

# Implications of Using State Population Forecasts and the Effects of Warmer/Colder Weather on Mid- Term Energy Forecasts

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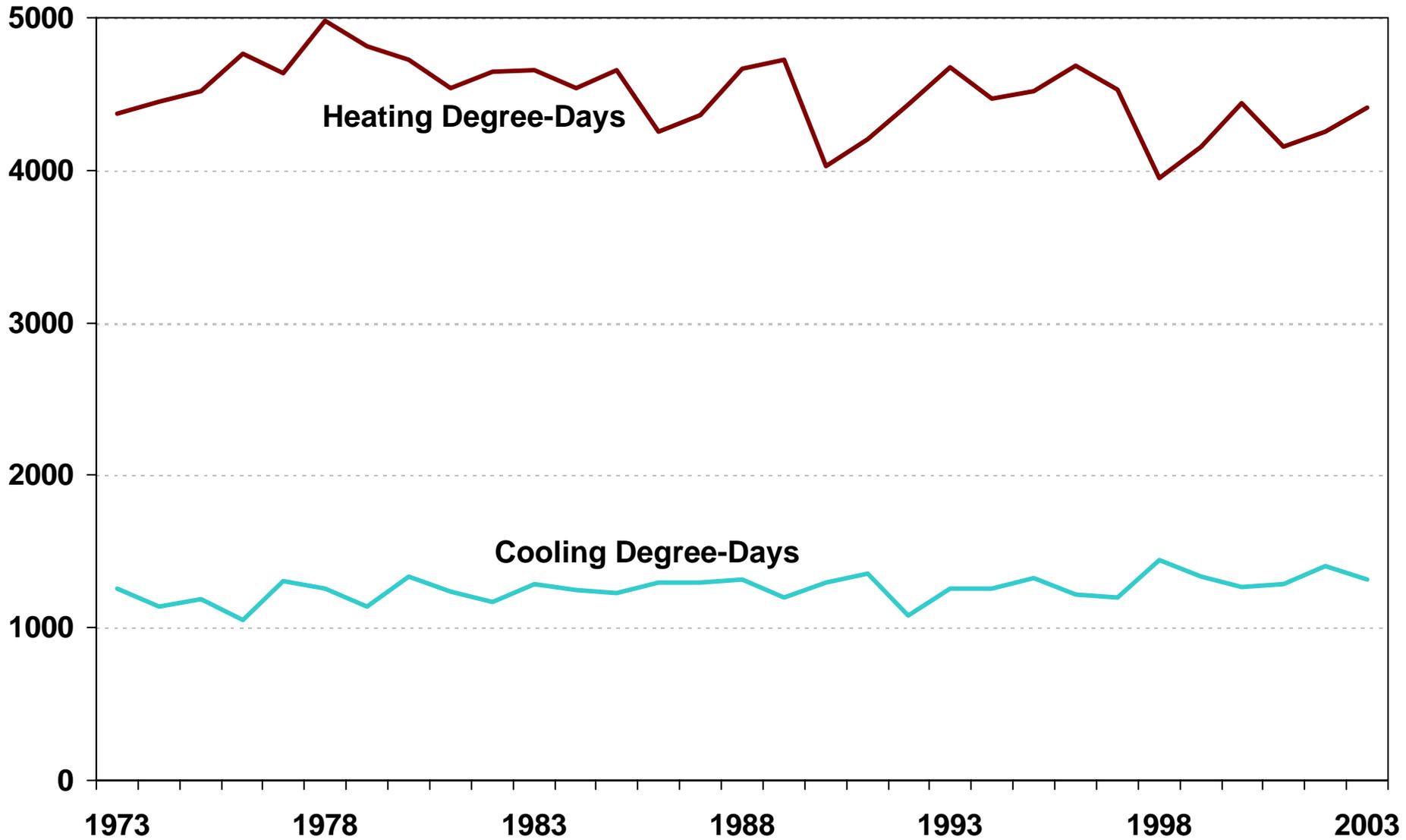
Energy Information Administration

