

National Conference of State Legislatures

Electricity Demand Outlook

July 22, 2008 • New Orleans

CONFIDENTIAL

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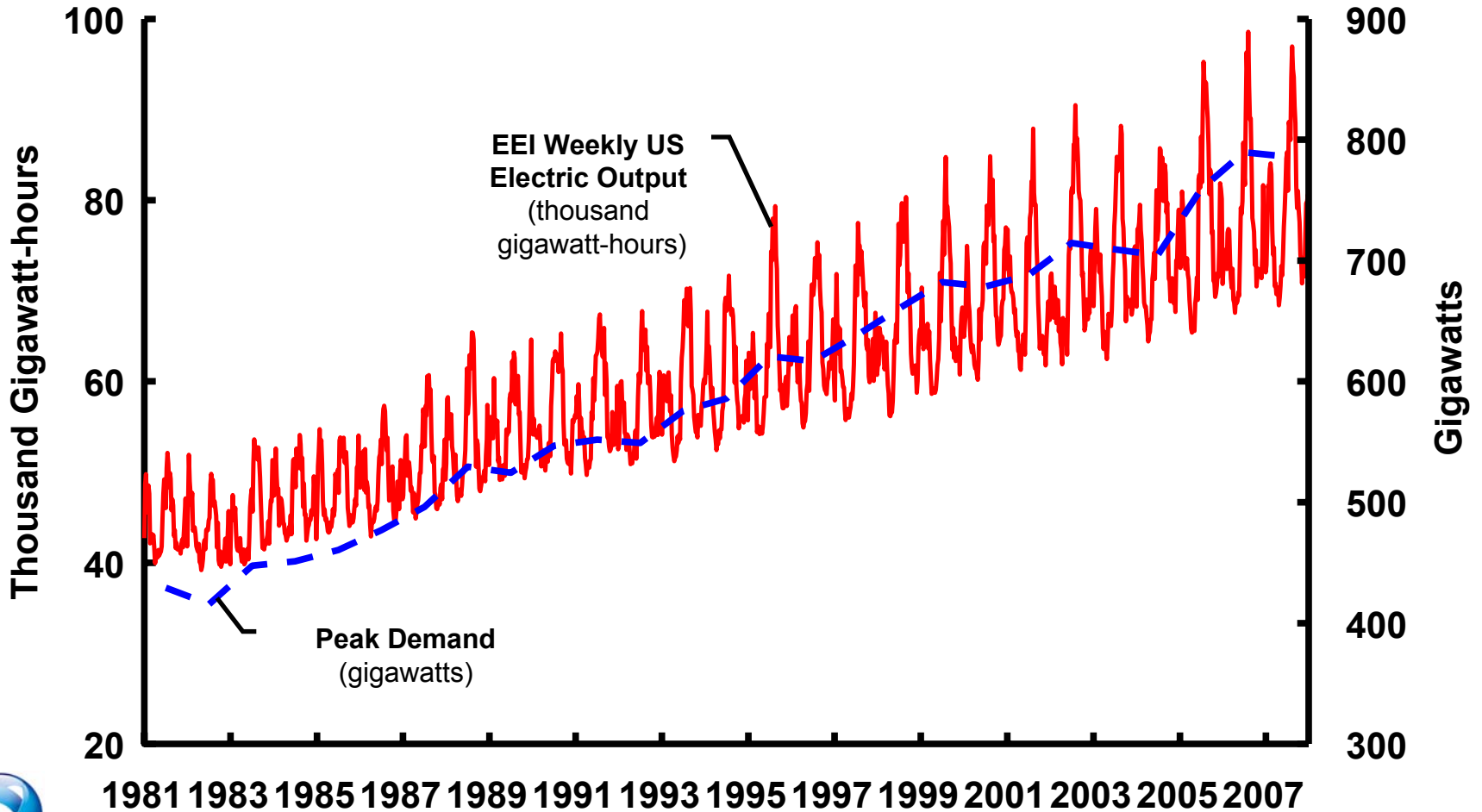
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The Problem: Electricity Demand Outlook

- **Power demand is increasing despite gains in power efficiency.**
- **Power demand is increasing within an environment of escalating costs, increasing prices, and global warming.**
- **The risk of misreading power demand trends is substantial and potentially costly.**

EI Electric Output and Noncoincident Peak Demand, 1981 Through 2007

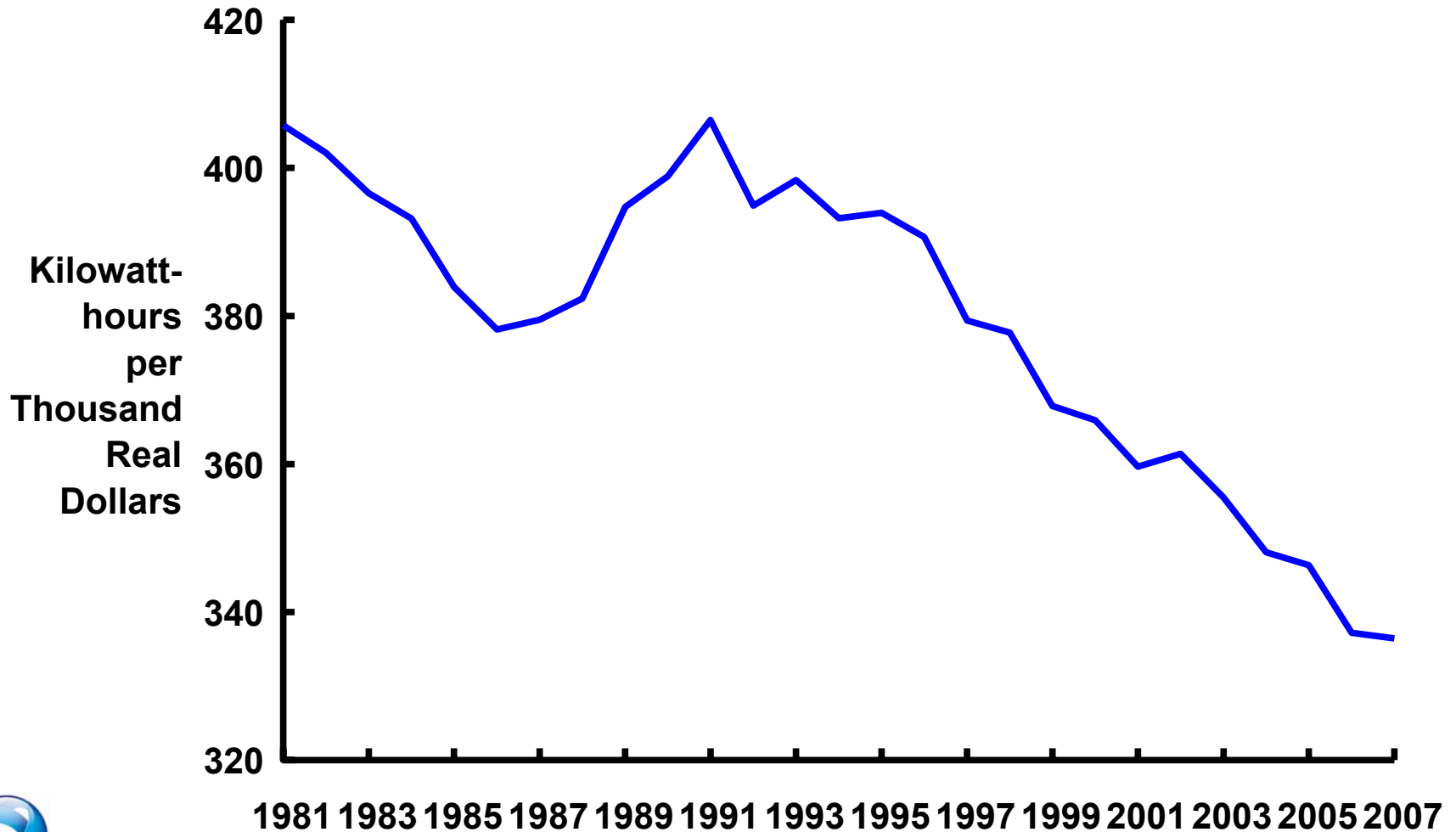


Source: Cambridge Energy Research Associates.
GDP_Elec-Output_July 2008

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US Electric Output per GDP, 1981 through 2007

