



Current Trends: Natural Gas Demand

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Outline

- General North American natural gas market trends from the decade 2000 – 2009.
- The four major consuming sectors.
- The principal factors that account for demand in those four major sectors.
- Focus on electric power sector:
 - Uncertainties in accounting for factors that influenced historical trends.
 - Recent impacts of energy efficiency, renewables, etc.



North American Natural Gas Demand

- Pipeline network integrates U.S., Canada and Mexico natural gas markets.
- 2000 – 2009 total decade's natural gas consumption (Bcf / % North American total demand):
 - United States: 226,144 / 82%
 - Canada: 32,158 / 12%
 - Mexico: 17,761 / 6.4%
 - California: 22,874 / 8.3%
- Natural gas is one of the three principal fuels used in each of the four major demand sectors.



Four Major North American Demand Sectors and Factors

- **Residential (R) sector factors:** weather, population, natural gas price, income, and heating oil price.
- **Commercial (C) sector factors:** weather, population, income, natural gas price, and heating oil price.
- **Industrial (I) sector factors:** industrial production, weather, and natural gas price.
- **Electric power (EP) sector factors:** total electricity generation, weather, natural gas price, fuel oil price, renewable electricity generation, and coal price.



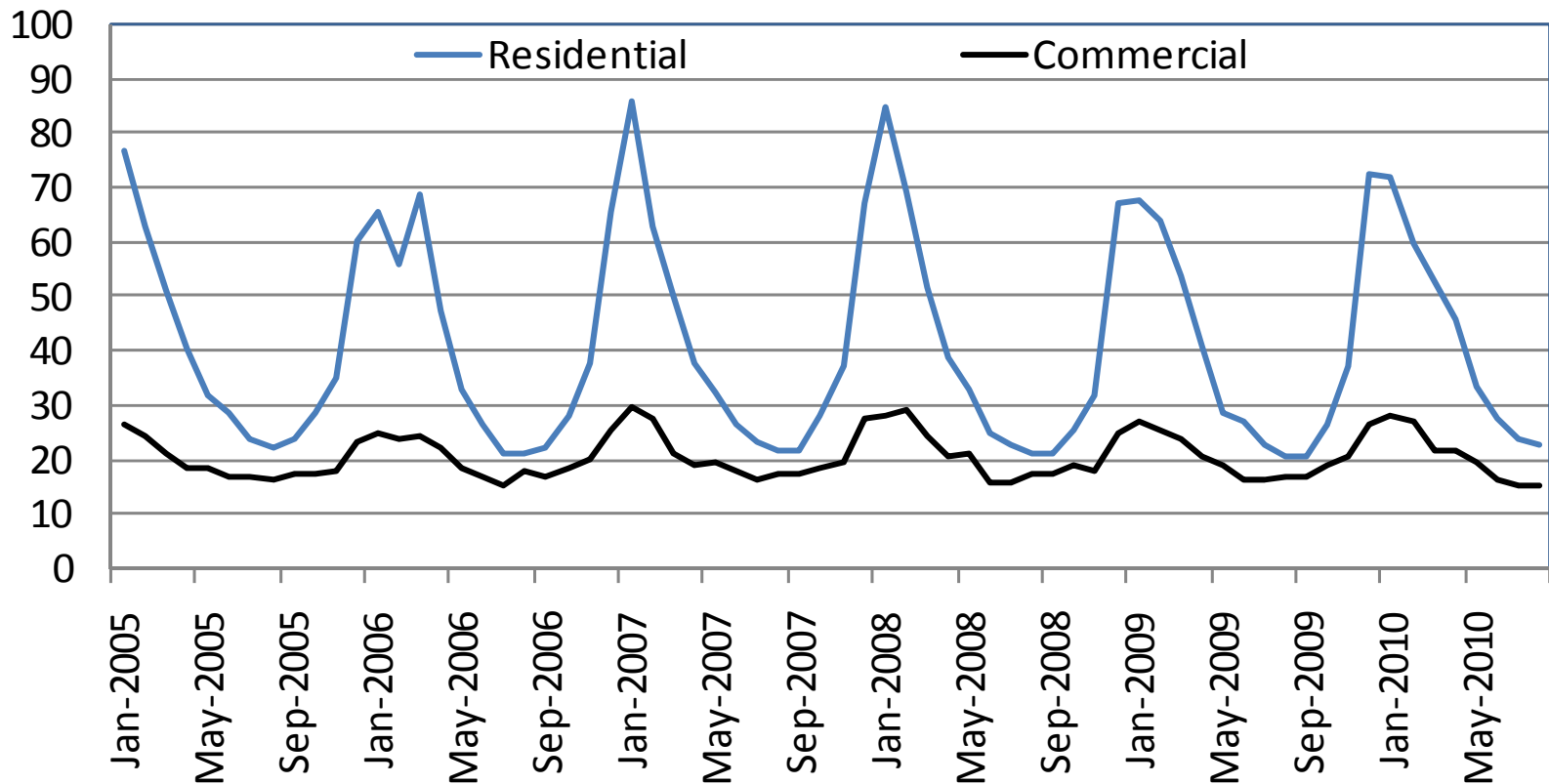
Natural Gas Demand Trends 2000 - 2009

- U.S., Canada and California residential and commercial demand is flat.
- Canada and California industrial demand flat; U.S. industrial demand down by about 25%.
- U.S. electric power sector demand up about 40%; Canada and California demand is flat.
- Average retail prices paid by U.S. and California customers in all four sectors rose significantly until 2008.
- Average retail prices paid by Canada residential and commercial customers are flat, then spike in 2008.
- Canada average industrial prices increased.



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California Natural Gas Demand by Sector, 2005 – 2009 (MMcf/month)