March 22, 2005

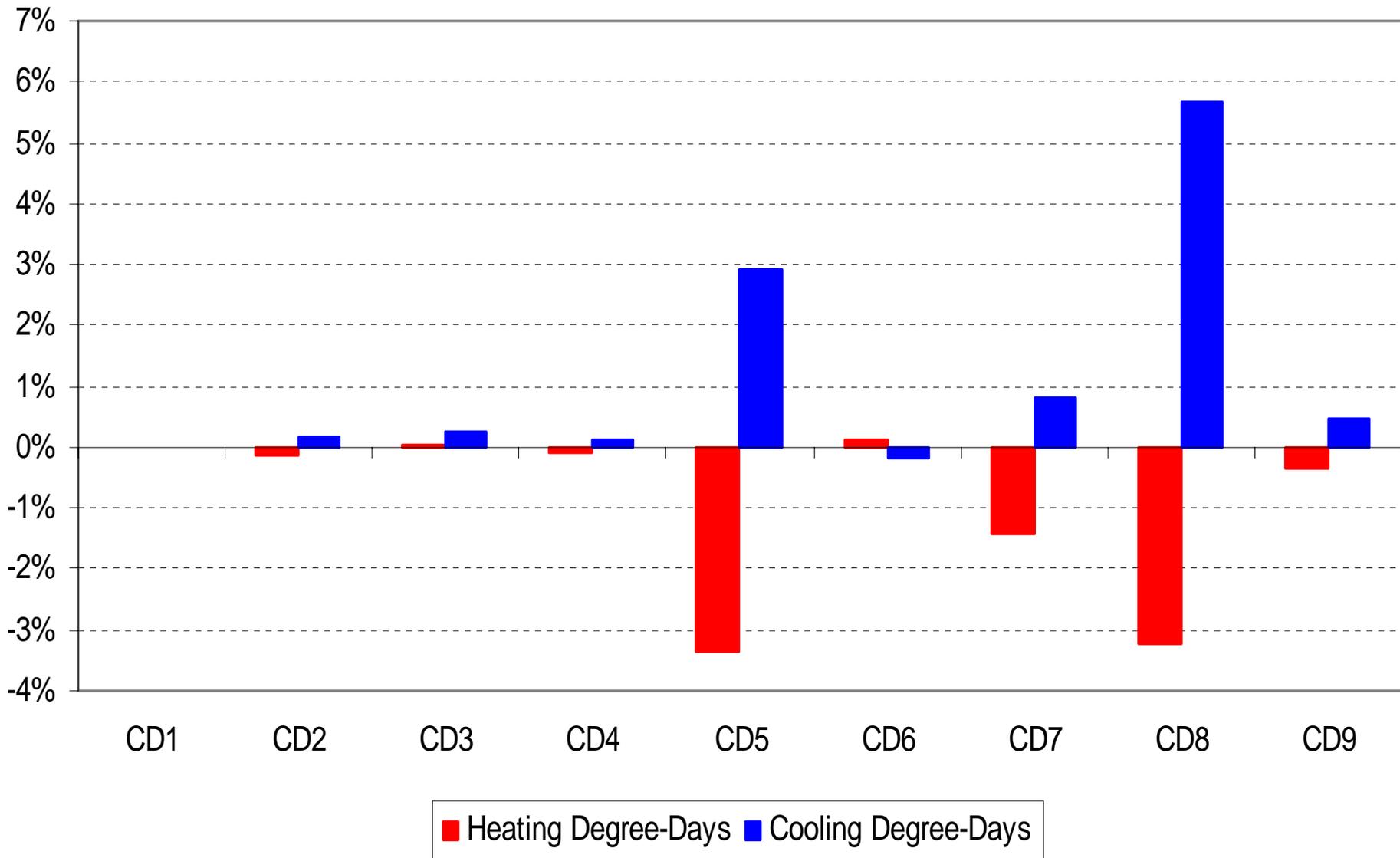
# Shifting Populations *Within* Census Divisions Drive HDD/CDD

- Previous AEOs Utilized Fixed State Weights with Changing Regional Mix
- New Method Uses Census Population Forecasts to Change Regional Average HDD/CDD Over Forecast Horizon
- Shift is Generally from Cold to Warm (e.g., less Delaware, more Florida in So. Atlantic)
- Implies Less Heating, More Cooling

