Georgia Tech Clean Energy Speaker Series

# Outlook for Liquid Fuels and Natural Gas to 2030


**Michael Schaal**

**Oil and Gas Division**

**Office of Integrated Analysis And Forecasting**

**U.S. Energy Information Administration**


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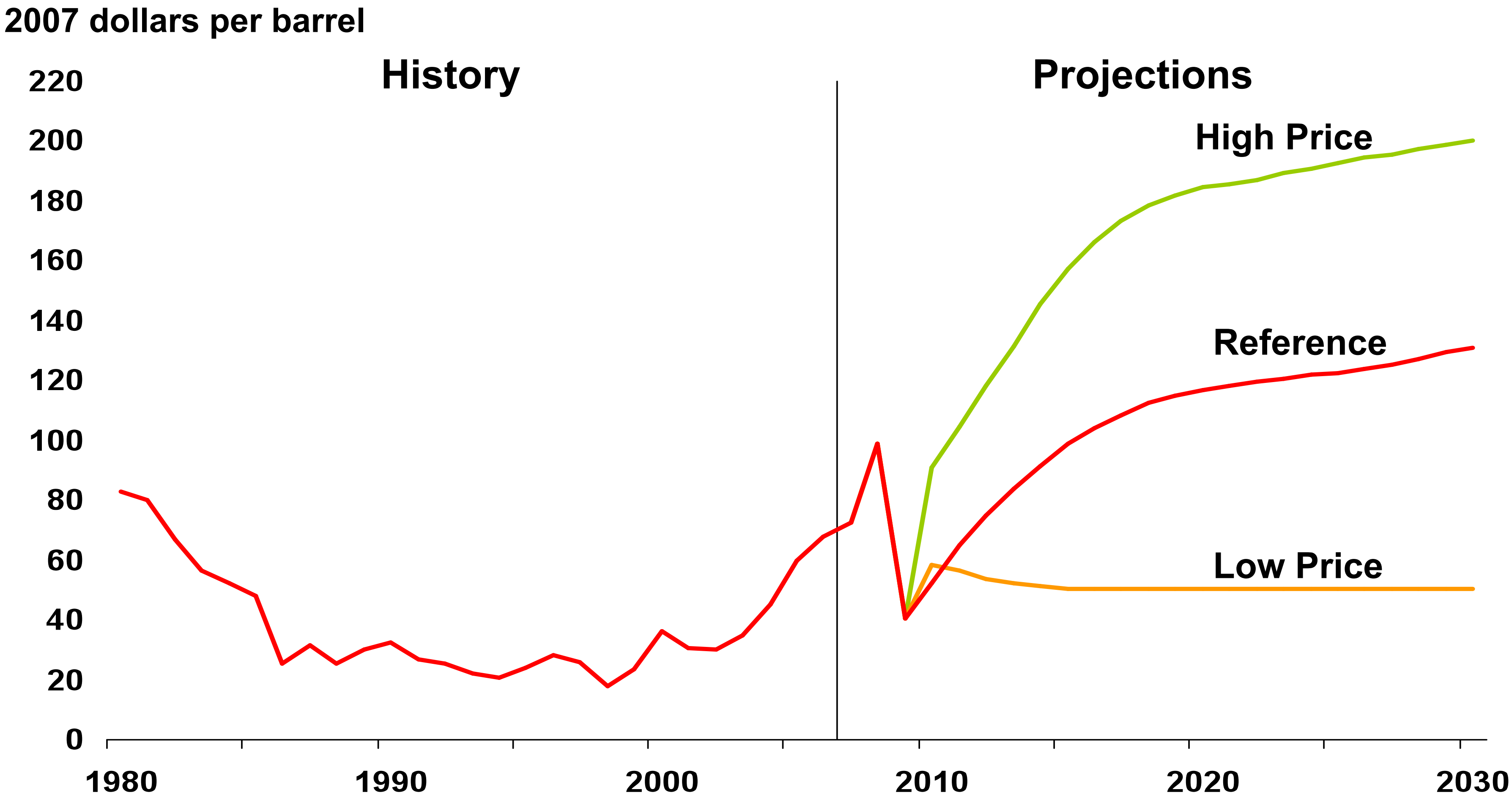
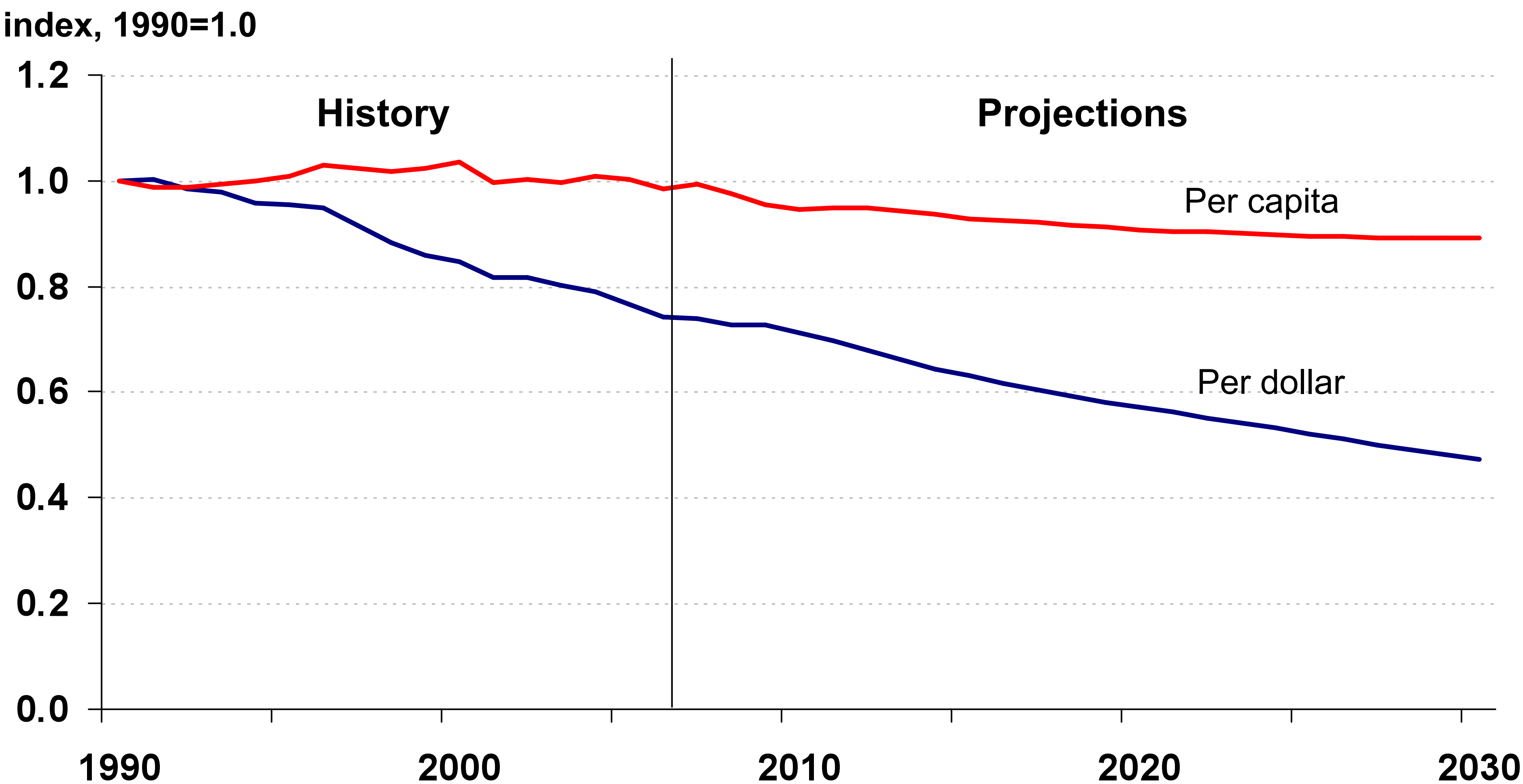
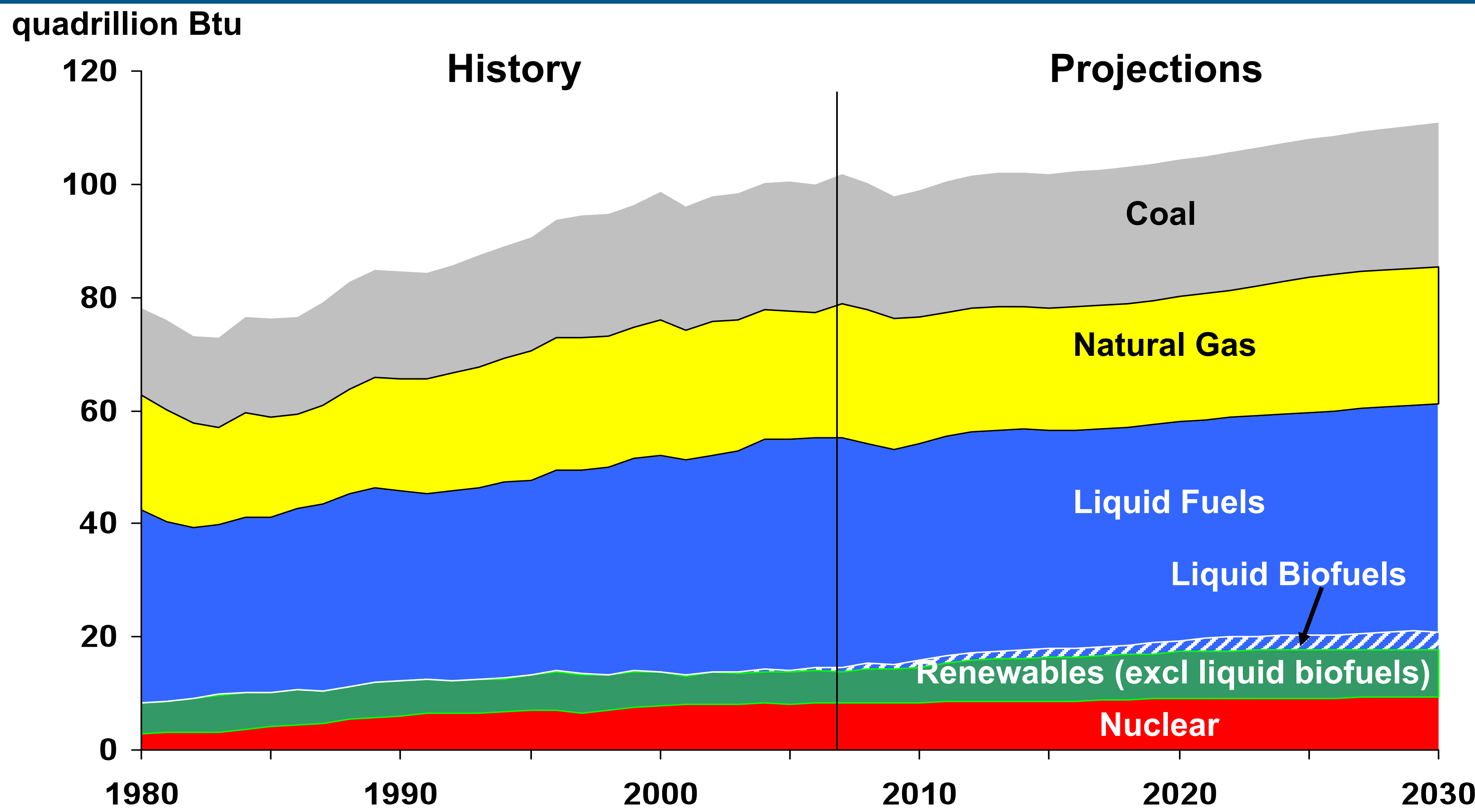
# Low Sulfur Light Oil prices, 1980-2030



