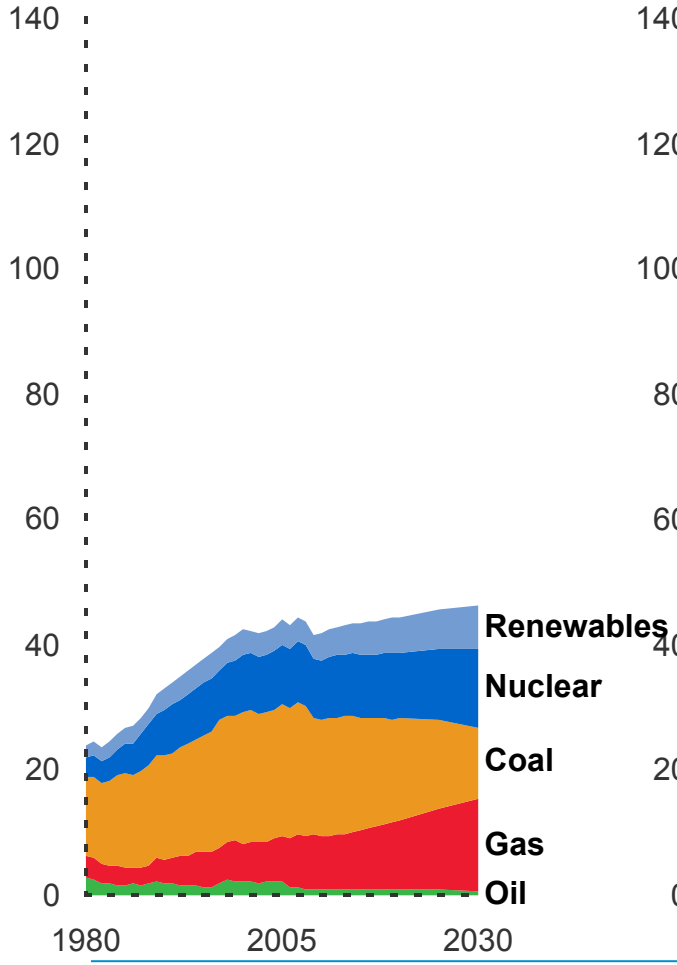
Heavy Duty Demand Changes
MBDOE



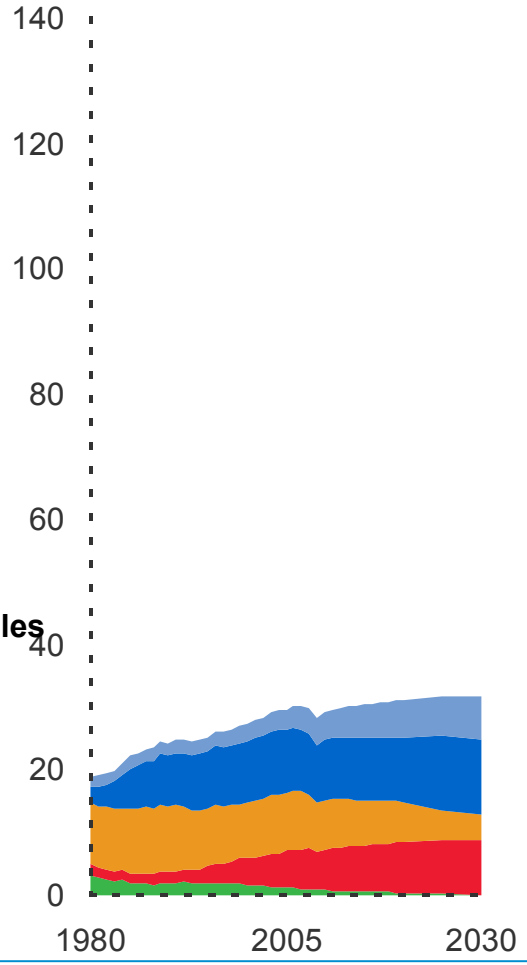
Regional Fuels for Power



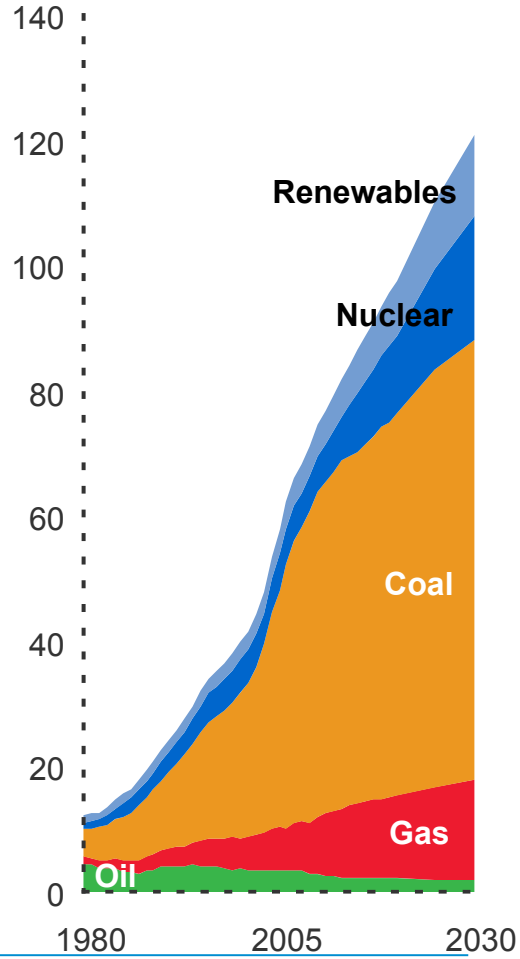
North America
Quadrillion BTUs



Europe
Quadrillion BTUs



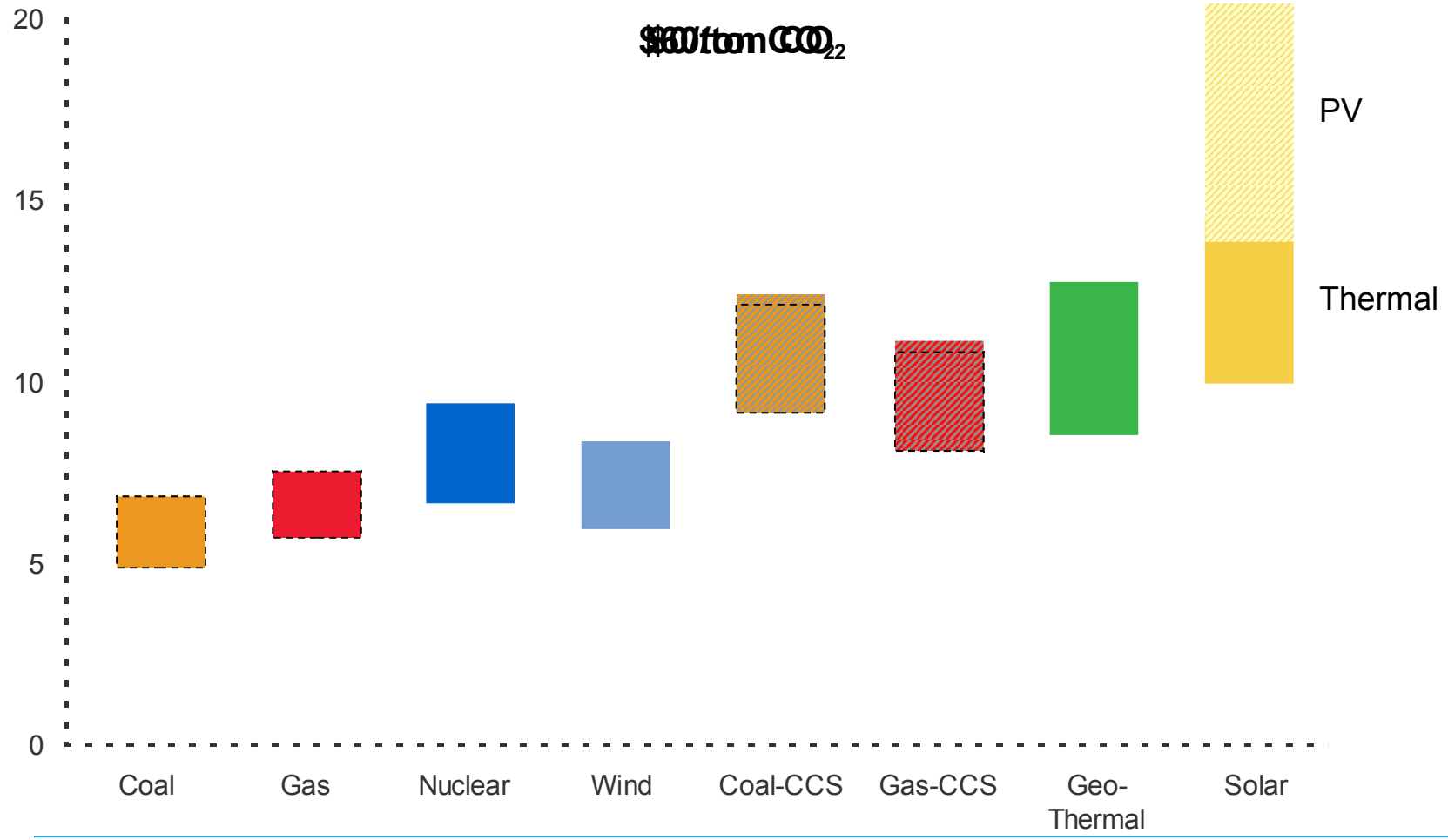
Asia Pacific
Quadrillion BTUs



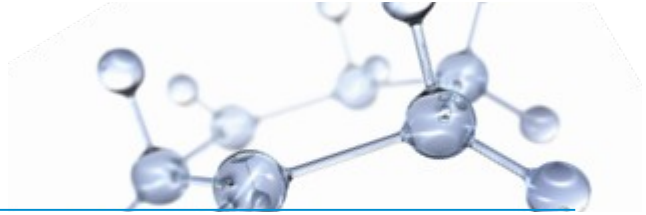
Economic Choices for U.S. Power

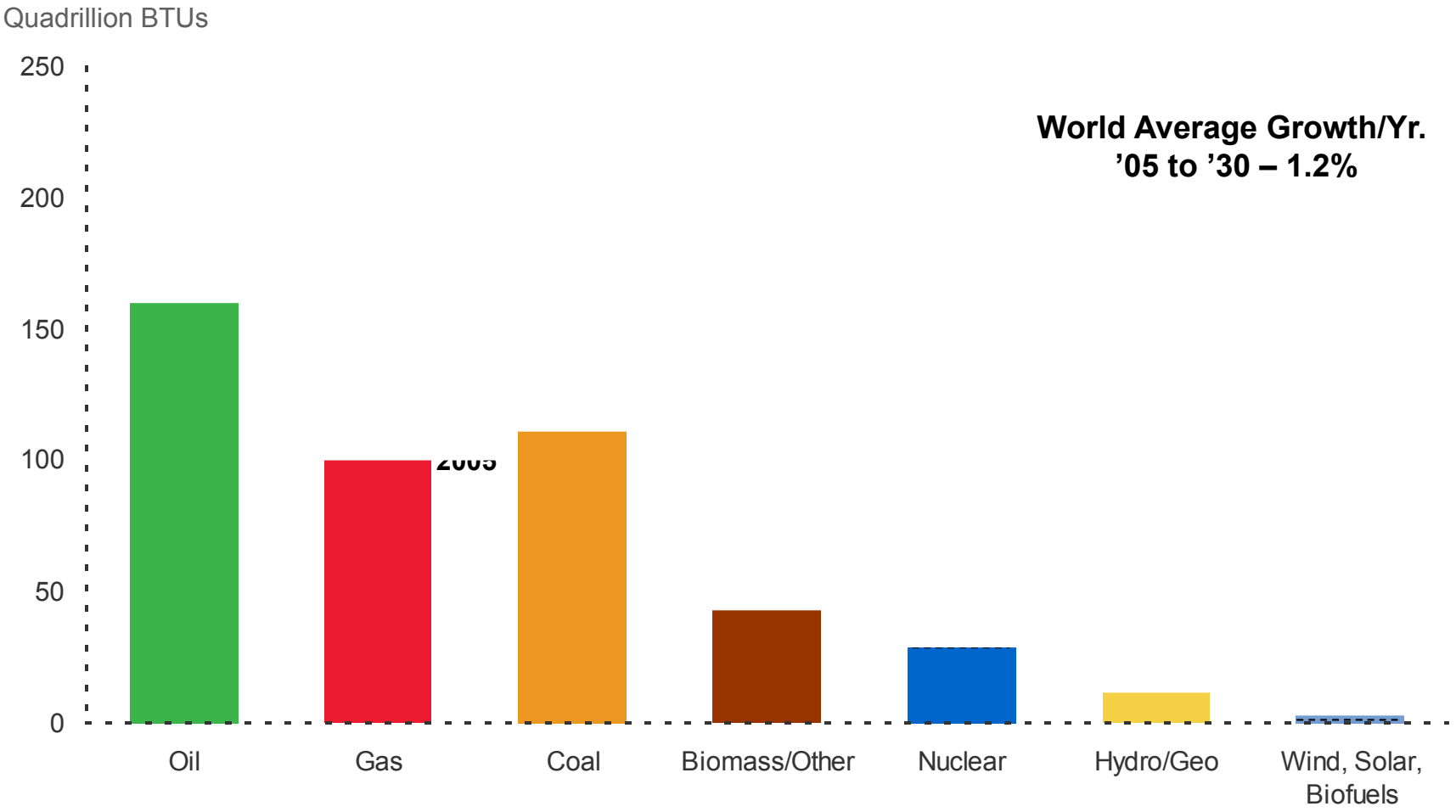
Baseload, Startup 2025

2010 cents/kWh

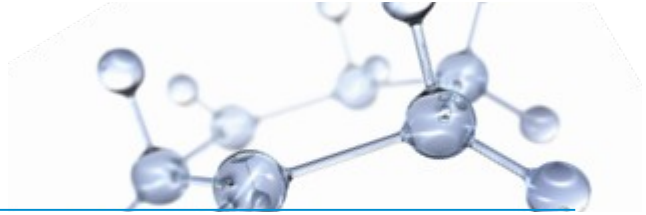


Global Energy Mix



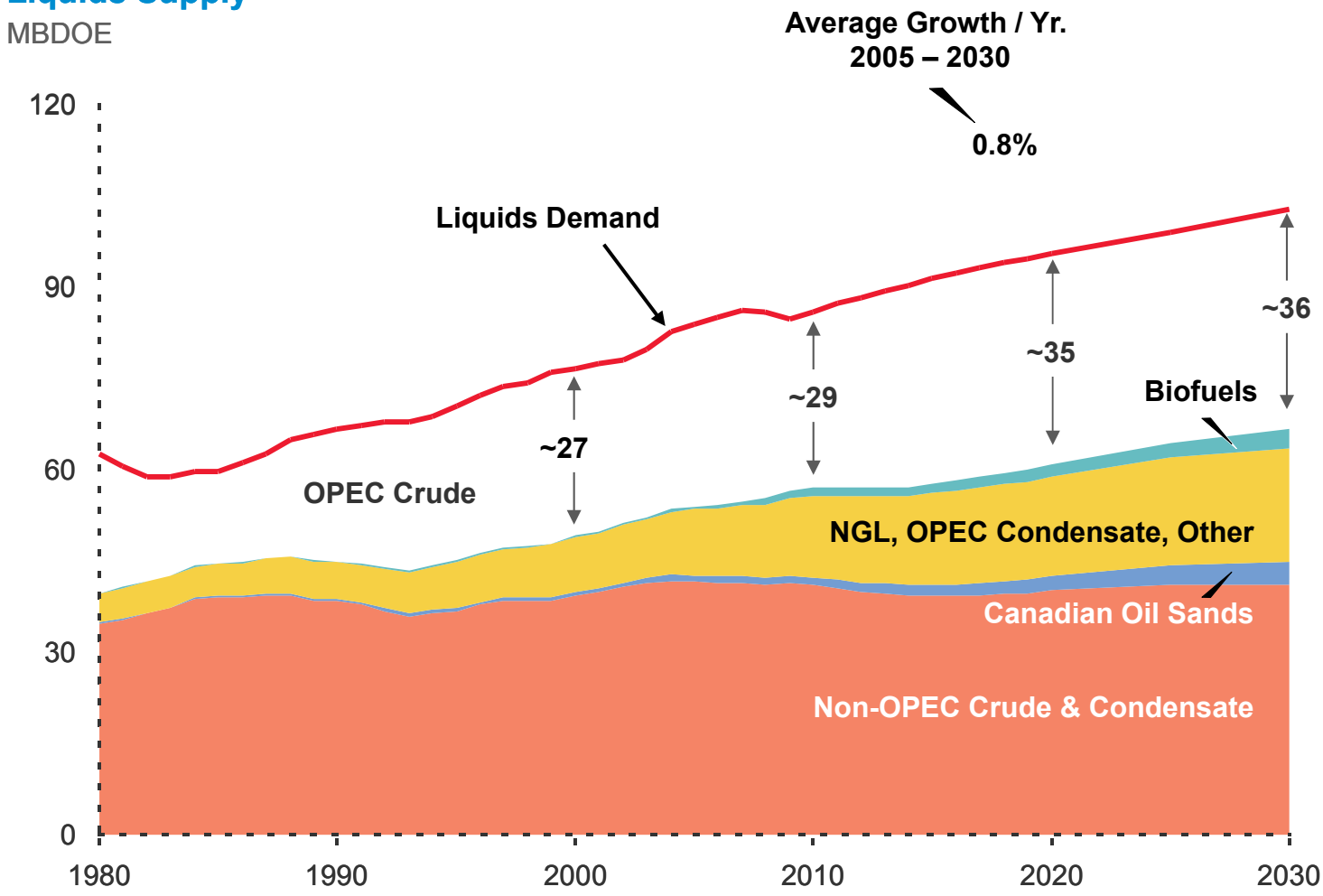


Global Liquids Supply

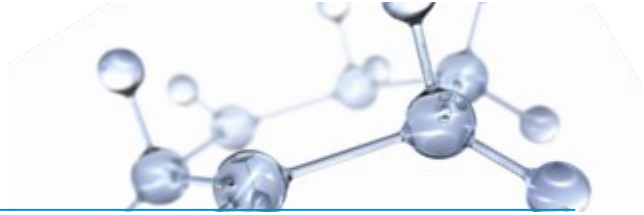


Liquids Supply

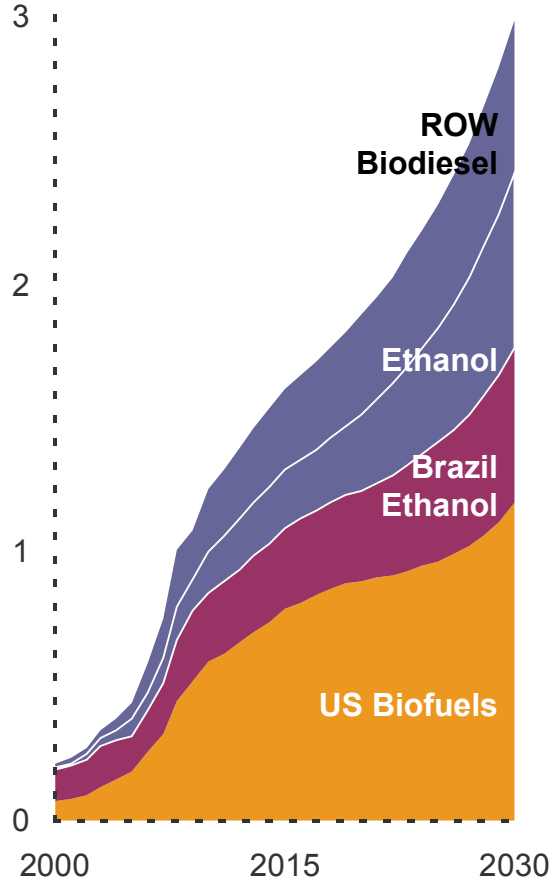
MBDOE



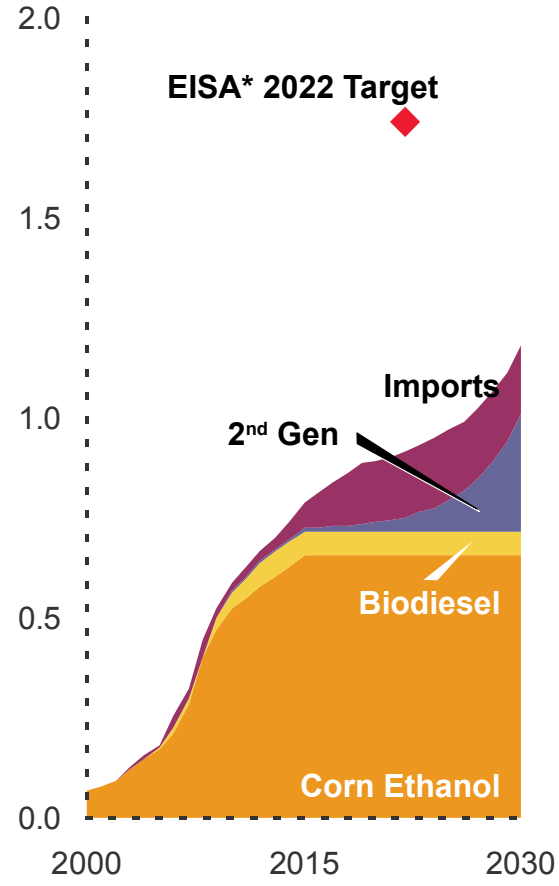
Liquid Biofuels



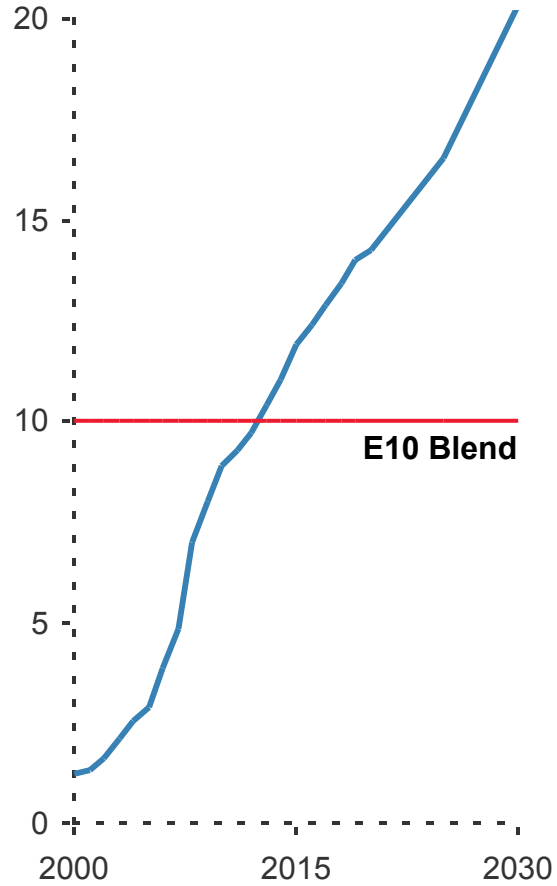
By Region
MBDOE



US Supply
MBDOE

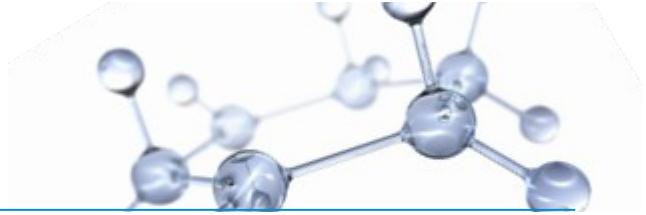


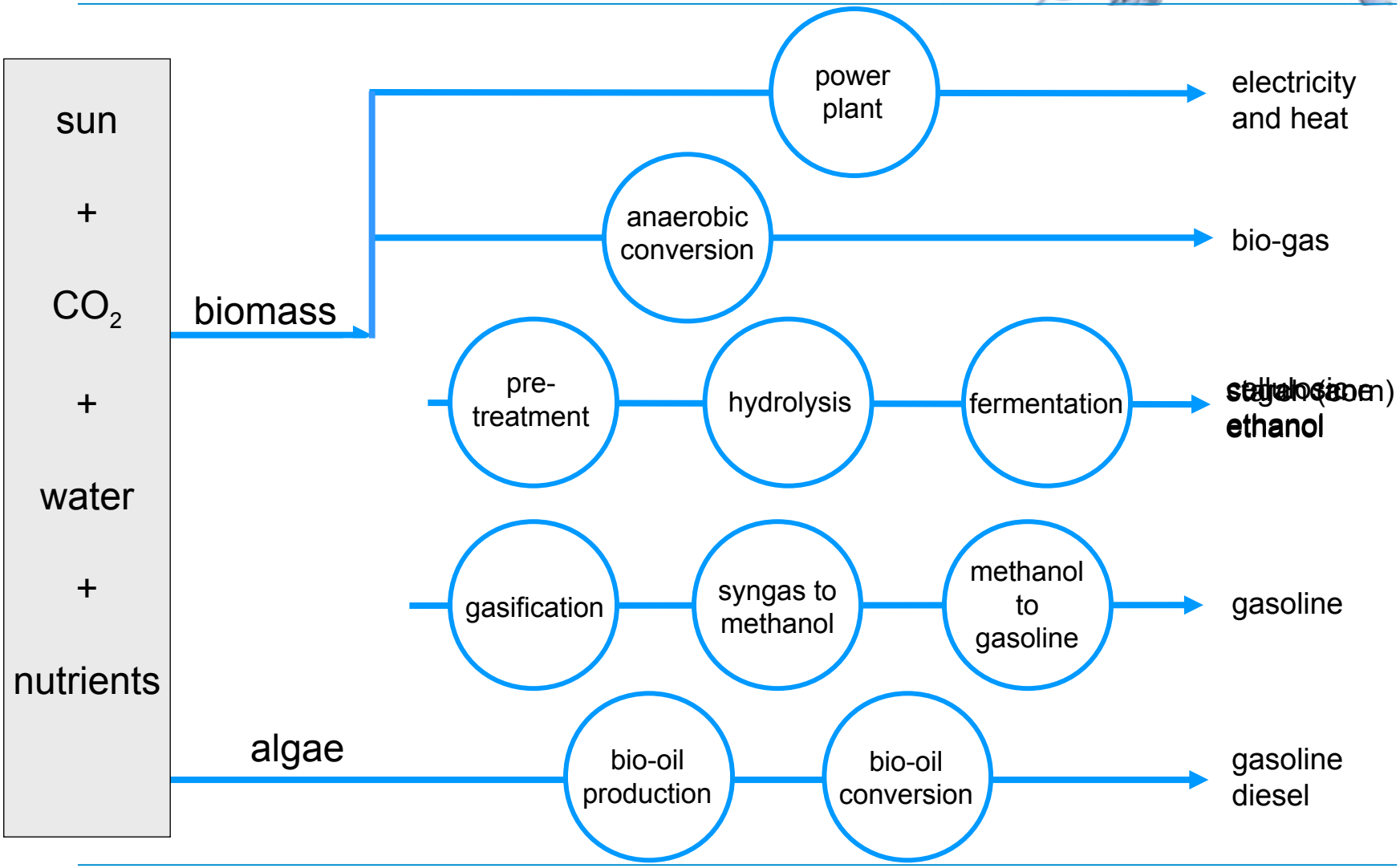
US Ethanol vs. Gasoline
% Volume



*EISA: Energy Independence and Security Act

Bioenergy Pathways

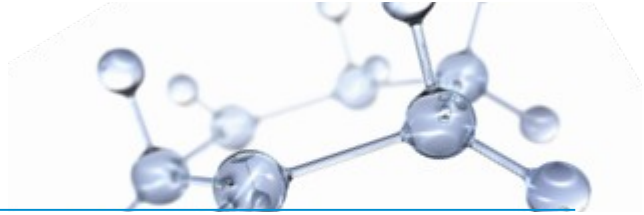




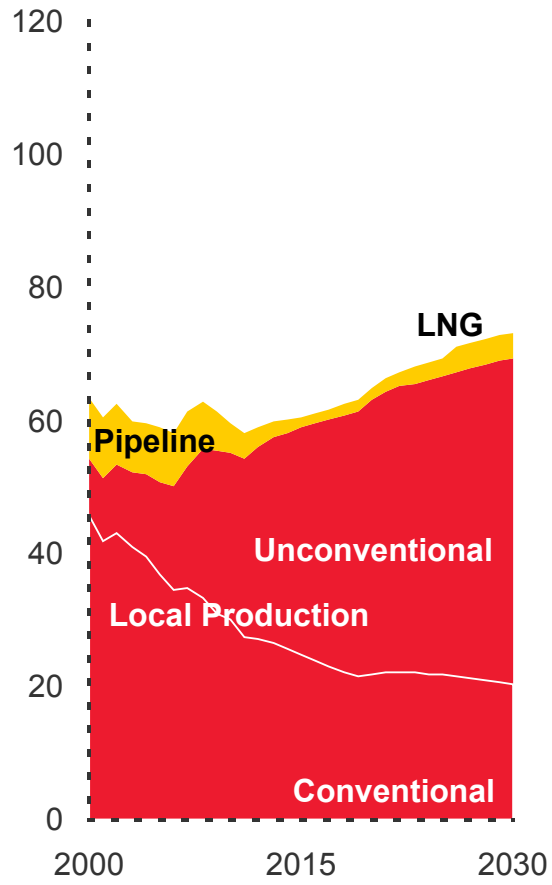
Algae Biofuel Challenges

- Identify and develop high yield, low cost algae strains
- Determine best practice production systems
- Develop full scale economic production systems
- Similar to today's transportation fuels
- GHG mitigation benefits

