

Key Findings from 7th Plan's Resource Strategy Scenario Analysis



Resource Strategy Advisory Committee
September 9, 2015

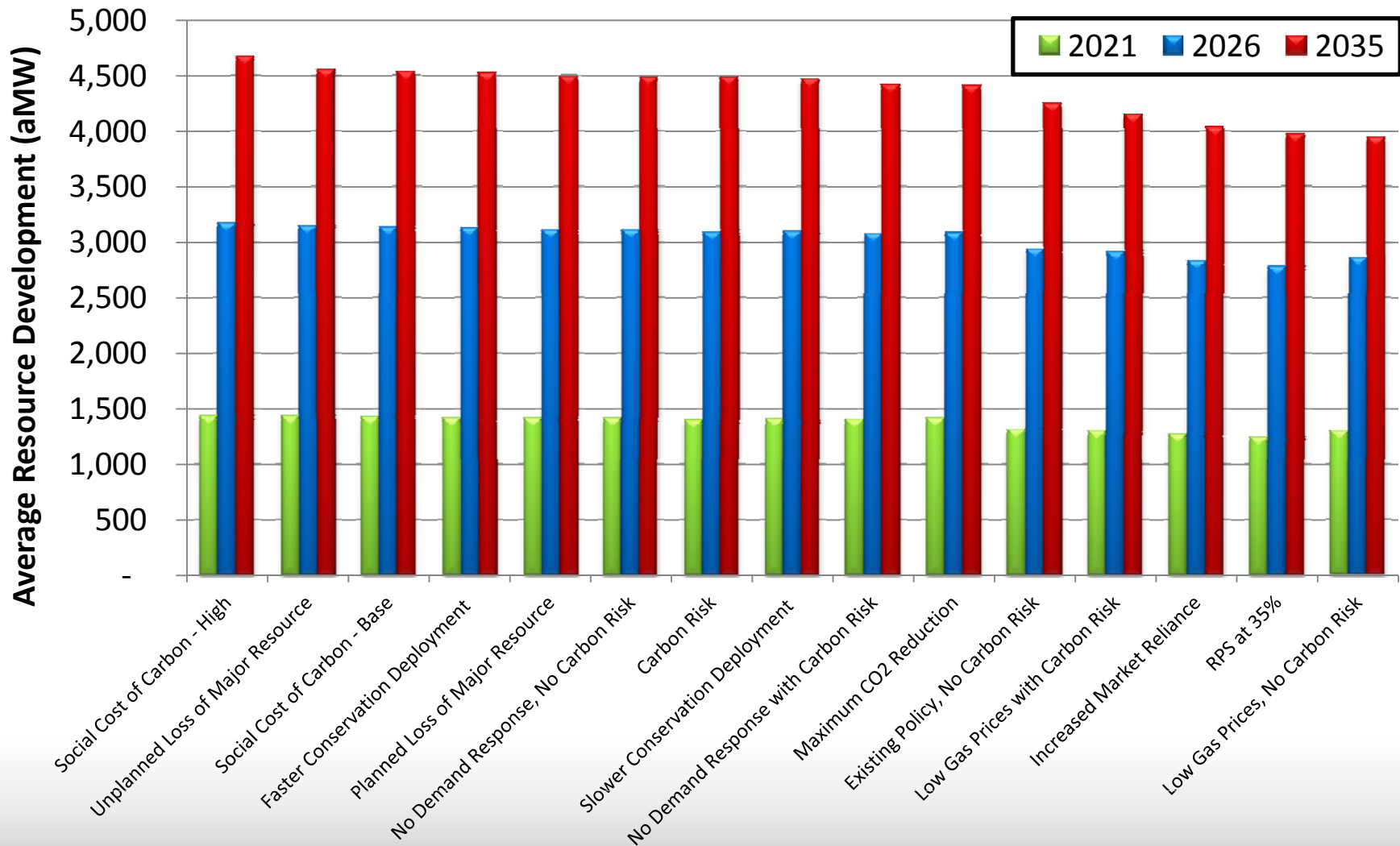
Scope of Scenario Analysis

- Over 20 scenarios and sensitivity studies analyzed
 - Resource Uncertainty (DR or No DR, Lower Conservation, Major Resource Loss)
 - Carbon emissions compliance policy options
 - Regional analysis only, no state level findings
 - Sustained low gas and electricity prices
 - External Market Reliance
- All least cost plans required to satisfy Regional Resource Adequacy Standards

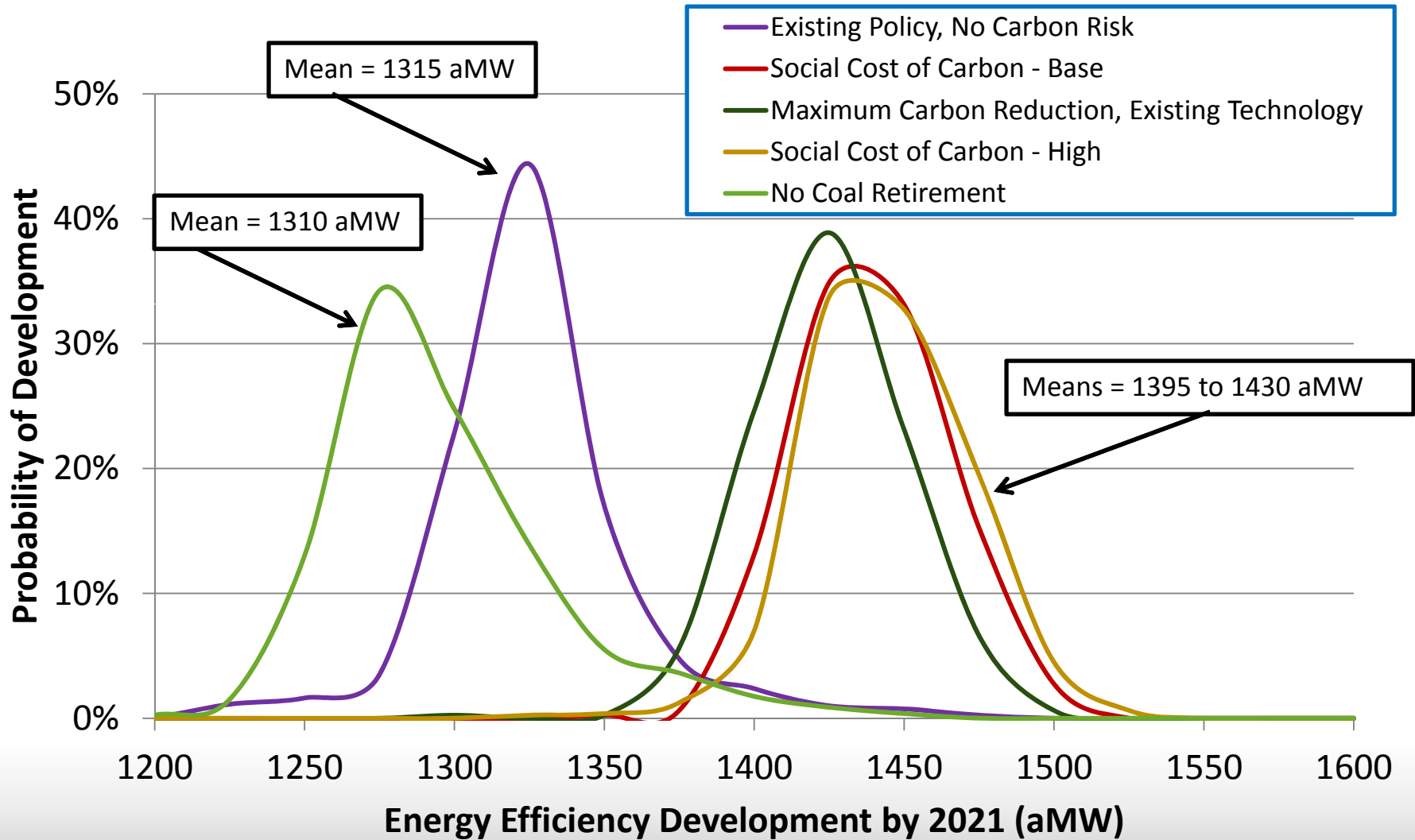
Key Findings

- Least Cost Resource Strategies Consistently Rely on Conservation and Demand Response to Meet Nearly All Forecast Growth in Regional Energy and Capacity Needs
- Regional Resource Adequacy Requirements for Winter Capacity Could Be Met by Increased Reliance on Demand Response and/or Supplied by External Markets Depending Upon Their Availability, Reliability and Cost
- Replacement of Announced Coal Plant Retirements Can Generally be Achieved Through Increased Use of Existing Natural Gas Plants and with Modest New Development of Natural Gas Generation
- Northwest Exports Play A Significant Role in Regional Resource Development
- Compliance with EPA 111(d) CO₂ emissions limits at the regional level, is attainable through resource strategies that do not depart significantly from those that are not constrained by those regulations.

