

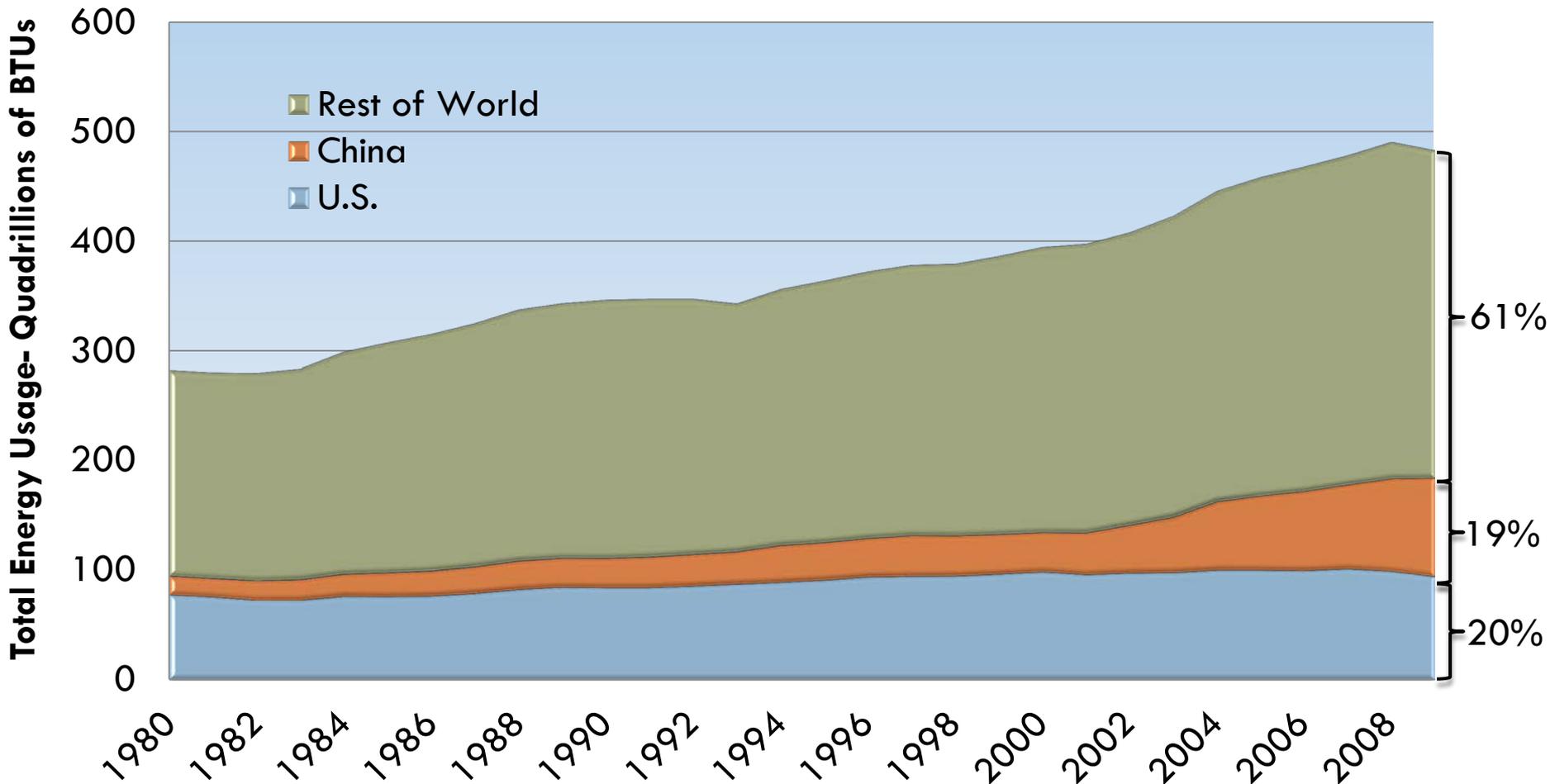
HAMPTON ROADS ENERGY  
OPTIONS PART I-  
U.S. ENERGY OVERVIEW  
09.20.2012



