

Needs Assessment and Resource Program Workshop

April 26, 2013

Outline

- Introduction
 - Overview
 - Schedule for future White Book and Resource Programs
- Overall results and conclusions
- Detailed results
 - Market Assessment
 - Needs Assessment
 - Resource Assessment
 - Resource Assessment Results
 - Action Plan



Overview

- The Resource Program includes a forecast of Bonneville Power Administration's potential needs for additional power supplies to meet its total supply obligations (**Needs Assessment**). Given those needs, the Resource Program is a vehicle for evaluating resource options (**Resource Assessment**) under a variety of possible future market landscapes (**Market Assessment**). The Resource Program then outlines BPA's proposed approach to meeting those needs (**Resource Assessment Results**) as well as expressing actions BPA plans to undertake to implement the proposed approach and relevant portions of the Northwest Power and Conservation Council's Power Plan (**Action Plan**).
- The 2013 Resource Program updates the 2010 Resource Program, released in September 2010. The 2013 Resource Program is abbreviated and primarily provides updates to key inputs and analysis. The 2013 Resource Program focuses on two study periods, fiscal years (FY) 2016 and 2021.
- The 2013 Resource Program needs are based on the results of the 2012 Needs Assessment which is one of four studies in the 2012 White Book.



Schedule for Future White Book and Resource Programs

- From now on, BPA plans to publish its Pacific Northwest Loads and Resources Study (the White Book) every two years.
- The biennial White Book will include a Needs Assessment study, which is the foundation for defining the power supply obligation needs for the Resource Program.
- As a result of this addition to the White Book, BPA expects to update the Resource Program roughly every two years.
- It is anticipated that BPA's next Resource Program will be prepared in conjunction with the Council's Seventh Power Plan and BPA's 2014 White Book.



Overall Conclusions – Action Plan

In addition to the items identified in the 2010 Resource Program Action Plan, BPA has updated the 2013 Resource Program Action Plan to highlight the following key areas of action:

- Evaluate the contribution of conservation to meeting capacity needs.
- Further develop the definitions of system and resource flexibility, including how flexibility might be measured and possible adequacy metrics.
- Continue to evaluate demand response and Keys Pumped Generation Station.
- Explore the application of Peak Net Requirements provisions described in Regional Dialogue contracts.
- Monitor the emerging drivers that influence the potential Above-High Water Mark load placed on BPA post-FY 2019.
- Continue to evaluate how traditional thermal generation resources could supplement the capacity of, and provide flexibility and seasonal energy to, the existing Federal Columbia River Power System (FCRPS).
- Monitor factors that could reduce the capability or output of the FCRPS.
- Collaborate with the Northwest Power and Conservation Council (Council) to prepare for the Seventh Power Plan and BPA's next Resource Program.



Overall Conclusions - Energy

- The 2012 Needs Assessment shows that, under a variety of conditions and timeframes, BPA could need to supplement the existing Federal system generation to meet existing and projected obligations. These conclusions reflect additional limitations on the projected capability of the FCRPS to meet BPA's load obligations since the 2010 Needs Assessment. Specifically, updates to the hydro modeling assumptions have, in general, decreased the expected annual and winter FCRPS forecast generation. The 2012 Needs Assessment projects more significant deficits in the January-February timeframe, some improvement to the second half of August, and increased deficits in September relative to the Needs Assessment in the 2010 Resource Program.
- Under the expected case, modest annual energy deficits are projected under critical water. However, in studying the 10th percentile (P10) for each month, there are significant deficits (both heavy load hour and all hours), notably in January and February (winter), the second half of August, and September (summer). These deficits would be larger if BPA were to lose any current generating capability. For example, the 2012 Needs Assessment assumes 2008 Biological Opinion (BiOp) hydro operation requirements, which, based on an average of historical fish migration at the Snake River dams, typically end juvenile bypass spill by mid-August. If spill were required through the end of August, the additional spill would correspond to a loss of about 400 average megawatts (aMW) of generating capability in the second half of August under all water conditions.

BPA plans to address the energy need by:

- Achieving the Sixth Power Plan conservation targets, which would greatly reduce BPA's need for additional power to meet energy needs (both seasonally and on an annual average basis).
- Continuing to utilize wholesale power market purchases.
- Any residual needs are expected to be small and very seasonal in nature (winter and summer) and could be met with minimal incremental market purchases above those assumed in the studies.



Overall Conclusions - Capacity

- The Needs Assessment results show that the 18-hour capacity metric is minimal to no longer capacity surplus in either the winter or summer. The winter capacity numbers changed significantly from the 2010 Needs Assessment, largely as a result of extreme weather load differences, the expiration of winter purchases, and changes in FCRPS generation forecasts.

BPA plans to address the 18-hour capacity need by:

- Achieving the Sixth Power Plan conservation targets. This will have the effect of reducing the load and thus help to supplement the existing capacity of the FCRPS. BPA is concerned that not all the conservation may occur during times of extreme loads, and hence further study is warranted.
- Making market purchases. As with the energy needs, market purchases during heavy load hours supplement BPA's ability to meet capacity needs.
- Further exploring additional Non-Treaty storage, demand response, and the application of customer non-Federal resource peaking capacity (Peak Net Requirements). These promising areas need further evaluation to determine the effects on BPA's capacity needs. BPA also plans to continue to evaluate Keys pumped storage.



Overall Conclusions – Balancing Reserves

- The Needs Assessment reflects that the FCRPS resources are insufficient to meet the forecast 99.5 percent level of service for balancing reserve requirements in FY 2016 and FY 2019 (proxy for FY 2021). There are many processes occurring in the region to address the issue of balancing reserves, including:
 - Ancillary and Control Area Services (ACS) Practices Forum
 - BP-14 rate case
 - Northwest Power Pool Market Committee and the Joint Initiative
- Balancing reserve service requests are made every two years and for a period of only two years. This timing creates much uncertainty regarding the amount of balancing reserves BPA may be requested to provide. BPA's current strategy is to make short-term purchases of additional balancing reserves, if needed, in the wholesale market.



Market Assessment

- The Market Assessment examines likely cost drivers in the wholesale power market of the WECC considering a range of economic and environmental considerations. It then quantifies these uncertainties into estimates of future power market prices and resource costs.
- The 2013 Resource Program evaluated an expected case as well as four scenarios which are depicted by the following matrix:

Scenario 1: Less Green, High Economic Growth	↑ Economic Growth ↓	Scenario 2: More Green, High Economic Growth
← Clean Energy		Policy Stance →
Scenario 3: Less Green, Low Economic Growth		Scenario 4: More Green, Low Economic Growth



Market Assessment

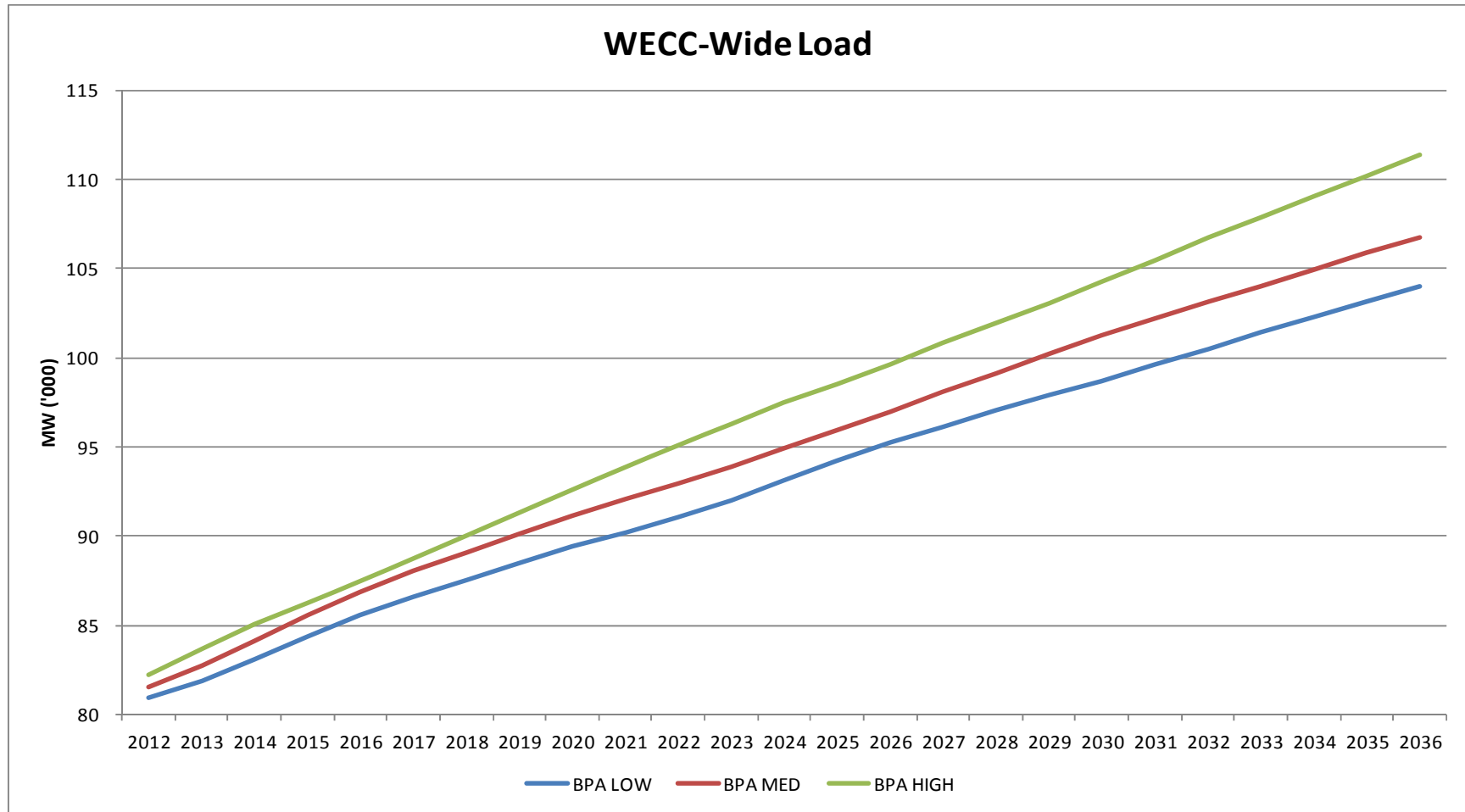
- The Resource Program then identified the following key variables within the scenarios that it wanted to examine:
 - RPS Resource Build Forecast
 - WECC Loads
 - Natural Gas Prices
 - CO2 Prices
- The following table depicts the relationships between the variables and the scenarios:

	Scenario 1:	Scenario 2:	Scenario 3:	Scenario 4:
Variable	Less Green – High Economy	More Green – High Economy	Less Green – Low Economy	More Green – Low Economy
RPS Build	Expected	High	Expected	High
Load	High	High	Low	Low
Nat. Gas	High	High	Low	Low
CO ₂	Expected (\$0)	High	Expected (\$0)	Expected (\$0)

- AURORAxmp was used to produce an electricity price forecast for an expected case, and each of the four scenarios



