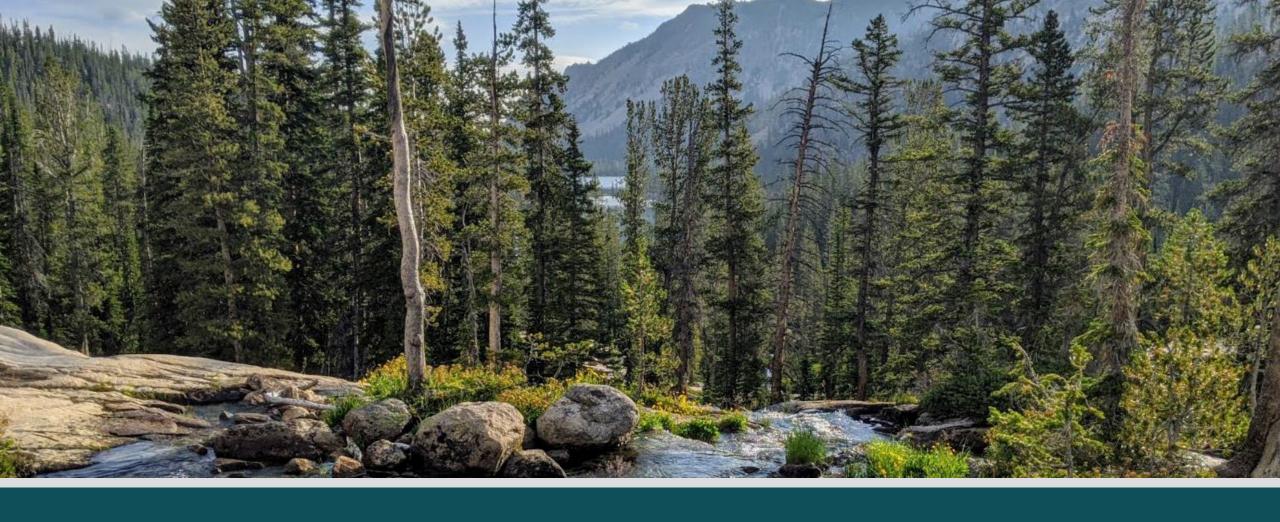


Provider of Choice Workshop

April 9 -10, 2024







Non-Federal Resources

Objectives

Share foundational context for policy implementation and contract development related to non-federal resources.

Preview next discussions on non-federal resources.





Northwest Power Act and Non-federal Resources

5(b)(1), Customer Resources and Net Requirements

- 5(b) power sales contracts must account for customer resources.
- Section 5(b)(1) of the Northwest Power Act requires Bonneville to offer contracts to serve a customer's firm power load net of its own resources (Non-Federal Resources). This is referred to as the customer net requirements.
 - Net Requirement = Total Retail Load minus Dedicated Resources
- Section 5(b)(1) identifies two categories of non-federal resources that a customer is required to take to load:
 - (5)(b)(1)(A): "the capability of such entity's peaking and energy resources used in the year prior to December 5, 1980, to serve its firm load in the region, and
 - (5)(b)(1)(B): "such other resources as such entity determines, pursuant to contracts under this chapter, will be used to serve its firm load in the region."
- The Regional Dialogue contracts include a net requirements exhibit (Exhibit A) that lists a customer's Dedicated Resources, if any.



