RHWM Process Workshop

BP-26 Rate Period – Preliminary Outputs

August 15, 2024;
9:00 AM to 10:00 AM PST

WebEx: **Join Meeting**

Meeting Number: 2829 031 1914
Meeting Password: ikJKU3HXJ56

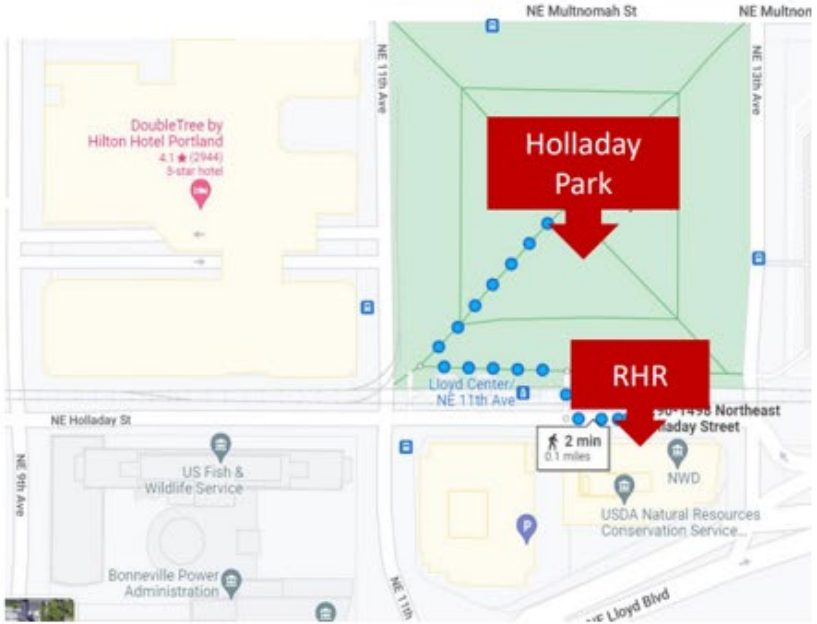
WebEx Format Update

Given the serious nature of the disruptive and offensive behavior by a participant at the July 31 BP/TC-26 workshop, **effective immediately**, BPA will adjust its public stakeholder virtual engagement approach.

- The Webex format is moving to a “webinar” style.
  - Webex attendees can no longer mute/unmute themselves, enable their webcam, or share content.
- The all-chat feature is disabled. Attendees can only message panelists.
  - To participate, attendees must raise their hand (BPA will unmute you to enable your participation), or send a question to panelists in the chat.
- If you are Webex phone only: Hit *3 to request to be unmuted.
- Moderators will continue to address raised hands in the order received.
  - Please continue to state your name and affiliation.
- As necessary, BPA may evolve these procedures and take other measures at its discretion to prevent future disruptions.