# U.S. Average Heating and Cooling Degree Days, 1973-2003



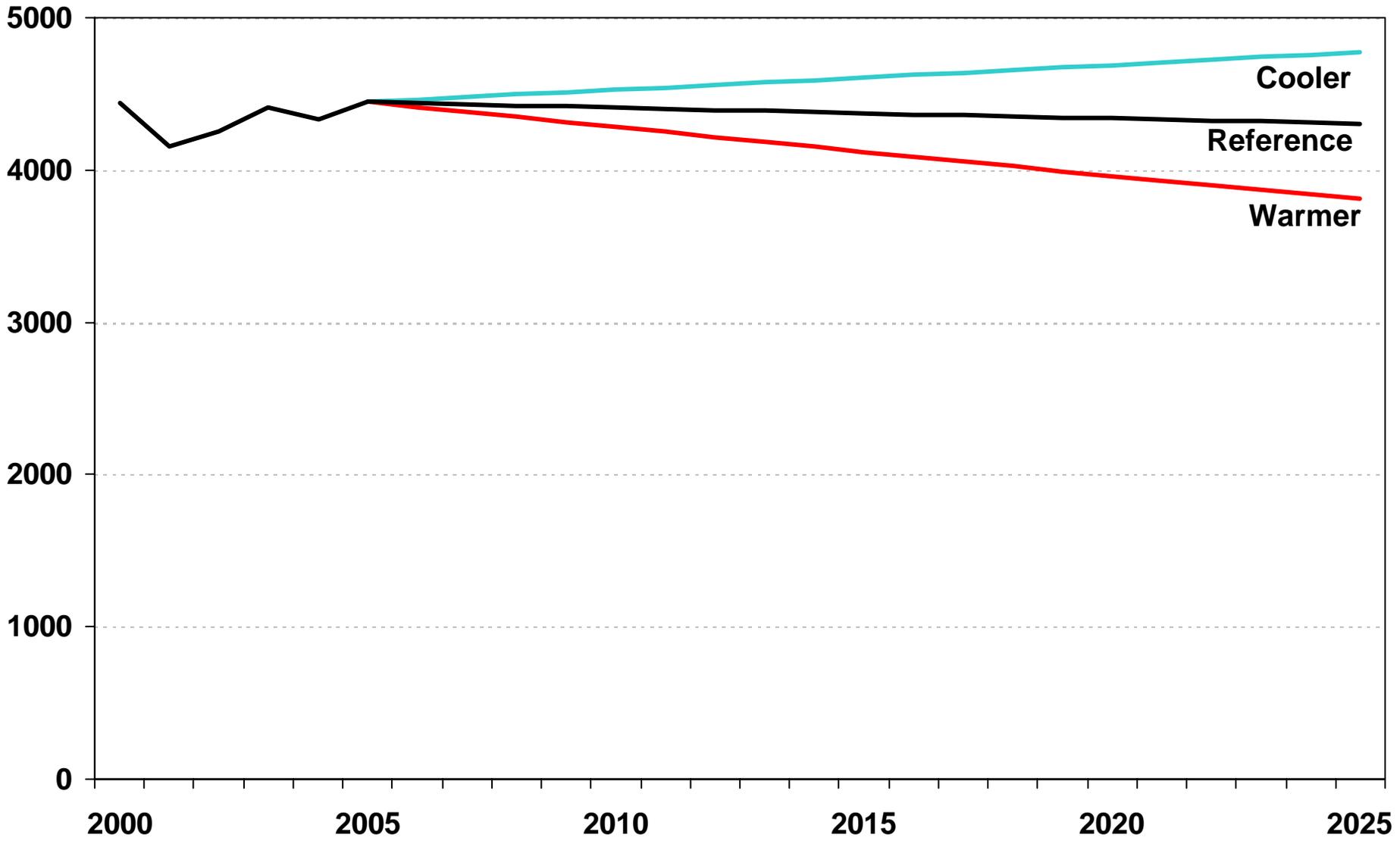
# Change in Heating and Cooling Degree-Days by Census Division, 2005-2025