# Energy Intensity of Use on a Population and Real Gross Domestic Product Basis, 1990-2030

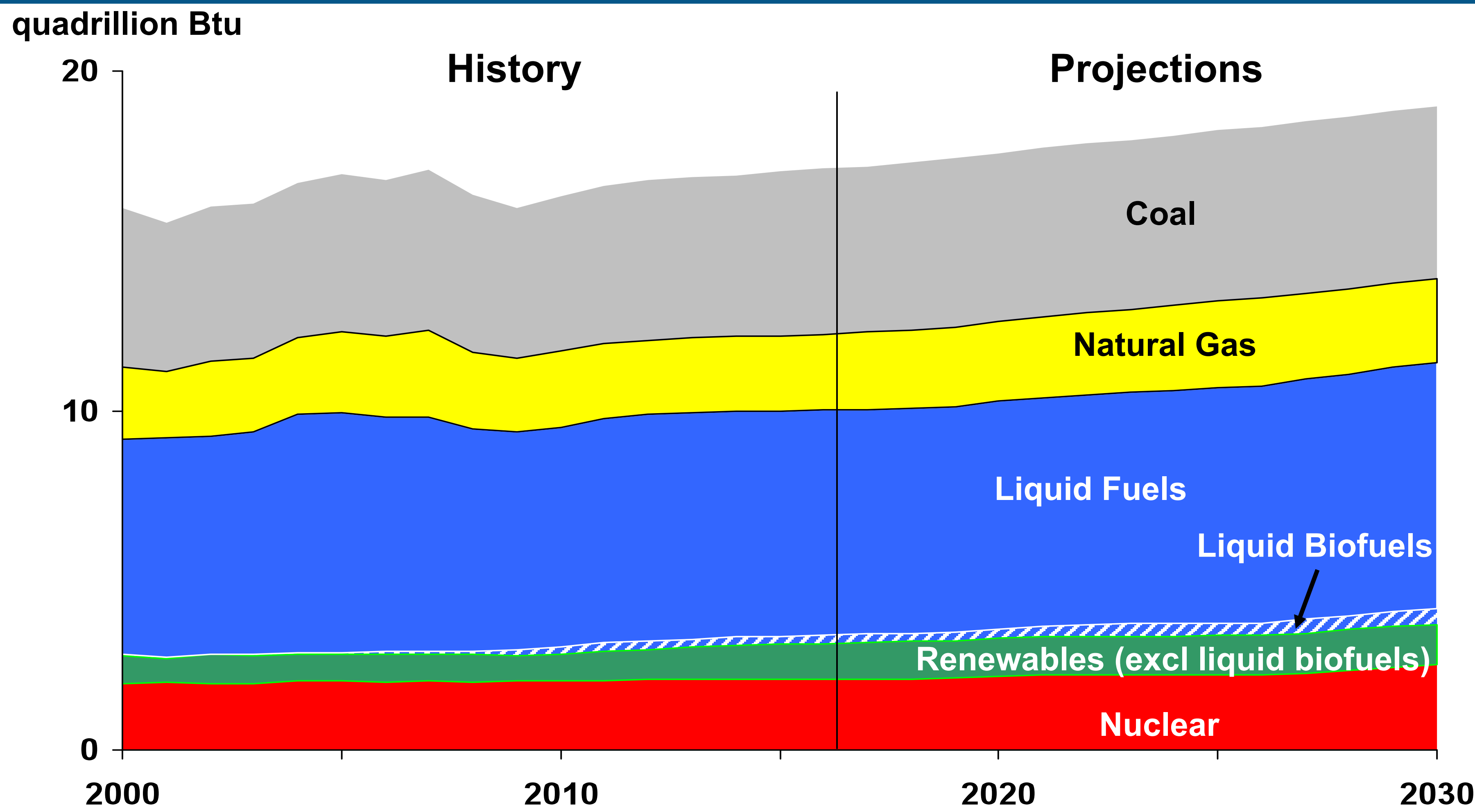


# U.S. Energy Consumption by Fuel



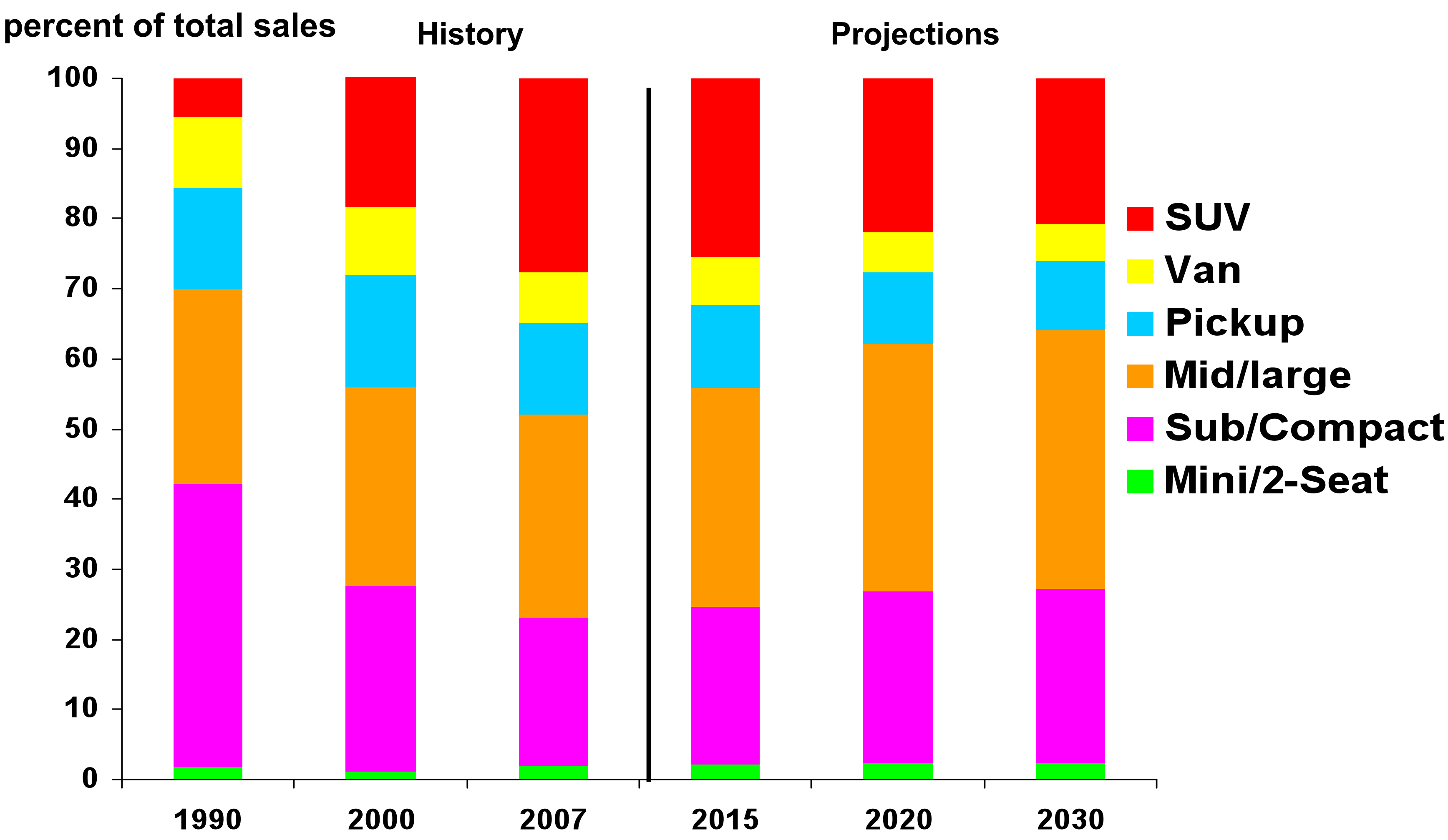

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Southeastern U.S. Energy Consumption by Fuel




Source: *Annual Energy Outlook 2009* Revised Reference Case

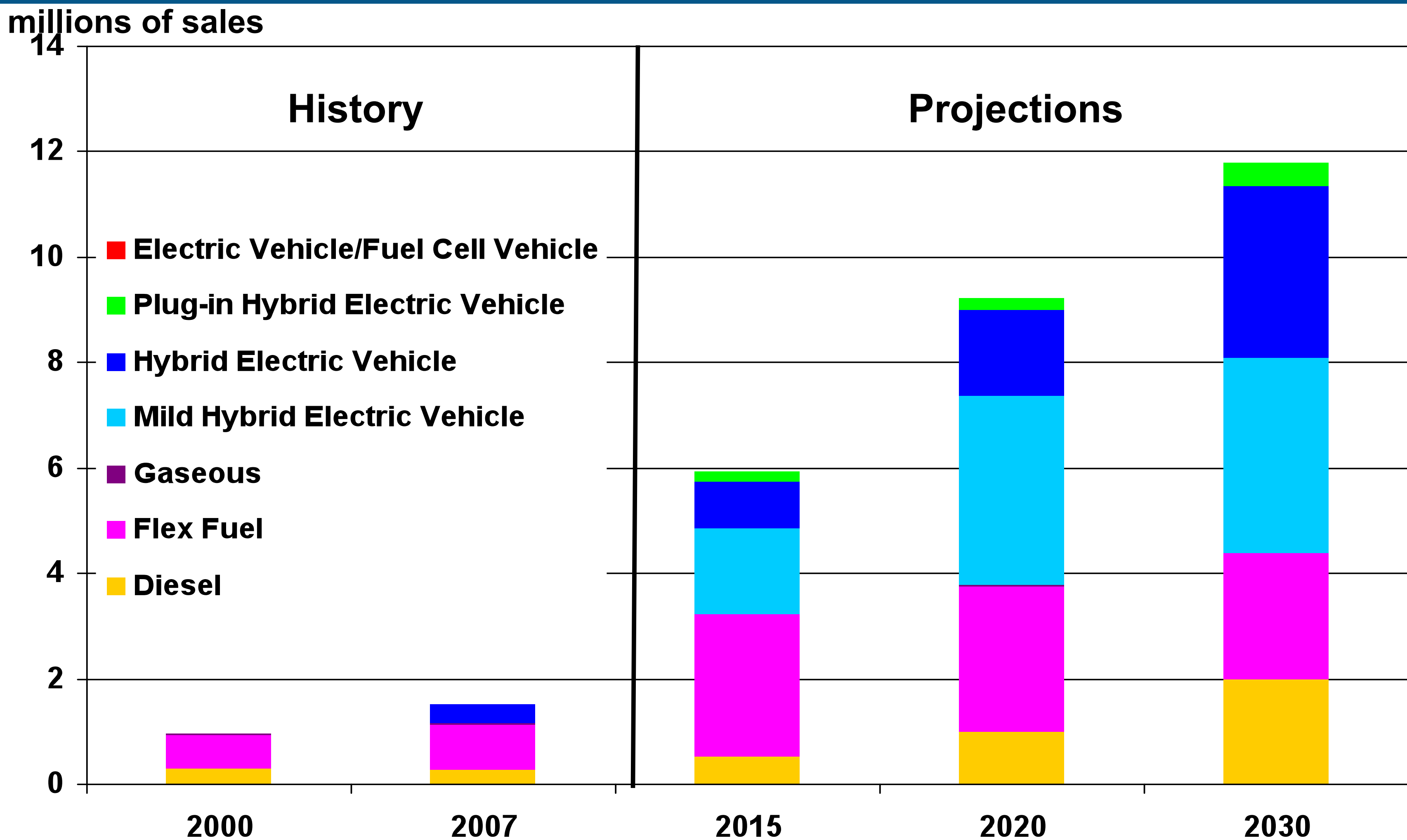
# New light-duty vehicle sales shift from light trucks back to cars