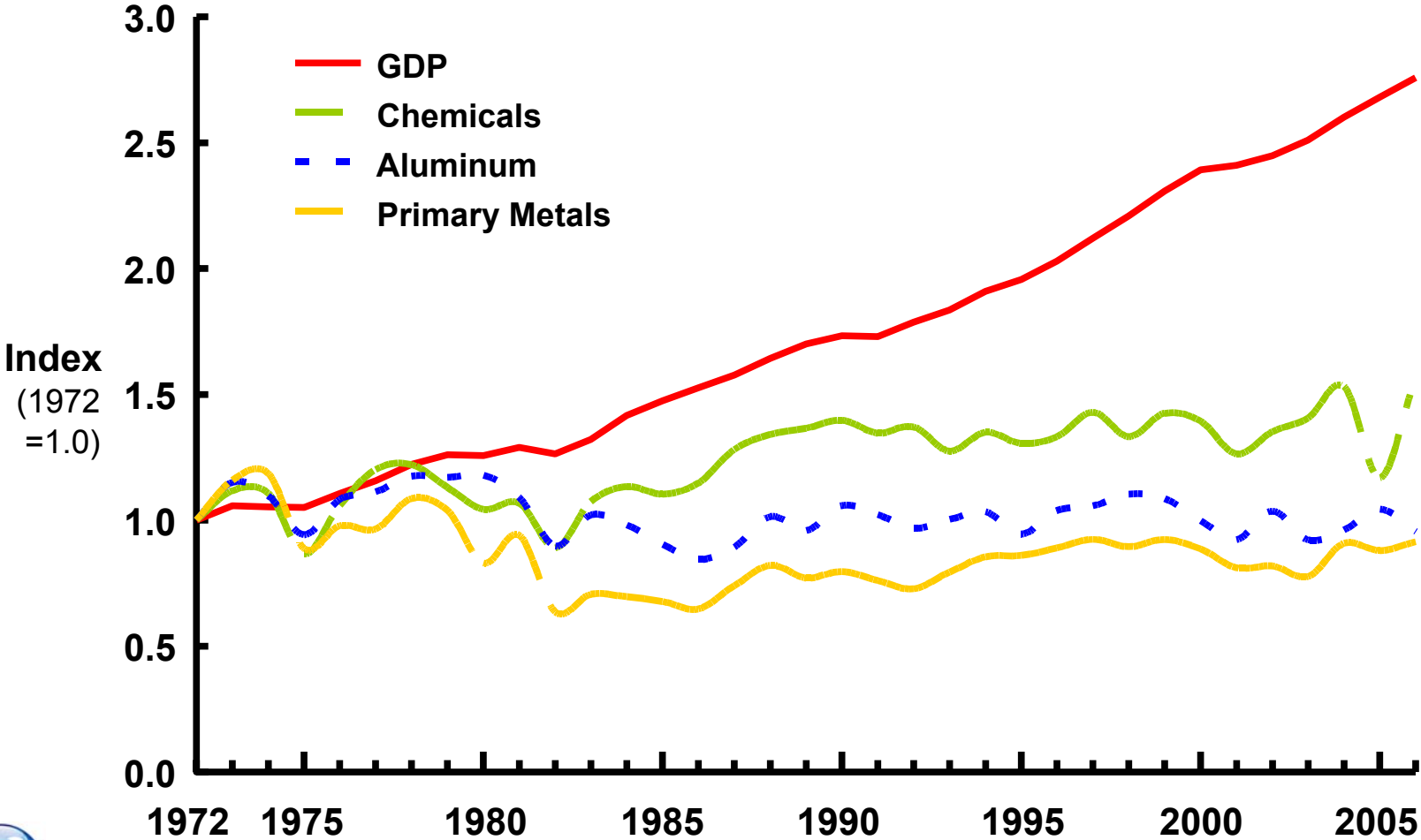


Source: Cambridge Energy Research Associates.
GDP_Elec-Output_July 2008

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US Real GDP and Energy-intensive Industrial Output

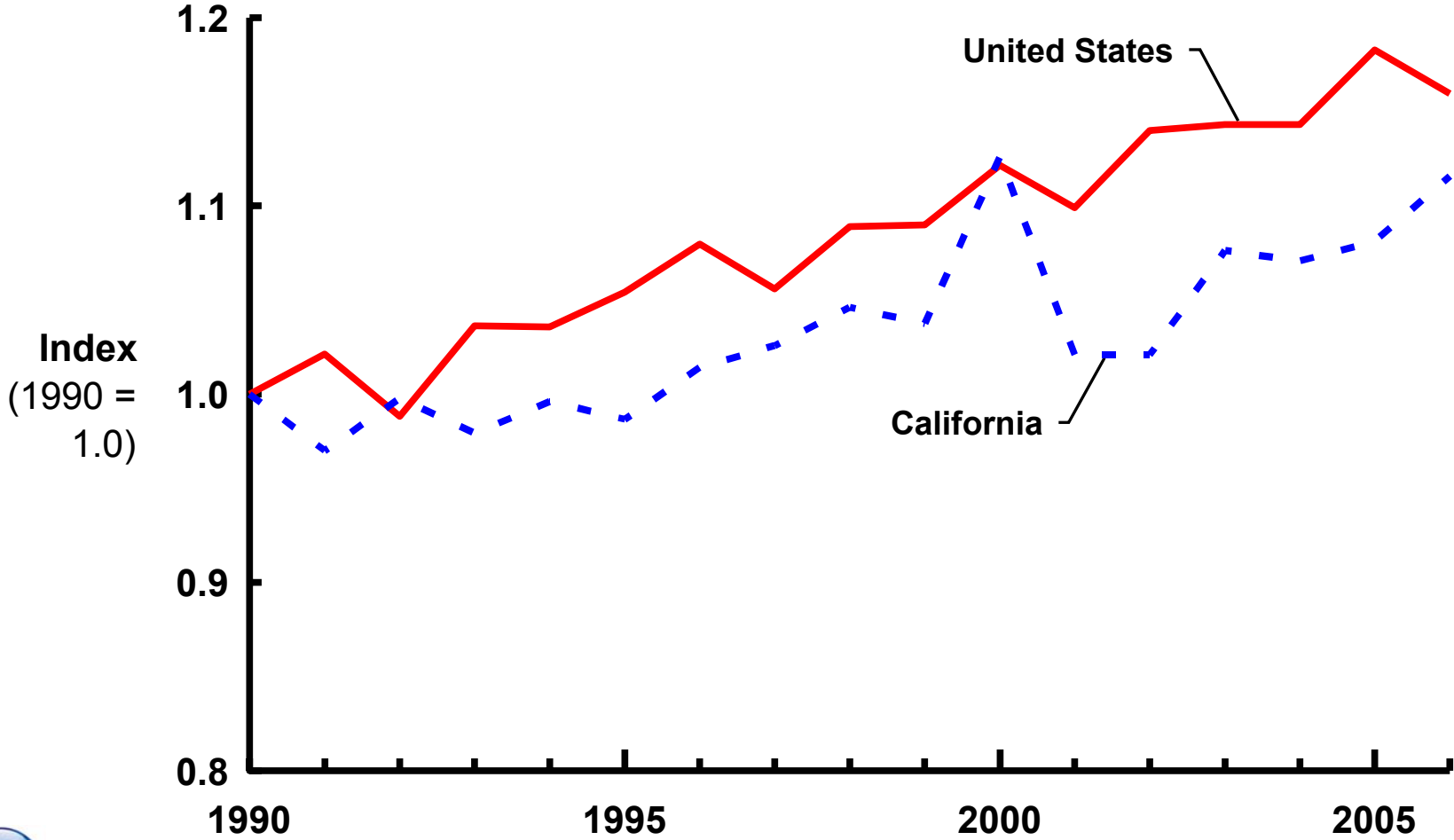


Source: Cambridge Energy Research Associates.
Date source: US Energy Information Administration.
Industrial Intensity