Safety Moment

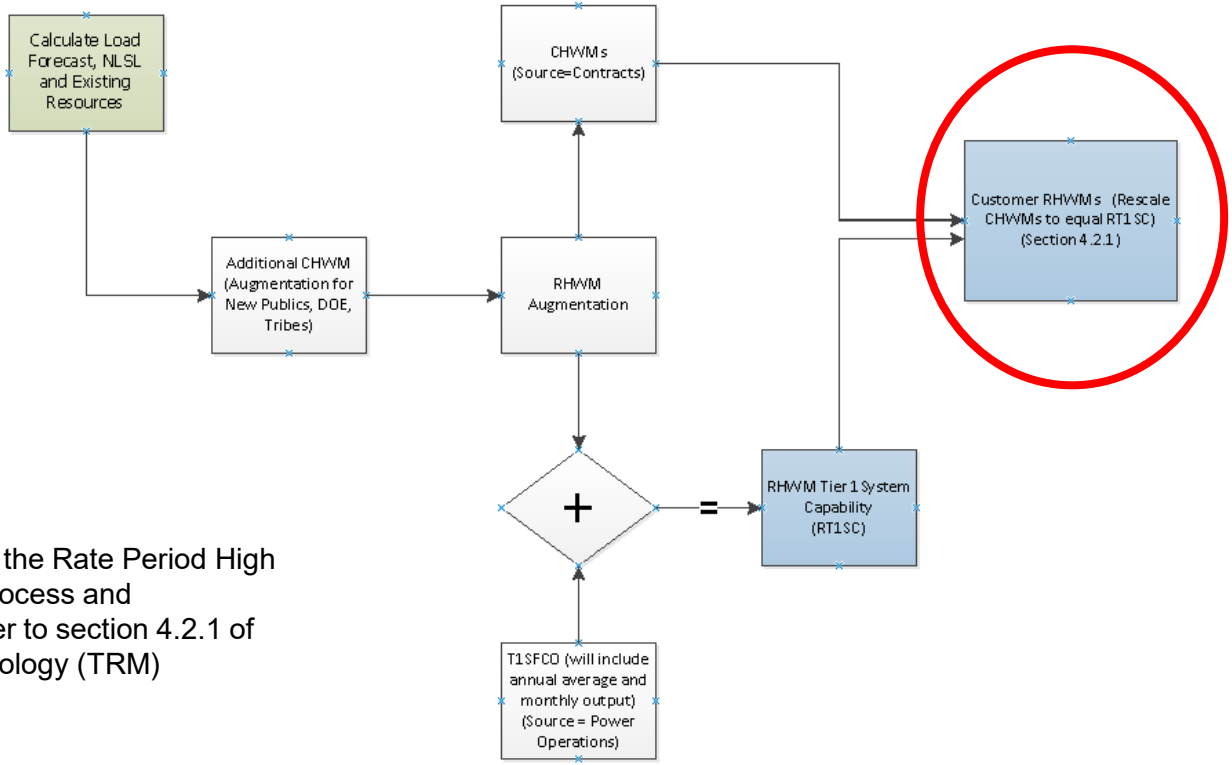
- The Rates Hearing Room has two exits.
- In the event an alarm sounds, please meet at Holladay Park across the street.



RHWM Process Workshop Agenda

Topic	Presenter
Introductions and Purpose of the Workshop	Paul Garrett
Load Forecast Update	Max St. Brown
Tier 1 System Firm Critical Output (T1SFCO):	Milli Chennell
• Hydro Study Results	
• T1SFCO Study Results	
RHWM Augmentation	Garth Beavon
Next Steps & BP-26 RHWM Timeline	Paul Garrett

RHWM Process*



*For more details about the Rate Period High Water Mark (RHWM) process and calculations, please refer to section 4.2.1 of the Tiered Rate Methodology (TRM)

Load Forecast Update for BP-26 RHWM Process

Load Forecast Updates

- 16 customers have submitted comments for updates to their load forecasts (plus two customers requested resource updates, and both were accepted).
- 12 submittals met the load forecast update guidelines and have been accepted.
- Aggregate results are an increase of ~77 aMW in 2026, ~100 aMW in 2027, and ~124 aMW in 2028.

Forecasted Agency Loads

	BP-24 RHWM_May 2022		*BP-26 RHWM_May 2024*			*BP-26 RHWM_Aug 2024*		
Fiscal Year (aMW)	**2024**	**2025**	**2026**	**2027**	**2028**	**2026**	**2027**	**2028**
Preference	**6,856**	**7,049**	**7,138**	**7,176**	**7,247**	**7,250**	**7,313**	**7,385**
Tier 1 Load	6,674	6,686	6,599	6,606	6,627	6,756	6,784	6,825
Tier 2 Load (assuming current elections)	182	363	539	570	620	494	529	559

- Increase in Preference Forecast between FY2025 & FY2026
- Increase in Preference Forecast between FY2026 & FY2028
- Increase in Tier 2 Load
- Increase in Tier 1 Load between May 2024 & Aug 2024

Load Forecast Next Steps

- Customers provide notice of any additional changes - ASAP, please.
- Submit forecast change request (including cause and amount) on BPA.gov comment page by **August 28, 2024**.
- Forecaster to review and include necessary changes.

