



# Non-Federal Resources Discussion

PPC Rates and Contracts

July 27, 2021

PROVIDER OF CHOICE

— POST-2028 —



# Agenda

- Recap feedback
- Consumer Owned Resources
- Non-Federal Resource Thresholds Analysis
- Transmission Thresholds for Non-Federal Resources
- Purchase Periods and Notice Deadlines
- Next steps

# Today's discussion & the 6 steps

Today's discussion session seeks to explore potential modifications to the rules around customer application of non-Federal resources when serving load. The potential modifications reflect customer input received during the post-2028 customer engagement to date.



Topic	Comment Summary	BPA Response
Resources Definitions	Revisit the definition of Existing Resource and New Resource	For future discussions
Consumer Owned Resource	Modify the definition of Consumer Owned Resources to include community solar and other resources	Slides 5 - 7
Thresholds	Modify resource thresholds: 5 MW nameplate resources up to 10 MW limit	Slides 8 - 28
Nameplate	Reconsider the use of Nameplate for thresholds	Nameplates are the industry standard for establishing generation thresholds
Purchase Periods	Eliminate Purchase Periods	Slides 29 - 32
Rounding	Round Above-RHWM Load to nearest whole megawatts	Slide 32
Resource Application	Allow for customers to determine whether Specified Resources or Unspecified Resource Amounts are applied first to Above-RHWM Load	Explicit in the Final Revised 5(b)/9(c) Policy section III.A.1.(d)
Green Exception	Review grandfathered Green Exception in regards to implementation challenges and consider offering to more customers	Offsite Green Exception had a sunset provision in the Regional Dialogue Policy. Only one customer is grandfathered the Offsite Green Exception





# Consumer Owned Resources



# Consumer Owned Resources

## Comment Summary (color added):

- Consumer-Owned Resource definition states, “Consumer-Owned Resource does not include a resource where the owner of the resource is a retail consumer that exists solely for the purpose of selling **wholesale power**.” This definition appears to exclude resources like community owned solar, which are resources that seem to fit within the spirit of the consumer owned resource distinction (i.e., behind the meter, intended to serve local load).
- Request that BPA consider modifying the Consumer Owned Resource definition to encompass community owned resources, but also work with customers to identify other emerging resource types that may fit these parameters.”

## Response:

- The Contract anticipated a variety of Consumer-Owned resources including ones that could be sold to entities off the Power Customer’s distribution system.
- Distinguishing resources solely for sale of “wholesale power” excluded Independent Power Producer resources from the definition.
- BPA interprets Community owned solar serving **retail loads** within a Power Customer’s distribution to be Consumer-Owned Resources.

# Public workshop on solar integration – Dec. 2016

In December 2016 Solar Task Force, BPA described how Community Solar would work in Power Sales Contract:

## Community Solar Projects (Not owned by the Utility):

- **Solar owned by Consumers or Consortium of Consumers:**
  - Treated as if the consumer-owners use the resource to serve their own retail loads.
  - Consumers receive credit for actual kWh generated, reducing the utility’s retail service to those consumers. (Retail electric bill is reduced)
  - BPA Power Contract with utility **will list** the resource as “Consumer-Owned Serving Onsite Consumer Load.”



# Non-Federal Resource Thresholds

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# Non-Federal Resource Threshold Analysis

## Background Session Review:

- What is the 200kW non-federal resource threshold?
  - The 200kW threshold represents the maximum nameplate for a generating resource that customers may run against load without contract requirements.
- Regional Dialogue contract requirements (status quo):
  - All customer-owned resources greater than 200kW nameplate must be listed in Exhibit A of the contract.
  - Resources included in the contract must be metered with data accessible to BPA to integrate and synchronize with federal power delivery and also allows enforcement of the “Take-or-Pay” concept.

# Non-Federal Resource Threshold Analysis

## **BPA and rate payers' exposure to revenue risk:**

- BPA will continue to, and is obligated to, serve customers' net requirements.
- BPA and rate payers are exposed to revenue risk when there is uncertainty regarding the amount of load that BPA will serve. The existing 200kW threshold presents limited risk because it limits the uncertainty to only those resources below that nameplate threshold. BPA does not gather information on those resources below the threshold.
- Because the “take-or-pay” concept only applies to resources listed in contracts, the output of resources below 200kW may be applied to load at the customers' discretion. This creates some degree of revenue risk.