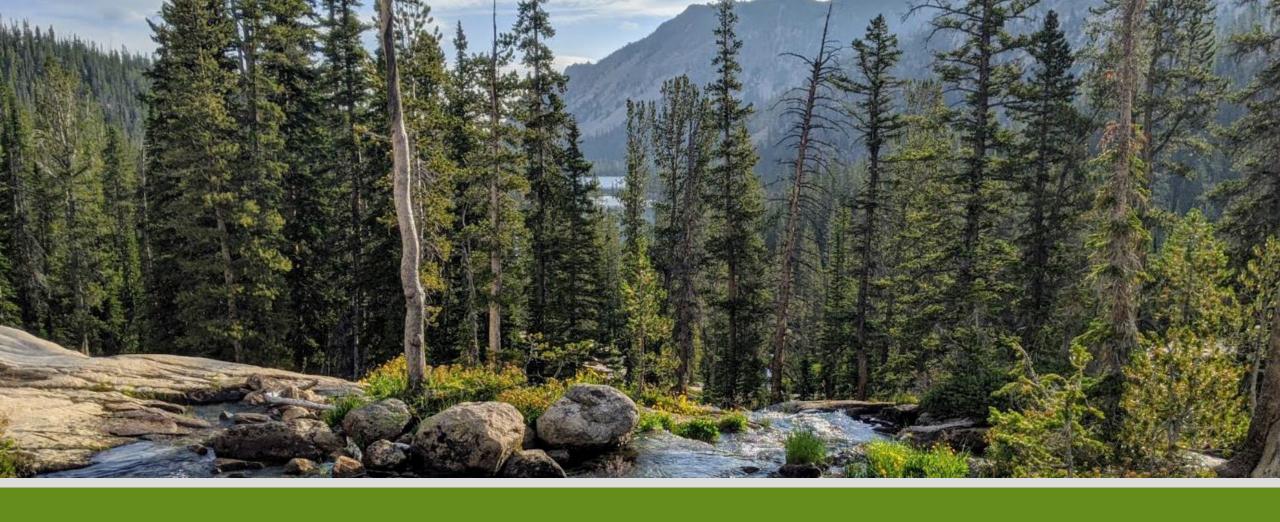
Resource Removal

Permanent Resource Removal:

- 5(b)(1)(A) and (B) resources must continue to be used to serve firm load unless they are permanently removed through one of the following:
 - (1) Administrator's consent,
 - (2) Discontinued because of obsolescence, retirement, loss of resource,
 - (3) Loss of contract right.
- For more information see Bonneville's 5(b)/9(c) policy on determining Net Requirements.

Temporary Resource Removal under the contract:

 From year to year, if a customer loses load, a resource can be removed temporarily, and if requested, BPA may remarket that resource for a customer.



Regional Dialogue Contract

Take-or-Pay

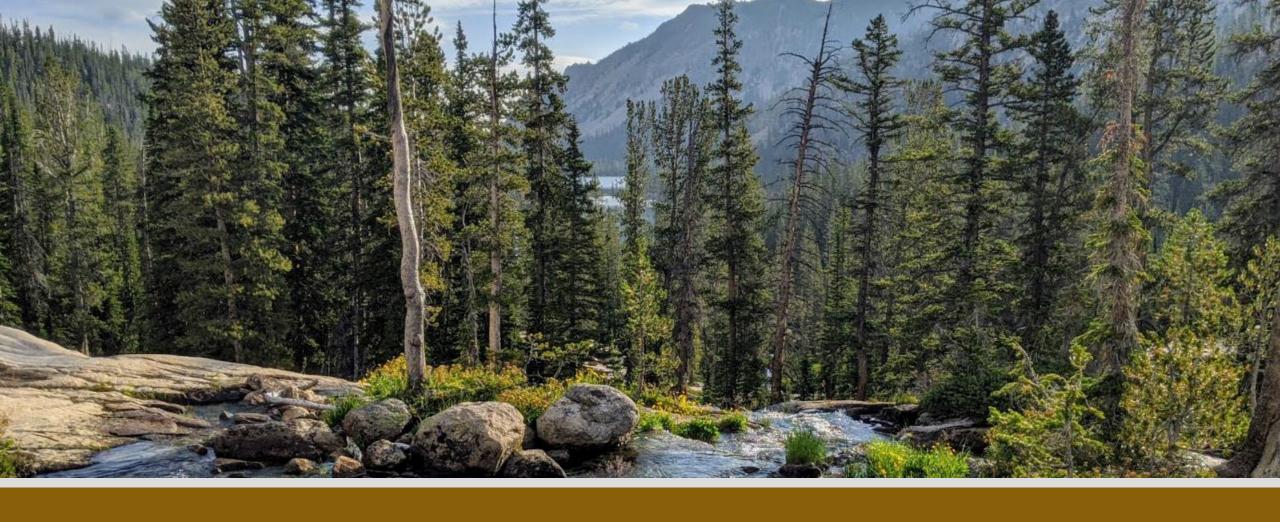
- Firm Requirements Power is sold using a 'Take-or-Pay' concept
- 'Take-or-Pay' means Customers must pay for their Firm Requirements Power whether they use it or not:
 - 'Take-or-Pay' amounts depend on actual customer loads (under the Load-Following contract).
 - Customers cannot decrease their contractual purchase at the Tier 1 rate by adding non-Federal resources.
 - This prevents 'stranding' Federal System costs.
- Take-or-Pay provision provides assurance to the U.S. Treasury that BPA will be able to meet its repayment obligations
- Generally, customers only can add resources to serve Above-RHWM Load
 - There are policy exceptions for adding small renewable resources.