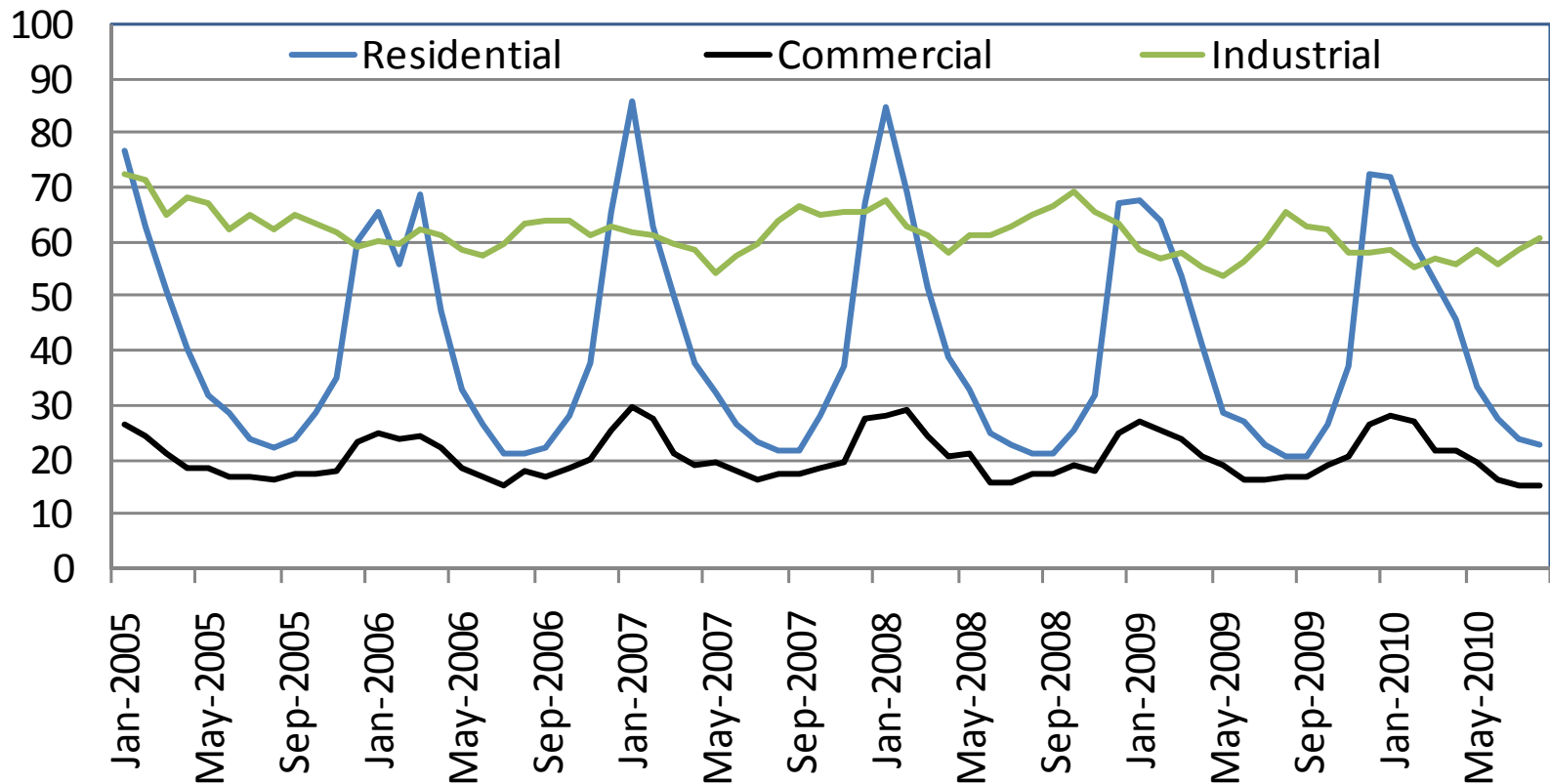


Source: Energy Information Administration, *Natural Gas Monthly* January 2011



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California Natural Gas Demand by Sector, 2005 – 2009 (MMcf/month)