# Non-Federal Resource Threshold Analysis

- **Guiding question:**
  - What impacts would a change in the non-federal resource threshold have on Power revenues?
- **Broad method:**
  - Step 1: Look-back analysis. What revenues would have been at risk had BPA had higher thresholds in the last five years?
  - Step 2: Look-ahead analysis. What revenues may be at risk in the next five years if BPA increases the threshold size?

# Non-Federal Resource Threshold Analysis

Guiding Market Intuition: assumptions of customer behavior:

- If Market Prices  $>$  BPA PFT1 rate:
  - Customers will be incentivized to sell the output of their own resources and buy their power from BPA. *(results in no downside revenue risk for BPA)*
- If Market Prices  $<$  BPA PFT1 rate:
  - Customers will be incentivized to use the output of their own resources to serve load and which may result in BPA having to sell their off-set load as surplus in the market.

# Non-Federal Resource Threshold Analysis

Scope and purpose: (aka: “disclaimers”)

- This initial financial analysis attempts to present *only* the Power perspective. A next step for this analysis will be work with Transmission to gather insights about how the non-federal resource threshold impacts Transmission and BPA as a whole. Initial, high-level Transmission considerations are noted in this presentation.
- Resources included in this analysis are not labeled as ‘Existing’ or ‘New’ to avoid confusion with RD contract language. When the terms ‘new’ or ‘existing’ are used verbally during this presentation, they do not imply contract language.
- Resources within this analysis are considered generating resources. Market purchases are not considered for this analysis.
- Because this is an initial analysis, we are open to insights, feedback and questions from customers. Please consider:
  - What should the analysis examine?
  - How could the analysis be improved?

# Analysis: Look-back

Includes resources that meet the following criteria:

- Located within customers' service territory ("behind the meter").
- Customer-owned and listed in Exhibit A
  - Dedicated to serve load post-FY 2011
  - Not dedicated to serve load
- Nameplate capability greater than 200kW and less than 10MW.

Fuel Type	Nameplate Capability (MW)	Expected Output 2022 (aMW)
Hydro	0.225	0.151
Solar	0.3	0.036
Solar	0.35	0.066
Hydro	0.44	0.369
Solar	0.5	0.072
Hydro	0.51	0.182
Hydro	0.9	0.685
Hydro	0.91	0.415
Solar	0.974	0.132
Biogas	0.995	0.697
Solar	0.999	0.232
Landfill Gas	1.6	1.077
Hydro	2.25	1.231
Hydro	2.5	0.967
Biomass	2.5	2.5
Landfill Gas	3.2	2.782
Hydro	3.6	2.711
Geothermal	3.65	2.087
Solar	4	0.582
Landfill Gas	4.92	3.773
Hydro	5	4.557
Hydro	7.5	1.368