James Clary: HRPDC Economist

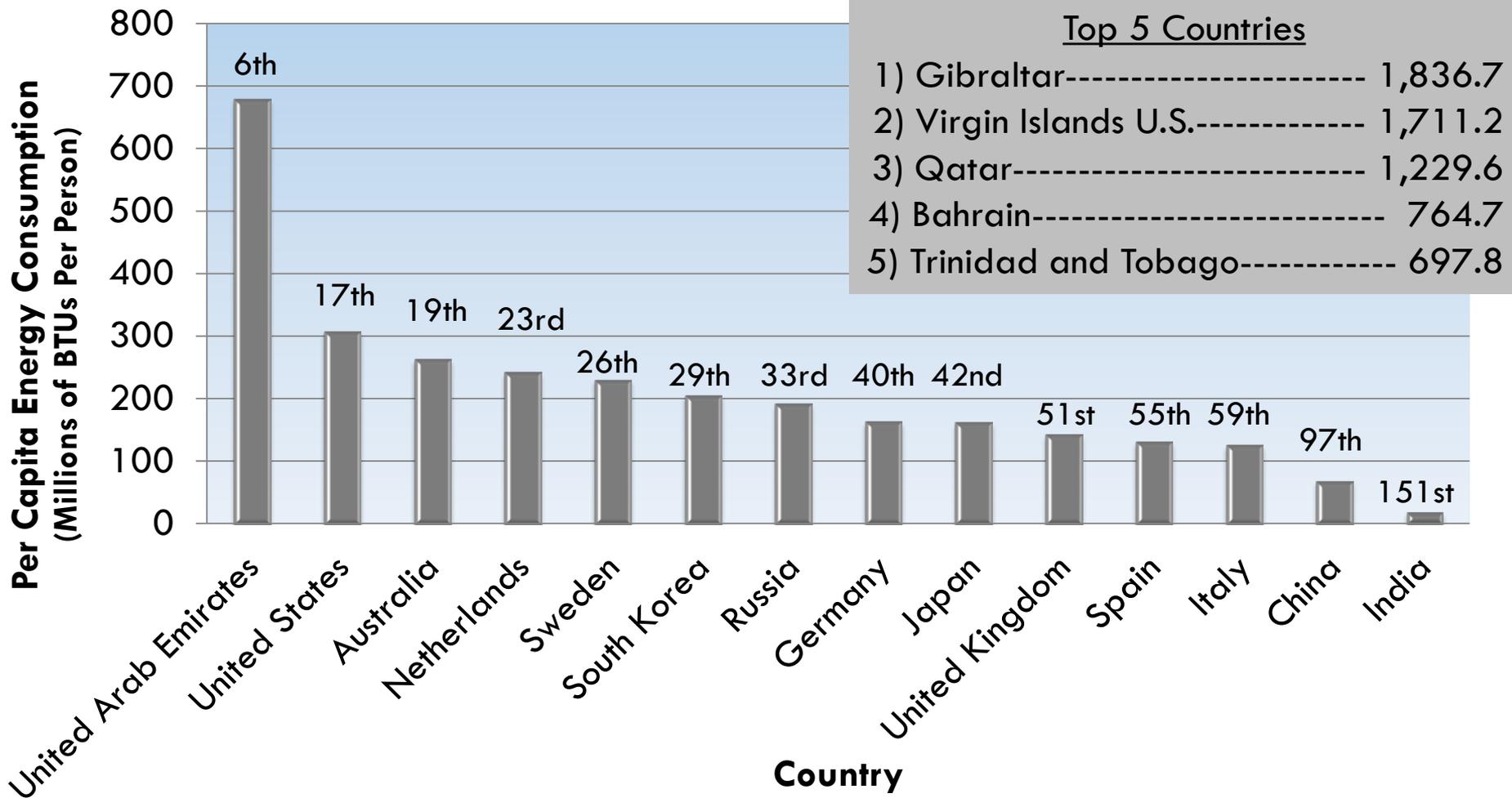
# Global Energy Consumption

2



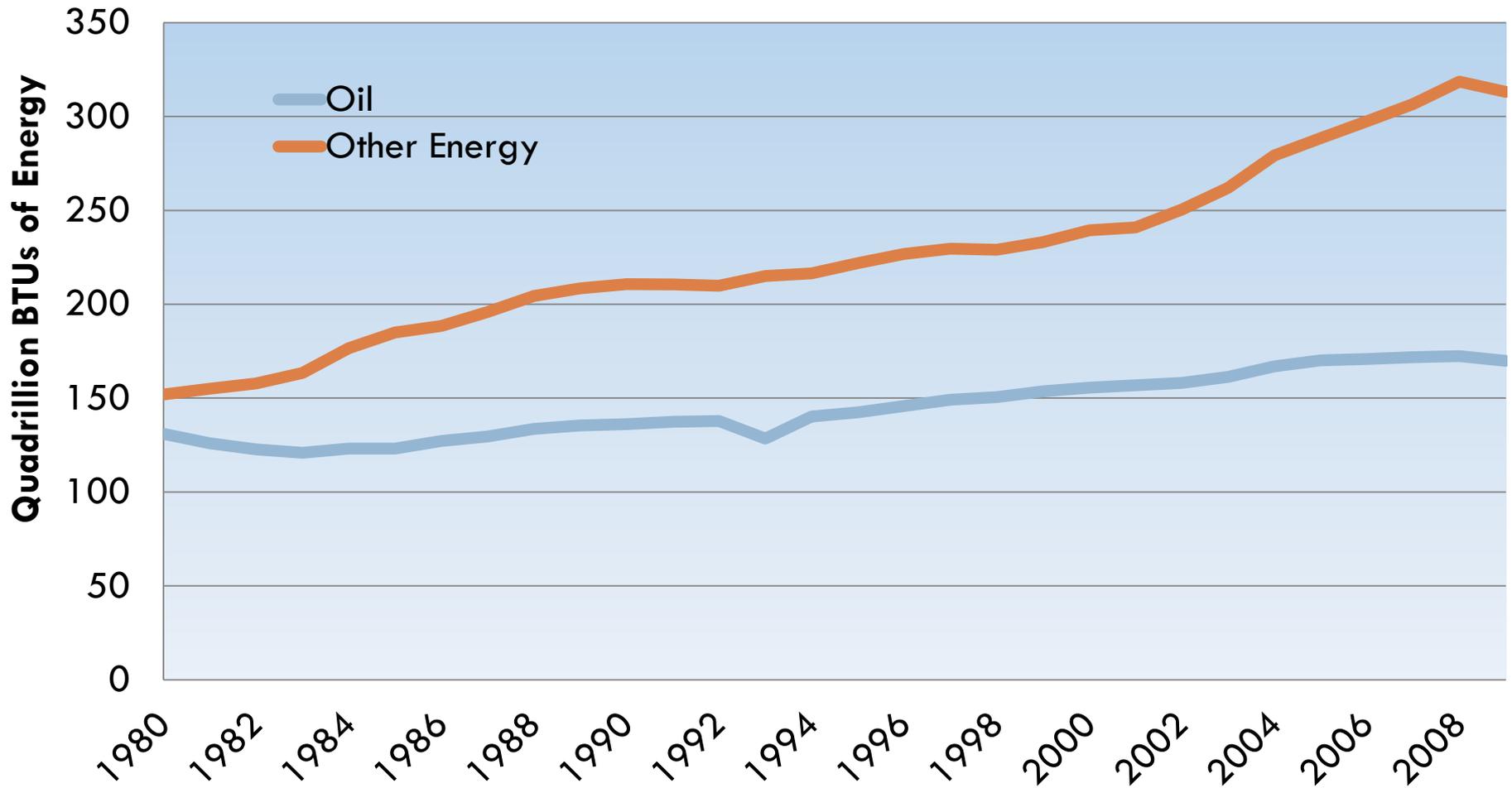
# Per Capita Energy Consumption, for select countries in 2009

