

FYI Items

February 26, 2019

Mr. Chet Perry / Mr. Jim Schroeder
PacifiCorp

Mr. Bruce True
Portland General Electric

Mr. Jay Hiner / Jonathan Hart
Eugene Water & Electric

Mr. Paul Downey / Mr. Keith Hormann
City of Forest Grove

Mr. Rahul Venkatesh
Puget Sound Energy, Inc.

Mr. Matt Boast
Kittitas County PUD

Mr. Rick Applegate
Tacoma Power

Ms. Jaime Phillips
McMinnville Water & Light

Ms. Stefanie Johnson
City of Seattle, City Light Dept.

Mr. Mike Watkins
City of Milton-Freewater

Mr. Steve Lentini
Avista Corp.

Mr. Bob Essex
Cowlitz PUD

Subject: Priest Rapids Project Highlights for January

UNIT STATUS: Unit availability for the projects is as follows:

Wanapum Generator Operations/Turbine Restoration:

W-1, 2, 3, 4, 5, 6, 8, 9, 10: Operational.

W-7 was removed from service December 11, 2018 for generator rotor rebuild and governor replacement. W-7 is scheduled to return to service August 13, 2019.

Priest Rapids Generator Operations/Turbine Restoration:

P-1, 3, 4, 5, 6, 7, 8, 10: Operational.

P-2 was removed from service January 29, 2018 due to turbine/generator rehabilitation. P-2 is scheduled to return to service March 15, 2019.

P-5 was removed from service January 7, 2019 to replace shaft seal packing. P-5 was returned to service January 11, 2019.

P-9 was removed from service January 21, 2019 for 12 month turbine runner inspection and limited generator acceptance testing. P-9 was returned to service February 12, 2019.

Priest Rapids Project Highlights
February 26, 2019

GENERATION STATUS REPORTS: January Generation Reports are attached for your information and use.

ELECTRIC SERVICE INTERRUPTION REPORTS: January Electric Service Interruption Reports are attached for your information and use.

The regular monthly meeting of the Grant County P.U.D. Power Purchasers' Advisory Committee will be held on Wednesday, March 27th at 10:00 a.m. at the District's Ephrata Headquarters Building in Conference Room "E".

The District representative is Phillip Law. Phillip's telephone number is: 509-754-5090.

Sincerely,



Dale Campbell, P.E.
Power Production Engineering Manager

DC:cec

Attachments

C:	HED Main Files 1.1.1.2	Kevin Marshall
	Tom Flint	Rich Wallen
	Dale Walker	Dale Campbell
	Larry Schaapman	Mark Beattie
	Judy Wilson	Ty Ehrman
	Nelson Cox	Phillip Law
	Chief Operator/Wanapum	Bonnie Overfield
	Chief Operator/Priest Rapids	

Wanapum

Public Utility District of Grant County, Ephrata, Washington MONTHLY REPORT OF POWER OPERATIONS

January 2019

Installed Capacity (A)	1,103,000	kW	Hours Plant Operated:	744	
Gross Generation (B)	418,452,100	kWH	Plant Use	753,900	kWH
Max. Hourly Generation (C)	940,700	kWH	Net Generation	417,698,200	kWH
Time of Max. Hourly Gen.	01/21/2019 1800		Water for Generation (D)	6,179,670	A.F.
Plant Factor	50.99%		Water Bypassed (E)	3,480	A.F.
Utilization Factor	85.29%		Water for Fish (F)	43,090	A.F.
Water Factor:	99.25%		Average Hydraulic Head:	76.7	Feet

UNIT SERVICE RECORD

Unit No	Monthly Gen. (mWH)	Hrs. Operation	Hrs Down For Maint.	Availability Factor (G)	Nature of Maintenance
W-1	45,678	590.58	0.00	1.00	
W-2	55,395	729.28	0.00	1.00	
W-3	42,697	549.73	0.00	1.00	
W-4	47,695	623.63	0.00	1.00	
W-5	27,830	351.30	2.22	1.00	40 Target (loss of field)
W-6	54,023	718.90	0.00	1.00	
W-7	0	0.00	744.00	0.00	Generator Rotor Replacement and Unit Governor Replacement
W-8	65,506	665.42	0.00	1.00	
W-9	56,396	577.55	1.82	1.00	Replacement of Exciter HMI
W-10	93,038	648.07	0.00	1.00	