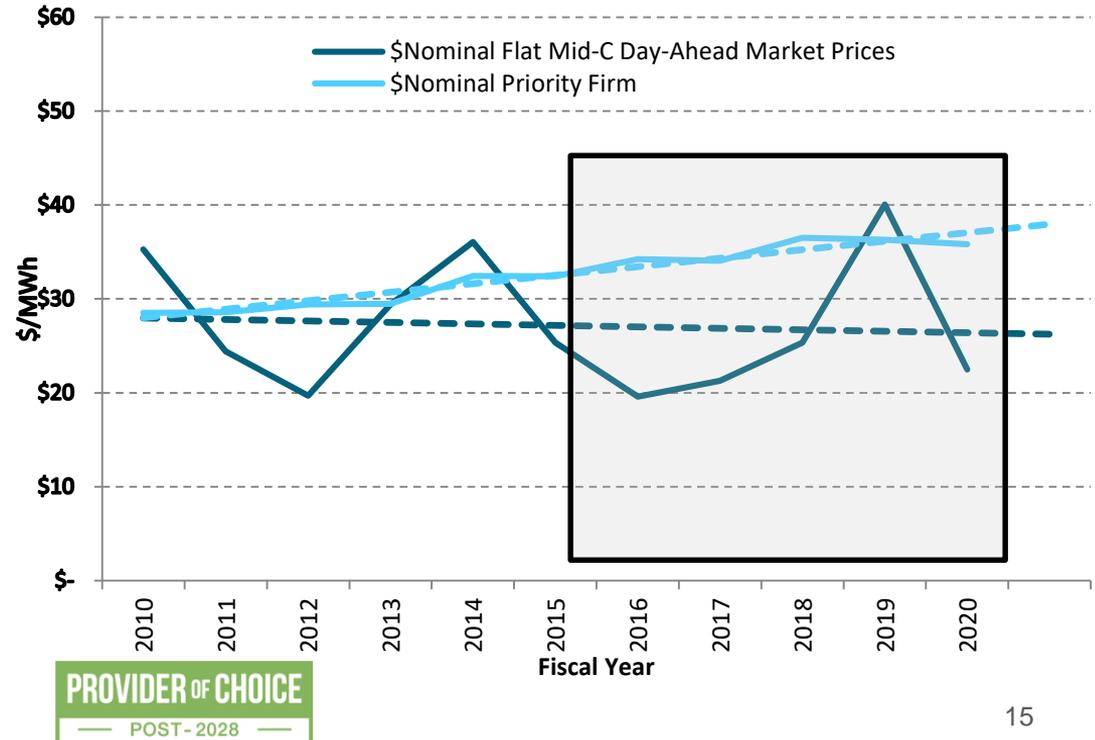
# Analysis: Look-back

## Historical PF Tier 1 Rates & Mid-C Prices:

Fiscal Year	2016	2017	2018	2019	2020	Average:
Average PF Tier 1 Rate:	\$ 34.22	\$ 34.08	\$ 36.52	\$ 36.31	\$ 35.80	<b>\$ 35.39</b>
Average Mid-C Price:	\$ 19.58	\$ 21.28	\$ 25.36	\$ 40.05	\$ 22.48	<b>\$ 25.75</b>
Delta:	\$ 14.64	\$ 12.80	\$ 11.16	N/A	\$ 13.32	<b>\$ 12.98</b>

- Effective PF Tier 1 non-slice rates are based on actual sales
- InterContinental Exchange (ICE) day ahead Mid-C flat average prices
- Delta = PF Tier 1 – MidC
- Average delta excludes years when MidC > PFT1

## Historical Priority Firm Power Rates FY 2010-2020



# Analysis: Look-back

- This portion of the analysis calculates approximate revenue impacts *as if*:
  - BPA had higher thresholds during the past five years (2016-2020),
  - these resources were not already dedicated to serving Above-RHWM Load, and
  - resources are being used to offset Tier 1 non-slice load.
- Revenue risk is calculated using the following equation:

$$(P_{T1}(\$) - P_{MC}(\$)) \times [Exp. Output (aMW)] \times Annual Hrs = Annual Revenue Impact (\$)$$

$P_{T1}$ : Annual Average PF Tier 1 non-slice rate

$P_{MC}$ : Annual Average Mid-C Price

Fuel Type	Nameplate Capability (MW)	Expected Output 2022 (aMW)	2016 Revenue Risk w/ \$14.64 Delta	2017 Revenue Risk w/ \$12.8 Delta	2018 Revenue Risk w/ \$11.16 Delta	2019 Revenue Risk	2020 Revenue Risk w/ \$13.32 Delta	1 MW Threshold Average Annual Revenue Risk (16',17',18',20')	3 MW Threshold Average Annual Revenue Risk (16',17',18',20')	5 MW Threshold Average Annual Revenue Risk (16',17',18',20')	10 MW Threshold Average Annual Revenue Risk (16',17',18',20')
Hydro	0.225	0.151	\$19,418	\$16,931	\$14,762	\$0	\$17,667	\$345,831	\$1,003,445	\$2,881,431	\$3,037,209
Solar	0.300	0.036	\$4,630	\$4,037	\$3,519	\$0	\$4,212				
Solar	0.350	0.066	\$8,487	\$7,400	\$6,452	\$0	\$7,722				
Hydro	0.440	0.369	\$47,453	\$41,375	\$36,074	\$0	\$43,174				
Solar	0.500	0.072	\$9,259	\$8,073	\$7,039	\$0	\$8,424				
Hydro	0.510	0.182	\$23,405	\$20,407	\$17,793	\$0	\$21,295				
Hydro	0.900	0.685	\$88,089	\$76,808	\$66,967	\$0	\$80,147				
Hydro	0.910	0.415	\$53,368	\$46,533	\$40,571	\$0	\$48,556				
Solar	0.974	0.132	\$16,975	\$14,801	\$12,905	\$0	\$15,444				
Biogas	0.995	0.697	\$89,633	\$78,153	\$68,140	\$0	\$81,551				
Solar	0.999	0.232	\$29,835	\$26,014	\$22,681	\$0	\$27,145				
Landfill Gas	1.600	1.077	\$138,500	\$120,762	\$105,289	\$0	\$126,012				
Hydro	2.250	1.231	\$158,304	\$138,030	\$120,345	\$0	\$144,031				
Hydro	2.500	0.967	\$124,354	\$108,428	\$94,535	\$0	\$113,142				
Biomass	2.500	2.500	\$321,494	\$280,320	\$244,404	\$0	\$292,507				
Landfill Gas	3.200	2.782	\$357,759	\$311,940	\$271,973	\$0	\$325,502				
Hydro	3.600	2.711	\$348,629	\$303,979	\$265,032	\$0	\$317,195				
Geothermal	3.650	2.087	\$268,384	\$234,011	\$204,028	\$0	\$244,185				
Solar	4.000	0.582	\$74,844	\$65,258	\$56,897	\$0	\$68,096				
Landfill Gas	4.920	3.773	\$485,199	\$423,059	\$368,855	\$0	\$441,452				
Hydro	5.000	4.557	\$586,020	\$510,967	\$445,500	\$0	\$533,182				
Hydro	7.500	1.368	\$175,922	\$153,391	\$133,738	\$0	\$160,060				

