The Outlook for Energy: A View to 2040

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Energy Outlook Development

100 countries

15 demand sectors

20 fuel types

trade flows

technology & policy
Key Energy Outlook Themes

- Energy is fundamental to standards of living.
- Developing nations lead gains in GDP and living standards.
- Economics and policies impact the fuel mix.
- Oil remains the world's primary fuel through 2040.
- Natural gas grows more than any other energy source.
- Technology has the highest potential and greatest uncertainty.
Energy is fundamental to standards of living.
The energy equation

People × living standards = energy needs
Energy Fuels Human Development

U.N. Human Development Index
2013 Index

Source: United Nations, ExxonMobil estimates
Developing nations lead in GDP growth and living standard improvements.
Global GDP Shifts Toward Developing Nations

2014

OECD*

Rest of World

Key Growth

India

China

$72 Trillion (2010$)

*Mexico and Turkey included in Key Growth countries

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Global GDP Shifts Toward Developing Nations

$72 Trillion (2010$) in 2014

- OECD*
- Rest of World
- Key Growth
  - India
  - China

~$150 Trillion (2010$) in 2040

- 5.0%
- 5.5%
- 3.5%
- 3.4%

*Mexico and Turkey included in Key Growth countries
Developing Economies Dominate Growth

Demand by Region
Quadrillion BTUs

Rest of World
Key Growth
India
China
OECD*

*Mexico and Turkey included in Key Growth countries
United States Energy Trends

Indexed to 2000

- GDP
- Population
- Demand
- Carbon Emissions
Economics and policies impact the fuel mix.
Energy Mix Shifts to Lower-Carbon Fuels

Global Energy Mix
Percent

Energy-Related CO₂ Emissions by Region
Billion Tonnes

*Mexico and Turkey included in Key Growth countries

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Oil remains the world’s primary fuel through 2040.
Transportation and Chemicals Drive Growth

Liquids Demand by Sector

MBDOE

Transportation  Industrial  Res/Comm  Electricity Generation

'10  '25  '40

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Transportation Demand

Demand by Region
MBDOE

Sector Demand
MBDOE

*Mexico and Turkey included in Key Growth countries

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Global Fuel Economy Standards (2014)

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Light Duty Vehicles

Global Annual Sales by Type

U.S. New Vehicles

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Supply
Natural gas grows more than any other energy source.
Gas Demand Grows in All Sectors

Gas Demand by Sector

BCFD

Electricity Generation  Industrial  Res/Comm  Transportation

- Electricity Generation: '10, '25, '40
- Industrial: '25
- Res/Comm: '10
- Transportation: '0
Electricity Demand Continues to Surge

### By Sector
- Thousand TWh

- **Transportation**
- **Res/Comm**
- **Industrial**

### Electricity Demand by Region
- Thousand TWh

- **China**
- **Key Growth**
- **United States**
- **Europe OECD**
- **India**

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Fuel for Electricity Transitions

Electricity Delivered by Type
Thousand TWh

- Other Renewables
- Wind & Solar
- Nuclear
- Gas
- Coal
- Oil

OECD
Wind and Solar Demand

Global Wind and Solar Capacity
Gigawatts

Electricity Share Delivered by Wind and Solar
Percent

Onshore Wind
Solar
Offshore Wind

United States
European Union
China
India

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Supply
Natural Gas Supply

By Production Type
- Conventional
- Unconventional

By Delivery Type
- Net Local Production
- Pipeline
- LNG
Technology has the highest potential and greatest uncertainty.
Technology Helps Us Do More With Less

Global Average Energy Intensity
Thousand BTUs per dollar GDP (2010$)

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North America Supply and Demand

**Liquids**

- **MBDOE**

  - **Demand**
  - **Natural Gas Liquids**
  - **Tight Oil**
  - **Oil Sands**
  - **Deepwater**
  - **Conventional Crude & Condensate**

  **Years:** 2010, 2020, 2030, 2040

**Gas**

- **BCFD**

  - **Demand**
  - **Unconventional**
  - **Conventional**

  **Years:** 2010, 2020, 2030, 2040

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Global Demand

2040 By Fuel
Quadrillion BTUs

Average Growth / Yr.
2014 - 2040
0.9%

- Oil: 2014 0.7%
- Gas: 1.6%
- Coal: -0.2%
- Biomass: 0.3%
- Nuclear: 2.9%
- Solar / Wind / Biofuels: 4.8%
- Hydro / Geo: 1.3%

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