Guidelines for Load Forecast

Guiding Principles for Revising Load Forecasts

- Avoid subjective bias in results
  - Make changes with a clearly identifiable cause and effect
  - Avoid making changes within the tolerance of model errors, i.e., changes less than 5%
  - Rely on models and results put together when consequences are not immediately pending
- Avoid forcing the models to give specific answers
  - Rely on statistics of models
  - Rely on accuracy of models and improve when results are not within accuracy tolerance levels
  - Avoid updating without sufficient new data
- Incorporate highly probably information
  - Include new loads/projects that have higher than 70% probability of occurring

Hydro and T1SFCO Study Results

Hydro Study Typical Updates

Project Outages

- Updated based on 2024 vintage long term maintenance and capital program forecasts from the BPA Federal Hydro group. This will use the same methodology as the last rate case

Spill Details

- Spill Production Estimates for 125% TDG updated based on the latest observed data
- Spill Priority List updated based on latest data

Pacific Northwest Coordination Agreement (PNCA) Project Data

- Updated based on 2024 Coulee pumping data from 2024 PNCA submittal, no other PNCA data changes since 2022

Reserves

- Updated FCRPS reserve assumptions consistent with Generation Inputs forecasts
- The maximum amount of balancing reserves that the FCRPS can supply is now included in each study year

Loads

- Updated based on the latest forecasts produced by Load Forecasting and aggregated by Long Term Power Planning in LORA-LT

Hydro Study Other Updates

Canadian Operations

- Updated based on the Operation expected to be in place in AOPs 26-28, based on the AIP
- Canadian FRM used does not respond to forecast changes (perfect foresight) and includes 3.6 MAF of FRM space at Arrow

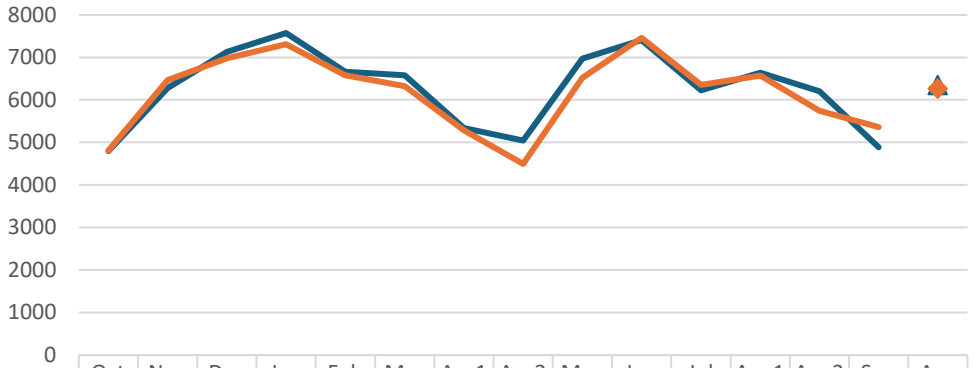
Pacific Northwest Coordination Agreement (PNCA) Expiration

- With PNCA expiring in fall of 2024, non-fed projects are no longer modeled as following proportional draft rule curves
- Non-feds follow a 7-year average of their actual operations

Banks Lake Pumping

- Banks Lake Pumping has been updated to reflect the actual and expected water deliveries for the Odessa sub area as part of the Odessa Groundwater Replacement Program