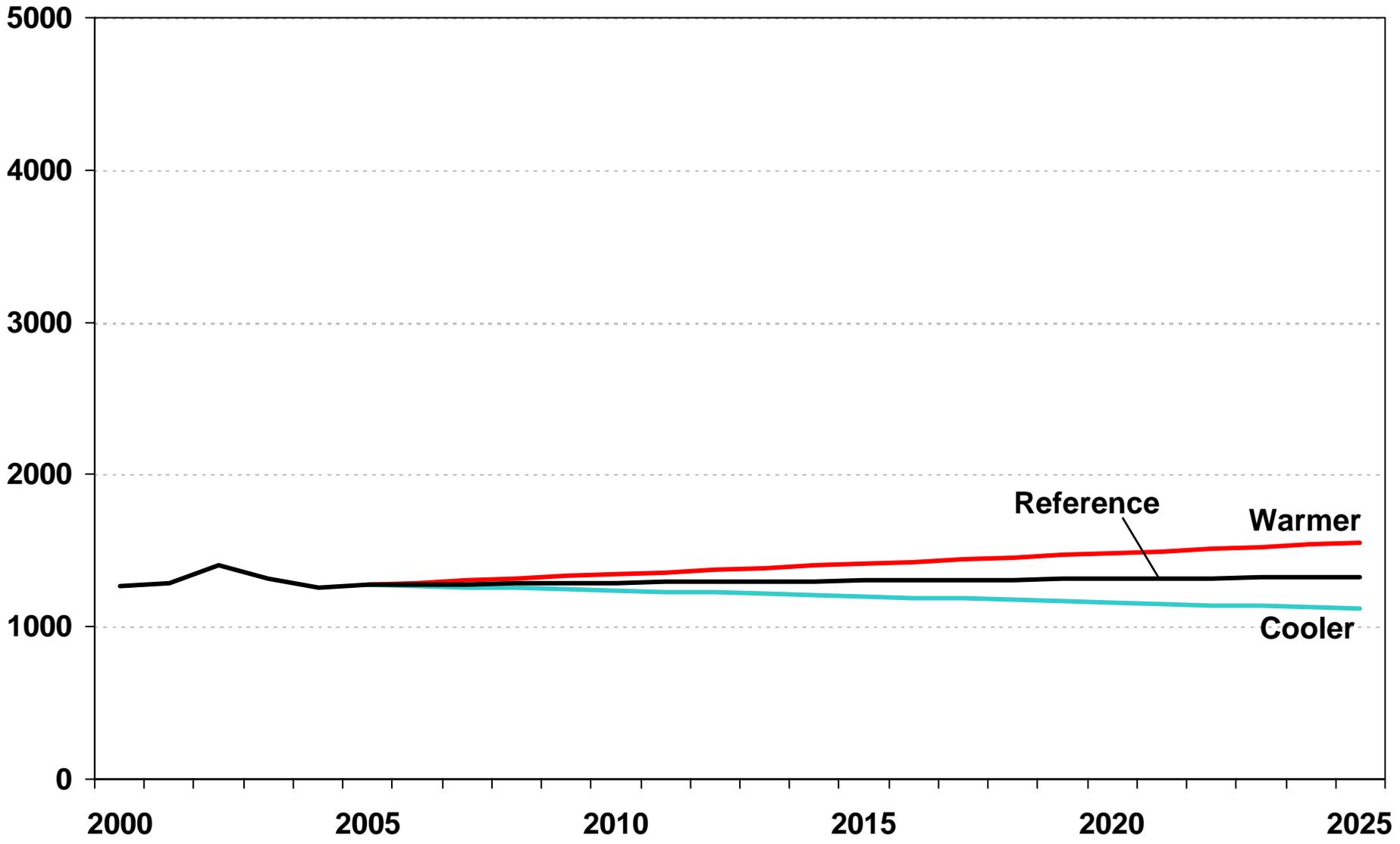
# Weather Sensitivity Cases in AEO 2005

- What is the effect of long-term warmer/colder weather on buildings sector energy use and expenditures?
- Assume that each State reaches the highest / lowest 5-year average heating and cooling degree-days by 2025
- Warmer summers paired with warmer summers and vice versa
- HDDs 11% higher, 12% lower - CDDs 17% higher, 16% lower

