

IEA and EIA: Similarities and Differences in Projections and Approaches to Energy Modeling



for

International Energy Agency

April 16, 2012 | Paris, France

by

Howard Gruenspecht, Acting Administrator

Missions and Functions: Similarities and Differences

Global Projections: Similarities and Differences

IEO2011 Reference case and WEO2011 Policies Scenarios

- IEO Reference case:
 - Assumes current laws and policies
 - Does not anticipate new policies or regulations that have not been implemented
 - Includes alternative oil price scenarios and impact on markets
- WEO features its New Policies Scenario as its central scenario and assumes government commitments are “implemented in a cautious manner”
- The WEO Current Policies Scenario is the most comparable to IEO Reference case. All comparisons in this presentation are the CPS unless otherwise specified

2011 IEO & WEO Comparisons

- **Forecast Similarities:**

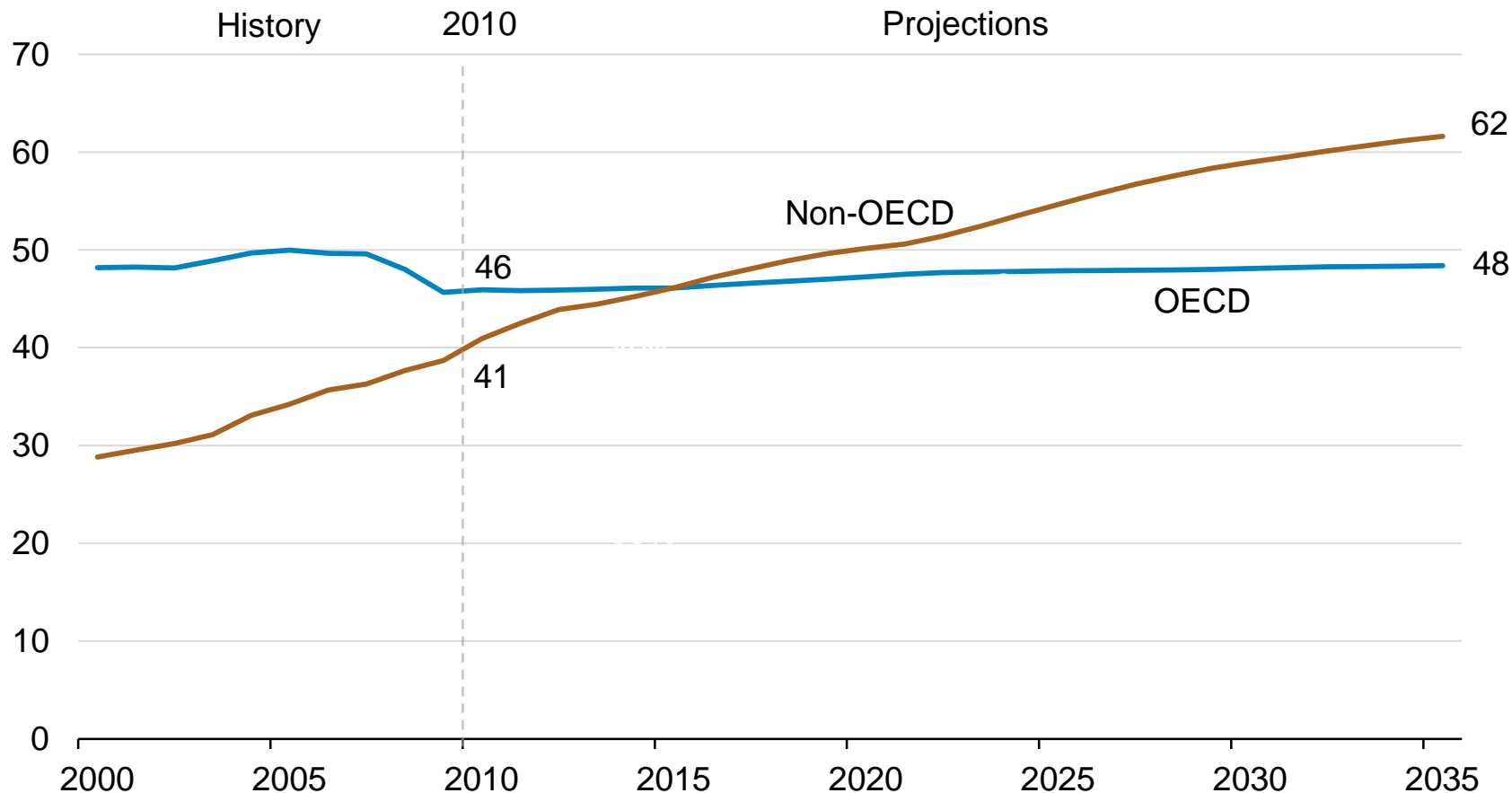
- Global liquids demand
- Global natural gas demand
- Global total energy demand – both project 1.6% annual growth

- **Forecast Distinctions:**

- EIA base case assumes only current policies and regulations
- Significant differences on U.S. energy production, demand, and prices across fuels
- WEO forecasts a larger OPEC market share of global liquids production
- WEO assumes GDP growth remains constant across wide-ranging side cases
- WEO includes traditional, non-commercial biomass and waste in its renewables data which slows its growth rate compared to IEO resulting in an uneven comparison

Non-OECD liquid fuels use surpasses almost flat OECD liquid fuels use in the near future

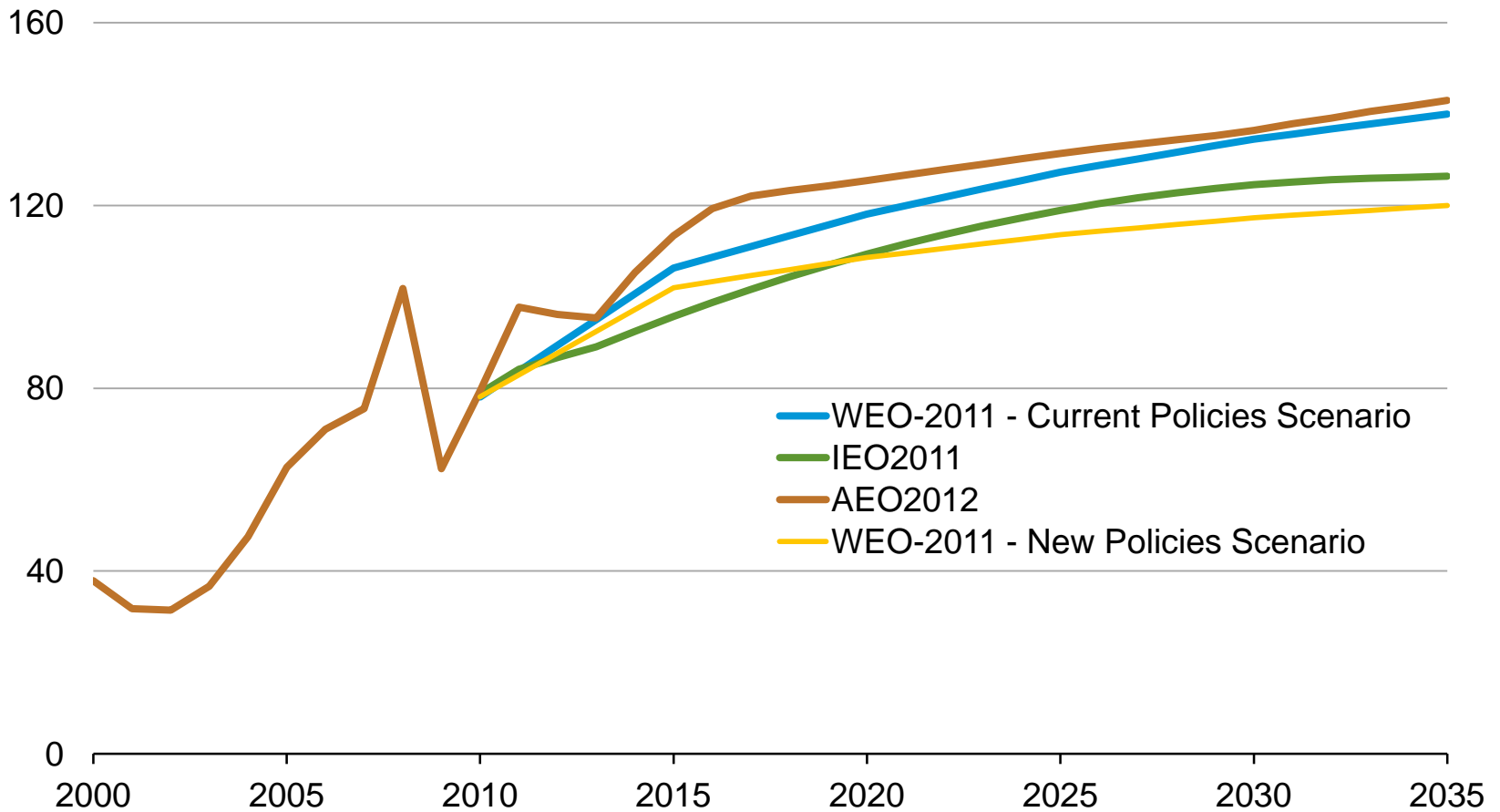
total liquids consumption
million barrels per day