- **Average Expected Output 2022 (aMW) for all resources: 56% of Nameplate capability**
- **2019 Revenue Risk: No revenue risk is assumed when Mid-C Prices > PF T1 Rates**
- **Total Average Annual Revenue Risks are cumulative. Ex: the Average Annual Revenue Risk for the 5MW threshold includes the revenue risks from lower 3MW and 1MW thresholds.**



# Analysis: Interactive Model

## Threshold Analysis Model:

- Will be posted to Provider of Choice [website](#) (ThresholdAnalysis\_Post28.xlsx).
- Provides an interactive model which enables users to change assumptions:
  - Inflation rate,
  - Resource capacity factor,
  - Resource scale-up factor,
  - Quantity of resources in each threshold tier, and
  - Price delta.
- Provides forecasted estimate of potential revenue risk to Power services.

# Analysis: Interactive Model

ThresholdAnalysis\_Post28 - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do... Ramse,Jonathan D (BPA) - PSRF-6 Share

E10

**NOTE: Cells highlighted in GREEN are interactive and will provide different views on revenue risk.**

**Assumptions:**

Resource Capacity Factor:	60%
# of Resources in each threshold:	10

**Revenue Risk Forecast:**

Threshold (MW Nameplate)	Current # of Resources	Expected Total Resource Output (after capacity factor)	Expected Annual Revenue Risk Market Price Delta = BPA PFT1 Rate - MidC Market Rate				
			\$5.00	\$7.50	\$10.00	\$12.50	\$15.00
1	10	6	\$262,800	\$394,200	\$525,600	\$657,000	\$788,400
3	20	24	\$1,051,200	\$1,576,800	\$2,102,400	\$2,628,000	\$3,153,600
5	30	54	\$2,365,200	\$3,547,800	\$4,730,400	\$5,913,000	\$7,095,600
10	40	114	\$4,993,200	\$7,489,800	\$9,986,400	\$12,483,000	\$14,979,600

**Revenue Risk and Cost Shifts**

**Notes:**

- 1) Assume existing resources are serving load.
- 2) Rule of thumb: \$20 million = 1% rate impact

# Analysis: Look-ahead

- Resource Assumptions:
  - Resources located within customers’ service territory (“behind the meter”).
  - Threshold steps: 1MW, 3MW, 5MW & 10MW.
  - Resource quantity scaled by 2-5x as examples.
  - Expected total resource output = Nameplate MW x Capacity Factor.

Threshold (MW Nameplate)	Current # of Resources	# of Resource Scaled (2x)	Expected Total Resource Output aMW (50% capacity factor)
1	11	22	11
3	15	30	23
5	21	42	53
10	22	44	63

# Analysis: Look-ahead

## Rate & Pricing Assumptions:

- PF Tier 1 rates for FY 2024-2026 are assumed to increase with an inflation rate of 1.8%.
- Mid-C market price forecast is provided from BPA's 2020 Resource Program.