Firm Hydro Comparison to Previous

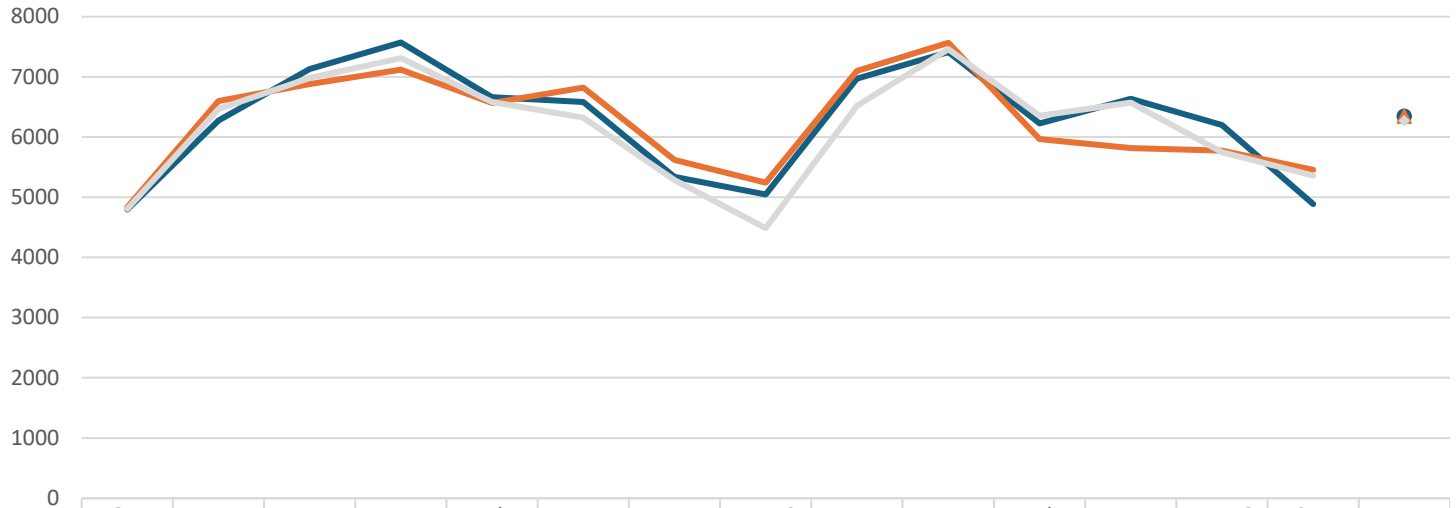


	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr2	May	Jun	Jul	Aug1	Aug2	Sep	Avg
BP26 RHWM (3-year average)	4798	6276	7131	7569	6664	6581	5338	5045	6971	7409	6223	6637	6201	4887	6345
BP26 RHWM (previous)	4809	6465	6980	7309	6581	6320	5287	4490	6518	7461	6354	6569	5746	5357	6266
BP26 RHWM minus BP24 RHWM	-10	-189	151	260	83	261	50	555	453	-53	-131	68	455	-470	79

The **79** aMW increase in firm generation compared to before the CRT AIP is mainly attributable to:

- Changes in Treaty project operations
- Changes in Non-Federal project operations
- Updates to Banks Lake Pumping Assumptions
- P10 Mapping

Firm Hydro Comparison to BP-24 RHWM



	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
BP26 RHWM	4798	6276	7131	7569	6664	6581	5338	5045	6971	7409	6223	6637	6201	4887	6345
BP24 RHWM	4834	6597	6882	7119	6566	6819	5618	5244	7099	7566	5966	5817	5775	5453	6344
BP26 RHWM (previous)	4809	6465	6980	7309	6581	6320	5287	4490	6518	7461	6354	6569	5746	5357	6266

Federal Tier 1 System Firm Critical Output (T1SFCO) Summary

Federal Tier 1 System Firm Critical Output Projection - 3-Year Average
RHWM Process for BP-26 Rate Period (3 year)
S258-RC-20240802-125432

