



Electricity Demand, GHG Emissions and Stresses on the Grid

A silhouette of a three-bladed wind turbine stands on the left side of the frame. The background is a vibrant sunset sky, transitioning from a deep orange near the horizon to a dark purple at the top. The horizon line is dark, showing the silhouettes of trees and hills.

Reliable
Affordable
Safe
Clean

Retiring coal-fired power plants



Retiring coal-fired power plants

Meeting consumer demand



Retiring coal-fired power plants

Meeting consumer demand

Meeting emission goals



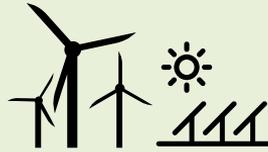
ELECTRIC POWER



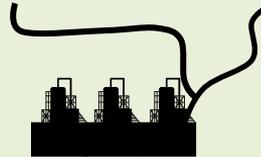
Coal retirement



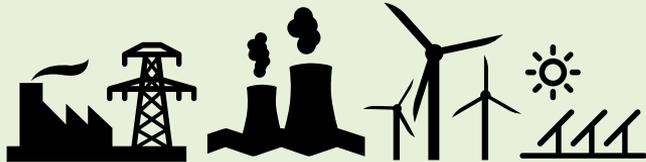
Shifts in demand



Low-cost
renewables



Natural gas use



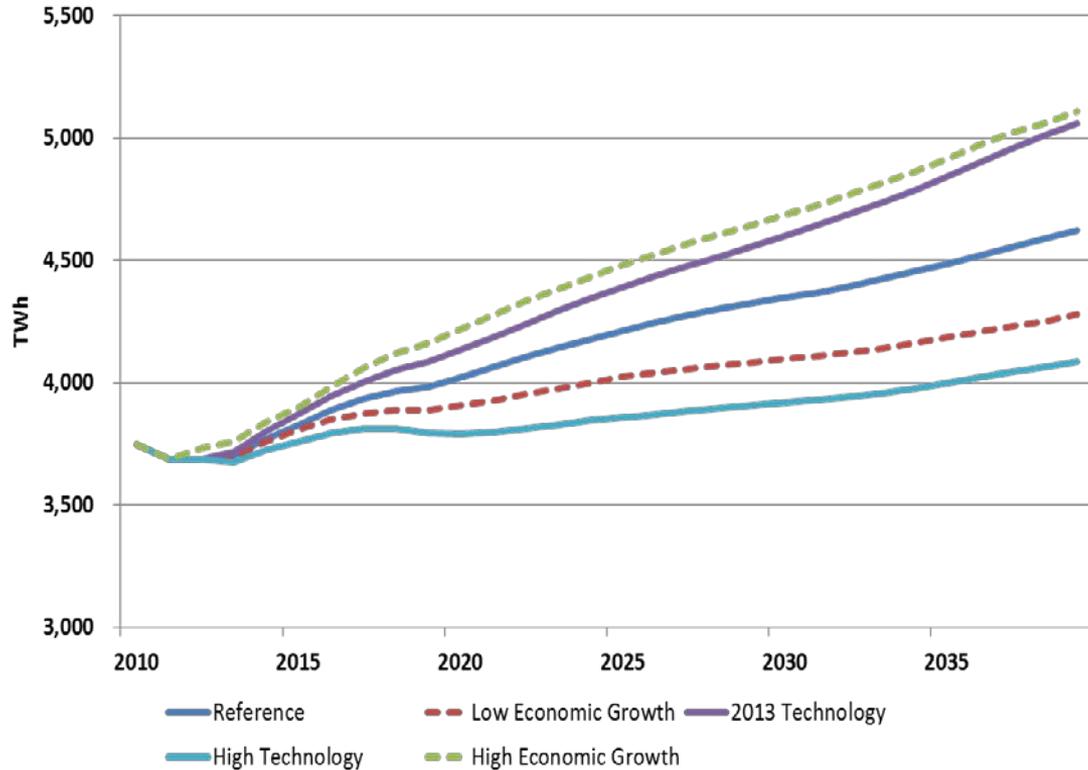
Nuclear retirement

NREL's REeDS model used to analyze implications of scenarios for transmission

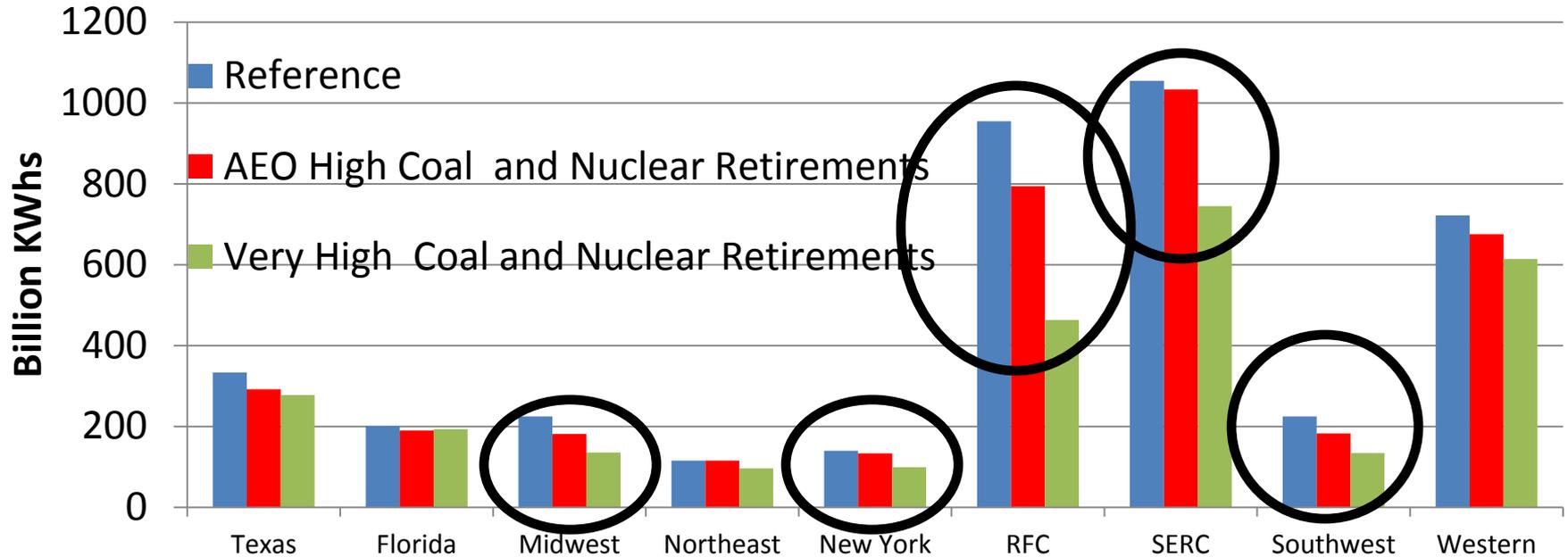
- Demand for new transmission in megawatt (MW)-miles
- Greenhouse gas (GHG) emissions under various futures
- Changes in retail electric power prices by region stemming from changes in generation and costs of expanding the transmission system

