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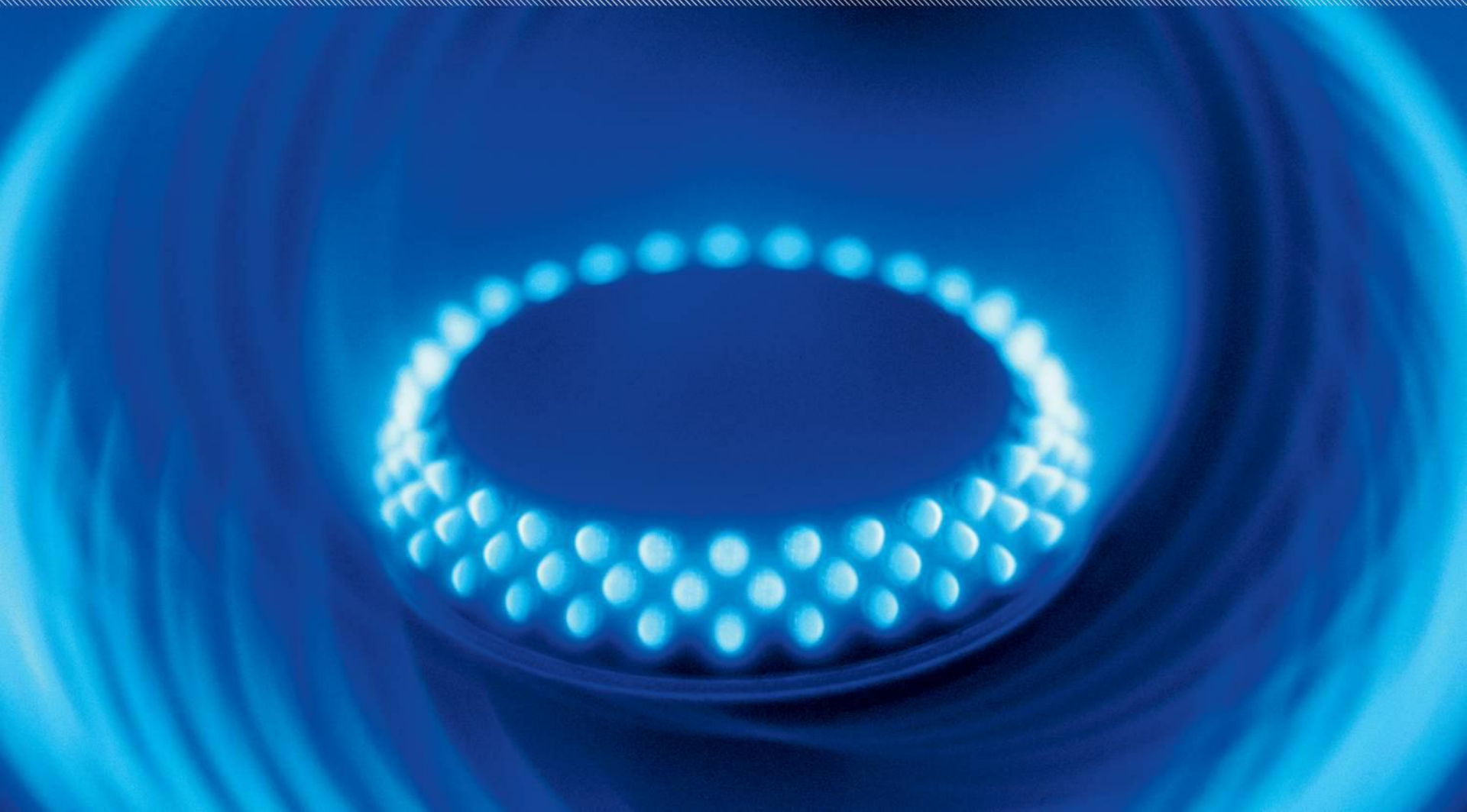
Washington IRP

Washington Utilities and Transportation Commission

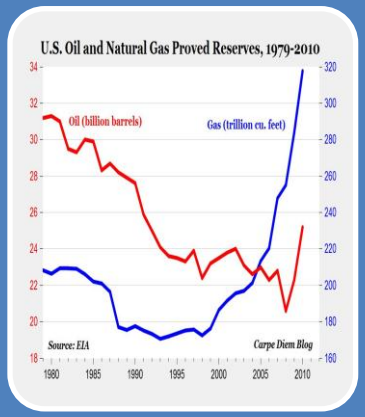
May 10, 2013



Presentation of NW Natural 2013 Washington IRP

1. Key points
2. Load Forecast
3. DSM Cost Effectiveness
4. Resource Modeling and Risk – Reliability Analysis
5. Distribution System Planning

NW Natural 2013 Washington IRP – Four Key Points



Inflection Point for Natural Gas

- Shale Gas production has been transformational event
- Demand is lagging supply – markets just emerging
- Interdependence between electric and natural gas growing

Demand Side Management Challenge

- Actual results are less than predicted
- Gas prices are reducing cost effectiveness of programs
- Need to explore new approaches and programs

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NW Natural 2013 Washington IRP – Four Key Points