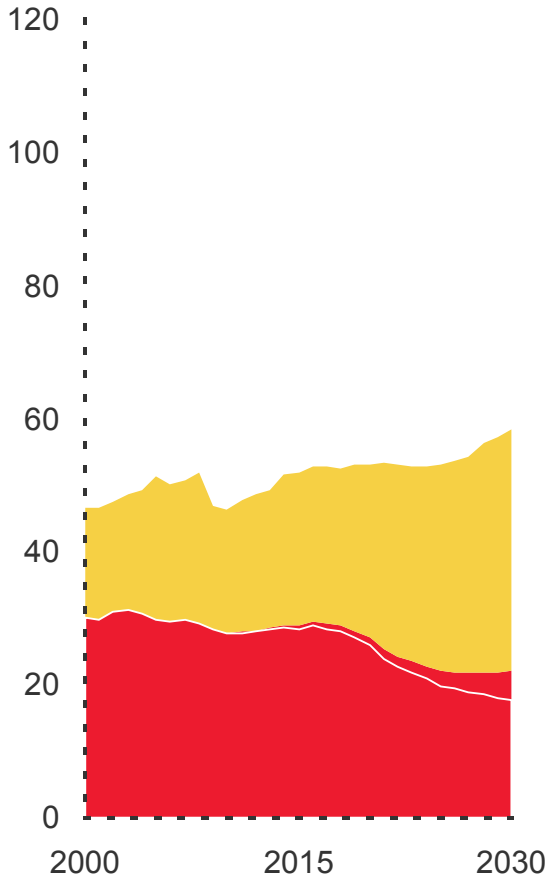
Natural Gas Supply



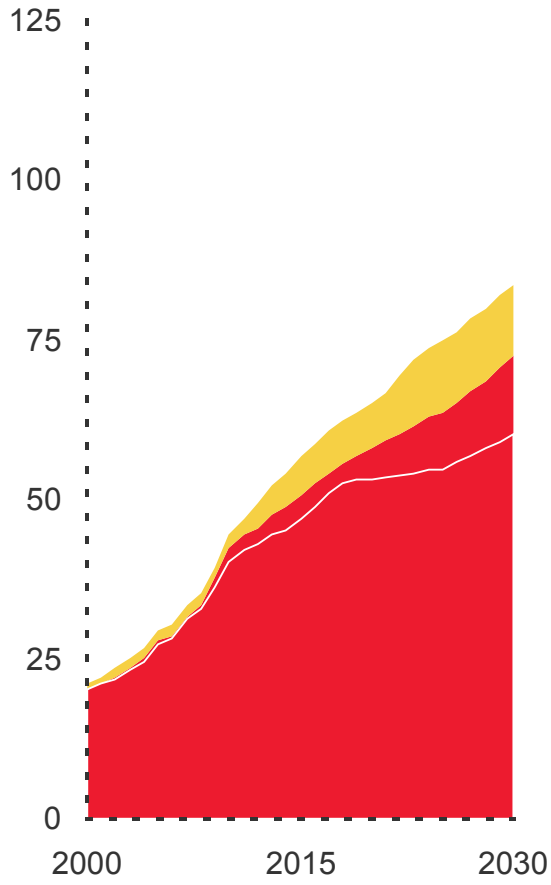
United States
BCFD



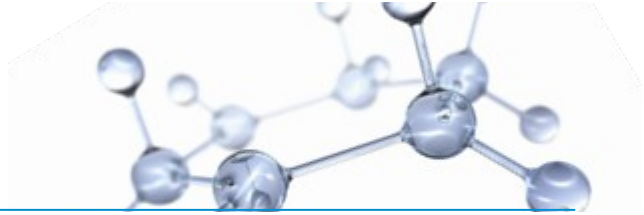
Europe
BCFD



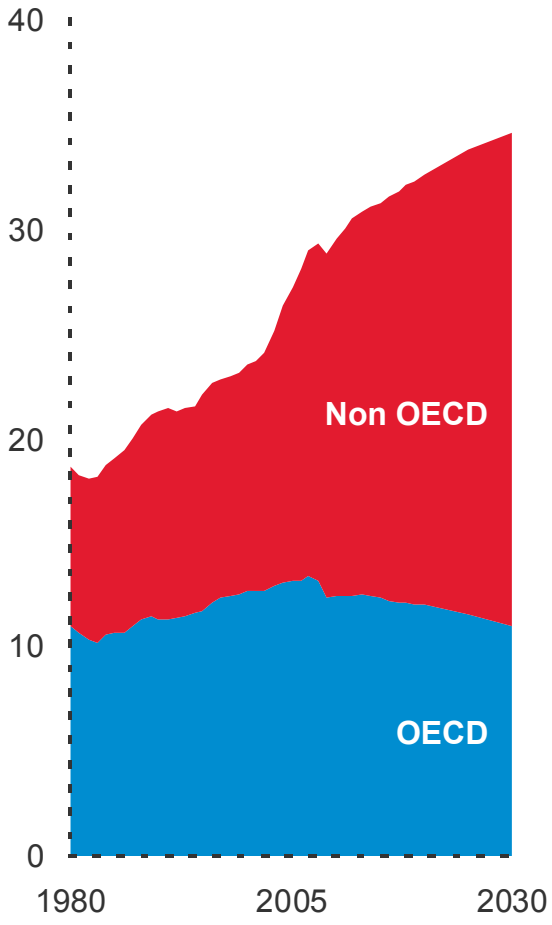
Asia Pacific
BCFD



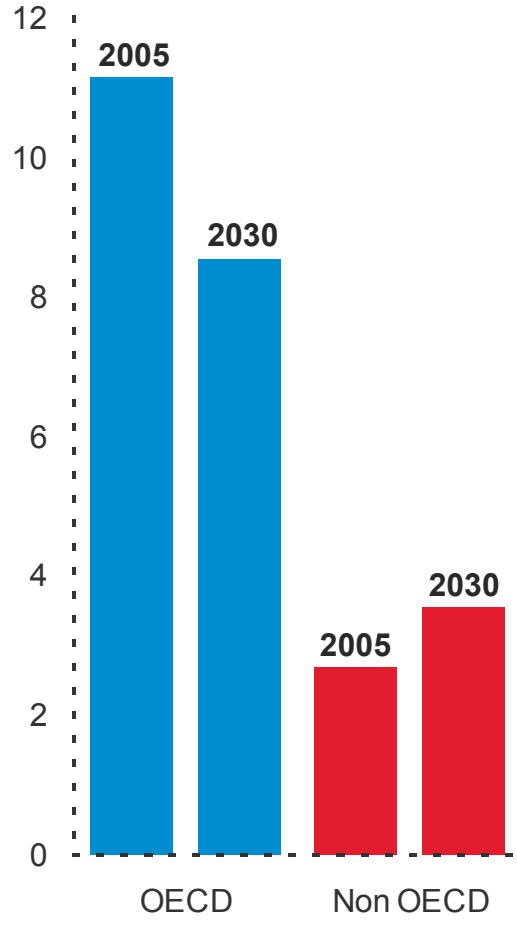
CO_2 Emissions



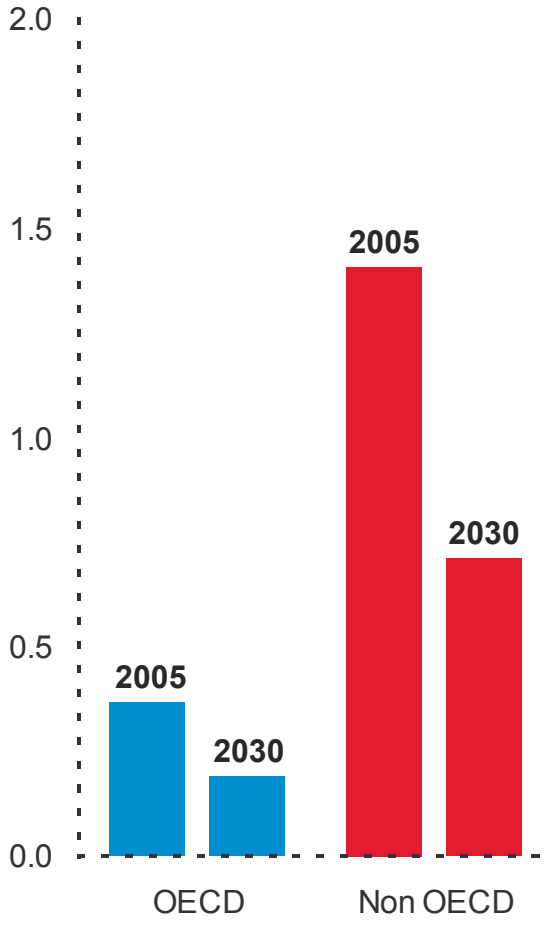
CO_2 Emissions
Billion Tons



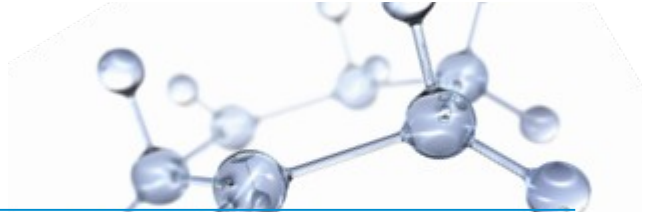
Emissions per Capita
Tons / Person



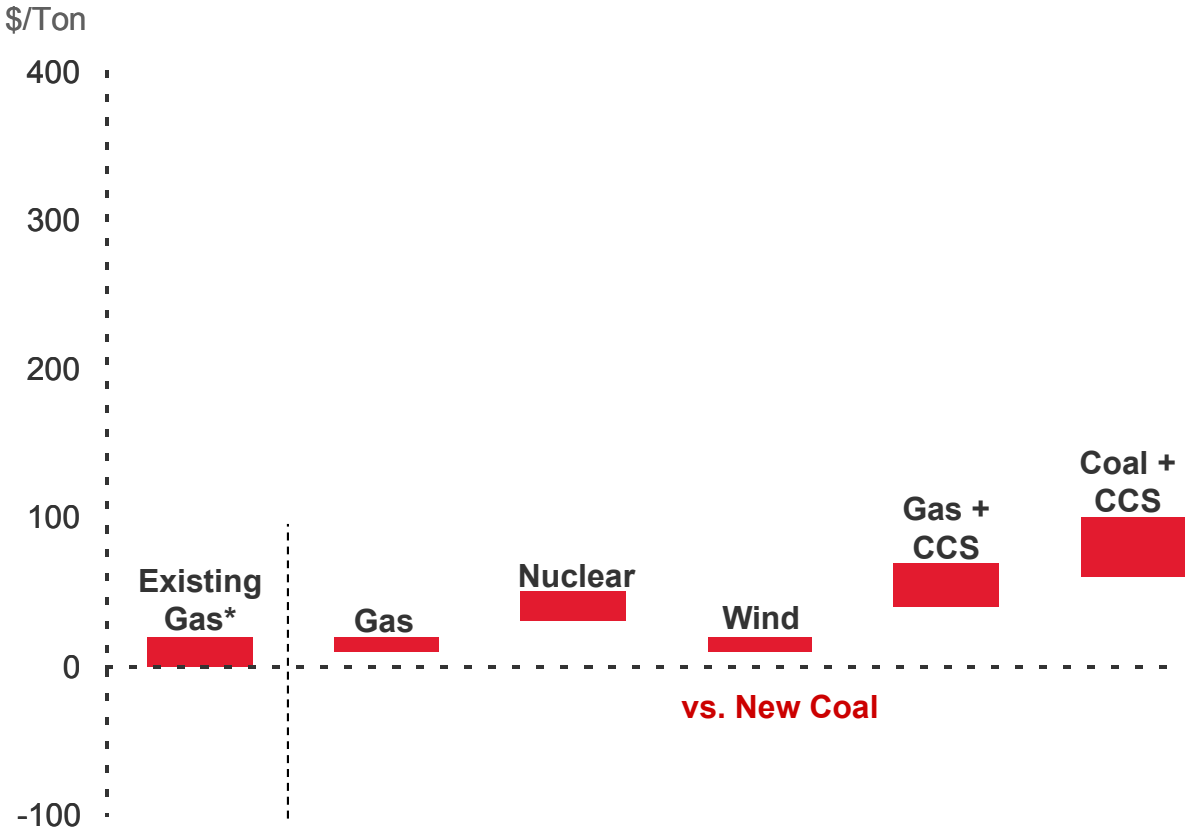
Emissions per GDP
Tons / 2005$ k GDP



CO_2 Abatement Costs



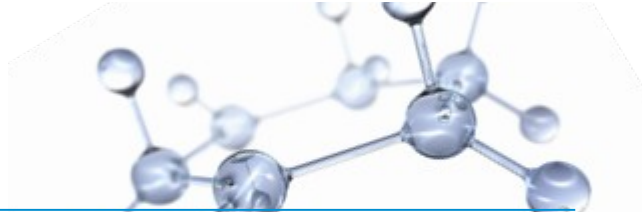
US Cost of CO_2 Avoidance



*Higher utilization of existing gas vs. existing coal

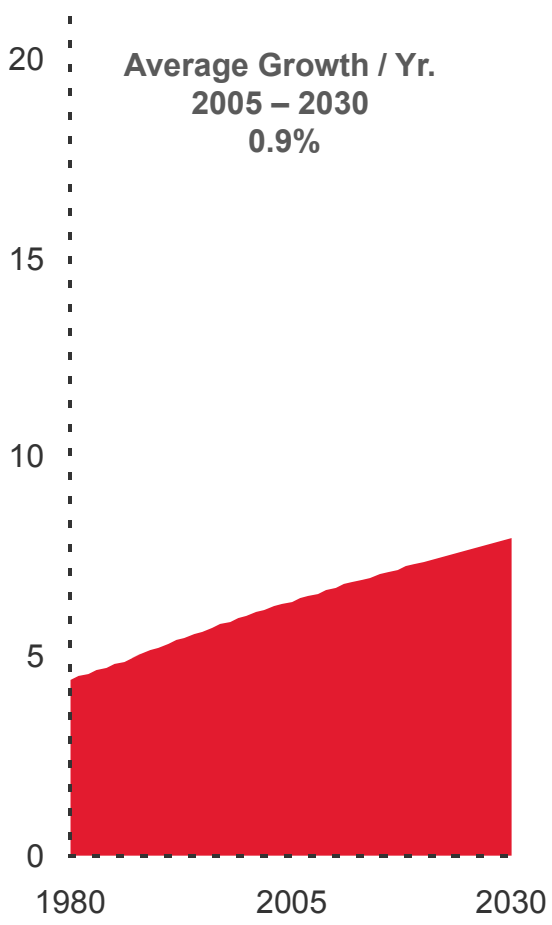
Source: JEC (2007), CARB (March 2009), EIA AEO

Global Progress Drives Demand



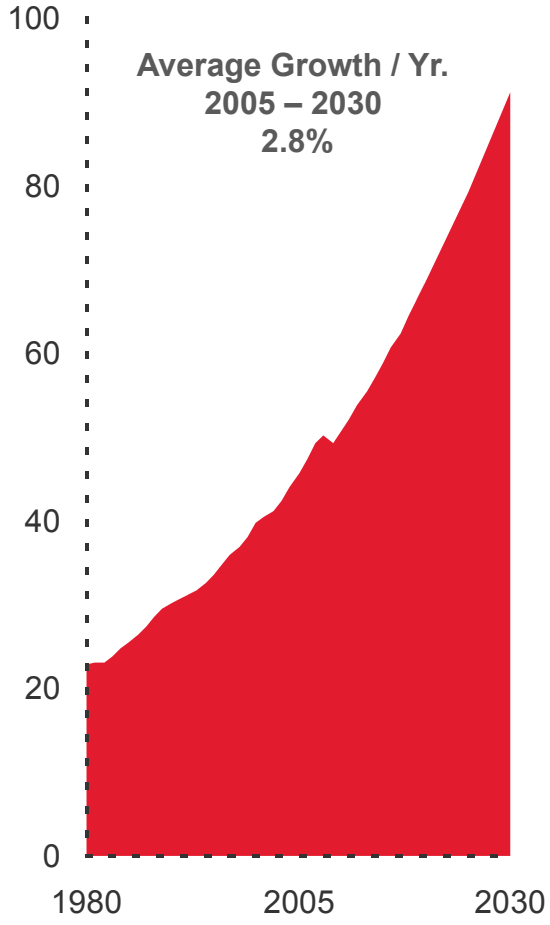
Population

Billion



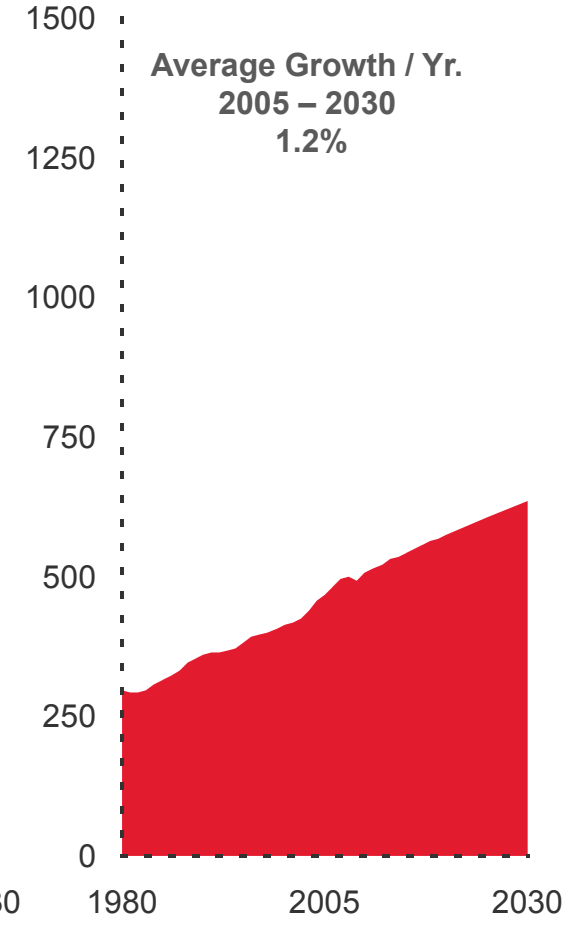
GDP

Trillion 2005$



Energy Demand

Quadrillion BTUs

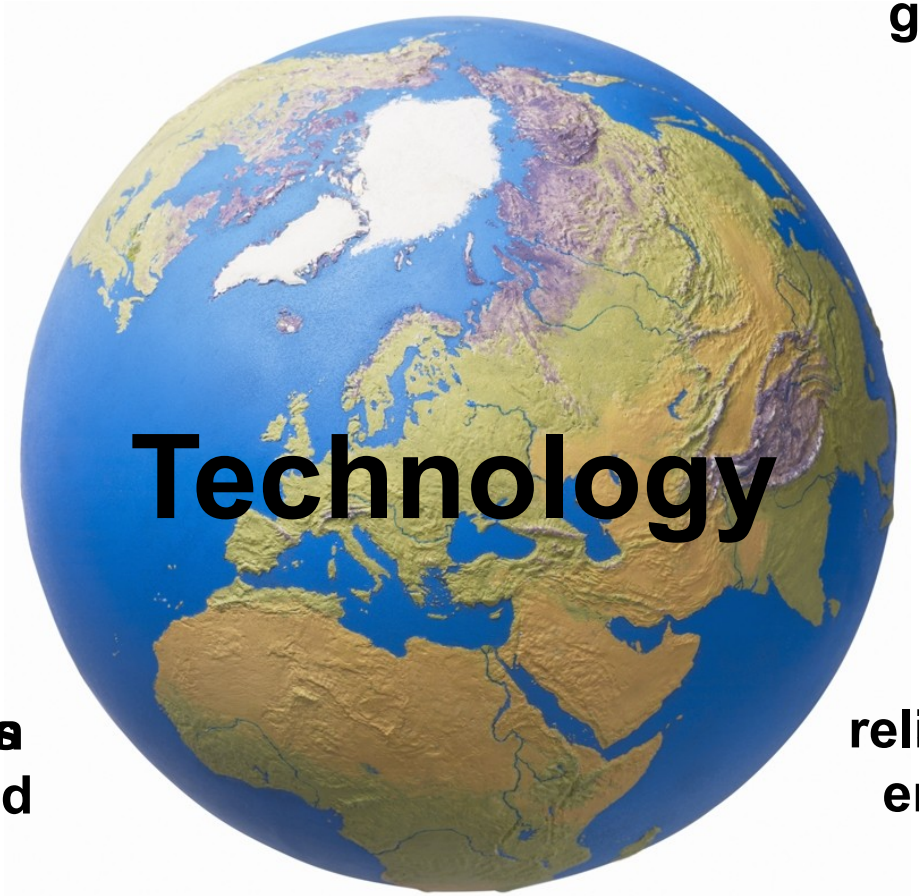


Development Challenges and Solutions

1 billion more people

Increase Efficiency

100% increase in global GDP

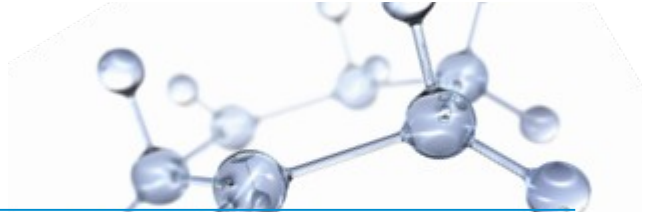


Mitigate Emissions

35% increase in energy demand

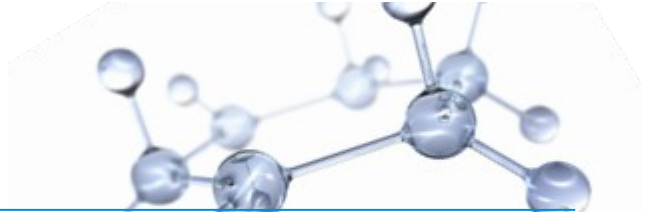
Expand reliable, affordable energy supplies

All Supplies needed



ExxonMobil™

Speculation



" One of the things I find puzzling about the whole oil market discussion is how complicated people seem to make it.

They get all wrapped up in stuff about forward markets, hedge funds, etc., and lose sight of the fundamental fact that there are only two things you can do with the world's oil production: consume it, or store it.

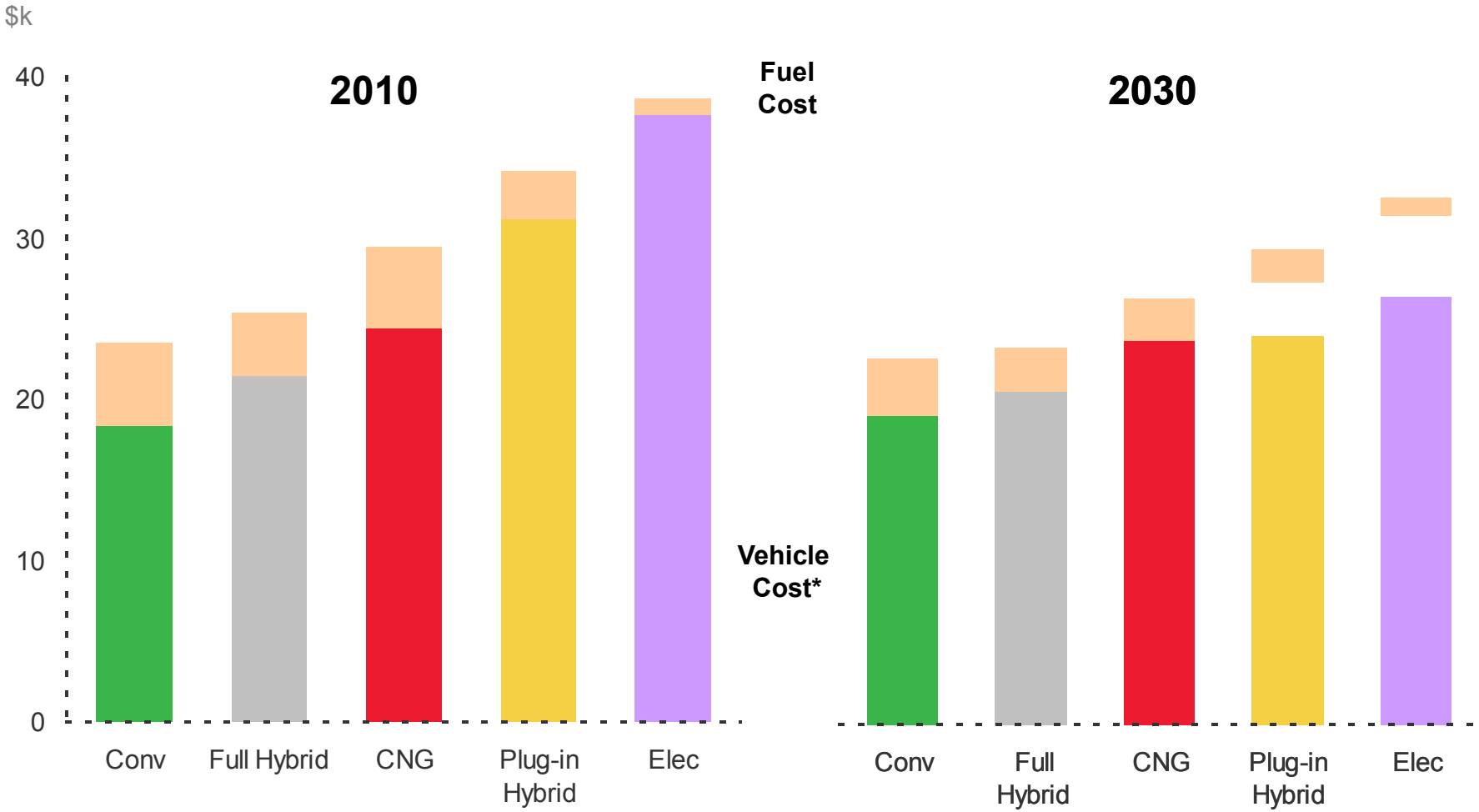
If the price is above the level at which the demand from end-users is equal to production, there's an excess supply - and that supply has to be going into inventories.