Tiered Rates

- Regional Dialogue discussions led to the Tiered Rate Methodology (TRM).
- TRM preserved the cost of the existing Federal System by distinguishing between the existing system (at the Tier 1 Rate) and resource additions for customers with load growth (Tier 2 Rate).
- Each customer received a Contract High Water Mark quantifying the maximum Firm Requirements power it can purchase at the Tier 1 Rate.
- This 'Rate Tiering' does not meld in new higher cost resources, and prevents 'diluting' the benefits of the existing System.
- 'Tiering' gave customers the choice of how to serve load growth.

Serving Above-RHWM Load

- Above Rate Period High Water Mark Load (Above-RHWM Load) is forecasted load in excess of a customer's RHWM as determined in the RHWM Process.
 - Forecasted Total Retail Load Existing Resources NLSLs RHWM = Above-RHWM Load
- Customers have three options for serving Above-RHWM Load:
 - Non-Federal Resource (Specified or Unspecified)
 - BPA Flat Block Purchase at a Tier 2 rate
 - Combination of the two above
- Customers need to follow BPA's OATT and Business Practices to request NT or PTP transmission for non-Federal resources.



Dedicated Resources

Non-Federal Resource Thresholds

- The Regional Dialogue contract requires all* resources greater than 200 kW nameplate to be listed in Exhibit A of the contract
 - They must be metered with data accessible to BPA
 - This allows enforcement of the 'Take-or-Pay' concept
- The Regional Dialogue Power Sales Contracts and Transmission Contracts have similar size thresholds for resources to be included in the contracts. Thresholds provide Bonneville resource visibility and certainty for serving customers loads.
- Under Provider of Choice, BPA will track resources greater than 1 MW in Exhibit A.
 Transmission contract requirements will remain the same. No further
 implementation details are necessary and will move to contract redlines.

*This refers to all resources within a customer's distribution territory that are either owned by the customer or a consumer, and/or contract resources of which the customer purchases the output. 'Merchant' resources developed solely for sale to unrelated entities are metered, but not listed in a customer's Exhibit A, even when physically connected to the customer's distribution system.

Regional Dialogue Contract Dedicated Resource Terms

- Dedicated Resource: A Specified Resource or Unspecified Resource Amount that a customer is either required by statute to provide or obligates itself to provide to serve its Total Retail Load.
- Existing Resource: A Specified Resource listed in Exhibit A that was obligated by contract or statute to serve Total Retail Load prior to October 1, 2006. (Existing Resources reduce load that otherwise would be served at Tier 1 Rates) See Appendix A for Existing Resource treatment example.
- New Resource (1) a Specified Resource listed in Exhibit A, obligated by contract or statute after October 1, 2006 to serve Total Retail Load, or, (2) any Unspecified Resource Amounts listed in Exhibit A. (New Resources serve Above-RHWM Loads.) See Appendix B for New Resource treatment example.

Bonneville will discuss the date for when a resource is considered New v. Existing (Est'd May).

Dedicated Resource terms continued...