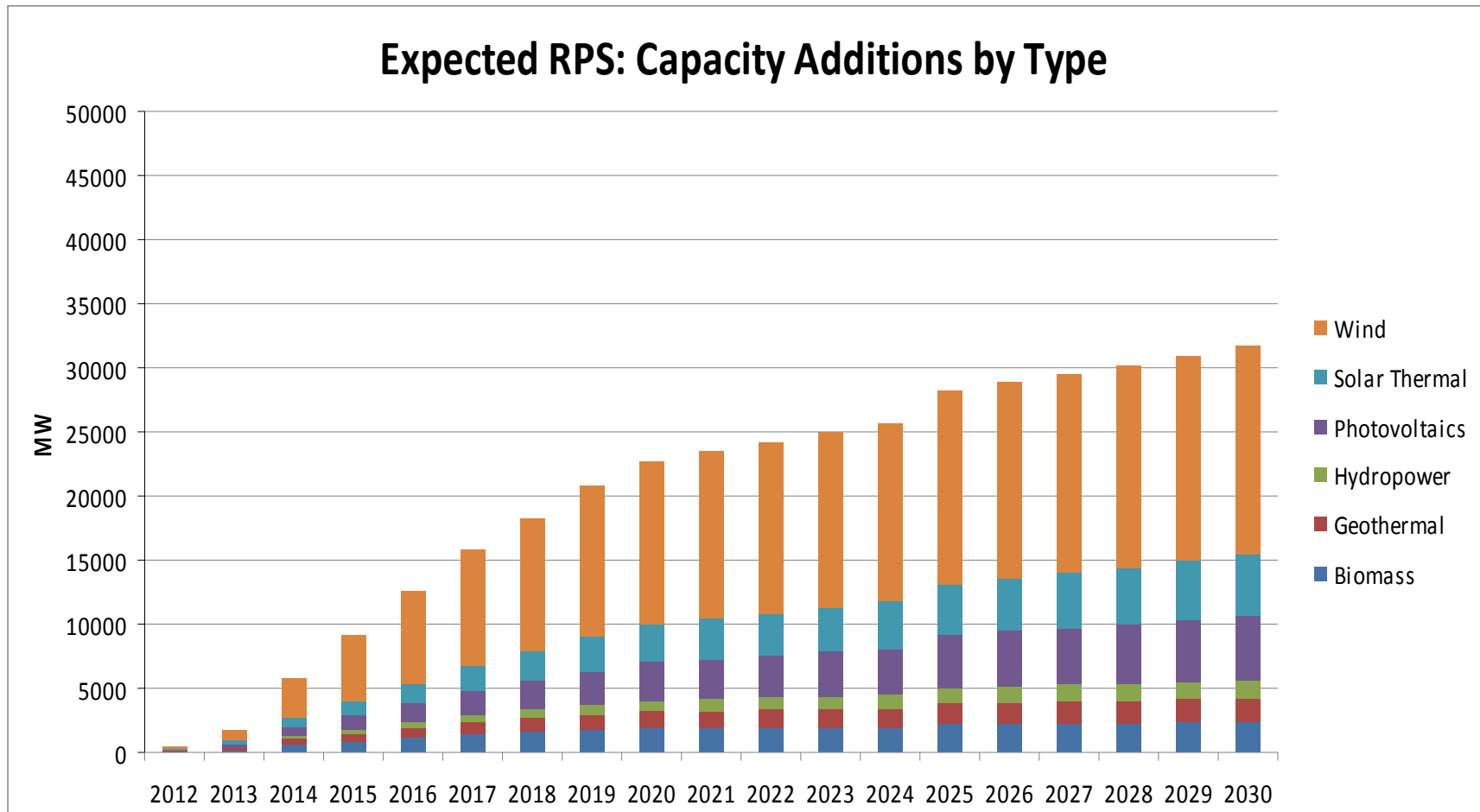
Market Assessment – Load Scenarios



- The load forecasts are consistent with those used in the 2012 White Book but for the entire WECC area



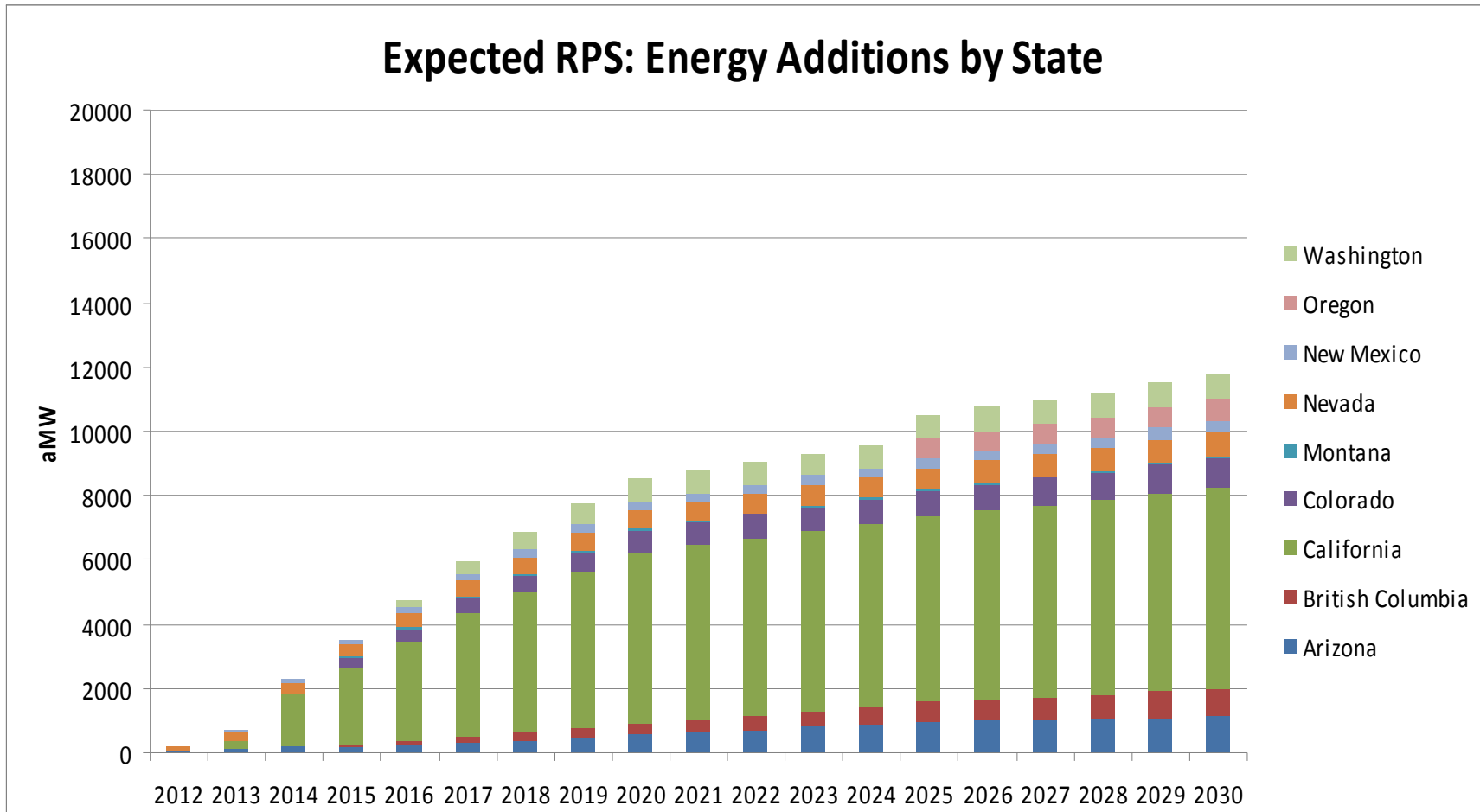
Market Assessment: WECC-wide RPS Scenarios



- The RPS forecast is based on the draft Council forecast prepared for the Mid-term Assessment



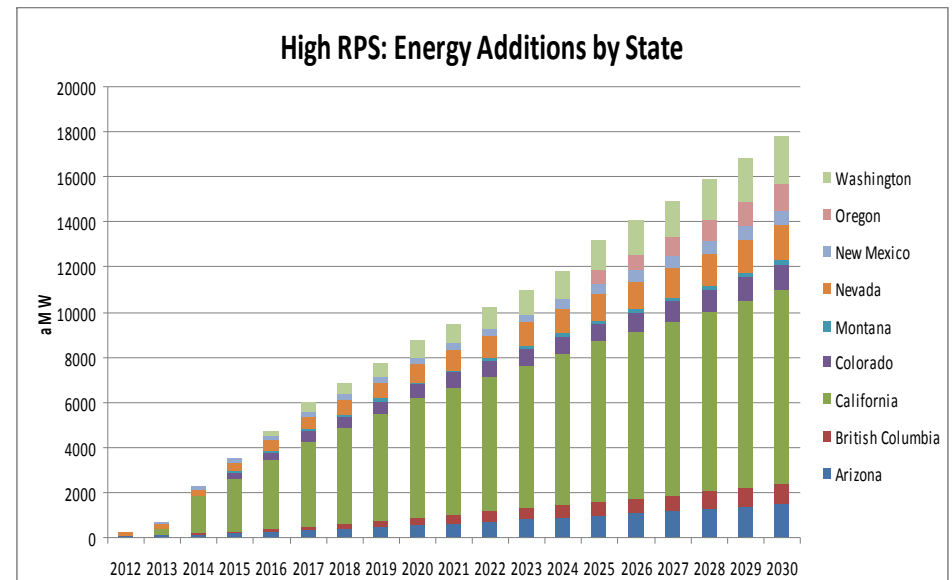
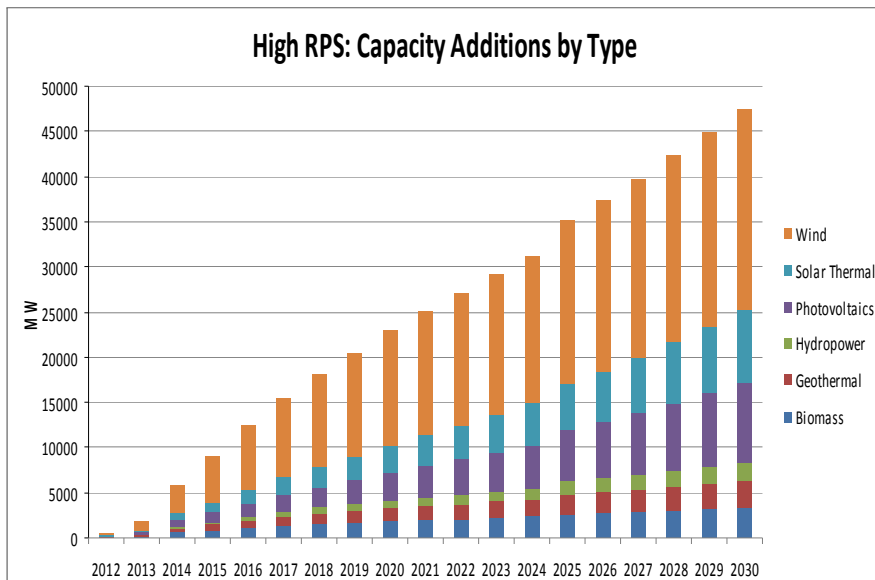
Market Assessment: WECC-wide RPS Scenarios



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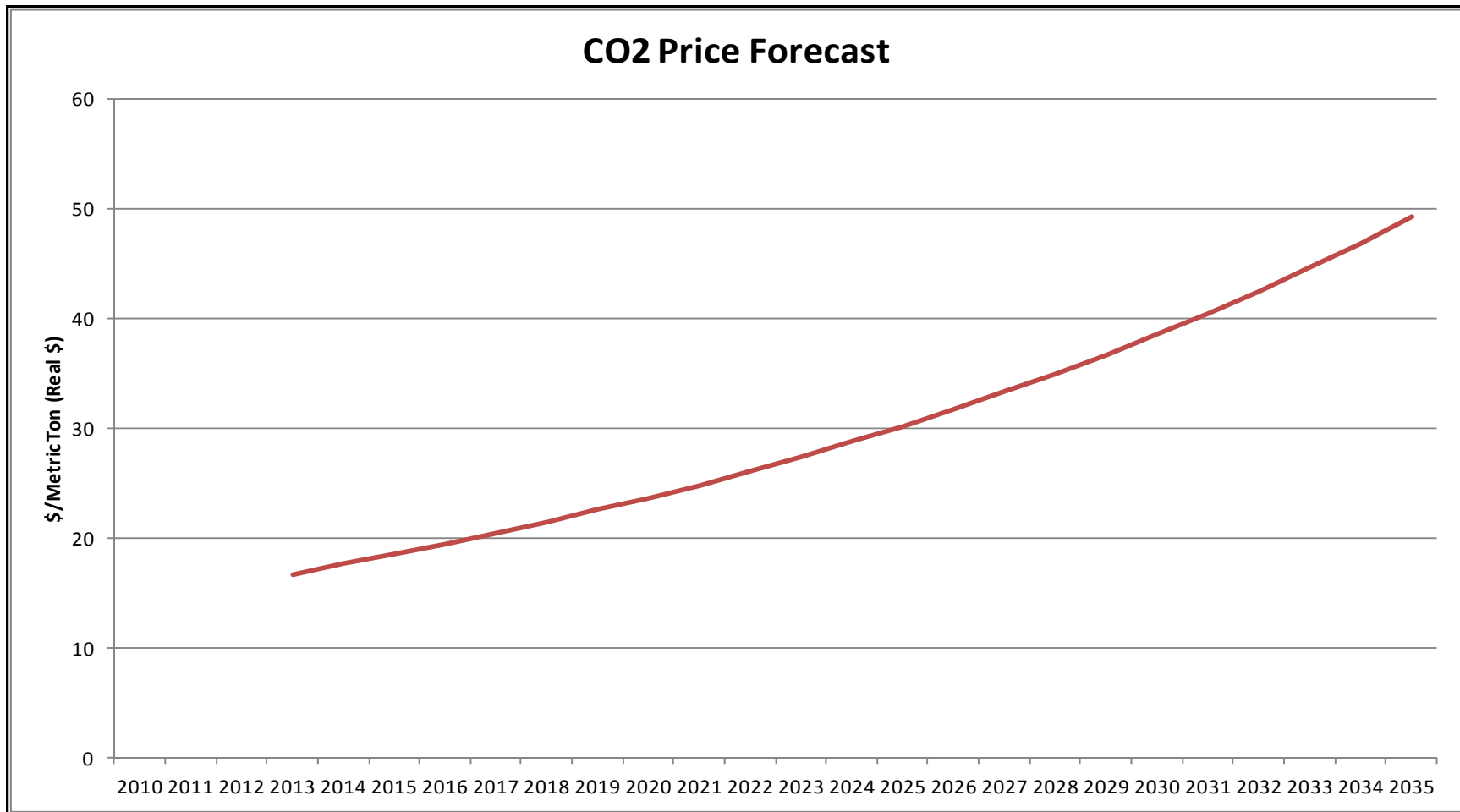
Market Assessment: WECC-wide RPS Scenarios