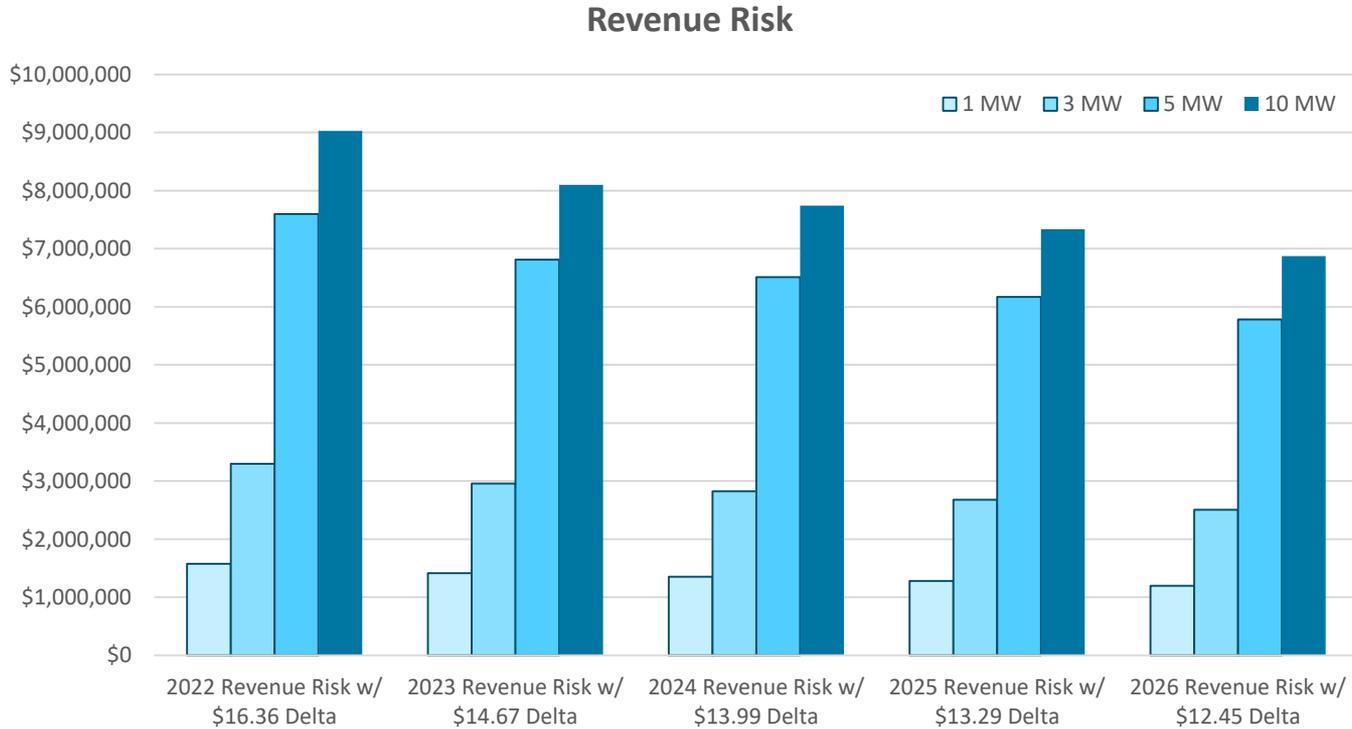
FY:	2022	2023	2024	2025	2026
PF T1 Rate:	\$35.64	\$35.64	\$36.28	\$36.93	\$37.60
Mid-C Price:	\$19.28	\$20.97	\$22.29	\$23.64	\$25.15
Delta:	\$16.36	\$14.67	\$13.99	\$13.29	\$12.45

# Analysis: Look-ahead #1

				Expected Annual Revenue Risk Market Price Delta = BPA PFT1 Rate - MidC Market Price				
Threshold (MW Nameplate)	Current # of Resources	# of Resource Scaled (2x)	Expected Total Resource Output aMW (50% capacity factor)	2022 Revenue Risk w/ \$16.35 Delta	2023 Revenue Risk w/ \$14.66 Delta	2024 Revenue Risk w/ \$14.31 Delta	2025 Revenue Risk w/ \$12.96 Delta	2026 Revenue Risk w/ \$12.11 Delta
1	11	22	11	\$1,575,486	\$1,412,638	\$1,382,689	\$1,248,826	\$1,166,920
3	15	30	23	\$3,294,198	\$2,953,697	\$2,891,078	\$2,611,181	\$2,439,923
5	21	42	53	\$7,590,978	\$6,806,345	\$6,662,049	\$6,017,069	\$5,622,431
10	22	44	63	\$9,023,238	\$8,090,561	\$7,919,040	\$7,152,365	\$6,683,267