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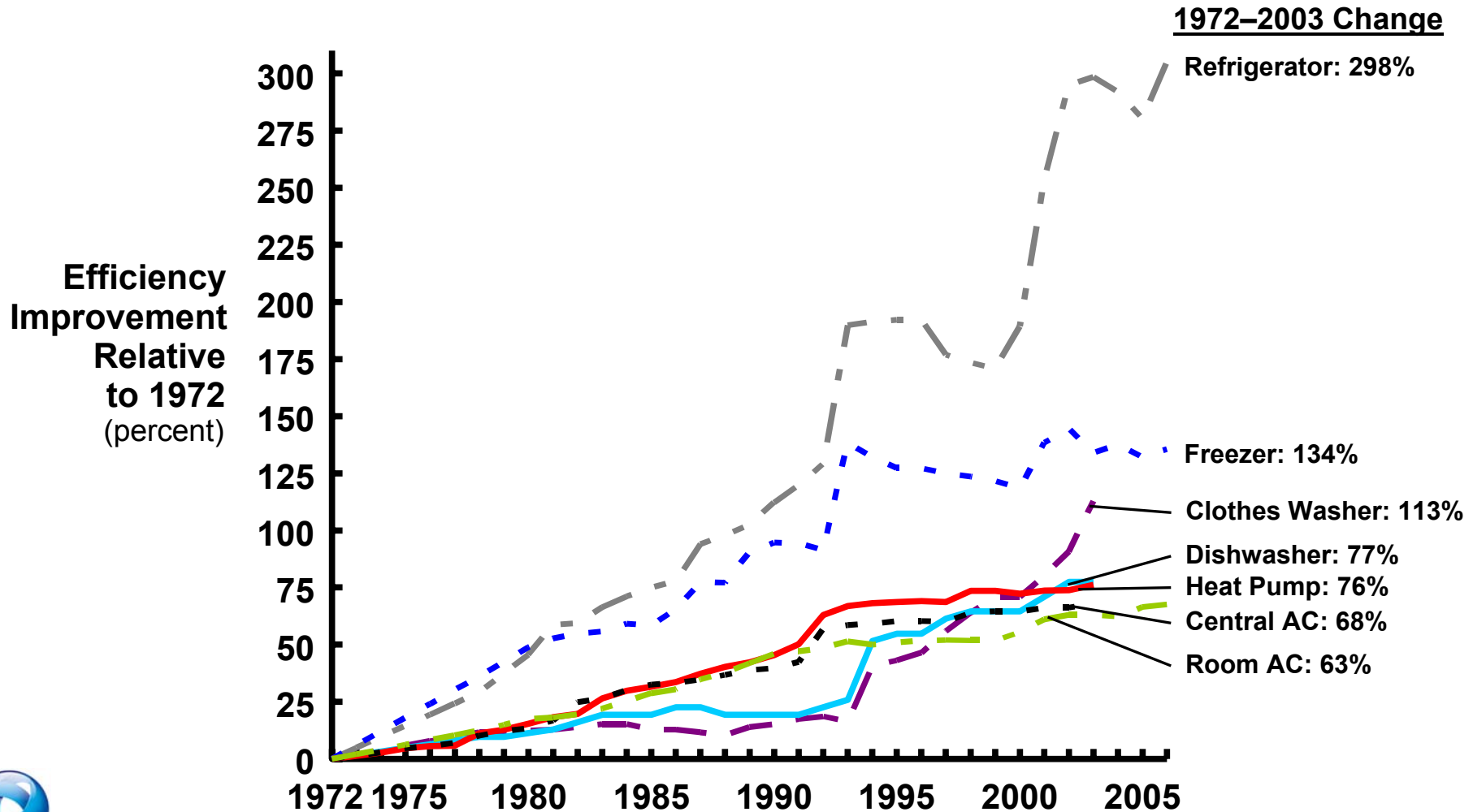
Residential Electricity Use per Household, 1990–2006



Source: Cambridge Energy Research Associates.
Date source: US Energy Information Administration.
Residential Electricity Use_CA-US_July 2008

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Electric Efficiency of New Appliances

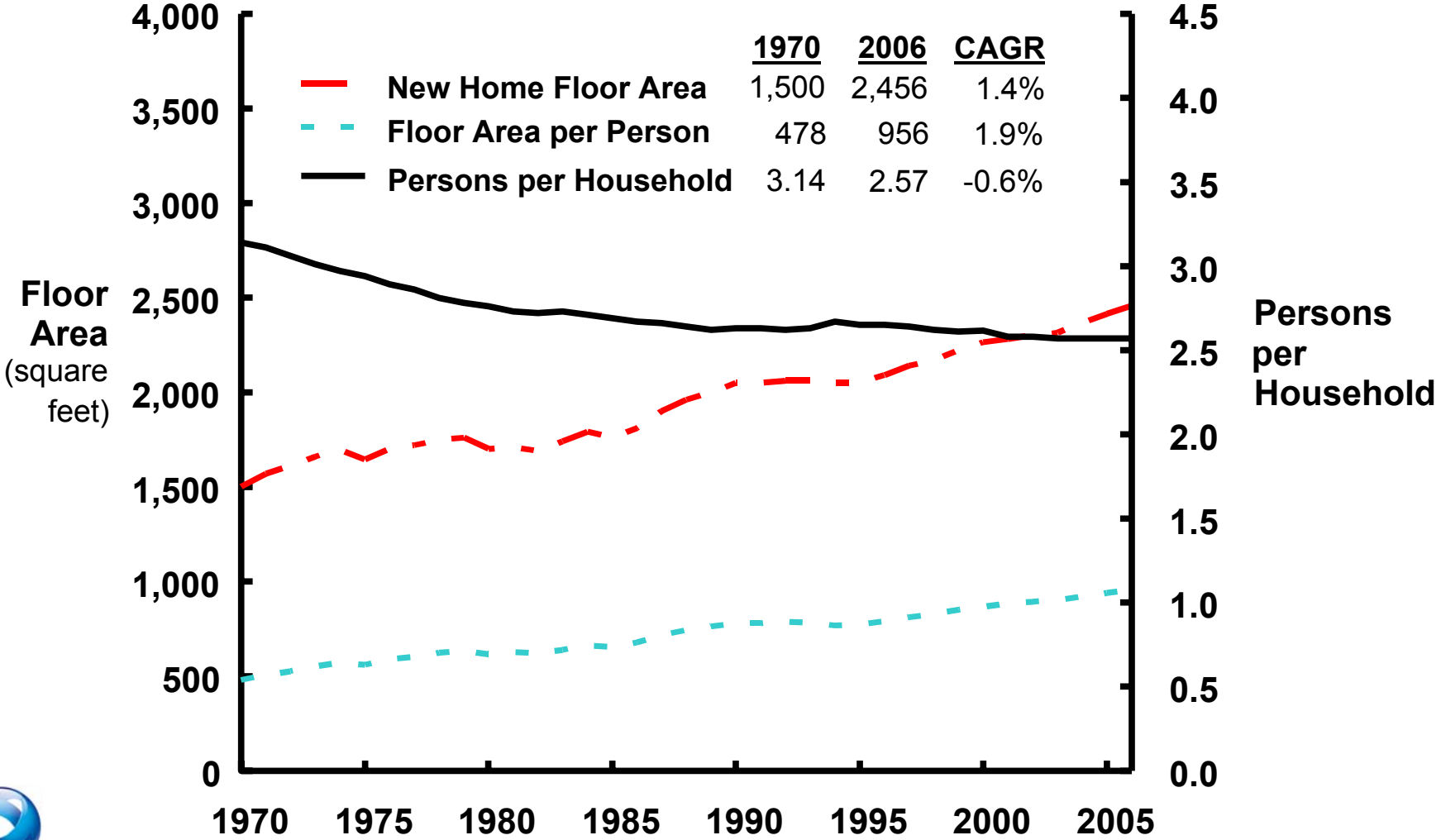


Source: Cambridge Energy Research Associates and Lawrence Berkeley National Laboratory