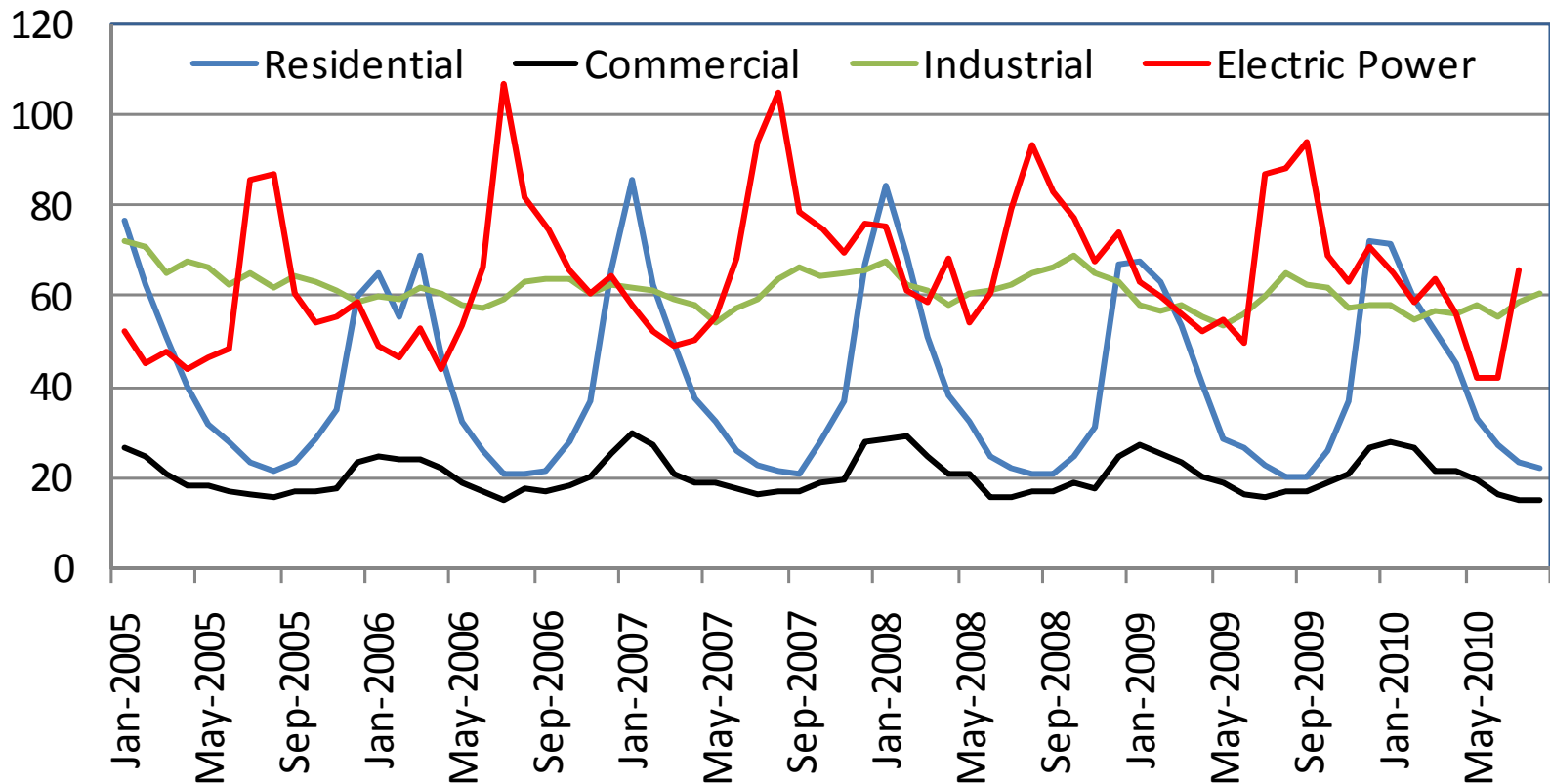


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California Natural Gas Demand by Sector, 2005 – 2009 (MMcf/month)