Key Finding: Average Conservation Development Varies Little Across Scenarios Except Under Sustained Low Gas Prices and Increased RPS

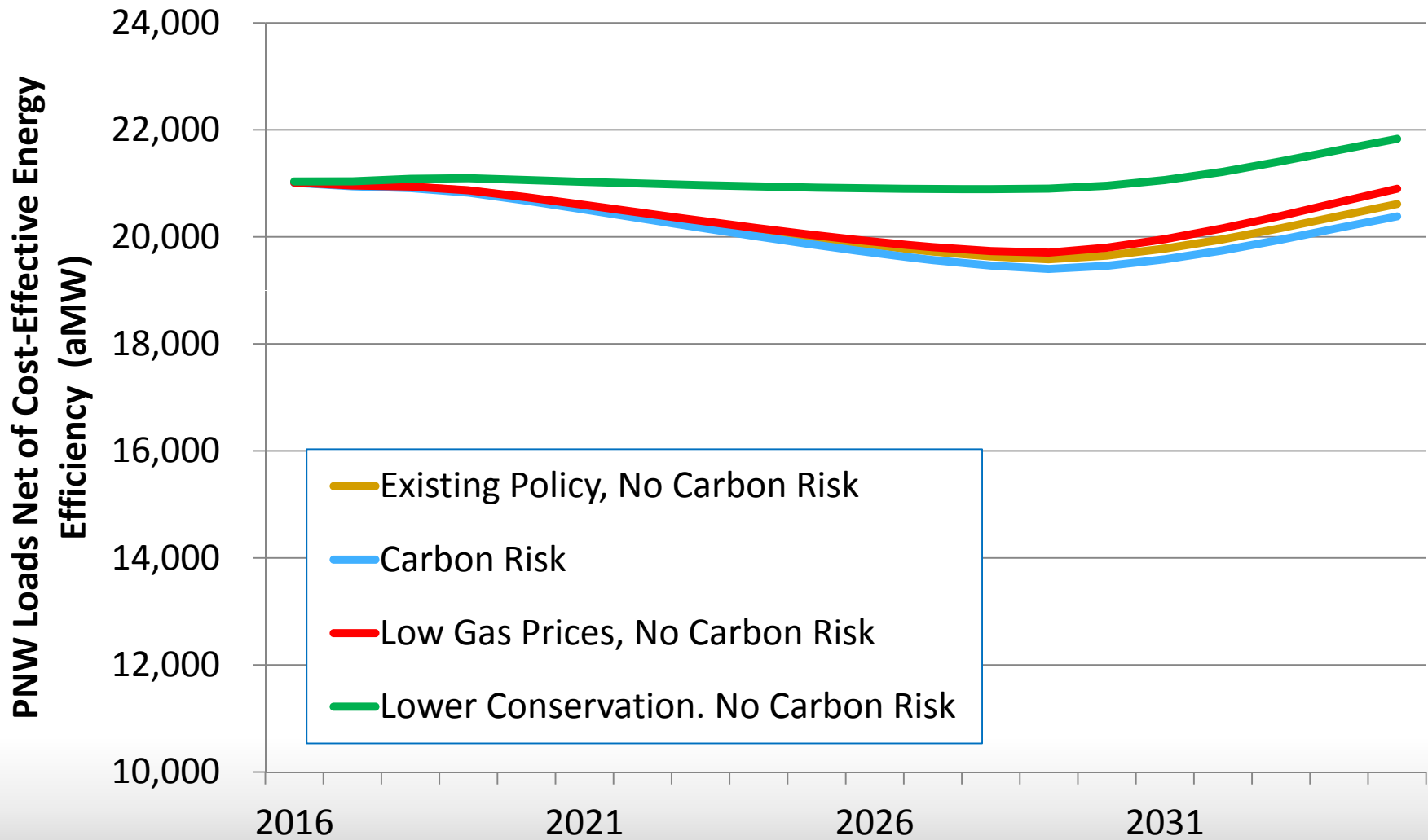


Key Finding: Conservation Development by 2021 in Least Cost Resource Strategies Varies Over A Small Range Across Most Scenarios

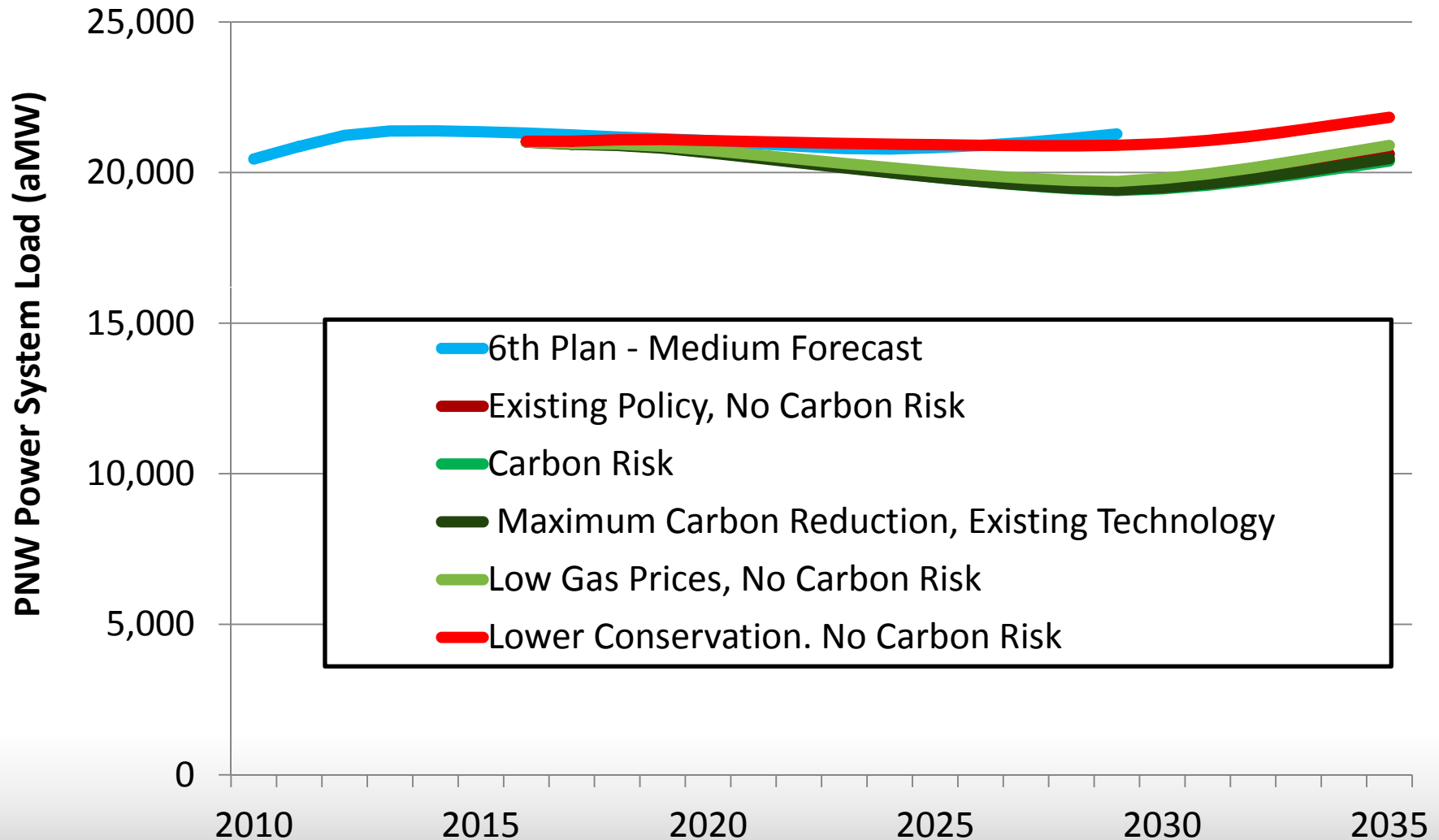


Key Finding:

Least Cost Resource Strategies Offset Load Growth with Efficiency

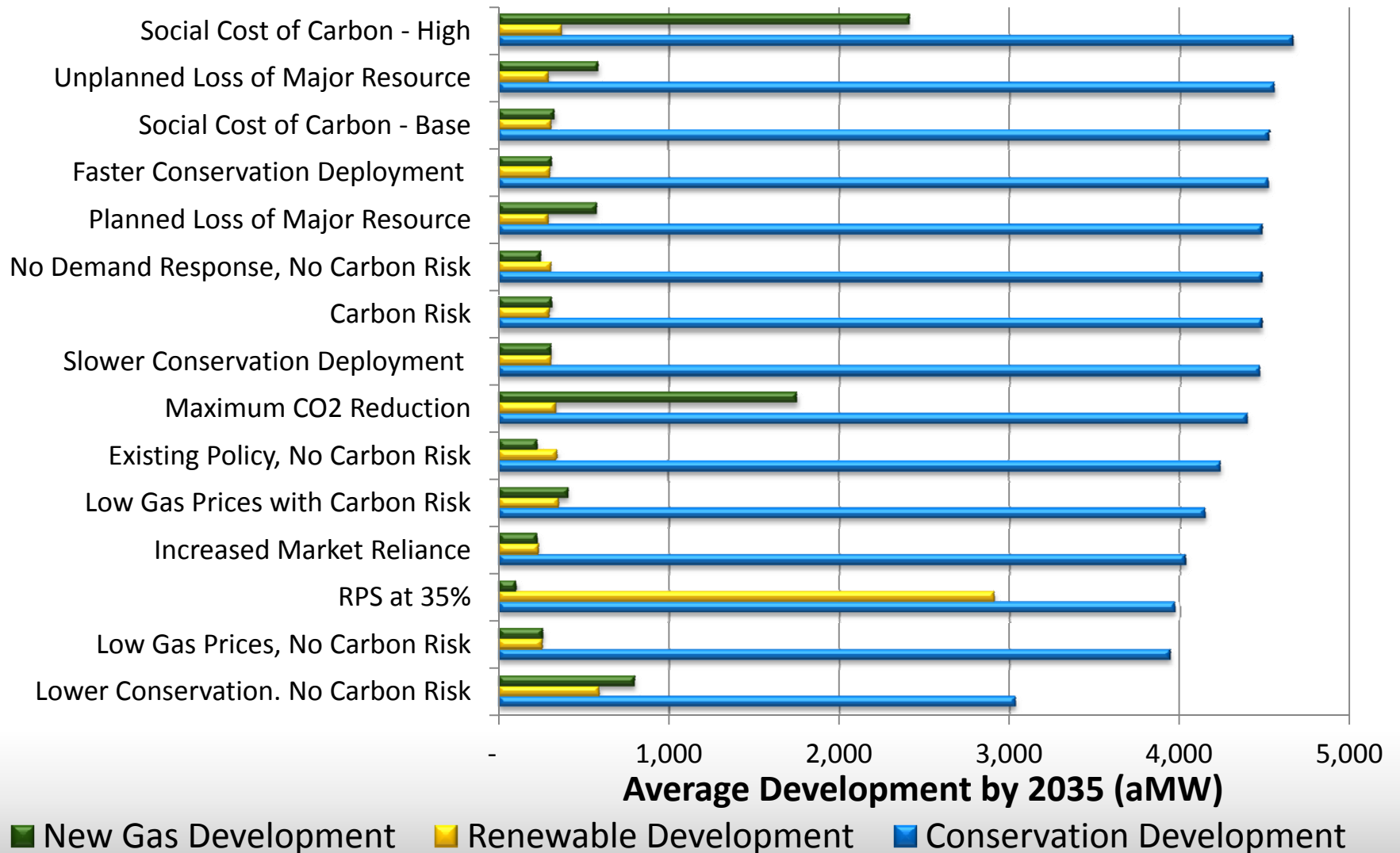


Key Finding: Net Load After Conservation for The 6th Plan and 7th Plan Draft Resource Strategies Are Forecast to Be Similar

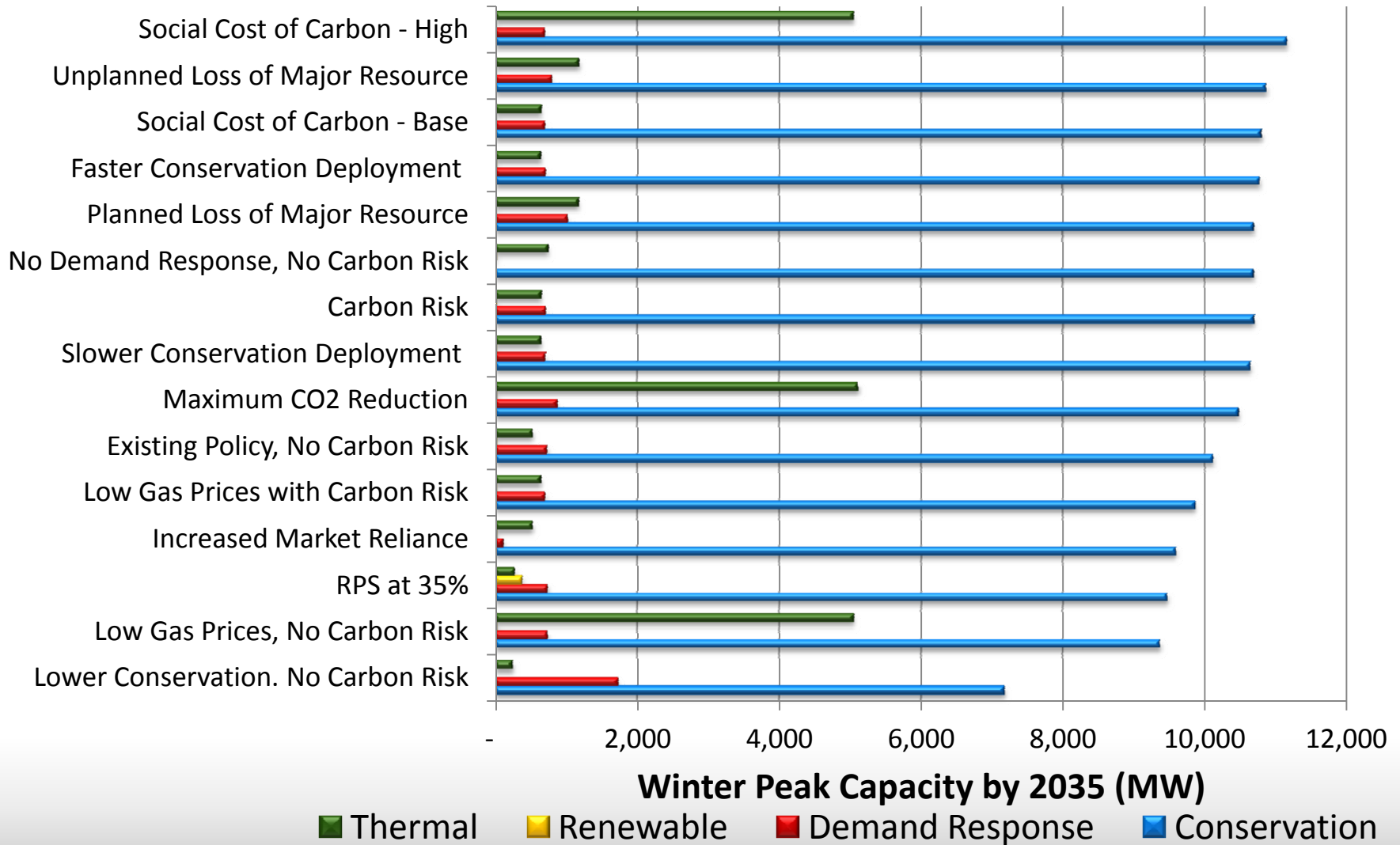


Key Finding:

Least Cost Resource Strategies Consistently Rely on Conservation and Demand Response to Meet Nearly All Forecast Growth in Regional Energy and Capacity Needs