(G) Availability Factor = $\frac{\text{Hours in Month} - \text{Hours Down for Maint.}}{\text{Hours in Month}}$

Plant Factor = $\frac{(B) * 100}{(A) * \text{Hours in Month}}$

Utilization Factor = $\frac{(C)}{(A)} * 100$

Water Factor = $\frac{(D)}{(D) + (E) + (F)} * 100$

Plant Service Interruptions

Plant: WANAPUM

January, 2019

Date	Time	Duration		Unit	Circuit Breaker Tripped	Relays Operated		Remarks
		Month	Total			Type	Cause	
01/01/2019	0000	744:00	1240:49	W-7	W-732	MAN	11	Generator Rotor Replacement and Unit Governor Replacement
01/14/2019	0802	1:49	1:49	W-9	W-932	MAN	11	Replacement of Exciter HMI
01/14/2019	1204	2:13	2:13	W-5	W-532	OTH	10	40 Target (loss of field)

Relay Types: MAN - Manual OC - Overcurrent DIFF - Differential FREQ - Frequency GRD - Ground V - Voltage THER - Thermal TRIP - 86E Trip OTH - Other

Causes: 1 Lightning 2 All other weather 3 Trees, etc. into line 4 Malicious damage 5 Line down 6 Defective equipment 7 Inadequate system 8 Trouble on another system 9 Operation error 10 Relay error 12 Cause unknown 11 Prearranged outage 13 Computer control 14 Other

**WANAPUM POWERPLANT GENERATION SUMMARY
JANUARY 2019**

UNIT	GENERATION (MWH)			MAINTENANCE HOURS	
	100% RATED INSTALLED CAPACITY	CURRENT	YTD	CURRENT	YTD
W-1	112.00	45,678	45,678	0.00	0.00
W-2	112.00	55,395	55,395	0.00	0.00
W-3	112.00	42,697	42,697	0.00	0.00
W-4	103.80	47,695	47,695	0.00	0.00
W-5	112.00	27,830	27,830	2.22 (A)	2.22
W-6	112.00	54,023	54,023	0.00	0.00
W-7	112.00	0	0	744.00 (B)	744.00
W-8	103.80	65,506	65,506	0.00	0.00
W-9	112.00	56,396	56,396	1.82 (C)	1.82
W-10	112.00	93,038	93,038	0.00	0.00
PROJECT TOTAL:	1103.60	488,258	488,258	748.04	748.04
PLANT USE:		754	754		
NET GENERATION:		487,504	487,504		