Source: EIA, Annual Energy Outlook 2012 Early Release

World oil price assumptions

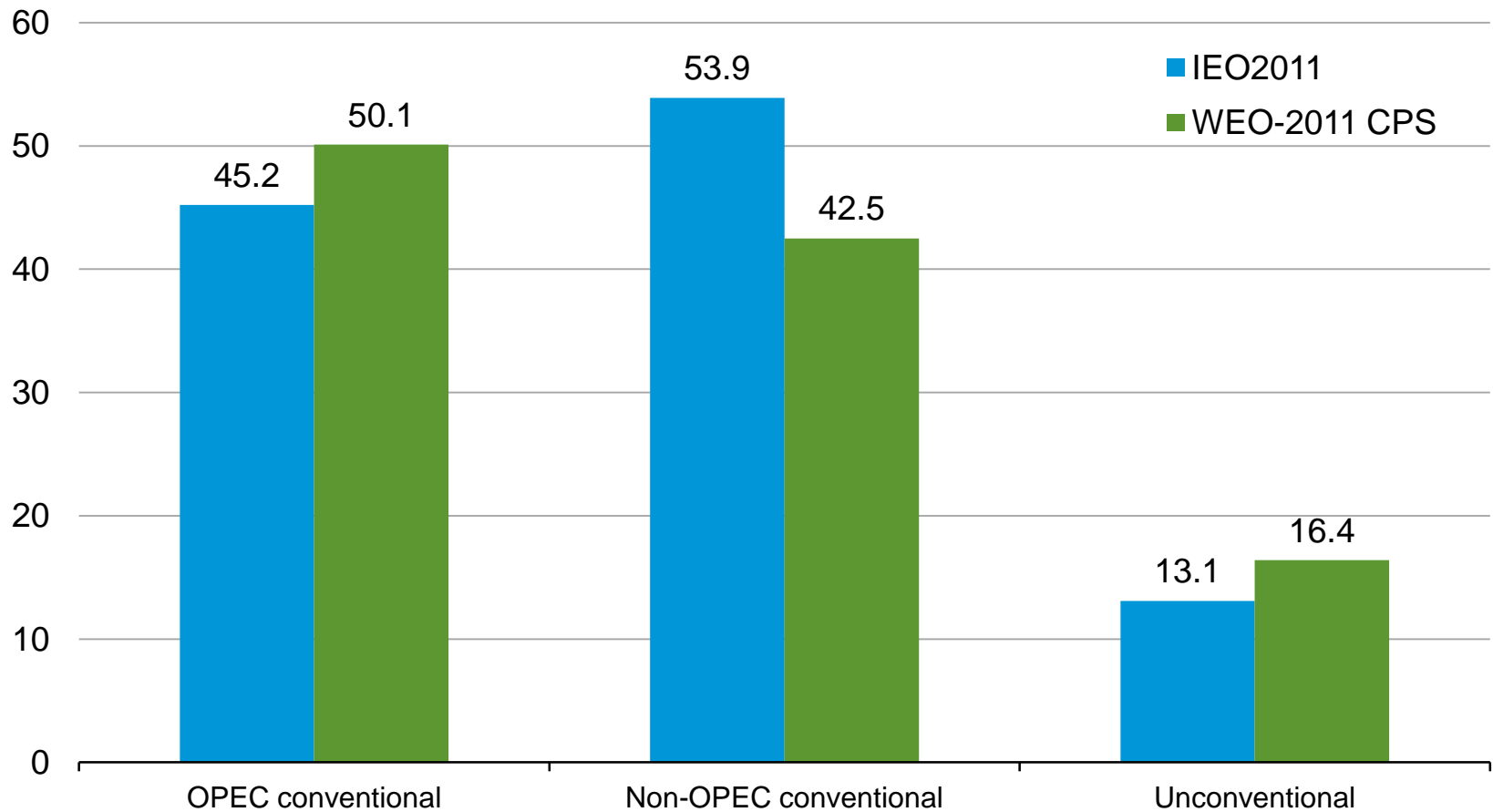
2010 dollars per barrel



Source: EIA, AEO2012 and IEO2011; IEA, WEO-2011

World liquid fuels supply, 2035

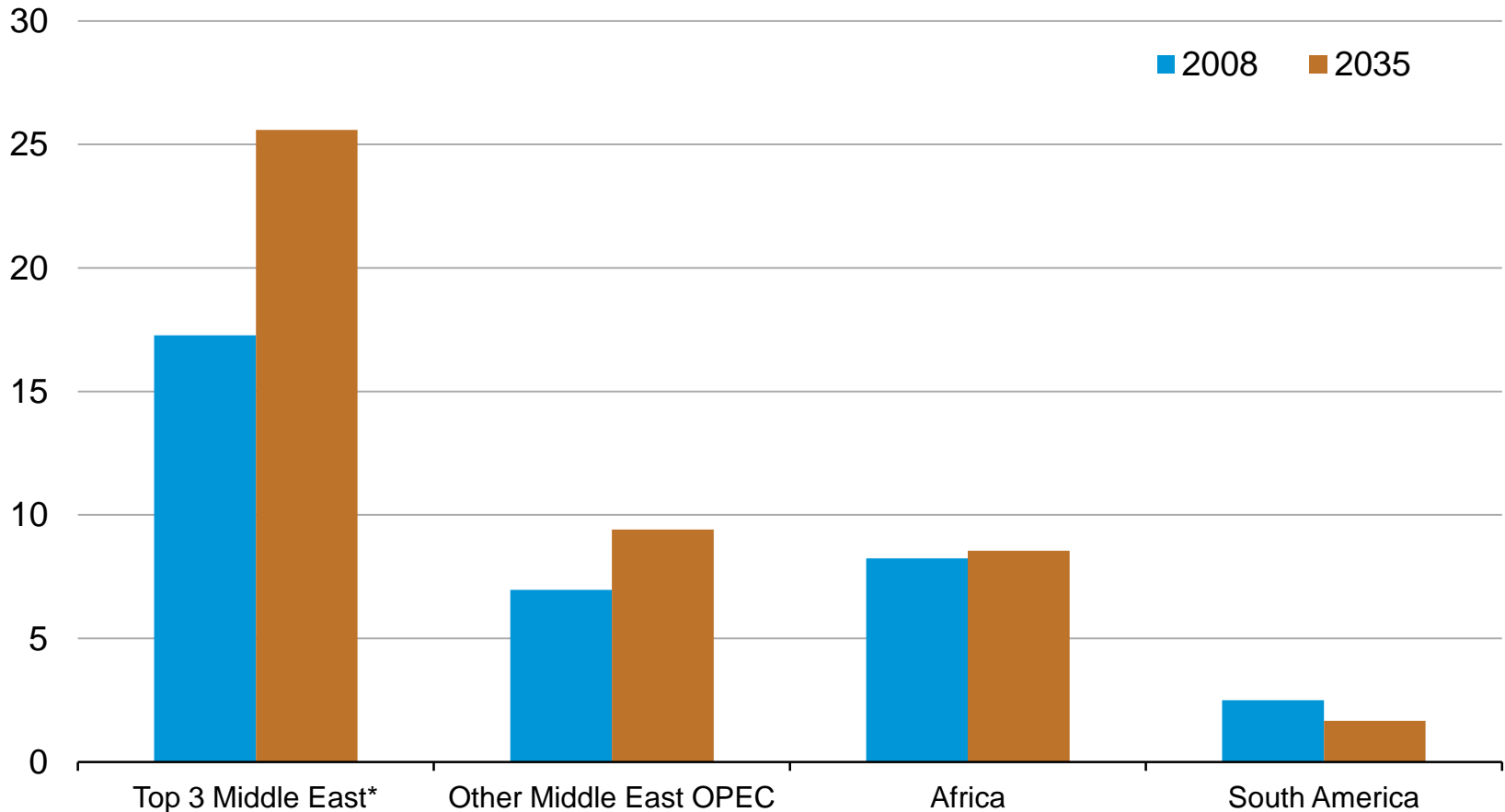
million barrels per day



Source: EIA, IEO2010 and IEO2011; IEA, WEO2011

Growth in OPEC production comes mainly from the Middle East

OPEC conventional production
million barrels per day

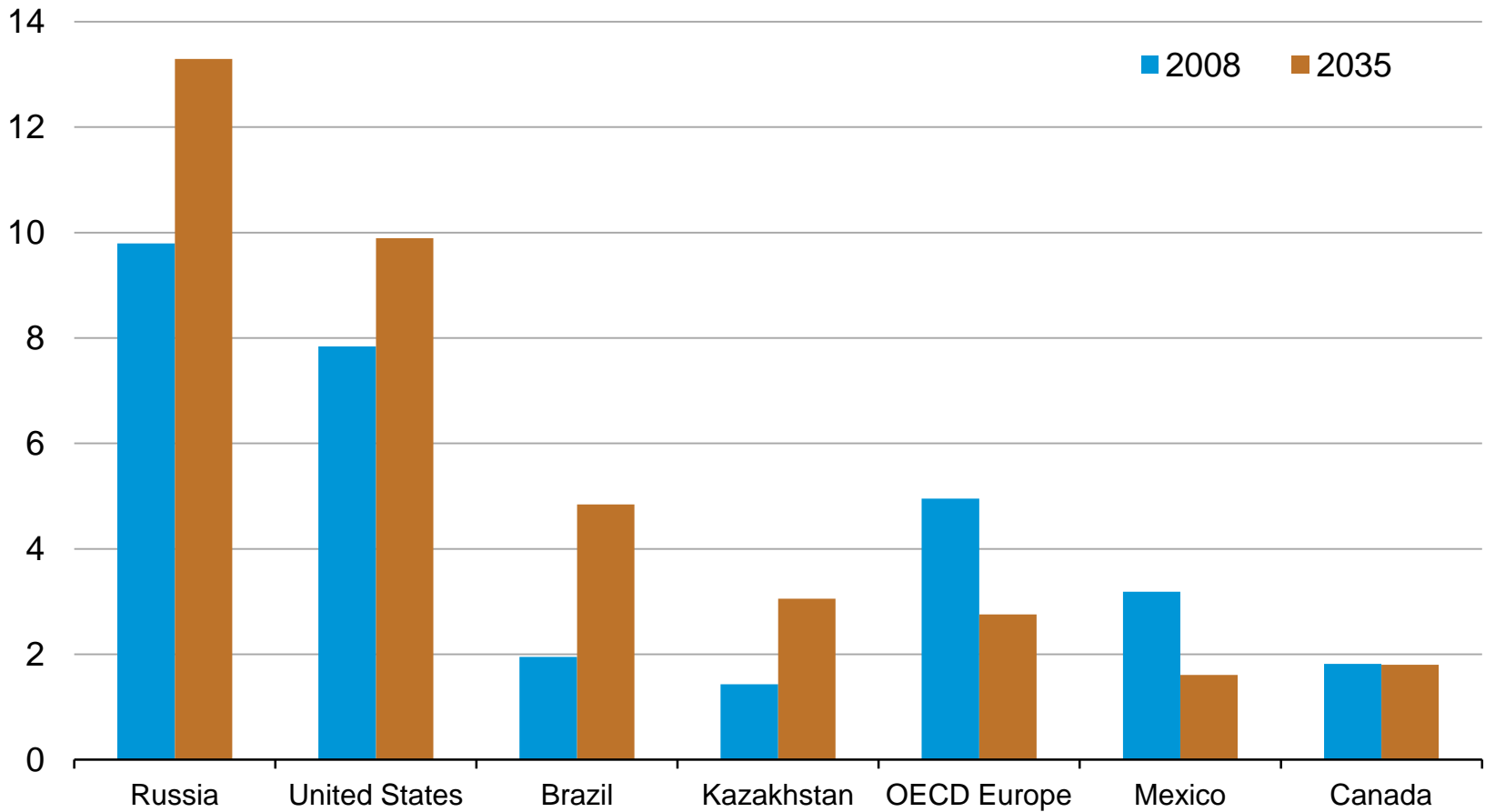


* Saudi Arabia, Iraq, Iran

Source: EIA, International Energy Outlook 2011

Non-OPEC conventional supply growth comes mainly from Russia, United States, Brazil, and Kazakhstan

