Seventh Power Plan and Regional Recommendations

July 6, 2016

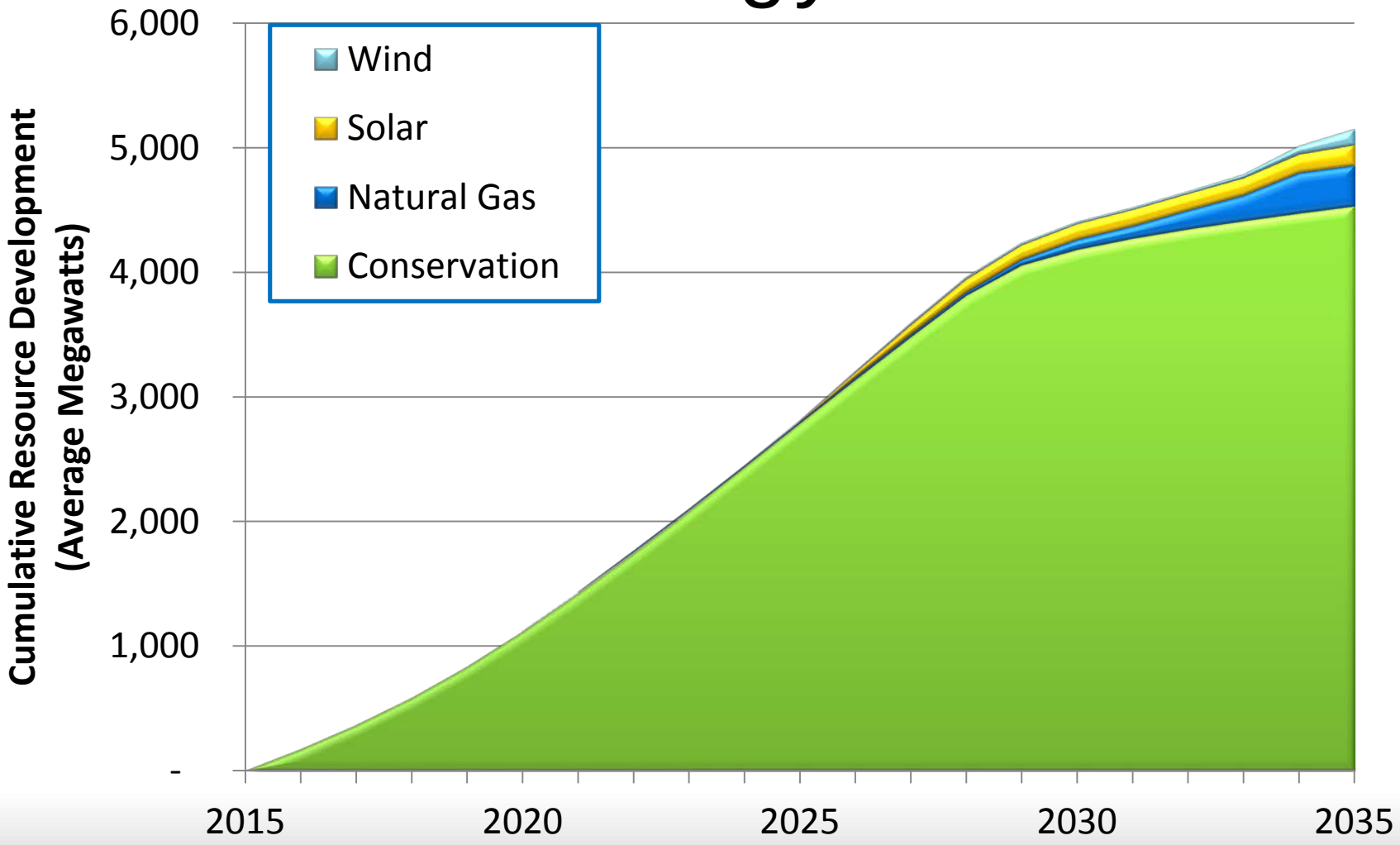
Resource Strategy

- Energy Efficiency Development
  - 1400 aMW by 2021
  - 3100 aMW by 2026
  - 4500 aMW by 2035
- Expand Use of Demand Response
  - Be prepared to develop a significant quantity of demand response resources by 2021
  - Review out-of-region market depth assumptions for energy and capacity
- Renewable Resources
  - Expand the resource options considered for renewable requirements, utilities should consider the value of diversity from both adding different technologies and different geographic locations
  - Encourages research on and demonstration of renewable energy with a more consistent output like geothermal or wave energy