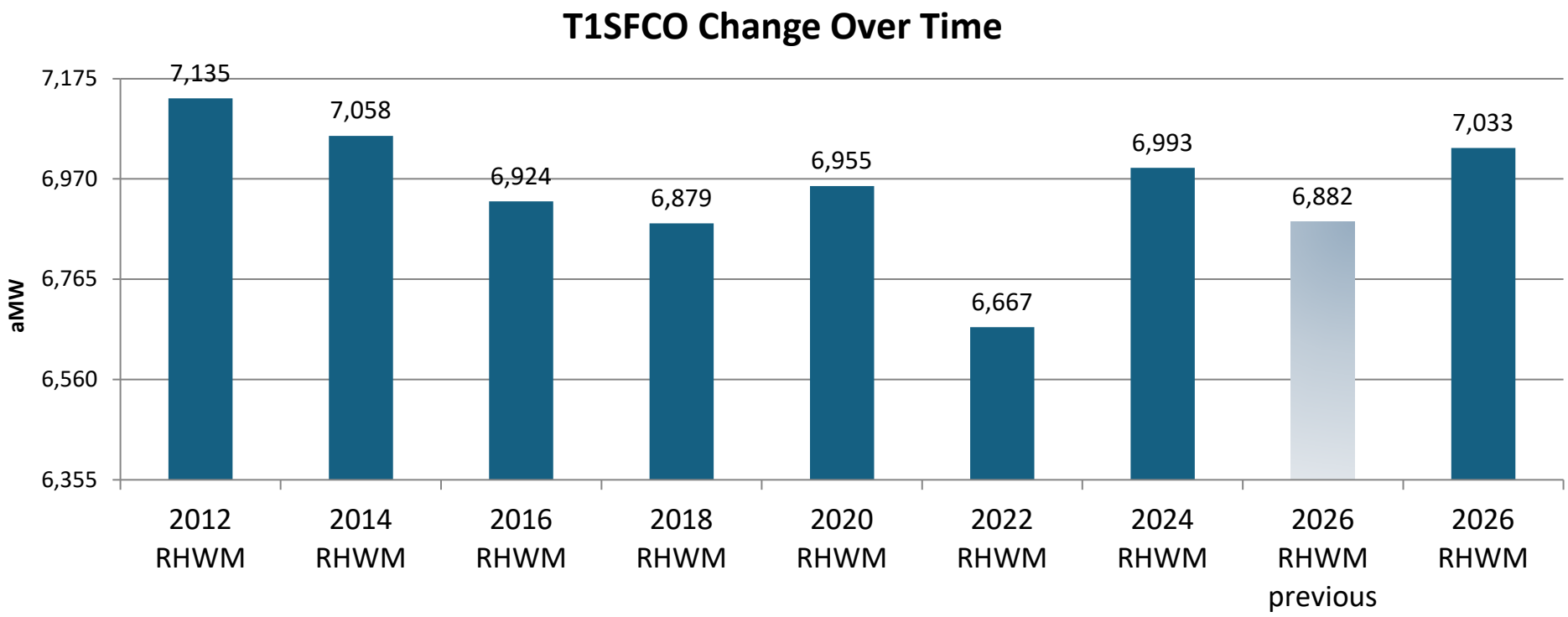
1.	T1SFCO Projections Energy in aMW	2026	2027	2028	Average
2.	Total Federal System Hydro Generation *(TRM Table 3.1)*	6,600	6,615	6,619	6,612
3.	Total Designated Non-Federally Owned Resources *(TRM Table 3.2)*	1,140	1,001	1,119	1,087
4.	Total Designated BPA Contract Purchases *(TRM Table 3.3)*	85	85	85	85
5.	Total Designated System Obligations *(TRM Table 3.4)*	-750	-746	-753	-750
6.	**Federal Tier 1 System Firm Critical Output** (sum of Lines 2-5)	**7,075**	**6,955**	**7,069**	**7,033**

T1SFCO Difference Between BP-26 RHWM Process and BP-24 Final RHWM

Federal Tier 1 System Firm Critical Output Projection - 3-Year Average
RHWM Process for BP-26 Rate Period (3 year)

T1SFCO 2-Year Average Comparison (Energy in aMW)	RHWM Process for BP-26 Rate Period (FY 2026-28)	RHWM Process for BP-26 (Previous)	Difference 3-Year vs. 3-Year	RHWM Process for BP-24 Rate Period (FY 2024-25)	Difference 3-Year vs. 2-Year Average
T1SFCO Resource Differences					
1. Total Federal System Hydro Generation (TRM Table 3.1)	*6,612*	6,549	*62*	*6,660*	*-48*
2. Total Designated Non Federally Owned Resources *(TRM Table 3.2)*	1,087	1,087	0	1,079	8
3. Total Designated BPA Contract Purchases *(TRM Table 3.3)*	85	136	-51	135	-50
T1SFCO Load/Obligation Differences					
4. Total Designated System Obligations *(TRM Table 3.4)*	-750	-890	140	-881	131
5. Federal Tier 1 System Firm Critical Output *(2-year average)*	***7,033***	***6,882***	151	***6,993***	41

T1SFCO Change Over Time



RHWM Augmentation

RHWM Augmentation

BESID	RHWM Augmentation	Initial CHWM	Additional CHWM through BP-24	TRL 2028	Additional CHWM 2026	Total Additional CHWM	2026 CHWM
10426	U.S. DOE Richland Operations Office	20.288	16.796	42.61	5.526	22.322	42.610
10482	Umpqua Indian Utility Cooperative	2.800	1.375	2.69	0.000	1.375	4.175
10502	Yakama Power	13.496	5.490	18.883	0.000	5.490	18.986
13927	Kalispel Tribe Utility	2.894	1.240	4.575	0.000	1.240	4.134
12026	Jefferson County PUD #1	0.000	45.847			45.847	45.847