Demand for electricity driven by technologies, consumer behavior, economy

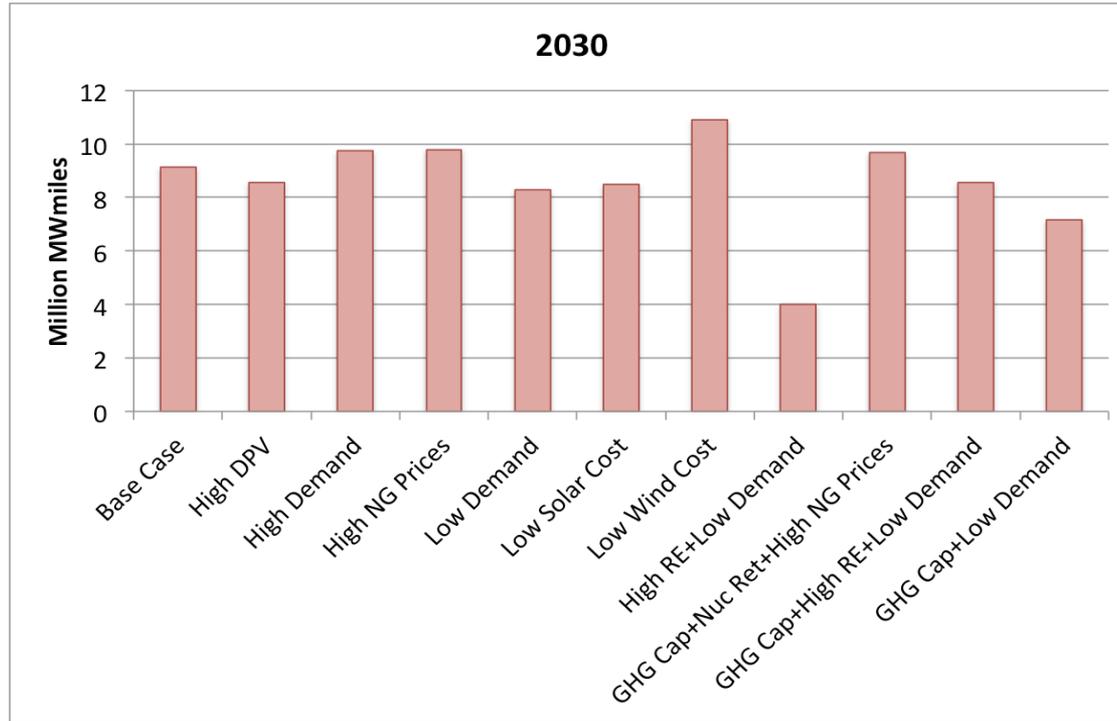
Total Retail Sales by AEO Case



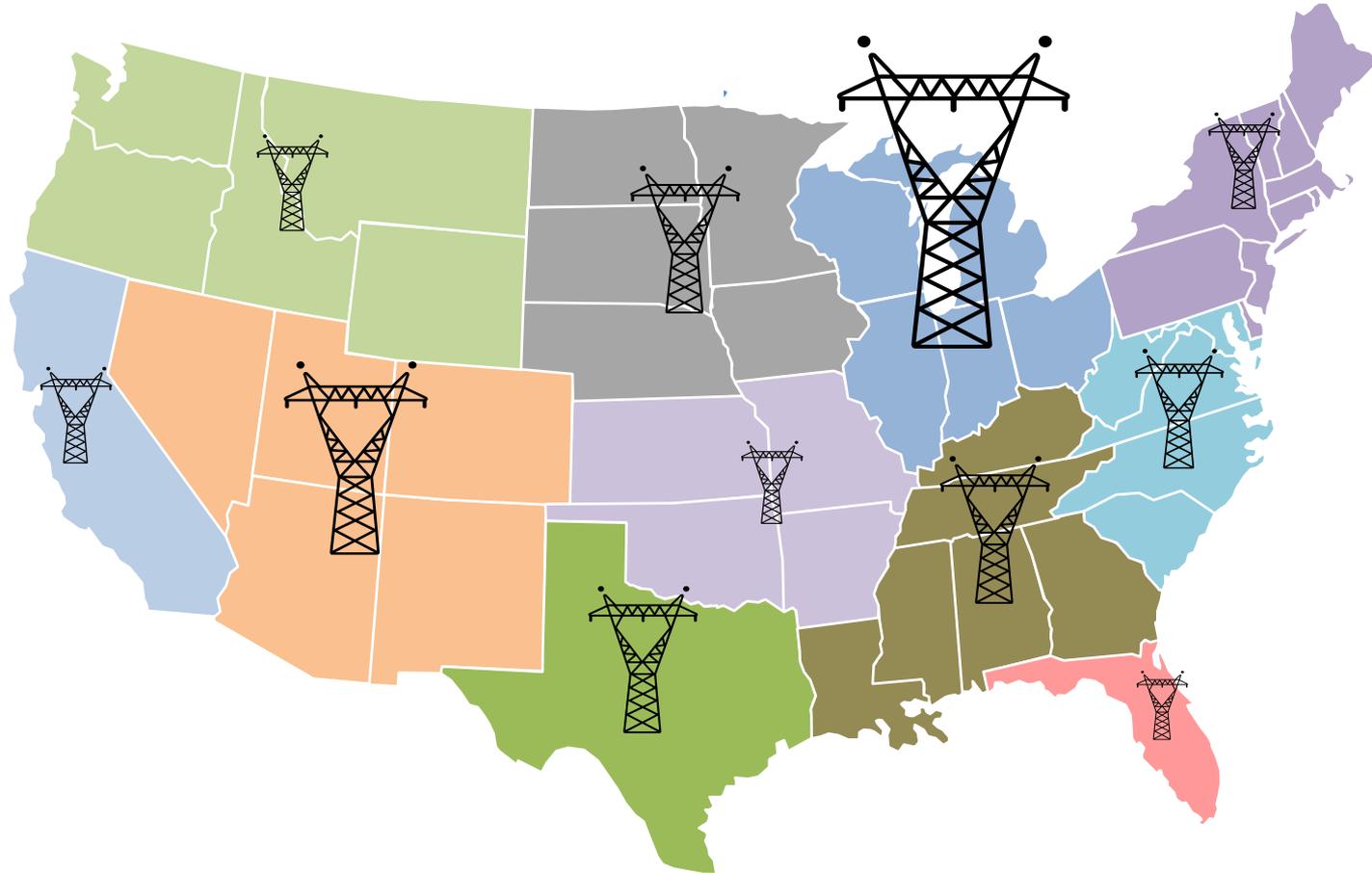
Very high coal, nuclear retirements tough on several regions