PLANT RATING CURVE CAPACITY BASED ON 40 YR WATER

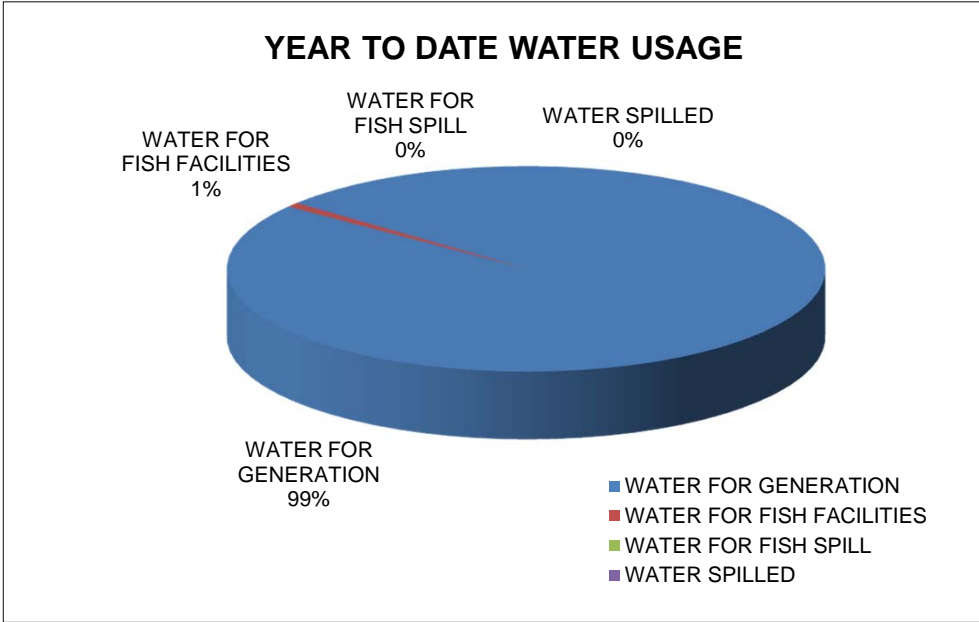
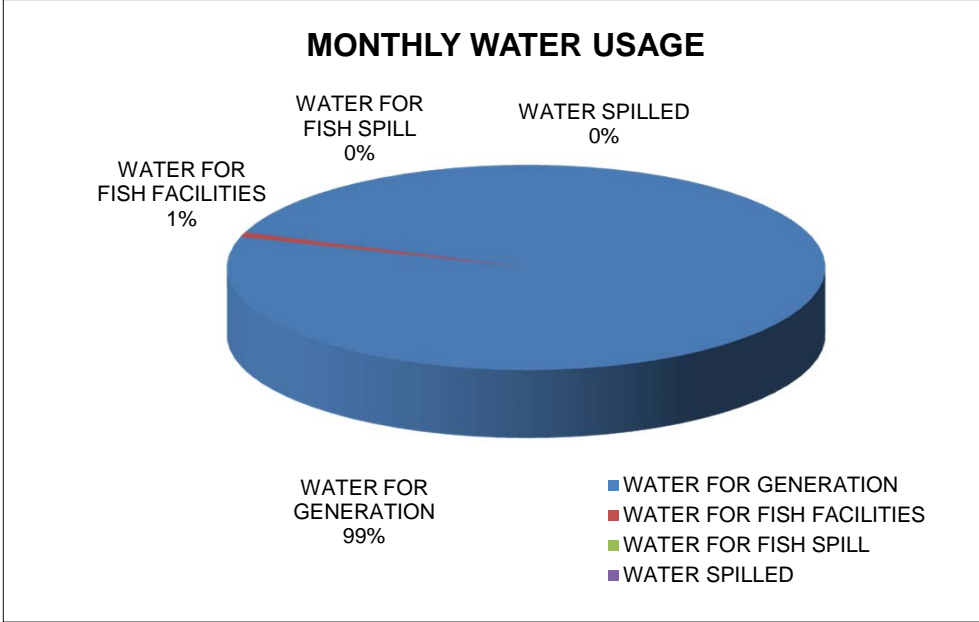
996,910

- (A) 40 Target (loss of field)
- (B) Generator Rotor Replacement/Unit Governor Replacement
- (C) Replacement of Exciter HMI

**WANAPUM POWERPLANT
WATER UTILIZATION
JANUARY 2019**

	WATER UTILIZED (ACRE FEET)	EQUIVALENT ENERGY (MWH)
TOTAL RIVER FLOW	6,226,240	421,606
WATER FOR GENERATION	6,179,670	418,452
WATER FOR FISH FACILITIES	43,090	2,918
WATER FOR FISH SPILL	0	0
WATER SPILLED	3,480	236

Wanapum Water Utilization Report January 2019



Priest Rapids

Public Utility District of Grant County, Ephrata, Washington MONTHLY REPORT OF POWER OPERATIONS

January 2019

Installed Capacity (A)	955,600	kW	Hours Plant Operated:	744	
Gross Generation (B)	404,620,100	kWH	Plant Use	1,093,400	kWH
Max. Hourly Generation (C)	797,500	kWH	Net Generation	403,526,700	kWH
Time of Max. Hourly Gen.	01/17/2019 1900		Water for Generation (D)	6,047,310	A.F.
Plant Factor	56.91%		Water Bypassed (E)	4,020	A.F.
Utilization Factor	83.46%		Water for Fish (F)	16,190	A.F.
Water Factor:	99.67%		Average Hydraulic Head:	77.6	Feet