- The RPS forecast is based on the draft Council forecast prepared for the Mid-term Assessment but using the high load forecast



Market Assessment – National Carbon Scenario

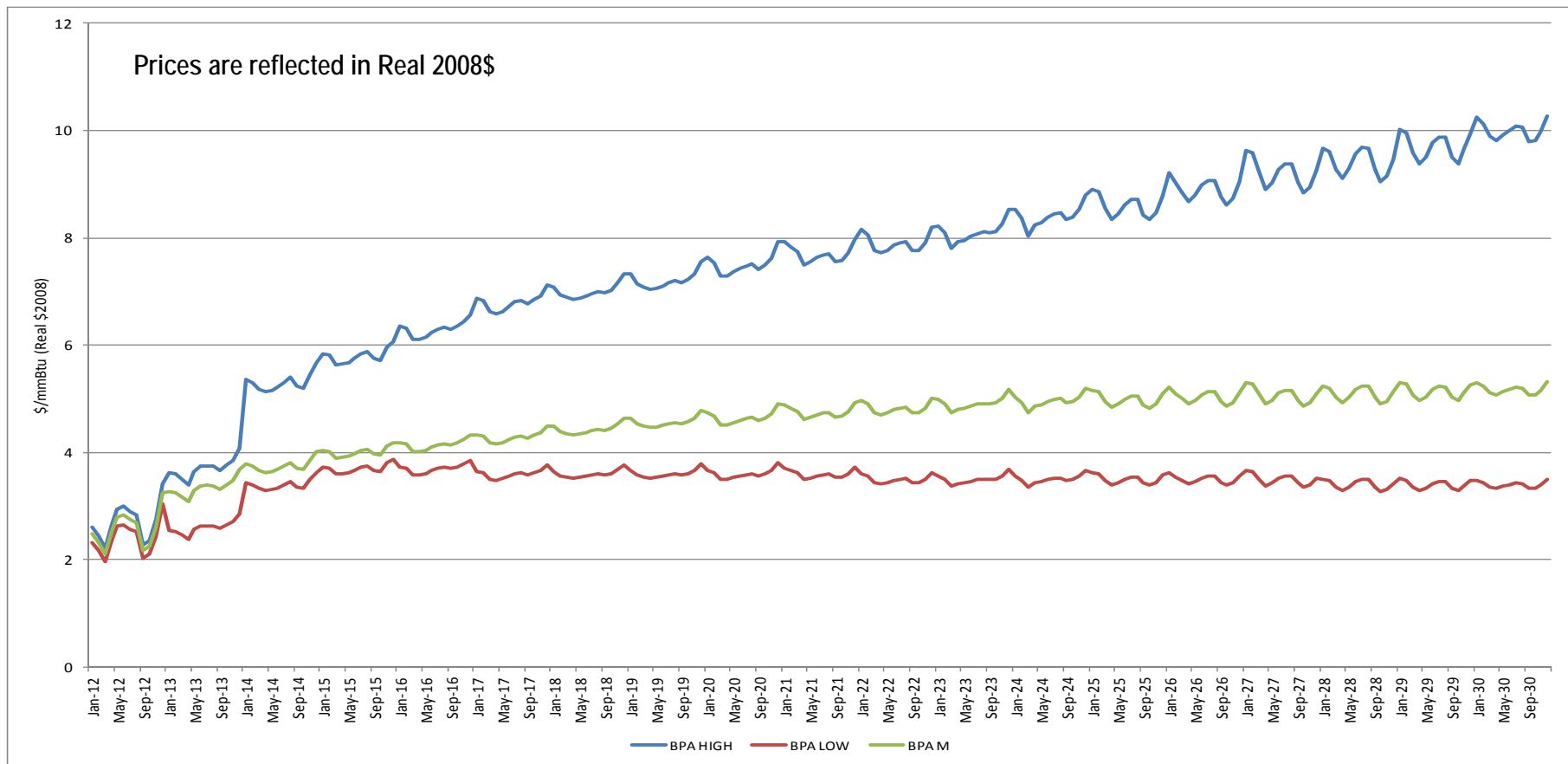


- The CO2 forecast is based on the futures prices for the California CO2 market but applied to the entire WECC

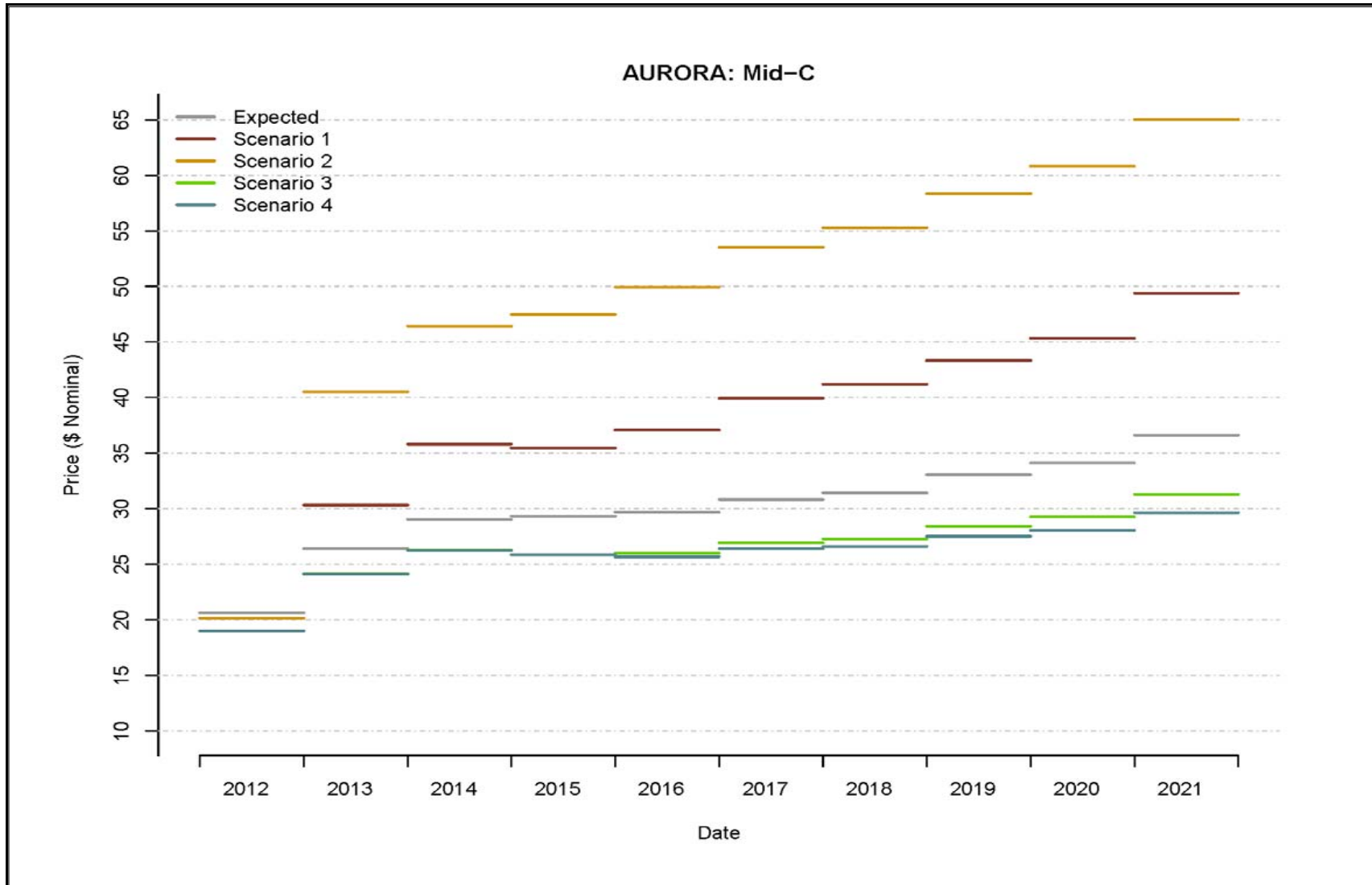


Market Assessment – Natural Gas Scenarios

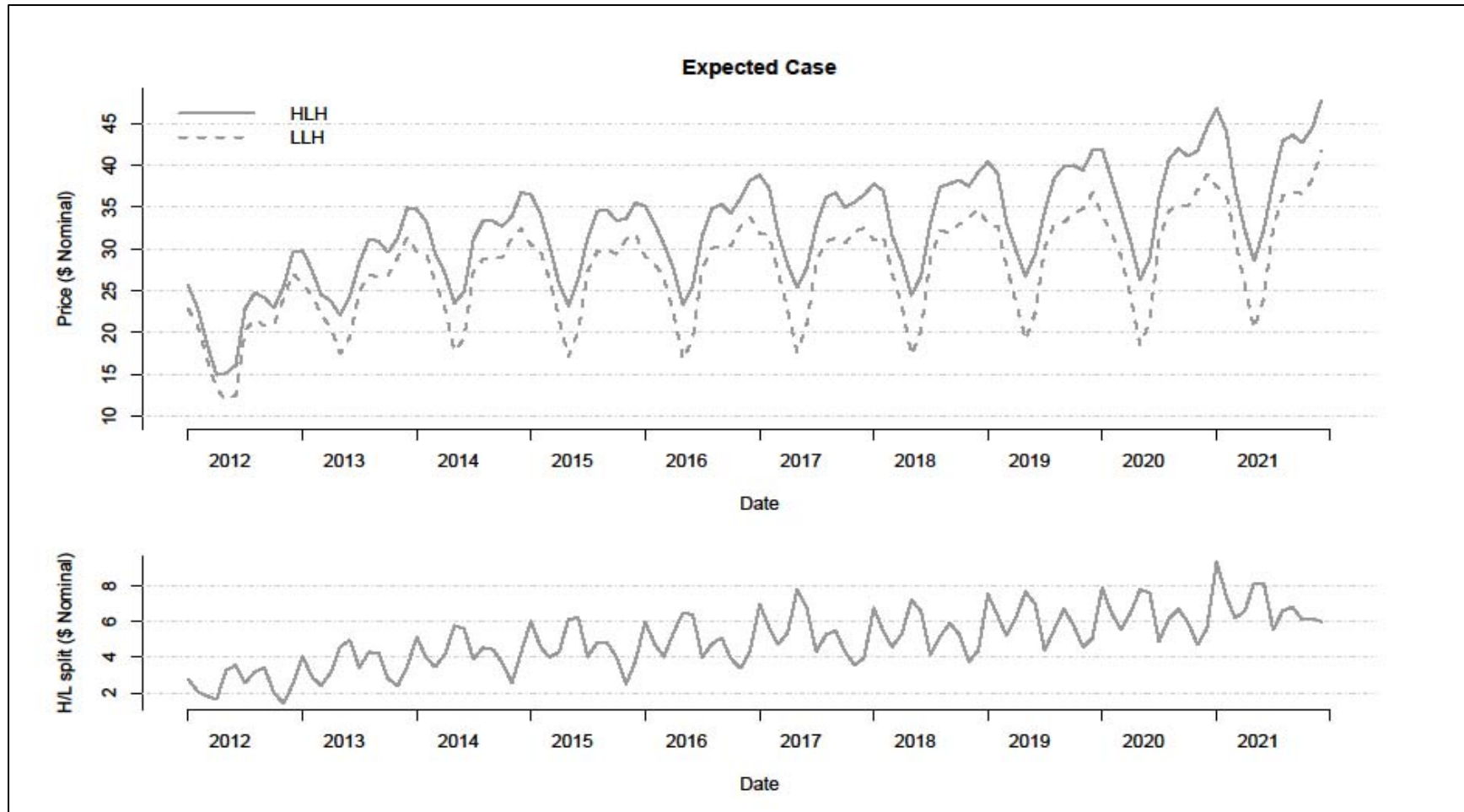
- Below are the three gas price forecasts that were developed for the scenario process.
 - The expected case is the BPA forecast for the BP-14 initial proposal
 - The high and low are Council annual forecasts from the 6th Power Plan Mid-term Assessment



