

Power Sales Contract Considerations in Adding a Resource

June 30, 2016

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Regional Dialogue Background

- The FY2002 - FY2011 “Subscription” power sales contracts were based on a melded rate.
- In 2005 the region began serious discussions about the next contract (referred to as “Regional Dialogue”).
 - Intent was to define BPA’s long-term power supply and marketing role in a way that met regional and national energy goals.
 - Involved collaboration, negotiation and compromise between various customers throughout the region.

Background continued

- 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 or customer elections to purchase non-Federal resources).
- Each customer received a Contract High Water Mark quantifying how much Firm Requirements power it can purchase at the Tier 1 Rate.
- This 'Rate Tiering' does not meld in new higher cost resources, and prevents the 'diluting' of the benefits of the existing System.
- 'Tiering' gave customers the choice of how to serve load growth.

Regional Dialogue Contract

Regional Dialogue Contract/Products

- Load Following
 - Provides load-following service from BPA for metered load less non-Federal resources applied to load. Customers can apply their resources in their choice of several pre-defined allowable shapes, or as the resource generates if they agree to purchase Resource Support Services (RSS) from BPA.
- Block
 - Provides an amount of power to meet a customer's planned annual net requirement; can be flat or shaped; can be paired with shaping capacity.
- Slice/Block
 - Provides for the combined sale of two distinct power services for service to a customer's planned net requirement: the Slice Service and the Block Service.

Note: Block and Slice/Block customers agree to follow their loads with their own resources and purchases beyond what their BPA purchase serves.

Regional Dialogue Service Obligation

- Net Requirement = Total Retail Load minus Dedicated Resources
 - Section 5(b) of the NW Power Act: BPA is obligated to sell a customer power (Net Requirements) equal to a customer's load (Total Retail Load) minus a customer's resources (Dedicated Resources).
 - A Load Following customer's Net Requirement is actual HOURLY amounts.
 - A Block and Slice/Block customer's Net Requirement is planned Monthly/Annual amounts.

Example:

TRL: 50 aMW

Dedicated Resource: 10 aMW

Net Requirement: $50 \text{ aMW} - 10 \text{ aMW} = 40 \text{ aMW}$

High Water Marks

- The Contract High Water Mark (CHWM) is the calculated amount of power available to serve load at Tier 1 rates.
 - Calculated in 2011, set for the length of the contract.
- The Rate Period High Water Mark (RHWM) determines the maximum amount of Tier 1-priced power available to the customer during a given Rate Period.
 - Calculated prior to each rate period and adjusts the CHWM for changes in the Federal System.
 - This includes all forecast variations of the Federal hydro system, including: maintenance, outages, fish operations, upgrades, etc.
 - Includes expected outages of the Columbia Generating Station

Serving Above-RHWM Load

Customers have three options for serving Above-RHWM Load:

- 1) Non-Federal Resource (Specified or Unspecified)
- 2) BPA *Flat Block* Purchase at a Tier 2 rate
- 3) Combination of the two above

Above-RHWM Load Election Dates

Notice Deadline		Purchase Period
November 1, 2009	for	FY 2012 – FY 2014
September 30, 2011	for	FY 2015 – FY 2019
September 30, 2016	for	FY 2020 – FY 2024
September 30, 2021	for	FY 2025 – FY 2028

Firm Power Service: Take-or-Pay

- Firm Requirements is sold on a 'Take-or-Pay' basis
- 'Take-or-Pay' means Customers must pay for their Firm Requirements 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.
 - This 'locks in' costs to customers receiving existing Federal System benefits.
- Generally, customers only can add resources to serve loads above RHWMs.
 - There are policy exceptions for adding small renewable resources.

Adding a Resource Under the Load Following Contract

Resource Amounts/Sizes

- **Nameplate Capability and Critical Generation:**
 - **“Nameplate”** is a value printed on a resource describing the rated output of the resource; for our purposes, it is an indication of how much 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. Similarly, for wind or solar, it can be based on historically low periods of wind or sunshine. Wind or solar data for a site or from a comparable resource can be used to develop critical generation values.
- 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

Utility and Consumer Resource Thresholds

- Power Sales Contracts (and Transmission Contracts) have similar size thresholds for what must be included in the contracts
 - Utility-Owned resources, and
 - Consumer-Owned resources
- Power
 - 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

*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.