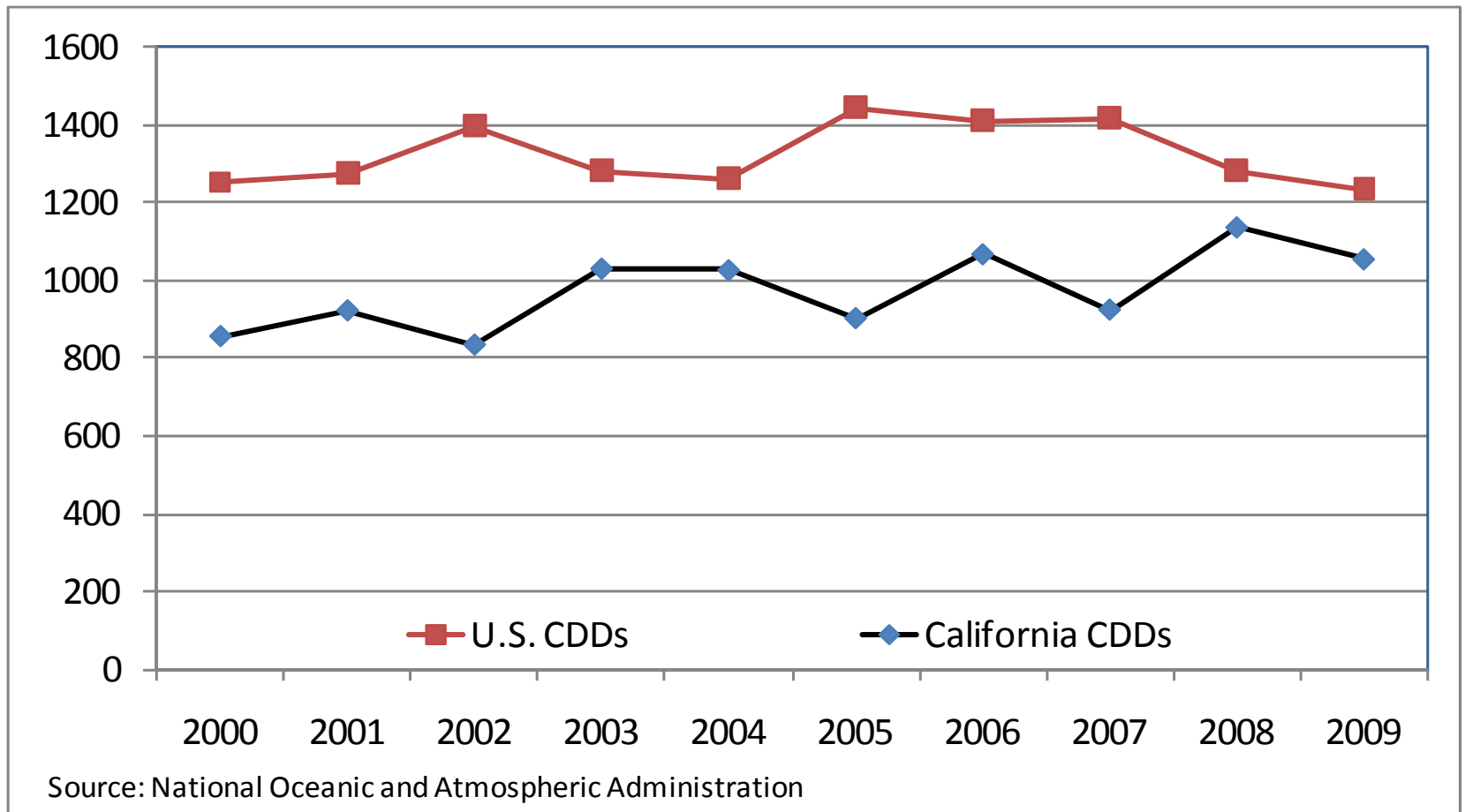


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