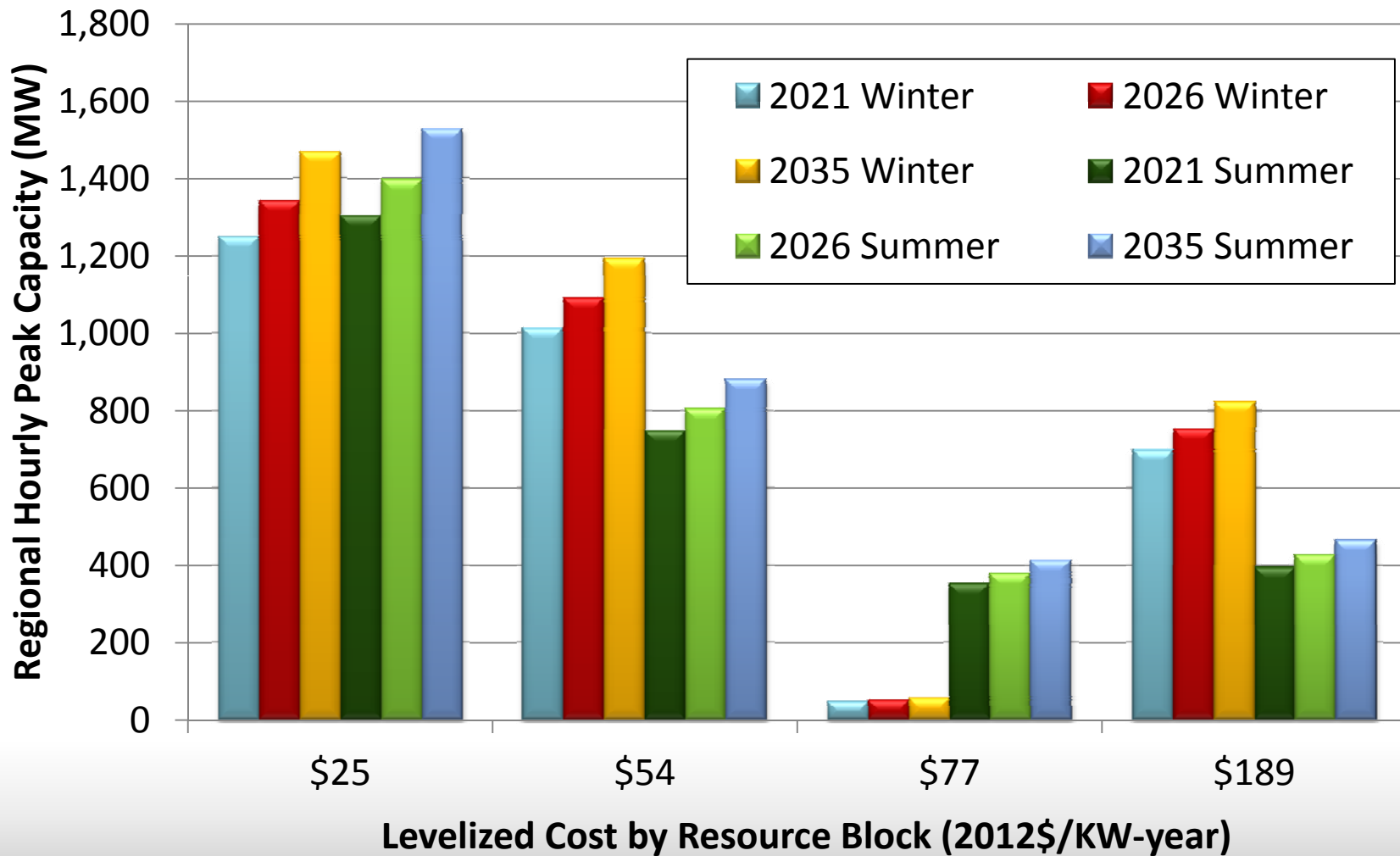


Key Finding: Energy Efficiency Is The Largest Source of Future Winter Capacity



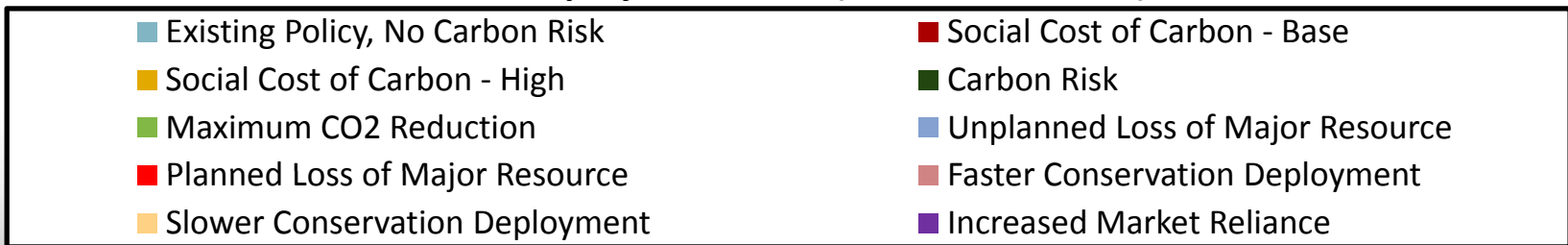
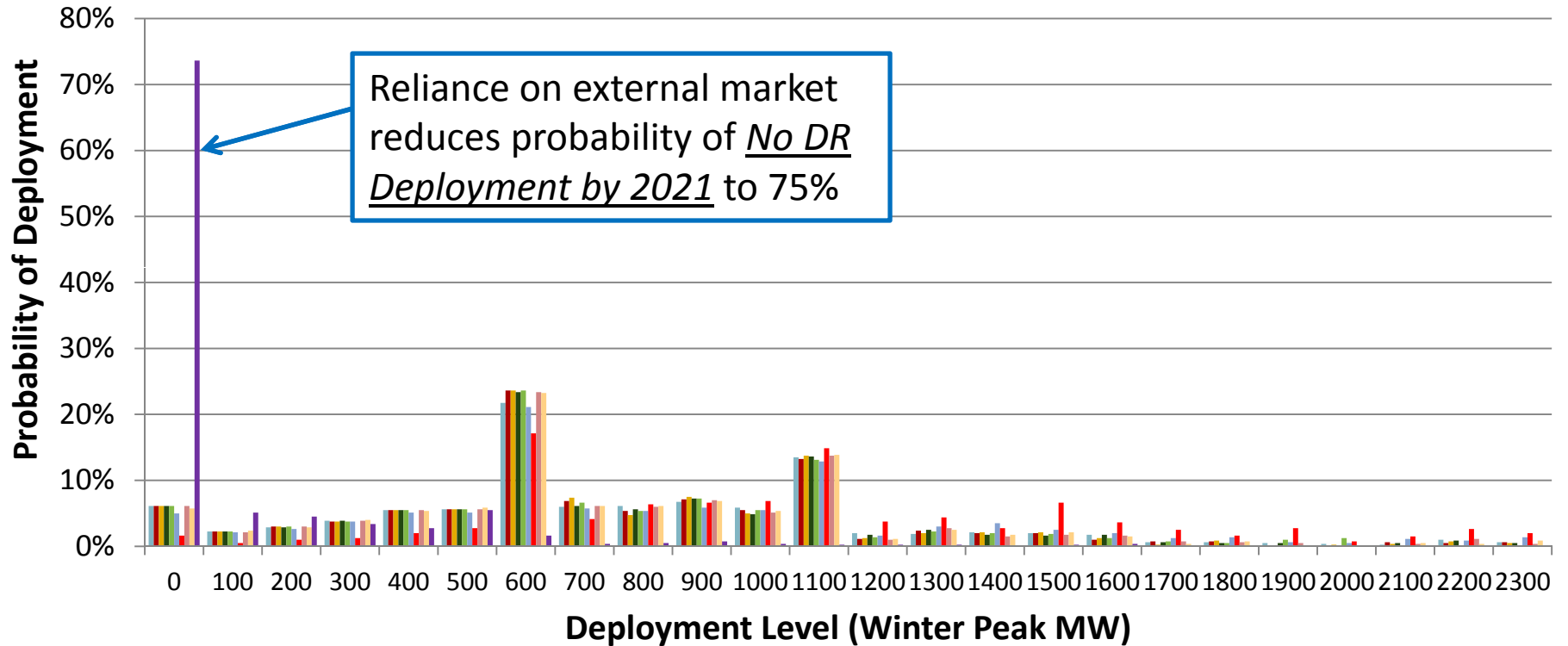
Key Finding:

The Regional Potential for Demand Response Appears Significant

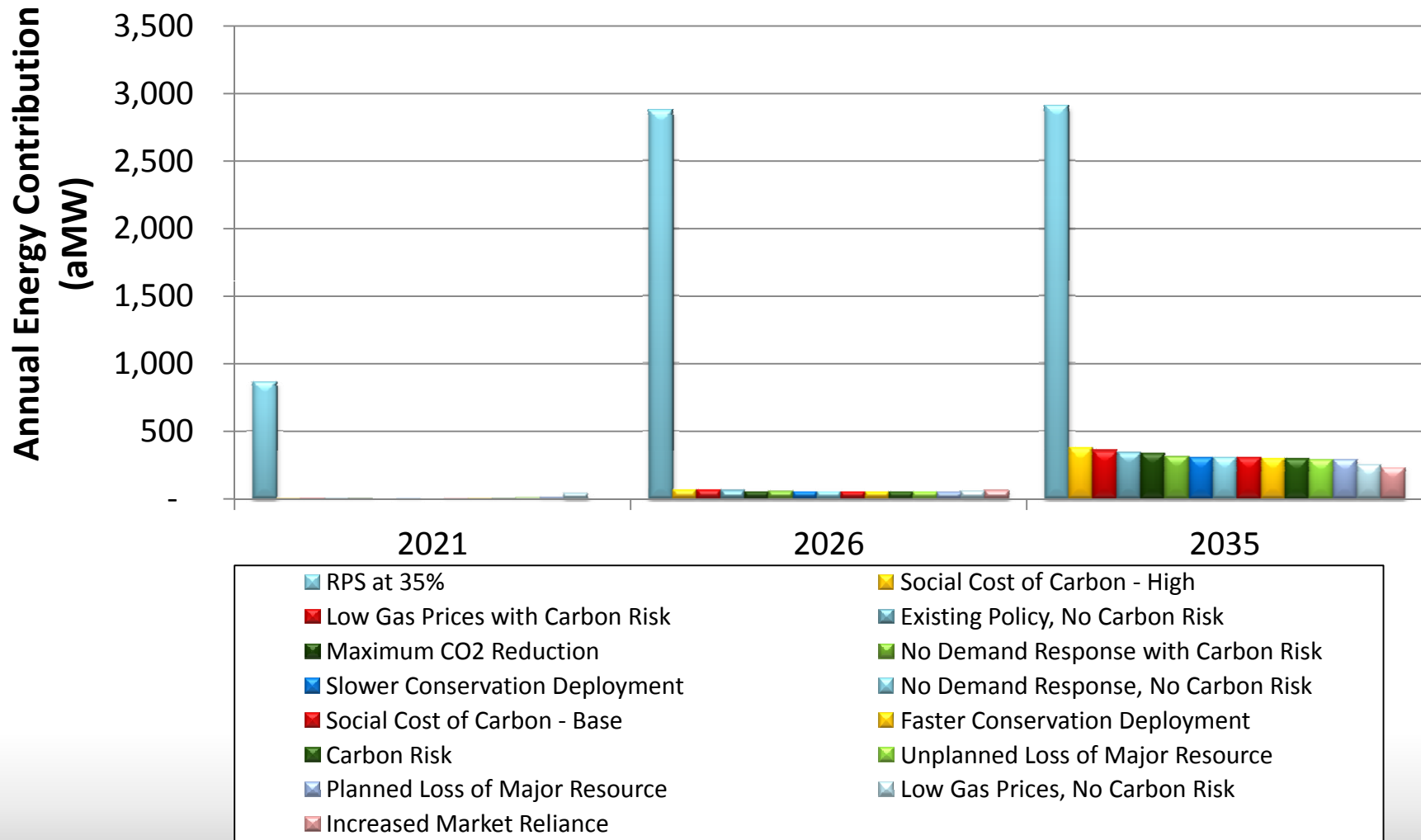


Key Finding:

The Probability and Amount of Demand Response Deployment Varies Over a Wide Range, and is Particularly Sensitivity to Extra-Regional Market Reliance Assumptions

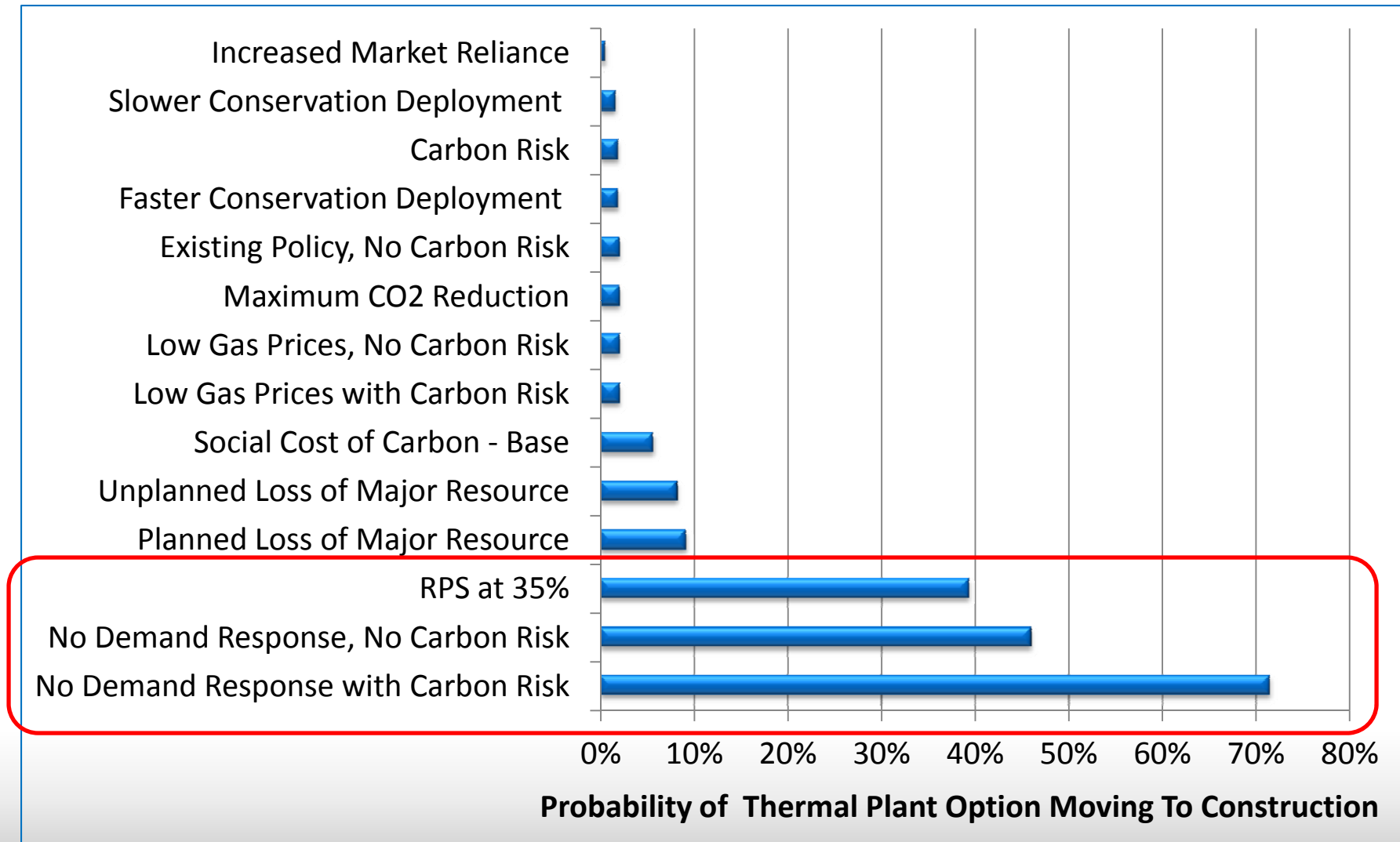


Key Finding:
**New Renewable Resource Development Does Not Significantly Increase In
 Carbon Emissions Reduction Policy Scenarios
 Except For A Policy That Sets Renewable Portfolio Standard at 35%**



Key Finding:

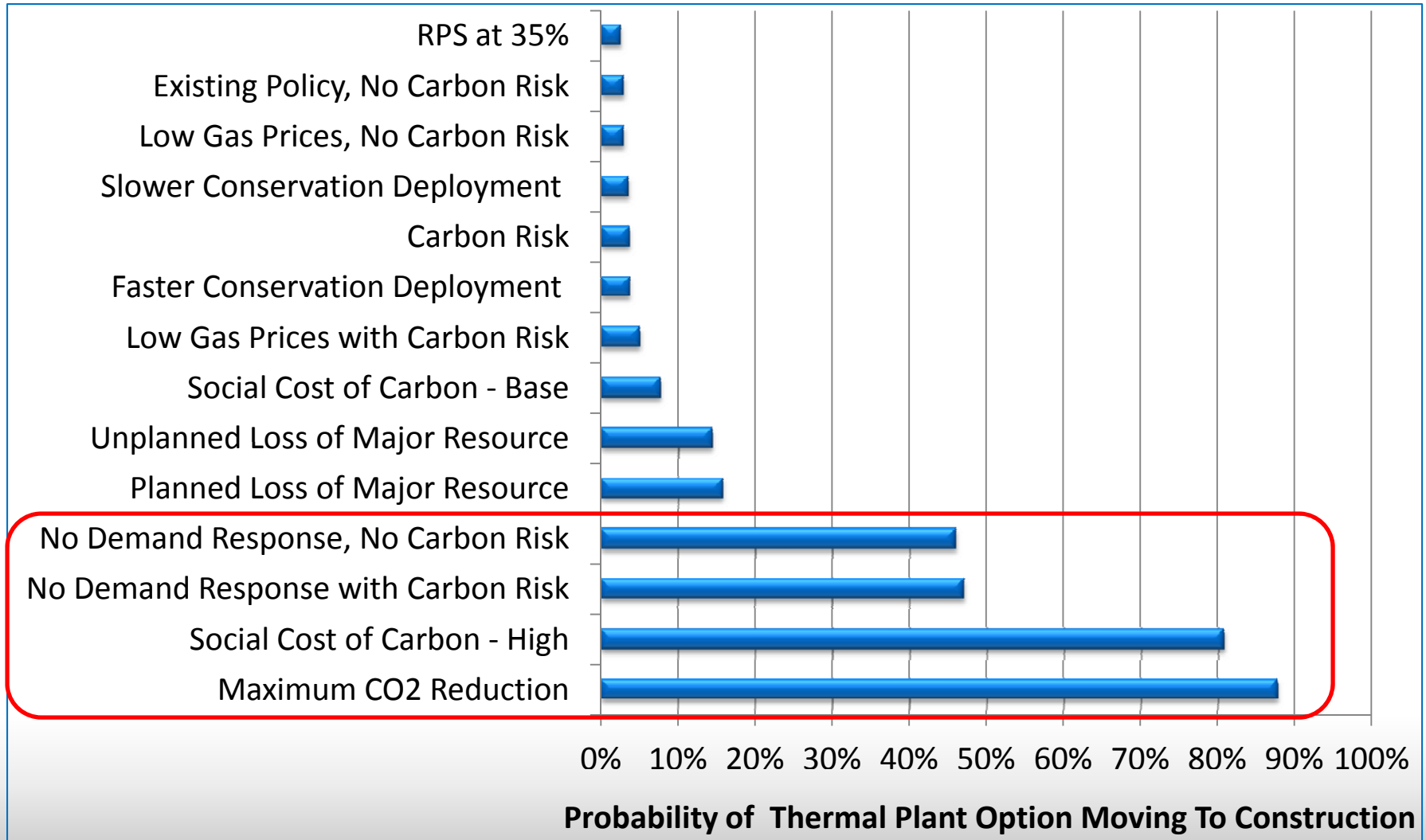
There is a Low Probability of Any Thermal Development by 2021
Except Under Scenarios That Increase RPS or Do Not Develop Demand Response



Key Finding:

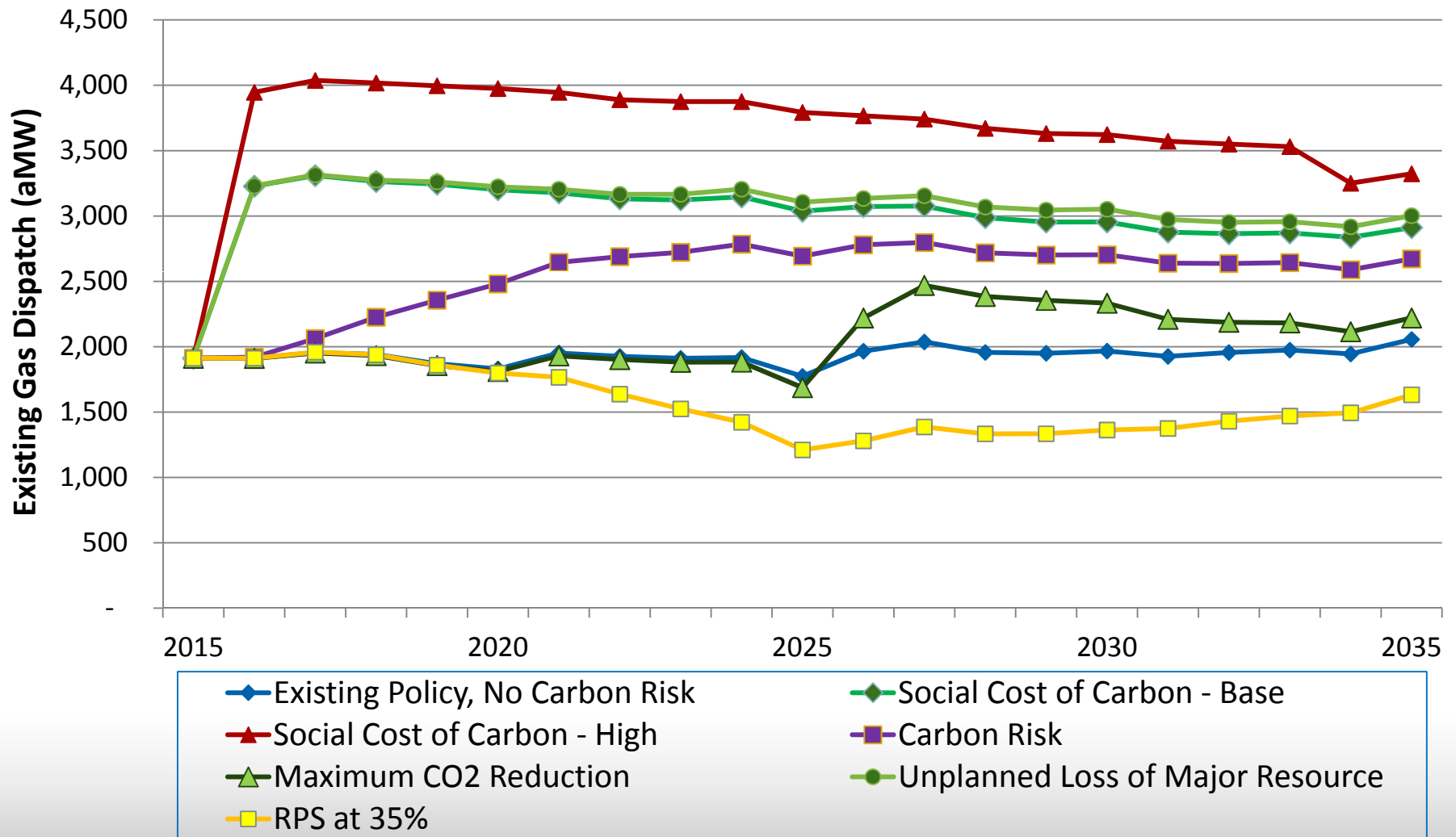
The Probability of Thermal Development by 2026 Is Modest

Except In Scenarios That Assume All Coal Plants Are Retired or Do Not Develop Demand Response

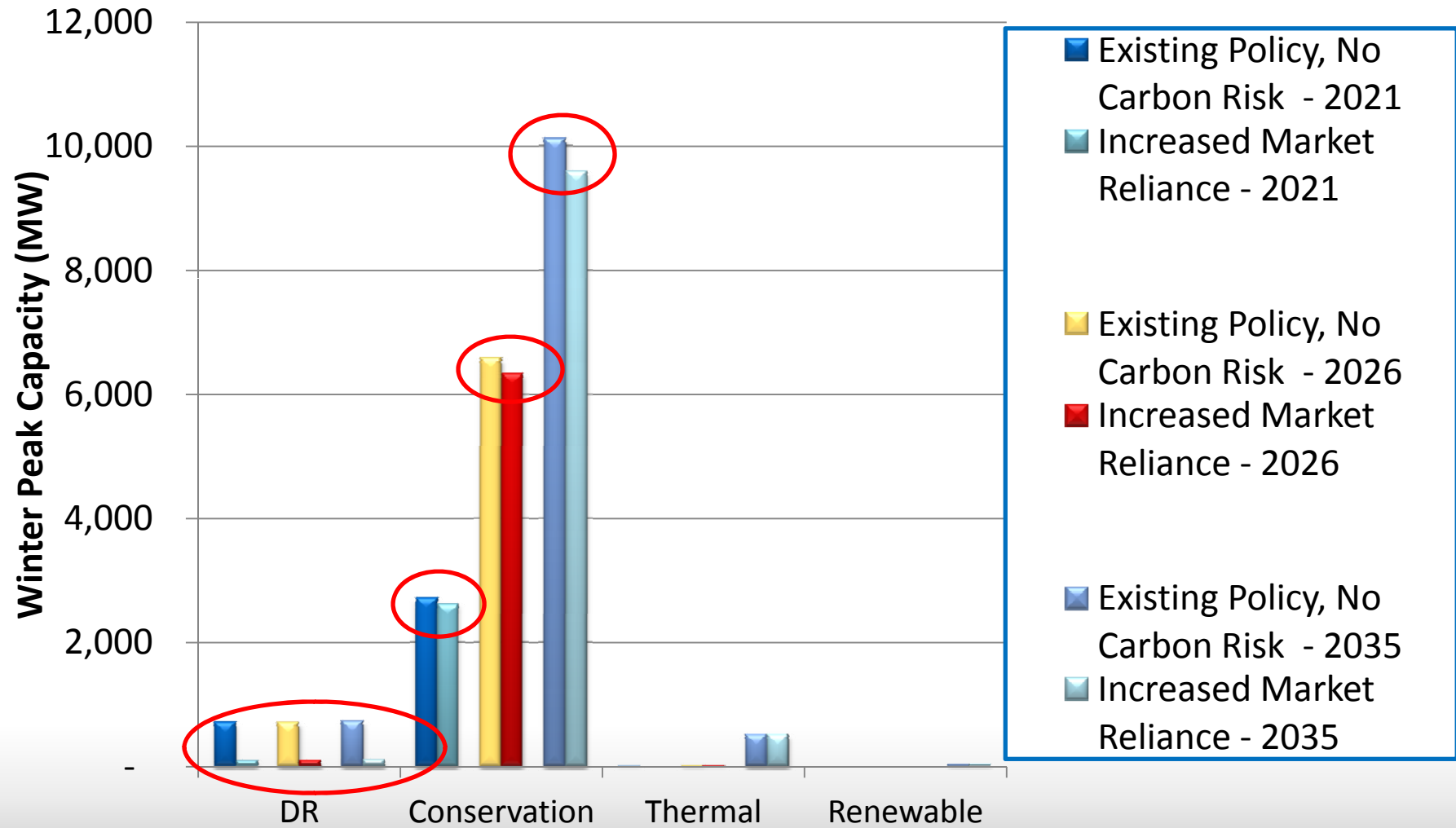


Key Finding:

Increased Use of Existing Natural Gas Offsets Announced Coal Plan Retirements, Resulting in Lower CO2 Emissions