- Impact on average PF Tier 1 Rates: \$20 million revenue change  $\approx$  1% rate change

# Analysis: Look-ahead #1



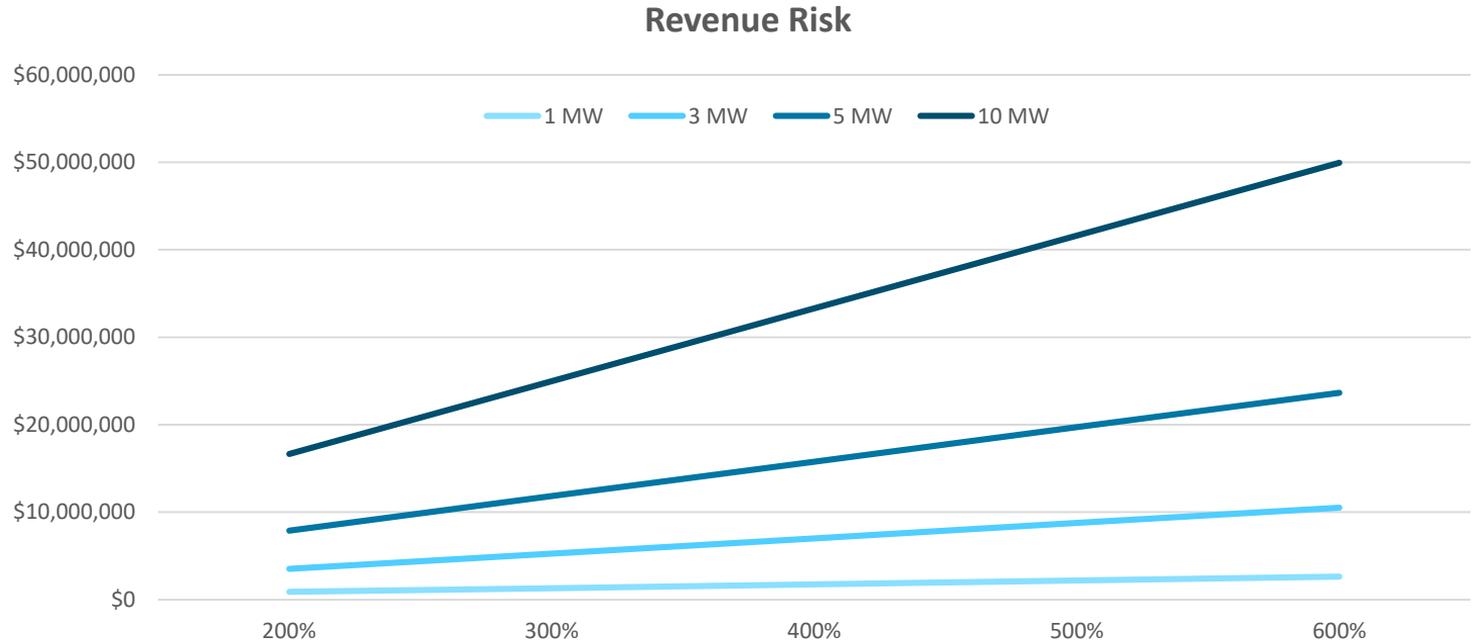
# Analysis: Look-ahead #2

This perspective examines the impacts of changing the total number of non-federal resources on revenue risk while holding the market price delta constant.

- Assumed Market Price delta: \$10
- Resource Capacity factor: 50%
- # of initial resources in each threshold tier: 10

Threshold (MW Nameplate)	Total # of Resources	Expected Total Resource Output (50% capacity factor)	Unscaled Revenue Risk	Scaled # of Resources				
				200%	300%	400%	500%	600%
1	10	5	\$438,000	\$876,000	\$1,314,000	\$1,752,000	\$2,190,000	\$2,628,000
3	20	20	\$1,752,000	\$3,504,000	\$5,256,000	\$7,008,000	\$8,760,000	\$10,512,000
5	30	45	\$3,942,000	\$7,884,000	\$11,826,000	\$15,768,000	\$19,710,000	\$23,652,000
10	40	95	\$8,322,000	\$16,644,000	\$24,966,000	\$33,288,000	\$41,610,000	\$49,932,000

# Analysis: Look-ahead #2





# Transmission Thresholds for Non-Federal Resources

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# 200kW Threshold Transmission Requirements

- Resources larger than 200kW require:
  - An application for generation interconnection (GI).
  - A Balancing Area Authority Service Agreement (BAASA).
  - Payment of certain Control Area Services .
  - Metering:
    - BPA requires access to a customer-owned meter if the resource is larger than 200kW and less than 3MW.
    - At 3MW, BPA requires telemetry, so usually BPA installs a BPA-owned metering/telemetry package.