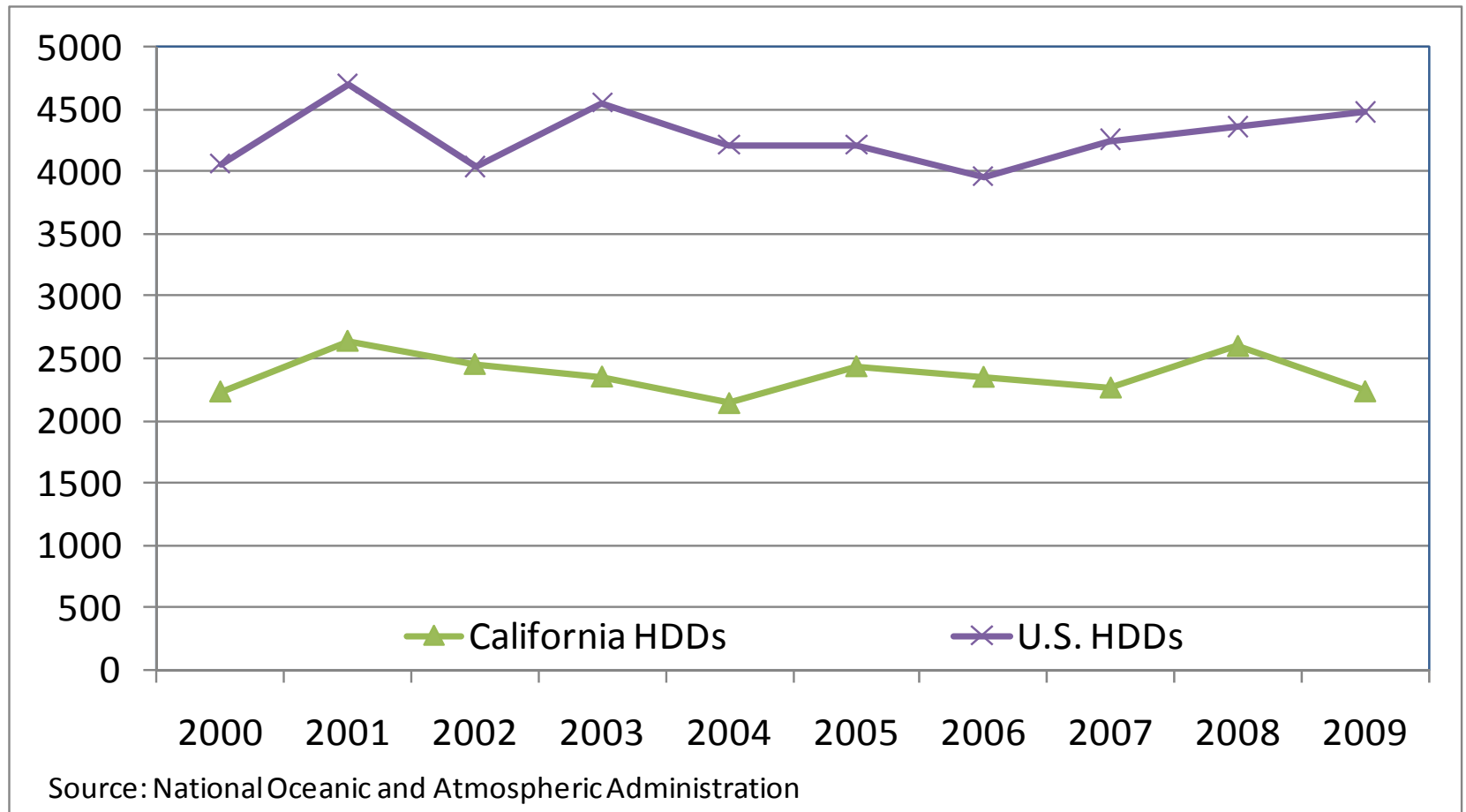
U.S. and California Cooling Degree Days, 2000 – 2009