If oil isn't building up in inventories, there can't be a bubble in the spot price."

Paul Krugman – Princeton University economics professor
2008 Nobel prize winner in economics

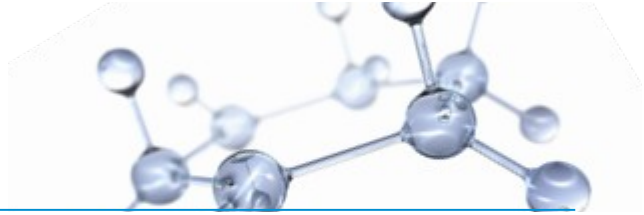
U.S. Vehicle Costs

5-Year Cost of Ownership



*Excludes Maintenance and Insurance

ExxonMobil – SGI alliance



algae growth → algae harvesting → bio-oil recovery → bio-oil transport & storage → bio-oil conversion → biofuel products

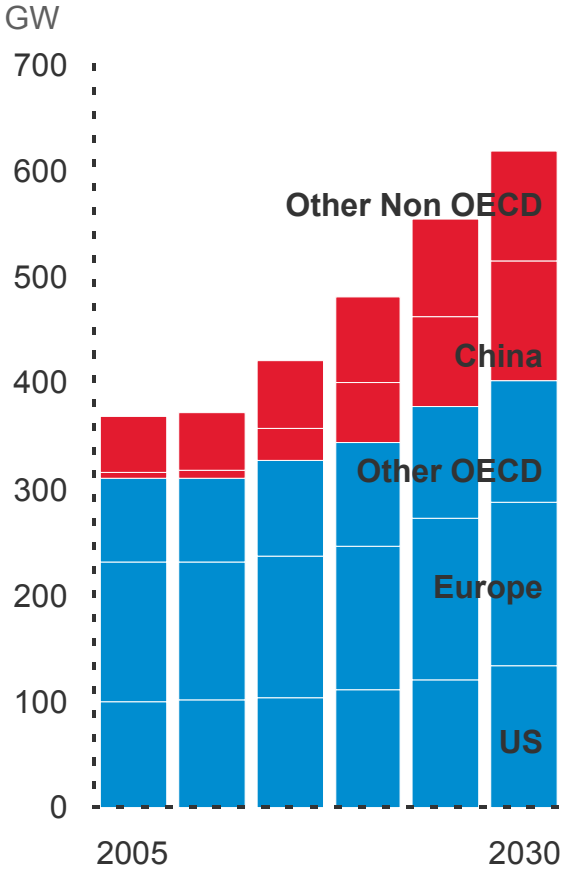
- SYNTHETIC GENOMICS® unsuitable for food production
- ExxonMobil
- Greater volumes per acre
- Similar to today's transportation fuels
- GHG mitigation benefits

– Biological research for algae strain development, growth and harvesting
– Bio-oil recovery research and development

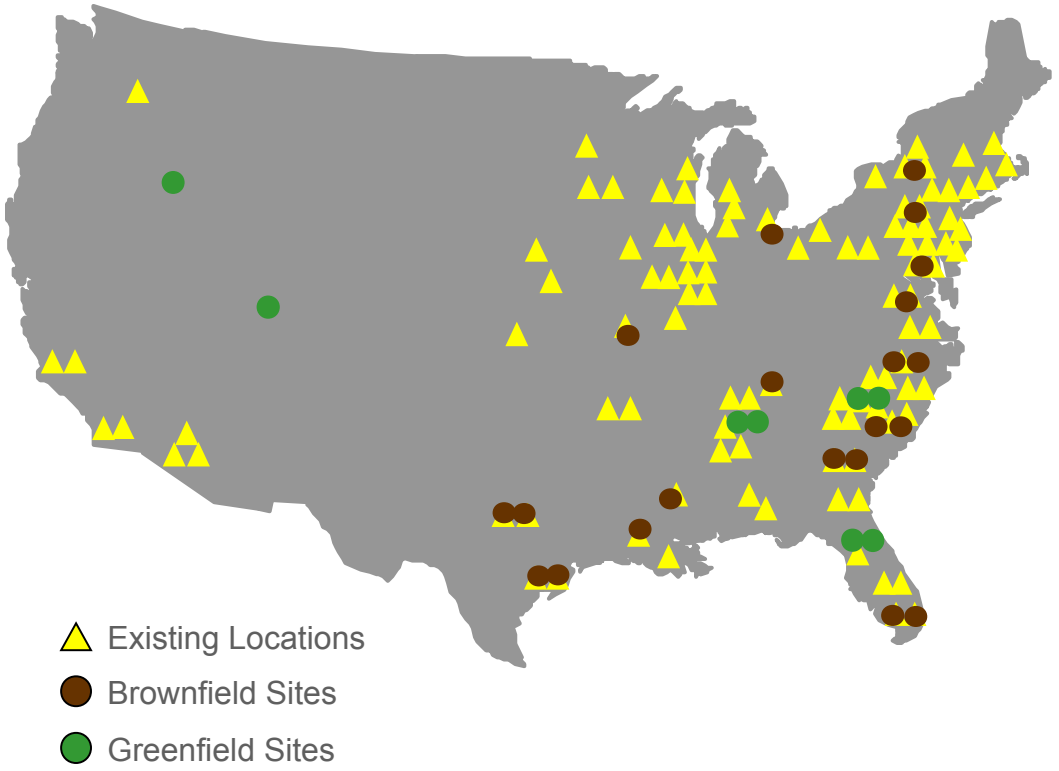
– Process engineering and scale up
– Upgrading bio-oil into finished products
– Total process integration