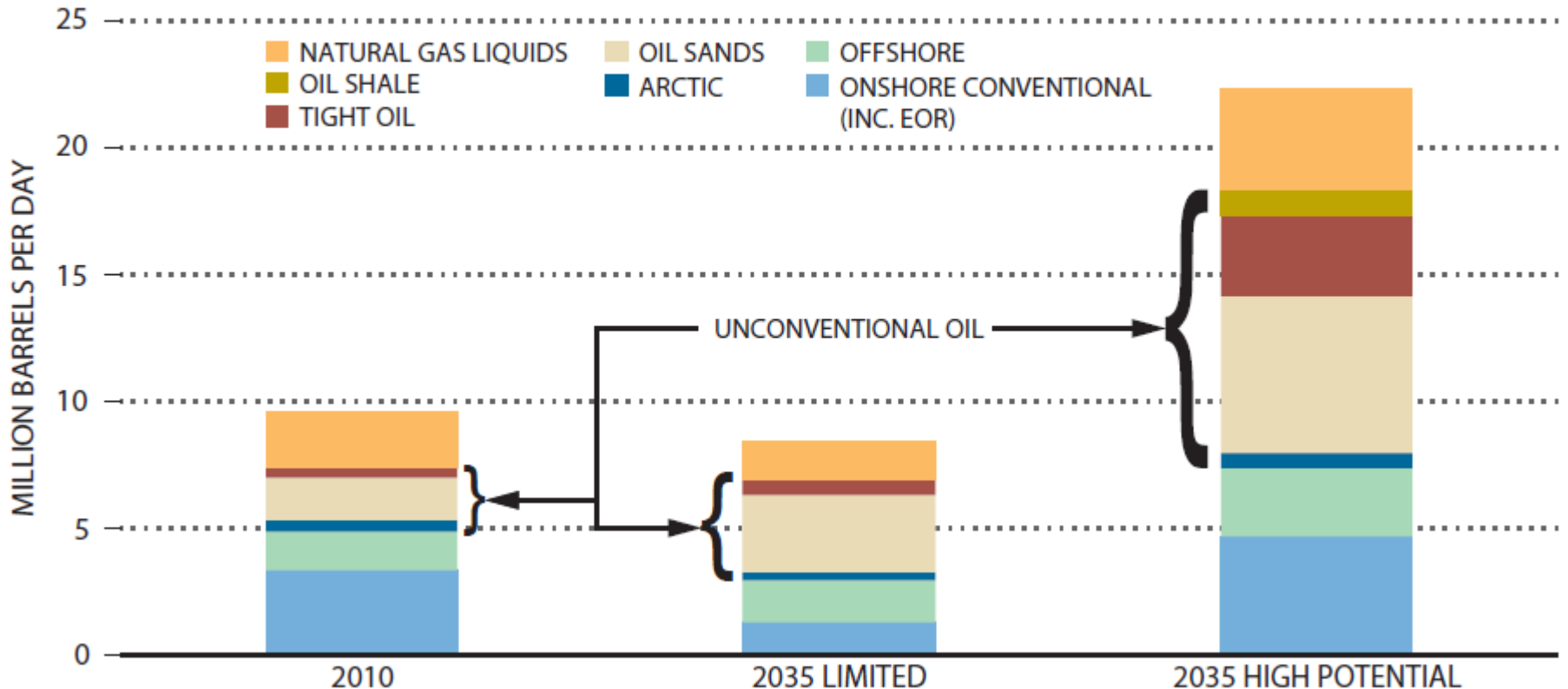
Non-OPEC conventional production
million barrels per day



Source: EIA, International Energy Outlook 2011

National Petroleum Council Study

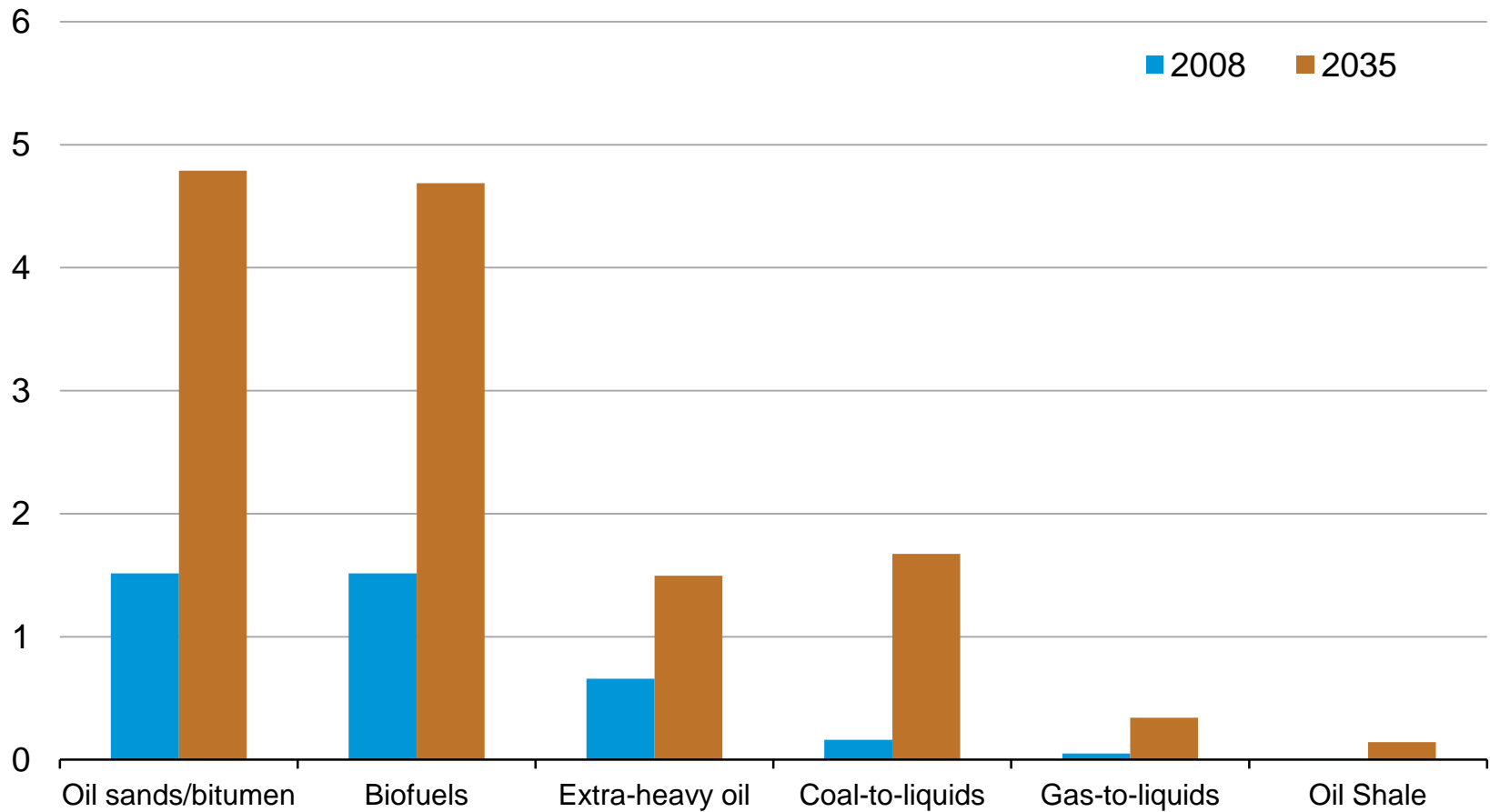
High production opportunities enabled by access frameworks



Source: National Petroleum Council

Oil sands/bitumen and biofuels account for 70 percent of the increase in unconventional liquid fuels

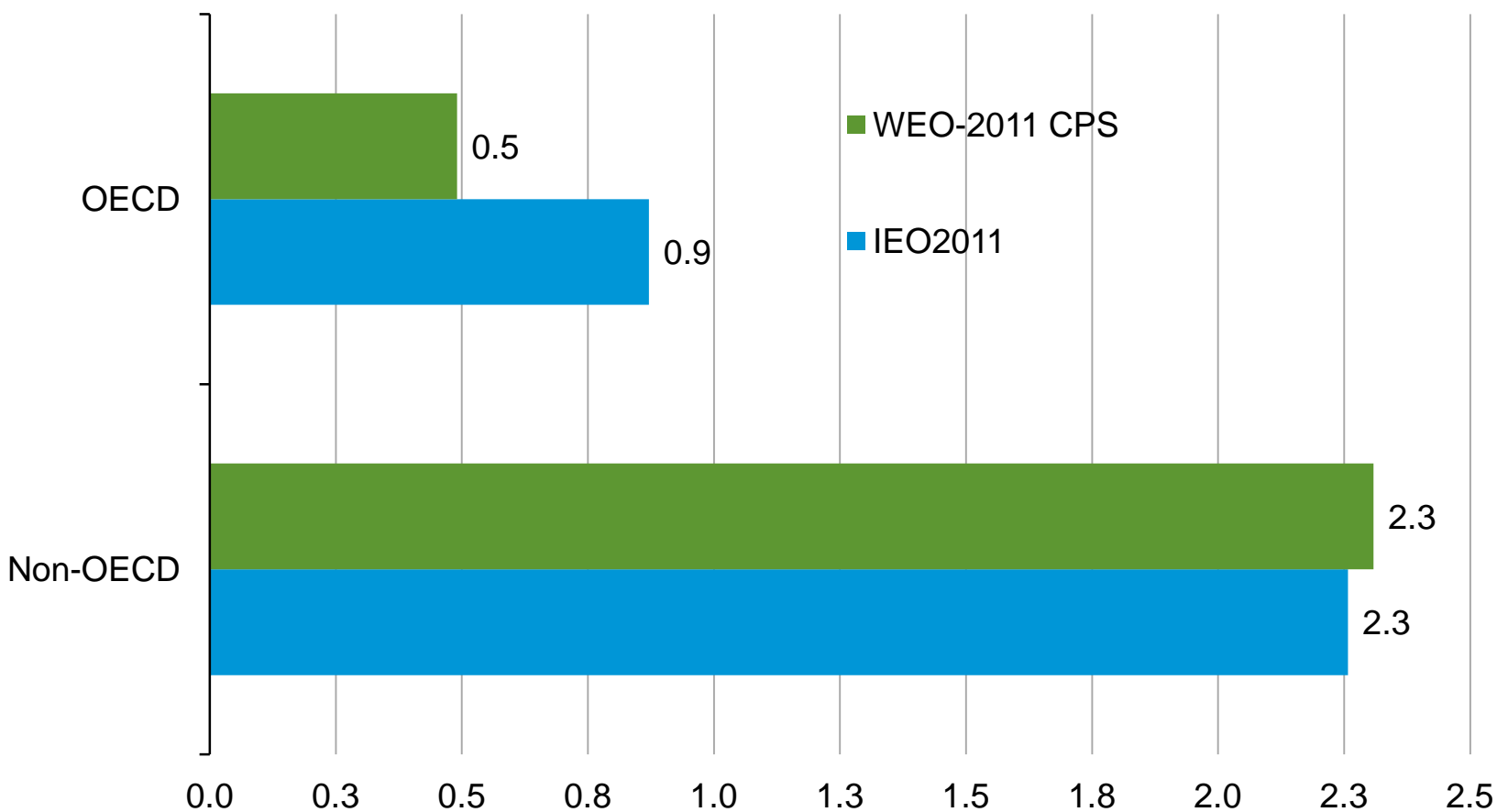
Unconventional production
million barrels per day