3



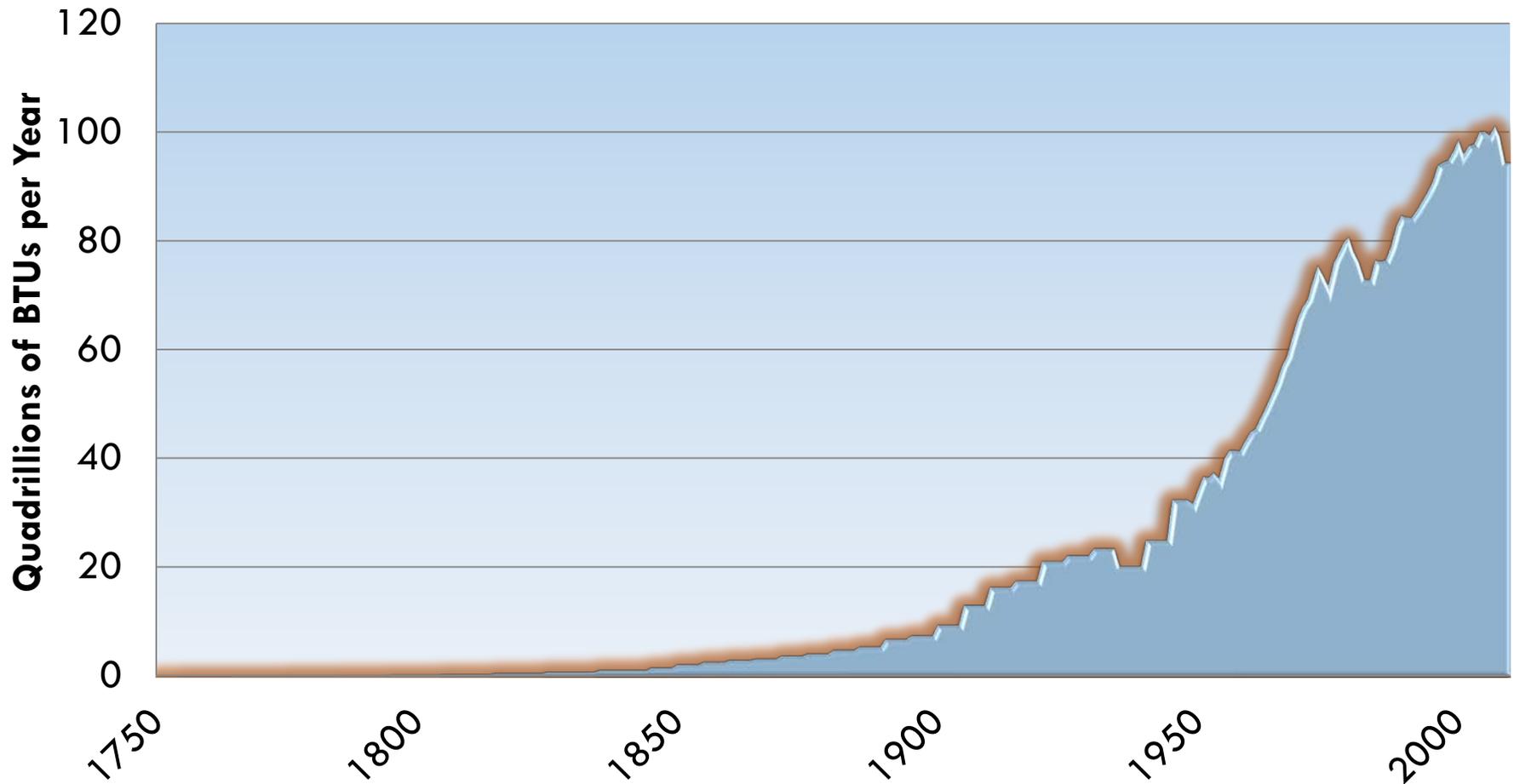
# Growth in Global Energy Consumption

4



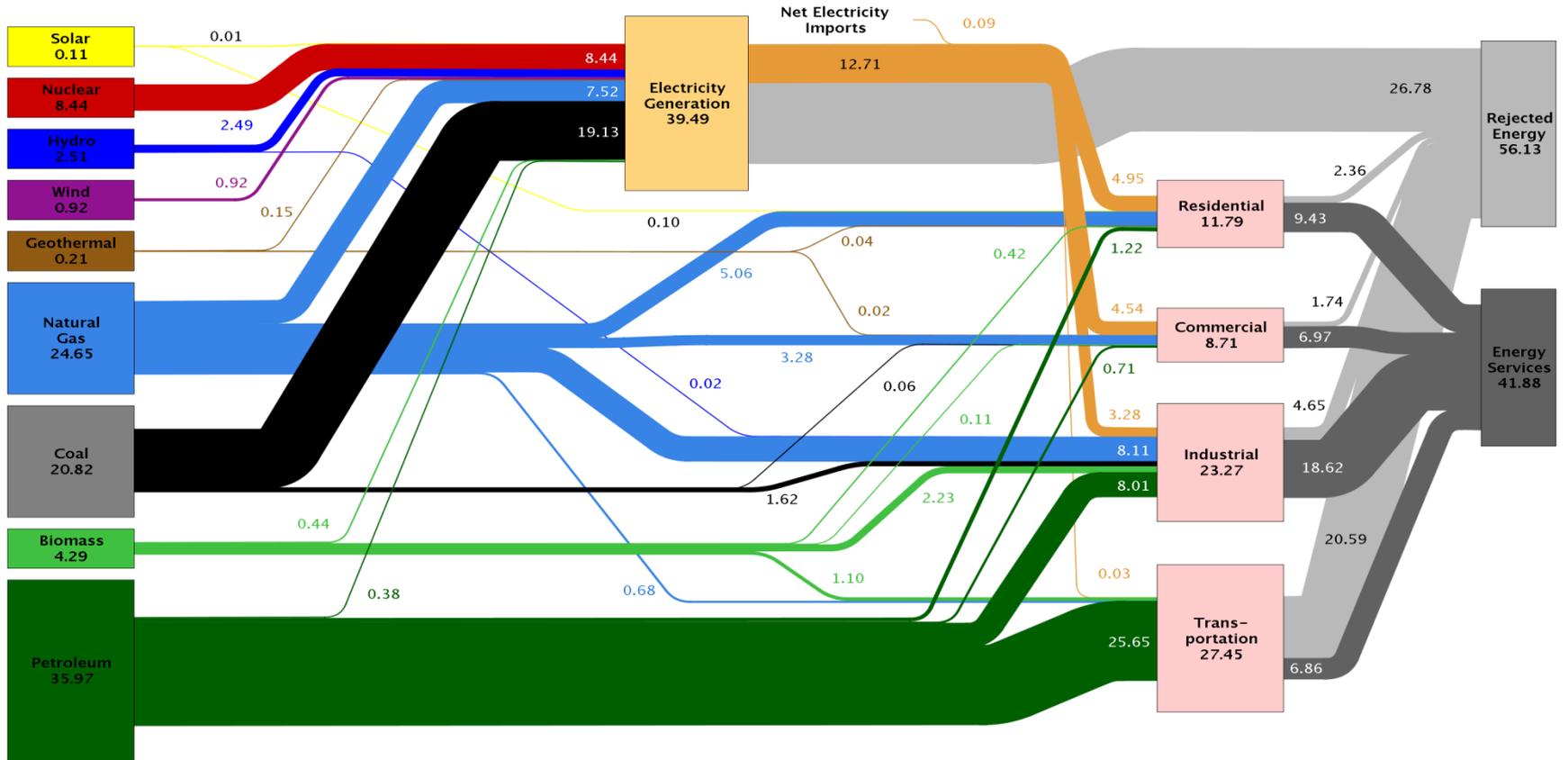
# Total U.S. Energy Consumption

5



# U.S. Energy Flow

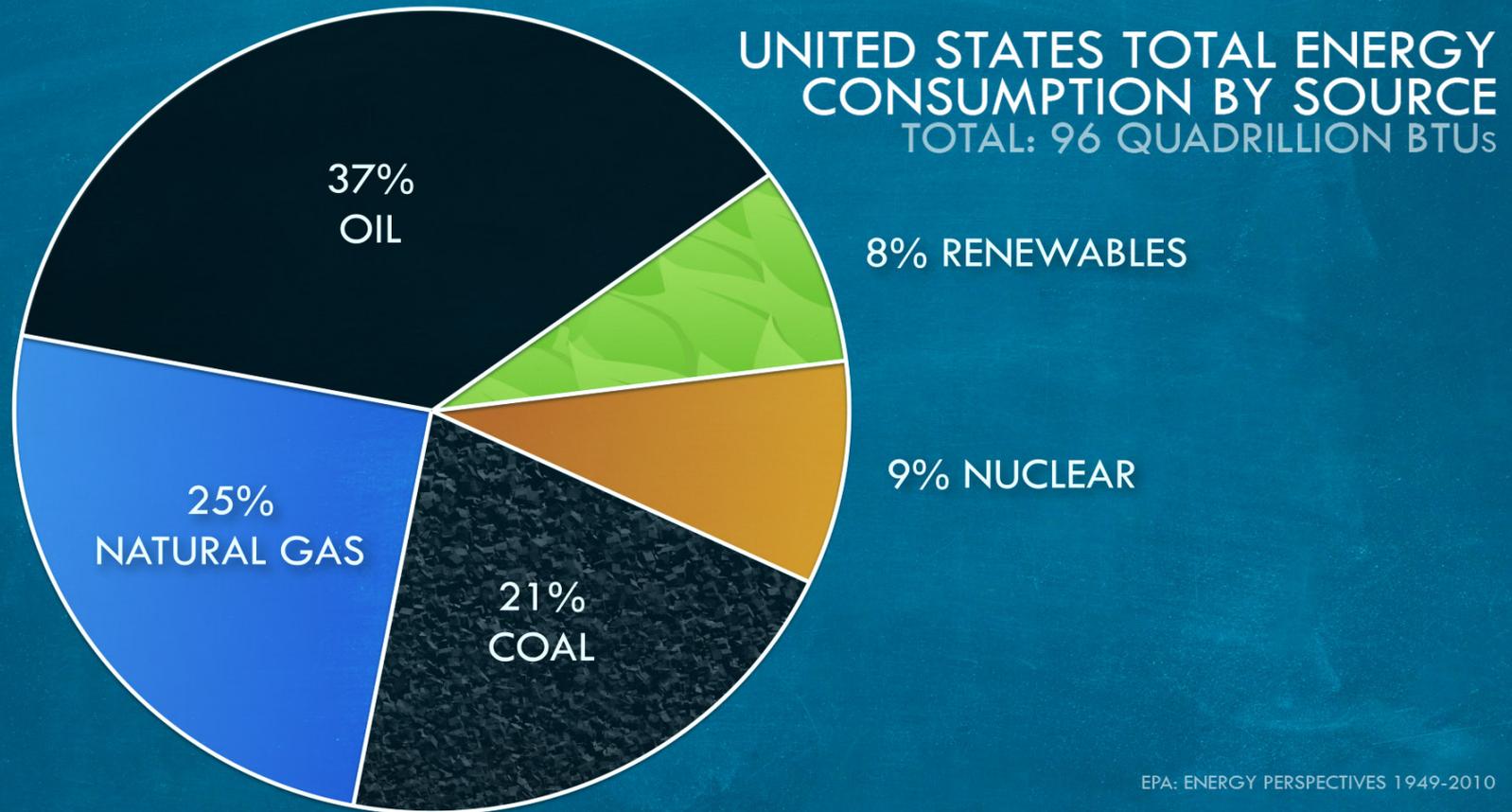
Estimated U.S. Energy Use in 2010: ~98.0 Quads



Source: LLNL 2011. Data is based on DOE/EIA-0384(2010), October 2011. If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports flows for hydro, wind, solar and geothermal in BTU-equivalent values by assuming a typical fossil fuel plant "heat rate." (see EIA report for explanation of change to geothermal in 2010). The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 80% for the residential, commercial and industrial sectors, and as 25% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