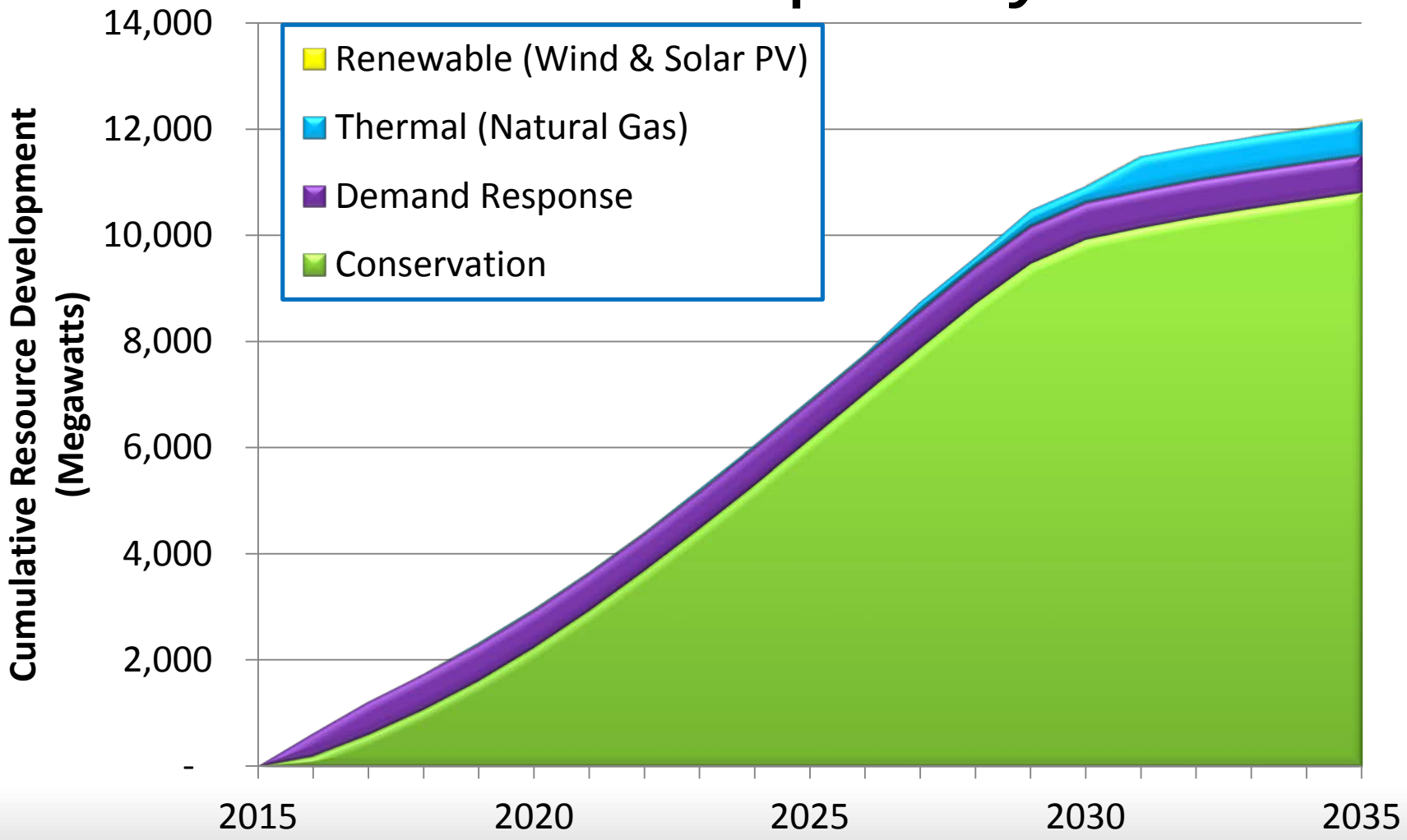
Resource Strategy

- Natural Gas
  - Increase use of existing gas generation to offset coal plant retirements
  - Low probability of regional need for new gas-fired generation prior to 2021
  - Individual utility circumstances and need for capacity and other ancillary services may dictate development
- Regional Resource Use
  - Continue to improve system scheduling and operating procedures across the region's balancing authorities to maximize cost-effectiveness and minimize the need for new resources to integrate renewable generation
- Expand Resource Alternatives
  - Continue to research and expand energy efficiency options
  - Expand renewable generating options to capture technological diversity
- Adaptive Management