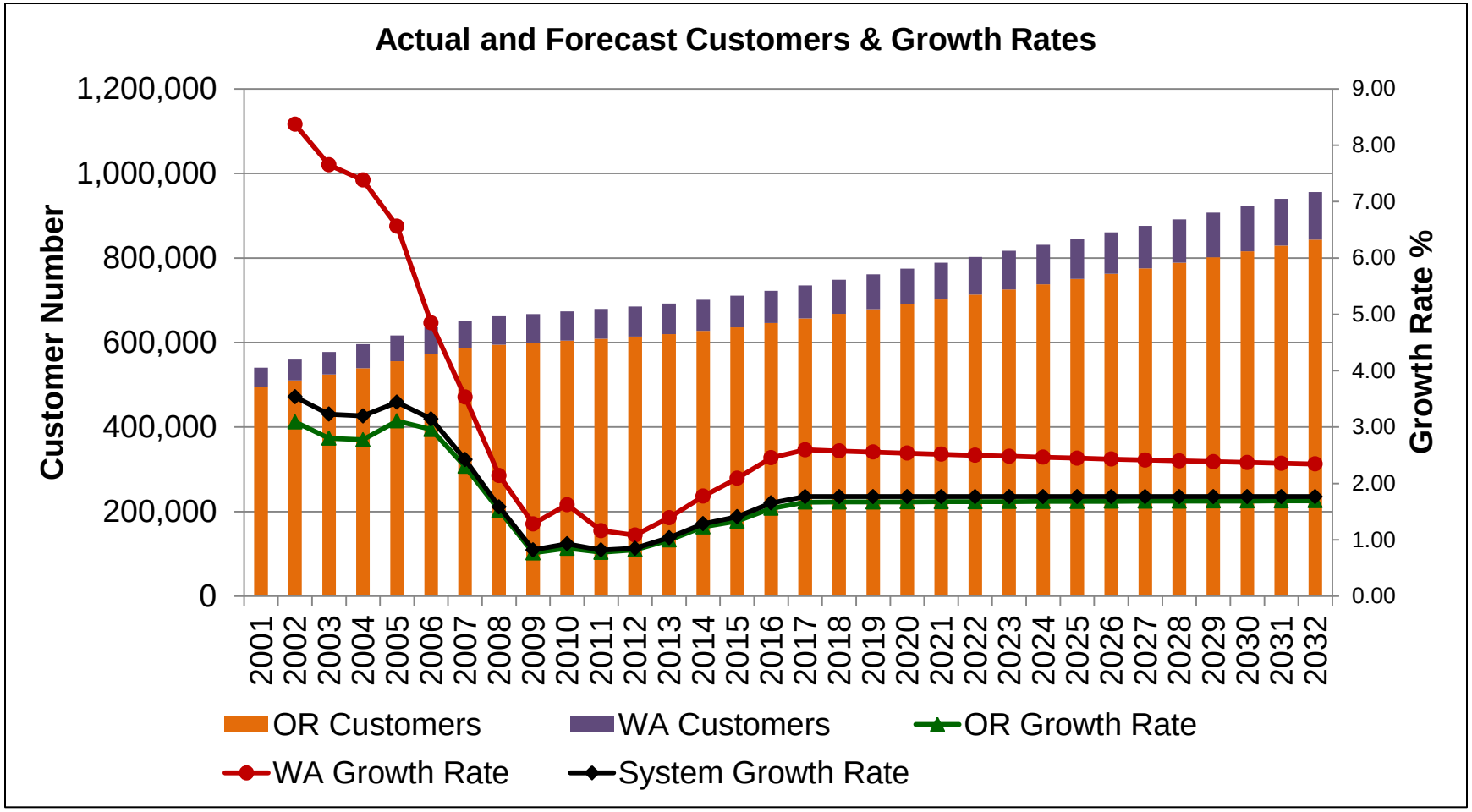
Reliability Analysis and Preferred Path

- Assumption of 100% resource availability is not realistic; reliability concepts used in electric IRP planning can be applied
- Analysis concluded that cross-Cascades pipeline would be Least Cost way of addressing for NW Natural customers
- Region will need to add natural gas infrastructure for growth
- Our IRP Preferred Path is a stepwise process to create the option to both expand system capacity and improve system resiliency

Distribution System Planning

- Developed scoping guidelines
- Desire to be more transparent
- Welcome feedback

Customer Forecast – System Wide



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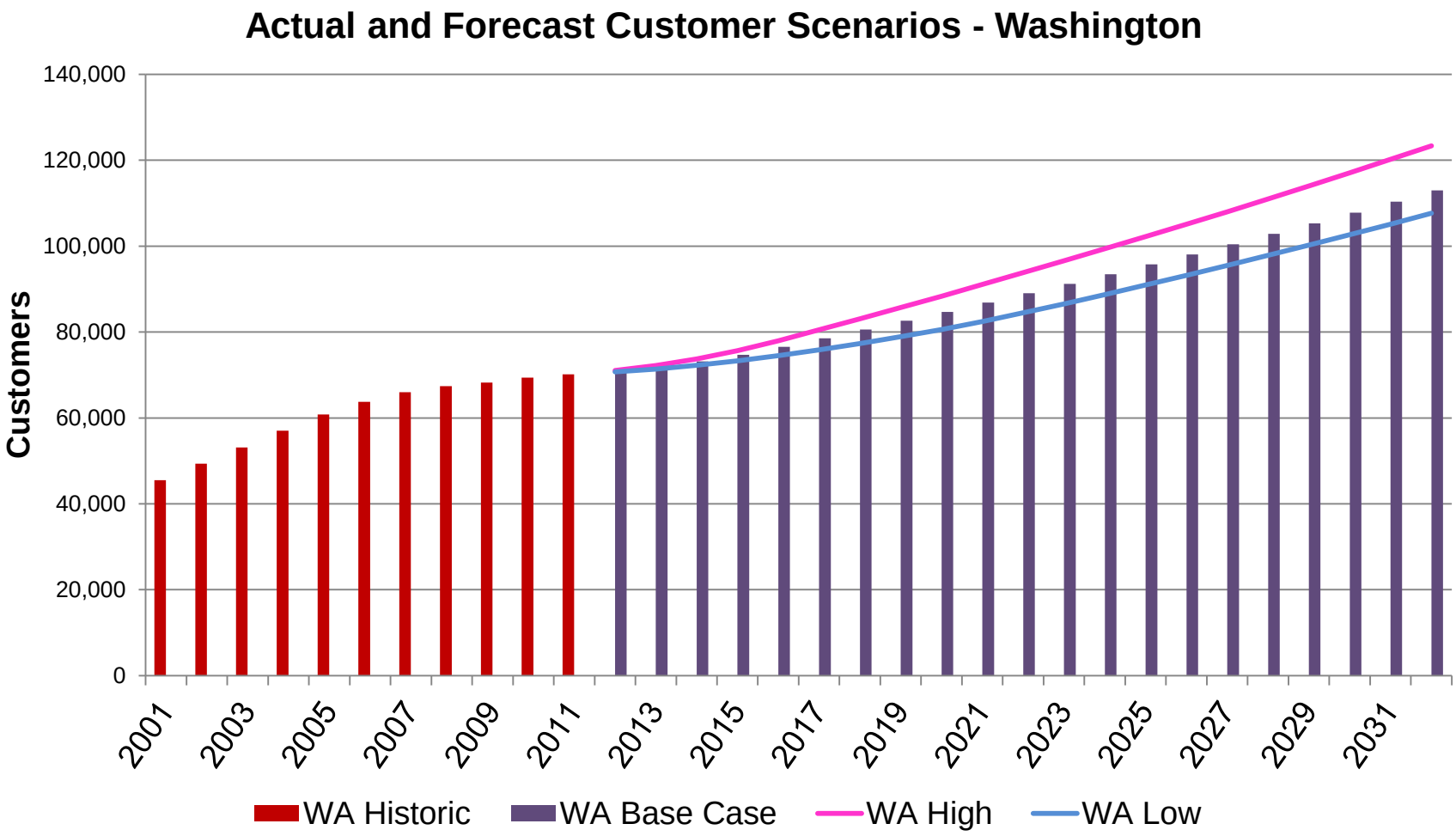
Customer Forecast – Washington



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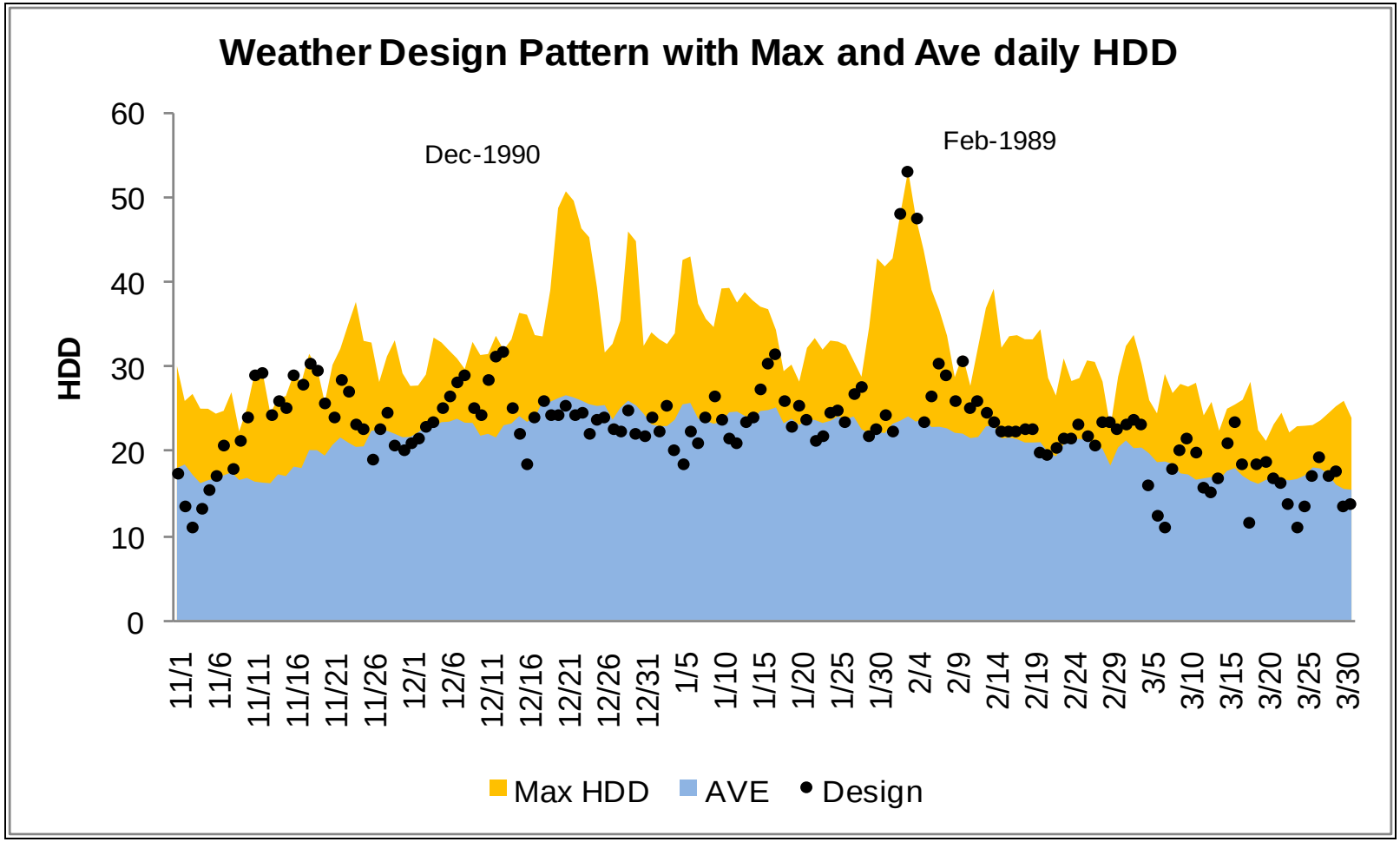
Weather Pattern