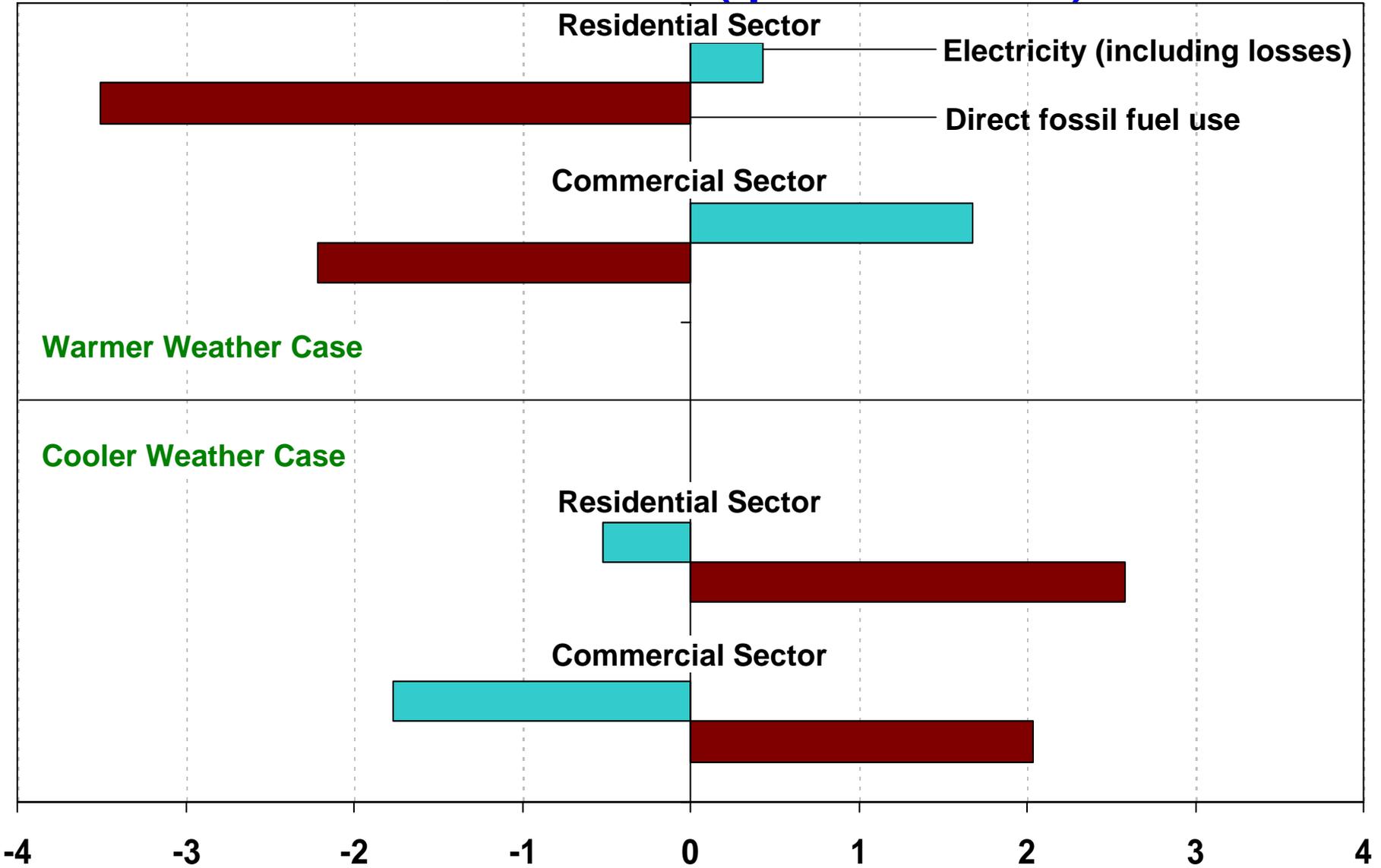
# Projected U.S. Average Heating Degree-Days in Three Cases, 2000-2025