Source: EIA, International Energy Outlook 2011

Growth in energy consumption by country grouping, 2009-2035

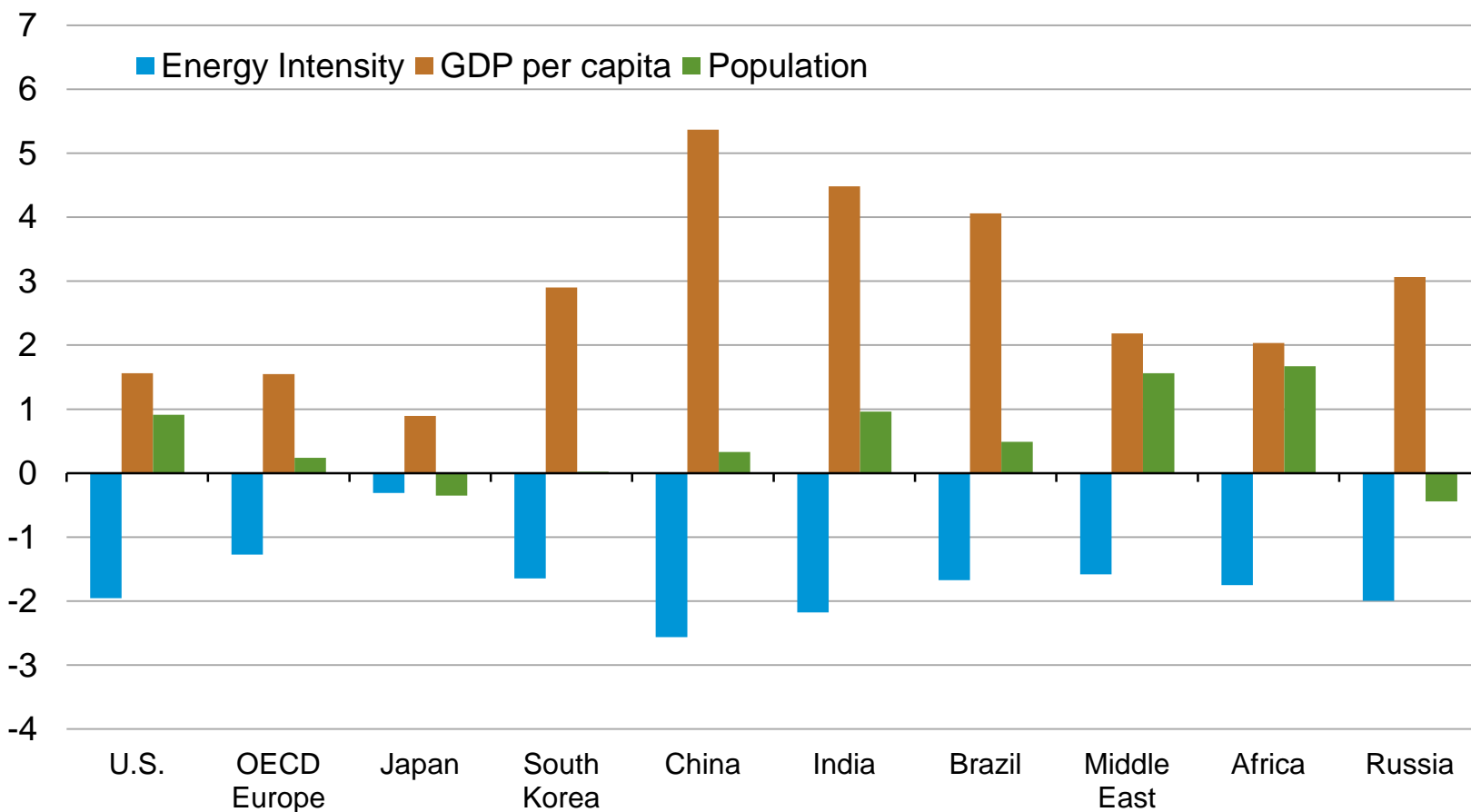
percent per year



Source: EIA, IEO2011; IEA, WEO-2011

Growth in income and population drive rising energy use; energy intensity improvements moderate increases in energy demand

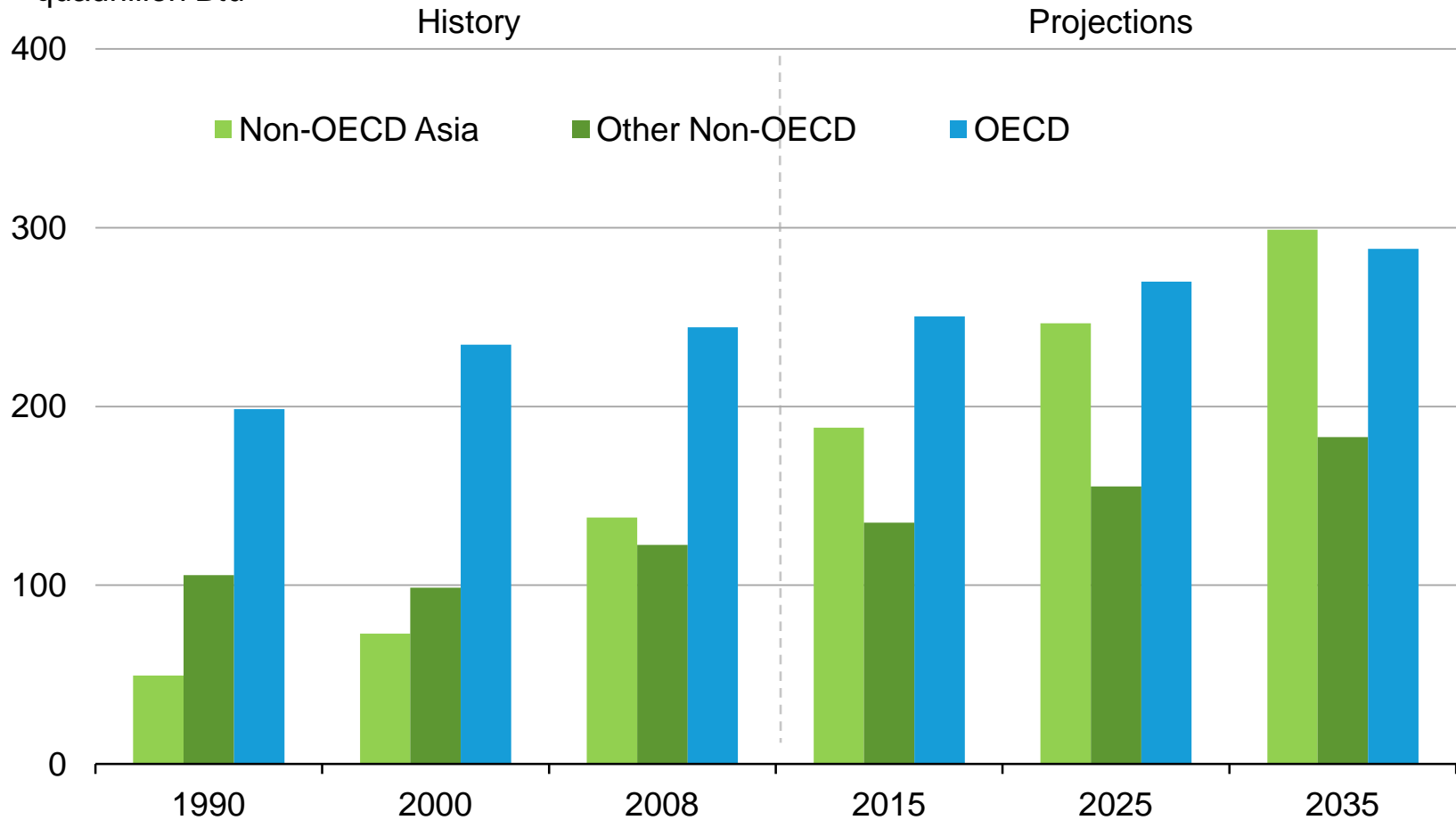
average annual change (2008-2035)
percent per year