Adding a New Resource (Power Sales Contract)

- Under the Load Following Contract customers may add a new resource to serve load in the following circumstances:
 - to meet Above-RHWM Load or meet future (within 5 years) Above-RHWM Load
 - a small renewable resource within its service territory
 - a resource less than 200 kW nameplate (there is no contract requirement for resources under 200 kW nameplate)
- Consumer-Owned Resources may be added 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

Power Sales Contract Resource Terms

- **Dedicated Resource** - a Specified Resource or Unspecified Resource Amounts listed in Exhibit A 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)
- **Specified Resource** - generating or contract resource that has a nameplate capability greater than 200kW, that is obligated by contract or statute to serve Total Retail Load.

Existing Resource Example

Resource profile in Exhibit A:

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

Statutory Status		Resource 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			

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
Existing Resource	8.030
RHWM	<u>50.000</u>
Above-RHWM Load	1.970
Above-RHWM Load	1.970
Tier 2 purchase from BPA	<u>1.970</u>
Remaining Above-RHWM Load	0.000

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Power Sales Contract Resource Terms

- **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.)
- **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).

New Resource - Specified Resource Example

Resource profile in Exhibit A:

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

Statutory Status		Resource 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: 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)	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	<u>50.000</u>
Above-RHWM Load	10.000
Above-RHWM Load	10.000
New Resource	1.077
Tier 2 purchase from BPA	<u>8.923</u>
Remaining Above-RHWM Load	0.000

New Resource - Unspecified Resource Amounts Example

Resource profile in Exhibit A:

Shape of Unspecified Resource Amounts				
Purchase Period	Monthly Shape Choice		Diurnal Shape Choice	
	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
Fiscal Year 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)

TRL	60.000
RHWM	<u>50.000</u>
Above-RHWM Load	10.000
Above-RHWM Load	10.000
New Resource	1.000
Tier 2 purchase from BPA	<u>9.000</u>
Remaining Above-RHWM Load	0.000

Other Resource-Related 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.
- **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.

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)

TRL	60.000
Consumer-Owned Resource Serving Onsite Load	0.522
RHWM	<u>50.000</u>
Above-RHWM Load	9.478
Above-RHWM Load	9.478
Tier 2 purchase from BPA	<u>9.478</u>
Remaining Above-RHWM Load	0.000

Small Renewable Resource Exception

- BPA has an exception for customers to add small renewable resources
 - (Small Non-Dispatchable New Resource Treated Equivalently to an Existing Resource = SNEER)
- This allows customers to add small renewable resources that will be treated like an Existing Resource (meaning it will reduce load that is otherwise served at Tier 1 Rates)
- Customers do not need to have Above-RHWM Load to add a resource that falls under this category
- These resources must meet the following requirements to qualify for the exception:
 - Renewable
 - Small Non-Dispatchable
 - Less than or equal to 1.0 MW nameplate
 - Within the customer's service territory

SNEER Example

Resource profile in Exhibit A:

Fuel Type	Date Resource Dedicated to Load	Date of Resource Removal	Percent of Resource Used to Serve Load	Nameplate Capability (MW)
Solar	02/09/2016	N/A	100%	0.999

Statutory Status		Resource 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: 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)	147	86	28	71	106	170	206	211	285	266	254	204	0.232
HLH (MWh)	123	72	22	59	91	148	172	177	247	214	221	163	0.349
LLH (MWh)	24	14	6	12	15	22	34	34	38	52	33	41	0.084

Resource treatment:

Example with Above-RHWM Load:

SNEER that is Dedicated to Serve Load
(in aMW)

TRL	60.000
SNEER	0.232
RHWM	<u>50.000</u>
Above-RHWM Load	9.768
Above-RHWM Load	9.768
Tier 2 purchase from BPA	<u>9.768</u>
Remaining Above-RHWM Load	0.000

Example without Above-RHWM Load:

SNEER that is Dedicated to Serve Load
(in aMW)

TRL	45.000
SNEER	<u>0.232</u>
Net Requirement	44.768
Net Requirement	44.768
RHWM	<u>50.000</u>
Above-RHWM Load	0.000

Load Following Resource Application

- Load Following customers may apply their Dedicated Resource amounts to load in the following manner:
 - Supported with Resource Support Service
 - Scheduled to load in hourly predetermined amounts
 - hourly predetermined amounts are determined by June 30th of a Rate Case Year for both 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 Resource Support Service. 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 Resource Support Service is necessary if their aggregate nameplates are greater than 1 MW.