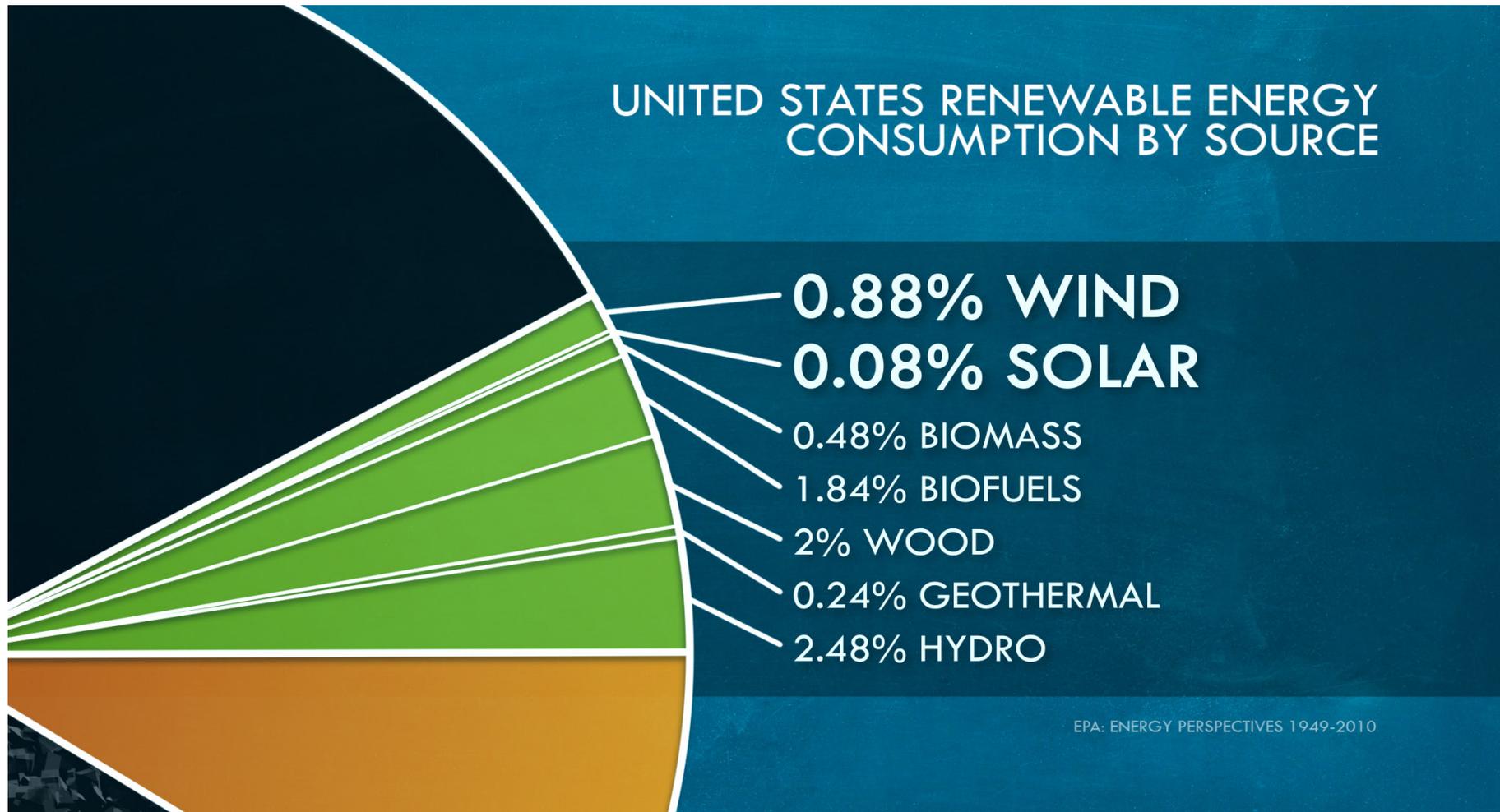
# U.S. Energy Consumption by Source

7



# U.S. Energy Consumption by Source

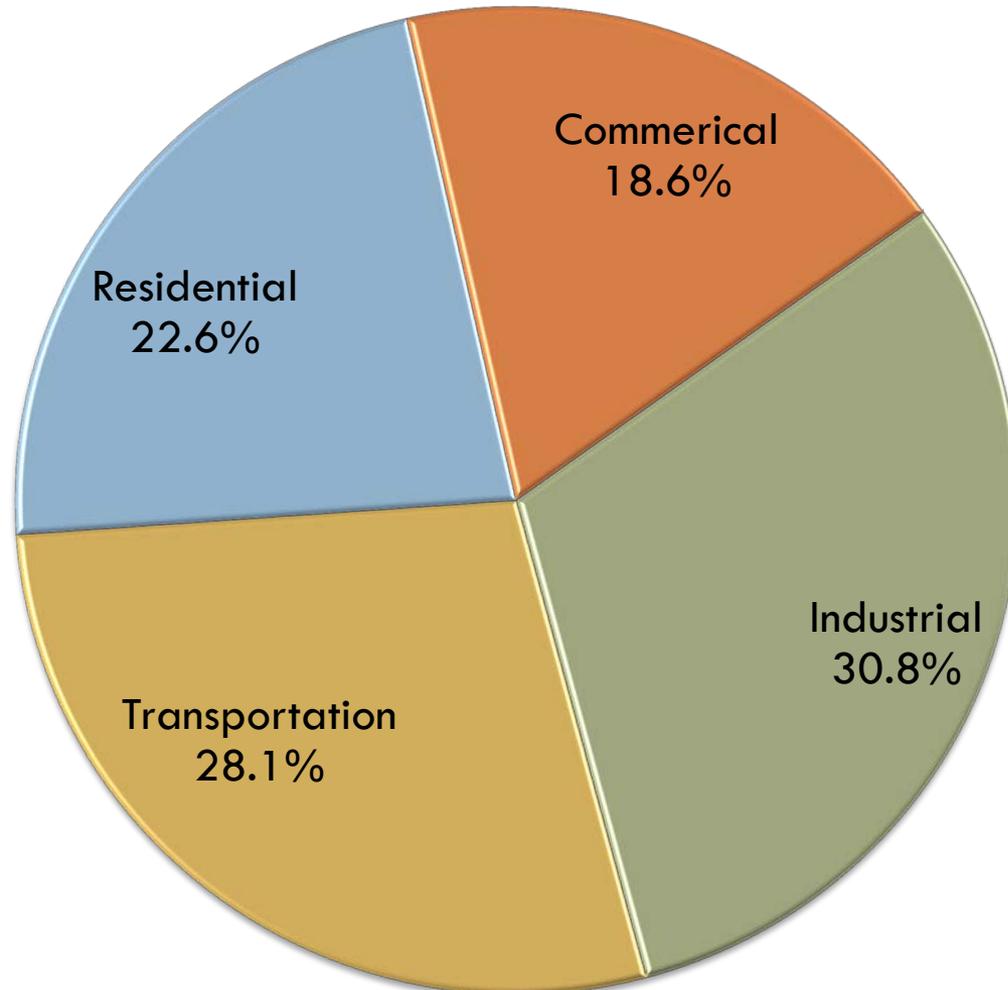
8



# U.S. Energy Consumption by Sector, 2010

## % Generated from Primary Energy

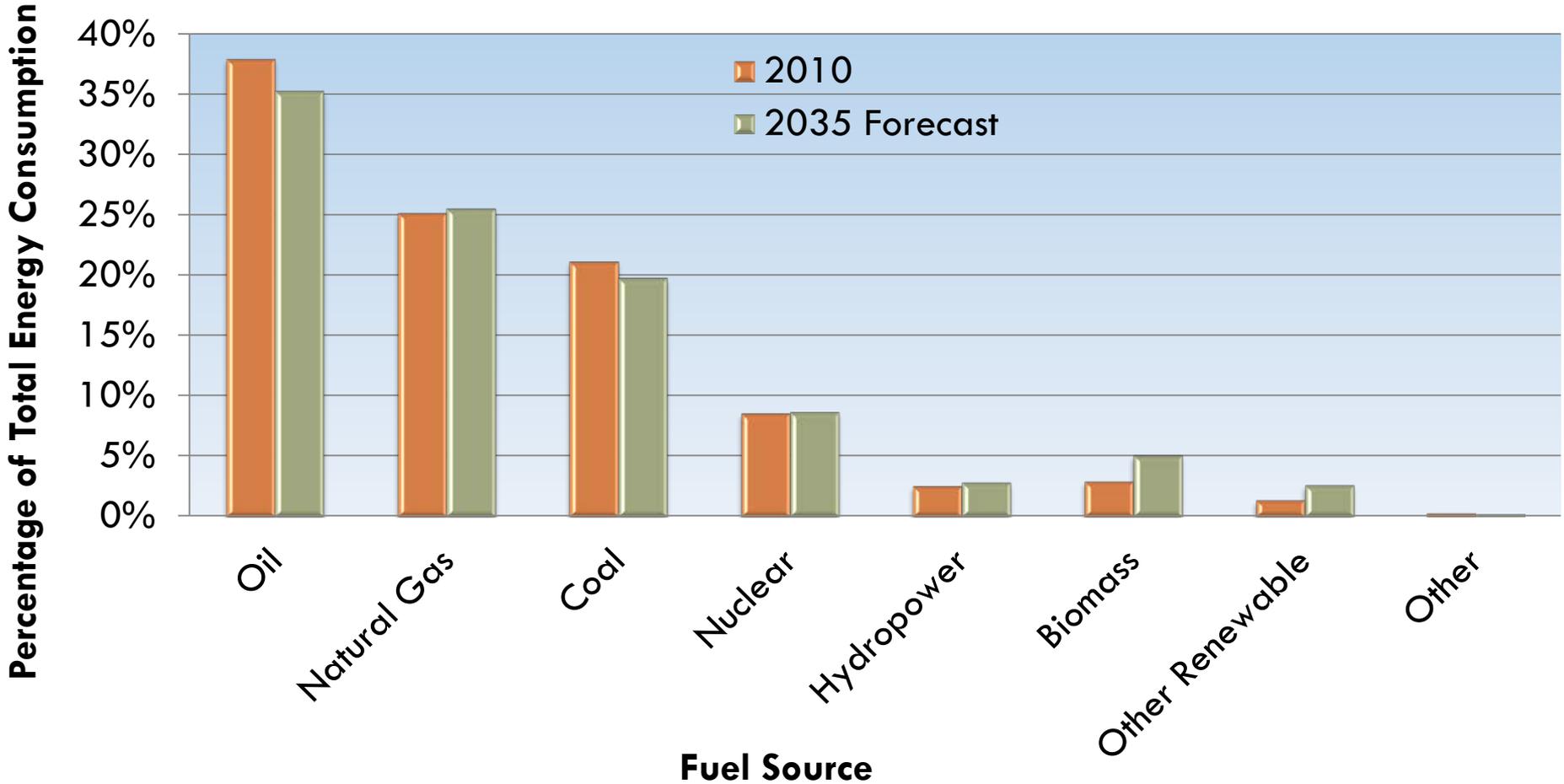
Residential-----	30.9%
Commercial-----	22.9%
Industrial-----	66.3%
Transportation----	99.7%