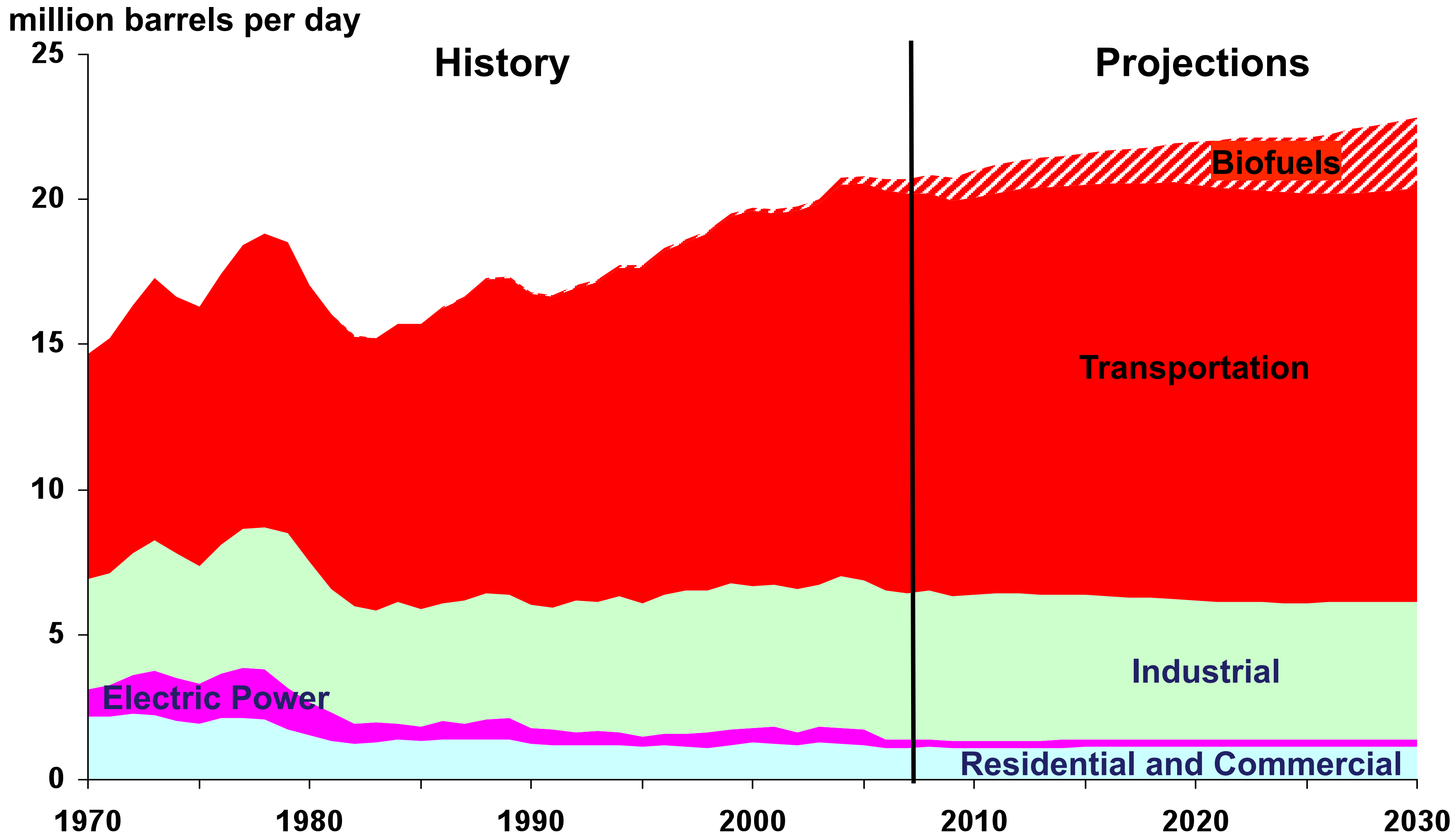

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Mild and full hybrid systems dominate new light-duty vehicle sales by 2030




Source: *Annual Energy Outlook 2009* Revised Reference Case

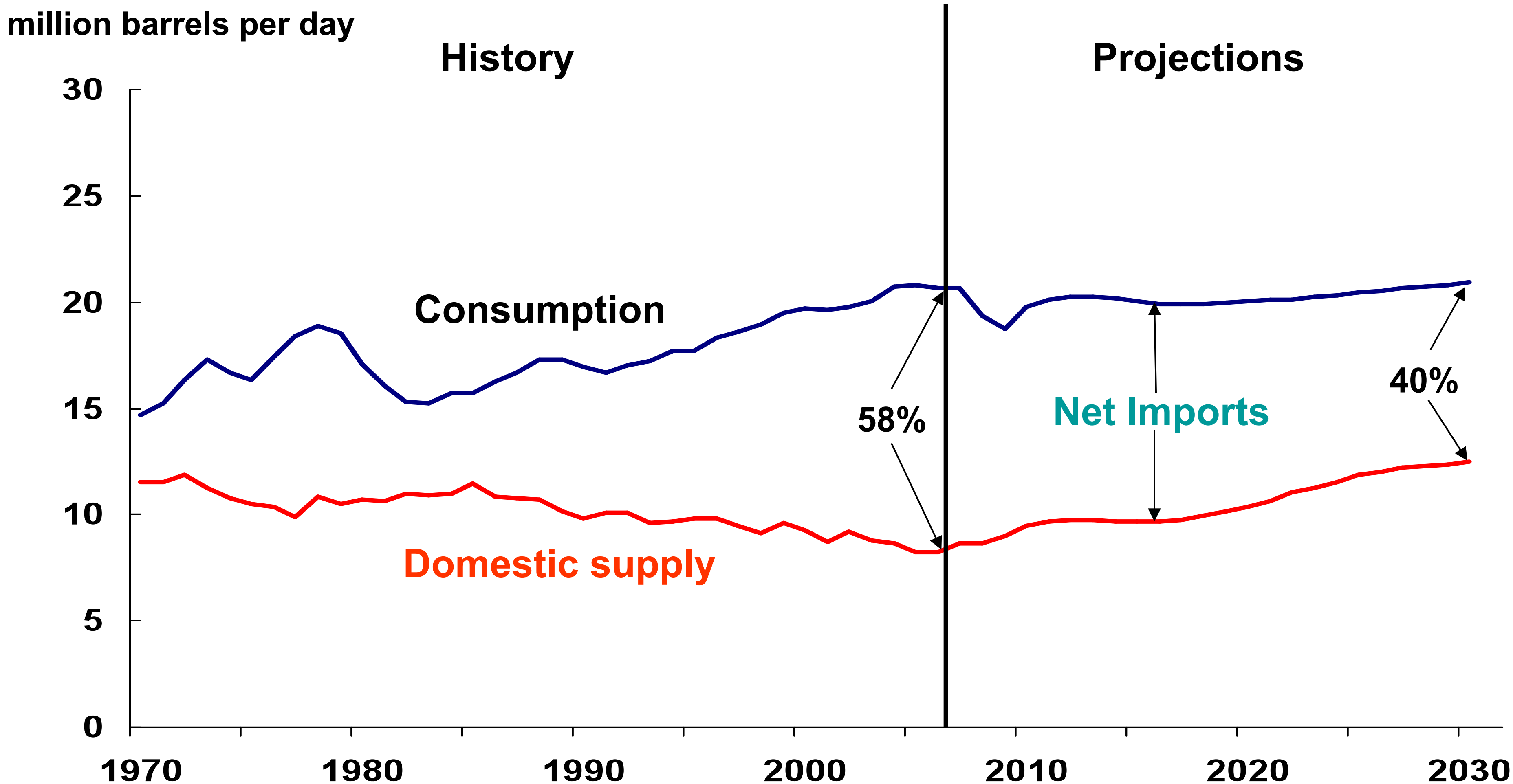
# Liquid Fuels Consumption by Sector 1970-2030





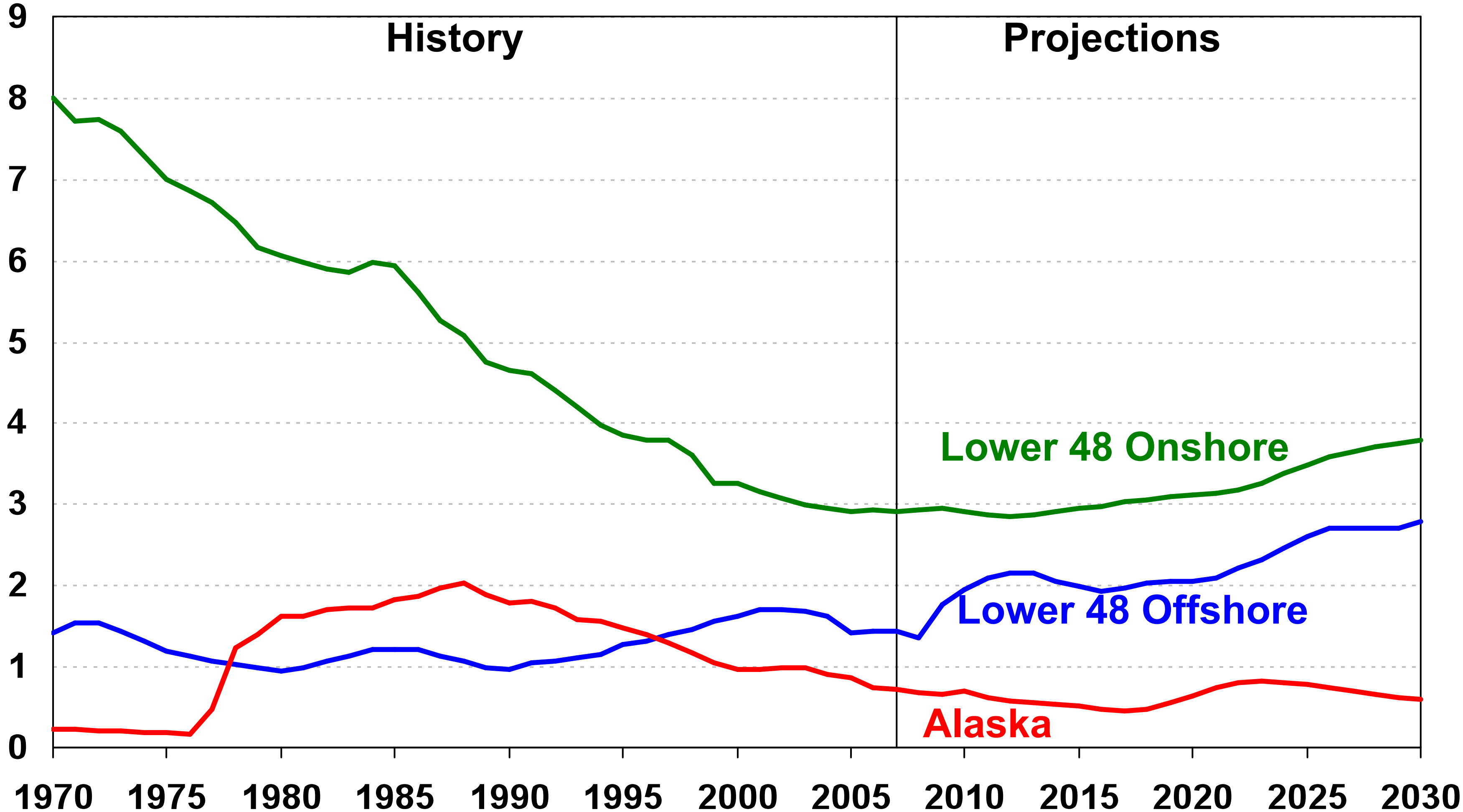

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Liquid Fuels Consumption and Supply 1970-2030