Source: EIA, International Energy Outlook 2011

China and India account for about half of the world increase in energy use

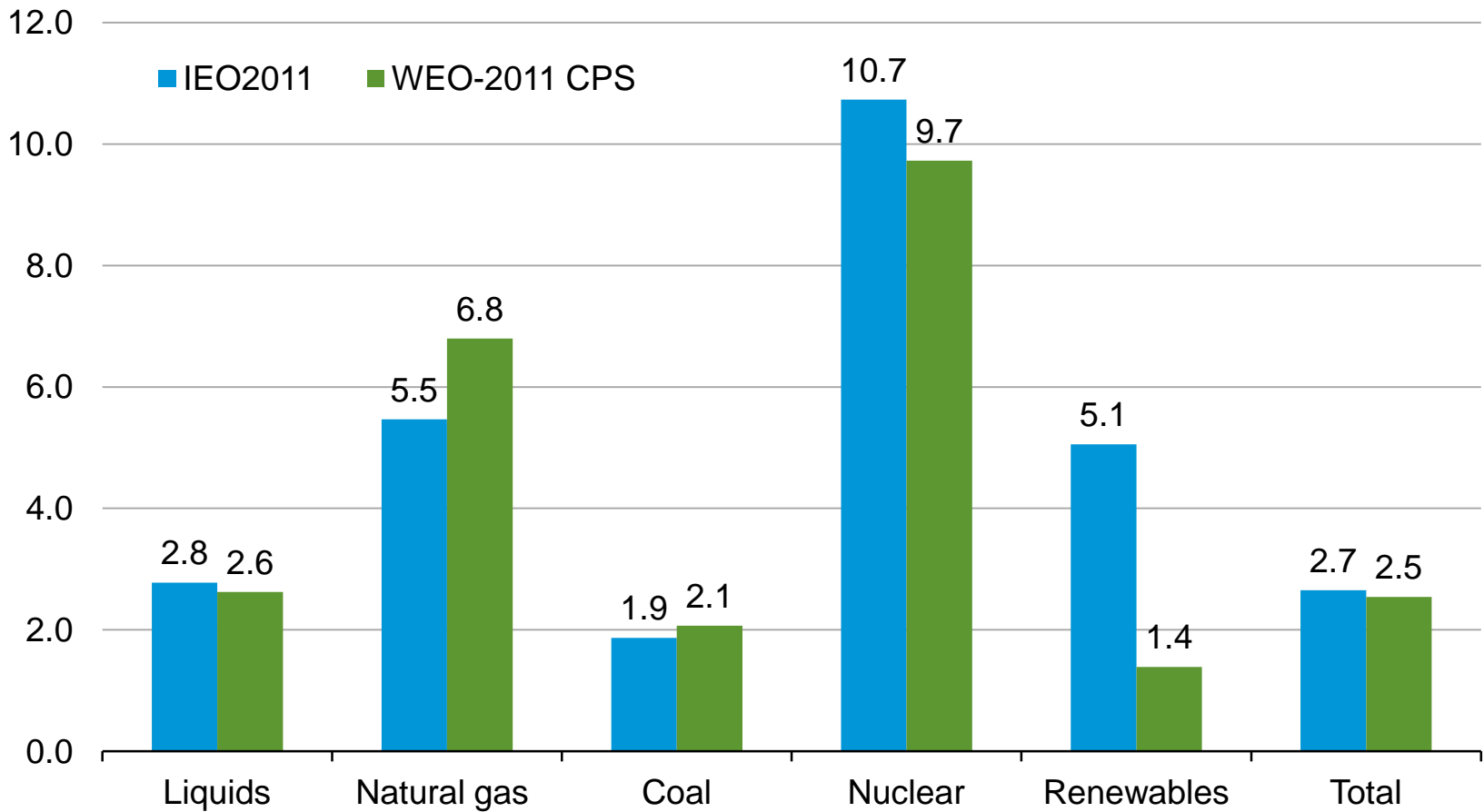
world energy consumption
quadrillion Btu