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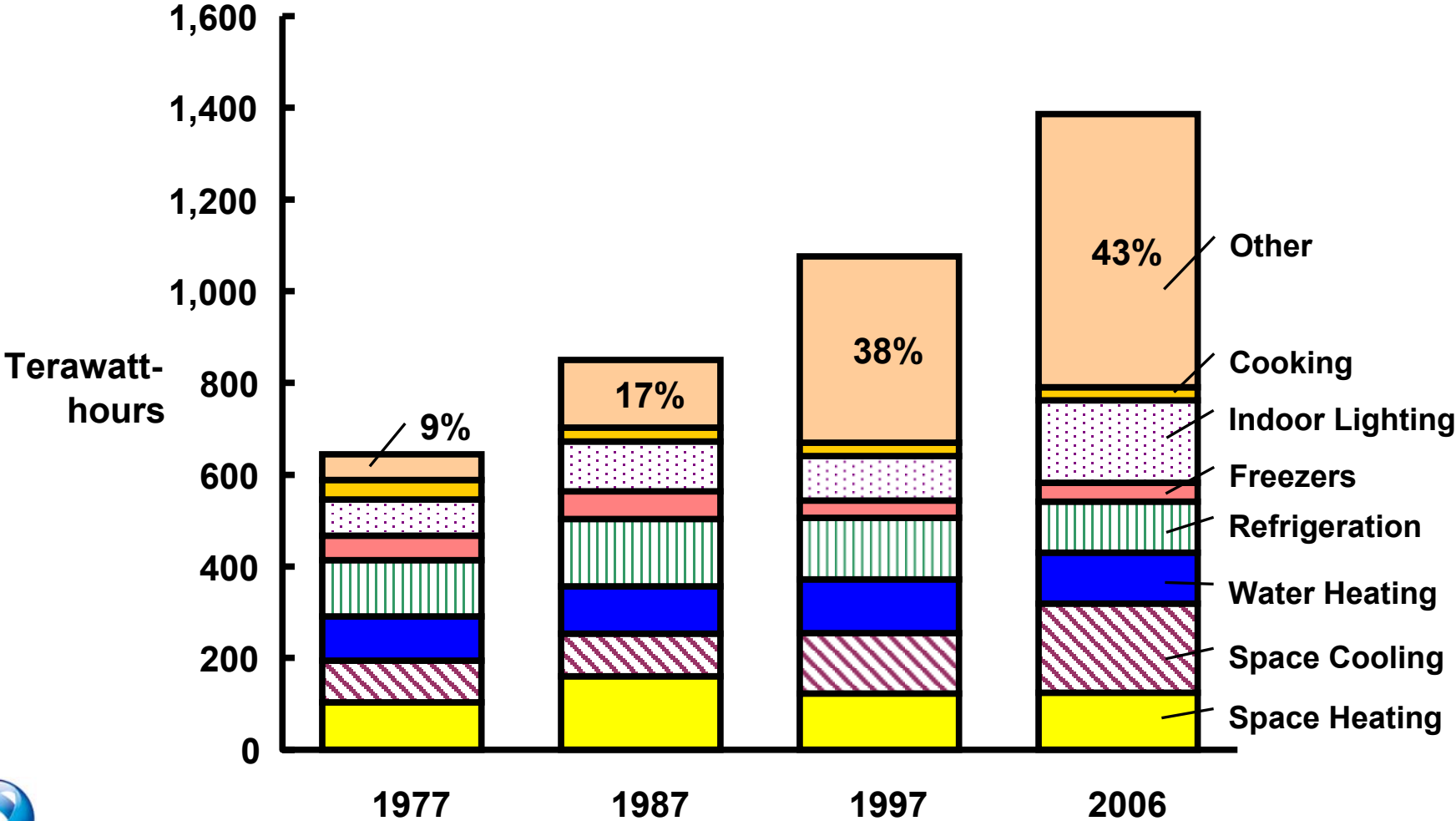
New Home Floor Area, Persons per Household and Floor Area per Person



Source: Cambridge Energy Research Associates and US Census Bureau.

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US Residential Electricity Consumption by End Use

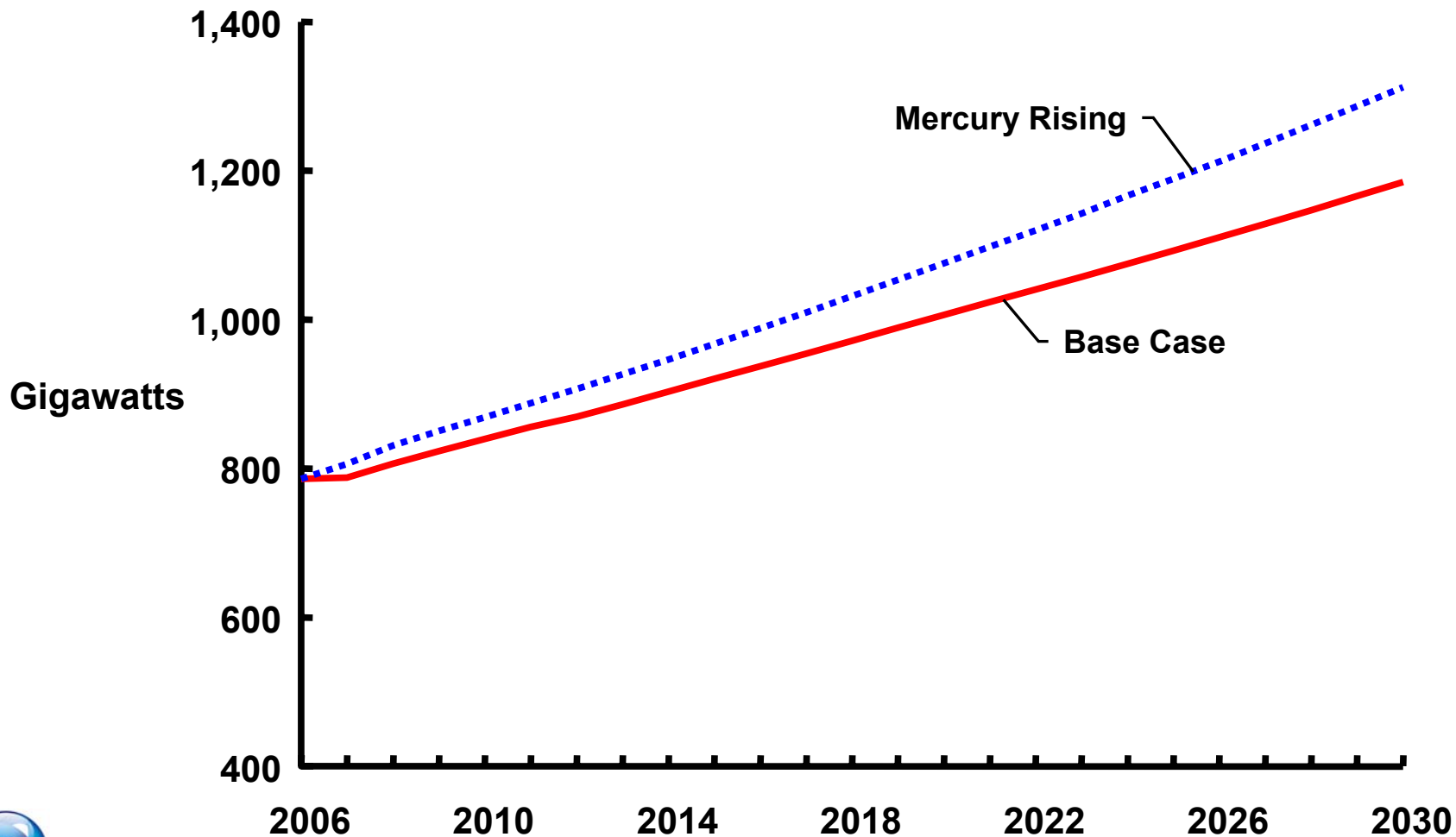


Source: Cambridge Energy Research Associates and US Department of Energy.