Source: *Annual Energy Outlook 2009* Revised Reference Case

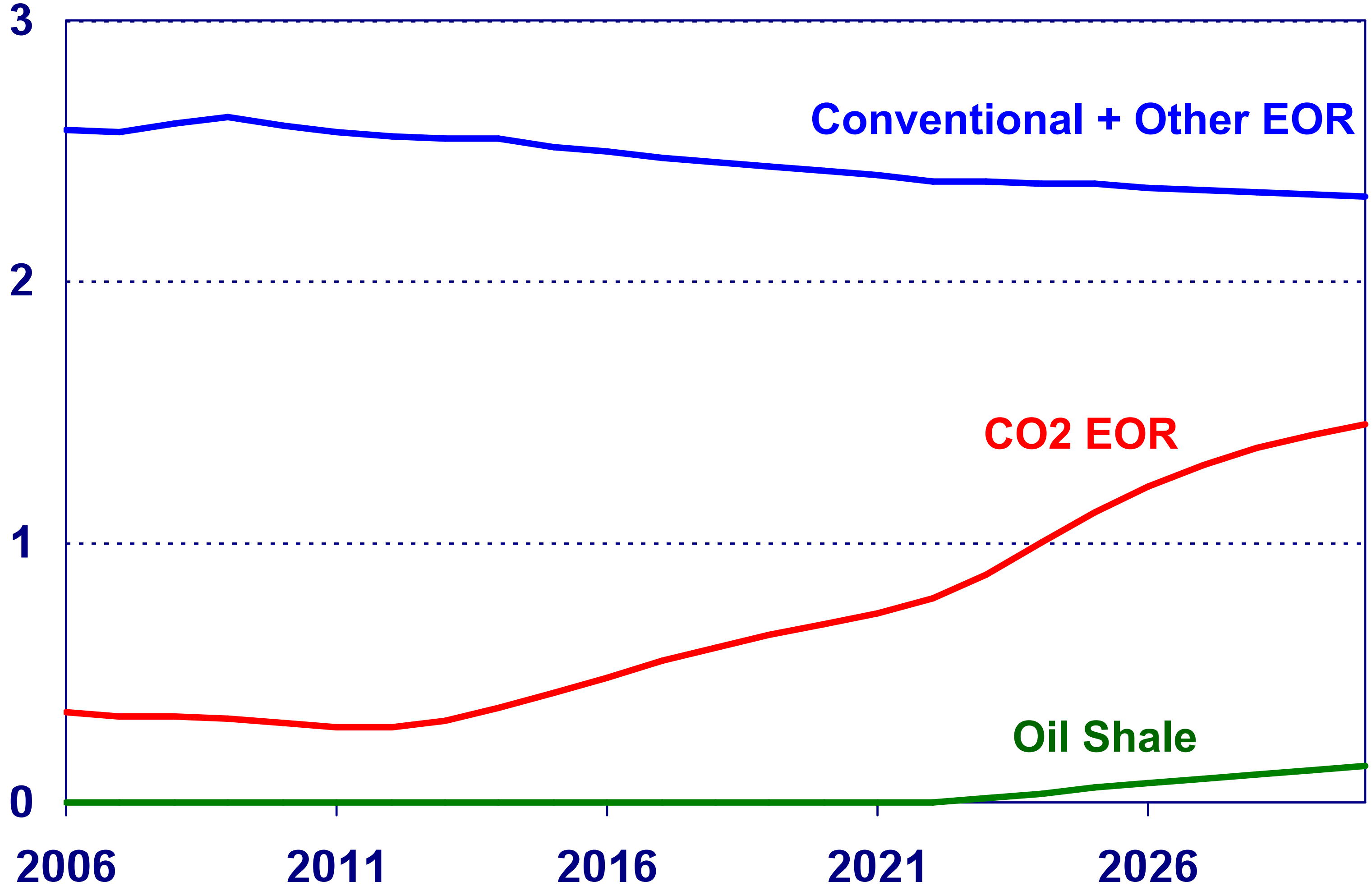
# Liquid Fuels Supply by Source, 1970-2030 (million barrels per day)





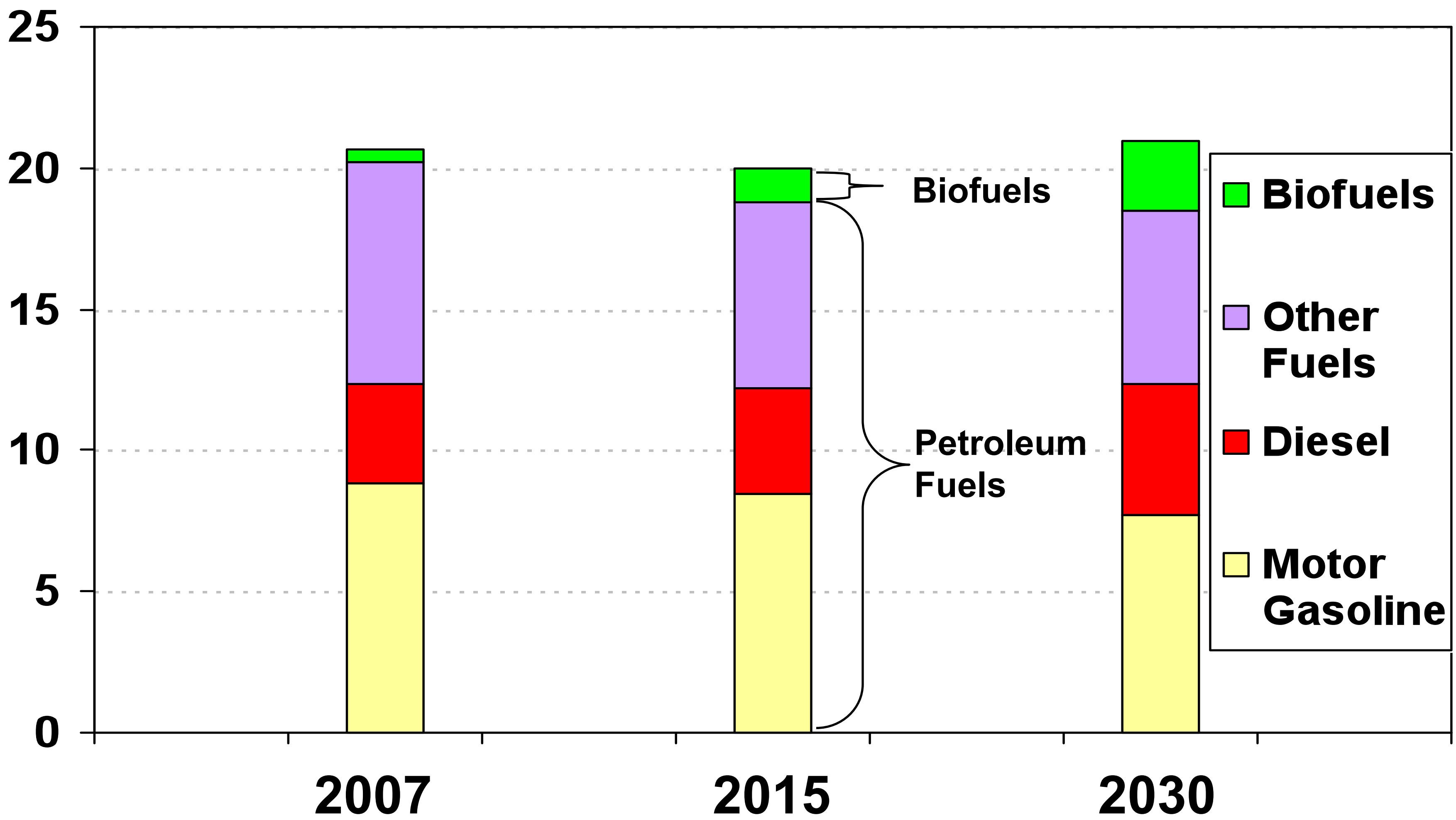

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Lower 48 Onshore Crude Oil Production (million barrels per day)