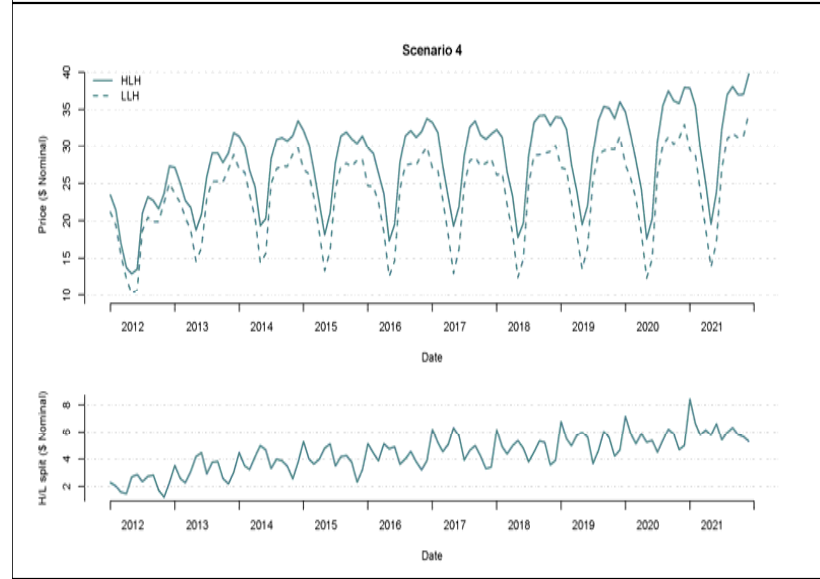
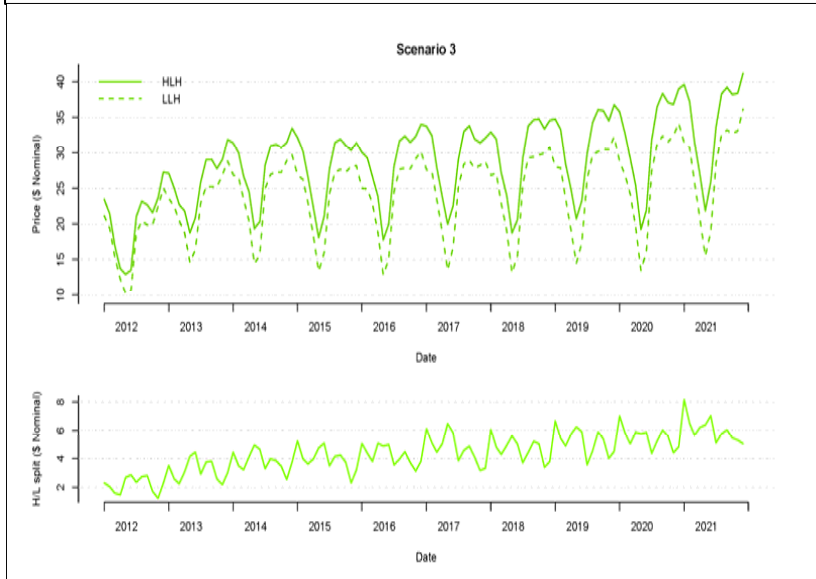
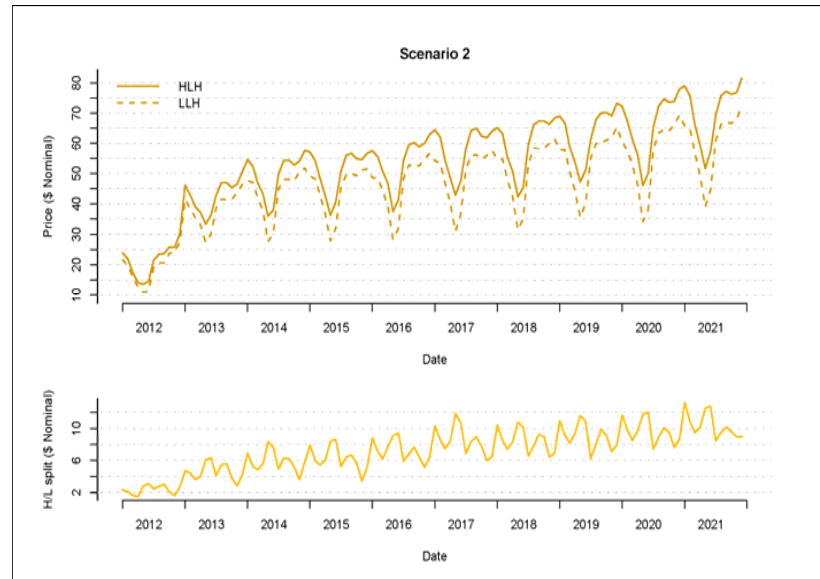
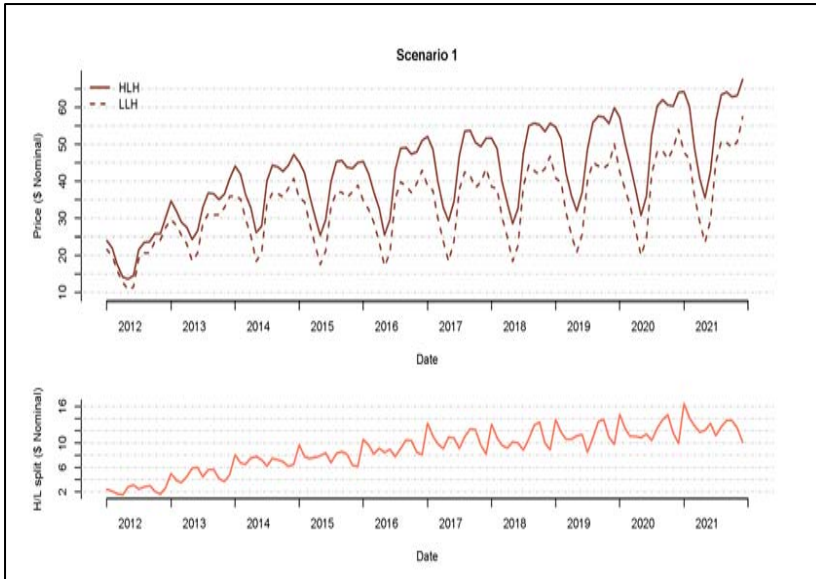
Market Assessment – Flat Annual Results



Market Assessment – Expected Monthly Results



Market Assessment – Monthly Scenario Results



Needs Assessment

- The Needs Assessment examines BPA's measures the expected generation capability of the existing Federal system resources to meet projected load obligations under a range of conditions and timeframes. The loads and the resources used in the Needs Assessment are consistent with the 2012 White Book and the BP-14 Rate Case initial proposal.
- Metrics:
 - Annual Energy Deficit under critical water (1937)
 - Seasonal/monthly HLH (10th percentile by month)
 - 120 hour capacity (a.k.a. superpeak)
 - Defined as the average of the inventory on the six highest load hours per day, 5 days a week and 4 weeks a month.
 - 18 hour capacity (cold snap/heat wave scenario)
 - Defined as the average of the inventory on the six highest load hours during a 3 day weather event.
 - Studies were done for February (cold snap) and August 2 (heat wave) as these periods tend to be the most limited.
 - Ancillary Services for reserves (balancing reserves)



Needs Assessment - Load Scenarios Studied

- Annual average load growth scenarios were developed for high, expected and low cases. All scenarios include ~ 60 aMW of embedded conservation.
- **Expected case** (consistent with 2012 White Book forecast. Average annual growth rate for 25 years from 2012 ~ .8%)
 - Expected case with extreme weather (median hydro, 1 in 10 weather for summer and winter) - Used for 18 hour capacity study.
- **High Economy Case** (Average annual growth rate for 25 years from 2012 ~ 2.4%)
 - Generally, forecast includes a robust increase in the economy due to increased spending (federal and consumer) followed by an expanding demand driven economy.
 - This higher load growth could be caused by a number of factors:
 - Additional population in-migration to the region
 - Additional Federal spending on military facilities and growth at local Naval facilities
 - Clean up activity at DOE-Richland
 - Increase aluminum production
 - Tier 2 load obligation could be as high as 550 aMW in FY 2021*

*This maximum amount assumes that all Regional Dialogue customers elect to have BPA serve their Above High Water Mark (AHWM) load in FY 2021.

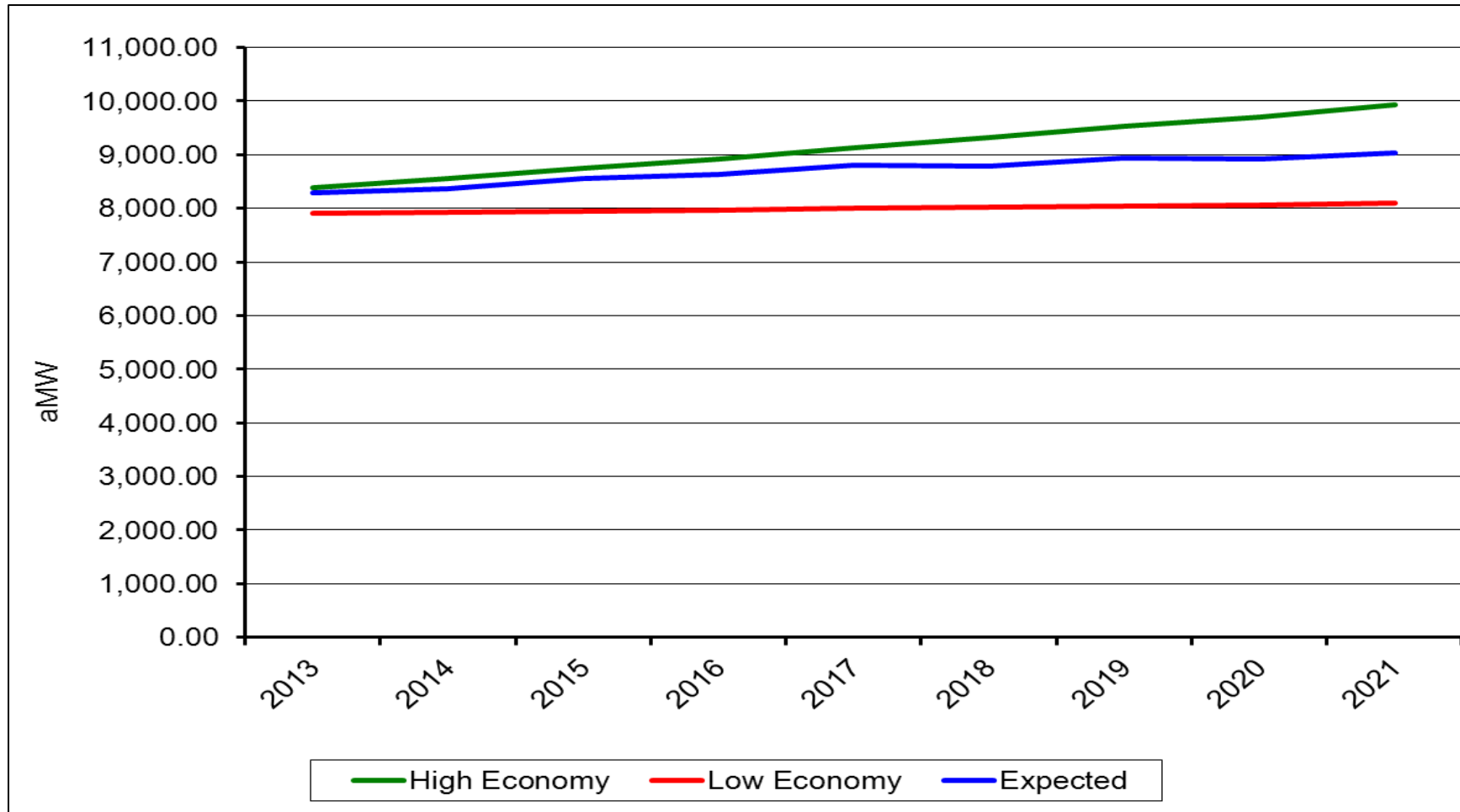


Needs Assessment - Load Scenarios Studied

- Low Economy Case (Average annual growth rate for 25 years from 2012 ~ .1%)
 - Generally, forecast includes a double-dip recession due to current regional, national and international economic conditions including the potential impacts due to Federal government funding sequestration. This economic condition would be followed by slow employment growth in the region.
 - This lower load growth could be caused by a number of factors:
 - Reduced growth at local Naval facilities
 - Postponed clean-up activity at DOE-Richland
 - Does not anticipate closure of specific industries or out-migration of the region.