Load Following Resource Application: RSS

- Resource Support Services (RSS) is the suite of services that allows a customer to apply the actual, variable output of a Specified Resource to its load without shifting costs among customers, and without having to guarantee a specific scheduled shape of resource. (For more detail pp. 32 – 38.)
- RSS include: Diurnal Flattening Service (DFS), Forced Outage Reserve Service, and Secondary Crediting Service (not available to new resources),
- Related Services include: Transmission Scheduling Service (TSS), Transmission Curtailment Management Service (TCMS), and Resource Remarketing Service (RRS).

Exceptions for Adding Resources

- Resources with a nameplate less than or equal to 200 kW are not recognized in Power Contracts; either consumer-owned or utility-owned.
- 'Merchant' Resources >200 kW are not included in customers' Power Contracts
 - 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.

Solar Resource Examples

Power Contract Requirements									
Nameplate (kW)	Example (kW)	Consumer-Owned	Consumer Community Solar	Utility-Owned Community Solar	Utility-Owned Serving Tier 1 Load	Utility-Owned Serving Above-RHWM Load	Utility-Owned Sold to Other	Utility Share of Resource (e.g., 10%)	Merchant-Owned
≤ 200	40	None	None	None	None	Exhibit A	None (metered)	N/A	None (metered)
>200 - ≤1,000	300	Exhibit A (metered)	Exhibit A (metered)	Exhibit A (metered)	If resource meets SNEER criteria Exhibit A (metered)	Exhibit A (capped at forecasted Above-RHWM Load amount, metered)	Exhibit A (metered)	Exhibit A (scheduled)	None (metered)
>1,000	1,200	Exhibit A (metered)	Exhibit A (metered)	Uncertain*	Not Allowed**	Exhibit A (capped at forecasted Above-RHWM Load amount, metered)	Exhibit A (metered)	Exhibit A (scheduled)	None (metered)

* Situation would be considered on a case-by-case basis

** While customers are not prevented from adding such resources, Power Contracts do not allow customers to apply such resources to reduce Tier 1 'take-or-pay' amounts.

Conclusion

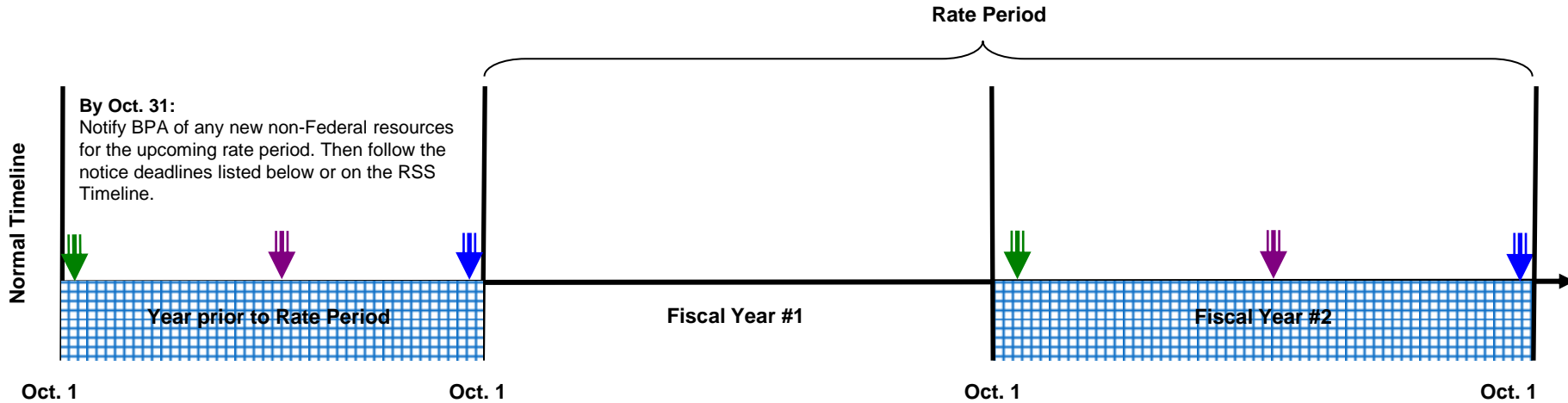
- **When considering resource development in the service area of a BPA Power Customer, as early as possible contact a BPA Power Account Executive as well as the Customer utility.**
- **With follow-up questions, please contact Lindsay Bleifuss lbleifuss@bpa.gov (503-230-5338).**

Questions?