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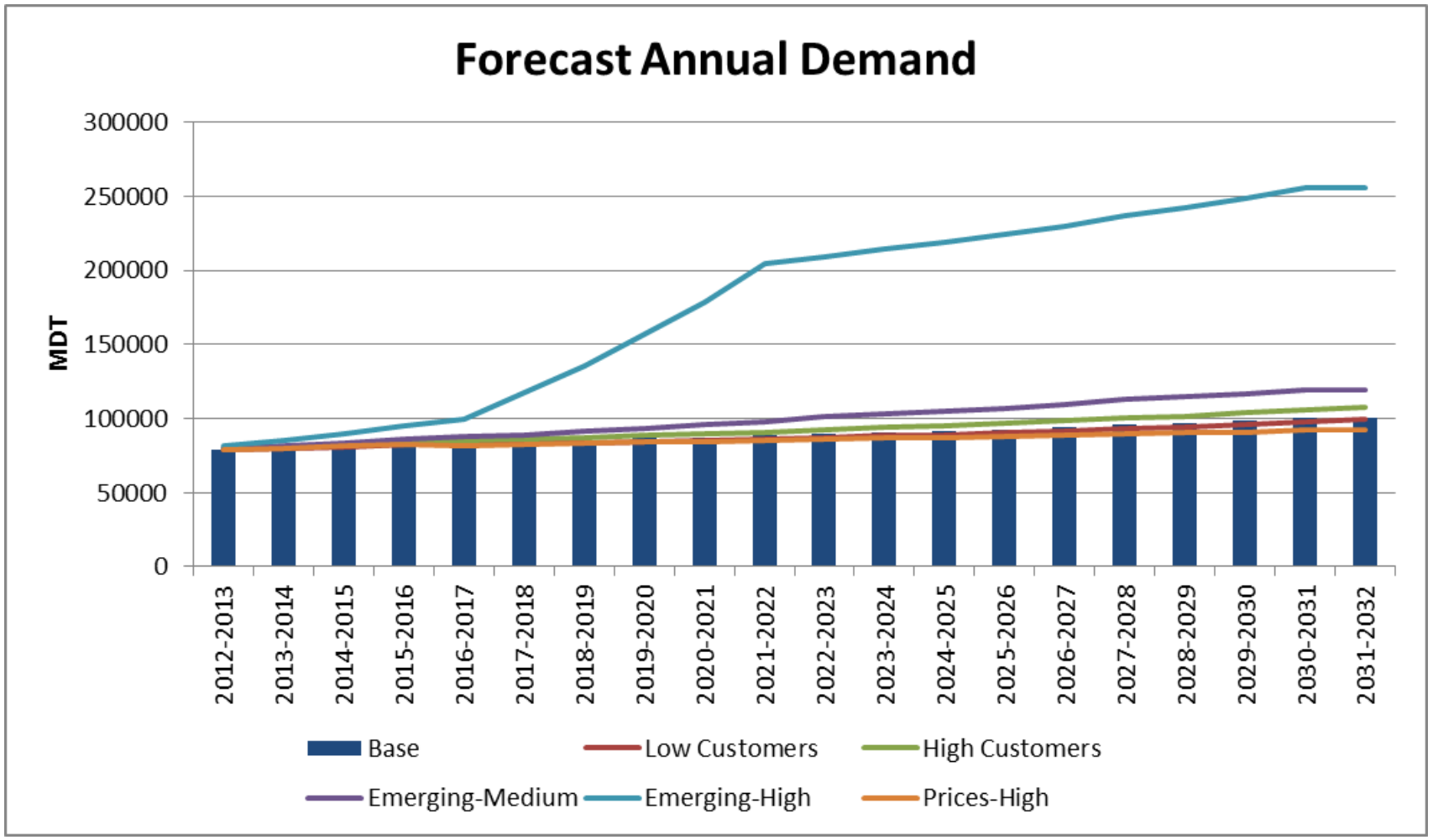
Forecast Annual Demand



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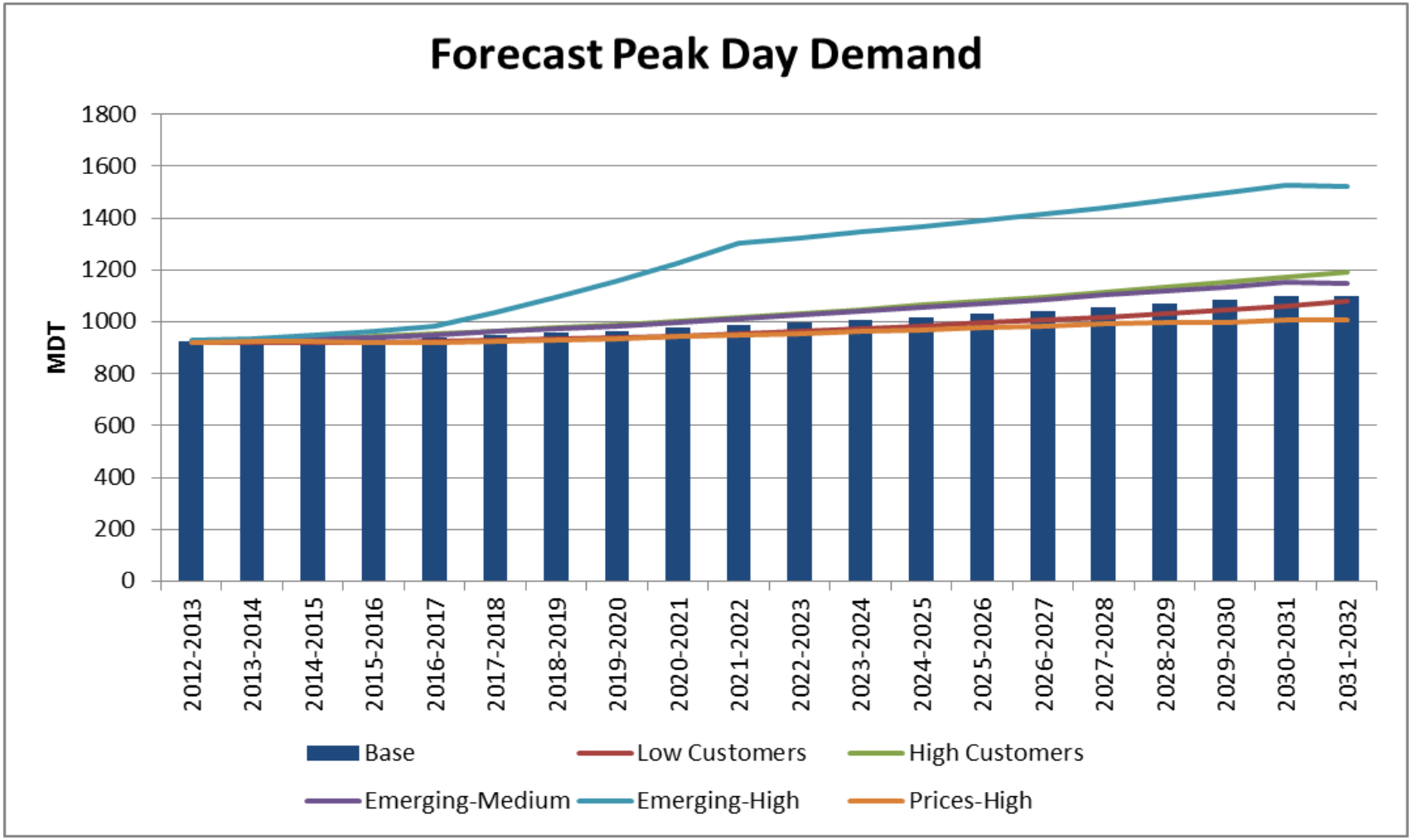
Forecast Peak Day Demand