Needs Assessment – Load Scenarios Studied, contd.



Needs Assessment - Changes in Major Assumptions since 2010

	2010 Needs Assessment	2012 Needs Assessment
Study Years	2013, 2019	2016, 2021
Water years modeled	70	80: Updated to new 2010-level Modified Streamflows (on average, 2% less water)
Grand Coulee draft limits	Draft aggressively when necessary to meet chum flows and Vernita Bar flows during January – March.	Draft for chum only to 10 feet below the fish VECC. Not new actual operating requirements, but an update to modeling assumptions for simulating in-season management decisions. Provides slight overall generation increase, but reduces generation in January - March.
Canadian Operations	AOP10	AOP15: Monthly discharges from Canadian reservoirs changed significantly from AOP13. Notable for the NA results is that August flows increased and September flows decreased.
Wind Reserves (2012 NA based on BP-14 IP, 30 minute persistence, 99.5%)	Model: Inc = 1,390 (end of FY13); 1,564 (FY19) and Dec = 1,827 (end of FY13); 2,063 (FY19) FY13: Inc = 1,390 MW and Dec = 1,827 MW FY19: Inc = 1,564 MW and Dec = 2,063 MW	FCRPS Capability: Inc = 900 MW and Dec 1,100 MW Forecasted Requirements* end of FY16: Inc = 1,290 MW and Dec = 1,542 MW Forecasted Requirements* end of FY19**: Inc = 1,584 MW and Dec = 1,917 MW

* BP-14 rate case.

**FY19 used as proxy for FY21.



Needs Assessment - Changes in Results since 2010

Metric	2010 Needs Assessment		2012 Needs Assessment	
	Study Year 2013	Study Year 2019	Study Year 2016	Study Year 2021
Annual Energy (critical)	Expected: -350 aMW High: -550 aMW Low: 0 aMW	Expected: -400 aMW High: -950 aMW Low: -300 aMW	Expected: -200 aMW High: -550 aMW Low: 250 aMW	Expected: -500 aMW High: -1450 aMW Low: 50 aMW
P10 HLH Monthly Energy	Winter: HLH deficits around 700 MW and all-hour energy deficits around 1,000 MW Summer: HLH deficits around 1,000 MW and all hour deficits at 900 MW in Aug II	Winter: HLH deficits of ~1,000 MW and all hour energy deficits ~ 1,100 MW Summer: HLH deficits just under 1,000 MW and all hour deficits at 750 MW in Aug II	Significant HLH deficits in January, February and September.	Significant HLH deficits in October, January-February, Aug II (change from 2010 NA) and September.
Superpeak/120 hour capacity	HLH more limiting than superpeak in all months.	HLH more limiting than superpeak in all months.	HLH deficits greater than superpeak deficits except for Aug II.	HLH deficits greater than superpeak deficits except for Aug II.
18 hour capacity	Winter: 1600 MW Summer: 200 MW	Winter: 1050 MW Summer: 150 MW	Winter: 100 MW Summer: 250 MW	Winter: 0 MW Summer: 0 MW
Balancing Reserves	Adequate with 30 minute persistence	System unable to supply additional reserves beyond those required in 2014	Inc: -390MW* Dec: -484 MW*	Inc: -642 MW* Dec: -817 MW*

* Based on forecasts used in BP-14 rate case.

**FY19 used as proxy for FY21.



Needs Assessment - FY16 Monthly P10 Inventory (Expected Load Scenario)

	HLH	Spk	Avg	LLH
October	-550	-400	-850	-1300
November	-300	50	-650	-1150
December	-350	-50	-850	-1500
January	-1300	-800	-1500	-1850
February	-900	-700	-1250	-1750
March	-100	700	-400	-850
April I	100	250	-250	-750
April II	750	750	300	-350
May	3150	3650	2400	1500
June	1750	2550	1100	300
July	750	950	100	-850
August I	650	650	-50	-1050
August II	-550	-900	-800	-1150
September	-800	-750	-1000	-1300
Average	150	450	-250	-850

Note: "Spk" = Superpeak, or 120 hour capacity. Also, numbers do not include conservation targets or market purchases.



Needs Assessment - FY21 Monthly P10 Inventory (Expected Load Scenario)

	HLH	Spk	Avg	LLH
October	-700	-600	-1000	-1350
November	-350	-50	-700	-1150
December	-500	-250	-950	-1550
January	-1400	-1000	-1650	-1950
February	-1200	-950	-1500	-1900
March	-300	450	-600	-1050
April I	-150	0	-450	-900
April II	700	650	250	-350
May	2500	3000	1850	950
June	700	1300	150	-650
July	500	550	-200	-1150
August I	50	0	-450	-1100
August II	-900	-1250	-1050	-1200
September	-1000	-850	-1150	-1400
Average	-150	100	-550	-1100

Note: "Spk" = Superpeak, or 120 hour capacity. Also, numbers do not include conservation targets or market purchases.



Needs Assessment - Conclusions

- Under a variety of conditions and timeframes, BPA could, by 2016, need to supplement the existing federal system to meet existing and projected obligations.
- Updates to hydro modeling assumptions have, in general, decreased expected annual and winter FCRPS generation. This could result in more significant impacts in the winter (as opposed to summer) and a reduction to the expected generation in September.
- Annual Energy (critical water) –
 - Modest energy deficits under critical water under the expected load scenario.
 - Wide range of uncertainty (NLSLs, DSIs, Tier 2, etc.) captured between the high and low economy scenarios.
 - Monthly Energy (P10) – deficits have increased and have shifted within the year
 - The change in the Canadian operations have increased deficits in September. This reduction impacts an already constrained month.
 - Analyses assumes BiOp spill assumptions. In years where fish migration continues later than normal, spill may continue through the end of August and lead to higher August II deficits (up to 400 aMW less generating capability).



Needs Assessment - Conclusions, cont'd

- 18 hour Capacity – Minimal to no longer capacity surplus with expected load and extreme weather.
 - The change in the winter 18 hour capacity from the 2010 Needs Assessment is driven largely by load differences, the expiration of winter purchases (FY13) and changes in FCRPS generation forecasts.
 - Balancing Reserves - The federal system is insufficient to meet the forecasted 99.5 percent level of service for balancing reserve requirements for FY16 and FY19 (proxy for FY21). These deficits could be higher if BPA adopts higher levels of service. There are many efforts underway to address this issue including the upcoming BP-14 rate case.
- BPA will continue to evaluate and update this analysis, with the next formal Needs Assessment scheduled to be completed in 2014.



Resource Assessment

- The Resource Assessment describes factors BPA considers on a policy basis, in addition to legal requirements, in assessing resource alternatives. These factors tie to the Statutes, BPA's Strategic Direction and the Agency Strategy Map
- Discusses the relative merits of resource alternatives to meet BPA's needs including:
 - Planned federal hydro improvements
 - Conservation
 - Demand Response
 - Keys Pumped Generation Facility
 - Market Purchases
 - Traditional Thermal Generation
 - BPA Compressed Air Energy Storage study
- This section also discusses resource characteristics, risks and emissions as well as providing estimates of resource levelized cost.



Resource Assessment – 6th Power Plan Conservation Targets

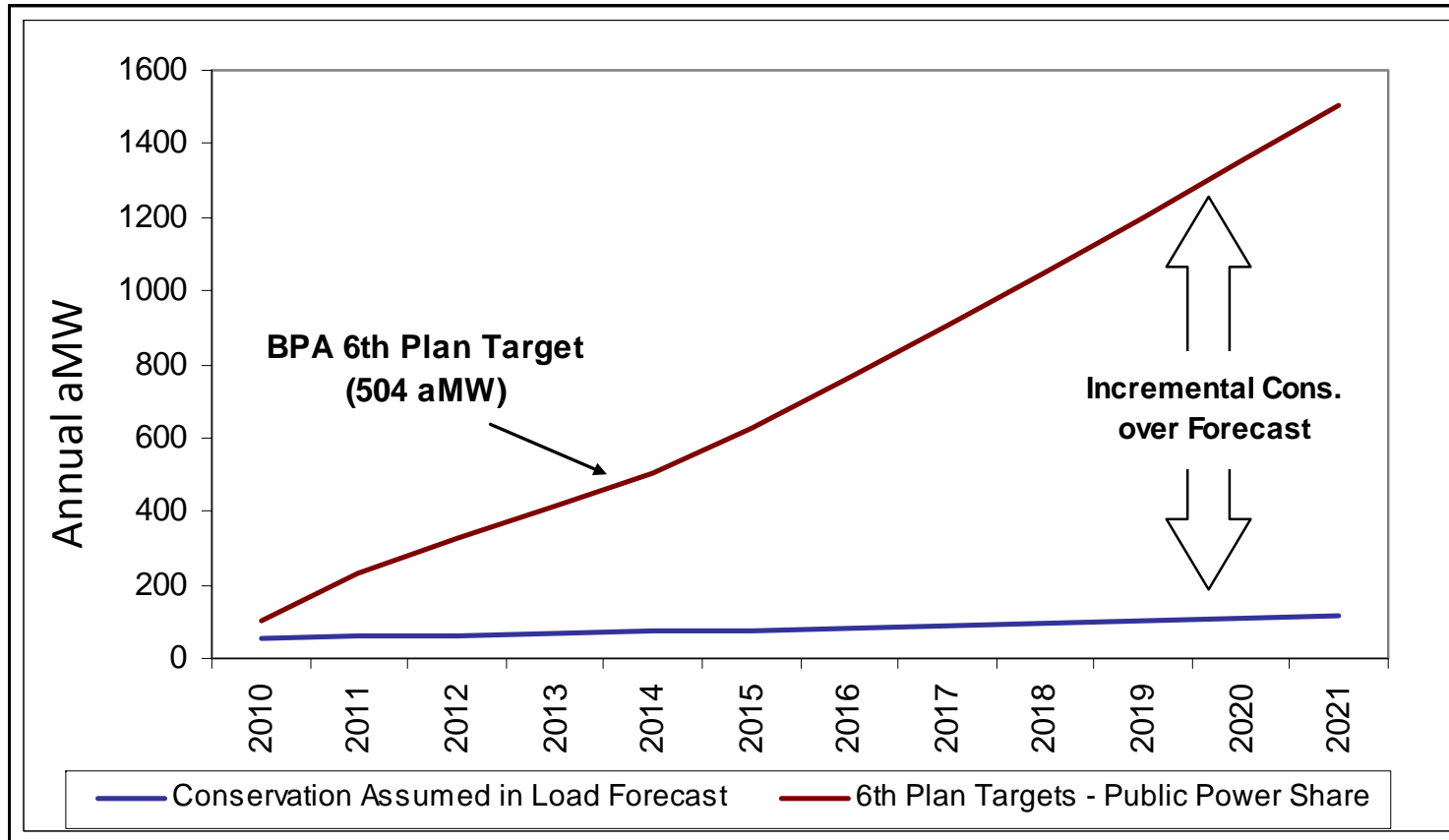
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Council Targets - Annual Targets (aMW)	260	280	290	320	340	350	360	365	365
Public Power Share - Annual Targets (aMW)	109	118	122	134	143	147	151	153	153
Public Power Share – Cumulative (aMW)*	386	504	626	760	903	1,050	1,201	1354	1507

- Notes:
 - Approximately 60 aMW of conservation is embedded in the load obligation forecast and thus is already included in the results of the Needs Assessment. The 60 aMW does count towards meeting Public Power’s Share of the 6th Power Plan targets.
 - BPA also does not assume that achieving all the conservation targets will directly reduce BPA’s load obligations. We assume that some of the conservation is being done by slice/block customers and some is reducing Tier 2 amounts. To address this, BPA assumes that 1/3 of the remaining conservation targets reduces our load obligations.