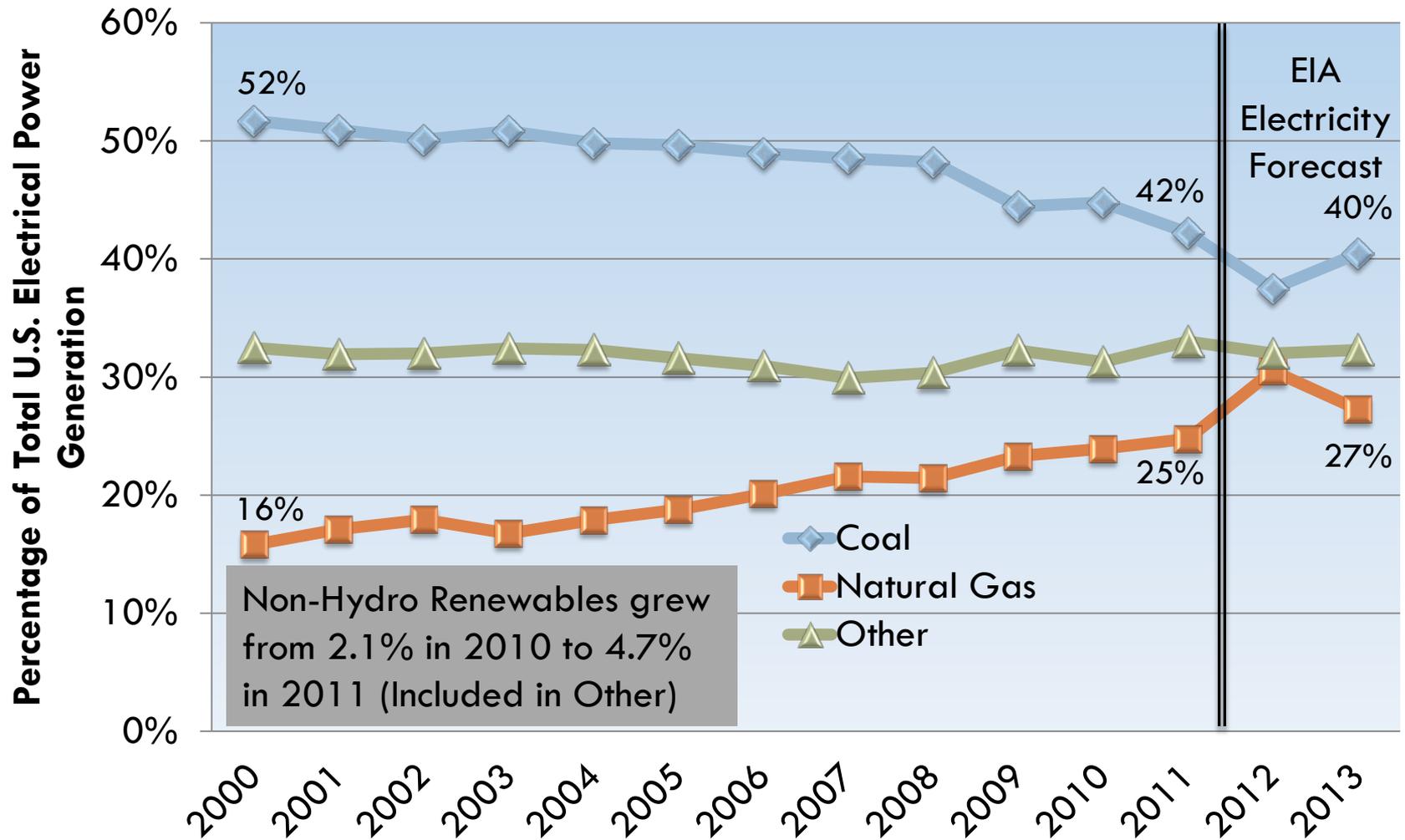
Source: Energy Information Administration, HRPDC

# Projected Energy Sources

### U.S. Total Energy Consumption by Source (EIA Reference Case)



# Electricity Generation- Share of Total Electricity Produced

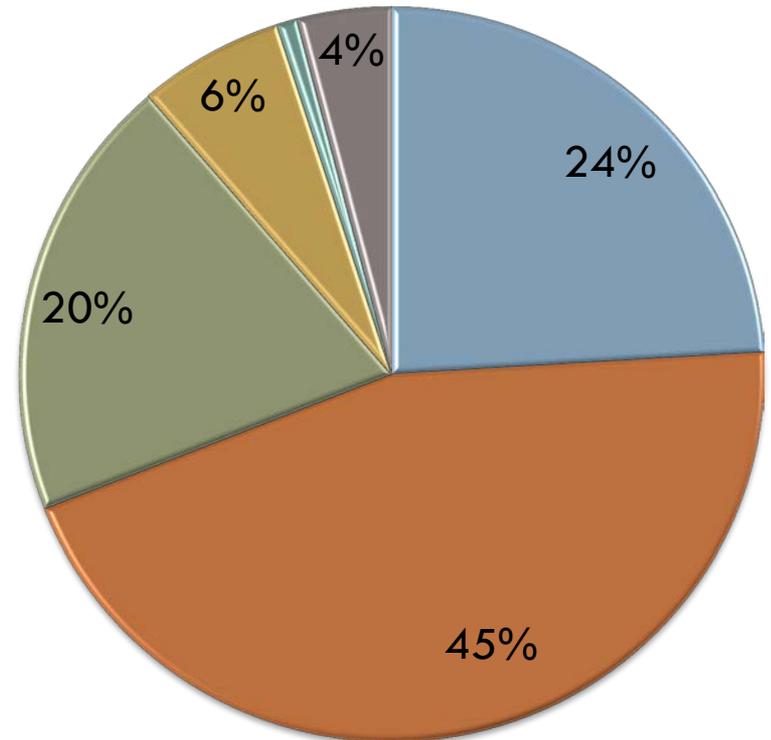
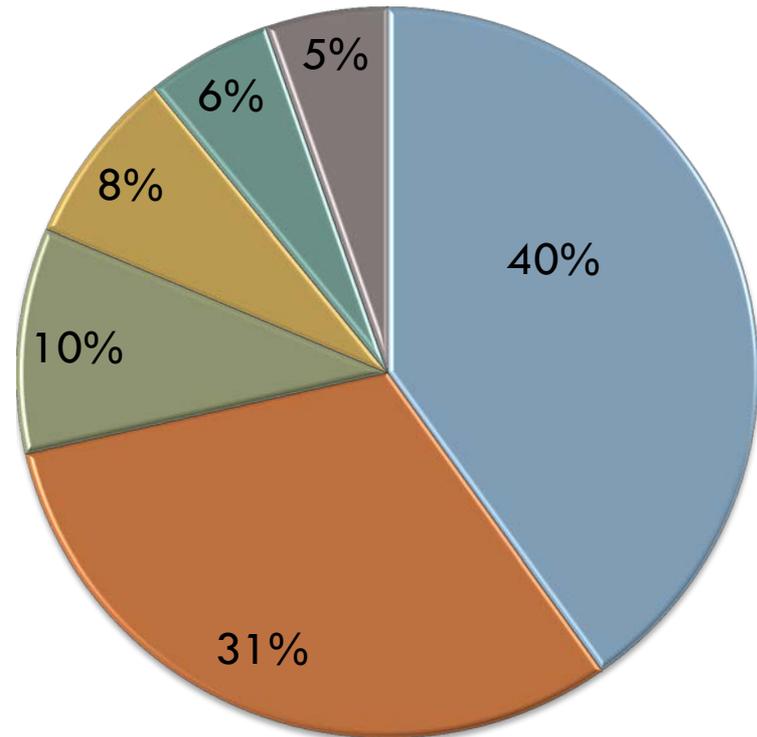