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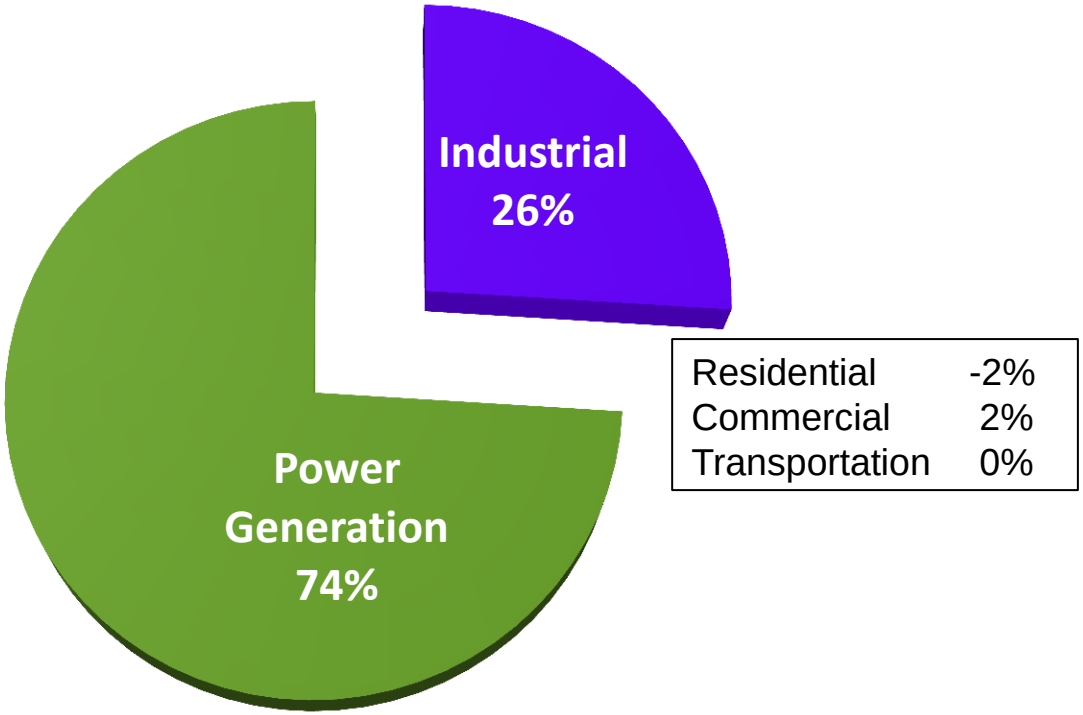
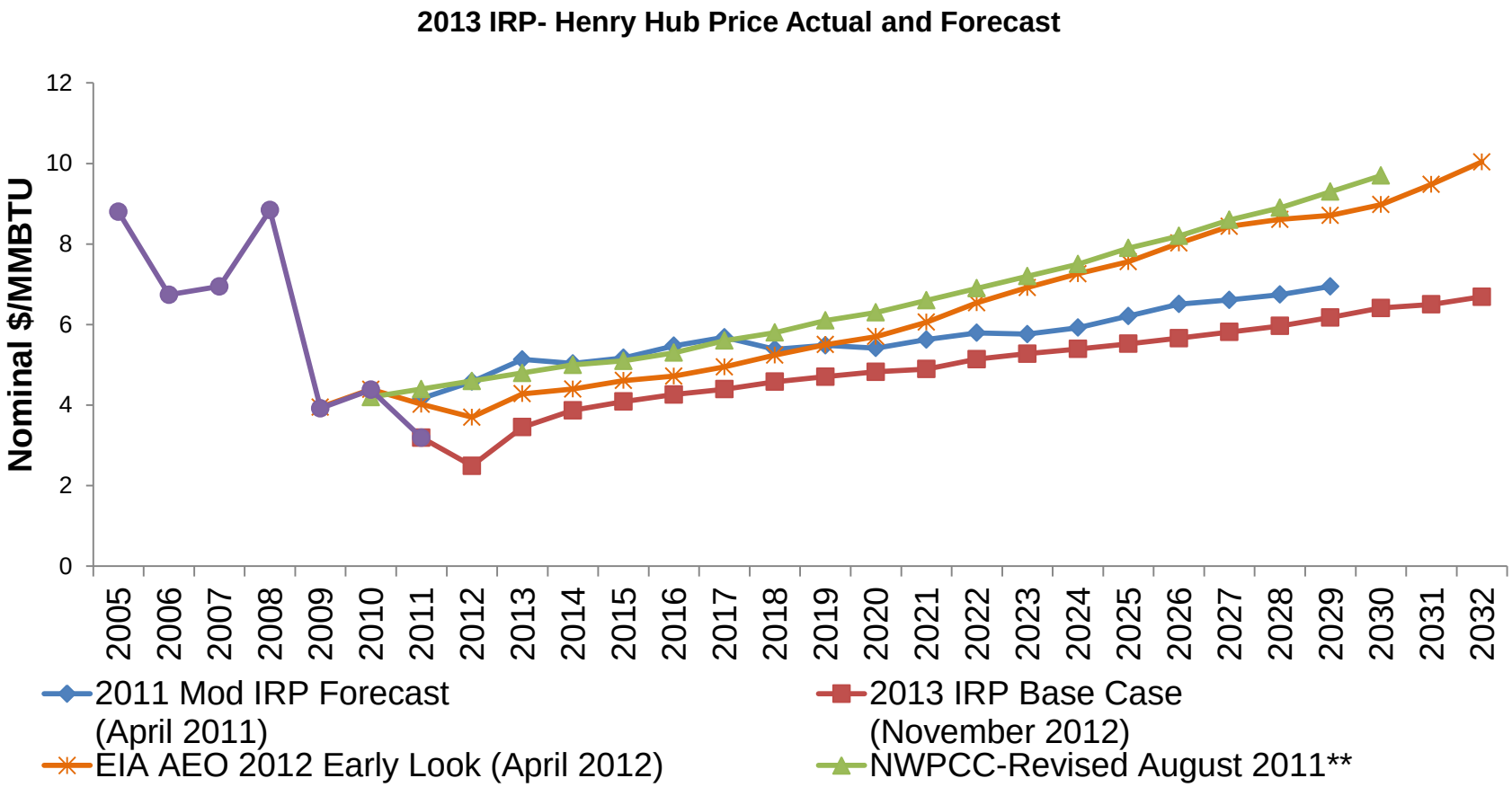
Customer Forecast – Emerging Markets

North America Natural Gas Demand Growth (2010-2020)