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US Peak Load, 2006 to 2030



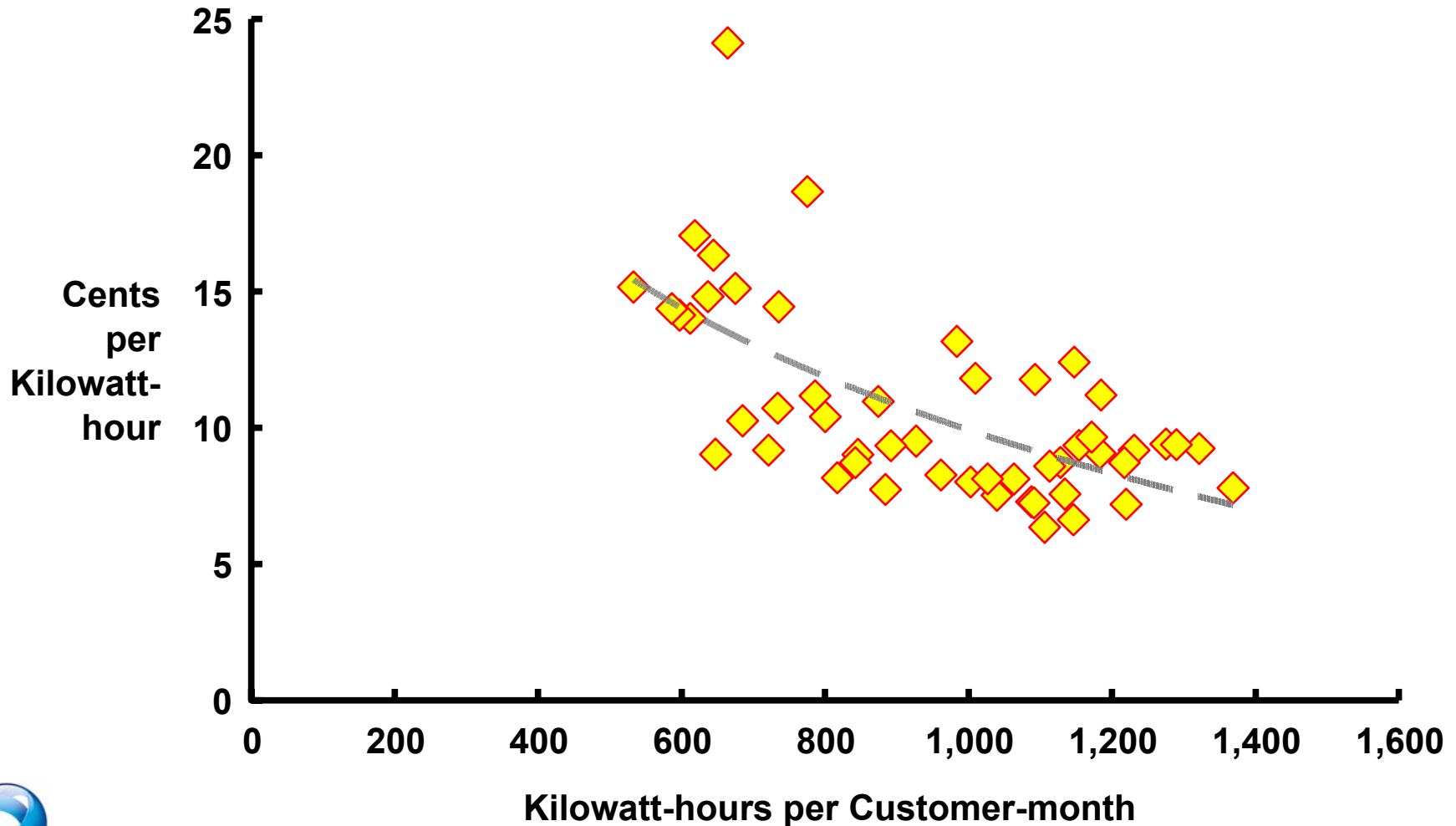
Source: Cambridge Energy Research Associates.

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Residential Price versus Demand for Electricity, 2007

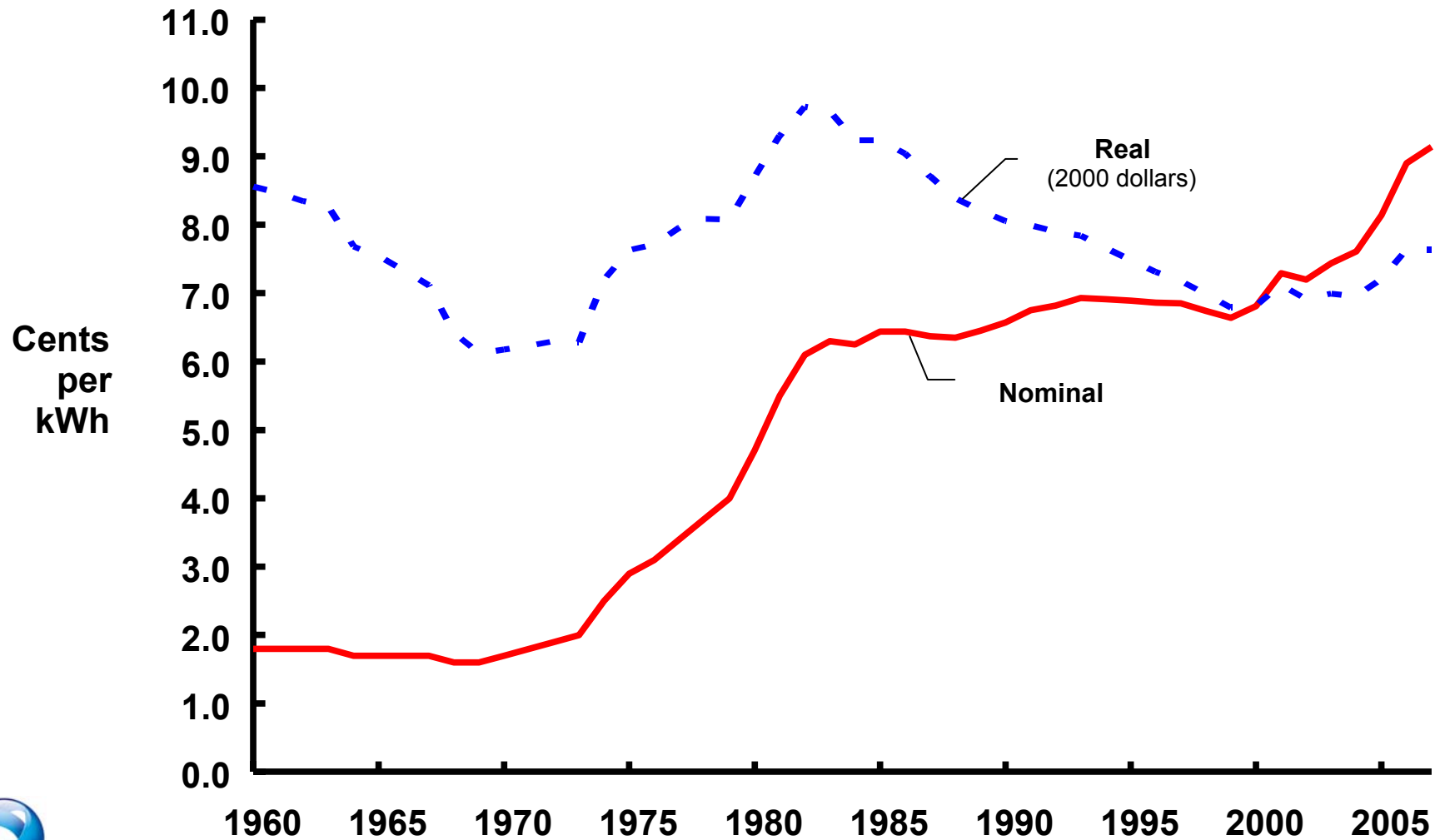


Source: Cambridge Energy Research Associates.
80109-8 / Price_and_Demand_2007

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US Retail Power Price Escalation