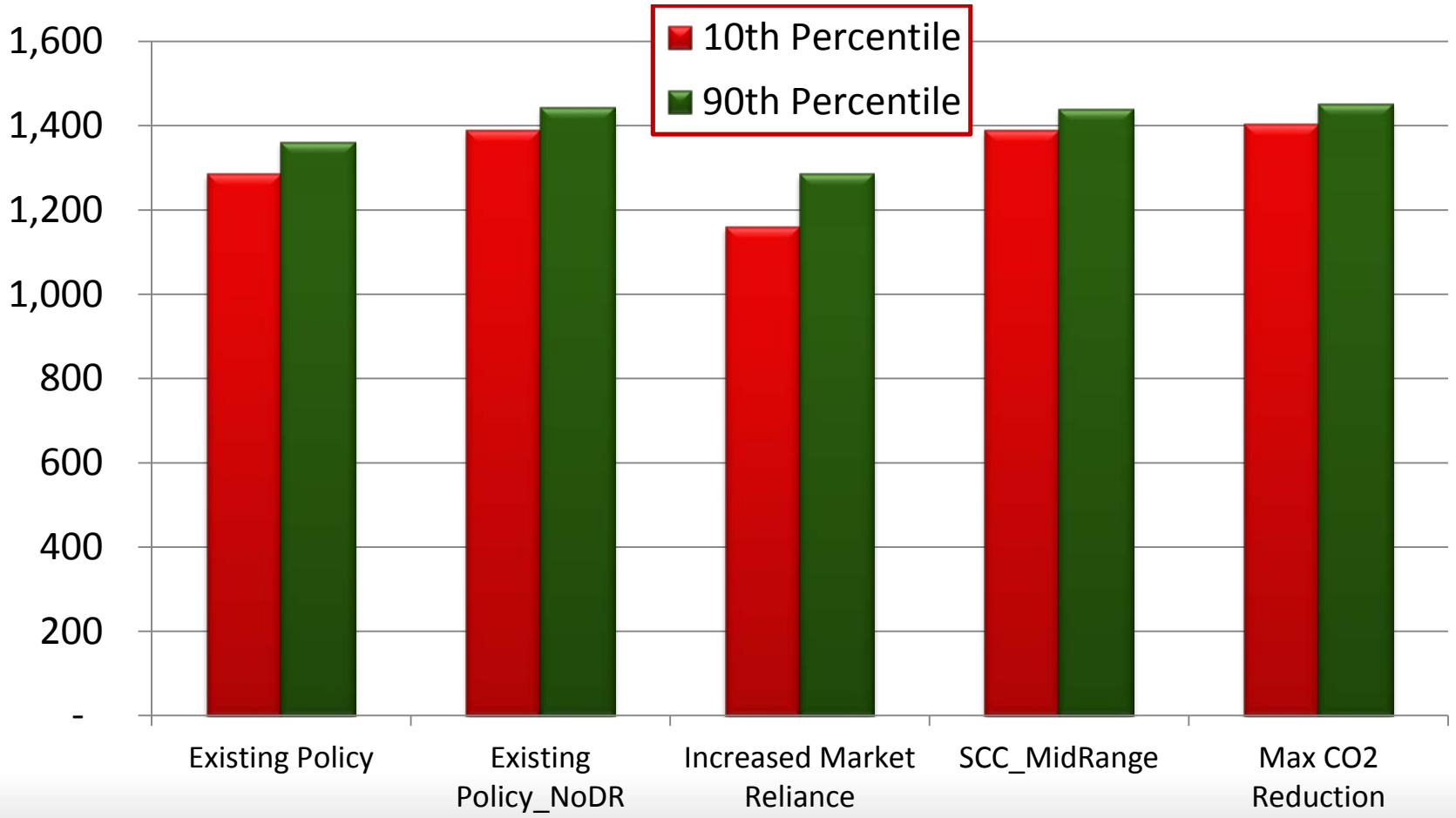
7th Plan Resource Portfolio Energy