Source: IHS CERA

Natural Gas Price Forecast



**NWPCC plans to lower the 2012-2015 outlook, but will retain the forecast for 2016 and beyond.

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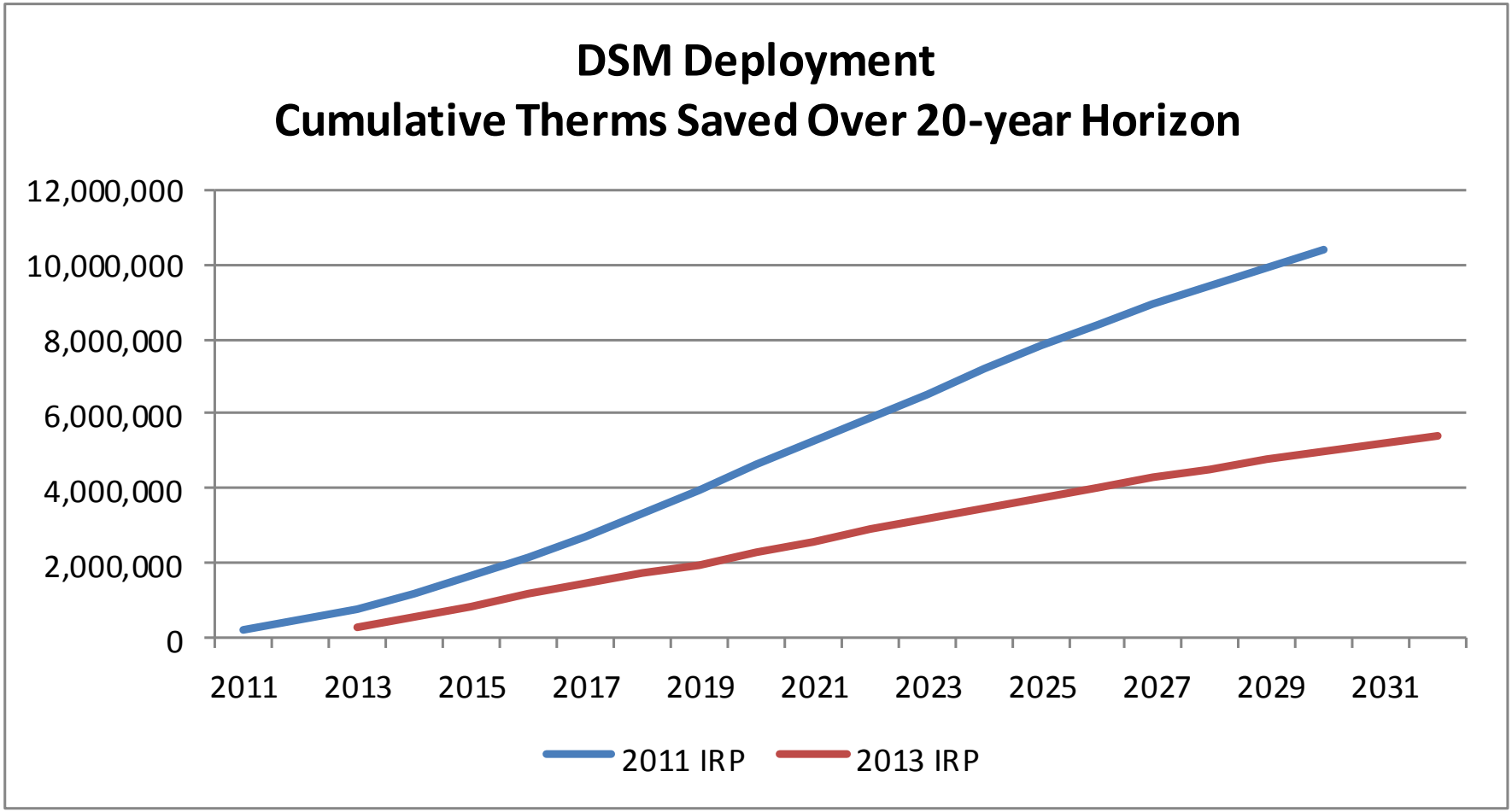
Demand Side Management



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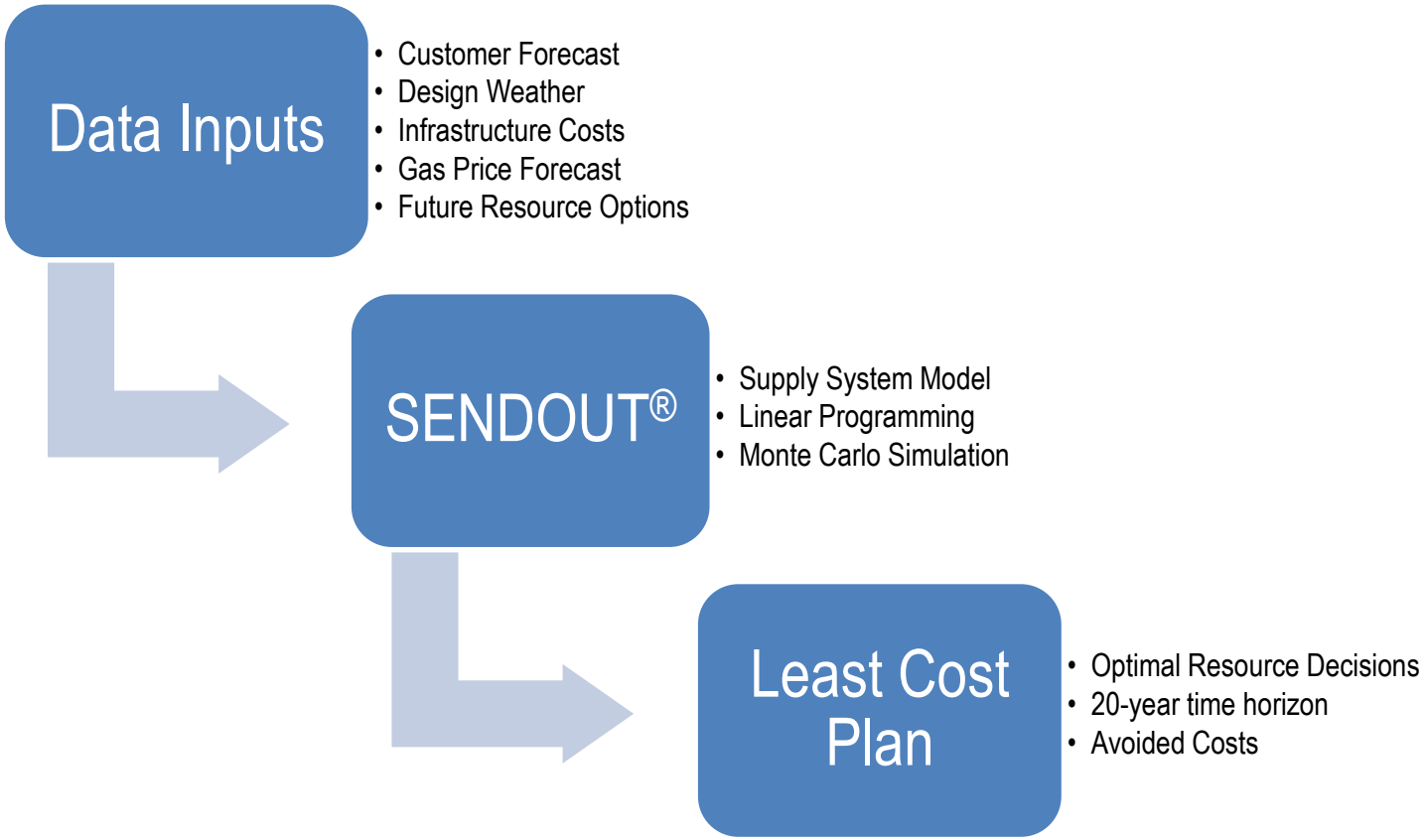
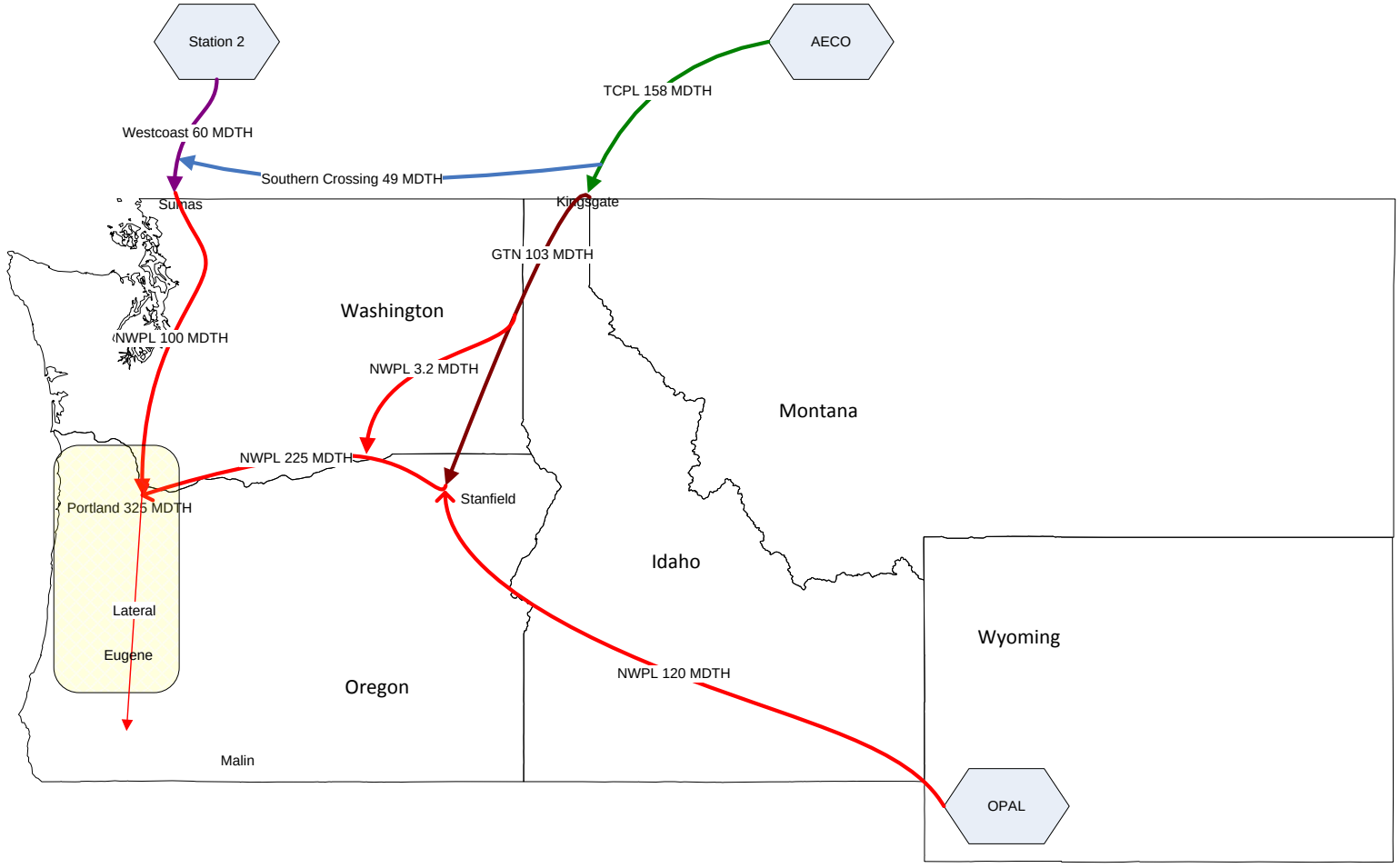
Resource Modeling