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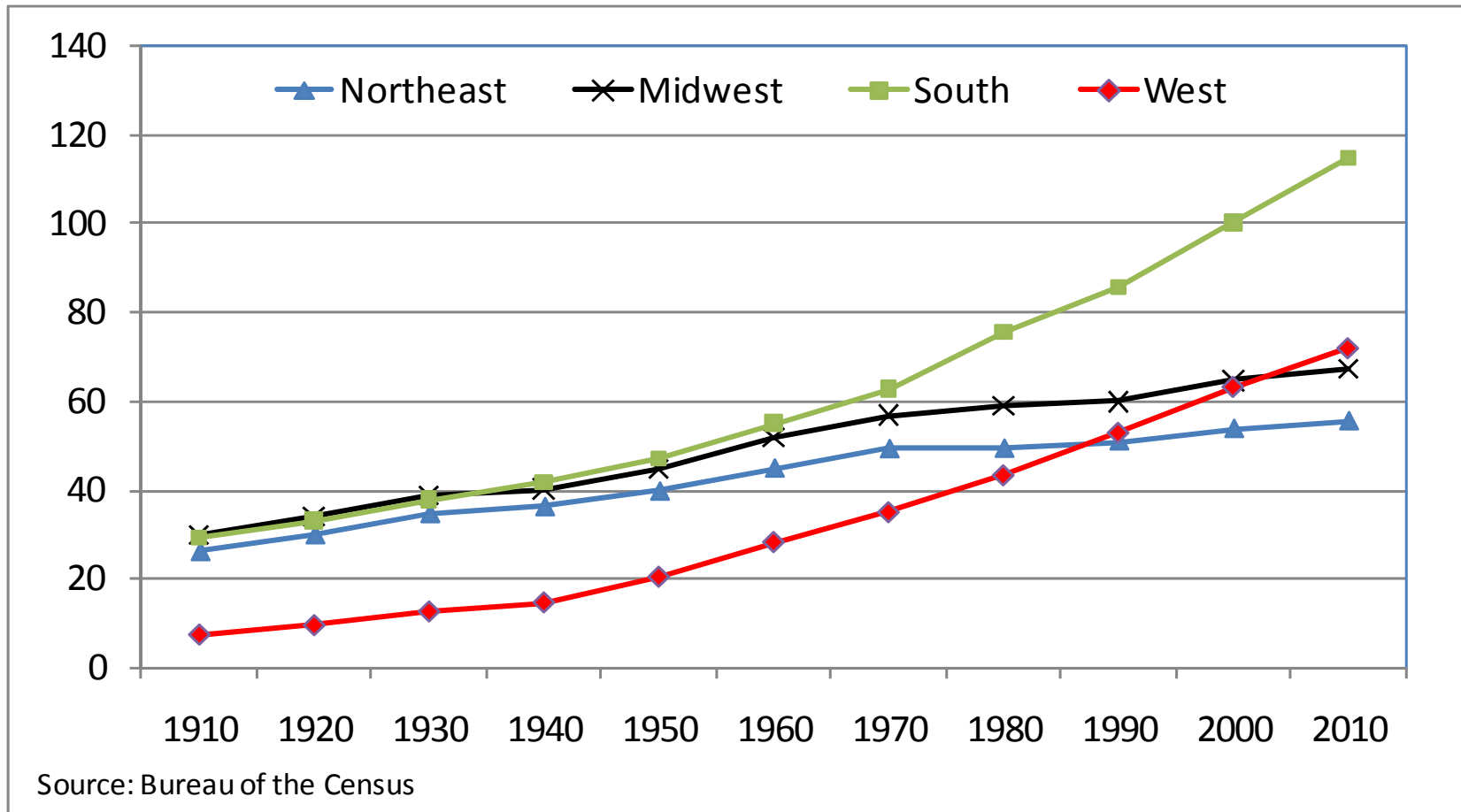
U.S. and California Heating Degree Days, 2000 – 2009