# Electricity Generation- Share of Capacity and Total Power Generation by Source

### Share of U.S. Total Electric Generation Capacity

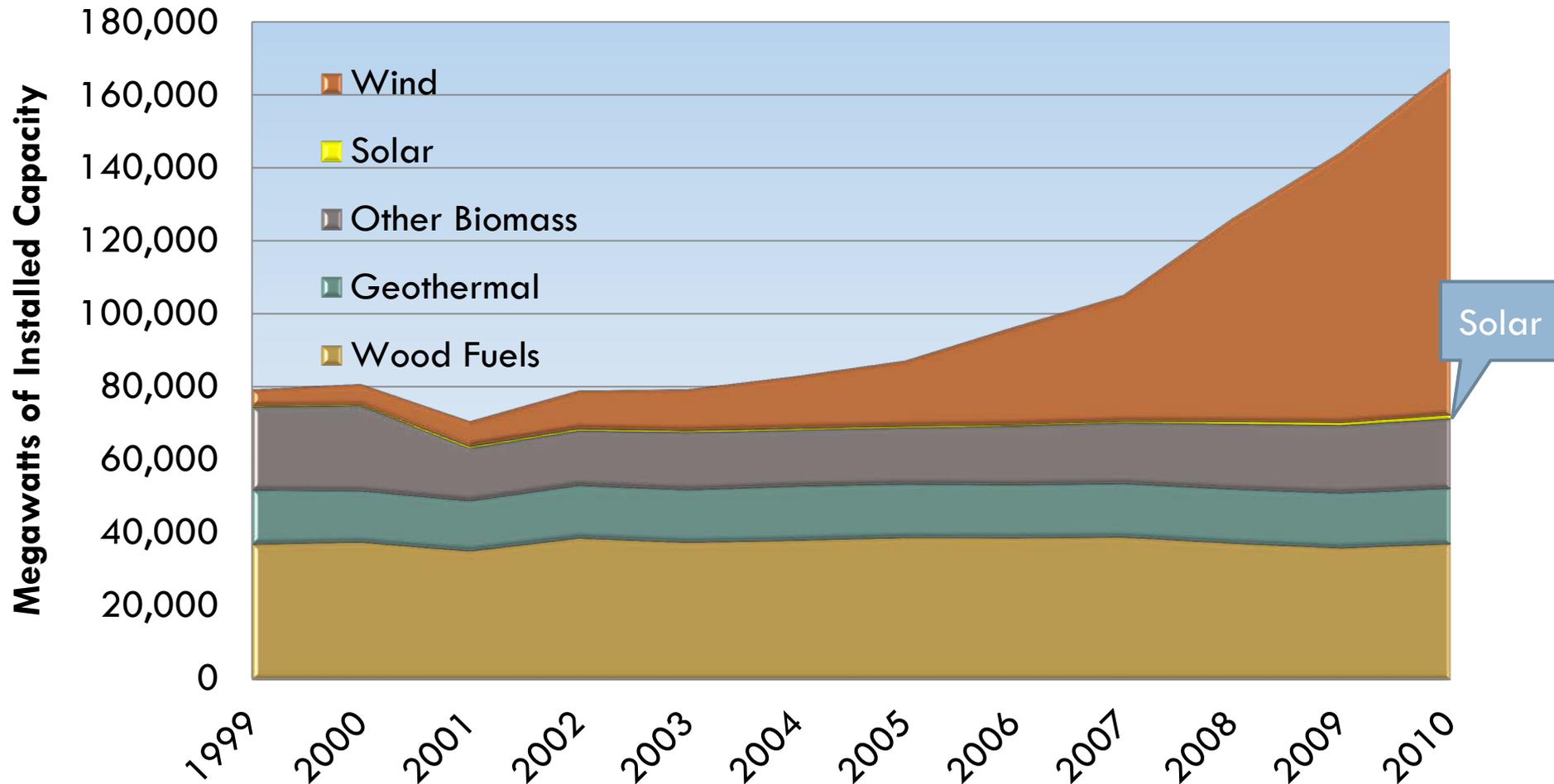
### Share of Actual U.S. Total Electric Generation in 2010