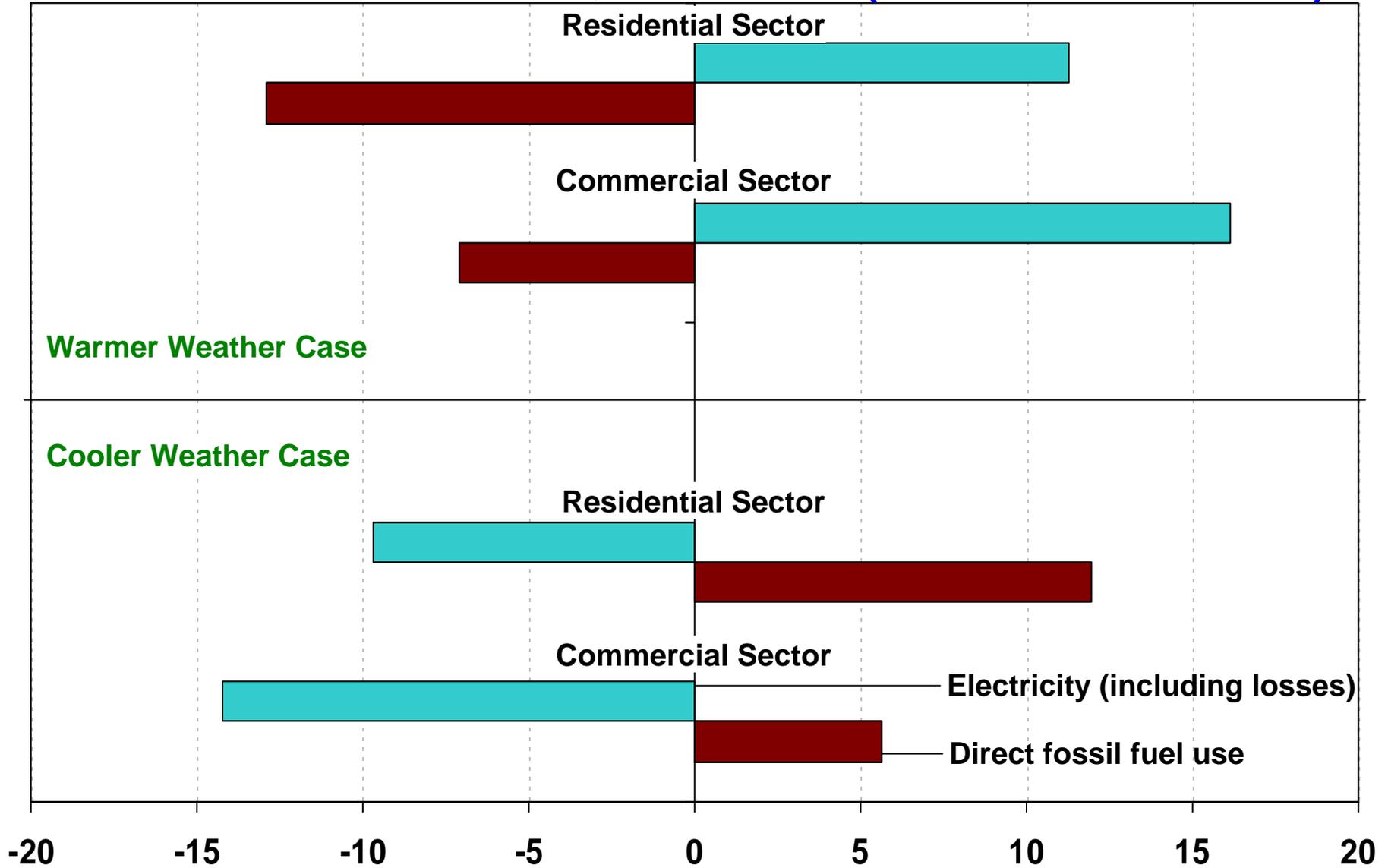
# Projected U.S. Average Cooling Degree-Days in Three Cases, 2000-2025