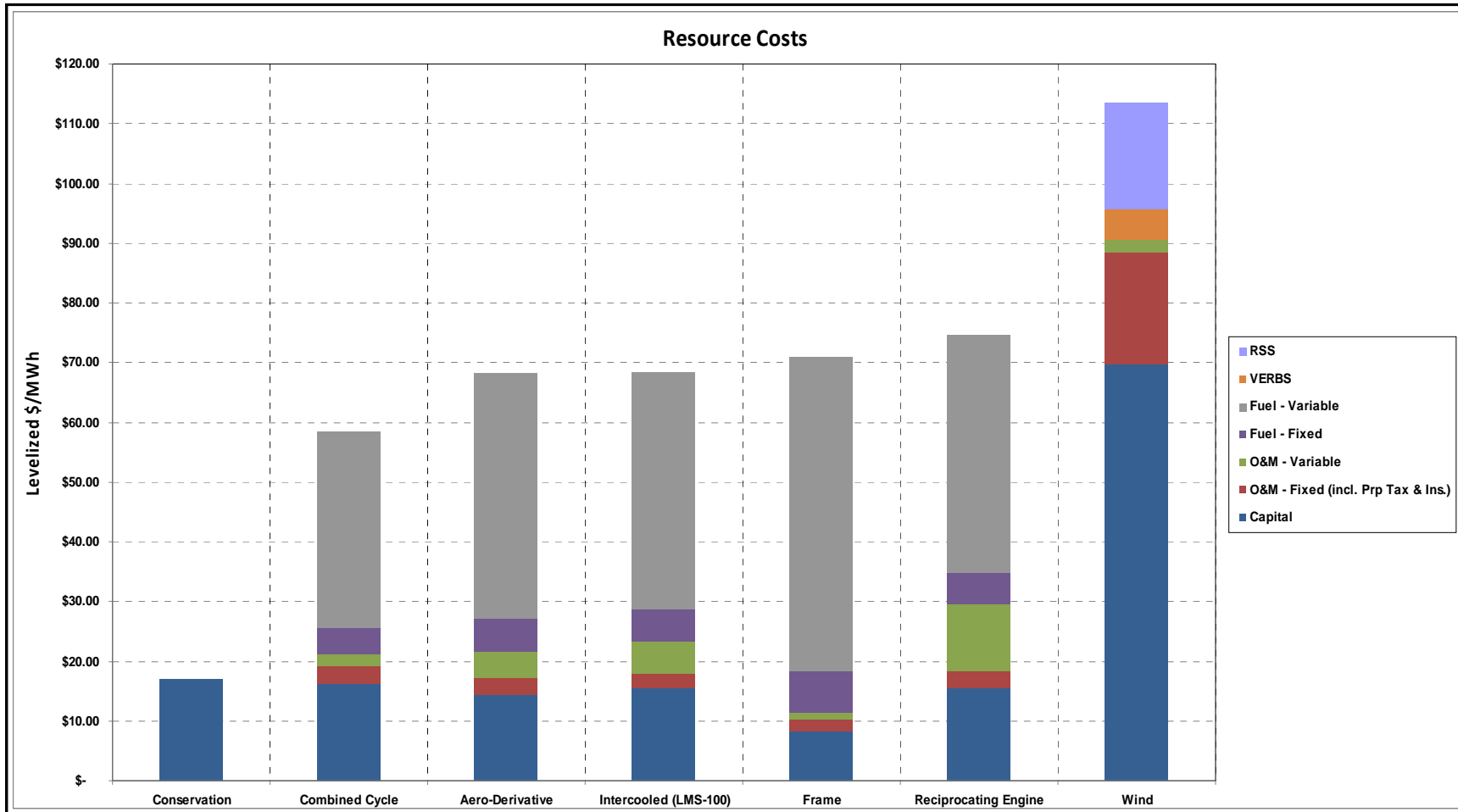


Resource Assessment - Conservation

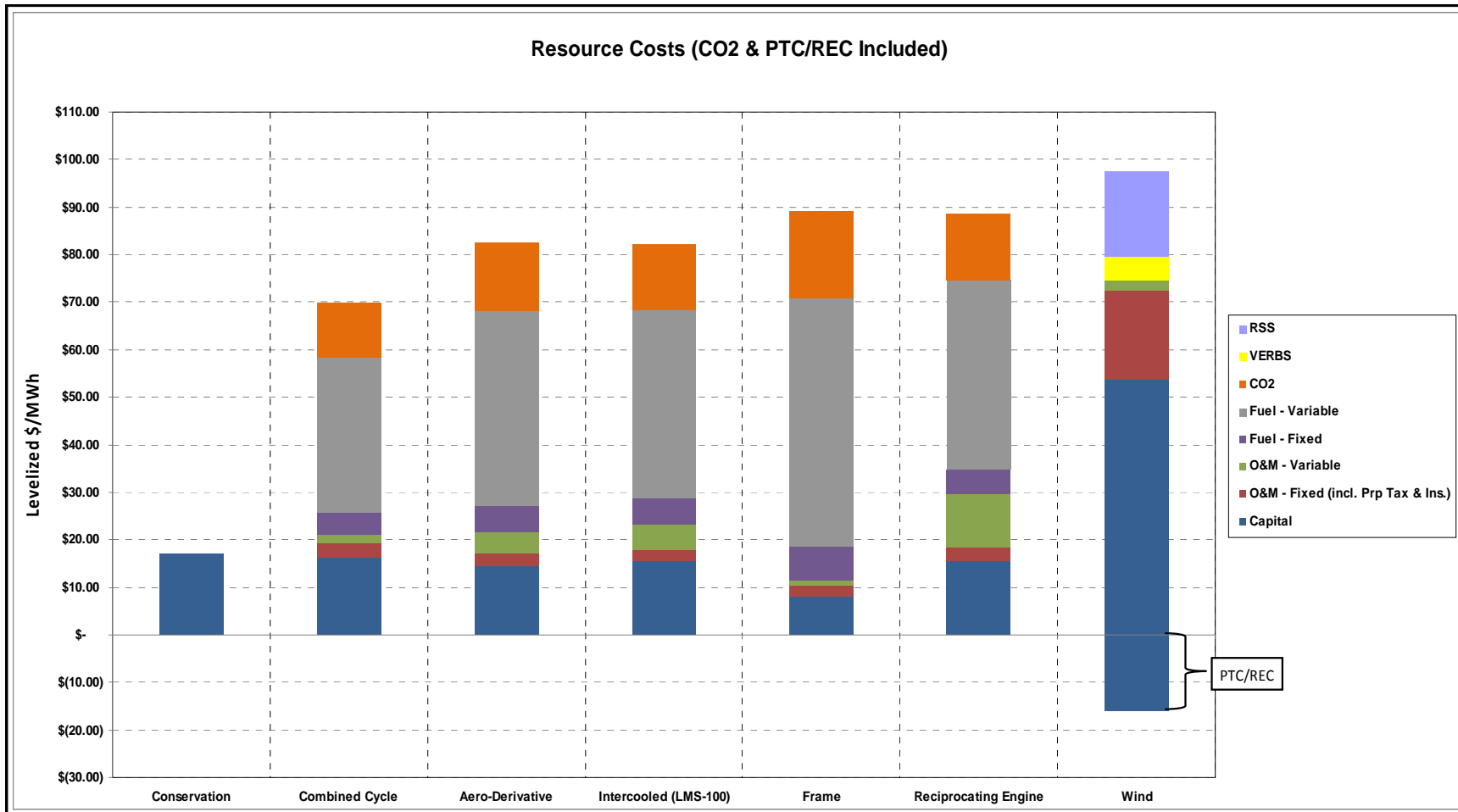
The following chart reflects the conservation embedded in the Load Obligation Forecast and the incremental amount to achieve the 6th Power Plan targets



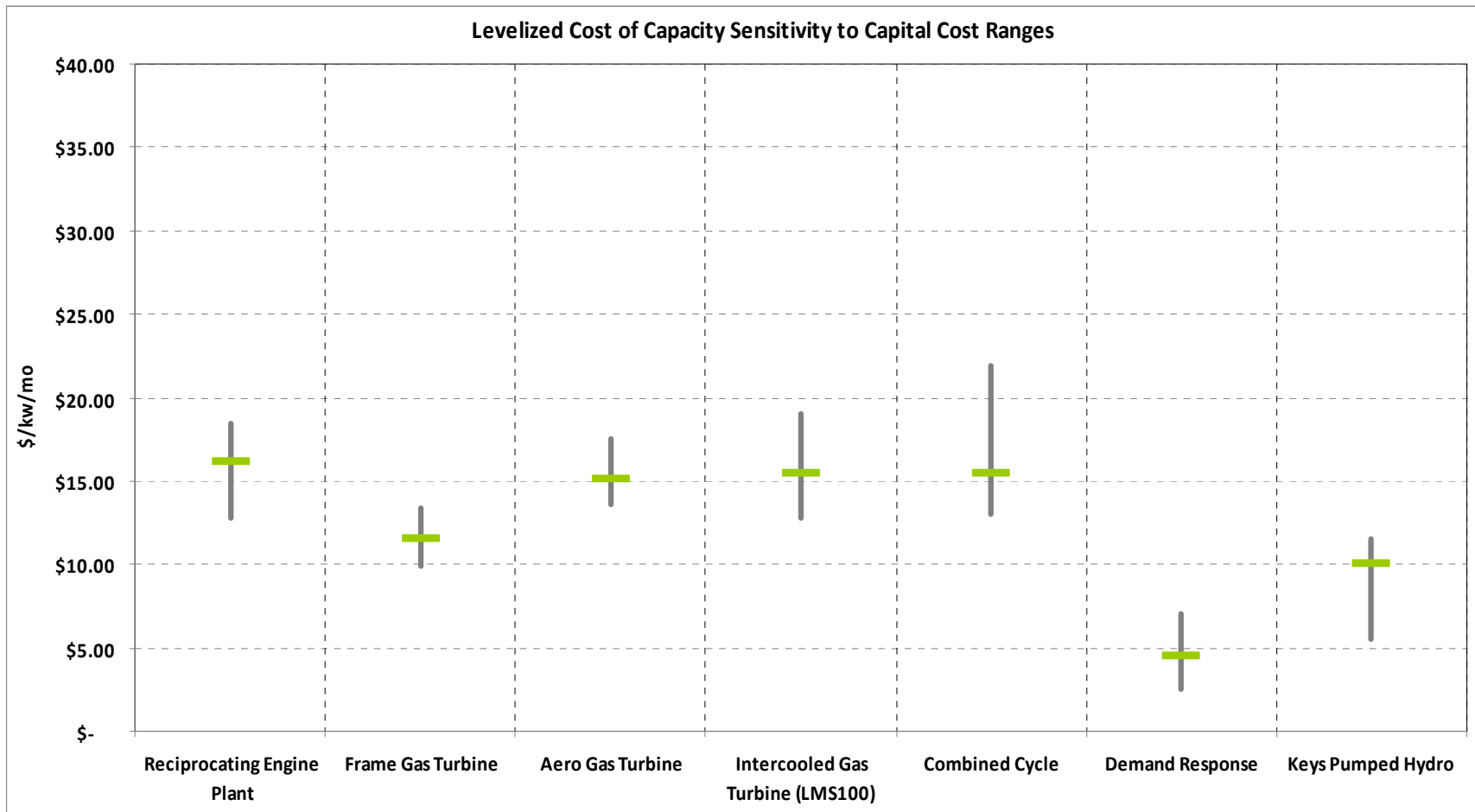
Resource Assessment – Levelized Cost of Energy