- Specified Resource: A named generating or contract resource that has a nameplate capability greater than 200kW, that is obligated by contract or statute to serve Total Retail Load.
- Unspecified Resource Amounts: An amount of firm energy that a customer has agreed to use to serve its Total Retail Load. This amount is not attributed to a specific resource. (Unspecified Resource Amounts are considered New Resources). See Appendix C for Unspecified Resource treatment example.

Bonneville will discuss unspecified resource amounts compatibility with WRAP and emerging markets and future contracts (Est'd May).

Dedicated Resource Amounts

- Nameplate Capability and Critical Generation:
 - "Nameplate" is the rated output of the resource; for our purposes, it is an indication of maximum amount of power a resource can produce.
 - "Critical Generation" is an expected reliable amount of power production from a resource with variable 'fuel' availability. For hydro, it is based on a historically low streamflow. For wind or solar, it can be based on historically low periods of wind or sunshine.
- Power Services Planning generally uses "Critical Generation" amounts for Dedicated Resources.
- Critical Generation amounts are used for:
 - Net Requirement calculations
 - The resource amount serving Above-RHWM load
 - As a benchmark for Resource Support Services
 - As the amount a customer is required to schedule to its load

Bonneville will discuss these parameters in April. Bonneville will also need to determine how to capture the peaking capability of resources.

PROVIDER OF CHOICE 2028

Adding and Removing Dedicated Resources

- Customers may add a New Resource to serve load in the following circumstances:
 - to meet Above-RHWM Load for the upcoming rate period or meet future (within 5 years) Above-RHWM Load
 - a small renewable resource in its service territory (Load Following 'SNEER Exception')
 - a resource less than 200 kW nameplate (no contract requirement for resources under 200 kW nameplate)
- Under Provider of Choice, Bonneville has included a similar concept to 'SNEER
 Exception' so customers will be able to add a new resources under the non-federal
 resource allowance. This will be discussed in a May workshop.
- Customers may permanently remove a Specified Resource if the resource's use is permanently discontinued due to obsolescence, retirement, or loss (consistent with the 5(b)/9(c) policy.)

Load Following Dedicated Resource Application

- A Load Following customer's Net Requirement is determined on an hourly basis.
- Load Following customers may apply their Dedicated Resource Amounts to load in the following manner:
 - Supported with Resource Support Service (RSS). See Appendix for RSS Details.
 - Scheduled to load in hourly predetermined amounts:
 - Hourly predetermined amounts are determined by June 30th of a Rate Case Year for all years of the upcoming Rate Period,
 - The hourly amounts add up to the Monthly/Diurnal amounts dedicated to load in Exhibit A.
 - A Small Non-Dispatchable Resource may be applied to load without RSS if it is located within a customer's service territory and an:
 - Existing Resource less than or equal to 3 MW Nameplate; or a
 - New Resource less than or equal to 1 MW Nameplate.
 - If a customer has multiple New Resources that are Small and Non-Dispatchable, BPA may determine that Resource Support Services are necessary if their aggregate nameplates are greater than 1 MW.

Bonneville will discuss this topic in May including whether or not criteria could change with dayahead market participation. RSS will be discussed in **PRDM** and future contract workshops.

BONNEVILLE POWER ADMINISTRATIO

Slice/Block and Block Dedicated Resource Application

- A Slice/Block or Block customer's Net Requirement is determined on a planned annual basis.
- Each year Dedicated Resource Amounts are updated prior to calculating Net Requirements for the following reasons:
 - Adding new Specified Resources or Unspecified Resource Amounts to serve Above-RHWM Load
 - Updating resources serving NLSLs to match NLSL forecasts
 - Temporary removal of New Resources due to lack of Above-RHWM Load
 - Temporary removal of Existing Resources in the second year of a Rate Period, limited to the amount that increases a customer's net requirement in the second year up to its net requirement in the first year