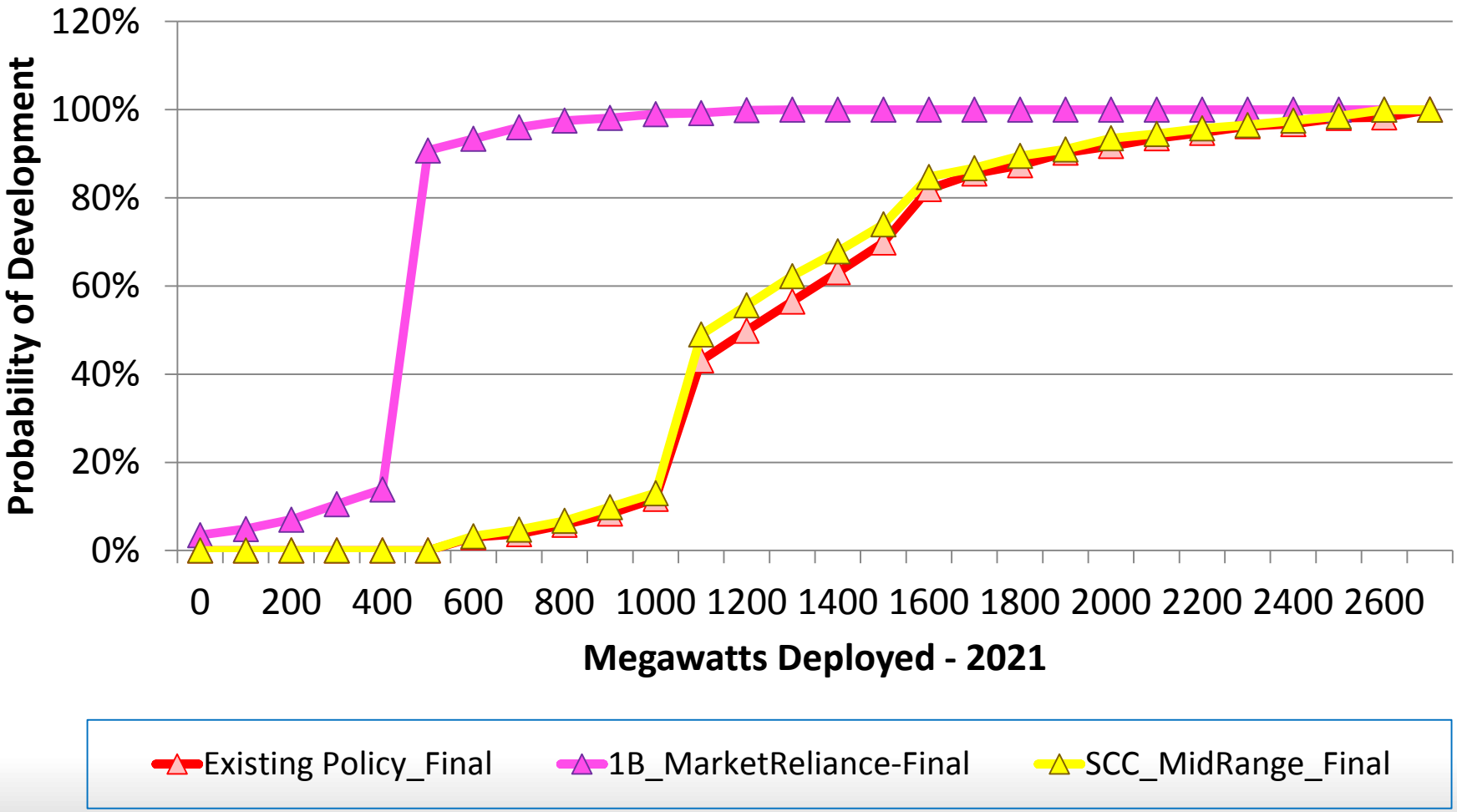
7th Plan Resource Portfolio Winter Capacity