APPENDIX

Adding a New Resource Timeline Examples

See RSS Election Timeline for a more complete list of RSS related contract deadlines



Customer notifies BPA outside of RSS timeline:

Customers may request to add a non-Federal resource mid rate period. If a customer adds a resource mid rate period, the customer must continue its take-or –pay obligation. A PDT decision would have to be made for any other special requests.

At any point:

Customers may add a Small Non-Dispatchable New Resources Being Treated Equivalently to an Existing Resource (SNEER), if it meets the SNEER policy qualifications:

- Less than or equal to 1 MW nameplate
- Renewable resource
- Located within the customers service territory to serve their loads
- Be netted against the customers Total Retail Load before calculating the Above-RHWM Load

*When a utility adds a SNEER, that in aggregate with their other Small Non-Dispatchable resources puts them over the 1 MW threshold, their request will also then go through the Management Decision process.

Rate Case Year

Above-RHWM Service Decisions

Notice Deadline	Purchase Period
November 01, 2009	FY 2012 – 2014 (1 st PP)
September 30, 2011	FY 2015 – 2019 (2 nd PP)
September 30, 2016	FY 2020 – 2024 (3 rd PP)
September 30, 2020	FY 2025 – 2028 (4 th PP)

Source: Section 9.1

By October 31st of a Rate Case year, for the upcoming Rate Period:

1. Provide hourly meter data for specified resources.
Source: Exhibit D, sections 2.2, 2.3.3, & 2.4.4.3
2. Request RSS for the upcoming rate period for newly added Specified resources.
Source: Exhibit D, sections 2.2
3. For resources with DFS/FORS
 - Provide planned outage information for the upcoming rate period (unless resource has DFS Small Resource Exception)
 - Confirm actual hourly metered data for previous fiscal year.
Source: Exhibit D, section 2.3.2.1.2

By March 31st of a Rate Case year, for the upcoming Rate Period:

1. Provide updates to forced outage rating, and planned outages.
2. Chooses operating minimum amounts, if applicable.
Source: Exhibit D sections 2.2

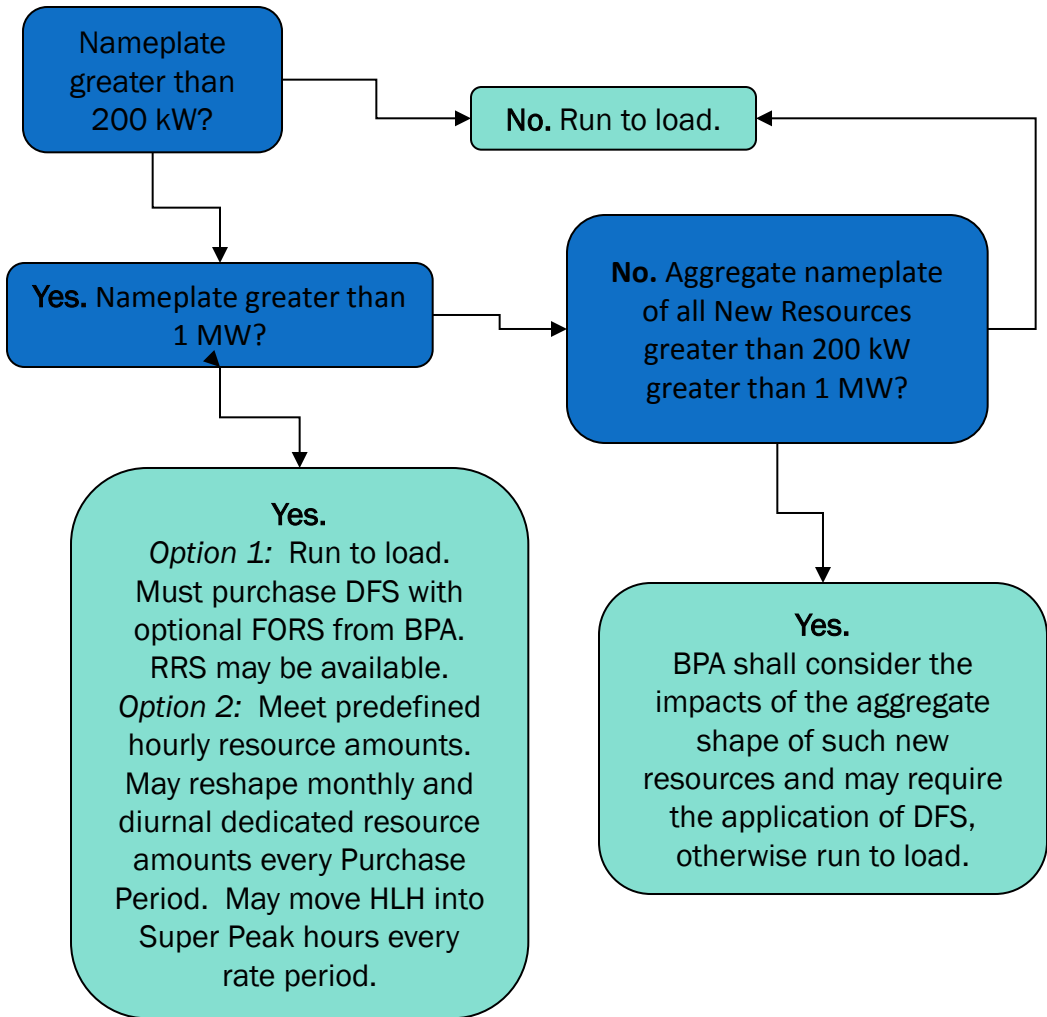
By September 30th of a Rate Case year, for the upcoming Rate Period:

1. Update Ex. D with applicable charges and necessary updates to resources for the upcoming rate period.
Source: Exhibit D sections 2.1 and 2.2

For information purposes only.

“New” Generating Resource Tree

for load-following customers with Specified Resources:



Resource Shapes

Customers have the following resource shape options:

Generating Resources:
Monthly: Resource Monthly Shape, Total Retail Load Shape, Flat Annual Shape, and PNCA Update Shape.
Diurnal: Resource Diurnal Shape, Flat Within-Month Shape, HLH Diurnal Shape (move LLH into HLH)
Within-Diurnal: Flat or move HLH into Super Peak hours.

Contract Resources and Unspecified Resource Amounts:
Monthly: Total Retail Load Shape, Flat Annual Shape.
Diurnal: Flat Within-Month Shape, HLH Diurnal Shape (move LLH into HLH)
Within-Diurnal: Flat or move HLH into Super Peak hours.

Purchase Period:
 FY2012-FY2014
 FY2015-FY2019
 FY2020-FY2024
 FY2025-FY2028³²

“New Resources” means (1) a Specified Resource listed in section 2 of Exhibit A that «Customer Name» was or is first obligated by contract, or was or is obligated by statute, to use to serve «Customer Name»’s Total Retail Load after September 30, 2006, and (2) any Unspecified Resource Amounts listed in Exhibit A.

RSS Products

- 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.

**applicable to a solar resource*

RSS-Related Products

- Transmission Scheduling Service (TSS) * – a service where BPA manages the customer’s Network Transmission rights to schedule Federal and non-Federal resources to the customer’s load. For non-Federal resources, 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 through BPA’s ISAAC Portal. Customers that purchase RSS or power at a Tier 2 rate are required to purchase TSS.
- 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 buy around the outage or curtailment. BPA will either procure 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 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.