Other Non-Federal Resources

Consumer-Owned Resource Terms

- Consumer Owned Resource: A generating resource owned by a retail consumer and connected to the BPA customer's distribution system. The resource is greater than 200 kW nameplate and is not used only as a back-up energy source.
- Onsite Consumer Load: The electric load of a BPA customer's retail consumer that is directly connected with its Consumer-Owned Resource. See Appendix E for Consumer-Owned Resource treatment example.
- Consumer-Owned Resources may be added to a customer's contract at any time, but the customer must make a one time designation of how the consumer owned resource will be used:
 - Serving onsite load
 - Serving load other than onsite
 - Serving load both onsite and other than onsite

Resources serving NLSL

- Dedicated Resource Amounts for Serving an NLSL
 - A Customers elects to serve a NLSL with Dedicated Resources must indicate the dedicated resources amount in the contract.
- Consumer-Owned Resources Serving an NLSL
 - Renewable Resource/Cogeneration Exception An end-use consumer with a facility whose load is, in whole or in part, an NLSL, may reduce its NLSL to less than ten Average Megawatts in a consecutive 12-month period by applying an onsite renewable resource or onsite cogeneration to its facility load. The resource must be continuously applied to serve the NLSL*
 - Consumer-Owned Resources that are not Renewable Resources/Cogeneration

*Consistent with BPA's "Renewables and On-Site Cogeneration Option under the NLSL Policy" portion of its Policy for Power Supply Role for Fiscal Years 2007-2011, adopted February 4, 2005, and the NLSL policy included in BPA's Long Term Regional Dialogue Final Policy, July 2007, as amended or replaced.

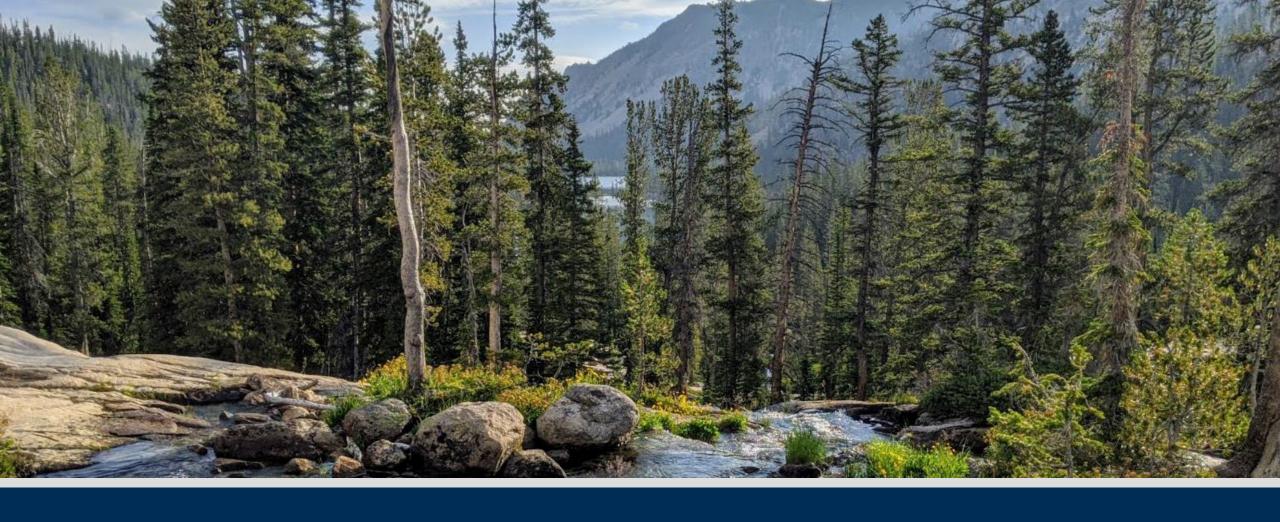
Other Resource Terms

- **PURPA* Resources** A key distinction between PURPA and other customer resources is that the customer is required by law to take the output from the resource.
 - BPA does not enforce take-or-pay for PURPA Resources
 - PURPA resources require the purchase of RSS (specifically Diurnal Flattening Service Load Following only)
- Resources Not Dedicated to Load resources owned by a BPA customer that the customer has not used, or contractually committed, to serve its load. These include resources the customer sells to other entities.
- 'Merchant' or Independent Power Producer Resources >200 kW are not included in customers' Power Contracts (as long as the utility is not purchasing the output)
 - Resources developed for sale outside the utility distribution system, and sold to an entity other than the host utility
 - Metering accessible to BPA still is required.