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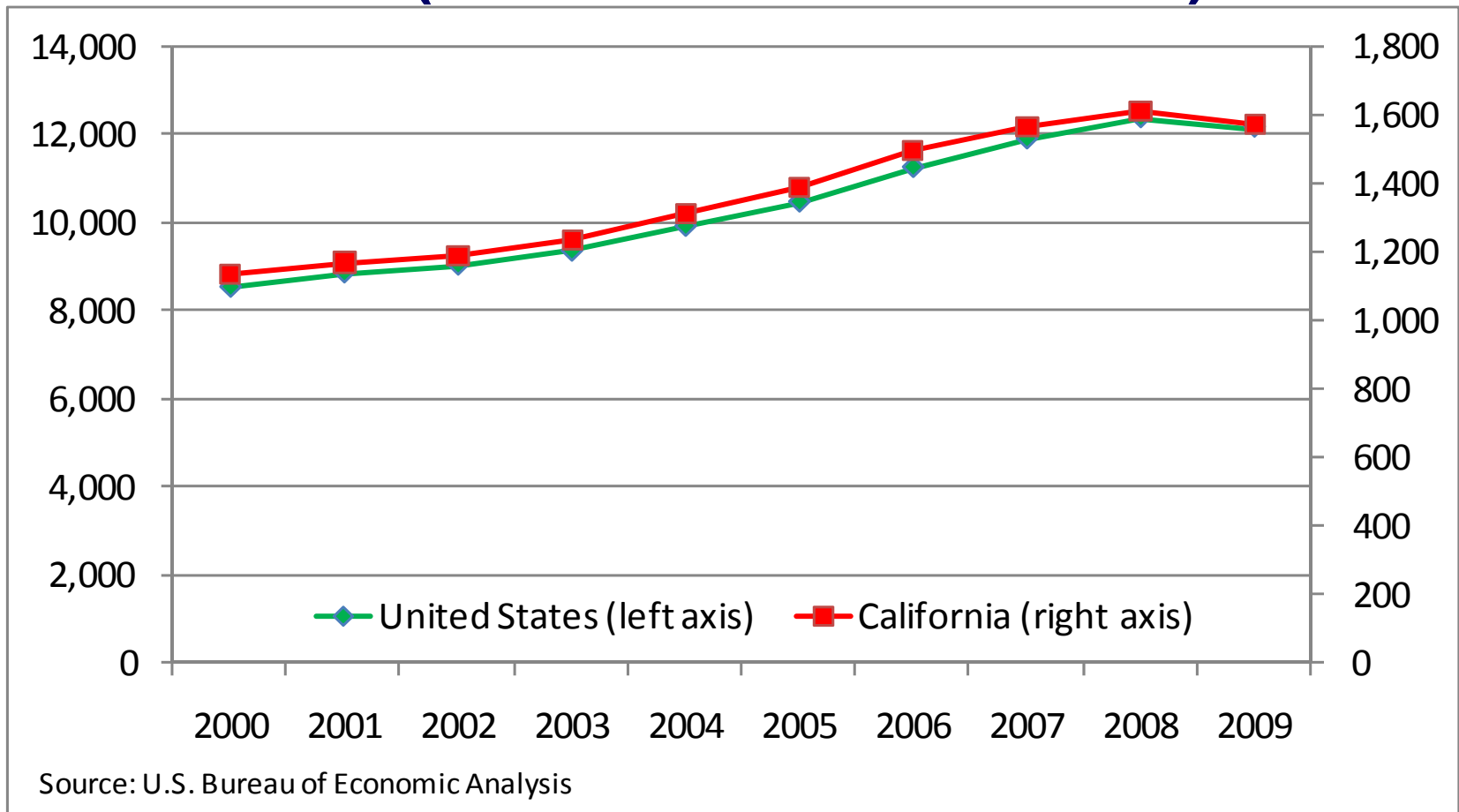
U.S. Population by Census Regions, 1910 – 2010 (millions)