Source: EIA, International Energy Outlook 2011

Growth in China energy consumption by fuel, 2009-2035

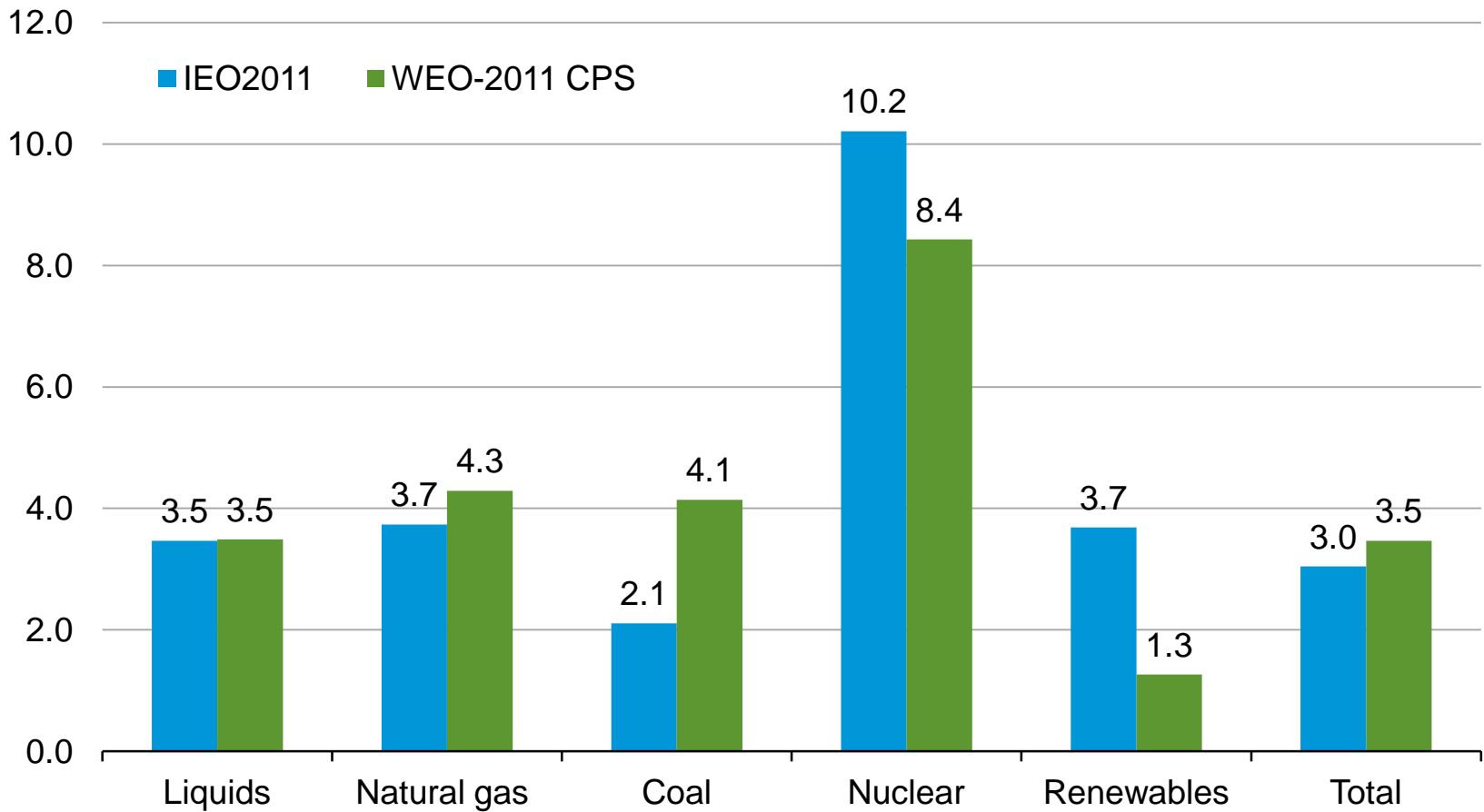
percent per year



Source: EIA, IEO2011; IEA, WEO-2011

Growth in India energy consumption by fuel, 2009-2035

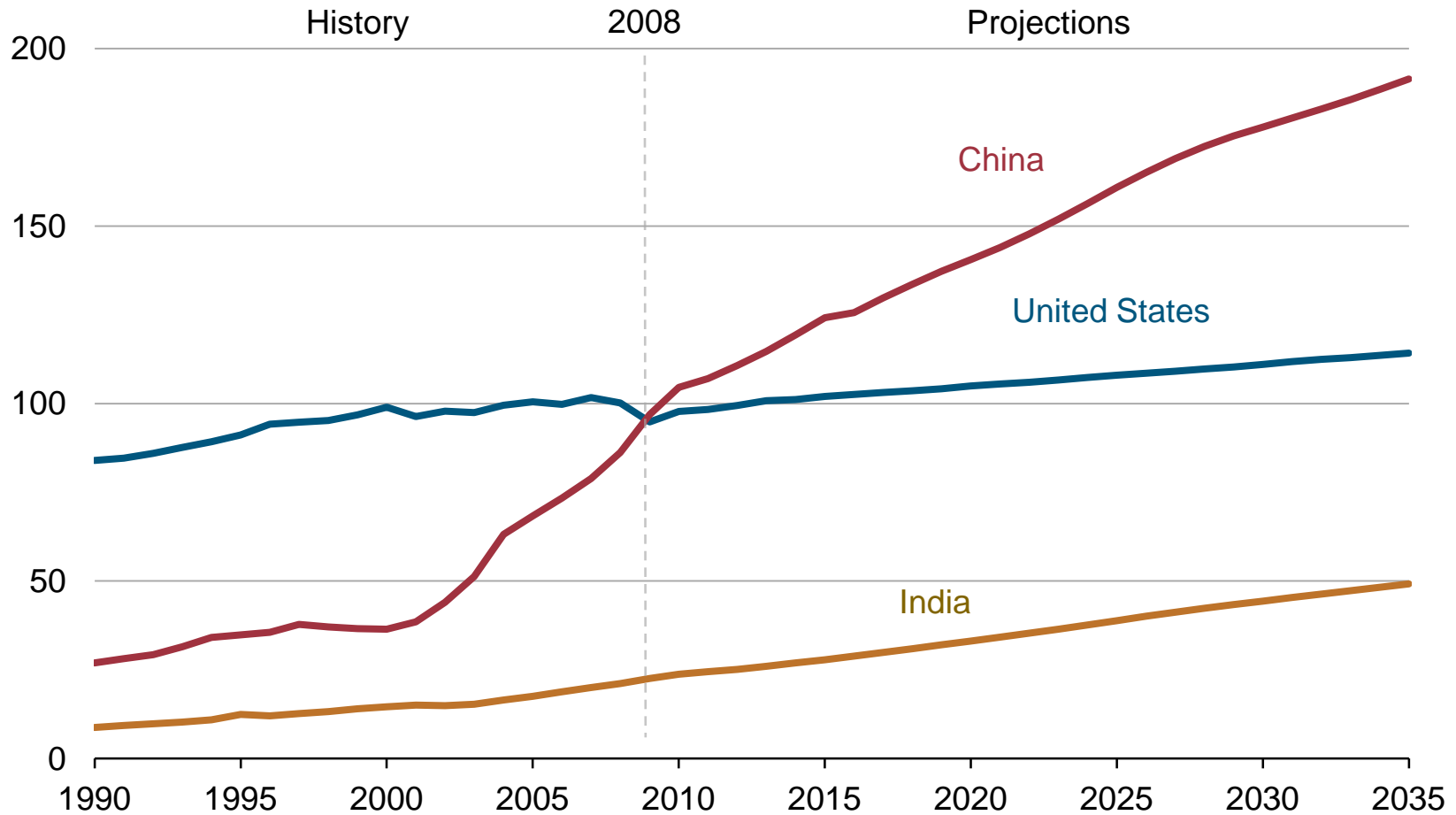
percent per year



Source: EIA, IEO2011; IEA, WEO-2011

Energy consumption in the United States, China, and India, 1990-2035

quadrillion Btu

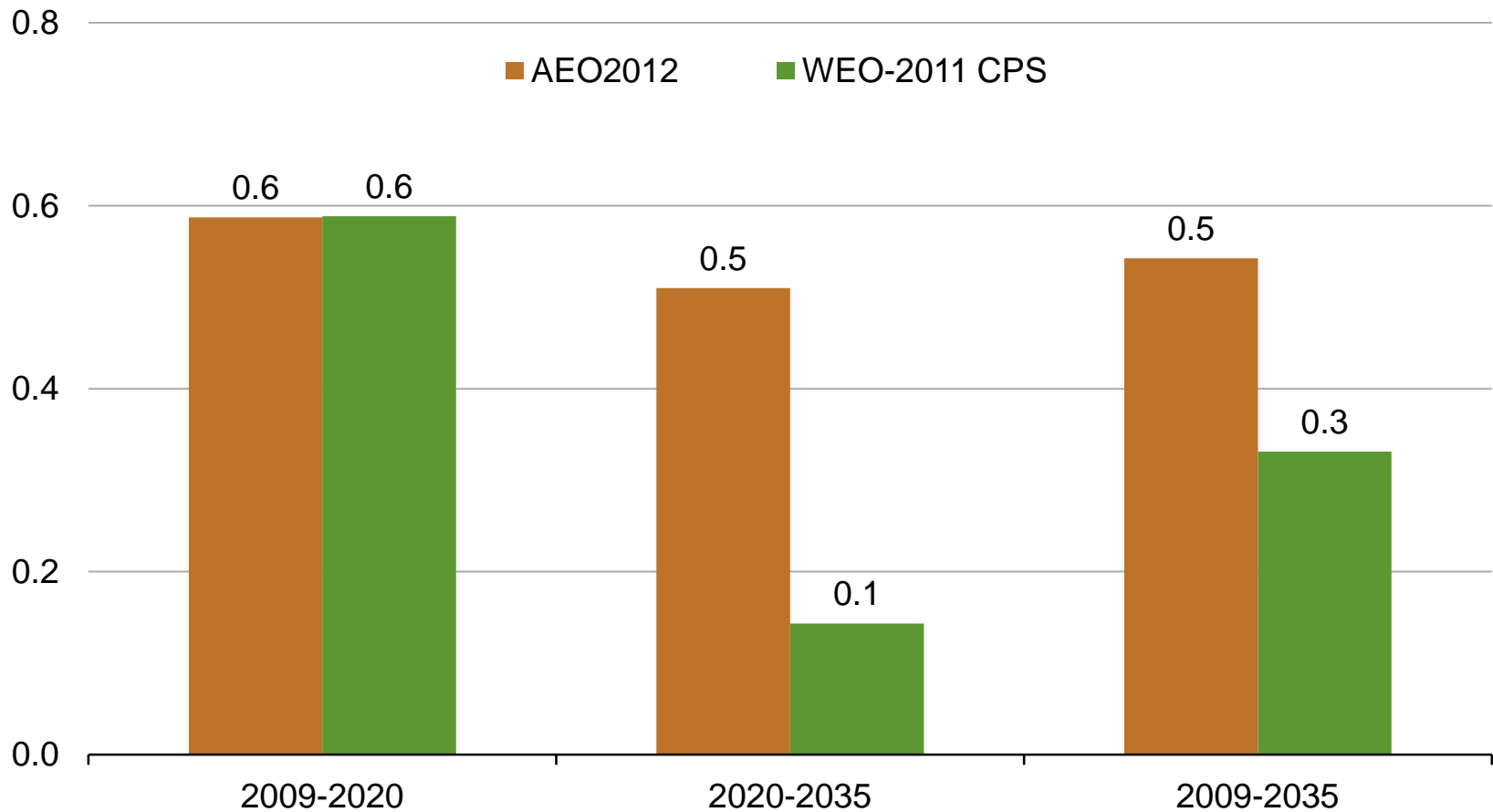


Source: EIA, International Energy Outlook 2011

U.S. Energy Projections: A Deeper Dive

Growth in U.S. energy consumption

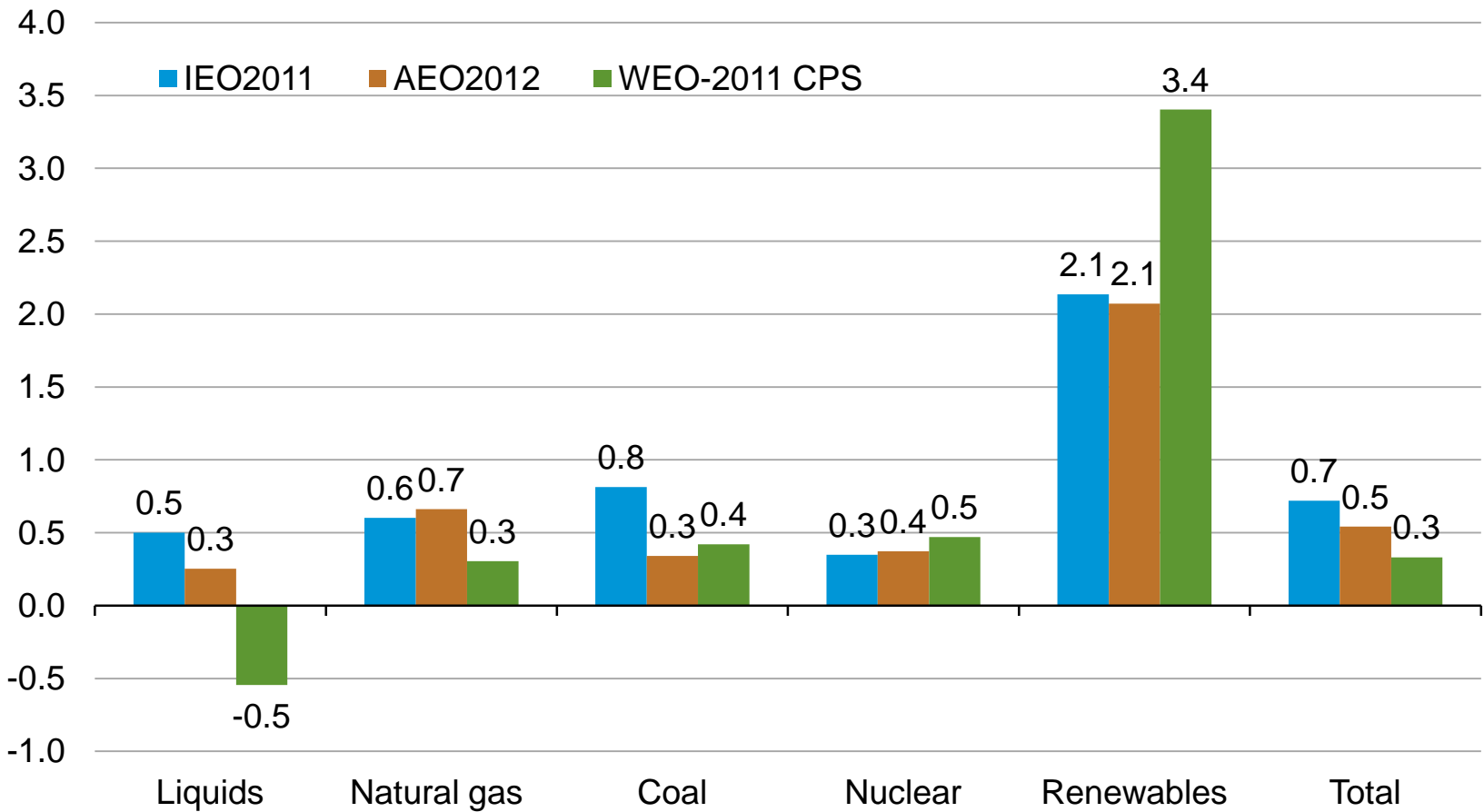
percent per year



Source: EIA, AEO2012; IEA, WEO-2011

Growth in U.S. energy consumption by fuel, 2009-2035

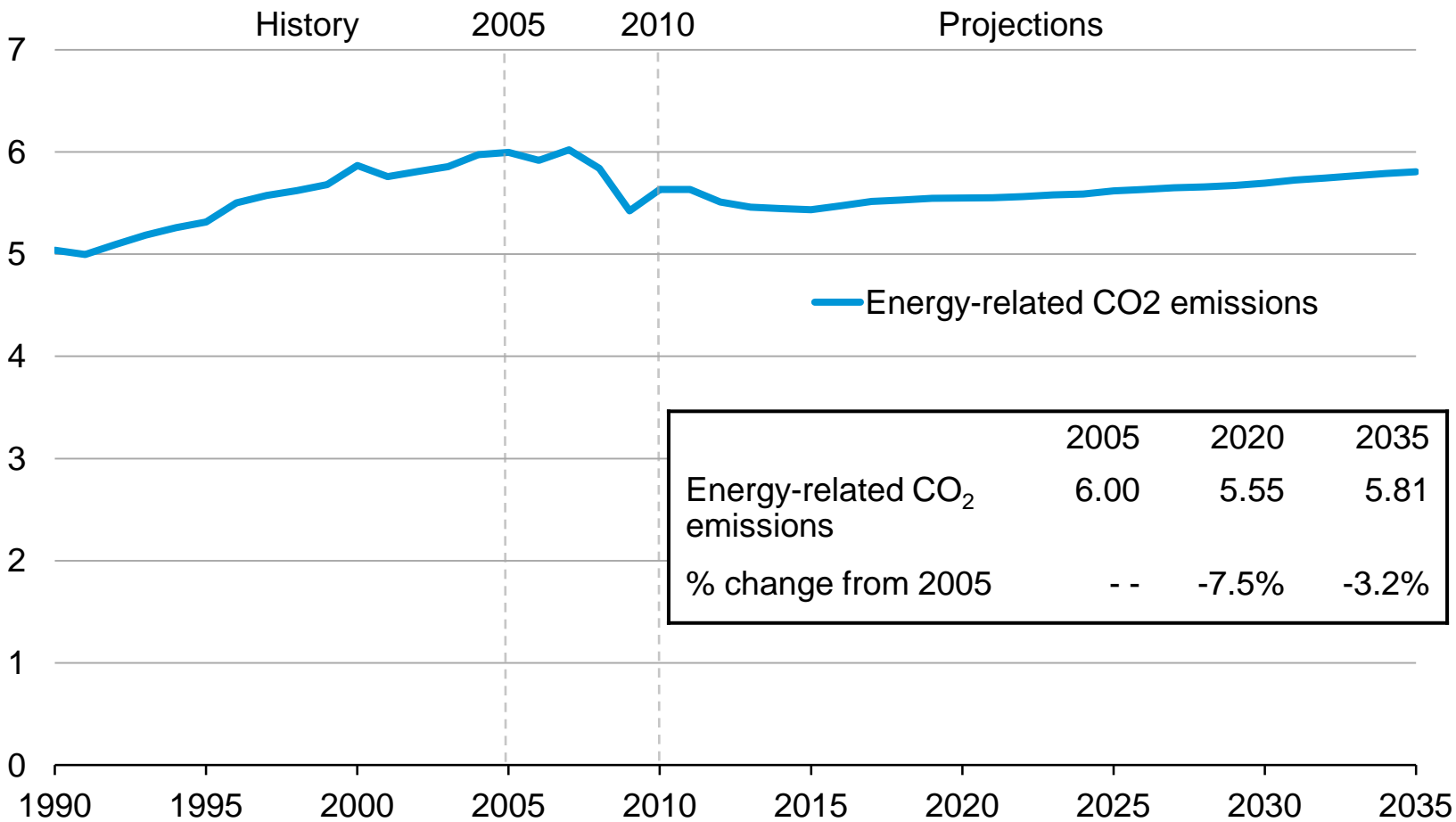
percent per year



Source: EIA, AEO2012 and IEO2011; IEA, WEO2011

In the *AEO2012* Reference case, energy-related CO₂ emissions never get back to pre-recession levels by 2035