- NW Natural employs SENDOUT® analytic and modeling software to integrate all the planning components and to generate least cost long term resource plans.



Pipeline and Supply Model Diagram



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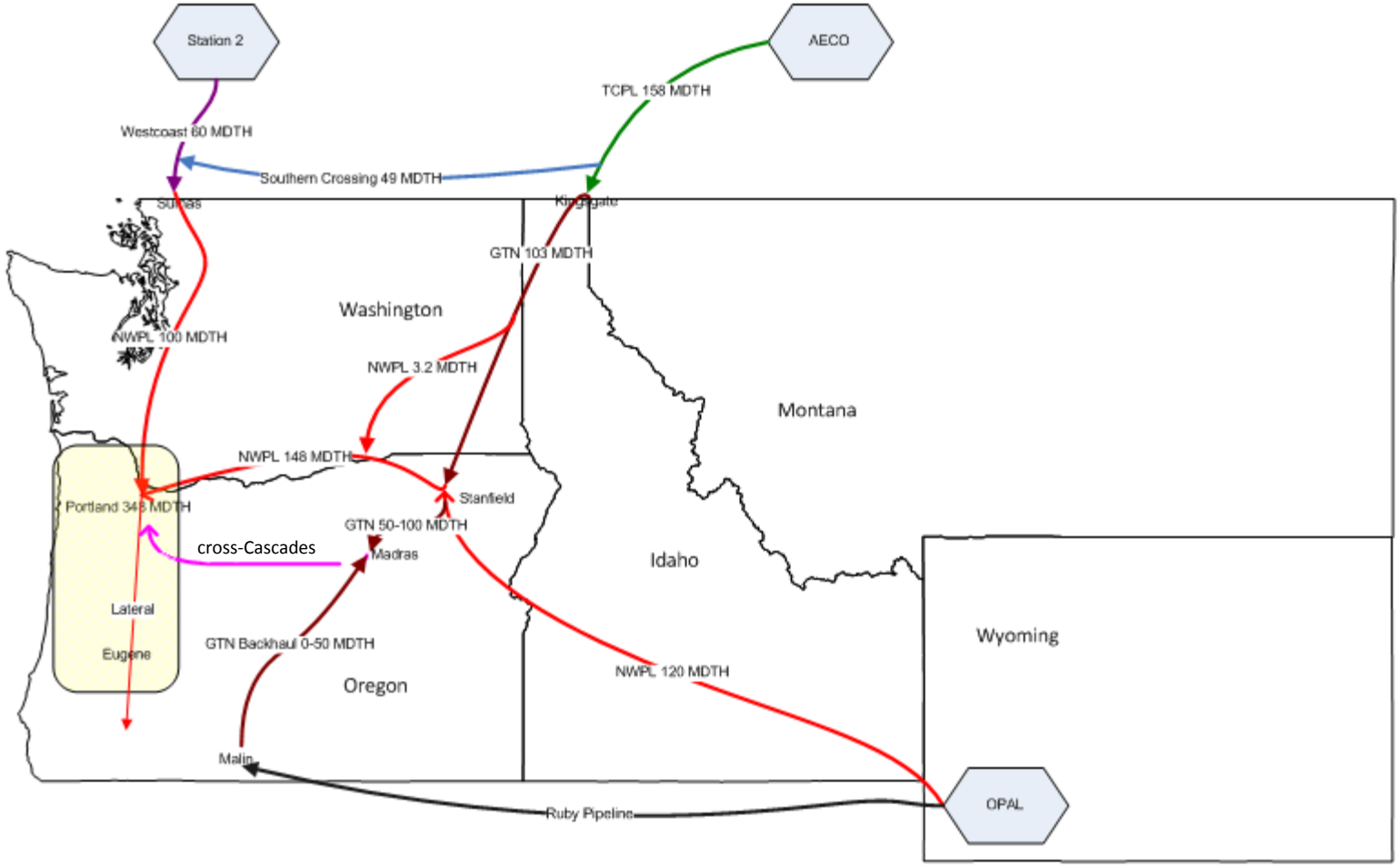
Pipeline and Supply Modeling Diagram with Generic cross Cascades



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Resource Modeling Results

Base Case

- The least cost plan with the base case inputs and full resource optionality
- Relies on Mist Storage Recall into the core utility, Newport Compressor Project***, and*** cross-Cascades later in the forecast

Base Case

Cumulative Resource Additions (MDT/day)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Mist Recall	5	5	8	17	24	35	44
Pipeline Capacity	1	1	1	1	1	1	1
	6	6	9	18	25	36	45