Nuclear Capacity Expands

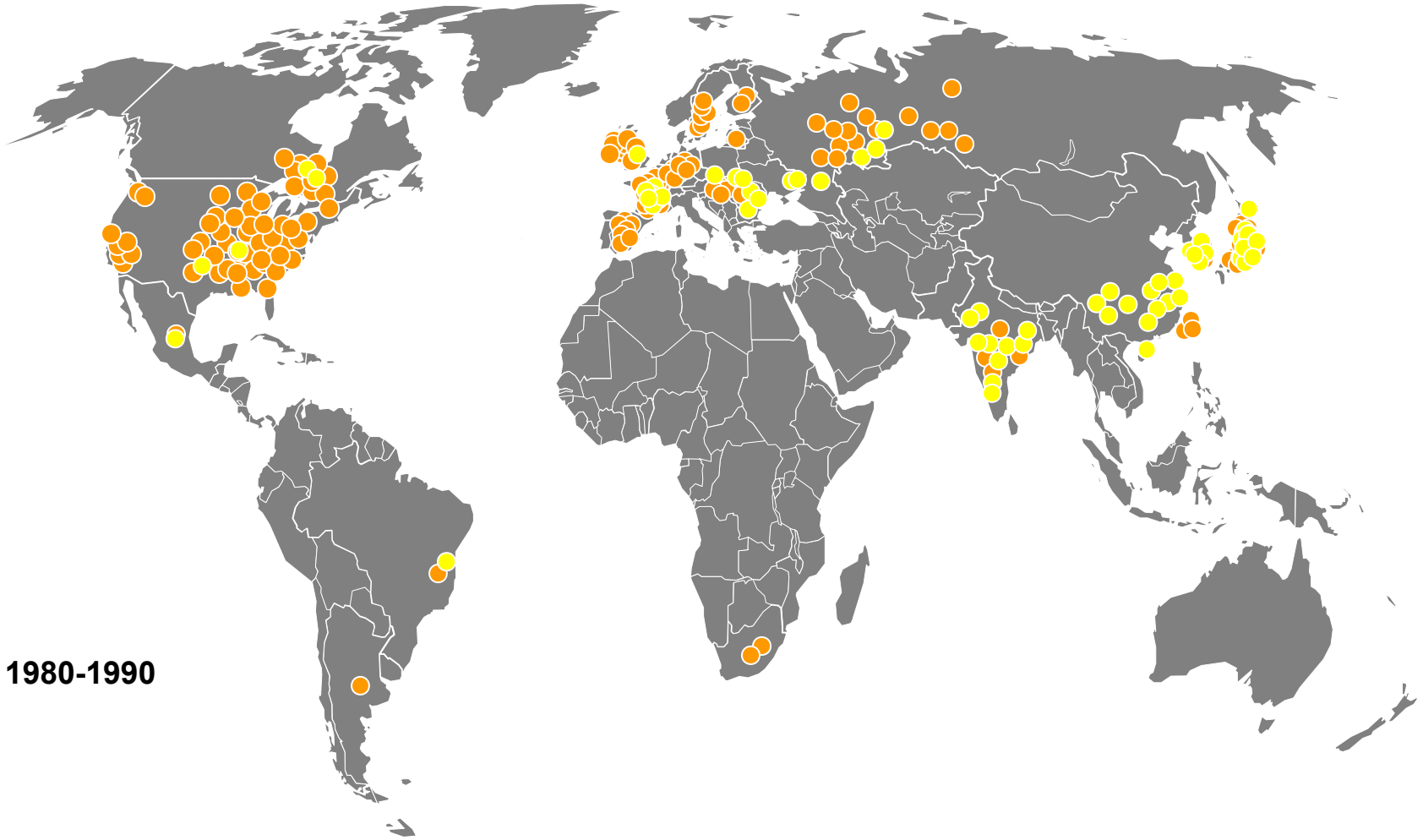
Global Capacity



US Nuclear Reactors



Nuclear Capacity Growth Shifts

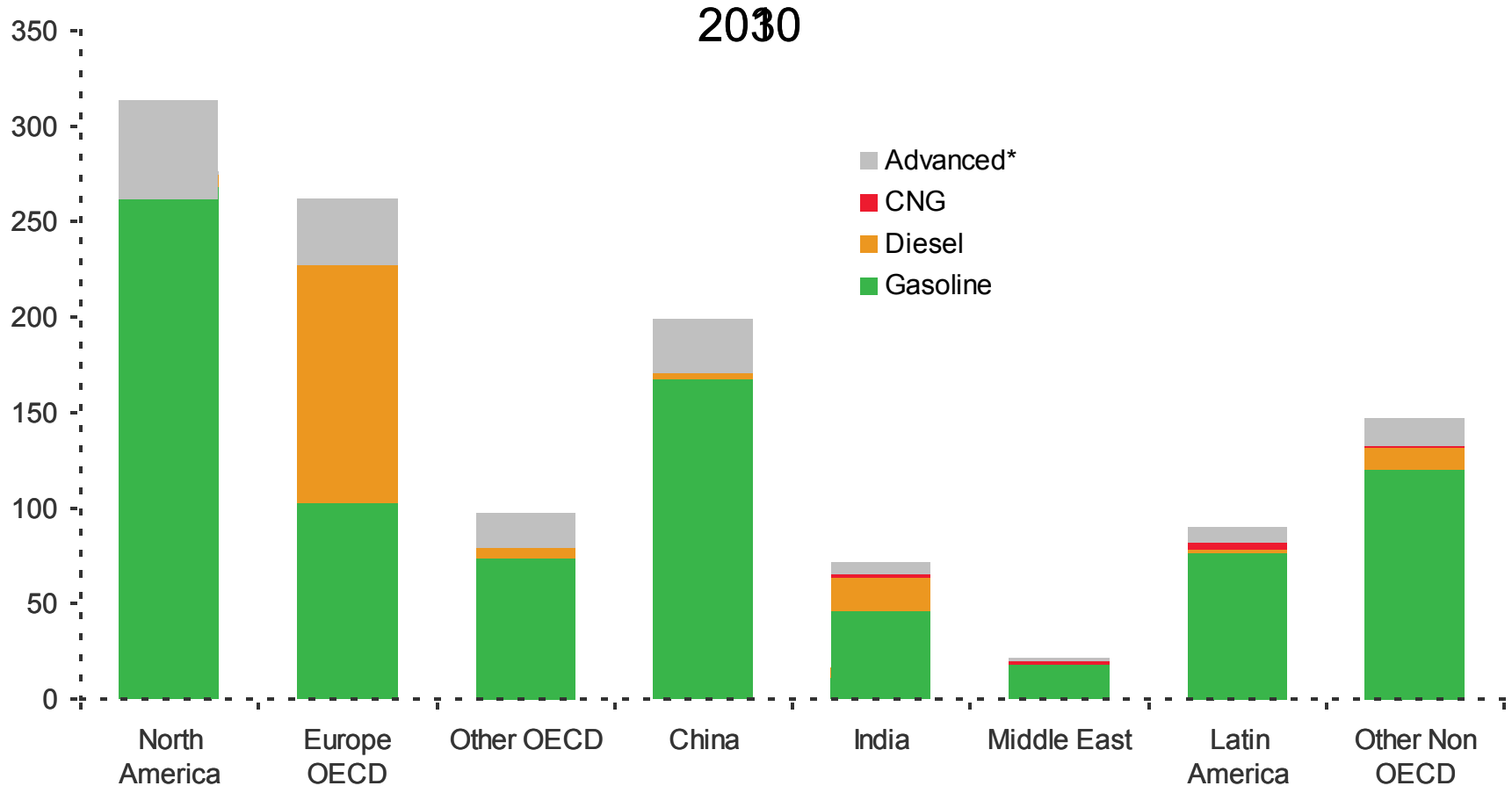


Source: World Nuclear Association, IAEA

Personal Transportation Fleet Diversifies

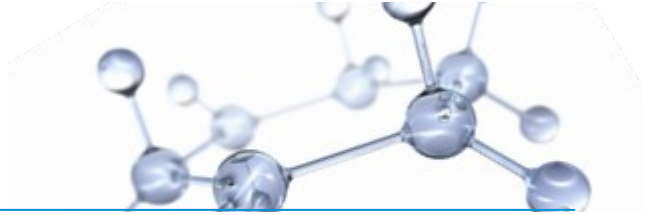
Powertrain Technology

Millions of Vehicles

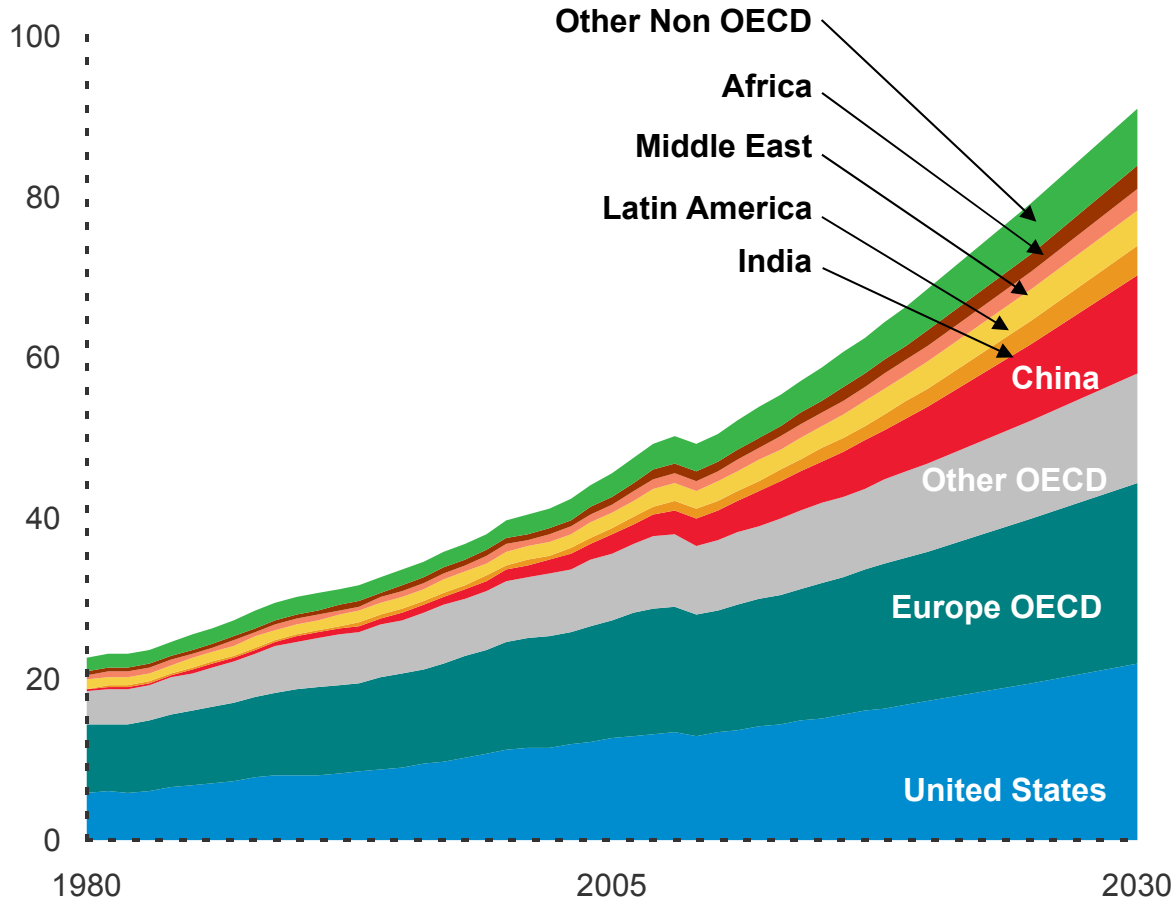


*Full Hybrid, Plug-in Hybrid, Electric Vehicles

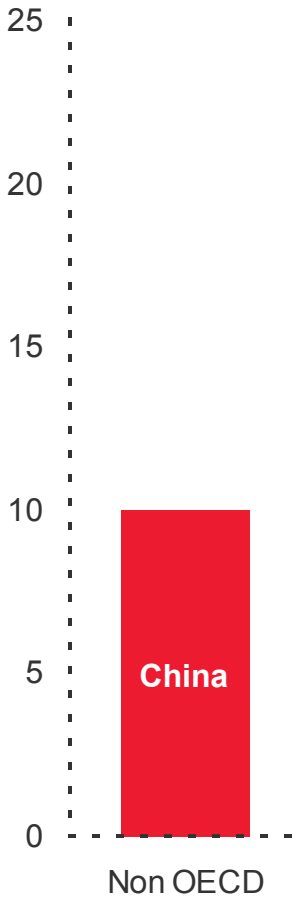
Economic Growth Continues



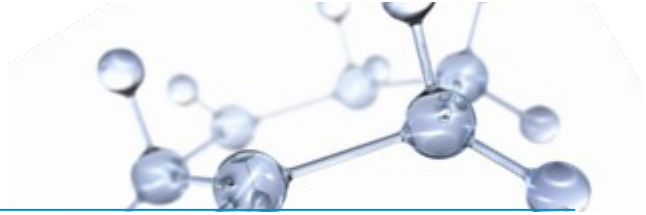
GDP
Trillion 2005$



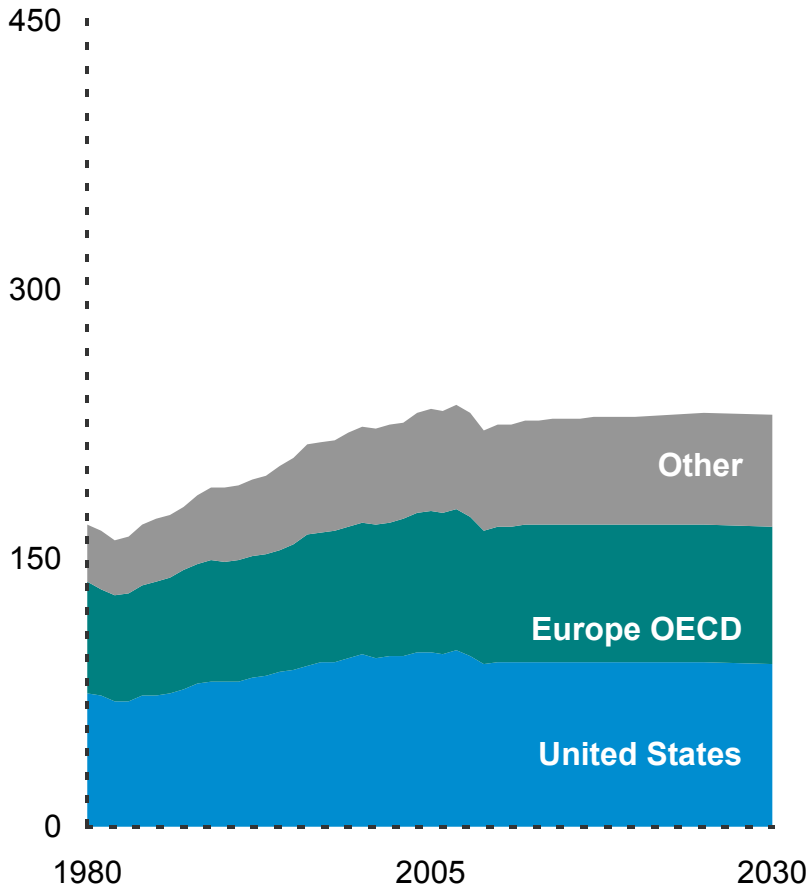
GDP Growth 2005 to 2030
Trillion 2005$



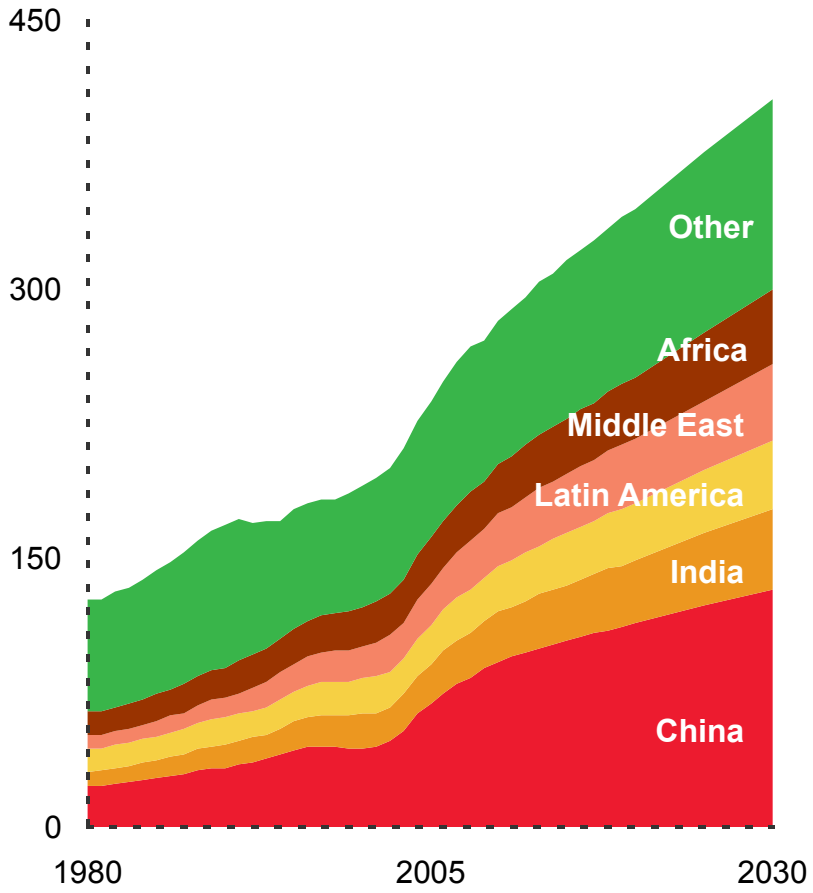
Expansion Economies Drive Demand



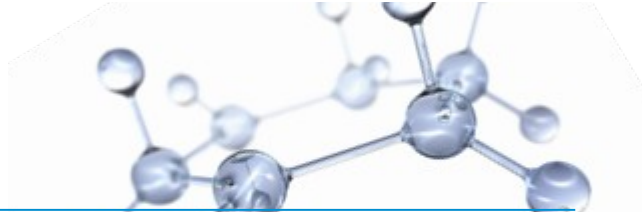