*PURPA - (Public Utilities Regulatory Practices Act, enacted November 9, 1978) is a Federal law that requires utilities to purchase electricity from qualified independent power producers at a price that reflects what the utilities would otherwise have to pay for the construction of new generating resources. The Act was intended in part to encourage the development of small-scale cogeneration and renewable resources.

Non-fed. Discussion Roadmap

Topic	Workshop Date
Dedicated resource parameters.	April
Consumer-owned resource terms updates/changes.	April
Determine the dates for when a resource is considered New v. Existing.	May
Unspecified resource amounts compatibility with WRAP and emerging markets and future contracts.	May
Load Following dedicated resource application; whether criteria could change with day-ahead market participation.	• May
Other topics, schedule TBD: • Batteries • Emerging technologies and storage resources • WRAP compliance and reporting requirements • Day-ahead markets and resources	• TBD



Non-federal Resources Appendix

APPENDIX A Existing Resource Example

Resource profile in Exhibit A:

Fuel Type	Date Resource	Date of	Percent of	Nameplate
	Dedicated to	Resource	Resource Used to	Capability
	Load	Removal	Serve Load	(MW)
Hydro	1979	N/A	100.0%	15.0

Stati	utory			DF	Sor					If PNCA	, PNCA
Sta	itus	Resource Status		SCS?		Dispate	chable?	PNCA?		Upda	ites?
5b1A	5b1B	Existing	New	Yes	No	Yes	No	Yes	No	Yes	No
X	X X X										
Note:	Note: Fill in the table above with "X"s.										

Resource amounts in Exhibit A:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
	Fiscal Year 2016												
Total (MWh)	6,622	9,373	9,672	8,705	5,846	5,201	5,328	6,845	5,400	3,274	595	3,672	8.030
HLH (MWh)	3,845	4,992	5,408	4,680	3,360	3,024	3,078	3,680	3,120	1,760	346	2,040	7.982
LLH (MWh)	2,777	4,381	4,264	4,025	2,486	2,177	2,250	3,165	2,280	1,514	249	1,632	8.091

Resource treatment:

Existing Resource that is Dedicated to Serve Load

(in aMW)

TRL	60.000
Exisiting Resource	8.030
RHWM_	50.000
Above-RHWM Load	1.970
Above-RHWM Load	1.970
Tier 2 purchase from BPA_	1.970
Remaining Above-RHWM Load	0.000

APPENDIX B New Resource - Specified Resource Example

Resource profile in Exhibit A:

Fuel Type	Date Resource	Date of	Percent of	Nameplate
	Dedicated to	Resource	Resource Used to	Capability
	Load	Removal	Serve Load	(MW)
Landfill Gas	10/01/2015	N/A	100%	1.6

	utory itus	Resourc	e Status	DFS or SCS?		Dispatchable?		PNCA?		If PNCA, PNCA Updates?		
5b1A	5b1B	Existing	New	Yes	No	Yes	No	Yes	No	Yes	No	
	X		X	X			X		X			
Note:	Note: Fill in the table above with "X"s.											

Resource amounts in Exhibit A:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
	Fiscal Year 2016												
Total (MWh)	801	777	801	801	750	800	775	801	775	801	801	775	1.077
HLH (MWh)	HLH (MWh) 465 414 448 431 431 465 448 431 448 431 465 431 1.077												
LLH (MWh)	336	363	353	370	319	335	327	370	327	370	336	344	1.076

Resource treatment:

New Resource that is Dedicated to Serve Load (in aMW)

TRL 60.000
RHWM 50.000
Above-RHWM Load 10.000

Above-RHWM Load 10.000
New Resource 1.077
Tier 2 purchase from BPA 8.923
Remaining Above-RHWM Load 0.000