T1SFCO	7033.278
RHWM Augmentation	76.274
RT1SC	7,109.552

Next Steps and BP-26 RHWM Timeline

Next Steps

- RHWM draft final outputs will be posted on the RHWM website following today's meeting:
  - https://www.bpa.gov/energy-and-services/rate-and-tariff-proceedings/rate-period-high-water-mark-process
- Public comment period **August 15th – August 28th**, 2024
  - Please submit comments (including load forecast change requests) on BPA's public comment page:
  - https://publiccomments.bpa.gov/OpenCommentListing.aspx

BP-26 RHWM Timeline

FORMAL PROCESS BEGINS	
Public workshop – Present draft final forecast, augmentation and system size	August 15th (Thursday)
Publish draft final RHWM process outputs	August 15th (Thursday)
Public comment period	August 15th – 28th
Deadline for written preservation of right to dispute	August 20th (Tuesday)
Republish RHWM Outputs (if changes made due to public comments)	September 13th (Saturday)
Deadline for dispute notice	September 26th (Thursday)
Publish final RWHM process outputs	September 30th (Monday)

Questions?

Appendix

Spill Updated with 12/14 agreement (aka RCBA)

Spring Spill Season

- 125% TDG spill at six projects
- 40% of outflow daytime spill and 125% TDG spill nighttime spill at John Day
- 40% outflow spill at The Dalles 24 hours a day
- Little Goose spill transitions from 125% TDG 24 hours a day to 16 hours a day, eight hours 30% outflow after adult criteria is met

Summer Spill Season

- Like BP-24 RHWM, except transition to late summer spill shifted to August 1st
- Assumptions for surface weir flow slightly adjusted

Fall/Winter Spill Season

- Increased to four hours a day for seven days a week September 1st through November 15th and March 1st through March 20th and 24 hours a day from March 21st through the beginning of spring spill

Federal System Hydro Generation Used in T1SFCO Calculation

Federal System Hydro Generation for use in the T1SFCO Calculation
RHWM Process for BP-26 Rate Period (3 year)
TRM Table 3.1
S258-RC-20240802-125432

1.	Regulated Hydro	2026	2027	2028	Average
2.	Albeni Falls	24.6	23.7	24.7	24.3
3.	Bonneville	395.2	380.9	399.3	391.8
4.	Chief Joseph	1,121.8	1,127.9	1,109.4	1,119.7
5.	Dworshak	177.7	166.8	167.2	170.6
6.	Grand Coulee	1,884.8	1,894.8	1,867.9	1,882.5
7.	Hungry Horse	91.3	85.1	98.1	91.5
8.	Ice Harbor	146.5	149.0	152.3	149.3
9.	John Day	771.9	772.0	773.5	772.5
10.	Libby	196.6	210.2	207.5	204.8
11.	Little Goose	158.2	157.1	164.3	159.9
12.	Lower Granite	137.9	141.2	144.6	141.2
13.	Lower Monumental	148.7	151.1	155.0	151.6
14.	McNary	442.4	449.7	448.8	447.0
15.	The Dalles	638.5	635.5	641.0	638.3

Federal System Hydro Generation Used in T1SFCO Calculation (cont.)

Federal System Hydro Generation for use in the T1SFCO Calculation
RHWM Process for BP-26 Rate Period (3 year)
TRM Table 3.1
S258-RC-20240802-125432