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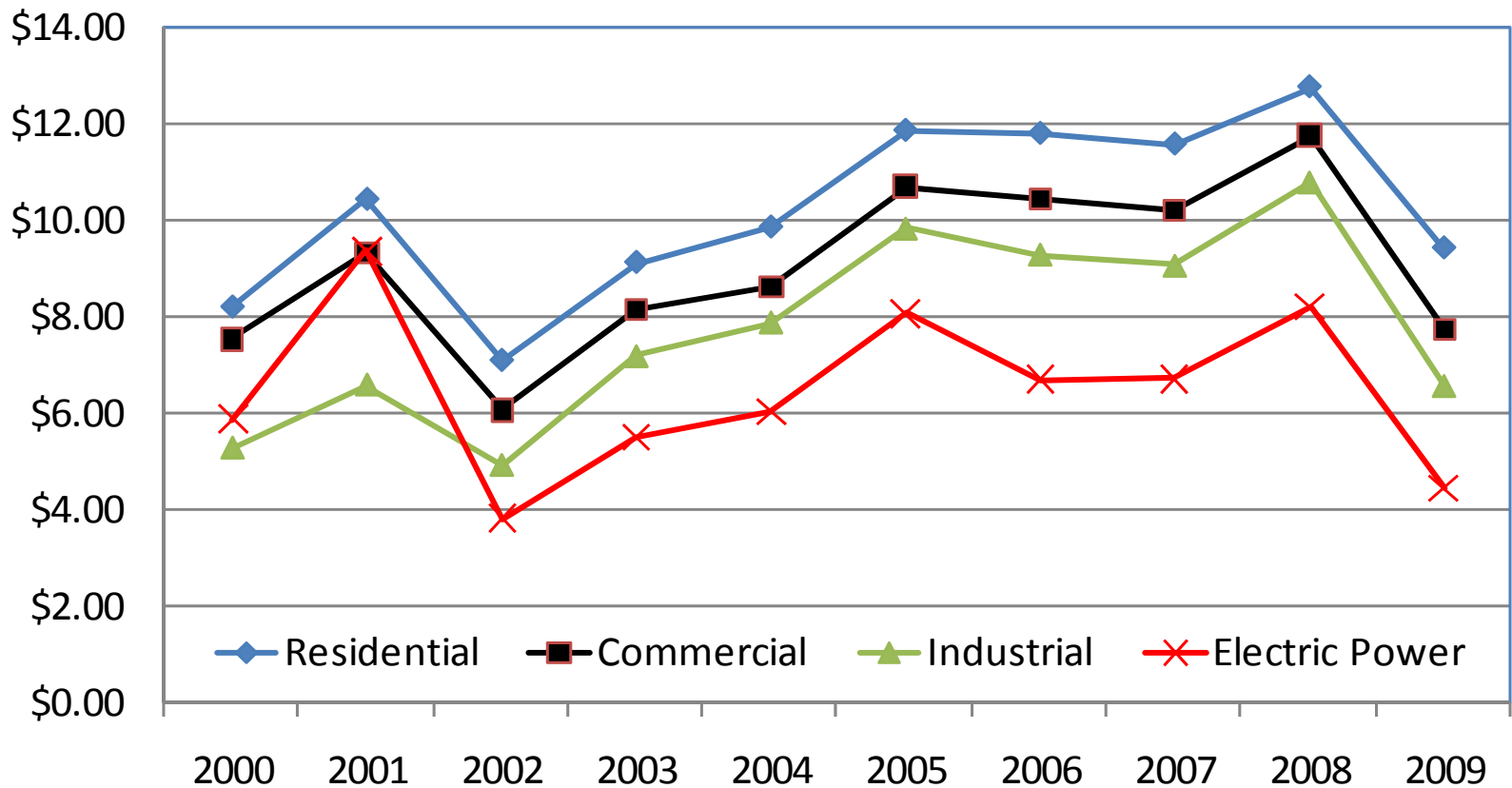
U.S. and California Personal Income, 2000 – 2009 (millions nominal dollars)





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California Natural Gas Prices, 2000 – 2009 (nominal \$/Mcf)



Source: Energy Information Administration, *Natural Gas Monthly* January 2011



Major Policies Affecting California Electric Power Sector Natural Gas Demand

- Energy Efficiency: reduces NG & e⁻ demand.
- Demand Response: reduces peak e⁻ demand
- 33% RPS Build-Out: increases NG demand
 - Resource adequacy, reliability and infrastructure
- Climate Change [SB 1368 (Perata, 2006); AB 32 (Nuñez, 2006)]: result tied to 33% RPS mix; NG demand rises; e⁻ uncertain.
- Once-Through Cooling: STs replaced by CCGTs/CTs/RE: reduces NG demand.



Summary of Natural Gas Demand Factors

Residential, Commercial & Industrial Sectors:

- Weather
- Population
- Natural gas price
- Income
- Industrial production
- Heating oil price

Electric Power Sector:

- Total electricity generation
- Weather
- Natural gas price
- Fuel oil price
- Renewable electricity generation
- Coal price



Questions and Comments