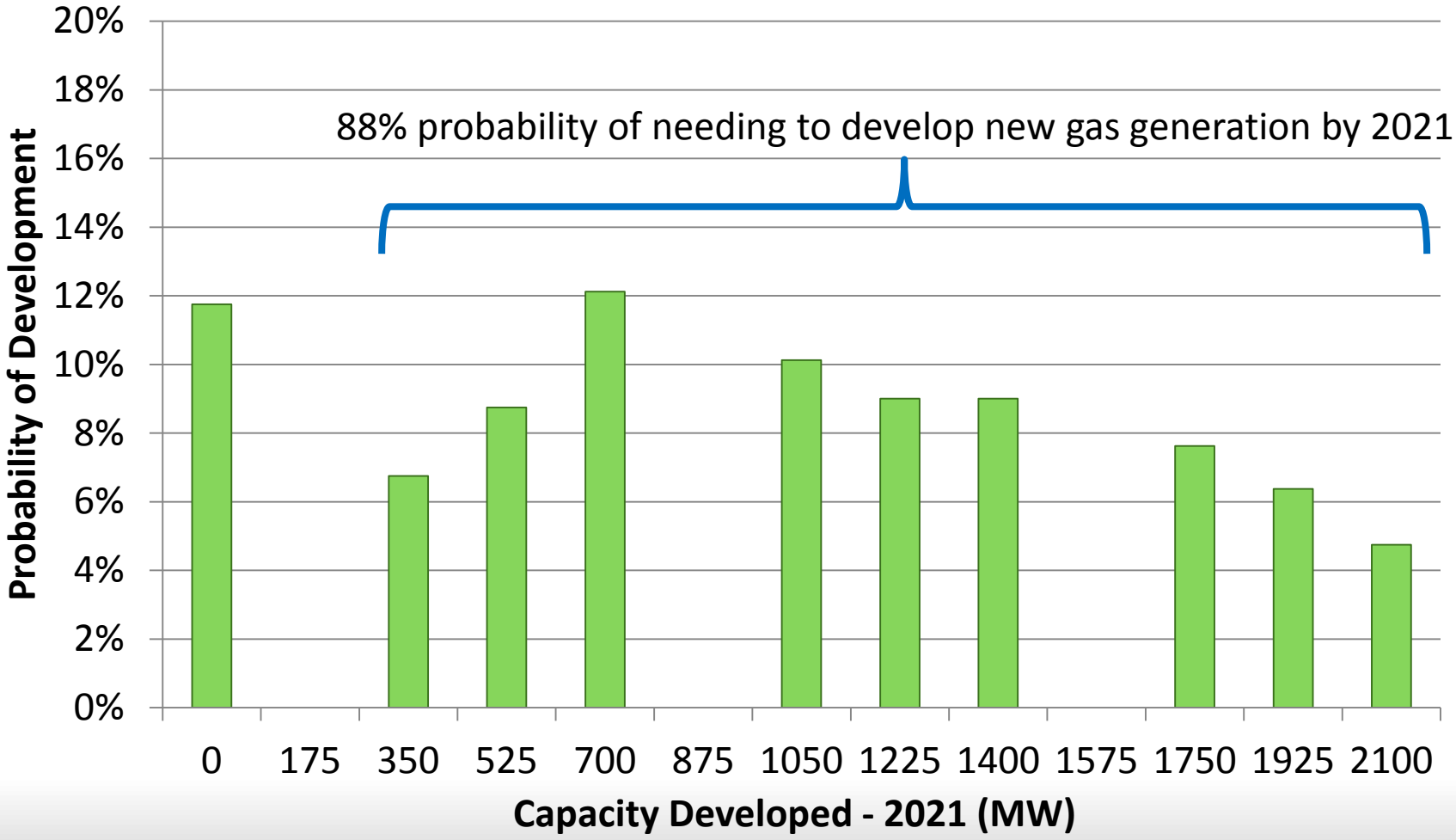
Range of Energy Efficiency Development



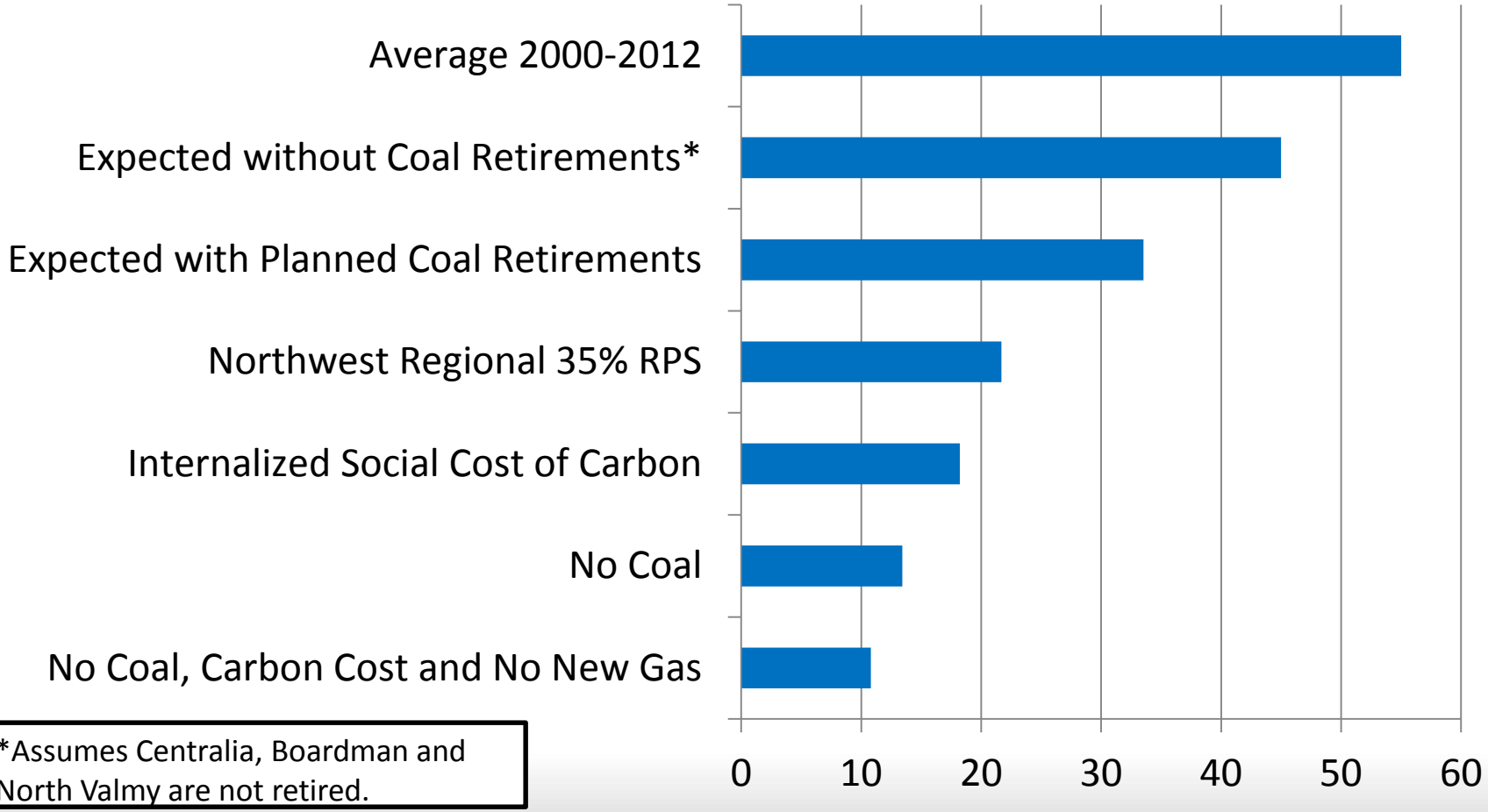
Demand Response Plays a Key Role in Regional Reliability



Without Demand Response Additional Natural Gas Development is Very Likely



Impact of Policy on Emissions



*Assumes Centralia, Boardman and North Valmy are not retired.

Action Plan Recommendations

Energy Efficiency

- Achieve the regional goal for energy efficiency and report on progress in the annual Regional Conservation Progress survey
- Evaluate cost-effectiveness of measures **considering capacity**
- Continue support of NEEA
- Conduct conservation program impact evaluations
- Improve participation in cost-effective programs for underserved or hard-to-reach segments, e.g. low-income households
- **Support end-use load research**
- Provide flexibility in pursuing measures **that may not be cost-effective but demonstrate likely cost reductions** to help in improving future codes and standards

Resource Adequacy

- Identify **system specific least-cost resources to maintain resource adequacy** considering demand response and energy efficiency
- **Consider individual utility contributions to regional resource adequacy**

Demand Response

- Support regional market transformation
- **Provide public data on impact of DR dispatch on historic loads**

Renewables

- Consider diversity in technology and geography when acquiring new renewables
- In addition to wind generation, both solar and geothermal generation were cost-effective options in resource strategies identified in the Seventh Plan