OECD
Quadrillion BTUs



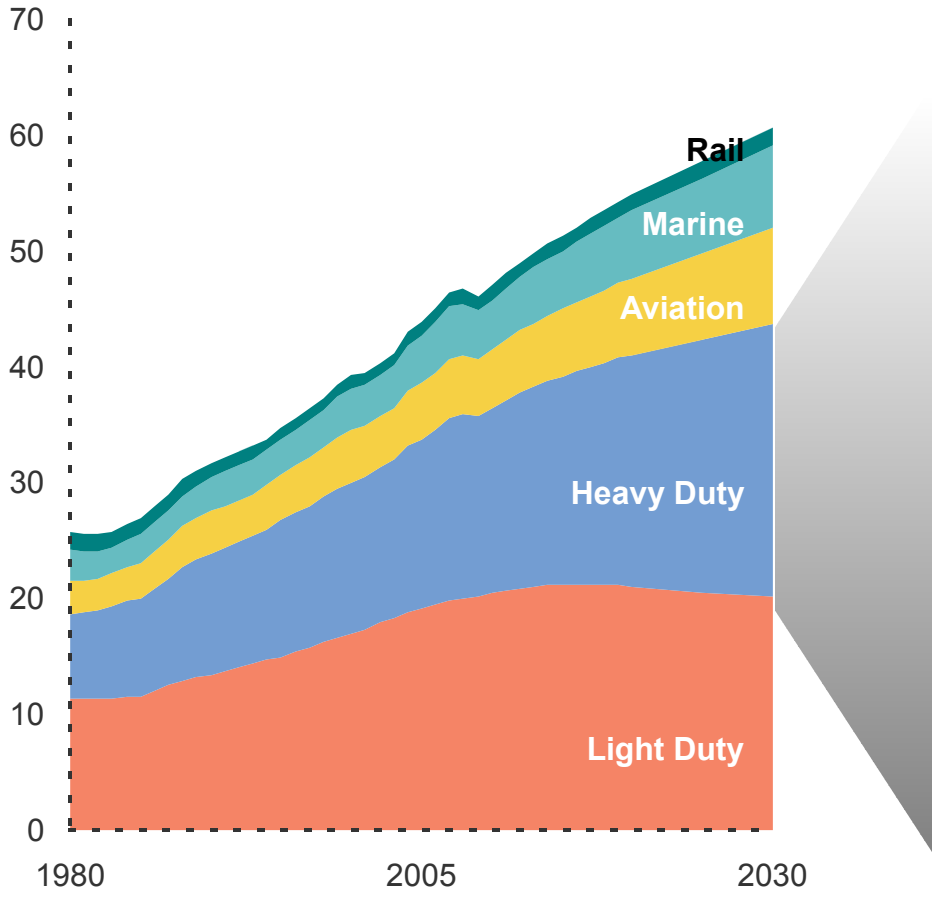
Non OECD
Quadrillion BTUs



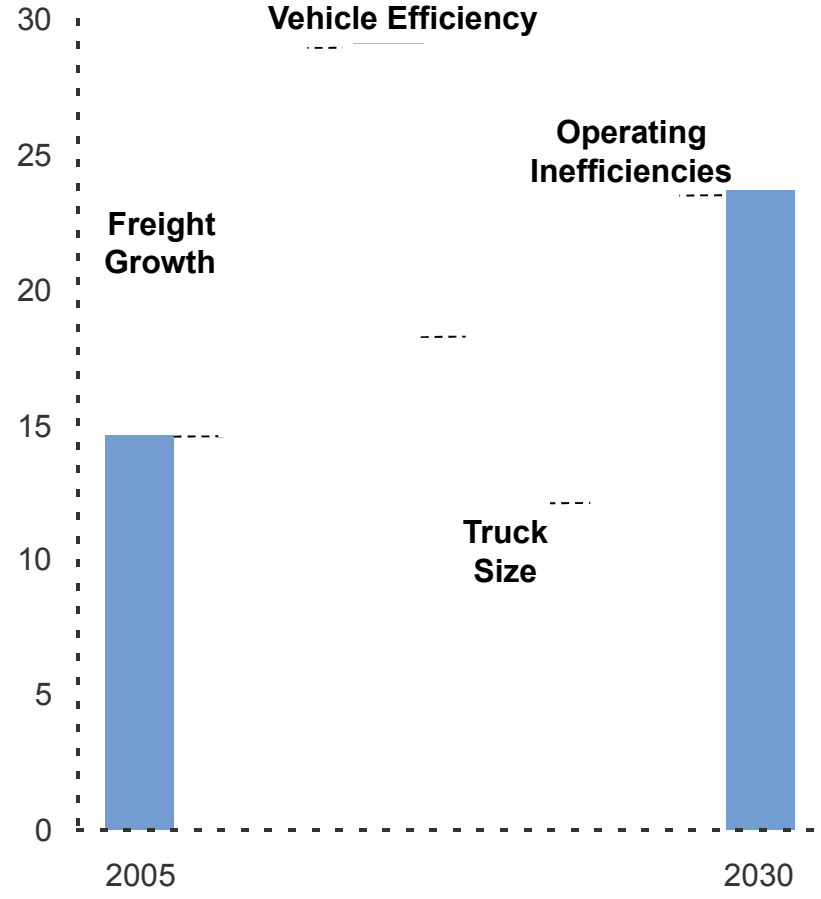
Heavy Duty Dominates Growth



Demand
MBDOE

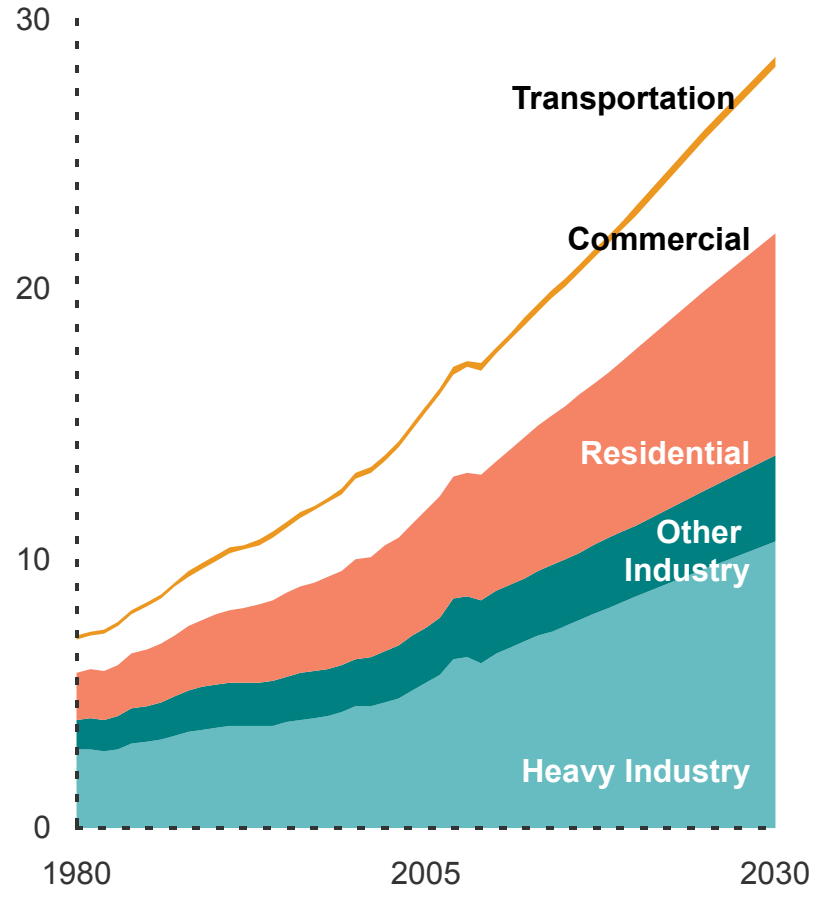


Heavy Duty Demand Changes
MBDOE

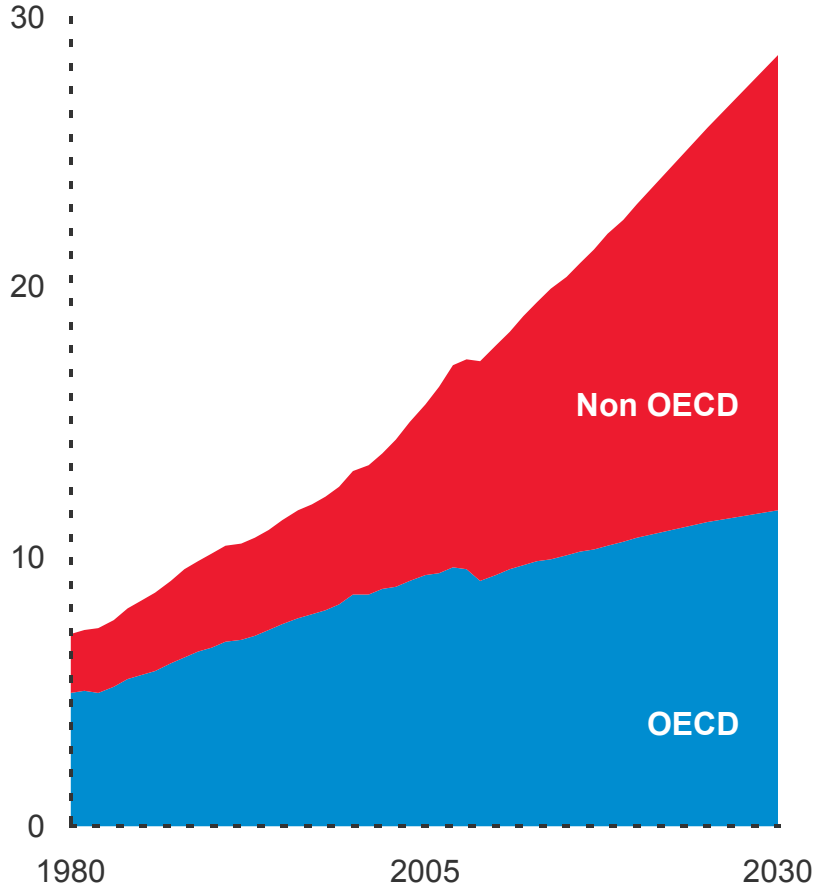


Electricity Demand Continues to Surge

By Sector
k TWh

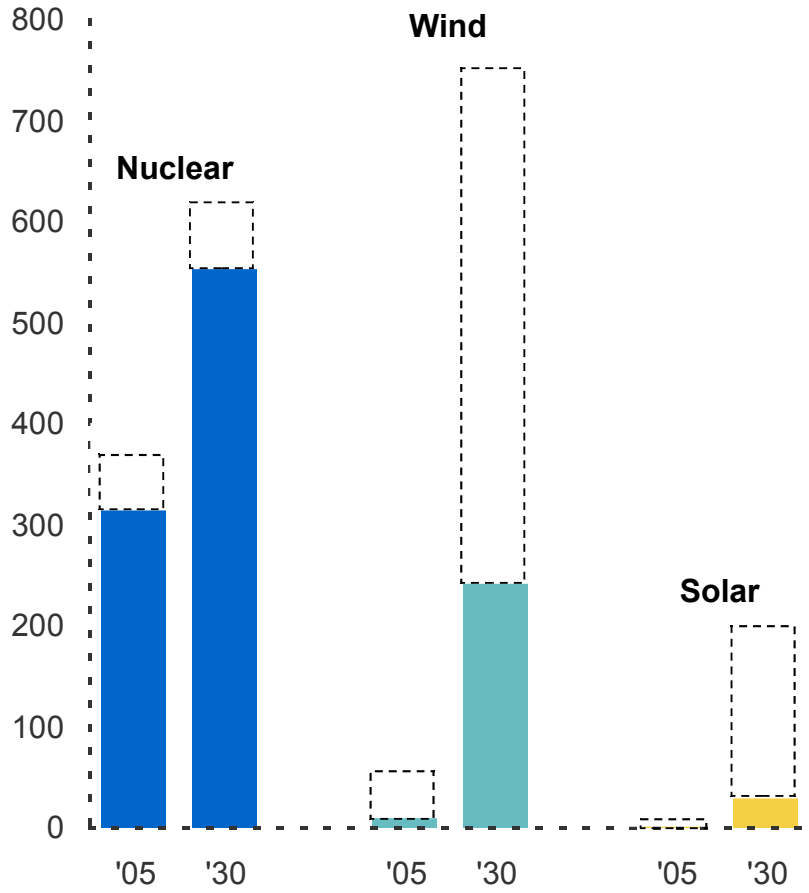


By Region
k TWh

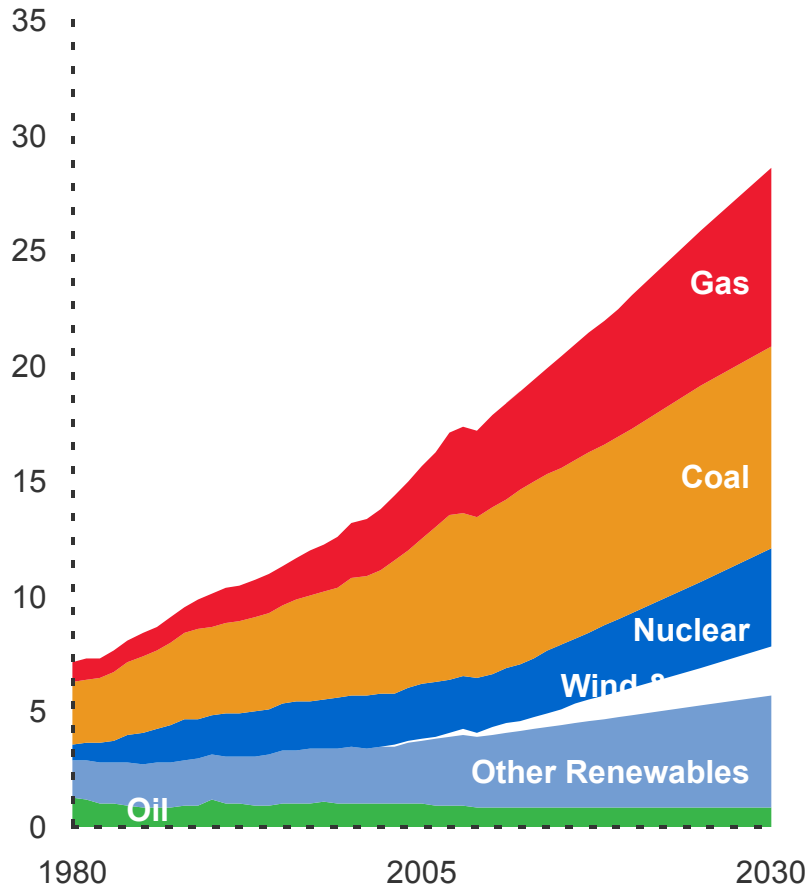


Power Generation Mix Evolves

Global Capacity Utilized
GW

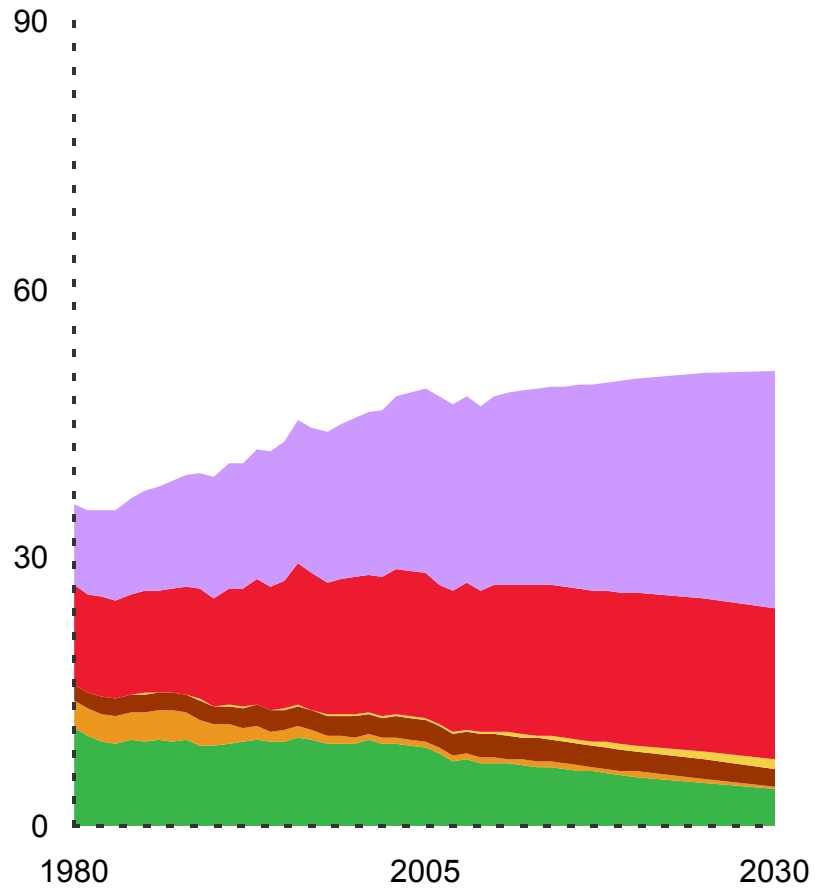


By Generation
k TWh

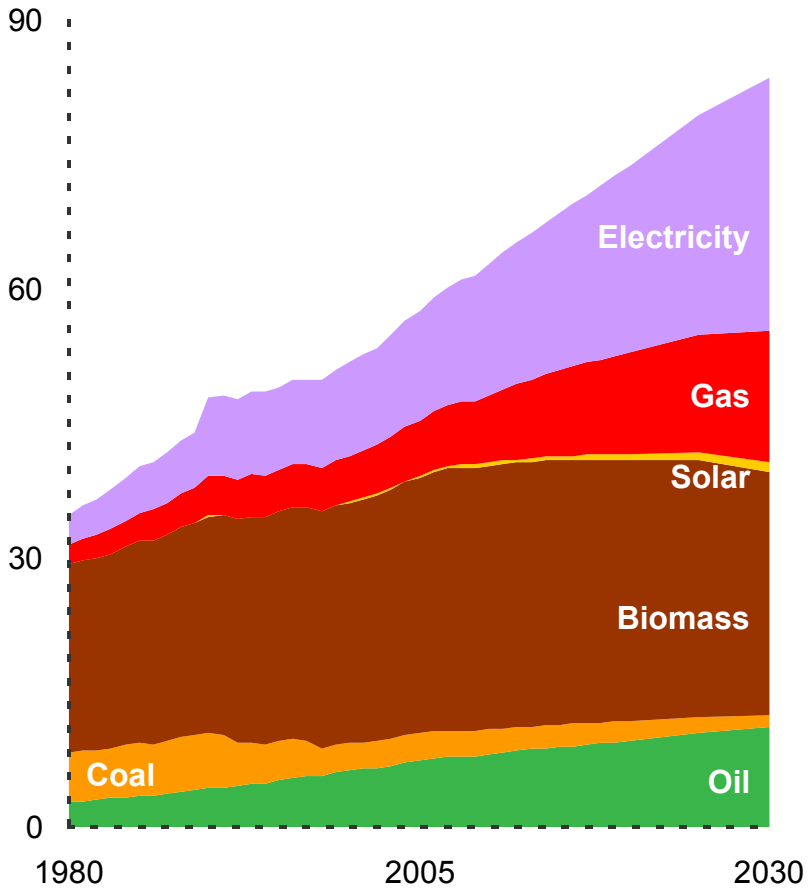


Residential/Commercial Needs Electricity

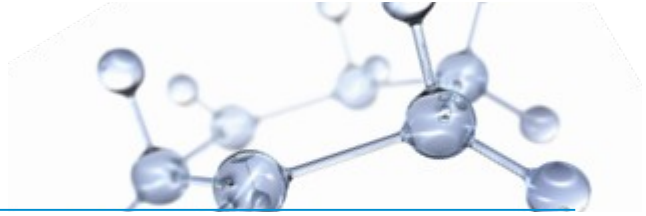
OECD
Quadrillion BTUs



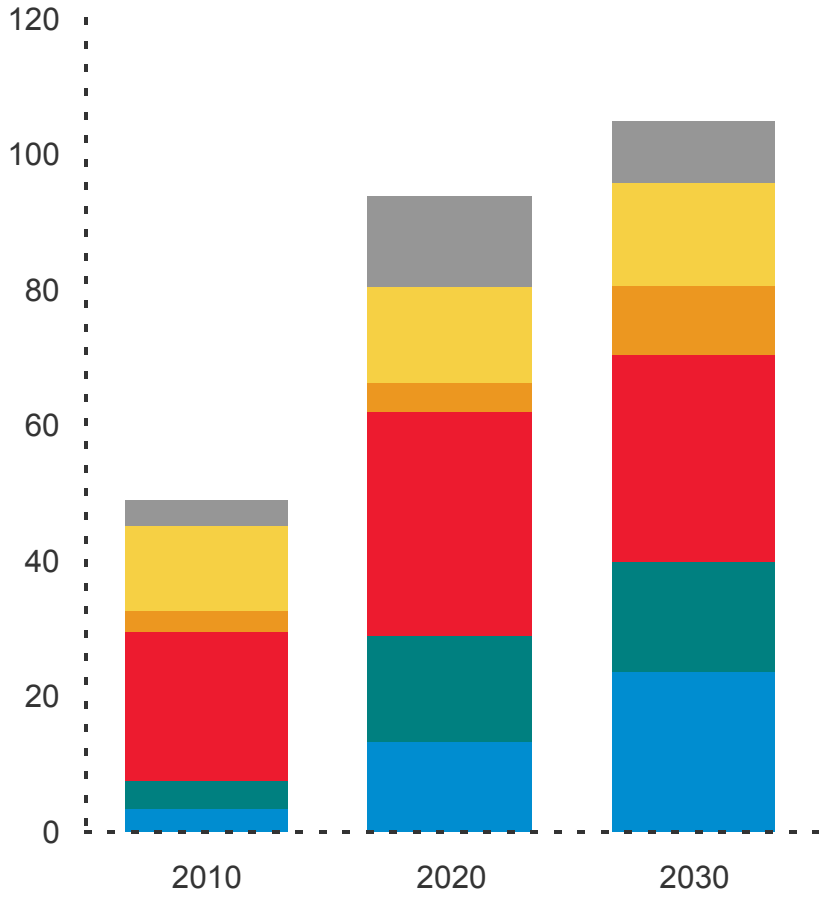