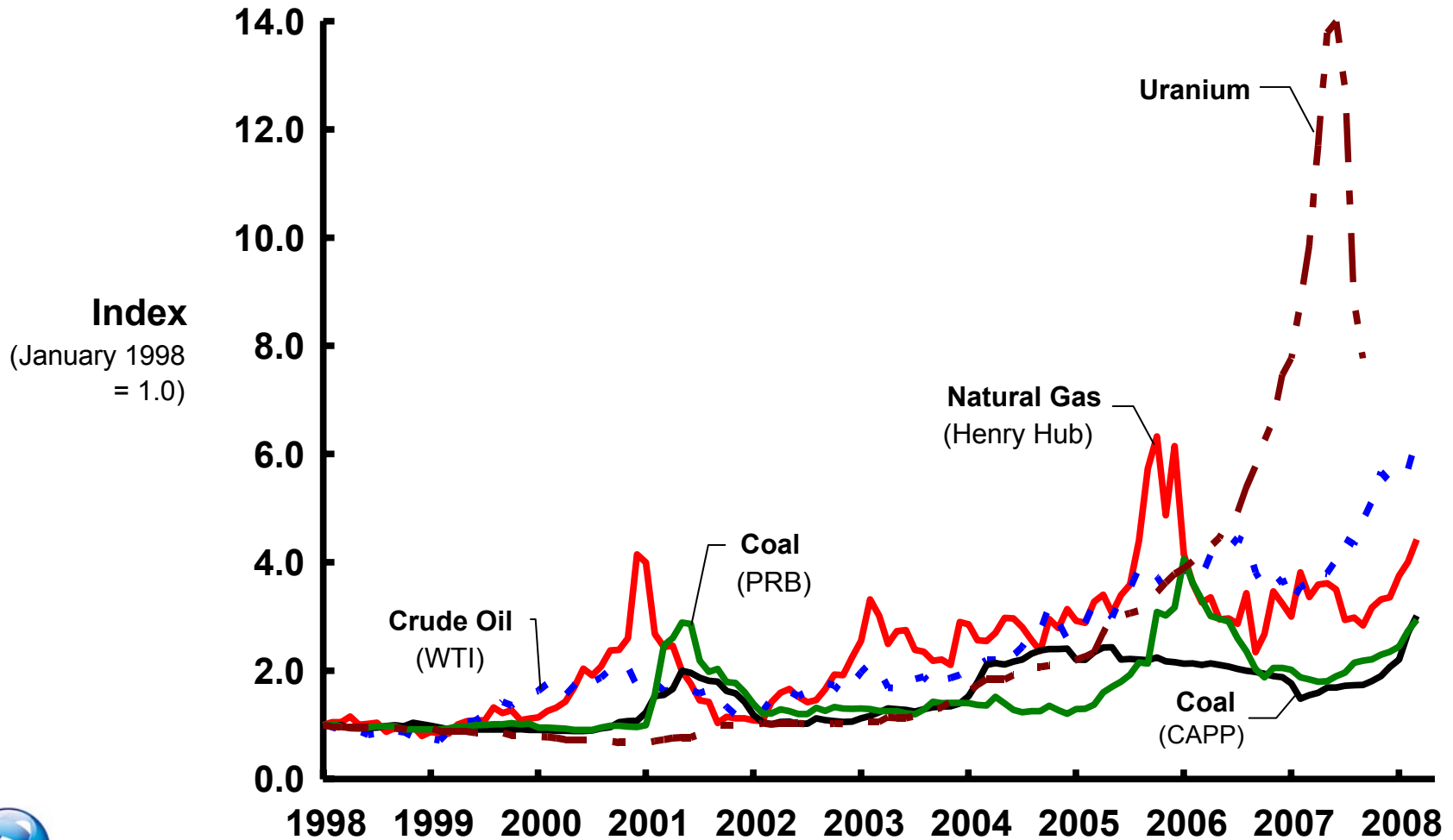


Source: Cambridge Energy Research Associates.
 Data source: US Energy Information Administration.
 U/O 51117-3 / Avg_US_Electricity_Prices_March 2008

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Fuel Prices for US Electric Power Generation



Source: Cambridge Energy Research Associates and TradeTech (www.uranium.info).

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Recent News in Generation Construction Costs

Duke Energy revises costs up \$1B

Costs of two-unit 1,600 MW Cliffside pulverized coal plant in North Carolina increased from \$2B to \$3B

Economist.com

Westar Energy delays siting decision for 600-MW PC plant citing rapidly escalating cost estimates. “When equipment and construction cost estimates grow by \$200 million to \$400 million in 18 months, It’s necessary to proceed with caution.”

THE WALL STREET JOURNAL.

American Electric Power “having trouble getting a reliable bottom line on costs” of IGCC in West Virginia

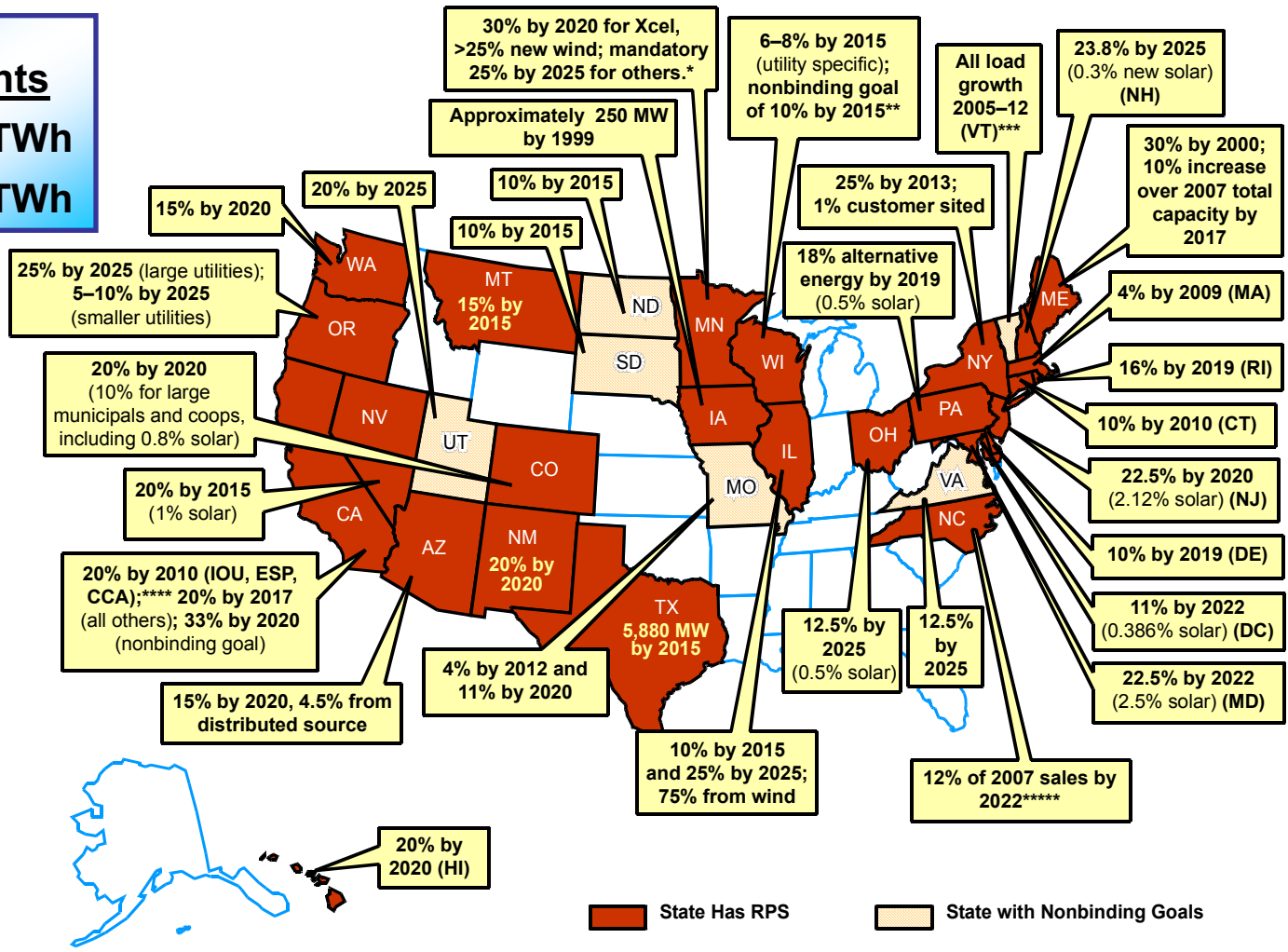
Forbes
com



Renewables Portfolio Standard (RPS) and Purchase Obligations by State

Total Requirements

2007: 86 TWh
2020: 500 TWh



Source: Cambridge Energy Research Associates, Database of State Incentives for Renewable Energy (DSIRE).

*Previous Minnesota RPS was a nonbinding goal except for Xcel Energy.