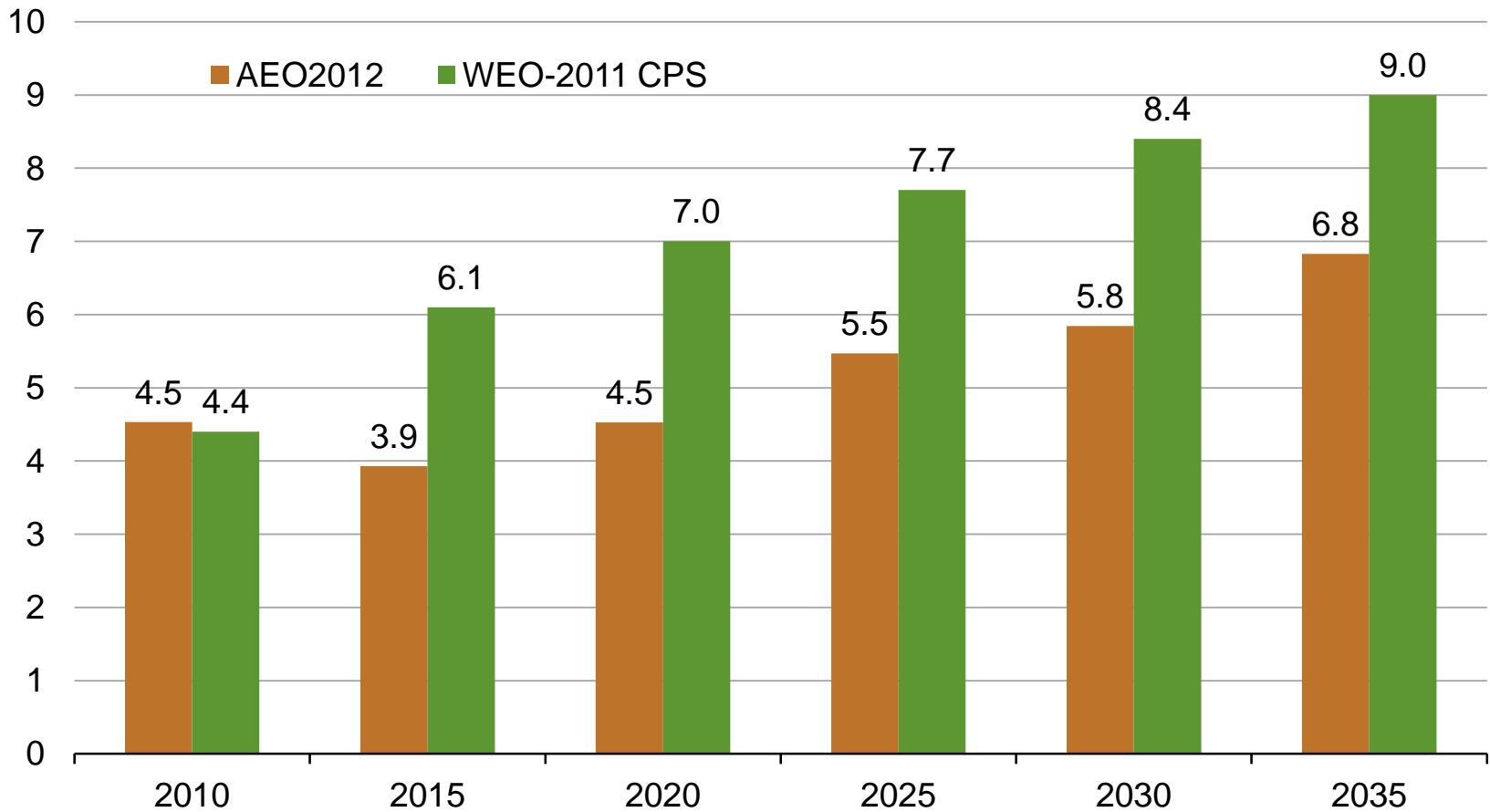
billion metric tons carbon dioxide



Source: EIA, Annual Energy Outlook 2012 Early Release

U.S. natural gas import prices

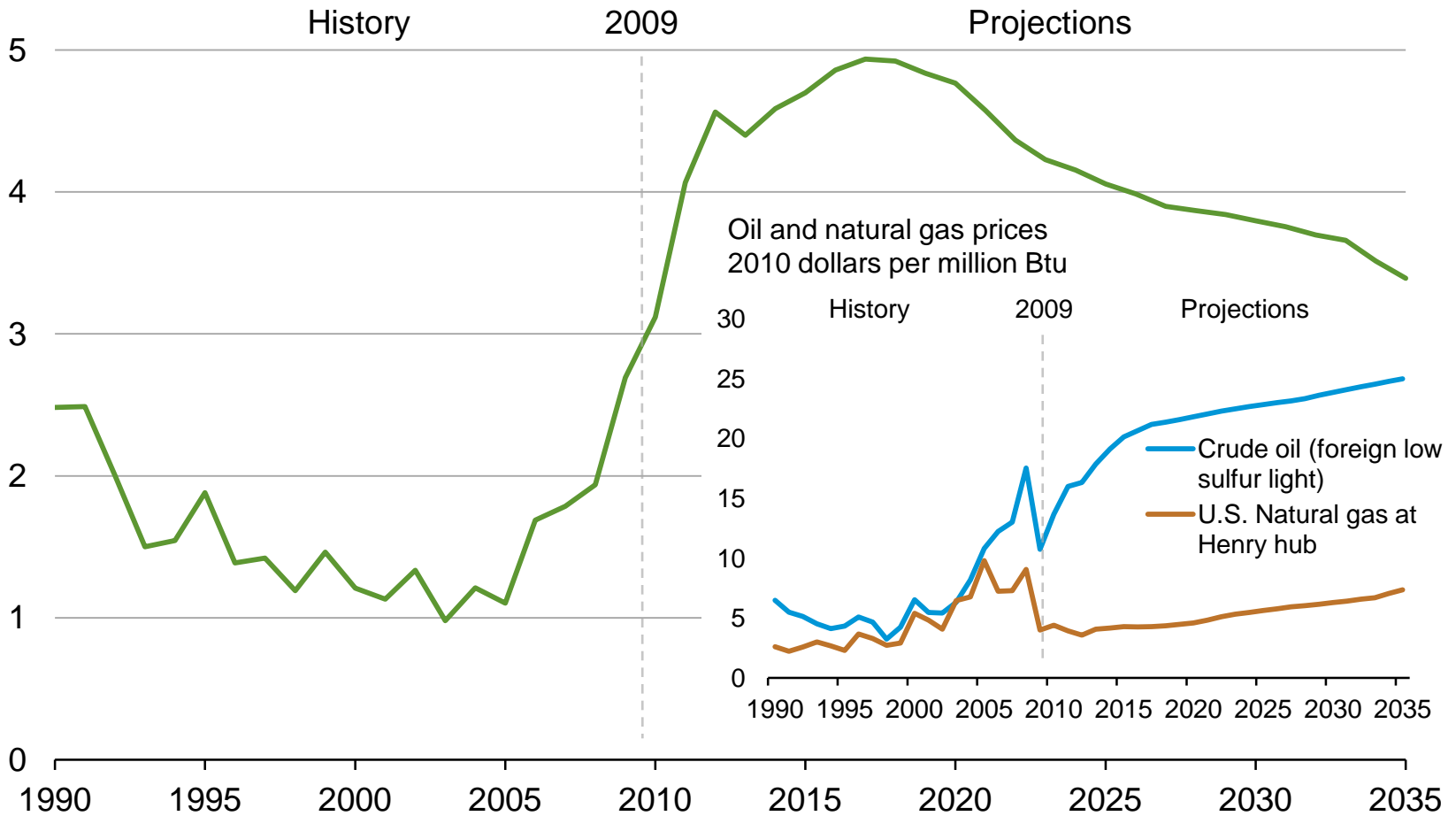
2010 dollars per million Btu



Source: EIA, AEO2012; IEA, WEO-2011

Oil to natural gas price ratio remains high over the projection

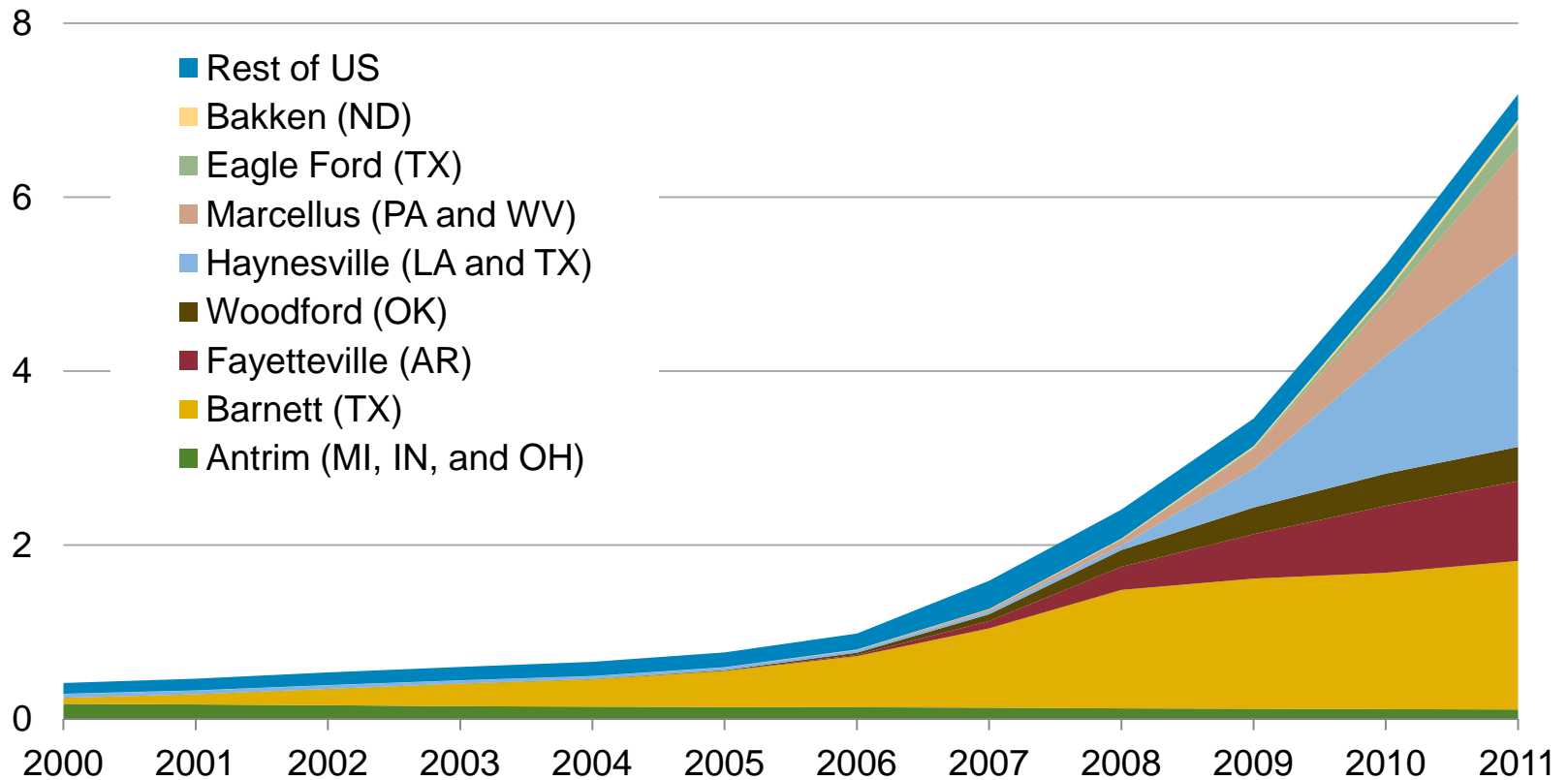
ratio of oil price to natural gas price



Source: EIA, Annual Energy Outlook 2012 Reference Case

Since 2000, U.S. shale gas production has increased 17-fold and now comprises about 30 percent of total U.S. dry production

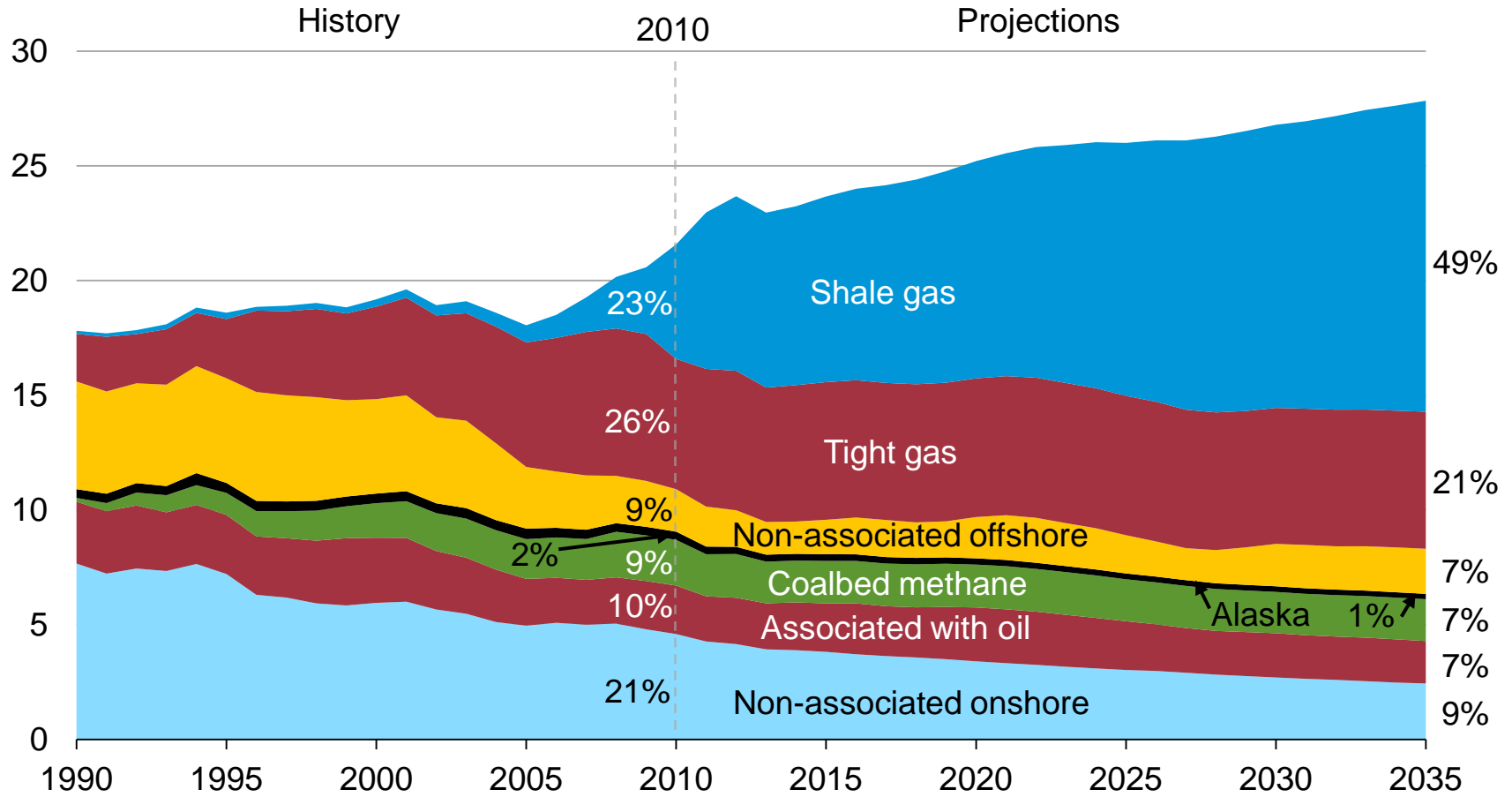
annual shale gas production (dry)
trillion cubic feet