16.	Independent Hydro	2026	2027	2028	Average
17.	Anderson Ranch	8.4	7.9	8.3	8.2
18.	Big Cliff	10.8	11.2	11.3	11.1
19.	Black Canyon	6.4	6.1	6.4	6.3
20.	Boise River Diversion	0.9	0.9	0.9	0.9
21.	Chandler	5.4	5.2	5.2	5.3
22.	Cougar	5.1	5.0	5.4	5.2
23.	Cowlitz Falls	24.4	29.3	26.9	26.9
24.	Detroit	23.6	24.8	25.1	24.5
25.	Dexter	7.6	7.4	7.7	7.6
26.	Foster	7.9	7.8	8.0	7.9
27.	Green Peter	13.9	14.3	14.0	14.1
28.	Green Springs	6.7	6.7	6.7	6.7
29.	Hills Creek	14.5	14.7	15.2	14.8
30.	Lookout Point	15.0	12.9	13.8	13.9
31.	Lost Creek	28.4	27.1	27.5	27.7
32.	Minidoka	10.3	10.8	10.2	10.4
33.	Palisades	67.3	71.0	65.7	68.0
34.	Roza	7.4	7.3	6.9	7.2
35.	*Idaho Falls - City Plant (expired 9/30/2016)*				
36.	*Idaho Falls - Lower Plants #1 & #2 (expired 9/30/2016)*				
37.	*Idaho Falls - Upper Plant (expired 9/30/2016)*				
38.	**Total Tier 1 Federal System Hydro Generation**	**6,600.4**	**6,615.3**	**6,618.9**	**6,611.5**

Designated Non-Federally Owned Resources Used in T1SFCO Calculation

Designated Non-Federally Owned Resources for use in the T1SFCO Calculation
RHWM Process for BP-26 Rate Period (3 year)
TRM Table 3.2
S258-RC-20240802-125432

1.	Project	2026	2027	2028	Average
2.	Ashland Solar Project *(expired 5/31/2020)*	0.0	0.0	0.0	0.0
3.	Columbia Generating Station	1,116.0	993.7	1,116.0	1,054.8
4.	Condon Wind Project *(expired 9/30/2022)*	*0.0*	*0.0*	*0.0*	0.0
5.	Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6	2.6
6.	Foote Creek 1 *(early termination in 2019)*	0.0	0.0	0.0	0.0
7.	Foote Creek 2 *(expired 2014)*	0.0	0.0	0.0	0.0
8.	Foote Creek 4 *(Acquisition Expired 10/1/2020)*	0.0	0.0	0.0	0.0
9.	*Fourmile Hill Geothermal (Not included)*	*0.0*	*0.0*	*0.0*	0.0
10.	*Georgia-Pacific Paper (Wauna) (Acquisition Expired 4/5/2016)*	*0.0*	*0.0*	*0.0*	0.0
11.	Klondike I *(expired 4/2022)*	*0.0*	*0.0*	*0.0*	0.0
12.	Stateline Wind Project *(expires 12/2026)*	21.2	4.8	0.0	13.0
13.	White Bluffs Solar *(expired in 1996)*	0.0	0.0	0.0	0.0
14.	**Total Designated Non-Federally Owned Resources**	**1,139.8**	**1,001.1**	**1,118.6**	**1,086.5**

Designated BPA Contract Purchases Used in T1SFCO Calculation

Designated BPA Contract Purchases for use in the T1SFCO Calculation
RHWM Process for BP-26 Rate Period (3 year)
TRM Table 3.3
S258-RC-20240802-125432

1.	Contract Purchases	Contract #	2026	2027	2028	Average
2.	BCHP with BPA: TRTY - LCA	99PB-22685	1.0	1.0	1.0	1.0
3.	CHPD to BPA CEAEA for Rock Island	97PB-10102	10.9	10.9	10.9	10.9
4.	CHPD to BPA CEAEA for Rocky Reach	97PB-10103	22.9	22.9	22.9	22.9
5.	DOPD to BPA CEAEA for Wells	97PB-10101	14.8	14.8	14.8	14.8
6.	GCPD to BPA CEAEA for Priest Rapids	97PB-10099	18.4	18.3	18.3	18.3
7.	GCPD to BPA CEAEA for Wanapum	97PB-10100	17.1	17.1	17.1	17.1
8.	BCHP to BPA LCA *(settled financially)*	99PB-22685				
9.	PASA to BPA Pk Repl *(expired 4/30/2015)*	94BP-93658				
10.	PASA to BPA S/N/X *(expired 4/30/2015)*	94BP-93658				
11.	PASA to BPA Xchg Nrg *(expired 4/30/2015)*	94BP-93658				
12.	RVSD to BPA Pk Repl *(expired 4/30/2016)*	94BP-93958				
13.	RVSD to BPA Seas Xchg *(expired 4/30/2016)*	94BP-93958				
14.	RVSD to BPA Xchg Nrg *(expired 4/30/2016)*	94BP-93958				
15.	PPL to BPA SNX (Spring Return) *(expired 6/1/2014)*	94BP-94332				
16.	PPL to BPA SPX (Summer Return) *(expired 6/1/2014)*	94BP-94332				
17.	**Total Designated BPA Contract Purchases**		**85.0**	**85.0**	**85.0**	**85.0**