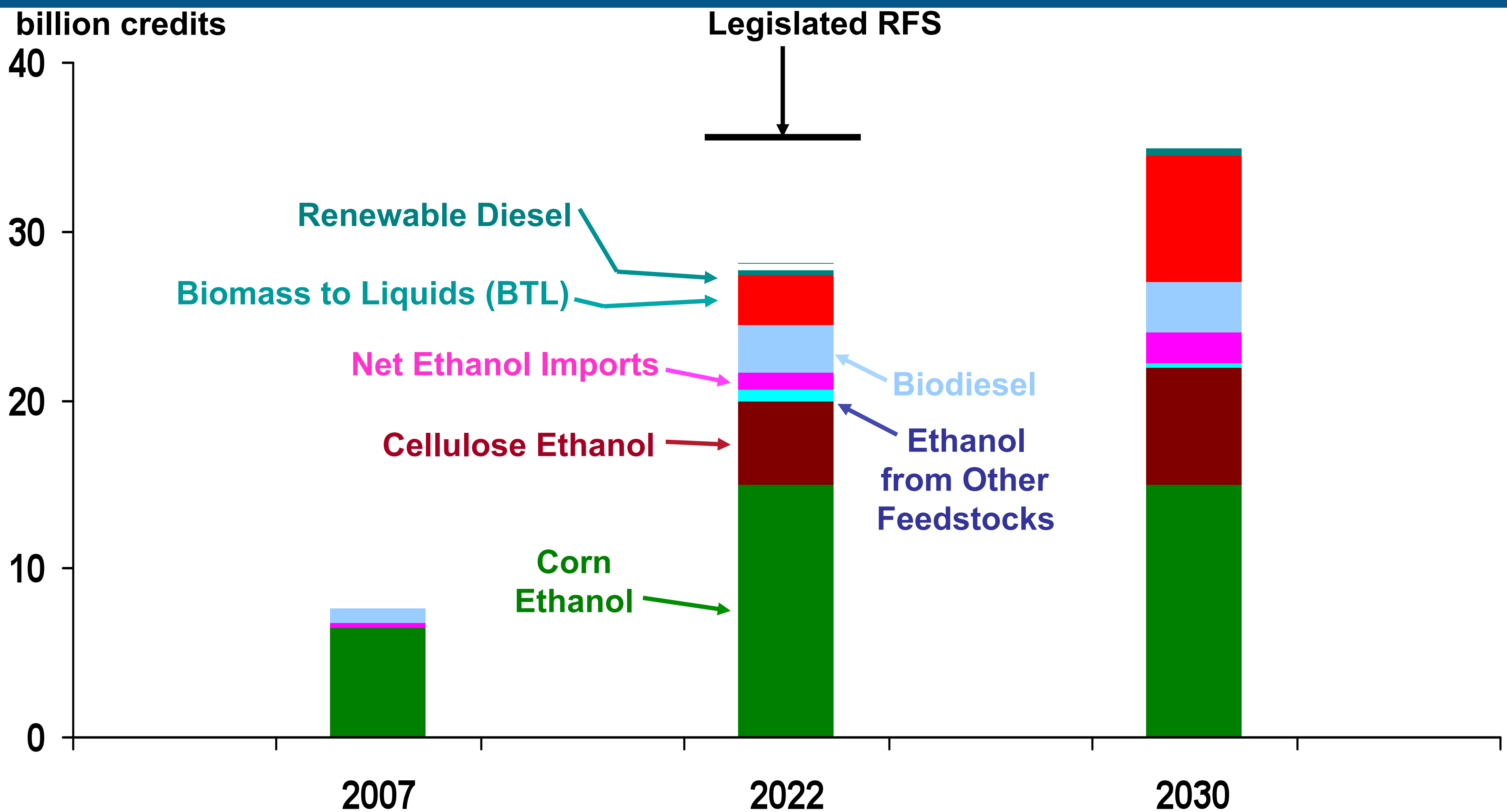



Source: *Annual Energy Outlook 2009* Revised Reference Case

# Biofuels Increase Amid Stagnant Petroleum Supply (million barrels per day)

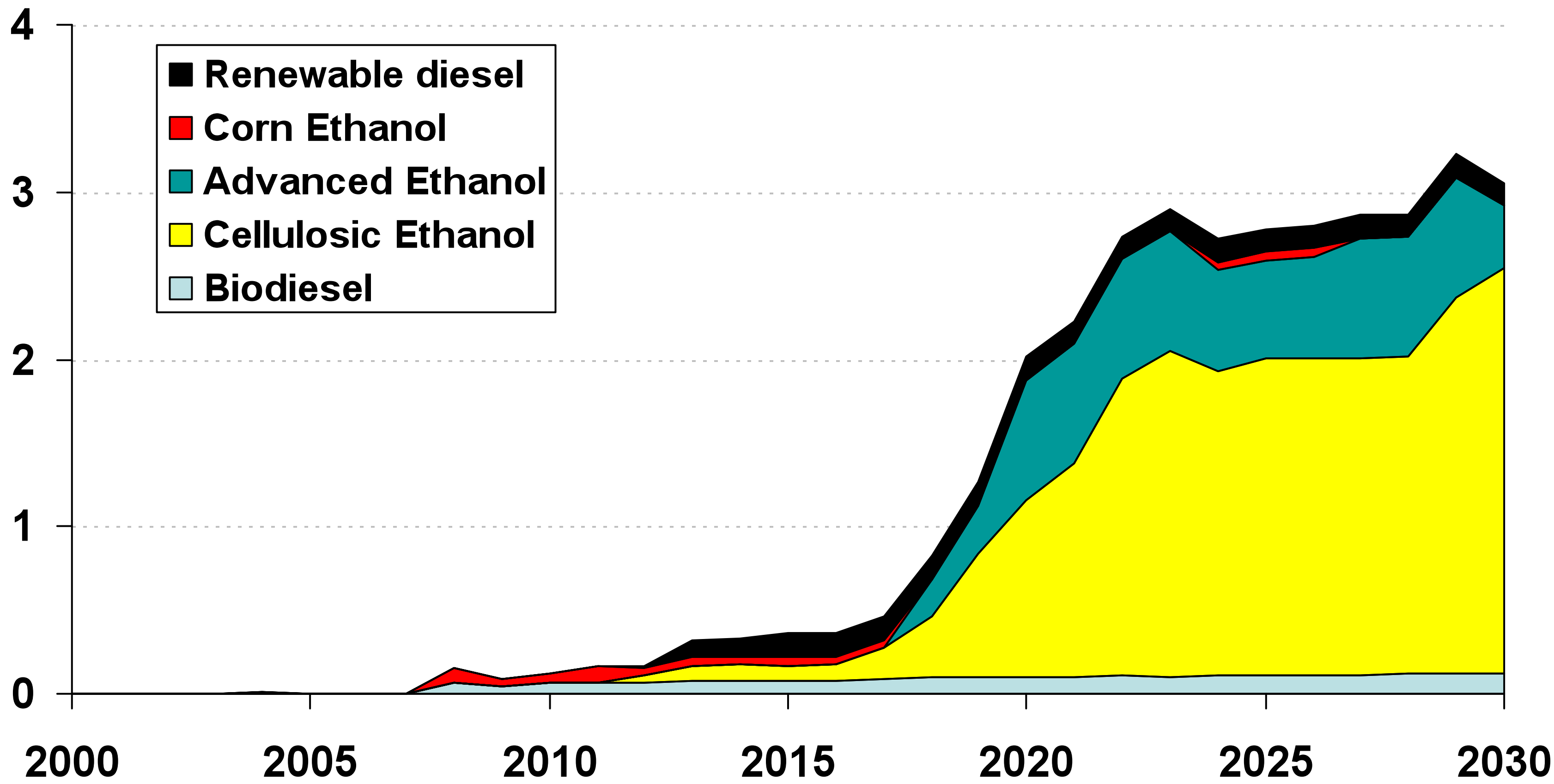


# Biofuels use falls short of the 36 billion gallon RFS target in 2022 and 2030

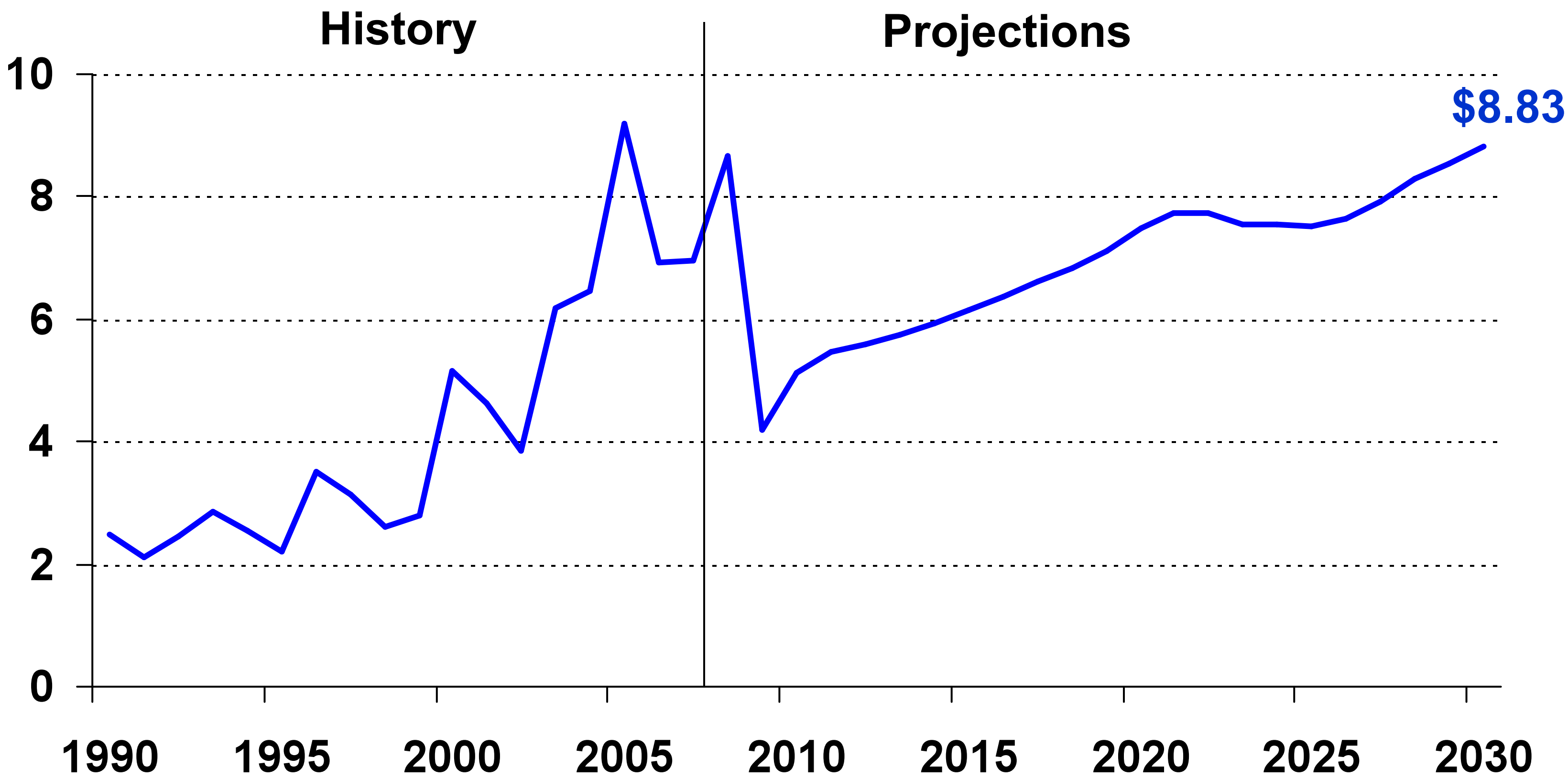



Source: *Annual Energy Outlook 2009* Revised Reference Case

# Biofuels in the Southeast (billion credits)



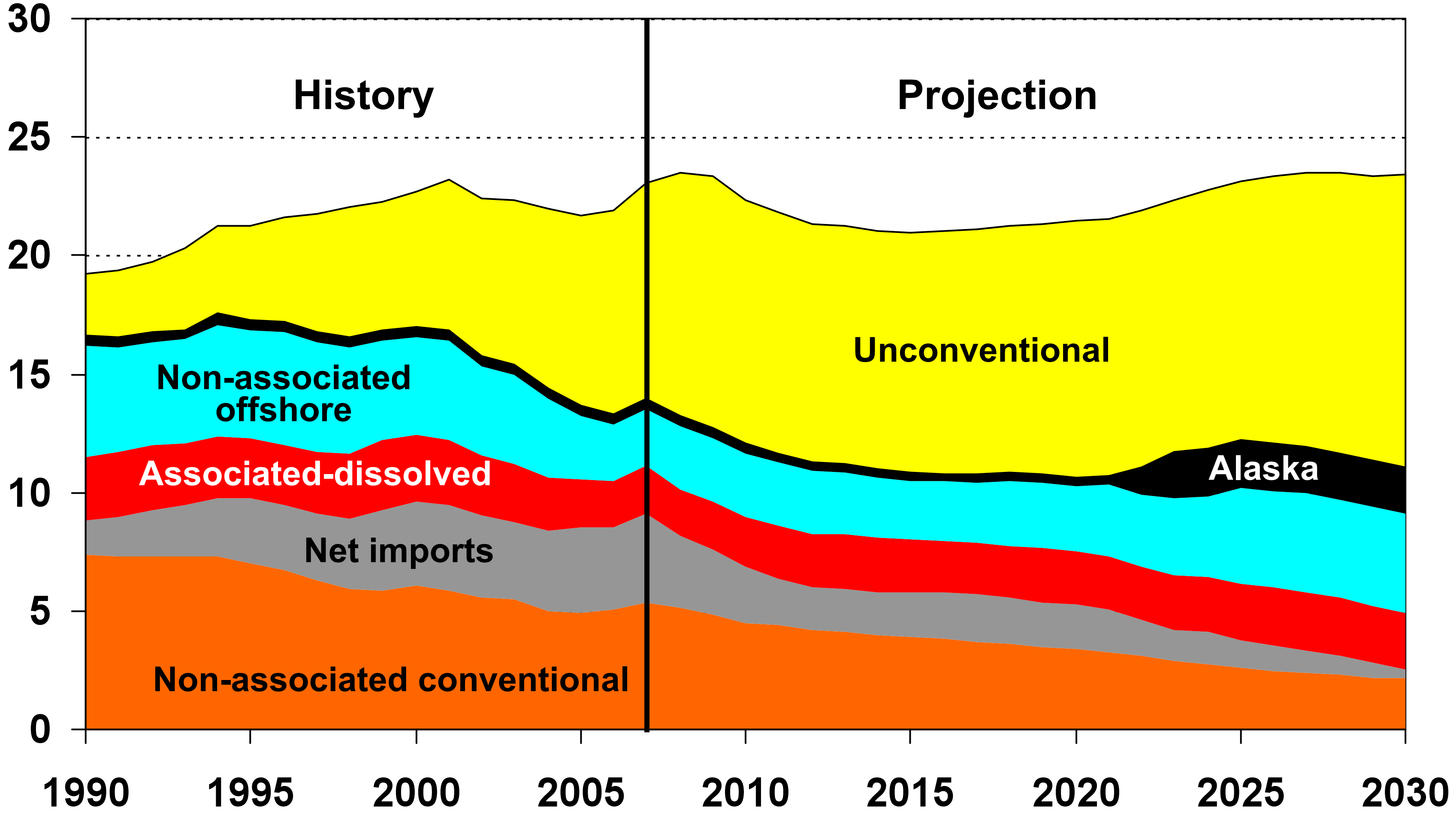
# Henry Hub Spot Natural Gas Prices, 1990-2030 (2007 dollars per million Btu)