Non OECD
Quadrillion BTUs



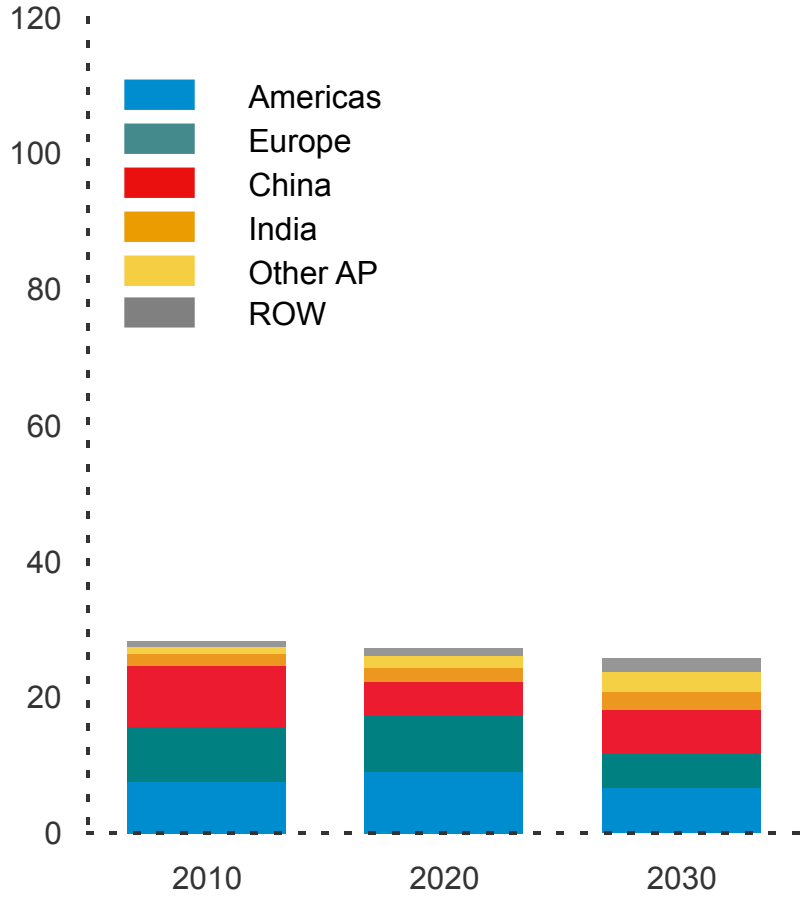
Nuclear & Wind Capacity Expand



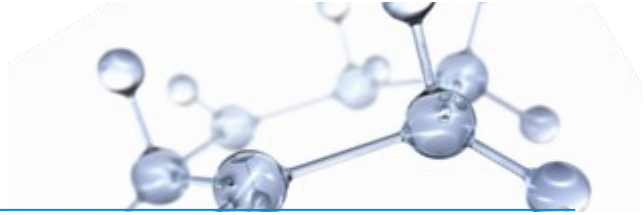
Nuclear
GW – 6 year build time



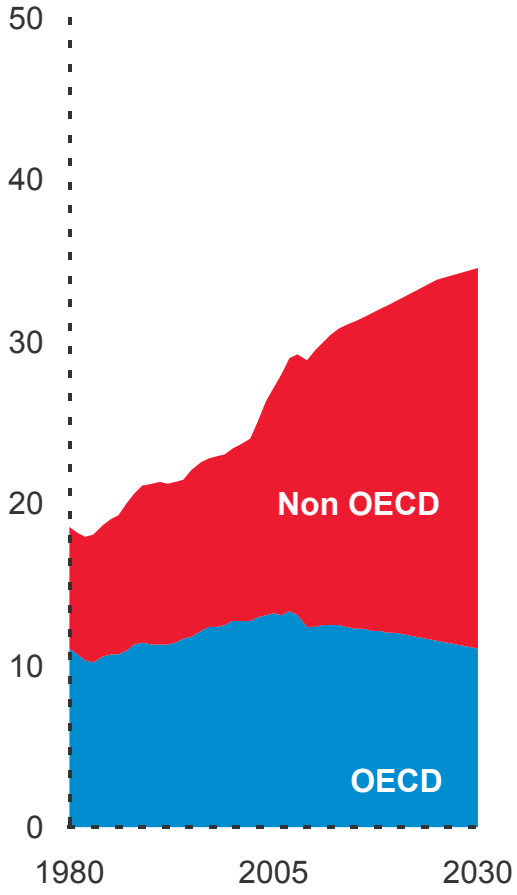
Wind
GW – 1 year build time



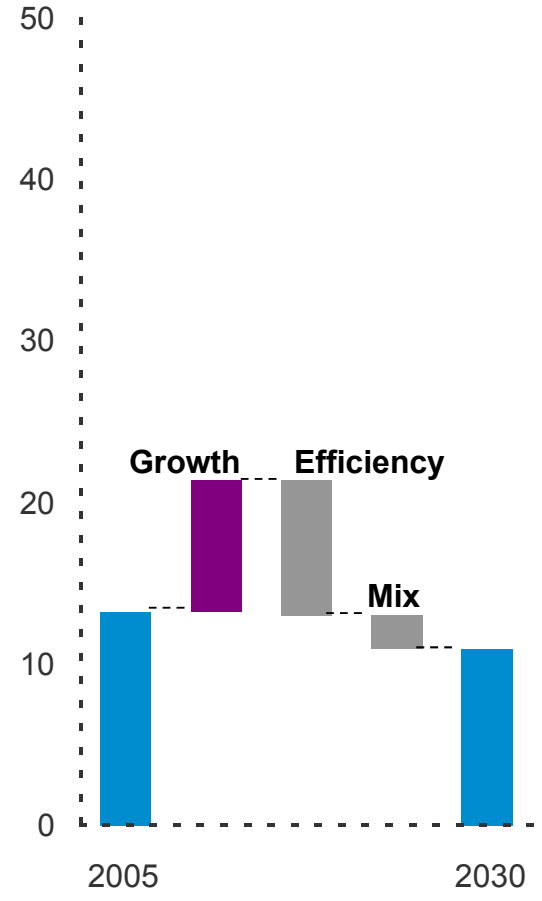
CO_2 Emissions Moderate



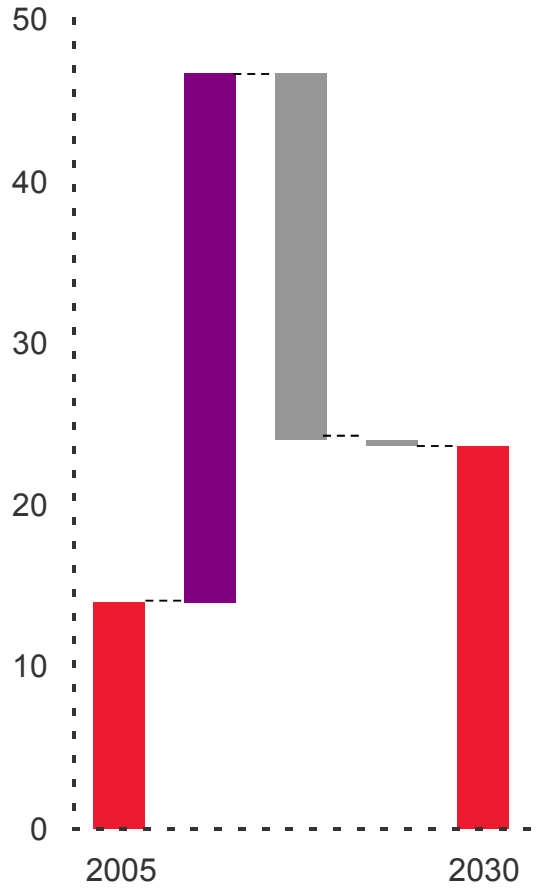
World
Billion Tons



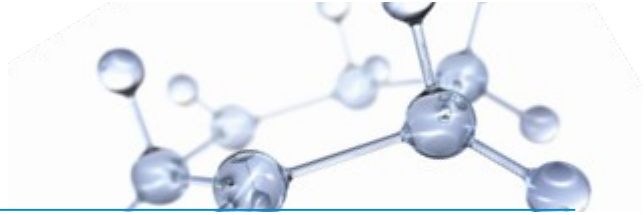
OECD
Billion Tons



Non OECD
Billion Tons

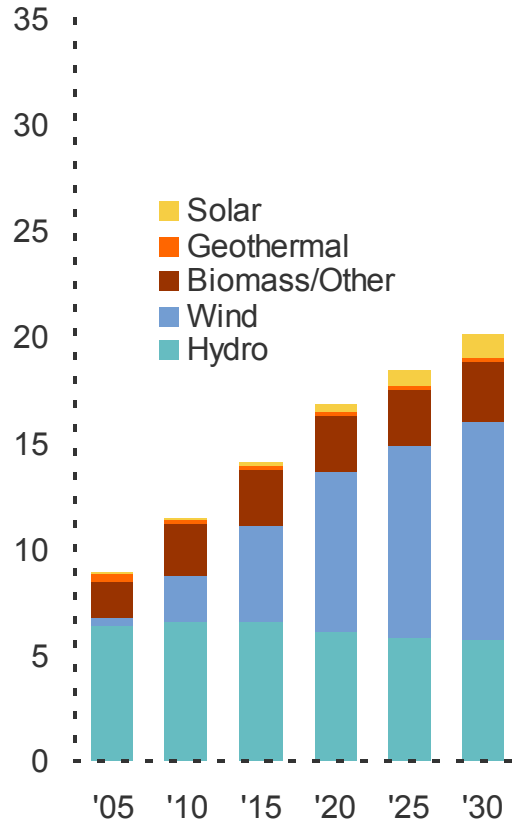


Renewables Gain Share



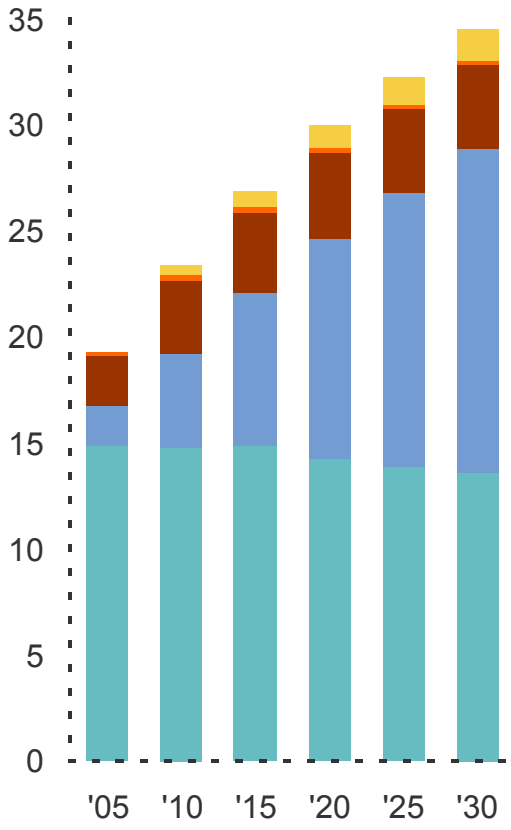
United States

Percent of TWhr



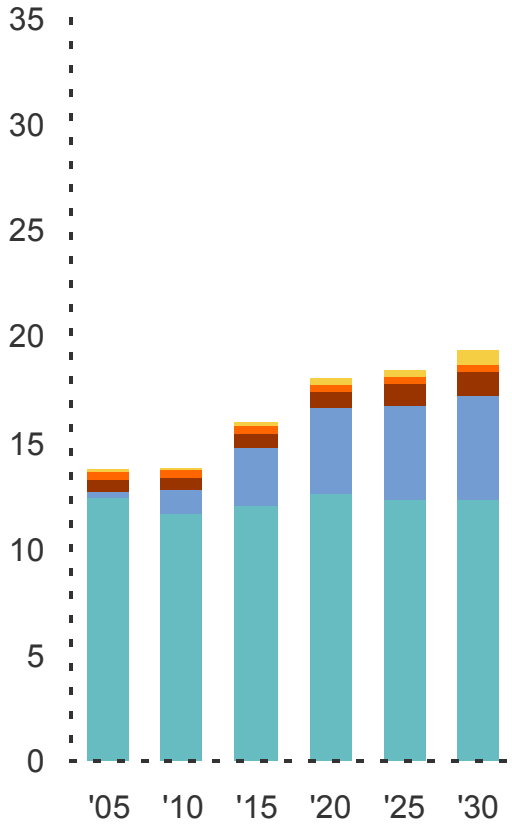
Europe

Percent of TWhr



Asia Pacific

Percent of TWhr

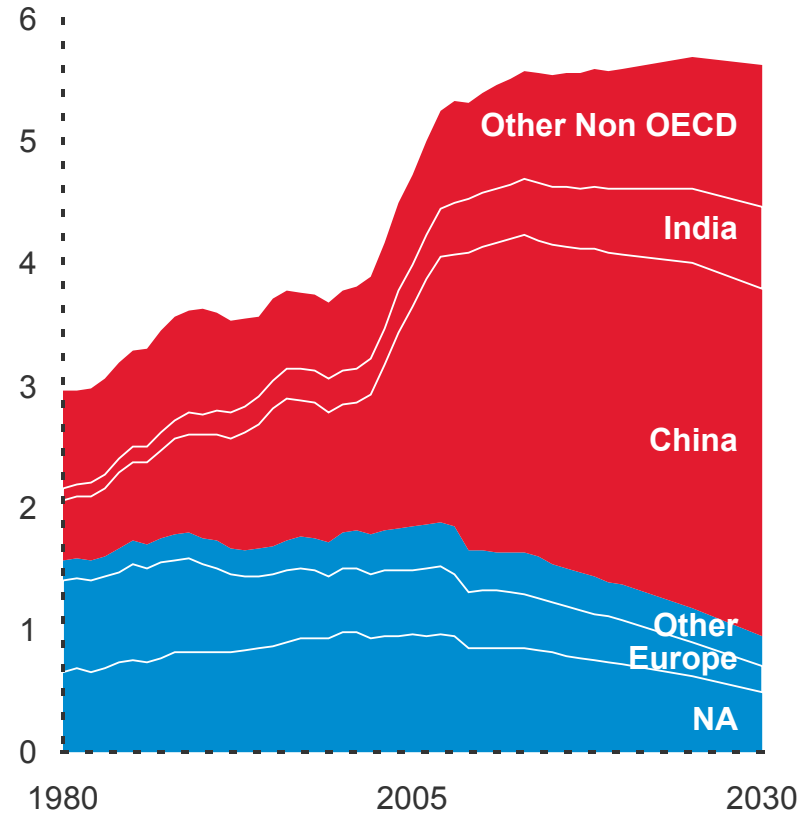


*Biomass includes Municipal Solid Waste