Preferred Path including Reliability Risk Analysis

Preferred Case

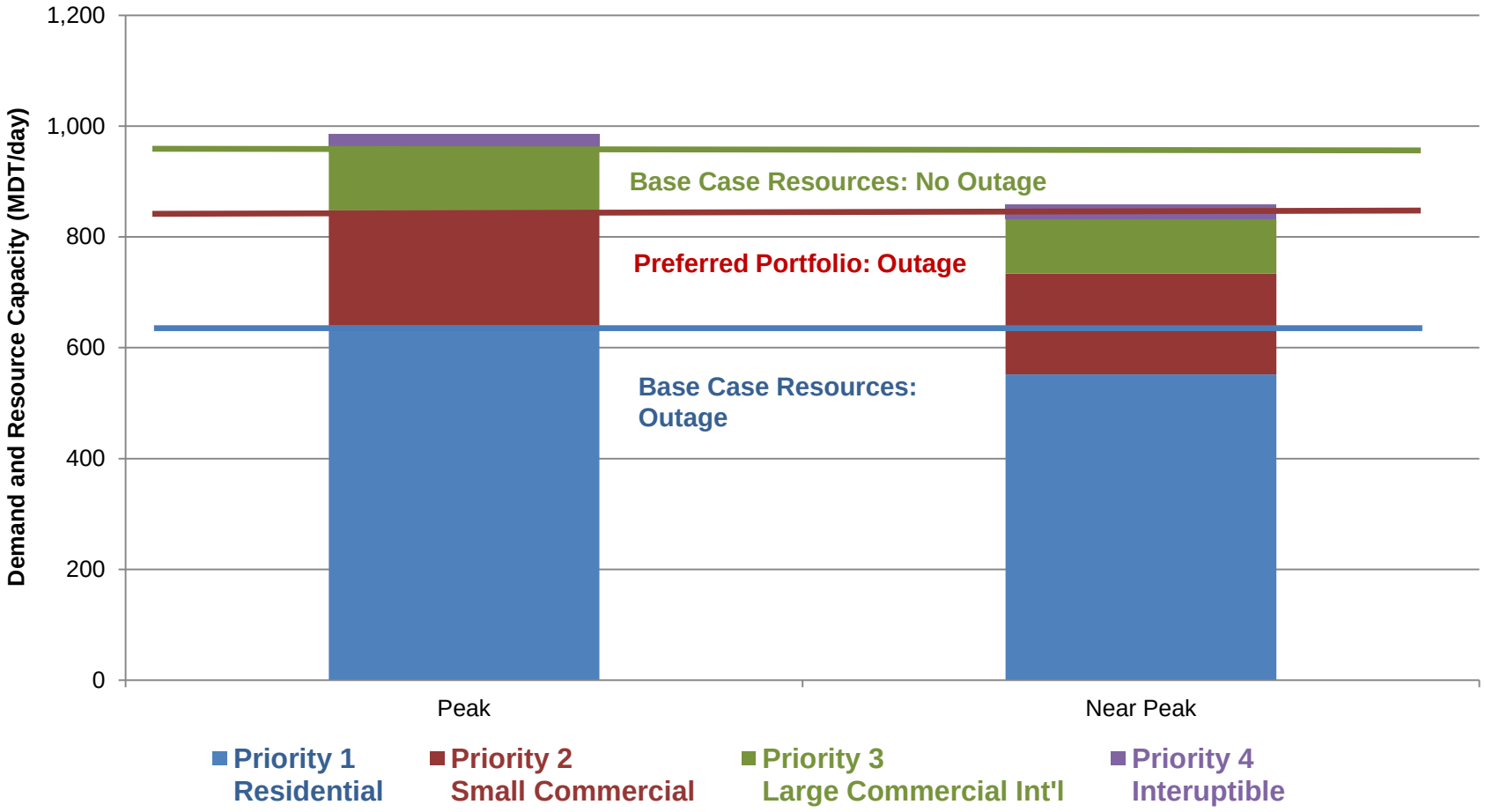
- The least cost plan with the base case inputs and 165 MDT/day capacity on cross-Cascades pipeline
- Release 77 MDT/day capacity on NWP
- Mist Recall and Newport Compressor Project also selected

Preferred Resource Plan

Cumulative Resource Additions/(Reductions) (MDT/day)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Mist Recall	5	5	8	21	21	21	21
cross-Cascades Pipeline				165	165	165	165
Newport LNG transmission				40	40	40	40
NWP - Gorge				(77)	(77)	(77)	(77)
		5	8	149	149	149	149

Curtailment under Demand/Resource Scenarios



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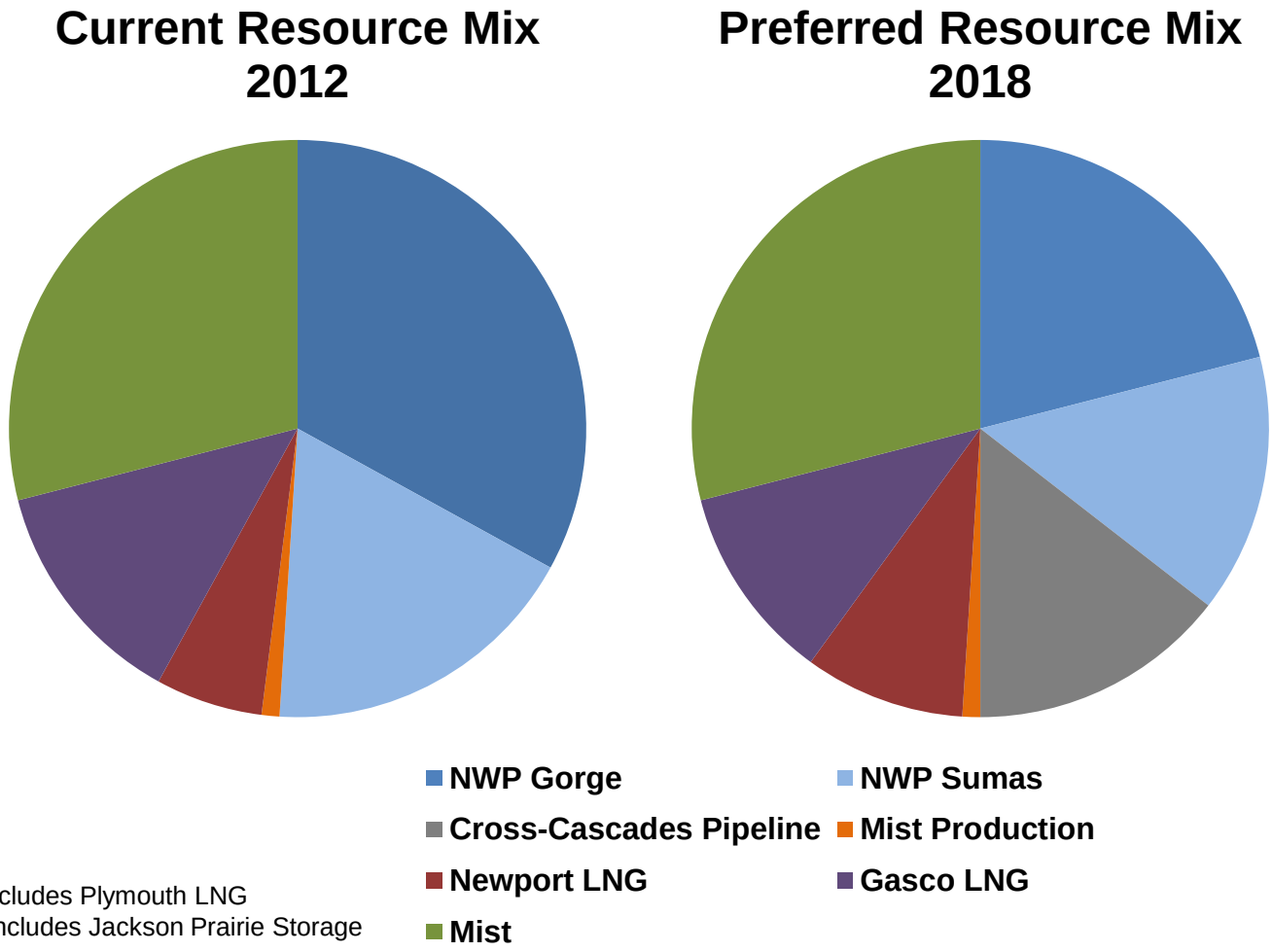
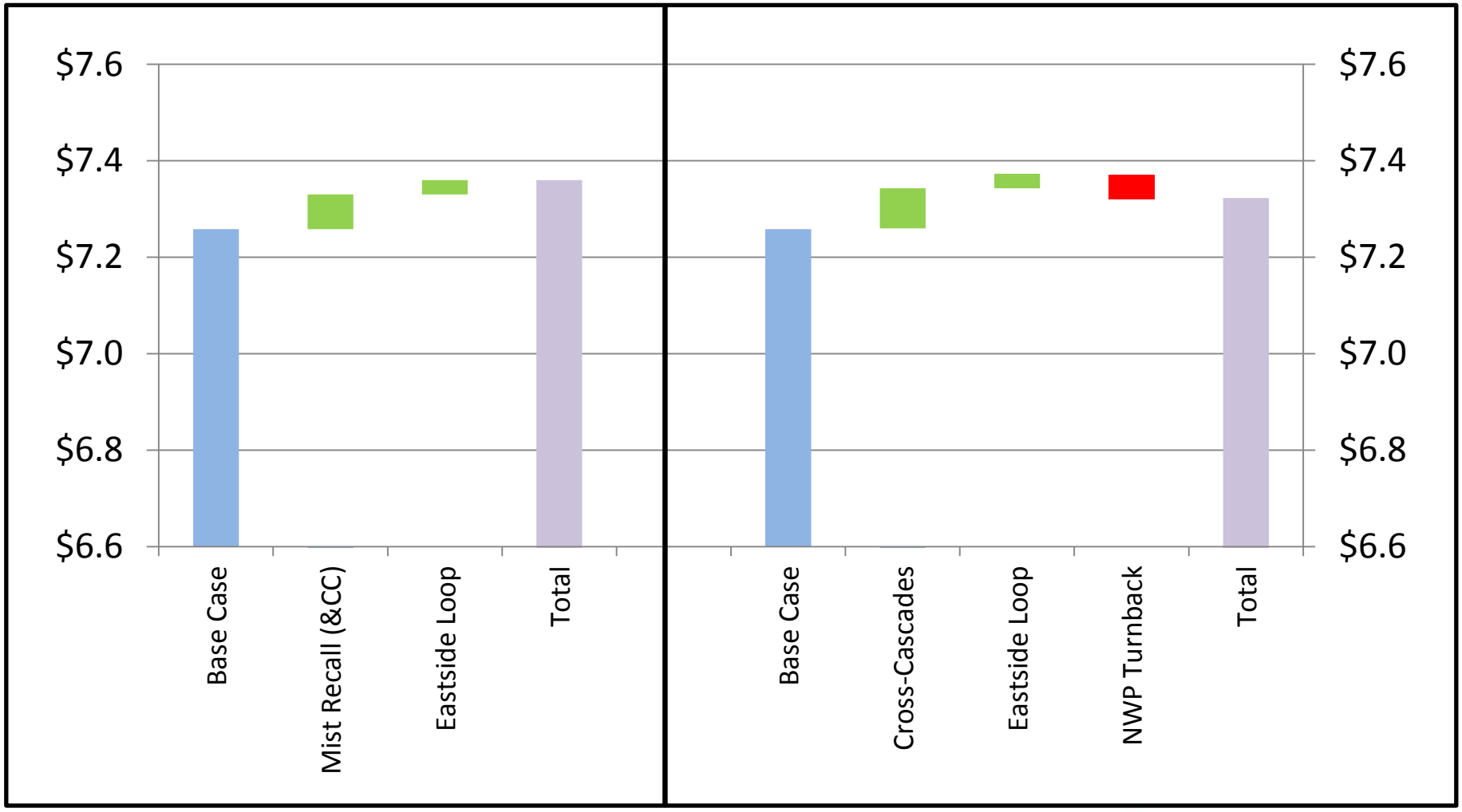
Supply Side Resource Diversity