Carbon Emissions

- Re-dispatching the existing system can significantly reduce carbon emissions without requiring the significant capital associated with building new generation
- Complying with the EPAs Clean Power Plan, if upheld, should be possible with announced retirements on a regional level – at a state level will likely take some coordination

Operating Reserves

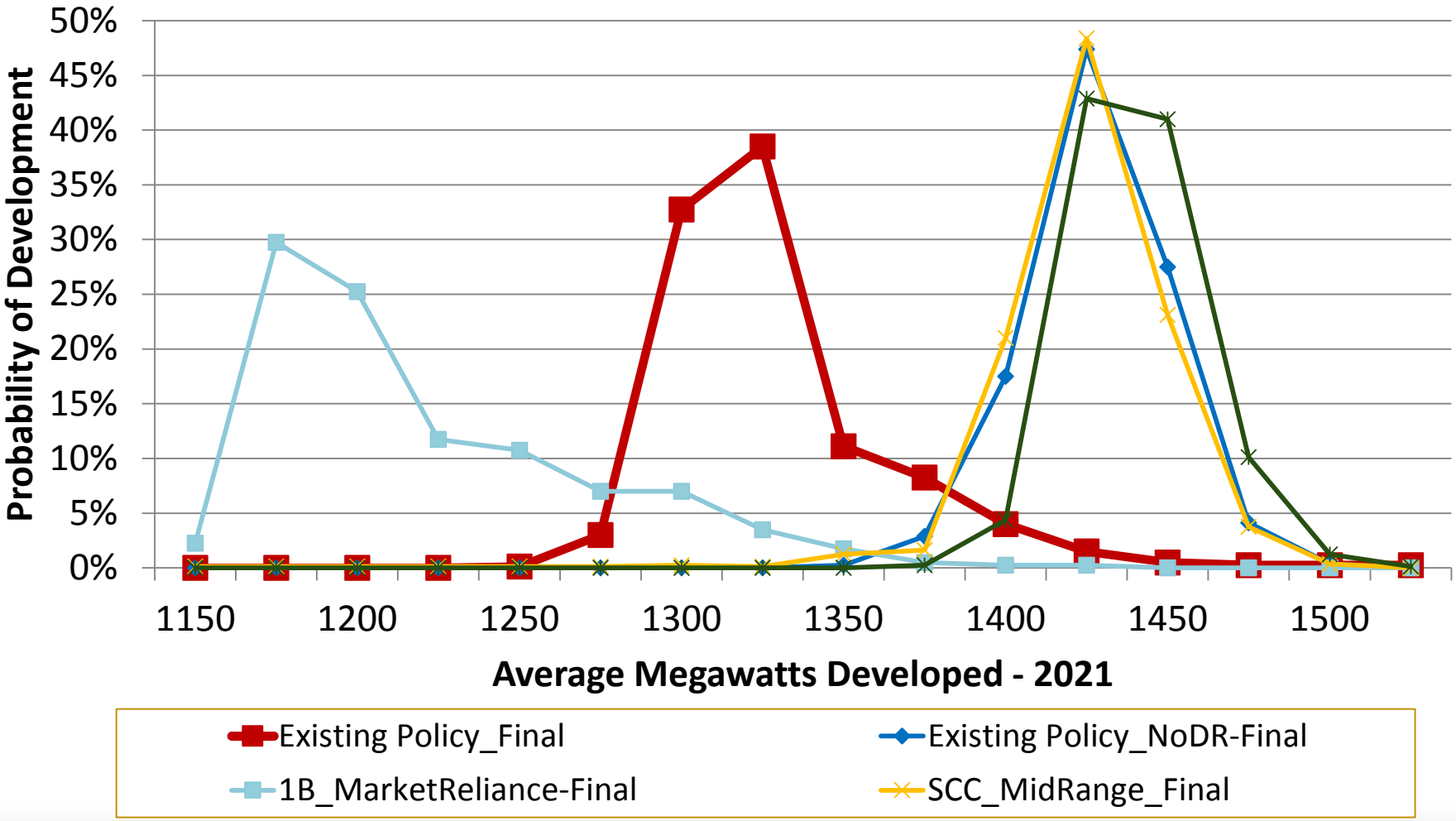
- An estimate of utilities requirement for operating reserves
- Reasonable planning assumptions for the demand for and supply of reserves including **which projects or plants should be assigned in power system models** to provide these reserves or what level of third-party provision of reserves is anticipated