Coal Supplies Plentiful

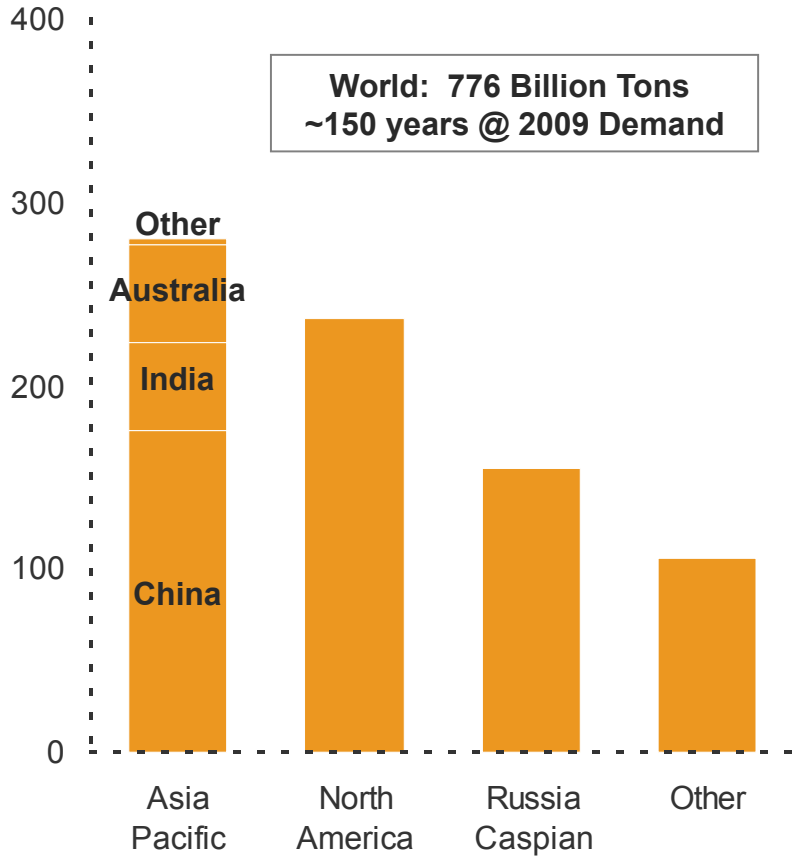
Demand

Billion Tons

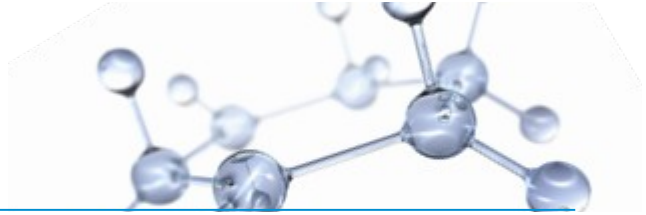


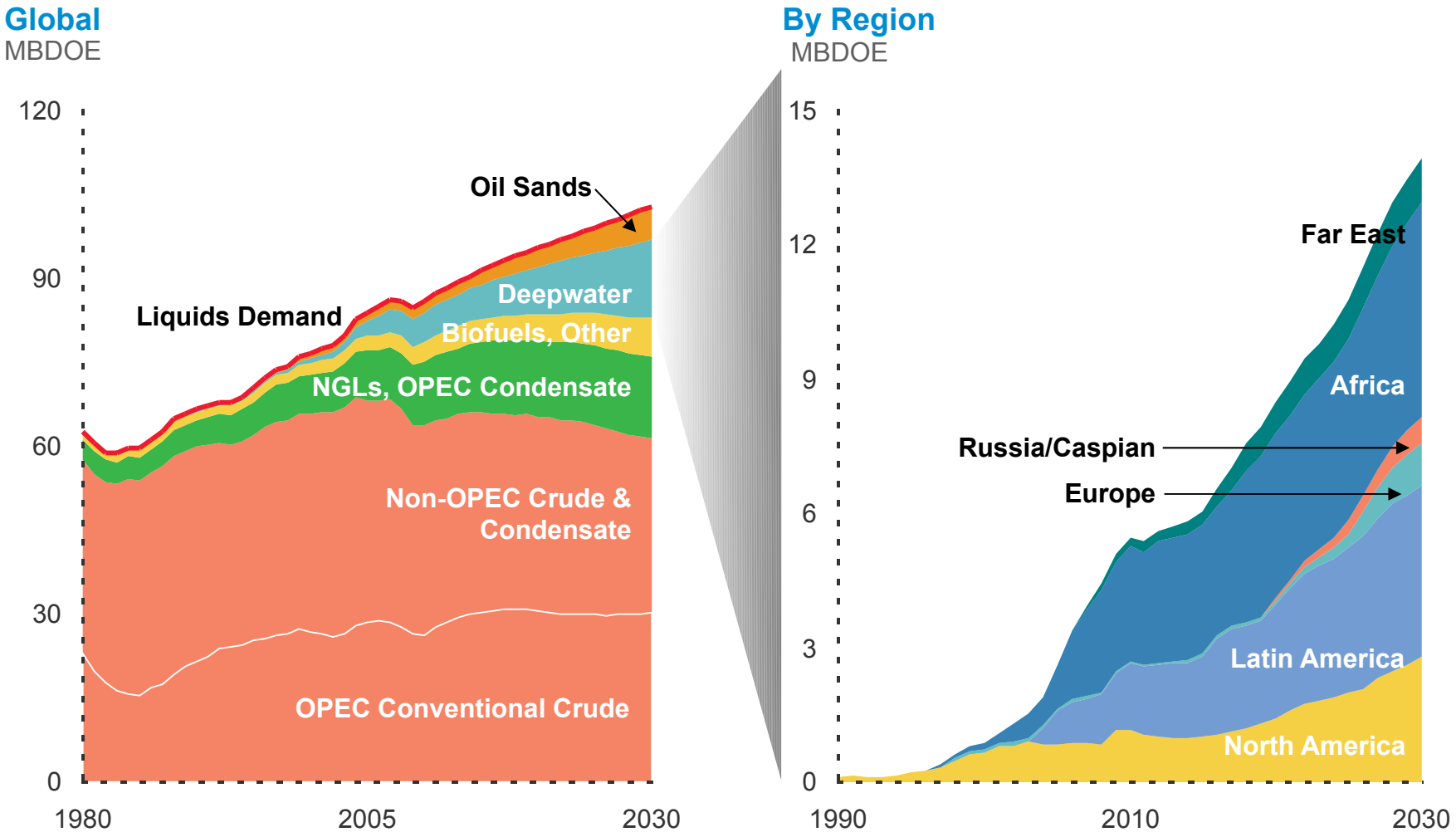
Reserves

Billion Tons



Deepwater Supply Expands Globally

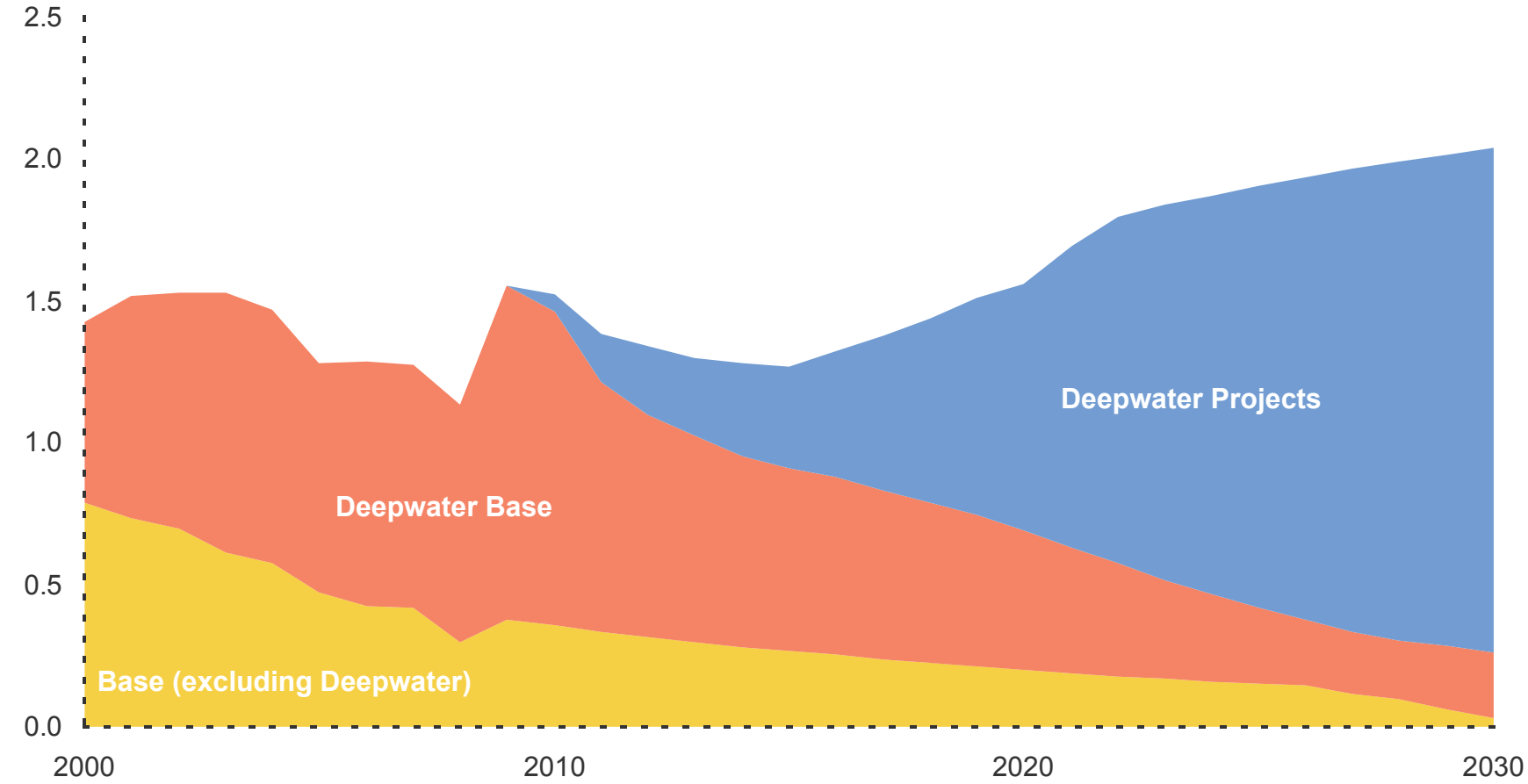




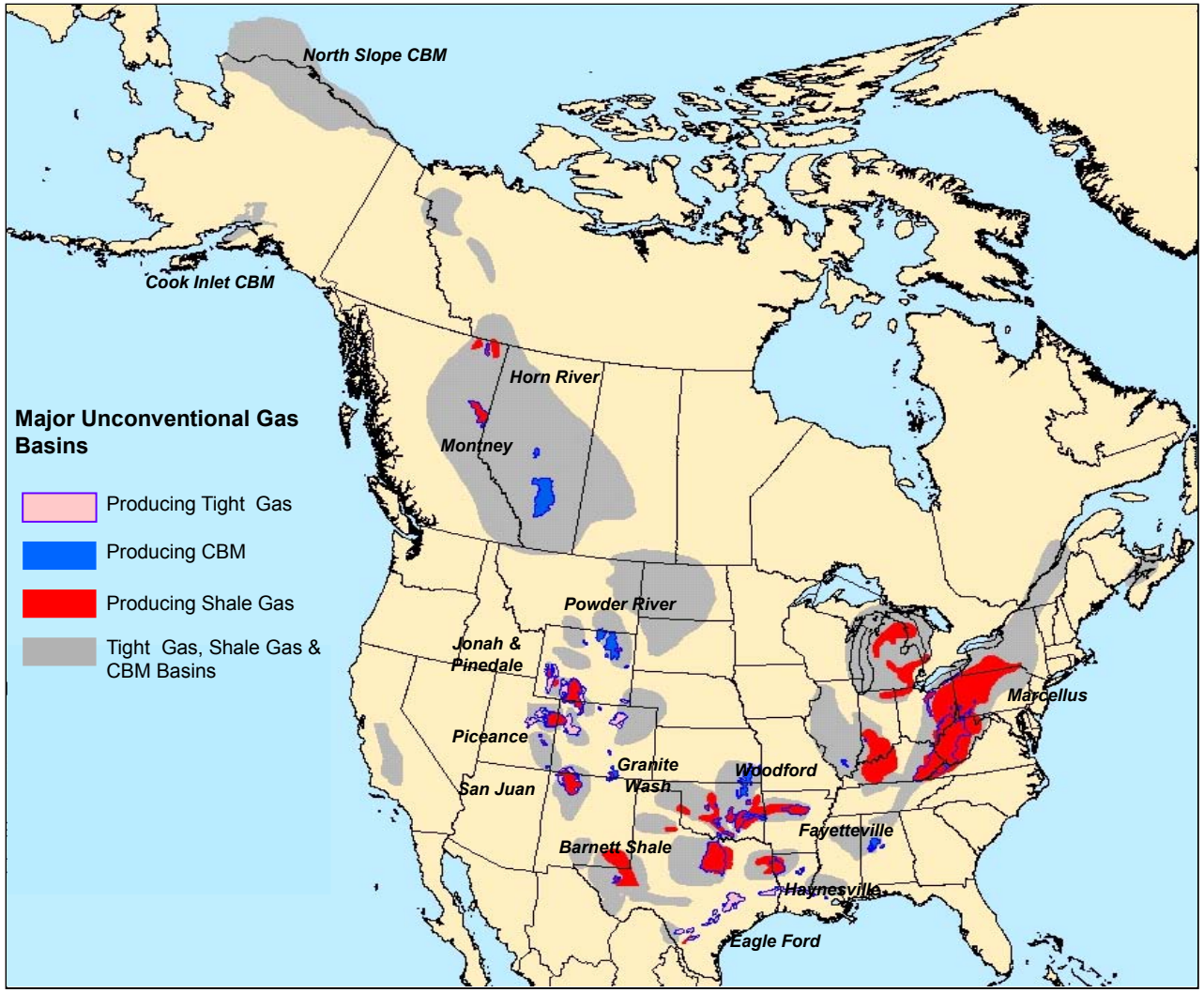
Gulf of Mexico Supply Grows

Liquids Supply

MBD



Remaining U.S. Gas Resource

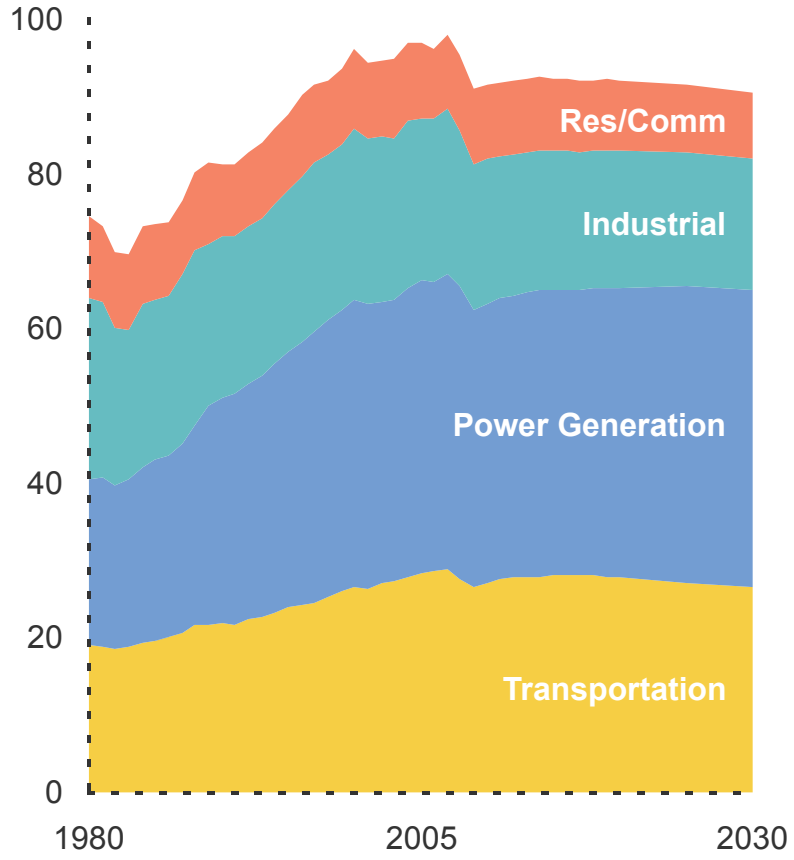


- Resources for ~100 years coverage at current demand
- Unconventional gas has extended coverage 60+ years
- Further unconventional gains expected

US Energy Demand and Supply

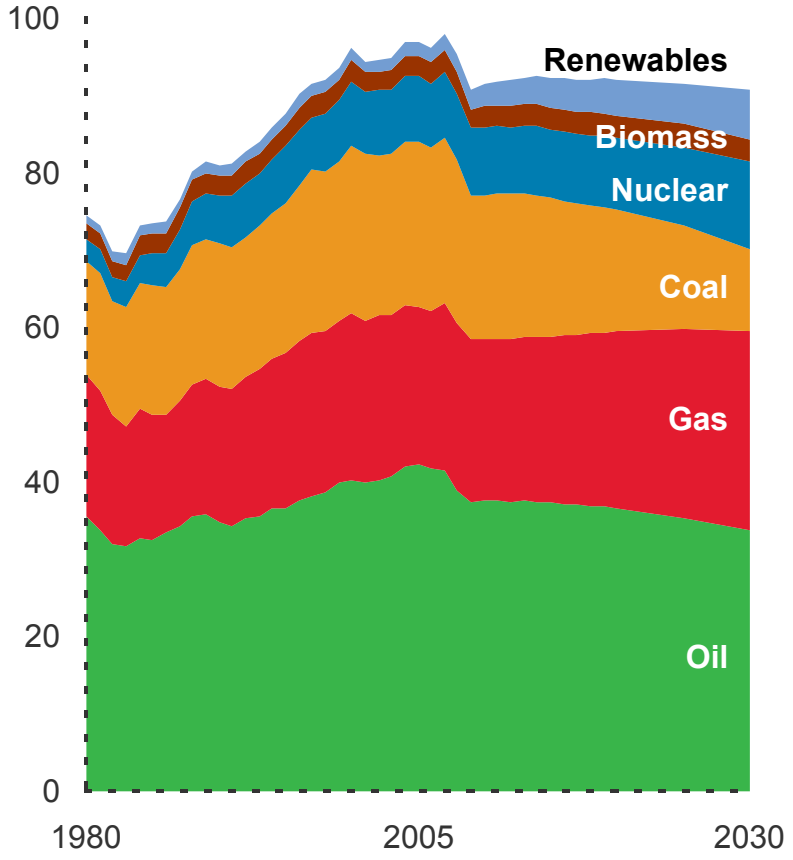
By Sector

Quadrillion BTUs



By Fuel

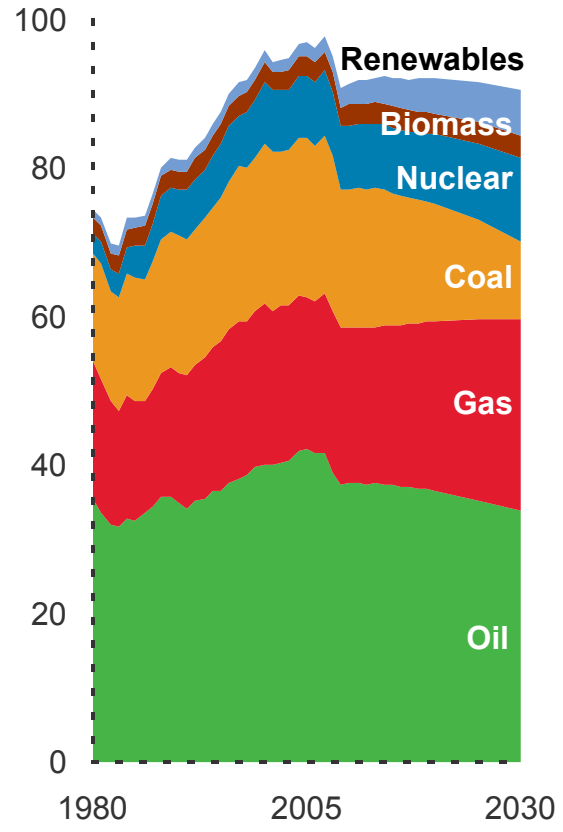
Quadrillion BTUs