Resource Assessment – Levelized Cost of Energy



Resource Assessment – Levelized Cost of Capacity

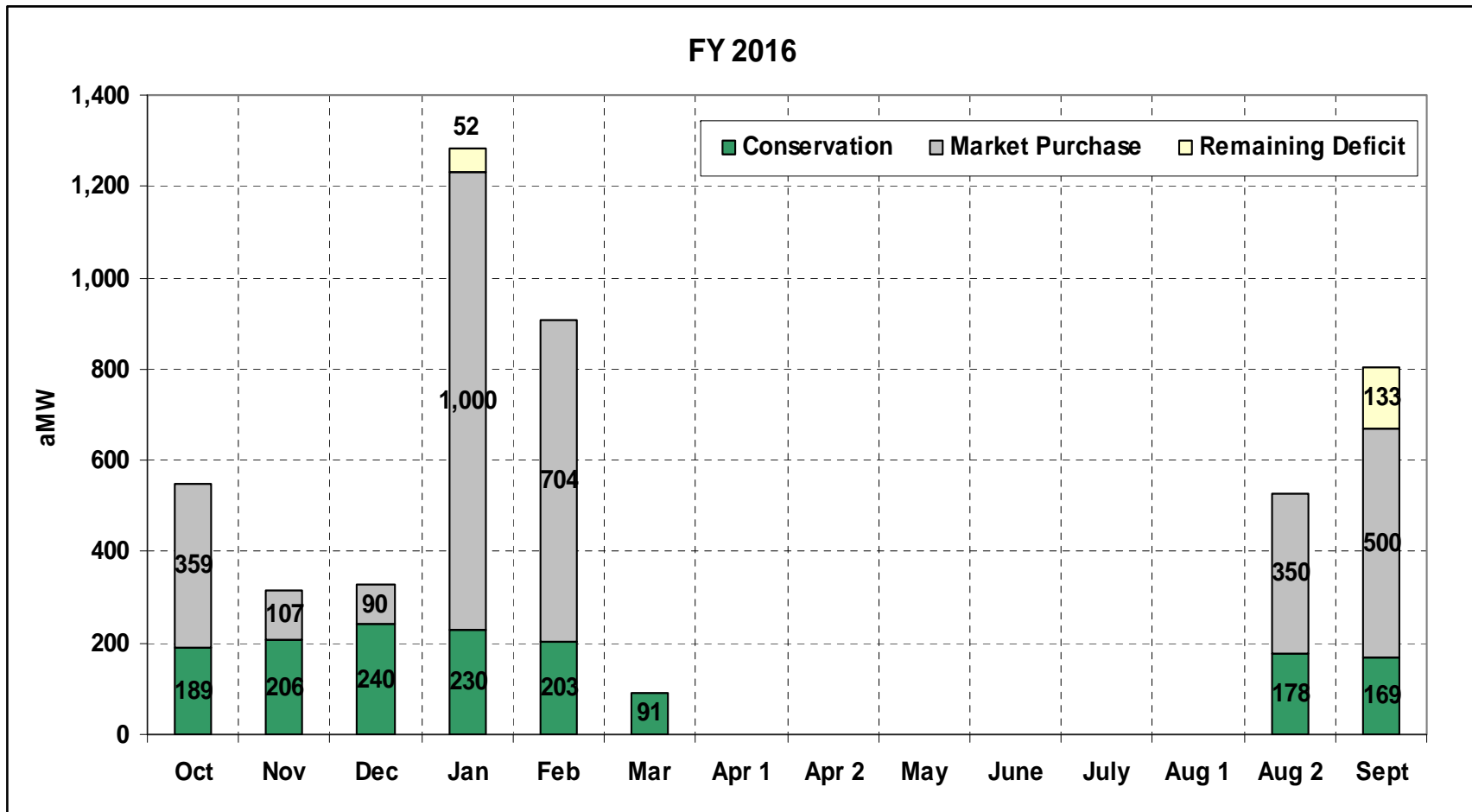


Resource Assessment Results

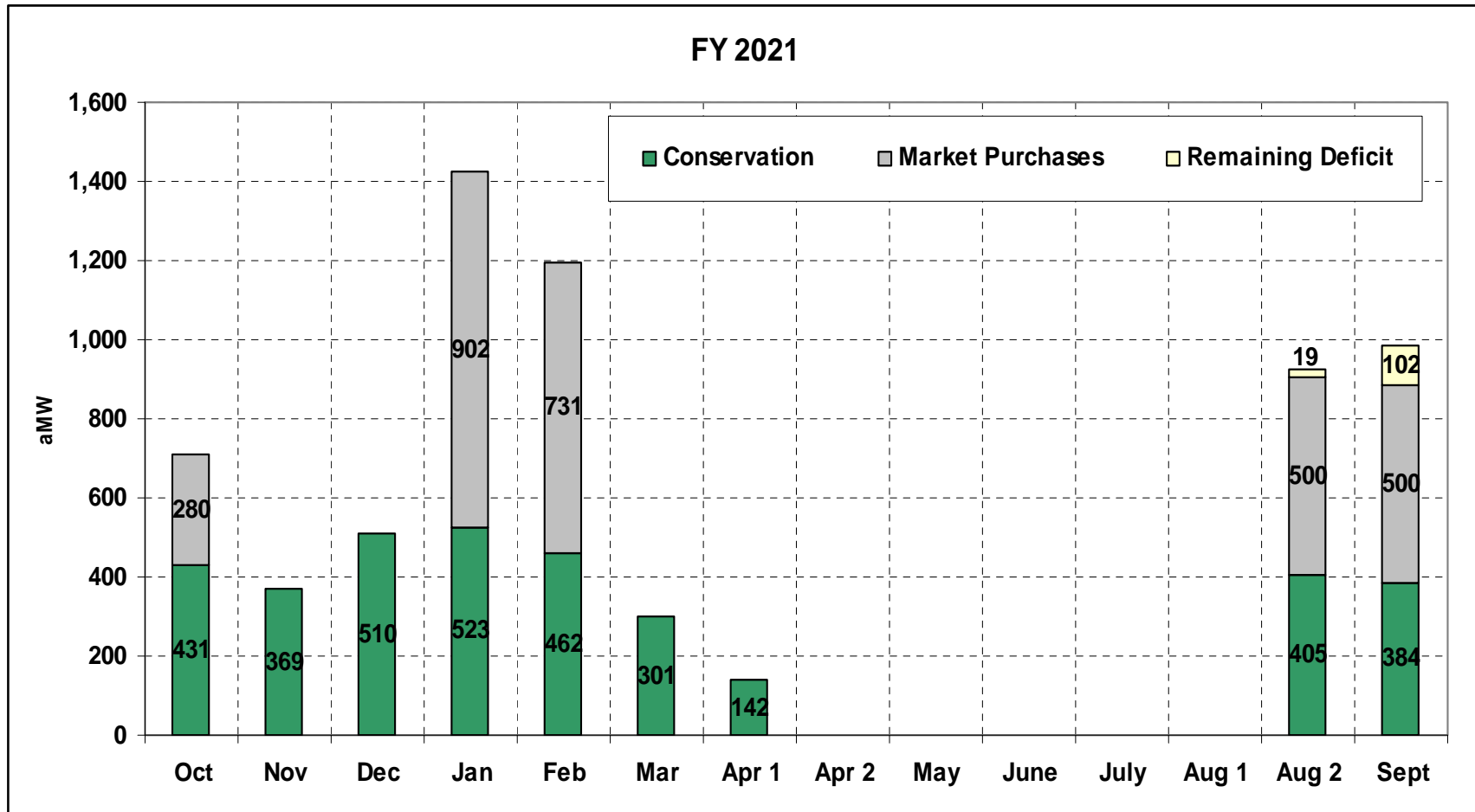
- The Resource Assessment Results combine the results of the Needs Assessment with the results of the Market Assessment and Resource Assessment
- The first step is to apply the adjusted Public Powers share of the conservation targets to the deficits
- The second step was to apply market purchases up to the market depth thresholds (1,000 aMW winter, 500 aMW summer)
- Energy Results:
 - The following two slides reflect the results of applying this resource strategy to the 2012 Needs Assessment monthly results.
 - The results, after this strategy is applied, are minimal amounts of need not meet by the conservation and market purchases.
 - BPA anticipates that these remaining small deficits can be managed using additional market purchases above those assumed in the studies if needed.
 - The strategy of conservation and market purchases would eliminate the annual needs.



Resource Assessment Results – FY 2016 Monthly Energy



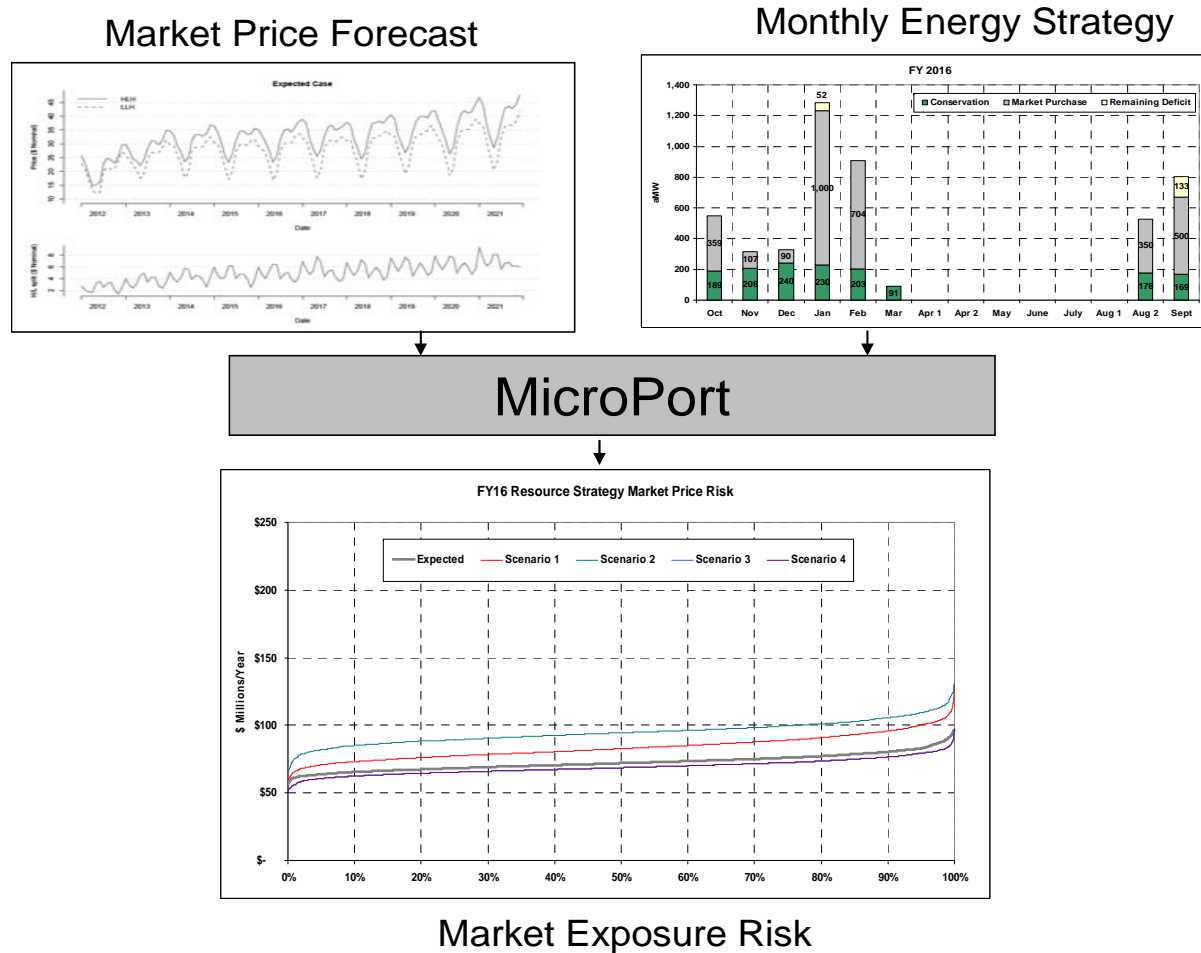
Resource Assessment Results – FY 2021 Monthly Energy