Load Forecasting

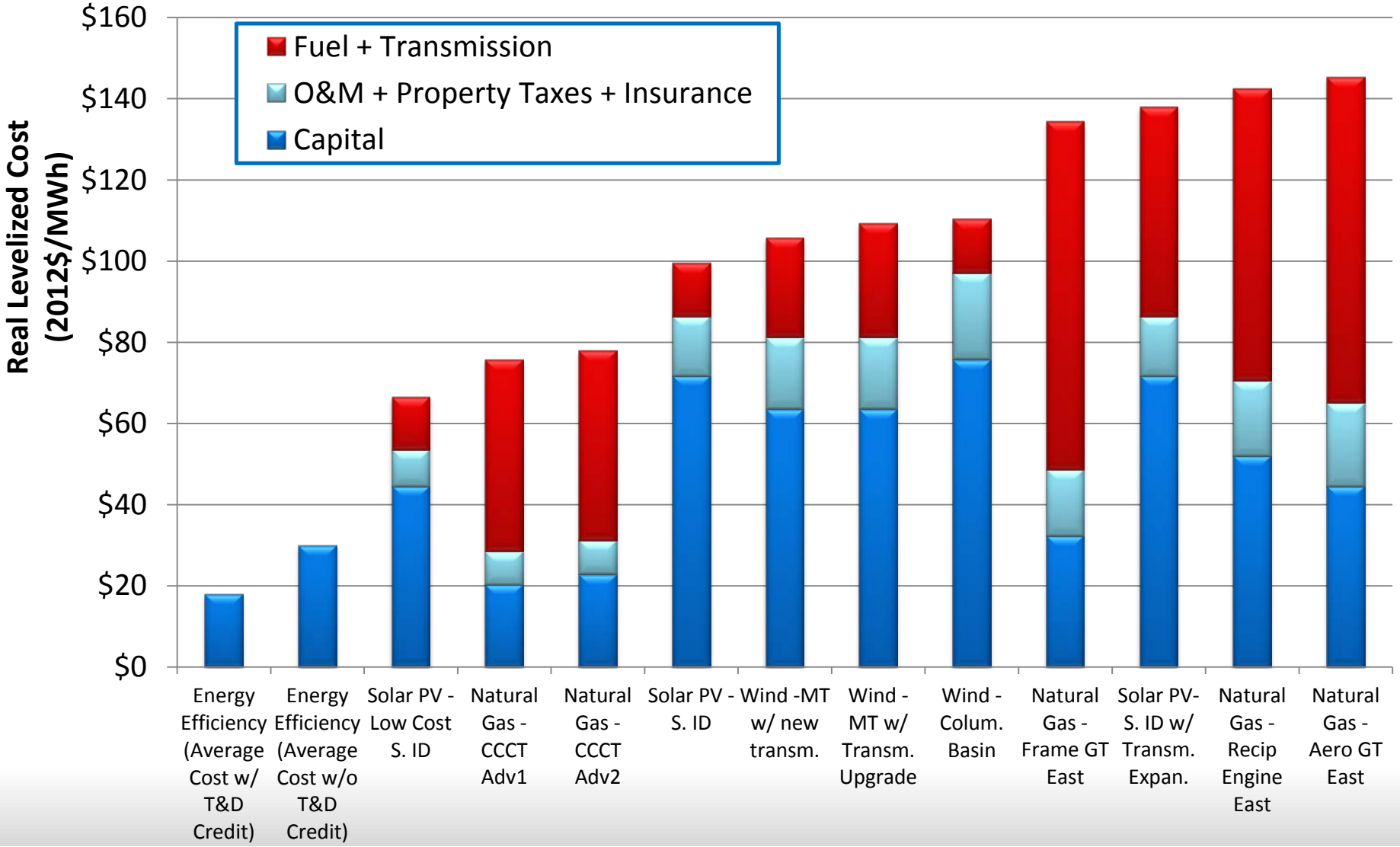
- Support end-use load research
- **Reflect the impact of codes and standards in load forecasts**
- Facilitate sharing whole-building consumption data to improve energy and demand savings estimates

Backup Slides

Updated Scenario Analysis Shows Little Change In Conservation Development Patterns Across Scenarios Compared To Draft Plan



All Resource Cost – Energy



All Resource Cost – Peak Capacity