United States Energy Demand & Supply

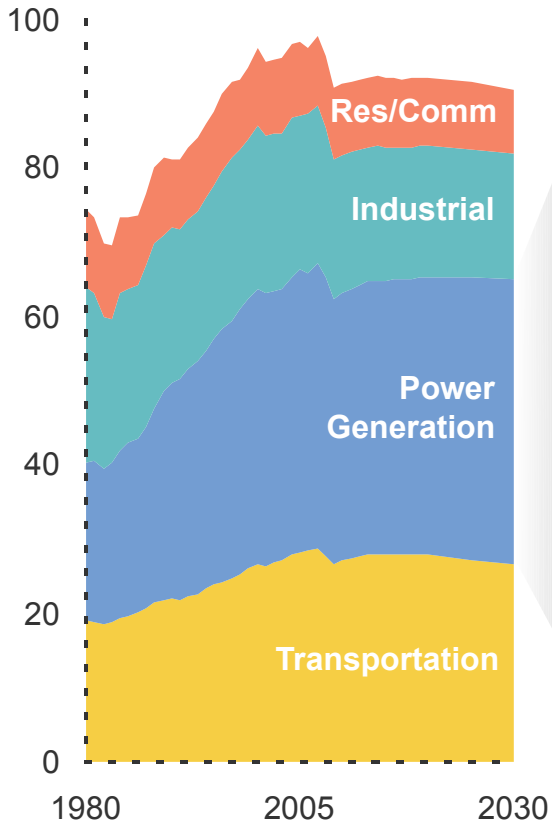
Total By Fuel

Quadrillion BTUs



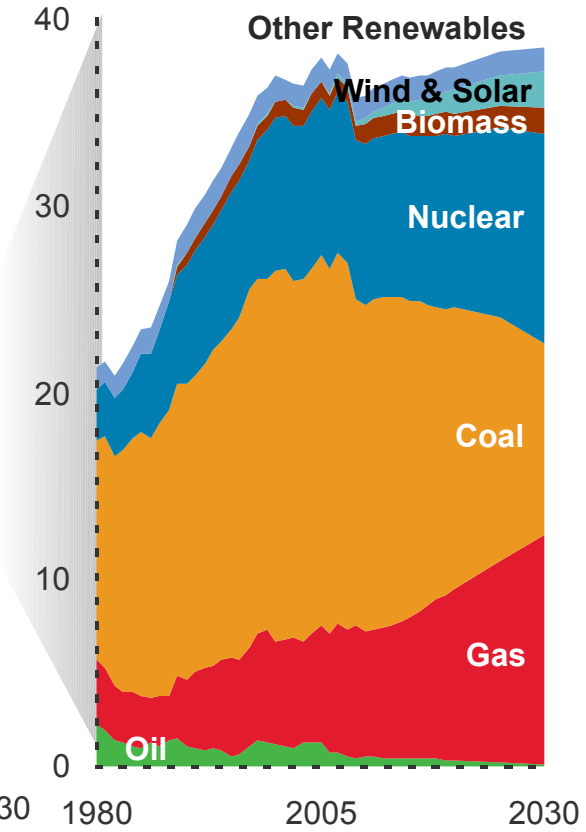
Total By Sector

Quadrillion BTUs



Power Generation by Fuel

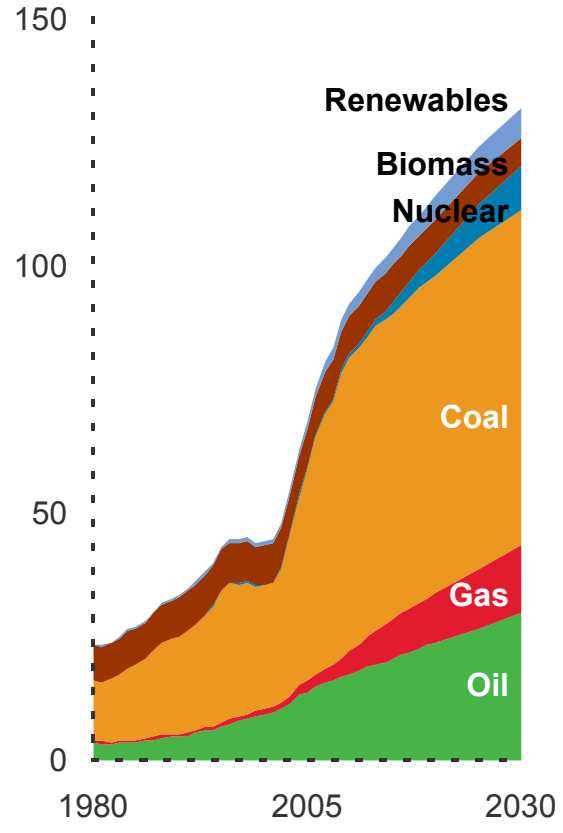
Quadrillion BTUs



China Energy Demand & Supply

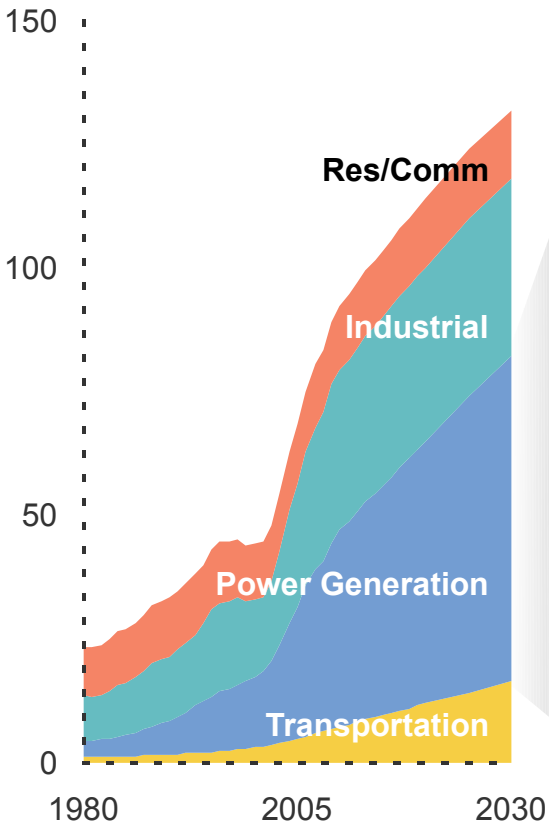
Total By Fuel

Quadrillion BTUs



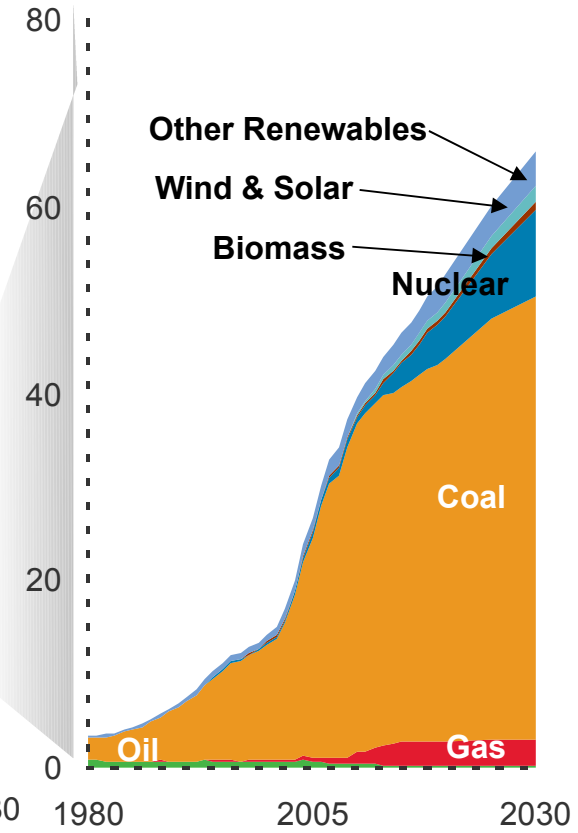
Total By Sector

Quadrillion BTUs

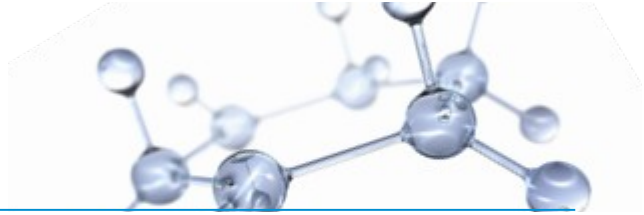


Power Generation by Fuel

Quadrillion BTUs

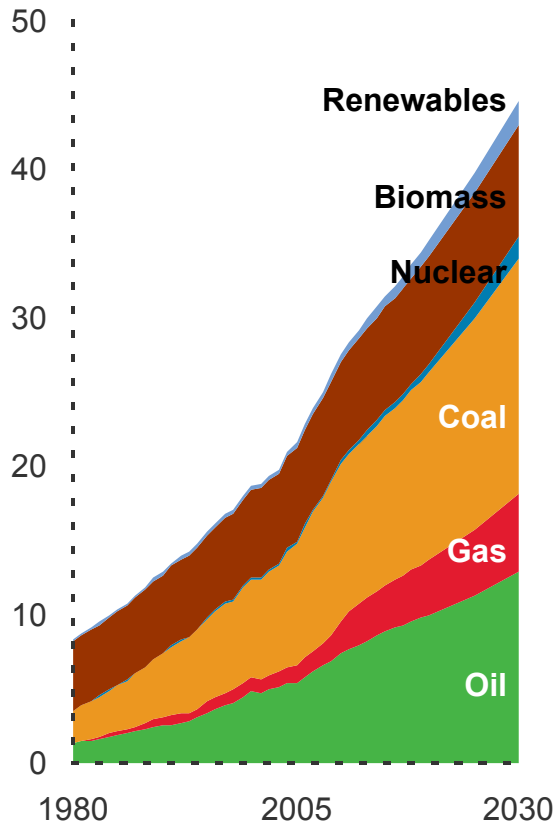


India Energy Demand & Supply



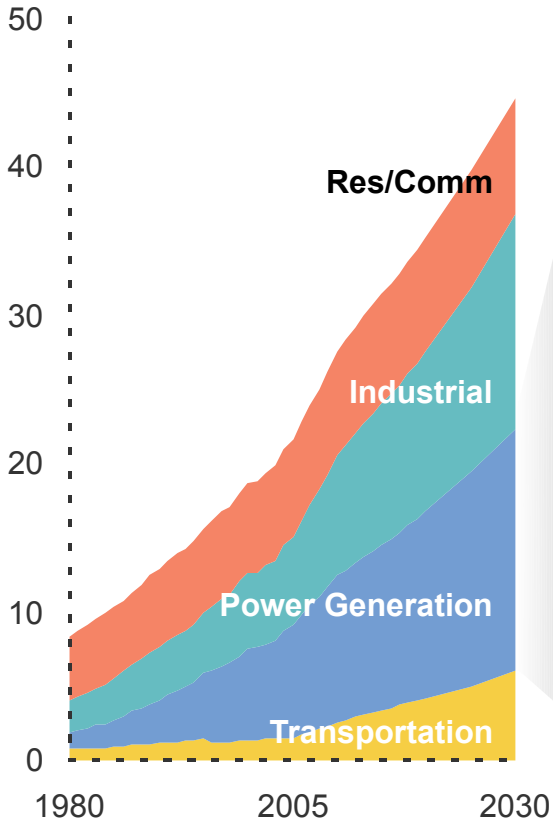
Total By Fuel

Quadrillion BTUs



Total By Sector

Quadrillion BTUs



Power Generation by Fuel

Quadrillion BTUs