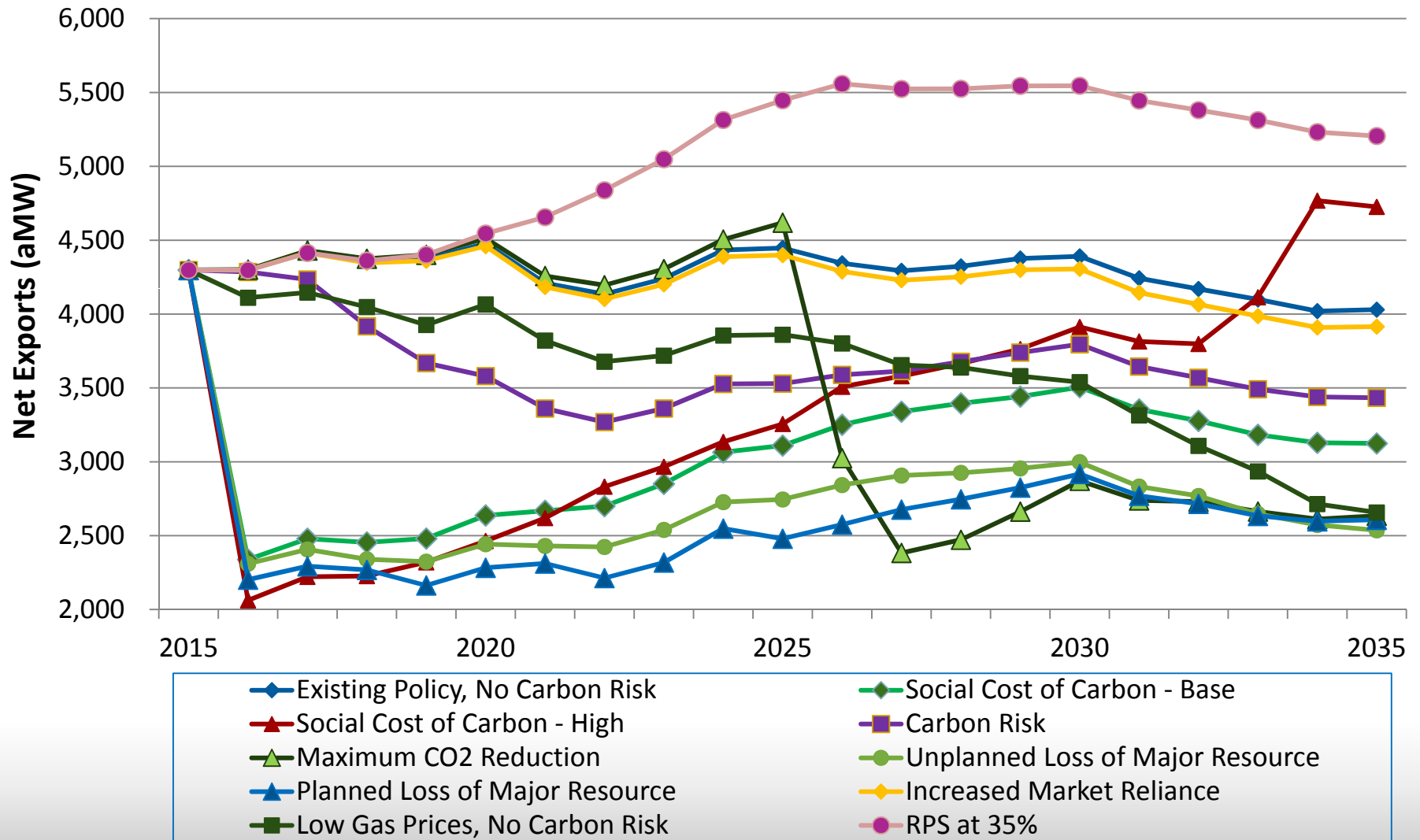


Key Finding: Increasing External Market Reliance for Winter Capacity Reduces Demand Response and Conservation Development

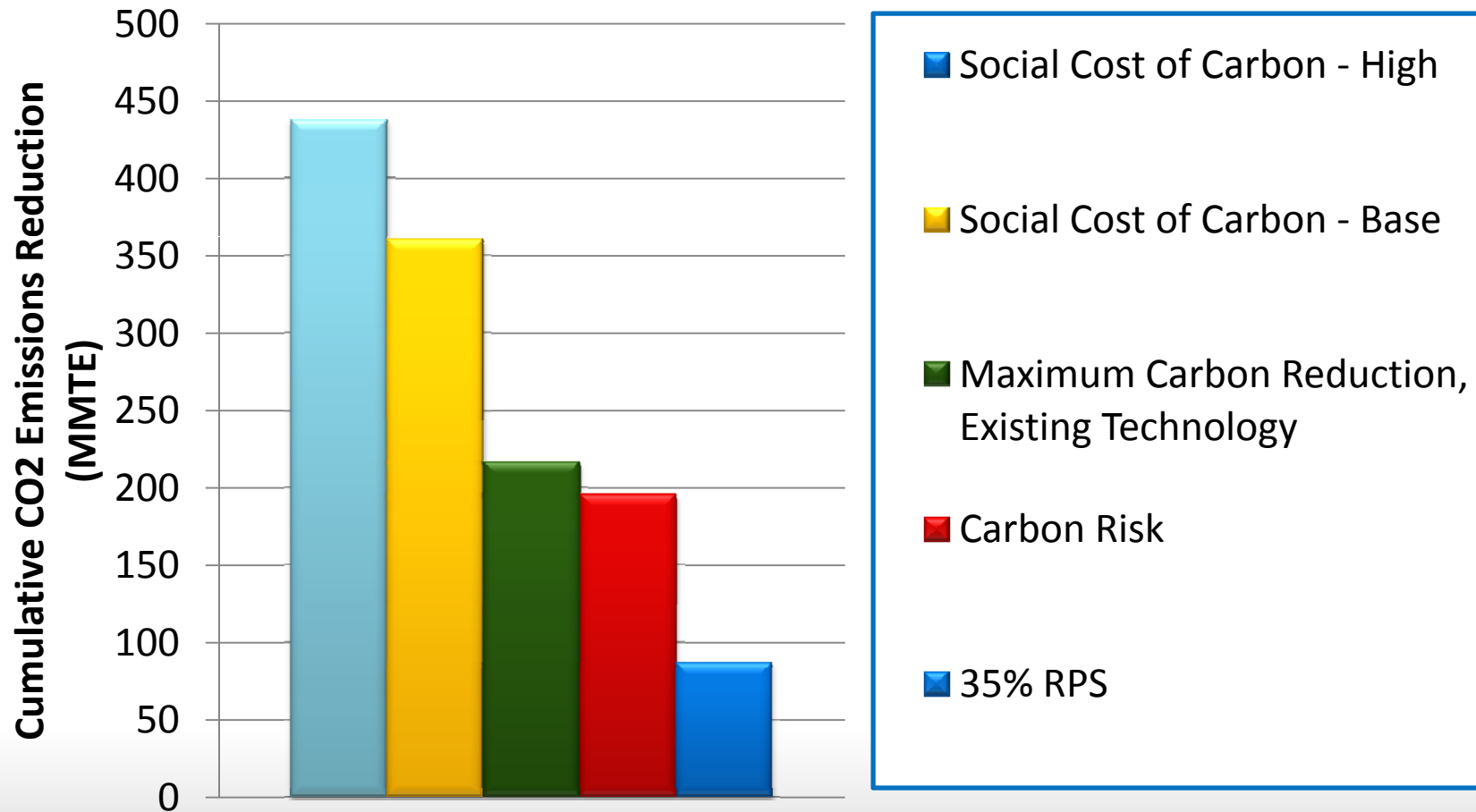


Key Finding:

Net Exports (Exports-Imports) Are Strongly Influenced By Regional Resource Development

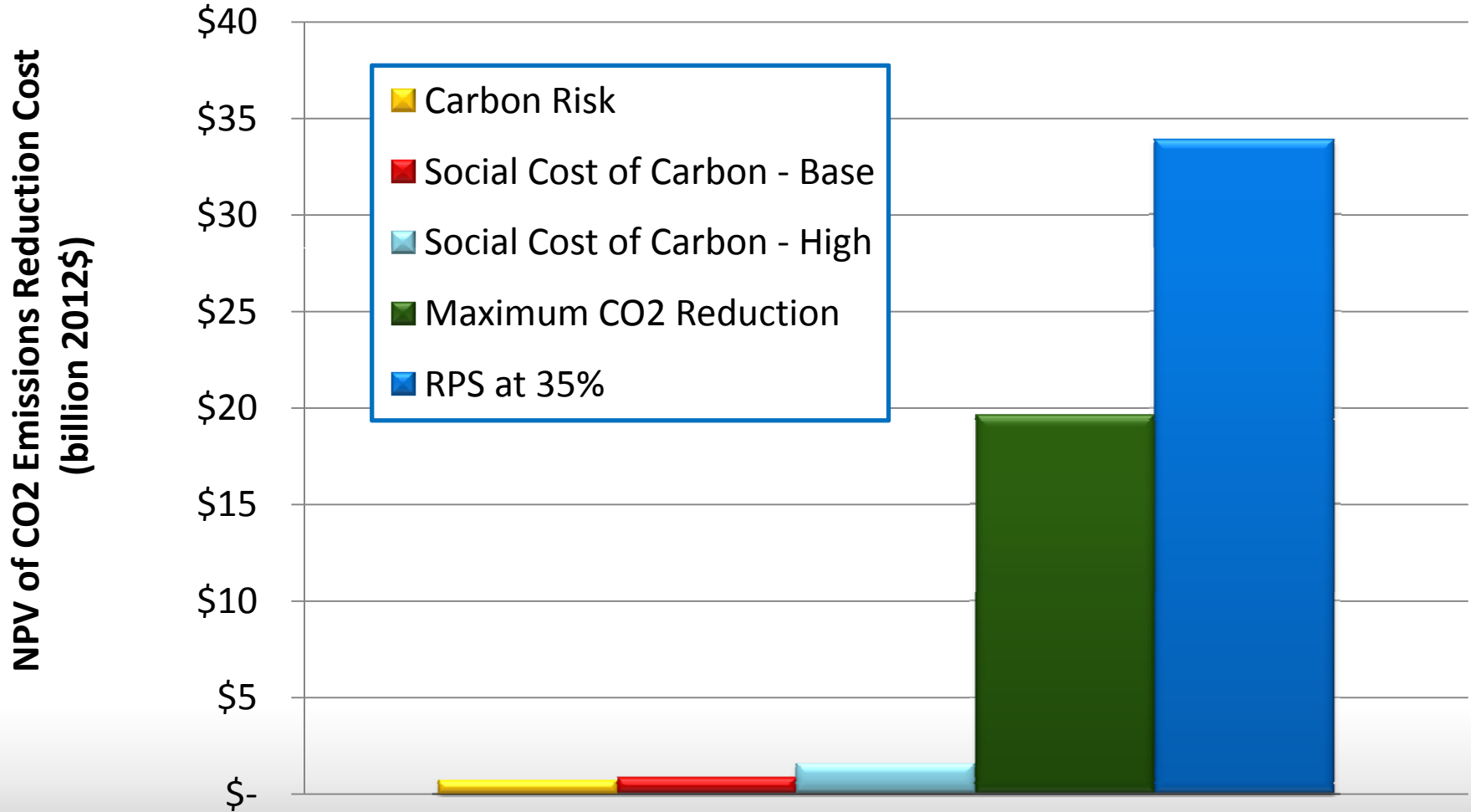


Key Finding: The Largest PNW Power System Cumulative CO2 Emissions Reductions Occur Under Resource Strategies That Must Respond Immediately to Carbon Reduction Policies