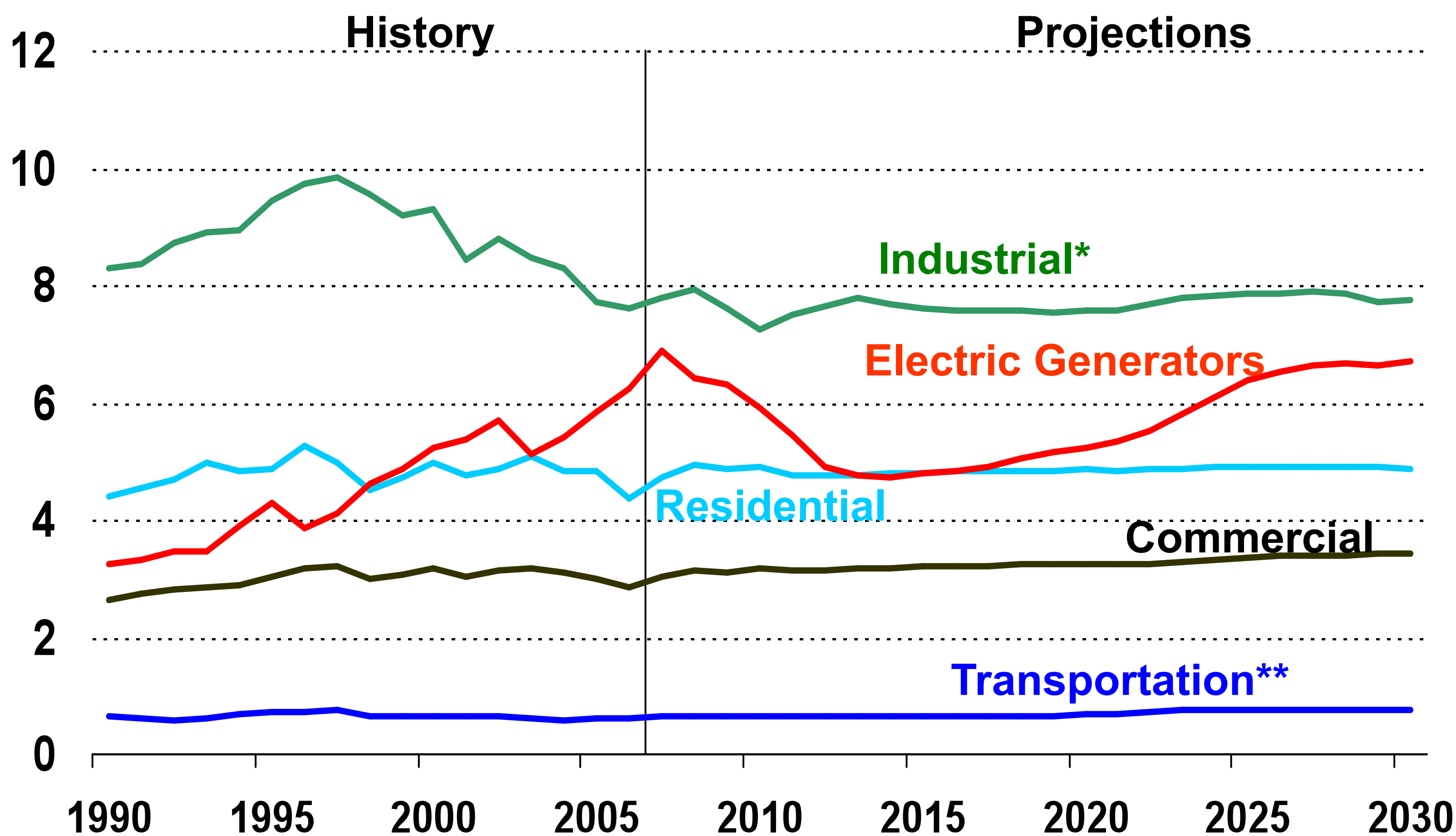

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Natural Gas Supply
# 1990-2030 (trillion cubic feet)