**could be applicable to a solar resource*

RSS and Related Charges

Resource Support Services Overview					
Service	Service Description	Charge	Acronym	Charge Explanation	Charge Type
Diurnal Flattening Service (DFS)	DFS financially converts 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.	Diurnal Flattening Service Energy Charge	DFS Energy	Reflects the cost of energy storage to smooth the hourly generation variation into flat/monthly diurnal blocks of power.	Variable
		Diurnal Flattening Service Capacity	DFS Capacity	Reflects the cost of reserving an amount of capacity to smooth out the variable generation of a resource into flat/monthly diurnal blocks of power.	Flat
		Resource Shaping Charge	RSC	Financially converts the resource that has been flattened on a monthly/diurnal basis (through DFS) to a flat annual block of power.	Flat
		Resource Shaping Charge Adjustment	RSC Adj.	Corrects for generation forecast error.	Variable
Forced Outage Reserve Service (FORS)	FORS is a service that provides an agreed-to amount of capacity and energy to load during forced outages of a qualifying resource.	Forced Outage Reserve Service Energy Charge	FORS Energy	Incurred when the resource experiences a forced outage and the customer requests FORS from BPA. The customer is charged a market based rate for the kWh supplied during the forced outage event.	Intermittent and Variable
		Forced Outage Reserve Service Capacity Charge	FORS Capacity	Reflects the cost of BPA reserving capacity to back up a resource as insurance to cover a potential forced outage.	Flat
Transmission Scheduling Service (TSS)	Under TSS, BPA manages the customer's Network Transmission rights to schedule federal and non-Federal resources to the customer's load. For non-Federal resources, 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 through BPA's ISAAC Portal.	Transmission Scheduling Service	TSS	Intended to recover the cost that BPA incurs for scheduling the customer's non-Federal resource. The cost is a \$/kWh amount multiplied by the Exhibit A amounts, so this charge does not depend on the type of resource; it depends on the size. (e.g. 3 aMW of wind would be the same as 3 aMW market purchase).	Flat
Transmission Curtailment Management Service (TCMS)	Under TCMS, if a customer's scheduled resource cannot make it to the customer's load due to congestion or a transmission outage, BPA will buy around the outage or curtailment. BPA will either procure replacement energy (for a curtailment) or replacement transmission (for an outage) and pass the cost on to the customer.	Transmission Curtailment Management Service	TCMS	If BPA provides replacement power: BPA charges the customer for any megawatts curtailed based on an hourly market index. If BPA provides replacement transmission: BPA charges the customer for the acquired Point-to-Point transmission.	Intermittent and Variable
Resource Remarketing Service (RRS)	RRS is offered through the Firm Power Products and Services (FPS) rate schedule and will be considered and negotiated on a case-by-case basis. RRS is designed to help customers manage the "lumpiness" of acquiring new resources that are forecasted to be larger than their Above-RHWM load when first dedicated. Customers will receive credits for the excess power until their load growth catches up to the size of the resources purchased.	Resource Remarketing Service	RRS	Amounts remarketed will not be determined until immediately prior to each rate period. The remarketing credit is determined in the rate case under the FPS rate schedule.	Flat
Secondary Crediting Service (SCS)	SCS provides 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. SCS was intended to replace the Service and Exchange product from the Subscription contracts for Load Following customers.	Secondary Crediting Service Administrative Charge	SCS Administrative Charge	Represents a reservation fee and is based on the forced outage rating of the hydro resource, the Tier 1 Demand Rate, and the resource's planned HLH generation level.	Flat
		Secondary Crediting Service Secondary Energy Credit	SCS Secondary Energy Credit	Equal to the amount of energy produced <u>greater</u> than the resource's monthly/diurnal planned firm amounts in Exhibit A for Specified Resources, priced at the monthly/diurnal Secondary Crediting Service Rates.	Variable
		Secondary Crediting Service Shortfall Energy Charge	SCS Shortfall Energy Charge	Equal to the amount of energy produced <u>less</u> than the resource's monthly/diurnal planned firm amounts in Exhibit A for Specified Resources, priced at the monthly/diurnal Secondary Crediting Service Rates.	Variable

Biomass Resource with RSS - Example Bill

POWER BILL

Customer Name:		Bill Period:	December 2015
Bill ID:		Period Ending:	December 31, 2015
Issue Date:	January 08, 2016		

POWER

Rate Schedule	Service Description	Contract Number	Service Amount	Service Unit	Rate	Amount \$
PF-16	Composite Charge LF			DOL @		
PF-16	Non Slice Charge LF			DOL @		
PF-16	HLH Load Shaping			KWH @		
PF-16	LLH Load Shaping			KWH @		
PF-16	Demand			KW @		
PF-16	Tier 2 Short Term			KWH @		
PF-16	DFS		1	MO @	10,989.00000	10,989
PF-16	DFS Energy		3,331,543	KWH @	0.00018	600
PF-16	FORS		1	MO @	2,078.00000	2,078
PF-16	RSC		1	MO @	(2,948.00000)	(2,948)
PF-16	HLH RSC Adj		(62,383)	KWH @	0.02922	(1,823)
PF-16	LLH RSC Adj		(47,160)	KWH @	0.02482	(1,171)