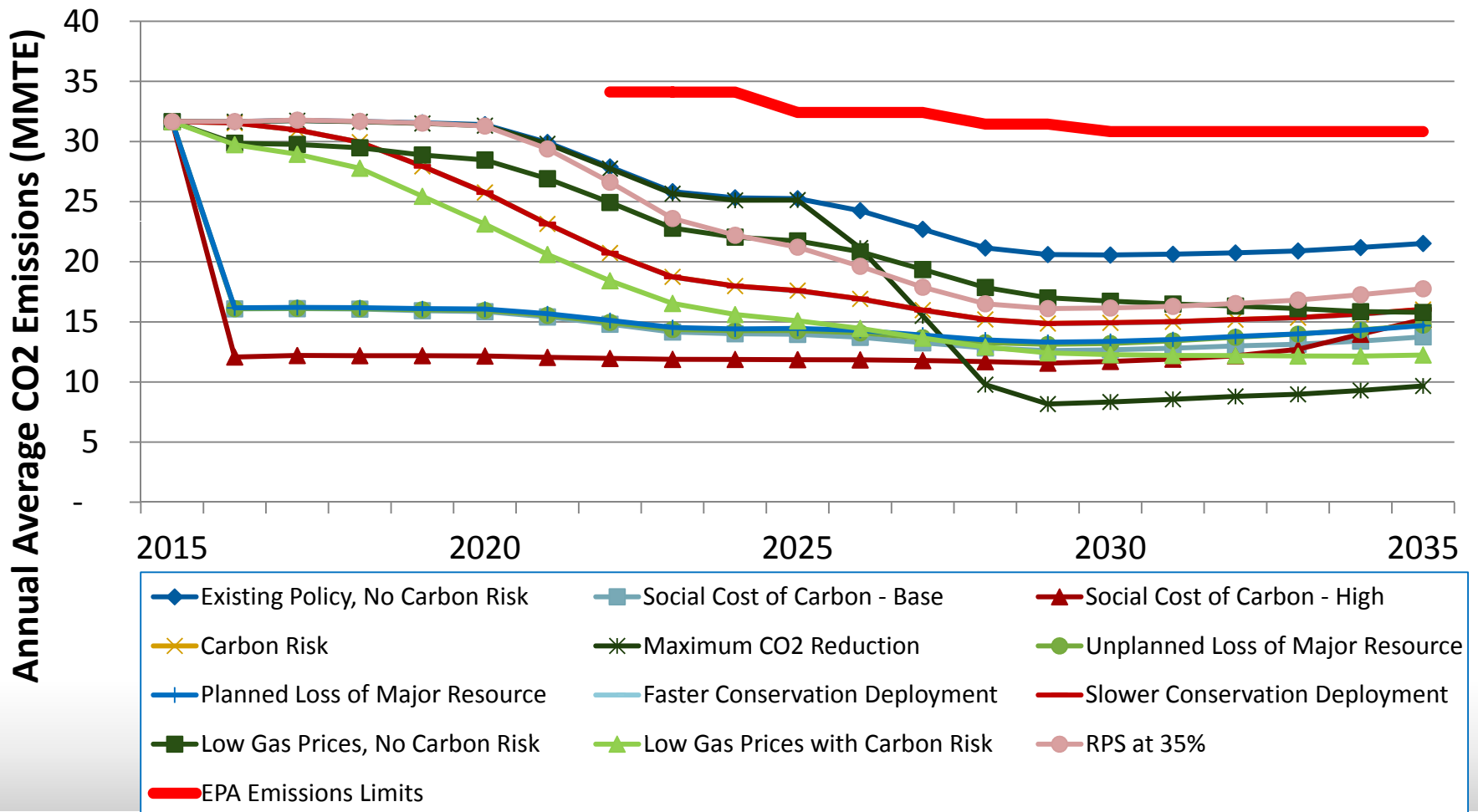


Key Finding:

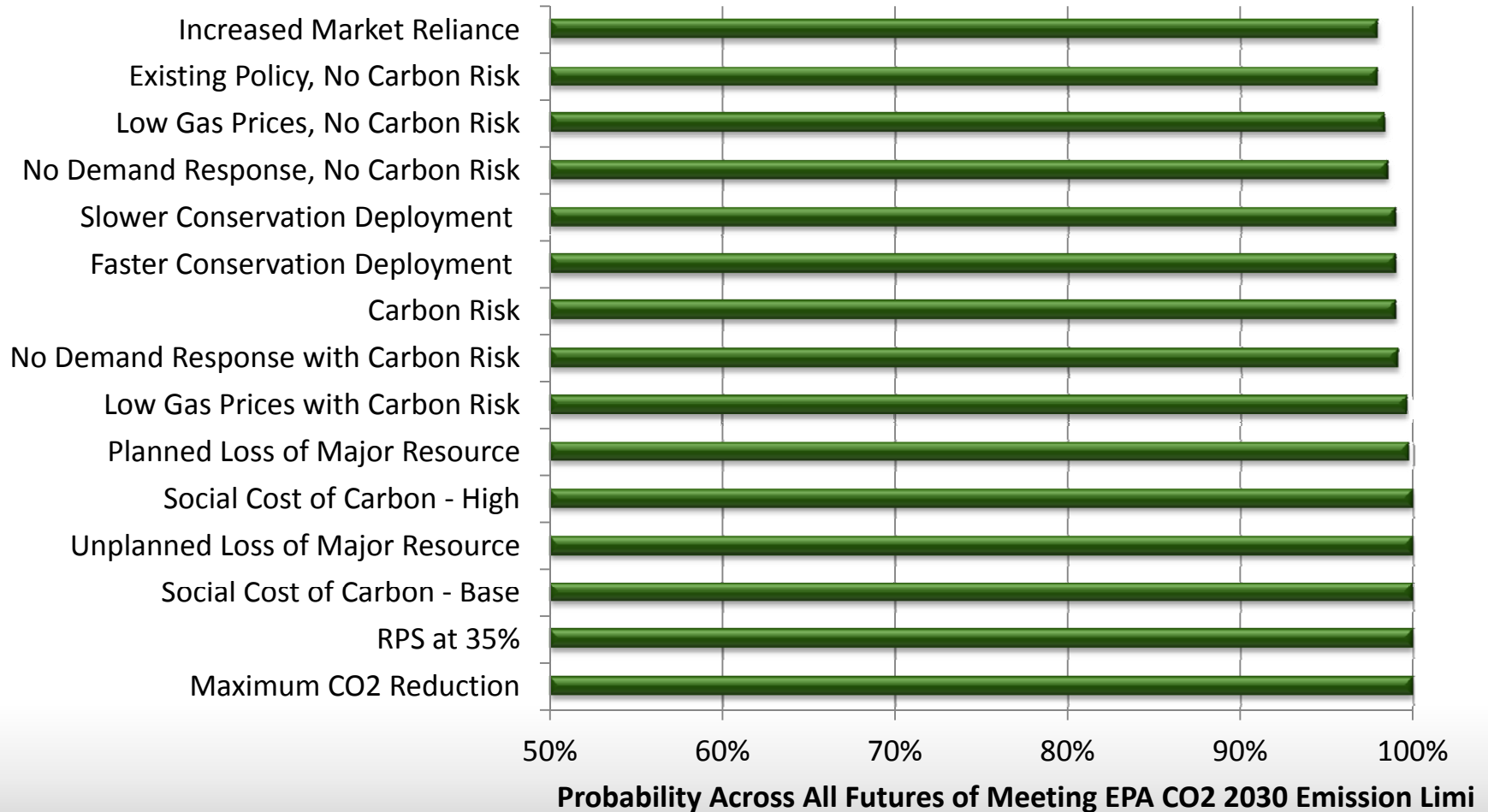
The Lowest Cost PNW Power System CO2 Emission Reduction Resource Strategies Are Those That Re-Dispatch Coal and Existing Gas Generation



Key Finding: Annual Average CO2 Emissions for Least Cost Resource Strategies Are Below EPA's Clean Power Plan [111(b) & 111(d)] Emission Limits *At the Regional Level*



Key Finding:
There is A Very High Probability of Meeting EPA 111(d) Emissions Limits at the Regional Level Across All Scenarios and Future Conditions Tested



Next Steps & Schedule

- Council Scheduled to Adopt Draft Plan at October 13th – 14th Meeting in Vancouver
- Public Comment Through December 18, 2015
 - Hearings in Each State - November/December
 - Consultations As Requested
- Council Scheduled to Adopt Final Plan at February 12th – 13th Meeting in Portland