Source: *Annual Energy Outlook 2009* Revised Reference Case

# U.S. Natural Gas Consumption by Sector, 1990-2030 (trillion cubic feet)



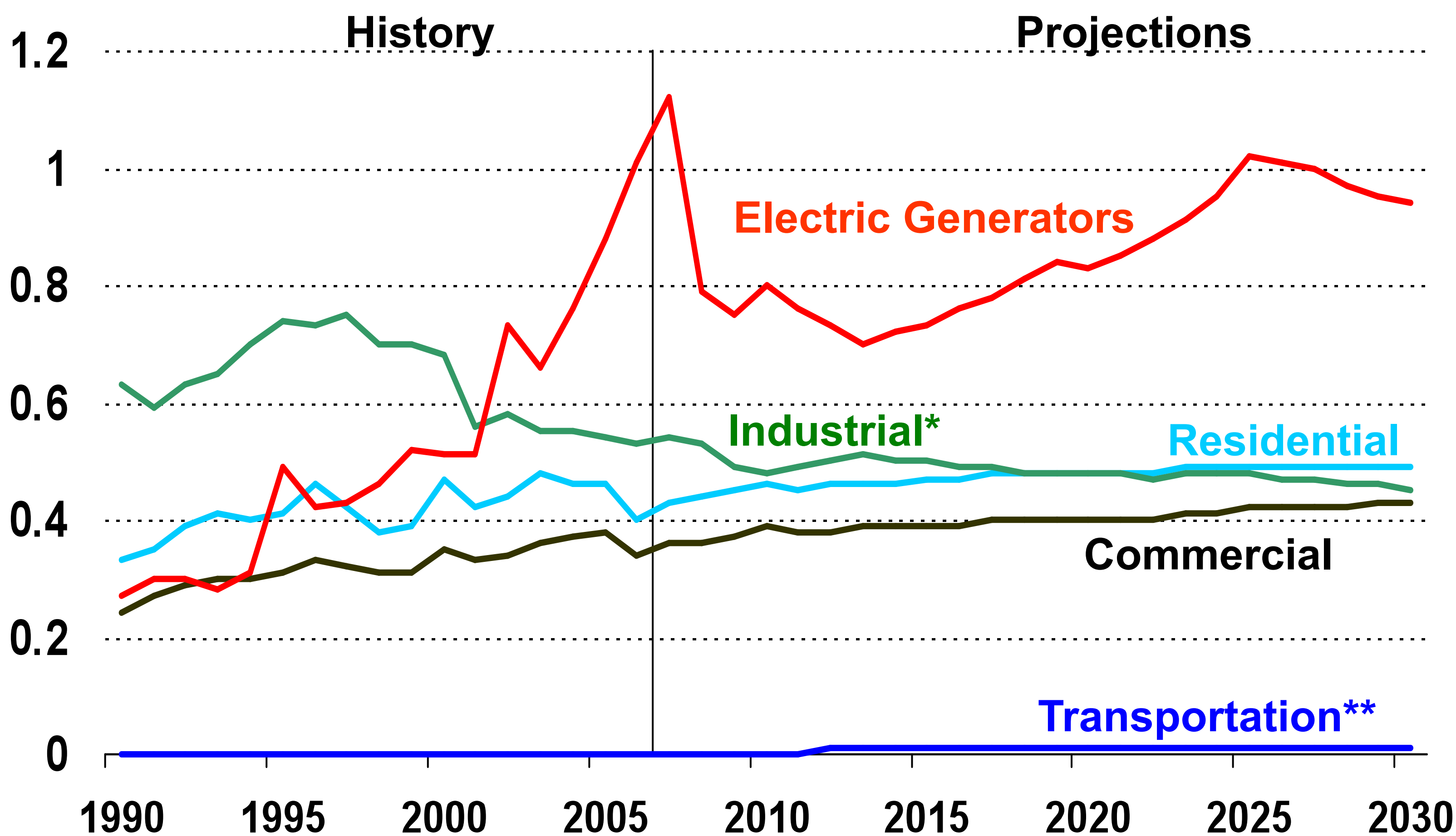

* Includes lease and plant fuel

** Includes pipeline fuel



Source: *Annual Energy Outlook 2009* Revised Reference Case

# Southeastern U.S. Natural Gas Consumption by Sector, 1990-2030 (trillion cubic feet)

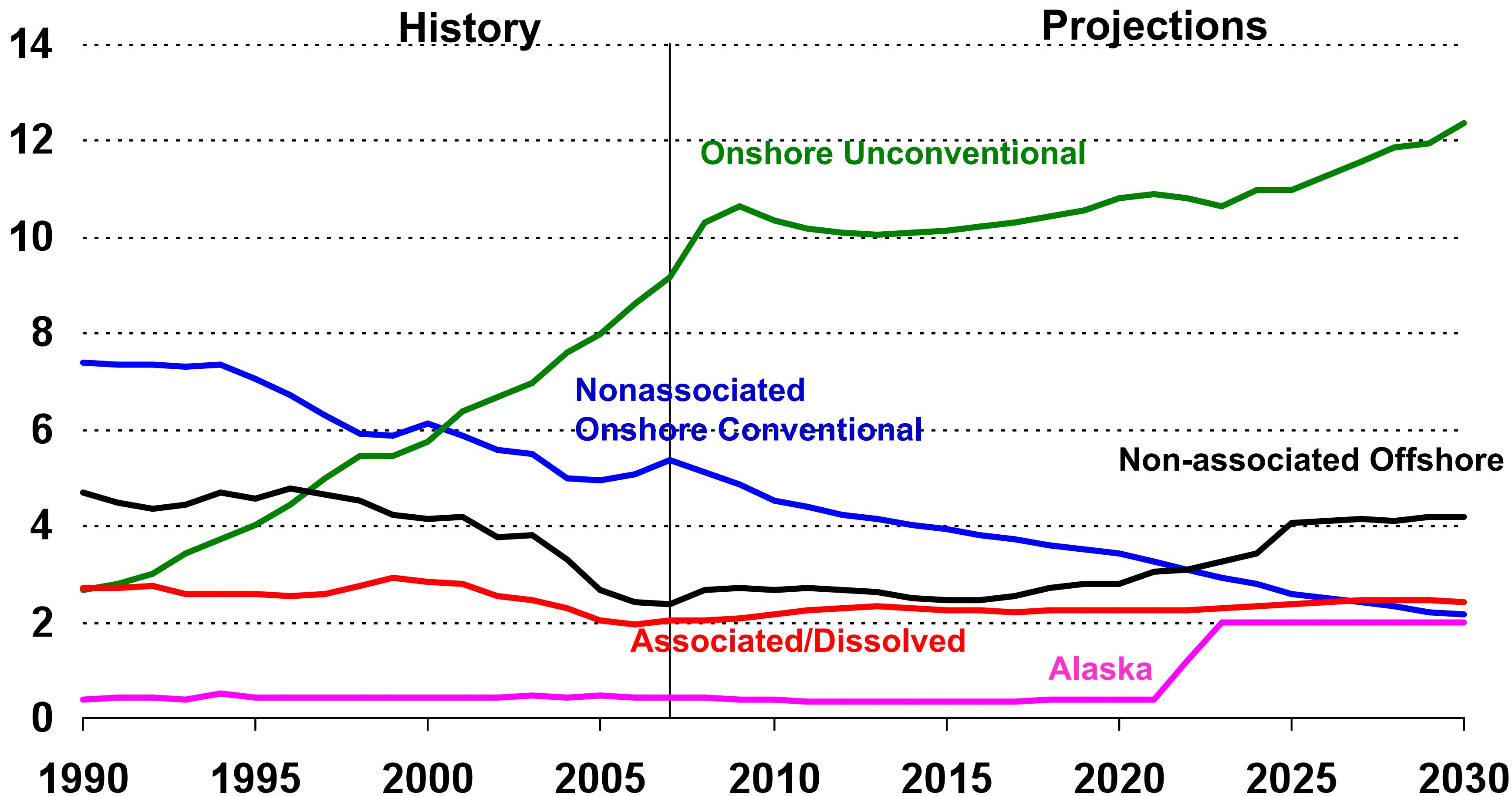



* Excludes lease and plant fuel

** Excludes pipeline fuel

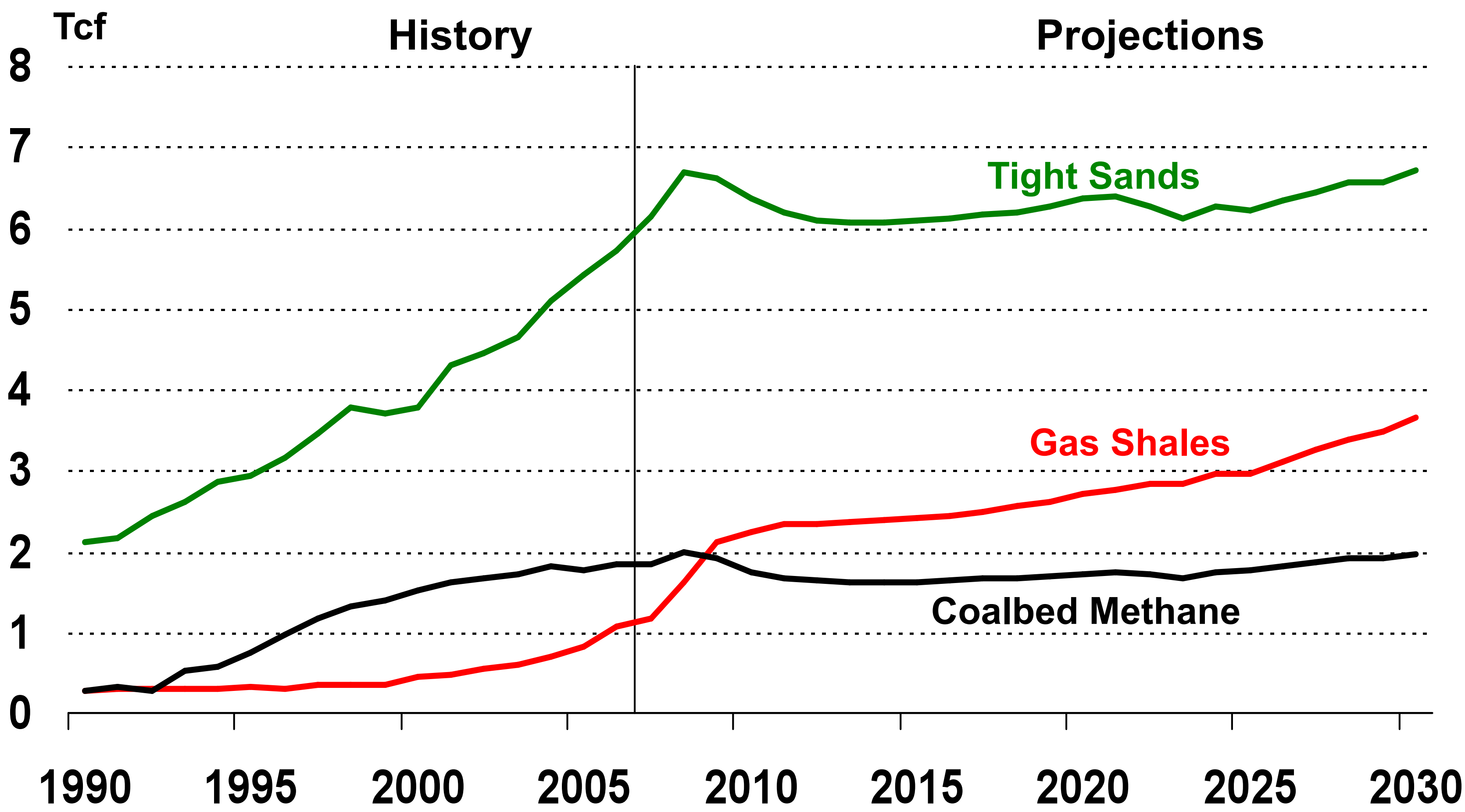
Source: *Annual Energy Outlook 2009* Revised Reference Case

# U.S. Dry Natural Gas Production, 1990 - 2030 (trillion cubic feet)




Source: *Annual Energy Outlook 2009* Revised Reference Case

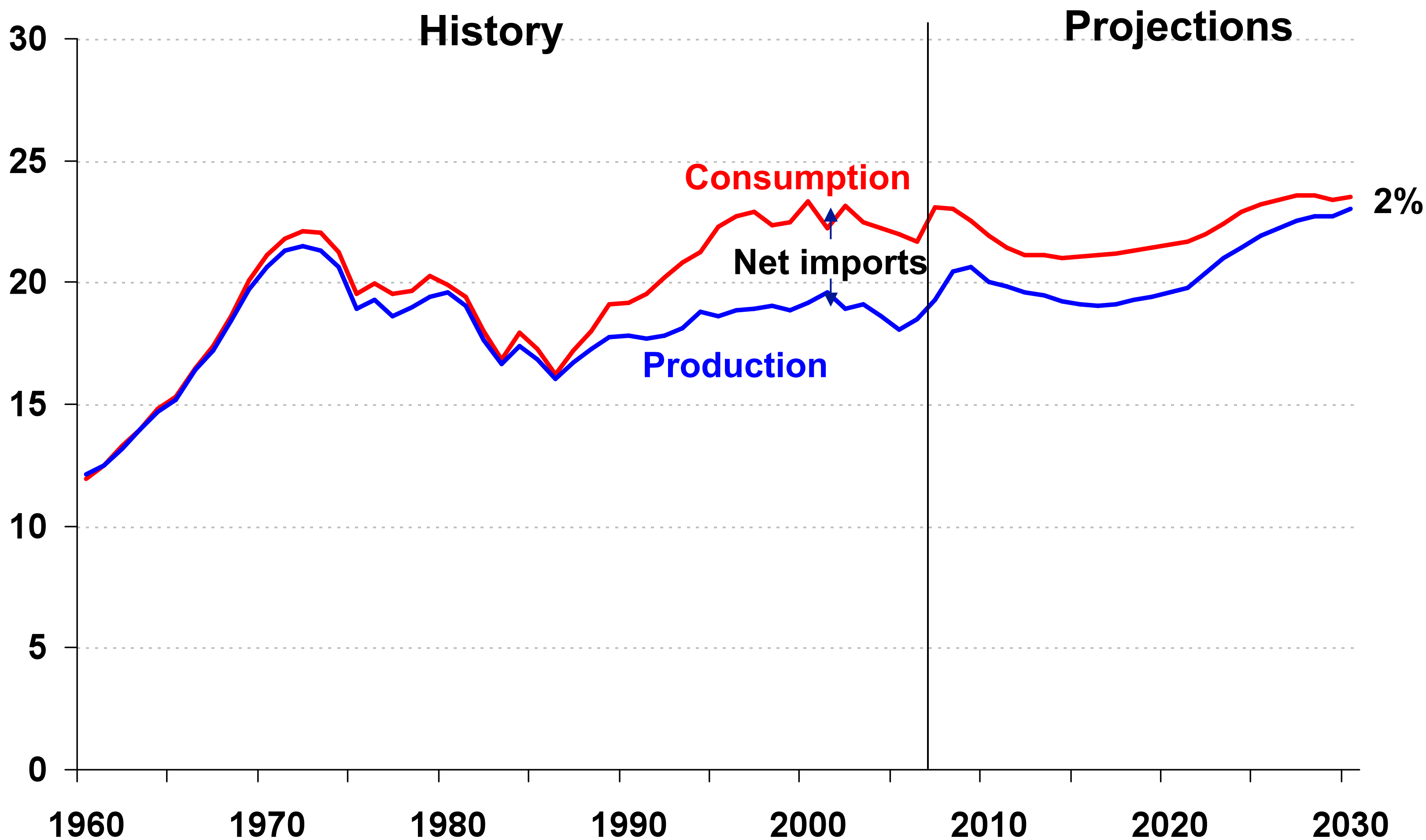
# U.S. Unconventional Natural Gas Production, 1990-2030