Designated BPA System Obligations Used in T1SFCO Calculation

Table 8.1.5
Designated BPA System Obligations for use in the T1SFCO Calculation
RHWM Process for BP-26 Rate Period (3 year)
TRM Table 3.4 *(Negative numbers indicate obligations)*
S258-RC-20240802-125432

1.	System Obligation	Contract #	2026	2027	2028	Average
2.	BPA to BRCJ Chief Joseph	14-03-17506; 14-03-49151	-8.6	-8.6	-8.6	-8.6
3.	BPA to BRCB Columbia Basin Project	Ibp-4512; 14-03-001-12160	-152.3	-152.3	-156.0	-152.3
4.	BPA to BRCR Crooked River Project	14-03-73152	-0.6	-0.6	-0.6	-0.6
5.	BPA to BROP Owyhee Project	EW-78-Y-83-00019	-1.3	-1.3	-1.3	-1.3
6.	BPA to BRRP Rathdrum Prairie Project	14-03-49151	-0.8	-0.8	-0.8	-0.8
7.	BPA to BRSID Southern Idaho Projects	EW-78-Y-83-00019	-20.2	-20.2	-20.1	-20.2
8.	BPA to BRSIN Spokane Indian Develop.	14-03-49151	-0.3	-0.3	-0.3	-0.3
9.	BPA to BRSV Spokane Valley	14-03-63656	-0.7	-0.7	-0.7	-0.7
10.	BPA to BRTD The Dalles Reclamation Project	14-03-32210	-2.1	-2.1	-2.1	-2.1
11.	BPA to BRTV Tualatin Project	14-03-49151	-0.8	-0.8	-0.8	-0.8
12.	BPA to BRUB Umatilla Basin Project	10GS-75345	-2.7	-2.7	-2.7	-2.7
13.	BPA to BRYK Yakima Project	DE-MS79-88BP92591	-1.7	-1.7	-1.7	-1.7
14.	BPA to BCHP LCA *(settled financially)*	99PB-22685				
15.	BPA to BCHA: TRTY - CEA	99EO-40003	-305.0	-305.0	-305.0	-305.0
16.	BPA to PSE: Pwr S (Up. Baker 2)	09PB-12126	-1.3	-1.3	-1.3	-1.3
17.	BPAP to BCHA - NTSA	12PG-10002	-12.5	-12.5	-12.5	-12.5
18.	BPAP to BPAT: Ops - IntrAgmt	09PB-12128	-9.4	-9.4	-9.4	-9.4
19.	BPA to BHEC 2012PSC (expired 6/30/2017)	97PB-10051				
20.	BPA to PASA C/N/X (expired 4/30/2015)	94BP-93658				
21.	BPA to PASA S/N/X (expired 4/30/2015)	94BP-93658				
22.	BPA to RVSD C/N/X (expired 4/30/2016)	94BP-93958				
23.	BPA to RVSD Seas Xchg (expired 4/30/2016)	94BP-93958				
24.	Federal Intertie Losses (Calculated: 3.0% of Intertie Sales Table 2.12.5 lines 18-21)	n/a				
25.	BPA to AVWP WP3 S (expires 6/30/2019)	85BP-92186				
26.	BPA to PPL SNX (Spring Delivery) (expired 6/1/2014)	94BP-94332				
27.	BPA to PPL SPX (Summer Delivery) (expired 6/1/2014)	94BP-94332				
28.	BPA to PSE WP3 S (expired 6/30/2017)	85BP-92185				
29.	Federal Power Trans. Losses	n/a	-246.6	-242.7	-246.5	-244.7
30.	Slice Transmission Loss Returns	n/a	17.2	16.9	17.2	17.1
31.	**Total Designated System Obligations**		**-749.8**	**-746.2**	**-753.4**	**-749.8**