# 200kW Threshold Transmission Considerations

- Customers are bringing on resources just under the 200kW threshold.
- Increasing the threshold above 200kW would increase the aggregate of load BPA “does not see” on the FCRTS.
  - Reliability concerns
  - EIM implications
  - Customer data collection implications
- Considering changing the 200kW threshold would require in-depth analysis, and may require updates to BPA’s technical standards, business practices, rates, OATT, and amendments to existing contracts.



# Purchase Periods and Notice Deadlines

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# Summary of Customer Comment on Eliminating Purchase Periods

Comment summary:

- Request to eliminate Purchase Period notifications.
- Purchase Period notifications provide no useful purpose in the rate setting process. BPA is able to initiate its rate making process, determine its net requirement, and allocate its costs in absence of the current purchase period notification process.
- Not aware of any significant long-term planning benefits.
- Purchase Period notifications currently give BPA an *indication* of the amount of Above RHWL Load it may serve at a Tier 2 Rate, but these amounts are finalized at the completion of each RHWL process.

# Intent of Notice Deadlines and Purchase Periods

- BPA established the 3-year notice and 5-year commitment timelines to make development of new resources by customers or BPA feasible. The timeline was intended to comply with resource adequacy requirements adopted by the Council by encouraging new resource development and discouraging significant reliance on the spot market for serving load growth.
- Any new paradigms for service to load growth should continue to consider flexibility while not subjecting other customers to cost shifts due to non-Federal resource choices.
- Additionally, elimination of the current notice and commitment period timelines could be replaced with load growth service options that continue to encourage new resource development.
- Eliminating purchase periods and notification timelines increases risk of resources not being available when needed.

# Example Load Growth Service Option

One time election for load growth service. Election is good for the term of contract.

1. **All BPA** with option to add new generating resources as they are developed:
    - BPA would plan on serving all load growth, but a customer could lower its net requirement by dedicating new generating resources (limited to some total amount).
    - BPA would manage Tier 2 load service as one portfolio, could possibly include a Tier 2 pricing differential for “green” or “non-green” power.
  
  2. **All non-Federal resources** with option to request service from BPA prior to a rate period:
    - Customer would manage its own load growth, but a customer could request defined amounts of power from BPA prior to a rate period for service in the rate period.
    - BPA would manage this service similar to its current Tier 2 Short-Term Rate strategy- using market purchases or available Firm Surplus at market prices.
- Could round down all Above-RHWM Load amounts to whole megawatts for simplicity.



# Next Steps

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# Next Steps

- Please provide feedback on today's session regarding non-Federal resources to [post2028@bpa.gov](mailto:post2028@bpa.gov), via discussions with Power AE, or through your trade organizations as applicable by August 10.
- BPA will plan to reflect back on feedback at August 24 meeting (“what BPA heard”)
- The next PPC-hosted meeting will be August 10 featuring discussion on Carbon and Contract Term/Cost Control (full schedule on following slide)

Thank you for your time today and your ongoing engagement in post-2028 conversations.

# Upcoming sessions

	4-6 Weeks Between Background and Discussion
May 27, 10am-noon	HWM & Tier 1 System Background
June 8, 1-3pm	Non-Federal Resources Background
June 22, 1-3	BPA's Statutes, Capacity & Resource Adequacy Background
July 13, 1-3	HWM & Tier 1 System Discussion
July 27, 1-3	Non-Federal Resource Discussion
August 10, 1-3	<b>Carbon Background, Term/Cost Control Background</b>
August 24, 1-3	Capacity & Resource Adequacy Discussion
September 14, 1-3	Transfer & Transmission Background, EE Background
September 28, 1-3	Carbon Discussion
October 12, 1-3	Transfer & Transmission Discussion
October 26, 1-3	Term/Cost Control Discussion and revisit Interests
November 9, 1-3	EE Discussion
Mid-November	REP Background
December 14	
Mid-December	