**Vermont's voluntary standard becomes mandatory in 2013 if it is not met by 2012.

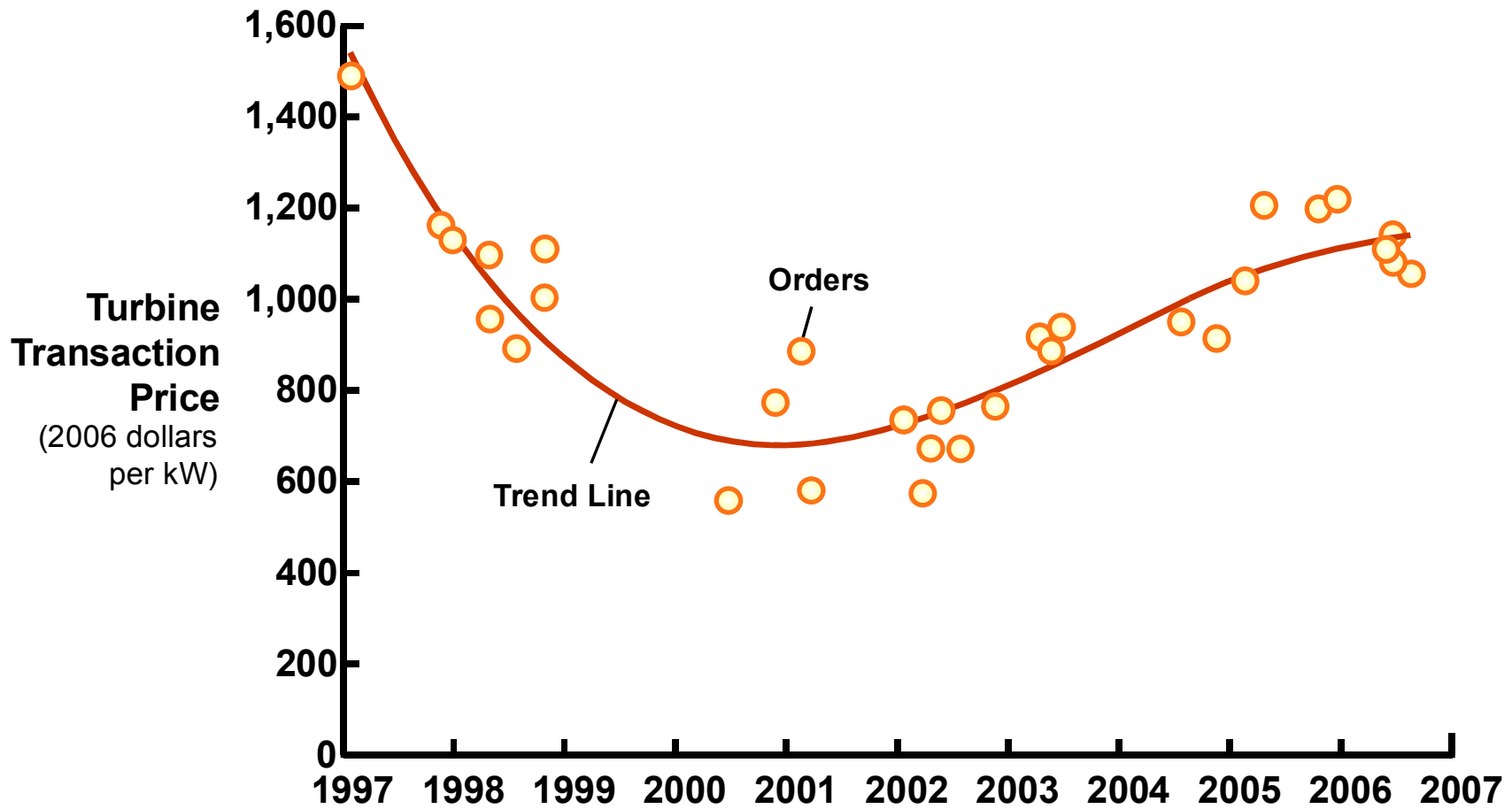
***California: IOU = investor-owned utility; ESP = energy service provider; CCA = community-choice aggregator).

****Wisconsin requires all utilities to increase renewables contributions by 6 percent over the 2001-03 average level by 2015 and has a nonbinding goal of 10 percent by 2015.