Sources: Lippman Consulting, Inc. gross withdrawal estimates as of November 2011 and converted to dry production estimates with EIA-calculated average gross-to-dry shrinkage factors by state and/or shale play. Note: 2011 is annual rate for first 11 months.

Shale gas offsets declines in other U.S. natural gas production sources

U.S. dry gas production
trillion cubic feet per year

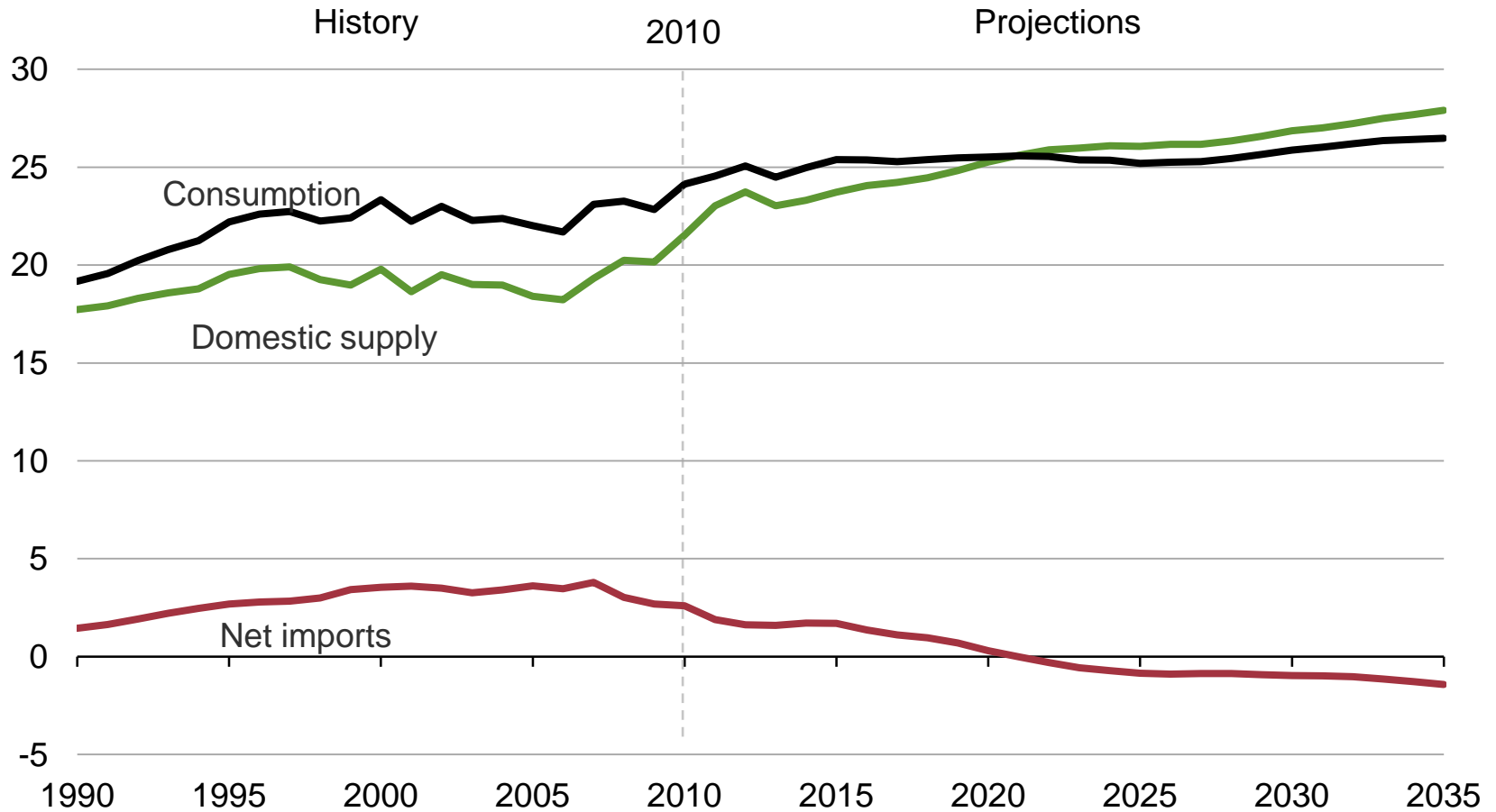


Source: EIA, Annual Energy Outlook 2012 Early Release

Domestic natural gas production grows faster than consumption

U.S. dry gas

trillion cubic feet per year



Source: EIA, Annual Energy Outlook 2012 Early Release

For more information

U.S. Energy Information Administration home page | www.eia.gov

Short-Term Energy Outlook | www.eia.gov/steo

Annual Energy Outlook | www.eia.gov/aeo

International Energy Outlook | www.eia.gov/ieo

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