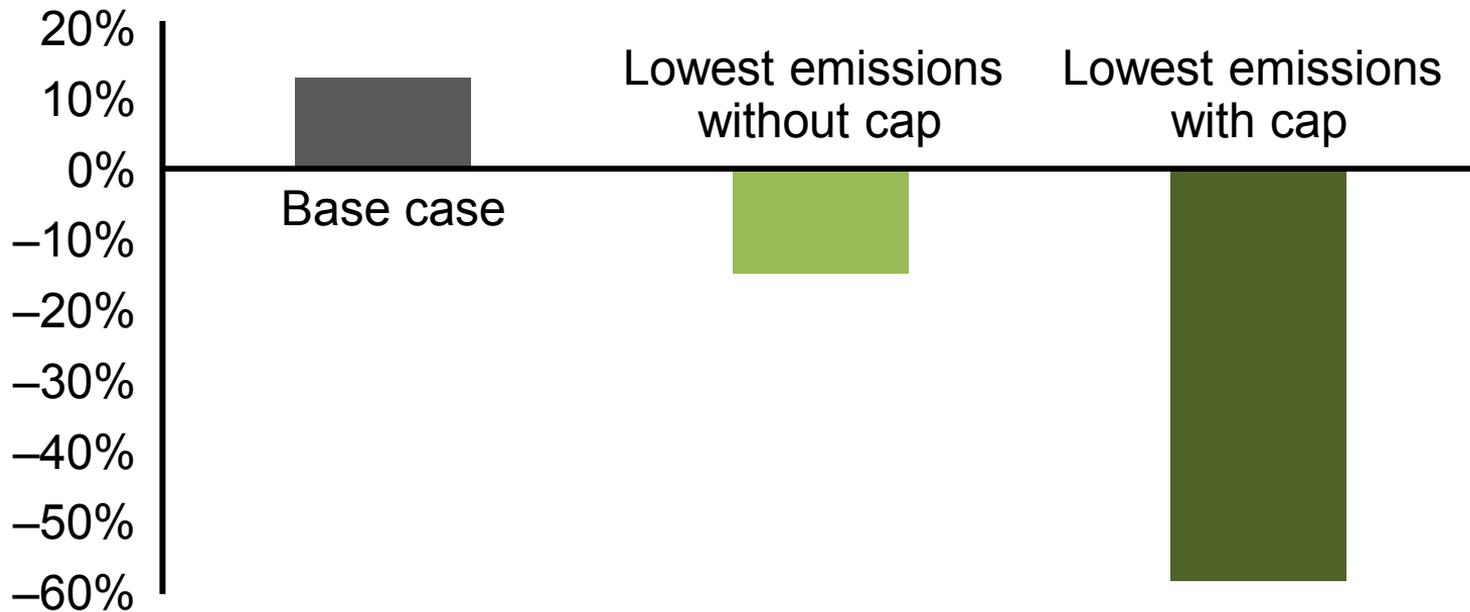
New transmission capacity, costs, lower than recent capacity additions under all scenarios



But requirements for new transmission vary by region



Only modest decreases in annual CO₂ emissions can be achieved by 2030 without a cap



Aggressive reductions increase average costs by 7%