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Cost of Wind Through Time

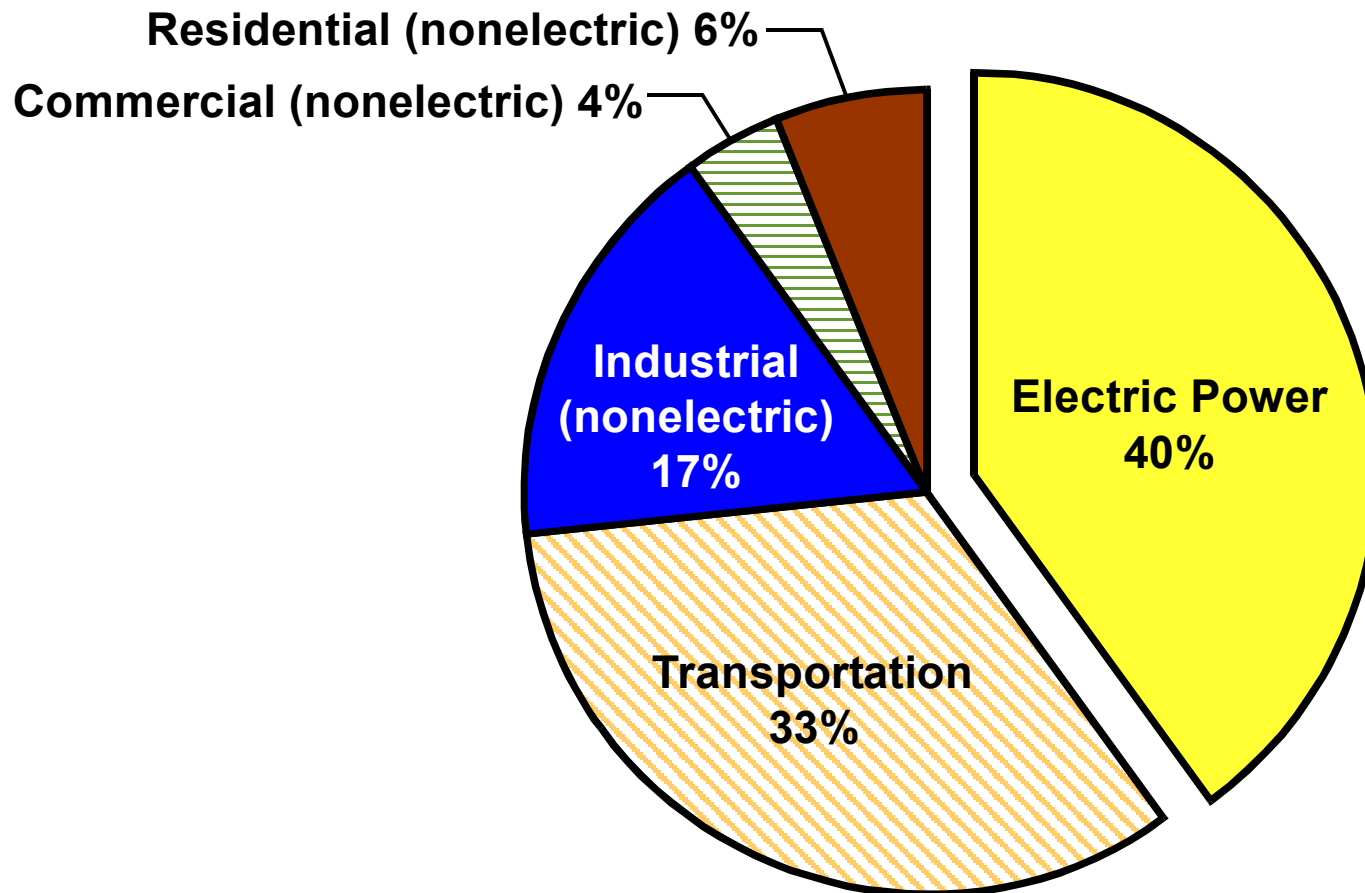


Source: Lawrence Berkeley National Laboratory database, US Department of Energy.
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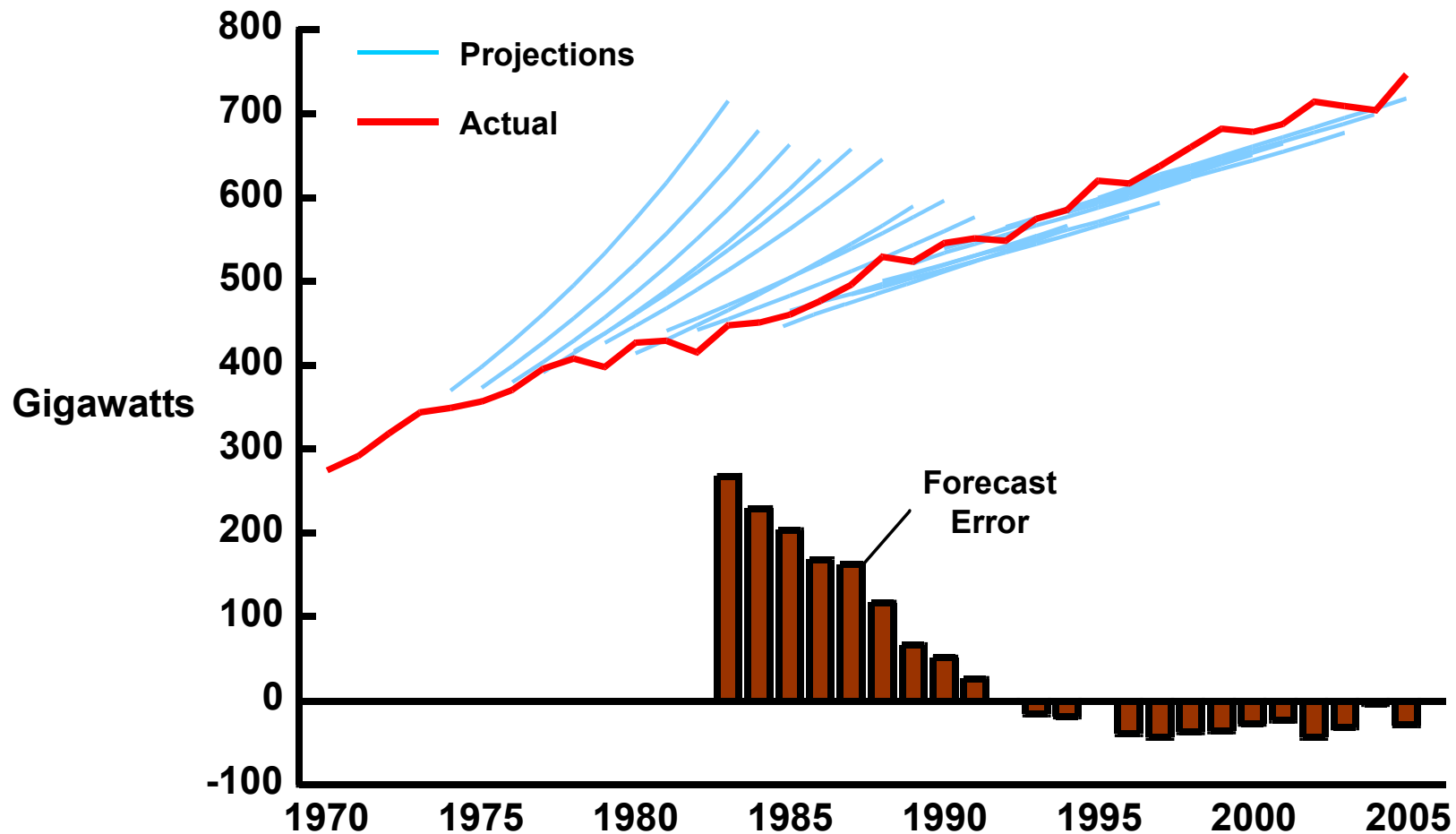
US CO₂ Emissions by Sector, 2007



Source: Cambridge Energy Research Associates. Data source: Energy Information Administration.
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US Power Demand: Projected versus Actual

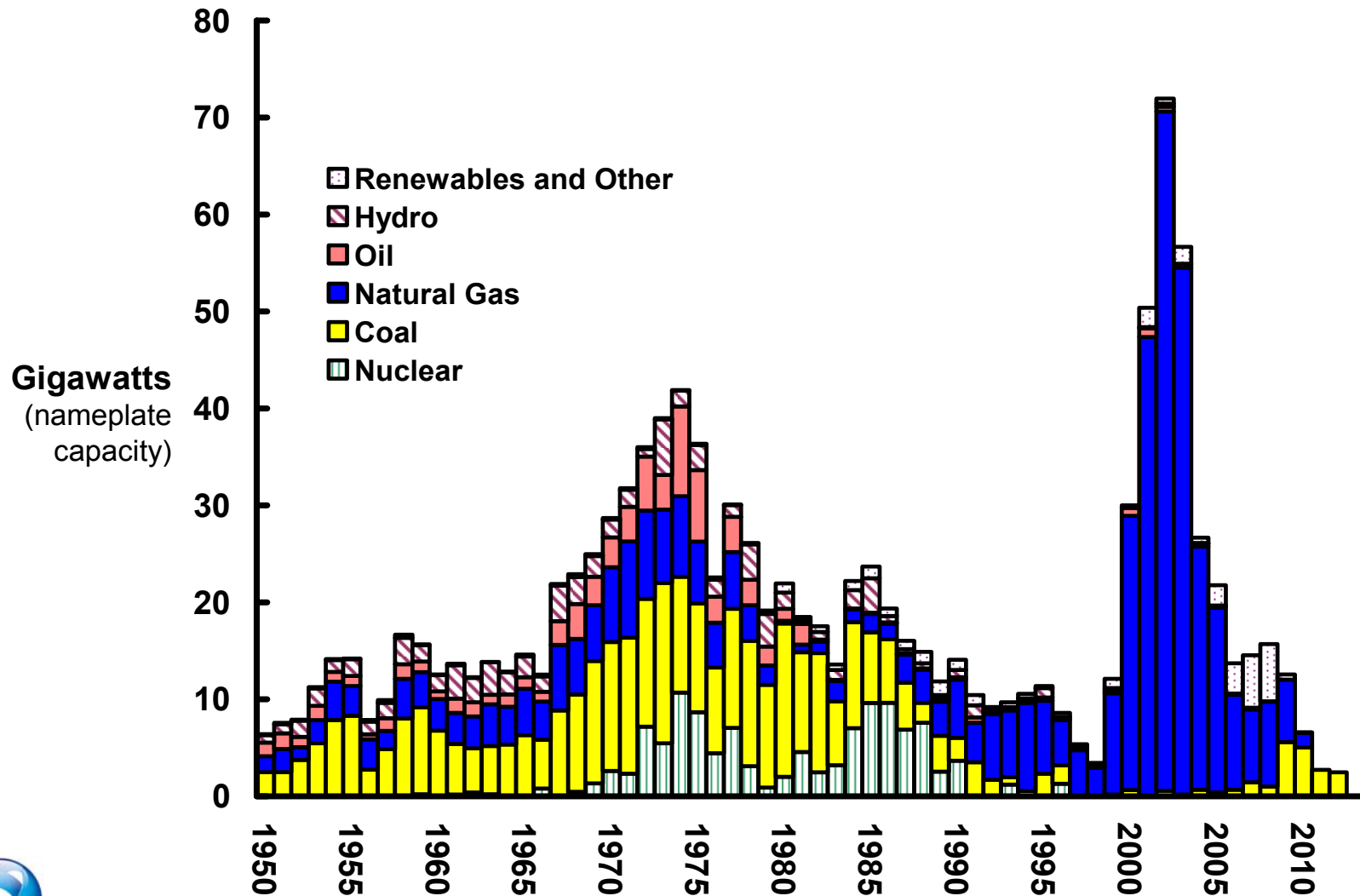


Source: Cambridge Energy Research Associates.
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US Power Generating Capacity Additions, 1950–2013*



Source: Cambridge Energy Research Associates.

*Includes only units completed or currently under construction.

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