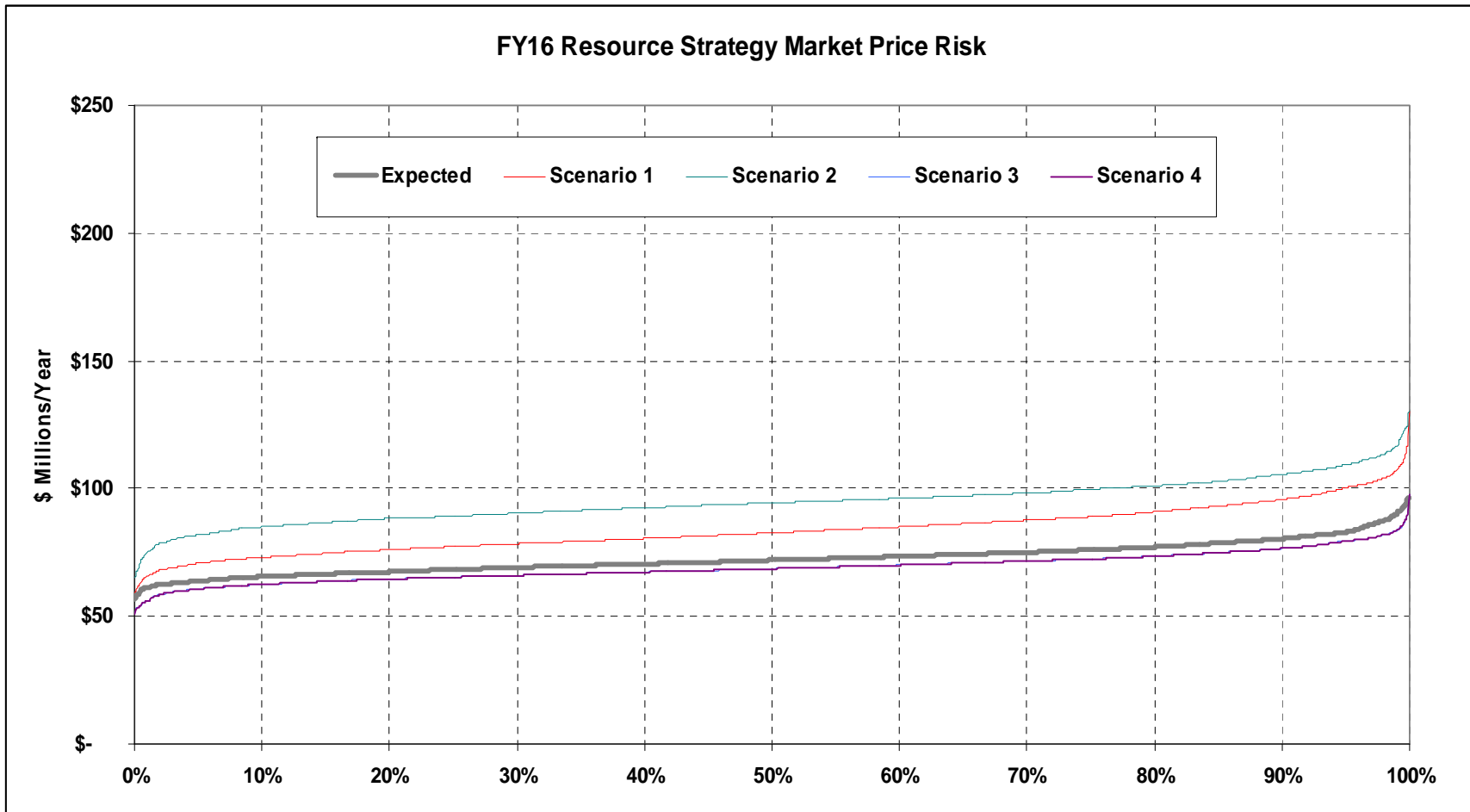
Resource Assessment Results –Market Risk Exposure

BPA is developing a tool, named MicroPort, to assess the risks and costs associated with different resource strategies. The following diagram is an example of the MicroPort process.

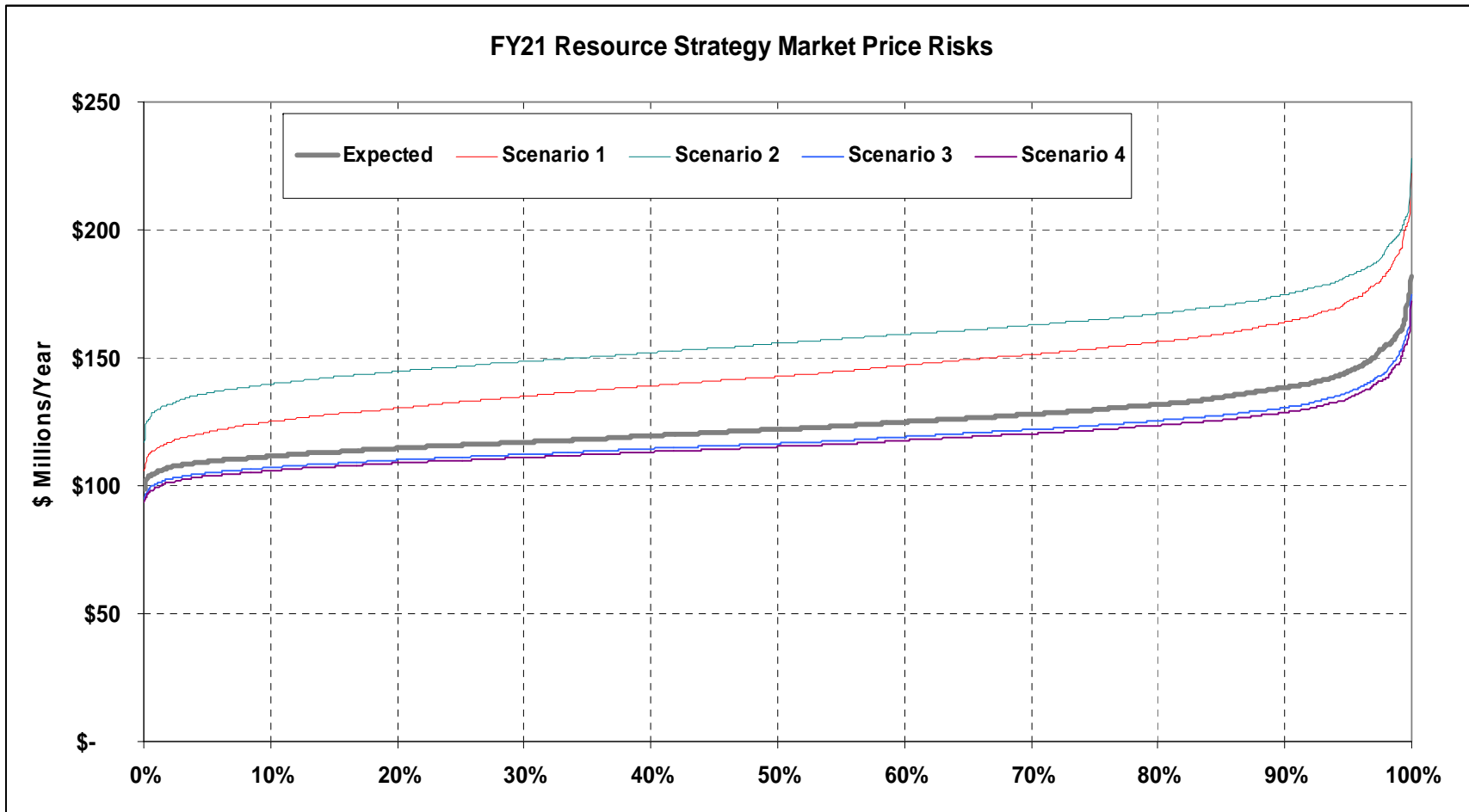
MicroPort Diagram



Resource Assessment Results – FY 2016 Market Risk Exposure



Resource Assessment Results – FY 2021 Market Risk Exposure



Resource Assessment Results - Capacity

The following Table illustrates the results of the 18 hour capacity analysis from the Needs Assessment

2016	2016	2021	2021
Winter	Summer	Winter	Summer
+100	+250	0	0

The following are areas that we feel could supplement the capacity of the FCRPS:

- 6th Power Plan Conservation Targets
 - Achieving the Sixth Power Plan conservation targets will have the effect of reducing the load and thus help to supplement the existing capacity of the FCRPS.
 - BPA is concerned that not all the conservation may occur during times of extreme loads, and hence further study is warranted
 - Consistent with the Council modeling for the Regional Resource Adequacy
 - ❖ Estimated Impact: 200 MW in 2016 and 400 MW in 2021
- Market Purchases
 - HLH market purchases would also help supplement the amount of capacity available
 - There is some concern that the market thresholds (1,000 aMW winter, 500 aMW summer) may not be valid in a short lead time, extreme weather event
 - ❖ Estimated Impact: translate into a 1 for 1 capacity benefit, i.e. 100 aMW HLH purchase would add 100 MW to the capacity metric



Resource Assessment Results - Capacity

- Non-Treaty Storage
 - Analyzed releasing 10 kcfs out of Canada
 - Due to current arrangement with Canada, the NTS should be viewed as non-firm for planning purposes. Estimated Impact (based on 10 kcfs): 400 MW in the winter (2016 & 2012), 300 MW (2016) and 350 MW (2021) in the summer.
- Keys Pump Generation Station
 - For the 18 hour capacity study, Keys Pumped Generation Station was not included in the analysis. However, it is possible that during times of extreme weather events Keys could provide some additional capacity.
 - There are many questions and uncertainties about the future of Keys
 - ❖ Estimated Impact: 150 MW but potentially up to 300 MW
- Demand Response
 - BPA Demand Response team is currently developing phase 2 of the program
 - Appears to be a cost-effective alternative
 - ❖ Estimated Impact: Under development



Resource Assessment Results - Capacity

- Peak Net Requirements
 - BPA's near term focus is to establish a capacity metric in preparation for the 2014 White Book/Needs Assessment analysis.
 - BPA expects to peer review this work with regional interests sometime in 2013/early 2014.
 - BPA will then undertake the approach for exploring a Peak Net Requirements determination after a capacity metric is established approximately Spring 2014.
- Acquisition of the output of a thermal generation plant
 - Most likely a 6c process would be needed (if the acquisition is greater than 50 aMW and longer than 5 years in duration)
 - Some form of the Capacity Net Requirements process have to occur before BPA could do a 6c process
- ❖ Estimated Impact: Scalable



Resource Assessment Results – Summary

Metric	Resource Options (No specific order)
Annual Energy	<ul style="list-style-type: none"> • Conservation • Market purchases • Combined-cycle combustion turbine • Federal hydro system improvements
Monthly/Seasonal HLH Energy	<ul style="list-style-type: none"> • Conservation • Market purchases • Combined-cycle combustion turbine • Simple-cycle combustion turbines <ul style="list-style-type: none"> • Frame • Aeroderivative • Intercooled • Reciprocating Engine
Capacity and Flexibility	<ul style="list-style-type: none"> • Demand response • Combined-cycle combustion turbine • Simple cycle combustion turbines <ul style="list-style-type: none"> •Frame •Aeroderivative •Intercooled • Reciprocating Engine • Keys Pumped Storage Plant • Federal hydro system improvements • Peak Net Requirements • Non-Treaty storage <p>❖ BPA will be exploring the contribution of conservation to meeting capacity needs.</p>



Resource Program Action Plan

- In addition to the items identified in the 2010 Resource Program, BPA has updated the 2013 Resource Program Action Plan to highlight the following key areas of action:
 - Evaluate the contribution of conservation to meeting capacity needs.
 - Further develop the definitions of system and resource flexibility, including how flexibility might be measured and possible adequacy metrics.
 - Continue to evaluate demand response and Keys Pumped Generation Station.
 - Explore the application of Peak Net Requirements provisions described in Regional Dialogue contracts.
 - Monitor the emerging drivers that influence the potential Above-High Water Mark load placed on BPA post-FY 2019.
 - Continue to evaluate how traditional thermal generation resources could supplement the capacity of, and provide flexibility and seasonal energy to, the existing Federal Columbia River Power System (FCRPS).
 - Monitor factors that could reduce the capability or output of the FCRPS.
 - Collaborate with the Northwest Power and Conservation Council (Council) to prepare for the Seventh Power Plan and BPA's next Resource Program.