Total	
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FINAL

Biomass Resource with RSS - Example Bill

LOAD FOLLOWING REPORT

Customer:		Bill Period:	December 2015
Bill ID:		Period Ending:	December 31, 2015
Issue Date:			

TOCA:	<i>RHWM Tier 1 System Capability</i>	<i>Monthly Hours</i>
CDQ:	HLH: 3,451,735,558	HLH: 416
above RHWM:	LLH: 2,138,430,302	LLH: 328

Tier 1

HLH Load Shaping	
	Quantity
HLH Energy above RHWM	
Tier 1 HLH Energy	
HLH SSL	
HLH Load Shaping	kWh

LLH Load Shaping	
	Quantity
LLH Energy above RHWM	
Tier 1 LLH Energy	
LLH SSL	
LLH Load Shaping	kWh

Demand	
	Quantity
Demand CSP above RHWM	
aHLH	
CDQ	
Super Peak	
Demand Charge	kW

Resource Shaping Charge Adjustment

HLH RSC Adjustment	
	Quantity
Planned HLH Amount	1,768,000
Actual Monthly Amount	(1,830,383)
HLH RSC Adjustment	(62,383)

LLH RSC Adjustment	
	Quantity
Planned LLH Amount	1,454,000
Actual Monthly Amount	(1,501,160)
LLH RSC Adjustment	(47,160)

RSS Decoder for New Specified Resource in Exhibit A

New Resource Size (Nameplate) = X	Resource Location	Resource Type	List in Contract in Section 2 of Exhibit A?	RSS Available (and needed if do <u>not</u> apply as a predefined hourly amount)?	Resource Shaping Charge (RSC) Applied?
$X \leq 200 \text{ kW}$	Within customer's distribution system	Does not matter	No	No	No, but Load Shaping is billed off of net load
$200 \text{ kW} < X \leq 1 \text{ MW}$	Within customer's distribution system	Does not matter	Yes, as Small Non-Dispatchable Resource	No, except if in combo with other Small Non-Dispatchable Resource, then may need DFS and/or FORS	Yes, in some fashion
$200 \text{ kW} < X \leq 1 \text{ MW}$	In another service territory	Does not matter	Yes	DFS and FORS (if resource has capacity value)	Yes, in some fashion
$X > 1 \text{ MW}$	Does not matter	Zero capacity value	Yes	DFS	Yes, and the RSC Adjustment
$X > 1 \text{ MW}$	Does not matter	Some capacity value	Yes	DFS and FORS	Yes, and the RSC Adjustment
$X > 200 \text{ kW}$	Does not matter	PURPA	Yes	Must take DFS (or equivalent service if DFS is not available due to Transfer situation) and FORS as applicable if must run resource to load	Yes, in some fashion
$X > 200 \text{ kW}$	Within customer's distributions system	Consumer-Owned Resource	Yes, if customer is purchasing output and dedicating to load as a Specified Resource. If not, then only need to list in section 7 of Exhibit A.	If Specifying the resource then above rules regarding DFS and FORS (if resource has capacity value) apply	Yes, in some fashion

For information purposes only.

Load Following Resource Application without RSS (Scheduled to Load)

- Scheduled to load in pre-determined shapes :
 - Resource Monthly Shapes:
 - TRL - distributing energy based on the FY15 TRL in each month as a percentage of the FY15 total TRL
 - Resource Monthly - distributing energy within each month that resource is expected to produce
 - Flat Annual - distributing energy having the same aMW value of energy each month
 - Diurnal Shapes:
 - Resource Diurnal - distributing energy within each Diurnal Period that the resource is expected to produce
 - Flat Within-Month - distributing energy having the same aMW value in each Diurnal Period of the month
 - HLH Diurnal - distributing energy between Diurnal periods in which more MWh are applied in the HLH periods than MWhs applied in the LLH periods
- June 30th of each Rate Case Year
 - Customer provides BPA with hourly schedule that is equal to the sum of all monthly and Diurnal Dedicated Resource amounts listed in Exhibit A
 - Schedule must be in whole MW amounts