APPENDIX C New Resource - Unspecified Resource Amounts Example

Resource profile in Exhibit A:

Shape of Unspecified Resource Amounts									
	Monthly Sh	ape Choice	Diurnal Shape Choice						
Purchase Period	Total Retail Load Monthly Shape	Flat Annual Shape	HLH Diurnal Shape	Flat Within- Month Shape					
FY 2012 - FY 2014		X		X					
FY 2015 - FY 2019		X		X					
FY 2020 - FY 2024		X		X					
FY 2025 - FY 2028		X		X					

Resource amounts in Exhibit A:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
					Fi	scal Yea	r 2016						
Total (MWh)	744	721	744	744	696	743	720	744	720	744	744	720	1.000
HLH (MWh)	432	384	416	400	400	432	416	400	416	400	432	400	1.000
LLH (MWh)	312	337	328	344	296	311	304	344	304	344	312	320	1.000

Resource treatment:

New Resource that is Dedicated to Serve Load (in aMW)

(iii divito)	
TRL	60.000
RHWN	1_50.000
Above-RHWM Load	10.000
Above-RHWM Load	10.000
New Resource	1.000
Tier 2 purchase from BPA	9.000
Remaining Above-RHWM Load	0.000

APPENDIX D RSS and other Resource Related Services

- Diurnal Flattening Service (DFS)* a service that makes a resource that is variable or intermittent, or that portion of such resource that is variable or intermittent, equivalent to a resource that is flat within each Monthly/Diurnal period. DFS is combined with the Resource Shaping Charge to benchmark against a flat annual block of power.
- Forced Outage Reserves Service (FORS) a service that provides an agreed-to amount of capacity and energy to load during forced outages of a qualifying resource.
- Secondary Crediting Service (SCS) and Grandfathered Generation Management Service (GMS) services that provide a monetary credit for the secondary output from an Existing Resource that is hydro based, with a firm critical energy component and a secondary energy component. BPA also provides forced outage energy when necessary. These services are intended to replace products (Service and Exchange and GMS) from the Subscription contracts for Load Following customers.

RSS-Related Services

- Transmission Scheduling Service (TSS)
 - TSS Full BPA creates the schedule (E-tag) for the customer and manages it through real-time using information provided by the customer. The customer is still obligated to provide energy quantities, transmission pathing, and transmission product types to Power Services.
 - TSS Partial The customer (or its agent) takes on all scheduling and tagging functions for its Non-Federal resources, creates all E-Tags with a 'CC' to BPA Power Services on each tag.
- Transmission Curtailment Management Service (TCMS)* If a customer's scheduled resource cannot make it to the customer's load due to congestion or a transmission outage. BPA will either provide replacement energy (for a curtailment) or replacement transmission (for an outage) and pass the cost on to the customer.
 - TCMS is available for resources supported by TSS that have firm transmission, resources that qualify as Mid-C Resource Over Non-Firm, or in limited circumstances, are in the process of acquiring firm transmission.
 - TCMS reduces the risk of a customer incurring a UAI due to transmission events.

APPENDIX E Consumer-Owned Resource Serving Onsite Consumer Load Example

Resource profile in Exhibit A:

Resource Owner	Fuel Type	Nameplate Capability (MW)
Cascadia	Wood Waste	1.5

Resource amounts in Exhibit A:

Expected Output - Energy (aMW)									
Fiscal Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Annual aMW	0.522	0.522	0.522	0.522	0.522	0.522	0.522	0.522	0.522
Fiscal Year	2021	2022	2023	2024	2025	2026	2027	2028	
Annual aMW	0.522	0.522	0.522	0.522	0.522	0.522	0.522	0.522	

Resource treatment:

Consumer-Owned Resource Serving Onsite Consumer Load (in aMW)

 (maint)
TRL 60.000
Consumer-Owned Resource Serving Onsite Load 0.522
RHWM_50.000_
Above-RHWM Load 9.478
Above-RHWM Load 9.478
Tier 2 purchase from BPA9.478_
Remaining Above-RHWM Load 0.000