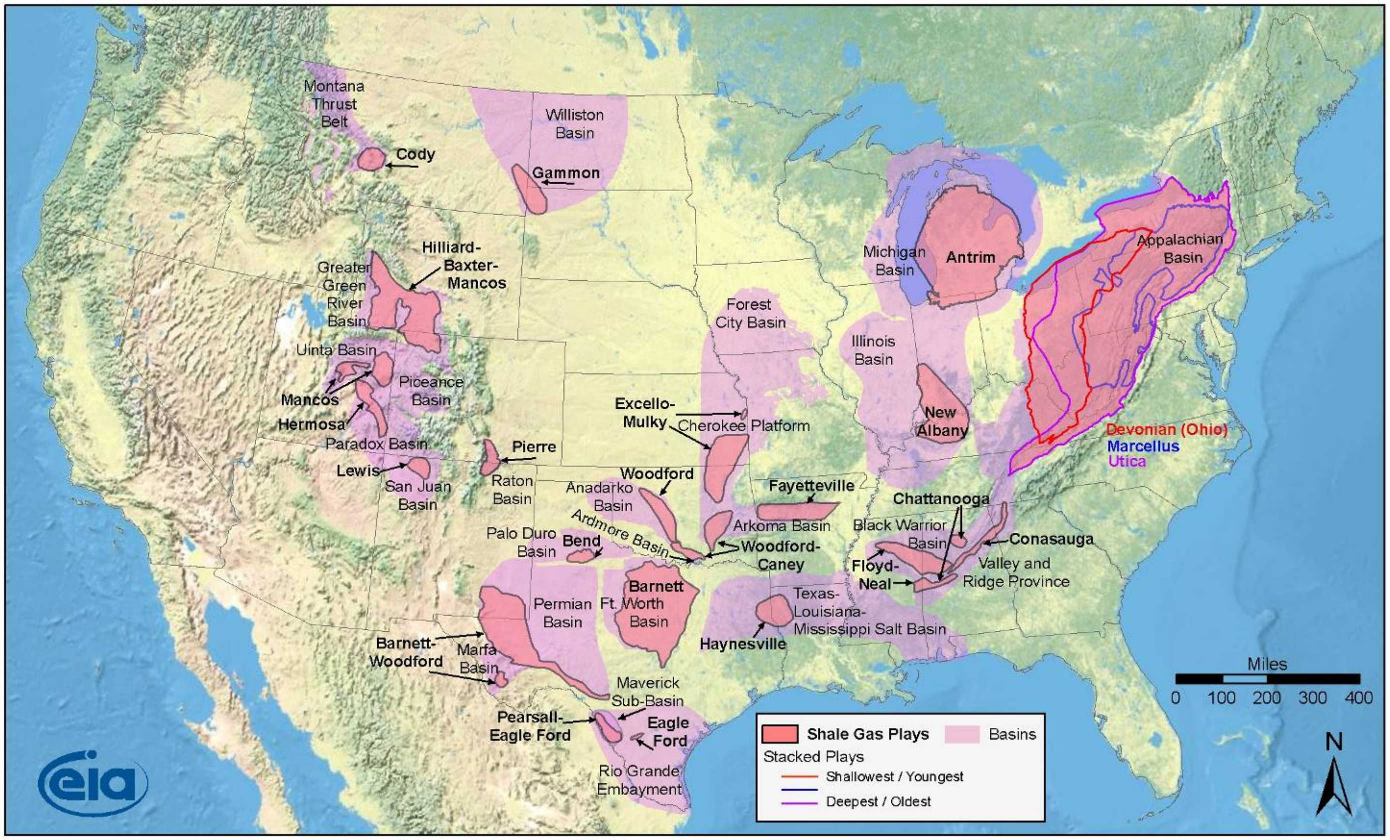

Source: *Annual Energy Outlook 2009* Revised Reference Case

# Natural Gas Production, Consumption, and Imports, 1960-2030 (trillion cubic feet)



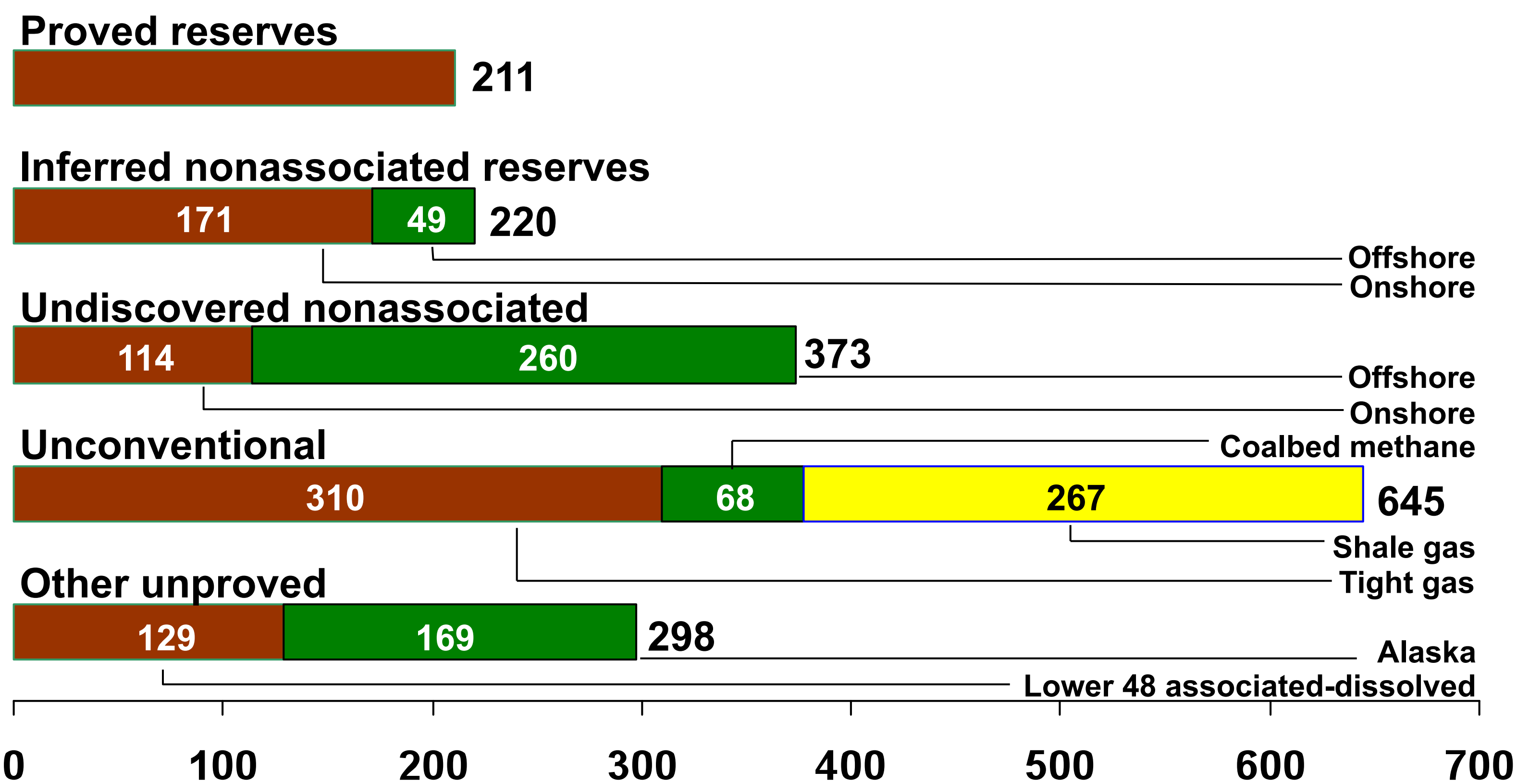
# U.S. Natural Gas Shale Plays

## Shale Gas Plays, Lower 48 States



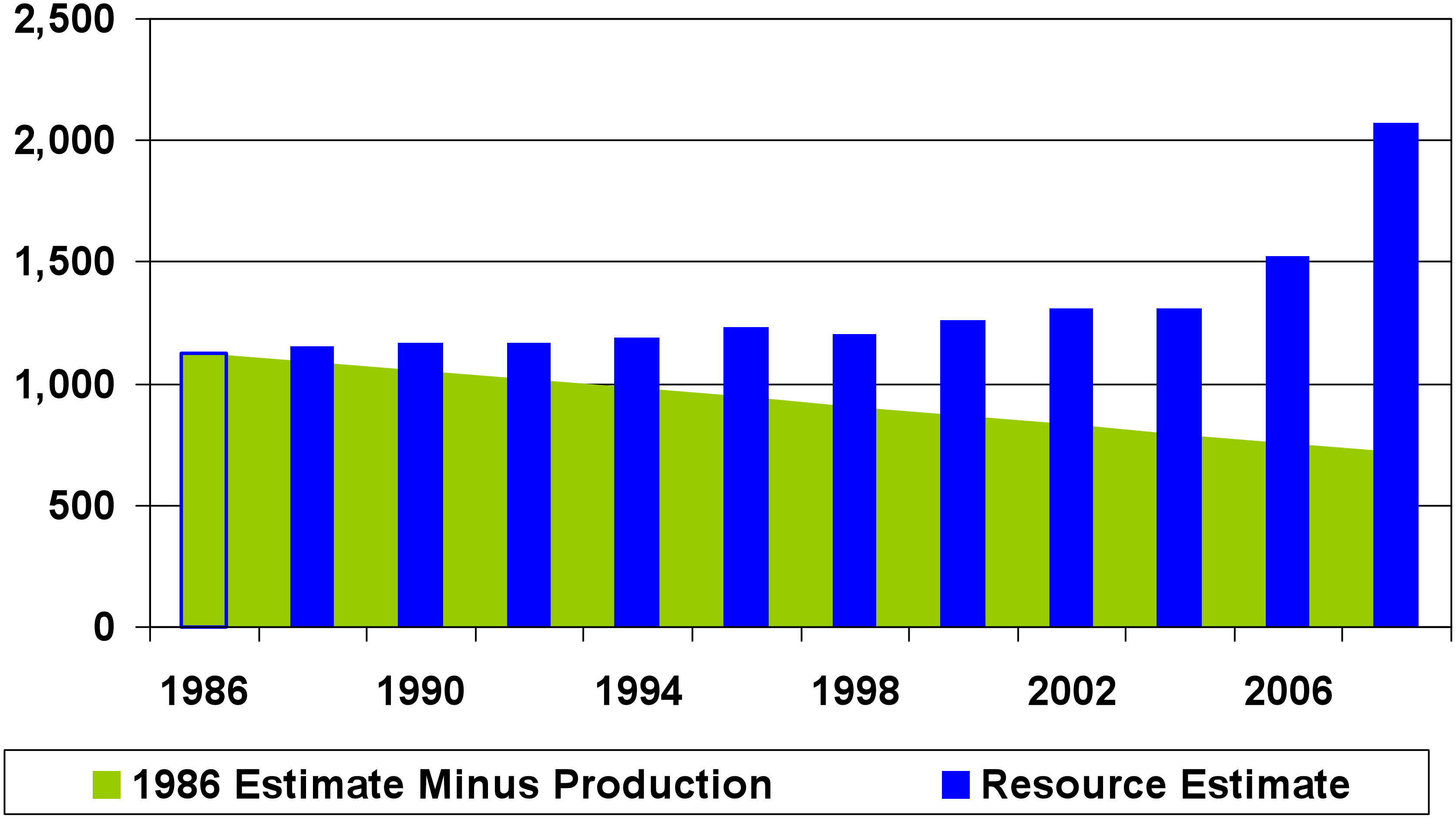

Source: Energy Information Administration based on data from various published studies
Updated: May 28, 2009

# Technically Recoverable U.S. Natural Gas Resources, *as of January 1, 2007* (trillion cubic feet)

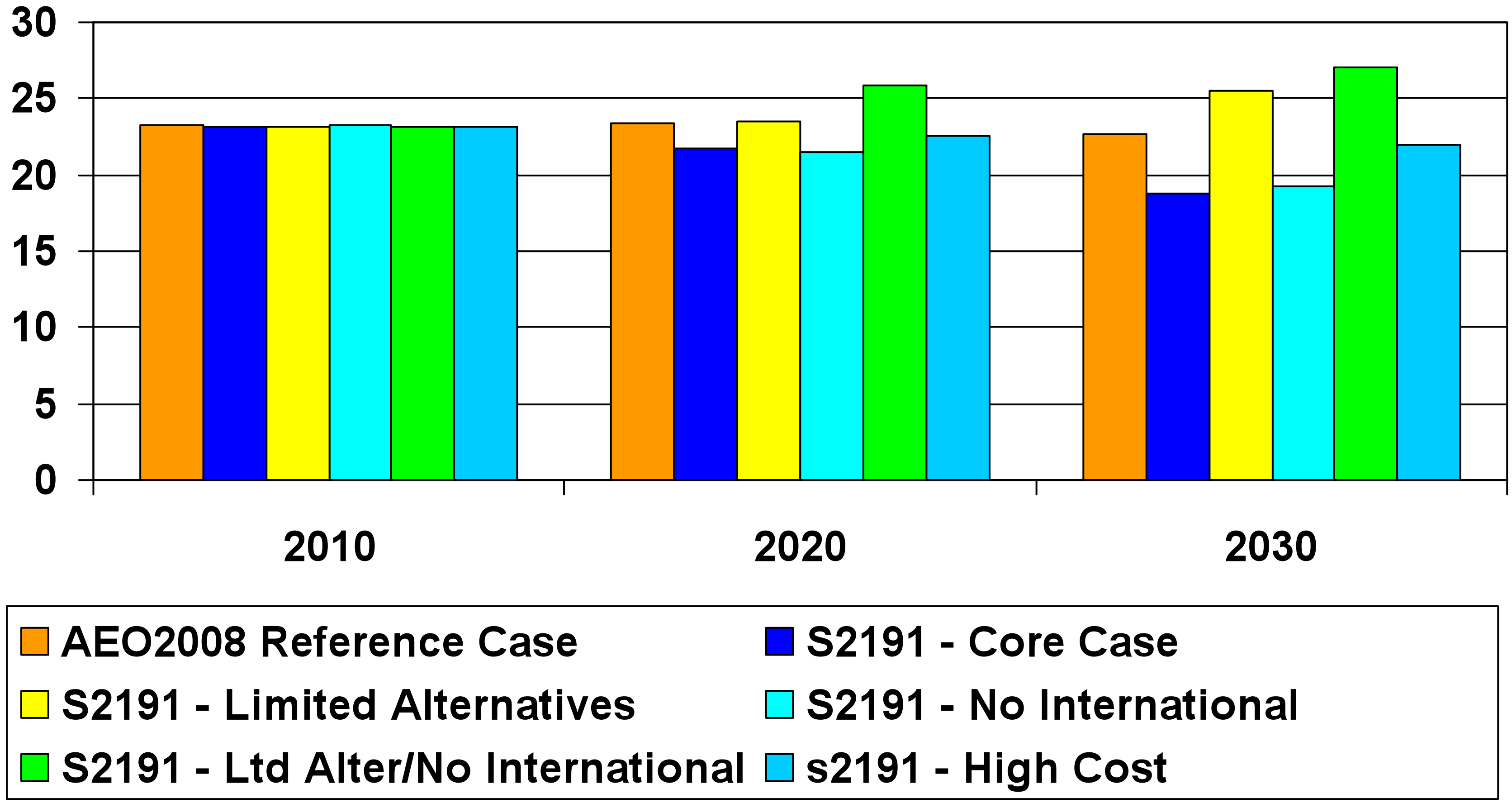



**Total: 1,747 trillion cubic feet**

# Potential Gas Committee Resource Estimates (trillion cubic feet)



# Lieberman-Warner Bill S.2191 Natural Gas Consumption Impacts (trillion cubic feet)



# Conclusions

- Long-term economic growth averages about 2.4 percent per year between 2007 and 2030
- World crude oil prices recover from a near-term decline and reach $130 per barrel (in 2007 dollars) by 2030
- The growing use of biofuels is displacing gasoline relative to diesel
- A robust domestic natural gas resource base allows for a steady expansion of production given projected growth in demand and prices
- Recently-enacted policies and concerns over greenhouse gas (GHG) emissions, combined with high energy prices, moderate projected growth in energy consumption and emissions