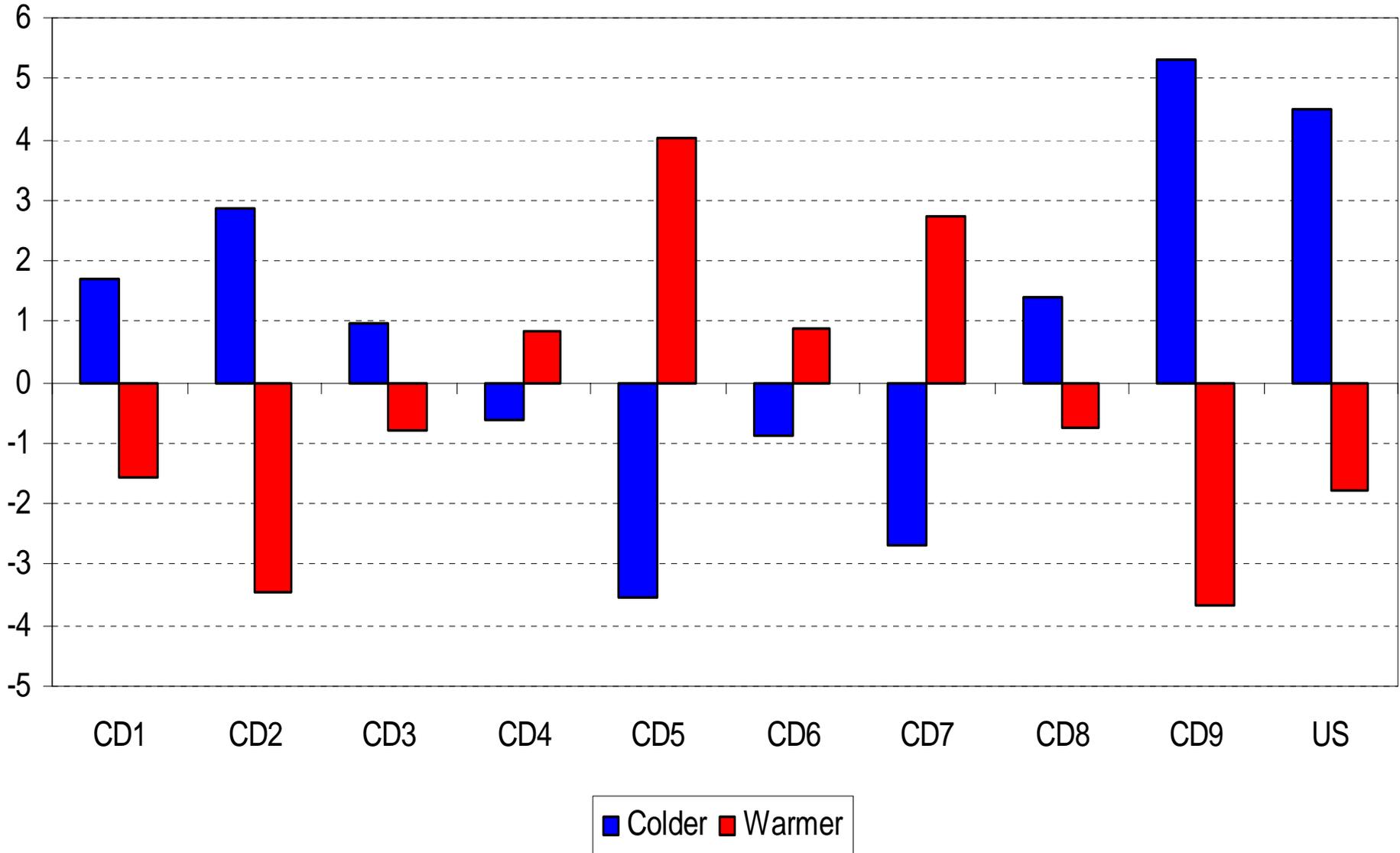
# Cumulative Projected Change from the Reference Case in Buildings Sector Electricity and Fossil Fuel Use in Two Cases, 2006-2025 (quadrillion Btu)



# Present Value of Projected Change from the Reference Case in Buildings Sector Expenditures for Electricity and Fossil Fuel Use in Two Cases, 2006-2025 (billion 2003 dollars)



# Change in Cumulative Residential Sector Energy Expenditures in Two Scenarios, 2005-2025 (Billion \$2003)



# Change in Cumulative Commercial Sector Energy Expenditures in Two Scenarios, 2005-2025 (Billion \$2003)