- Natural Gas
- Coal
- Nuclear
- Hydro
- Oil
- Other Renewables



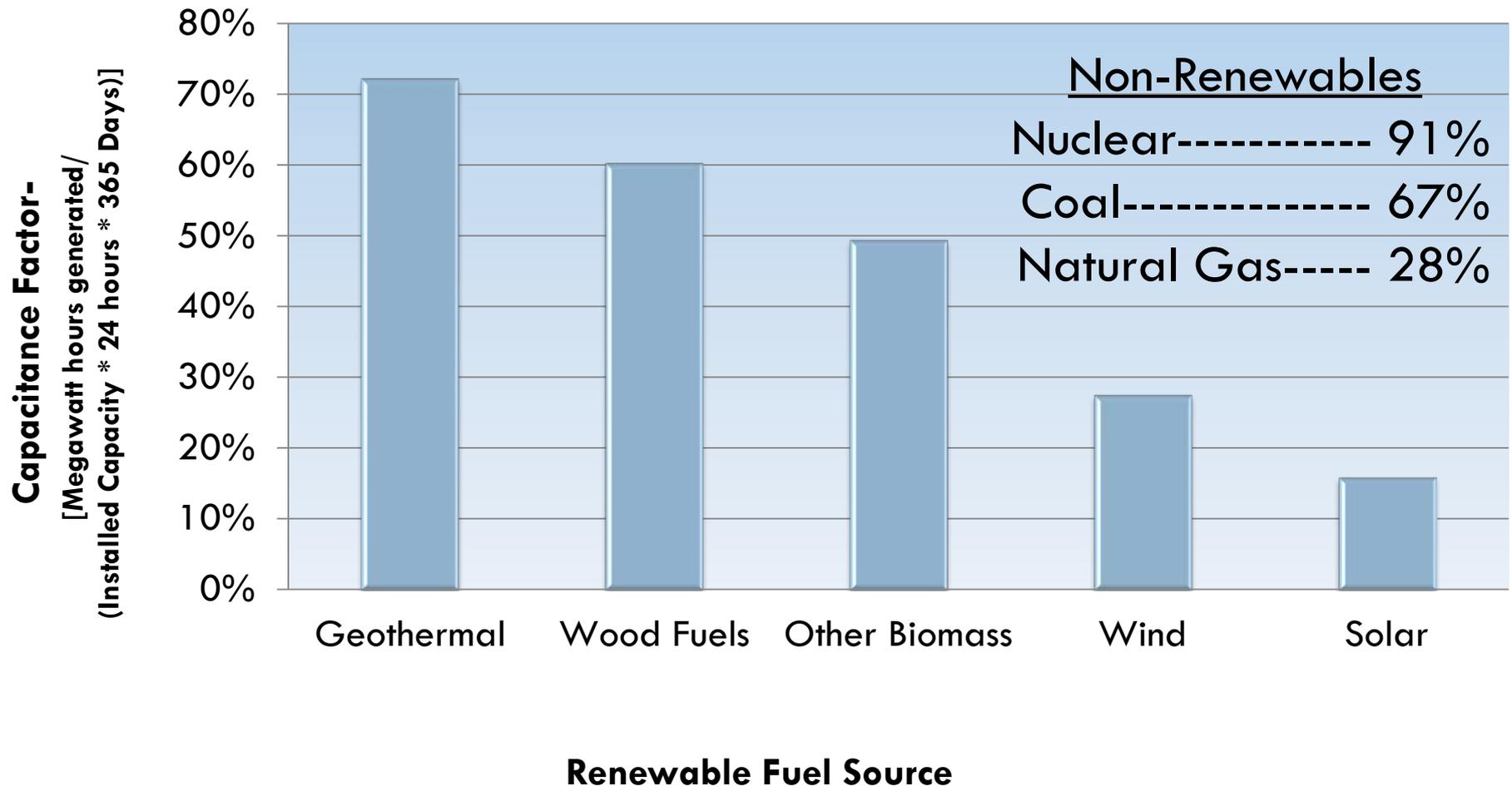
# Total Capacity Growth of Renewable Technologies

13



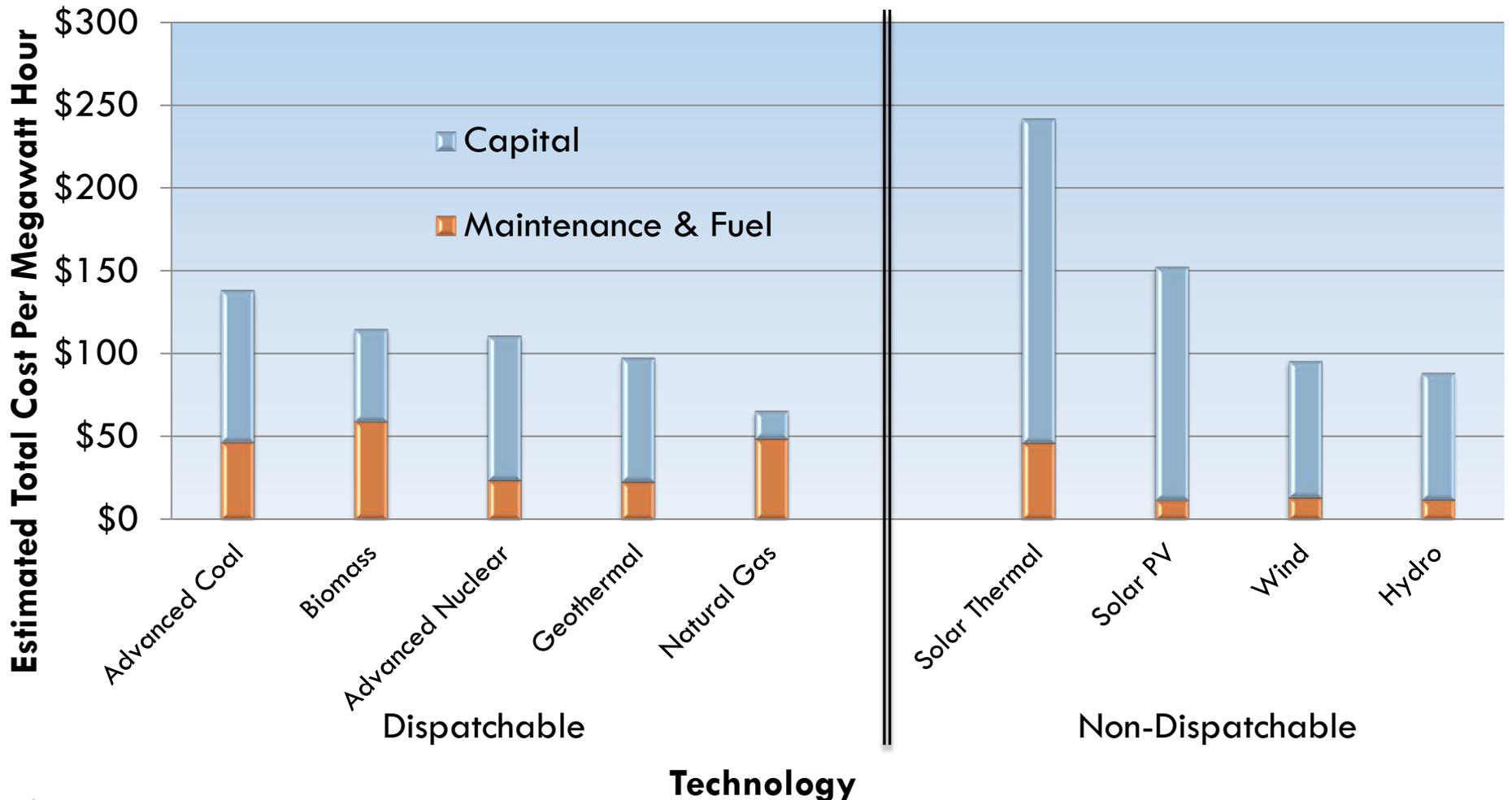
# Renewable Electricity Technologies- Energy Generated vs Total Capacity

14



# Estimated Total Cost of New Generation Capacity in 2017

15



# Next Step- Part 2 & Report

16

- Review the energy assets currently in the region, and their near term outlook
- Discuss potential development of new regional assets
- Examine reasonable expectations for the interaction between energy developments and the regional economy
- Policy recommendations

# What are BTUs- British Thermal Units

17



wooden kitchen match  
1 BTU



making toast  
~100 BTU



average  
daily commute  
161,000 BTU



typical office building annually  
1,400,000,000 BTUs