NWP Gorge includes Plymouth LNG
NWP Sumas includes Jackson Prairie Storage

Least Cost Reliability Analysis: Resource Redundancy vs. Diversity



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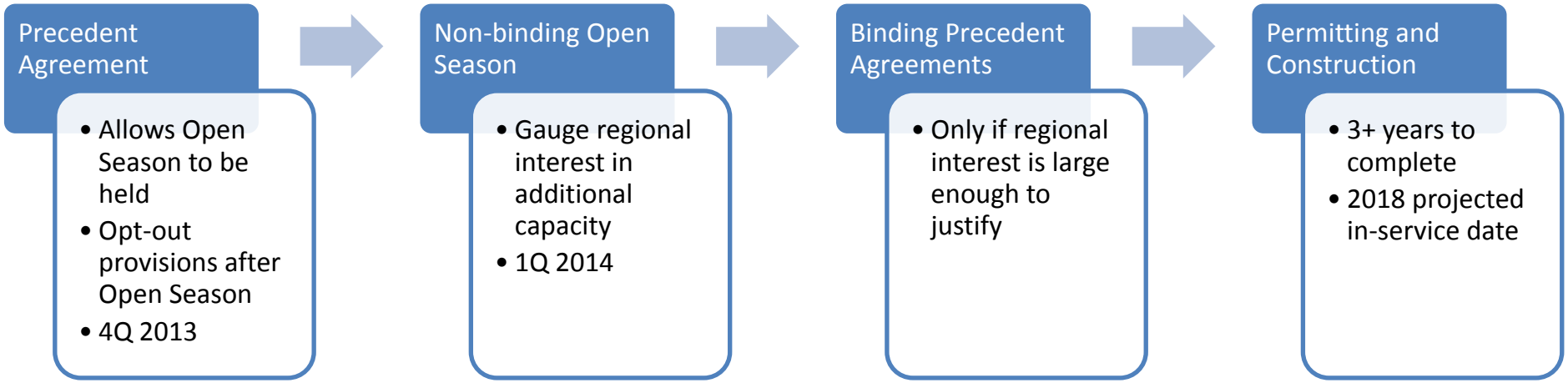
Cross-Cascades Pipeline – Additional Benefits

There are significant additional benefits from adding a Cross-Cascades pipeline that have not been quantified in this IRP economic analysis.

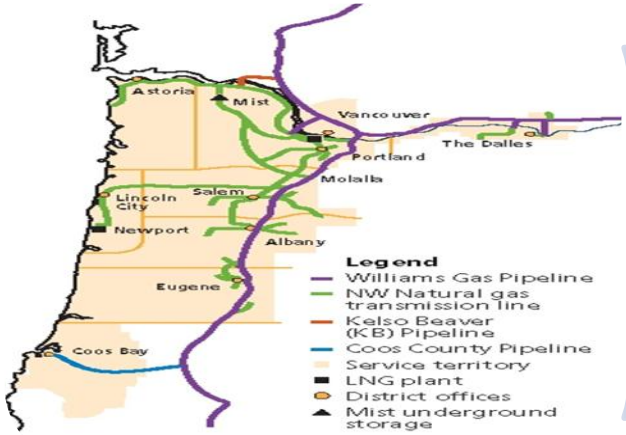
- Reduced price risk
  - Could have the potential to reduce Operational Flow Orders due to price disparity between Sumas and the Rockies
  - Lower exposure to the risk of future Canadian price premium due to LNG exports to Asia.
- Scalability – new pipeline could be expanded at very low cost to meet additional demand.
- Optionality – potential savings from supply basin diversity in managing price volatility.

Cross-Cascades Pipeline – Projected Schedule

- A precedent agreement will allow the cross-Cascades project to move ahead to the next phase
  - Low risk
  - Continued project assessment
  - Commission review throughout process



Distribution System Planning - Scoping Criteria



- High-pressure ("HP") transmission project required to move gas supplies to one or more load centers (as opposed to within a load center); or

- A major system reinforcement or system expansion project with an estimated cost exceeding $10 million

WA IRP Recap and Questions

Preferred Path:

- Meet base case forecasted system load growth over the next 5 years with Mist Recall;
- Support development of a cross-Cascades pipeline project to strengthen reliability and diversify the Company's resource base; and
- Be prepared to meet potentially higher load growth from Emerging Markets through a mix of additional Mist Recall and cross-Cascades pipeline capacity.