UNIT SERVICE RECORD

Unit No	Monthly Gen. (mWH)	Hrs. Operation	Hrs Down For Maint.	Availability Factor (G)	Nature of Maintenance
P-1	50,275	727.40	11.55	0.98	Reinstalling Transformer A Flex Links for P-2 Restoration
P-2	0	0.00	744.00	0.00	P-02 Turbine Replacement
P-3	50,755	732.43	11.48	0.98	Substation 1 Outage for Unit Aux Switchgear 2 power termination for P-2 Restoration
P-4	49,059	644.45	11.32	0.98	Substation 1 Outage for Unit Aux Switchgear 2 power termination for P-2 Restoration
P-5	42,320	558.42	107.47	0.86	Replace packing.
P-6	51,796	743.70	0.00	1.00	
P-7	48,870	695.87	0.00	1.00	
P-8	49,882	569.13	0.00	1.00	
P-9	23,650	310.55	257.67	0.65	12 Month Turbine Runner Inspection & Limited Generator Acceptance Testing
P-10	38,015	526.28	9.08	0.99	Left Bank Fish Ladder, Divers Pump House Deck WECC Testing

(G) Availability Factor = $\frac{\text{Hours in Month} - \text{Hours Down for Maint.}}{\text{Hours in Month}}$

Priest Rapids

Public Utility District of Grant County, Ephrata, Washington
MONTHLY REPORT OF POWER OPERATIONS

January 2019

$$\text{Plant Factor} = \frac{(B) * 100}{(A) * \text{Hours in Month}}$$

$$\text{Utilization Factor} = \frac{(C)}{(A)} * 100$$

$$\text{Water Factor} = \frac{(D)}{(D) + (E) + (F)} * 100$$

Plant Service Interruptions

Plant: PRIEST
RAPIDS

January, 2019

Date	Time	Duration		Unit	Circuit Breaker Tripped	Relays Operated		Remarks
		Month	Total			Type	Cause	
01/01/2019	0000	744:00	8824:48	P-2	232	OTH	11	P-02 Turbine Replacement
01/07/2019	0601	107:28	107:28	P-5	532	MAN	11	Replace packing.
01/17/2019	0601	11:29	11:29	P-3	332	MAN	11	Substation 1 Outage for Unit Aux Switchgear 2 power termination for P-2 Restoration
01/17/2019	0601	11:19	11:19	P-4	432	MAN	11	Substation 1 Outage for Unit Aux Switchgear 2 power termination for P-2 Restoration
01/17/2019	0601	11:33	11:33	P-1	132	MAN	11	Reinstalling Transformer A Flex Links for P-2 Restoration
01/21/2019	0620	257:40	257:40	P-9	932	MAN	11	12 Month Turbine Runner Inspection & Limited Generator Acceptance Testing
01/23/2019	0700	8:16	8:16	P-10	1032	MAN	11	Left Bank Fish Ladder, Divers Pump House Deck
01/24/2019	0700	0:49	0:49	P-10	1032	MAN	11	WECC Testing

Relay Types: MAN - Manual OC - Overcurrent DIFF - Differential FREQ - Frequency GRD - Ground V - Voltage THER - Thermal TRIP - 86E Trip OTH - Other

Causes: 1 Lightning 2 All other weather 3 Trees, etc. into line 4 Malicious damage 5 Line down 6 Defective equipment 7 Inadequate system 8 Trouble on another system 9 Operation error 10 Relay error 12 Cause unknown 11 Prearranged outage 13 Computer control 14 Other

**PRIEST RAPIDS POWERPLANT GENERATION SUMMARY
JANUARY 2019**

UNIT	GENERATION (MWH)			MAINTENANCE HOURS	
	100% RATED INSTALLED CAPACITY	CURRENT	YTD	CURRENT	YTD
P-1	95.00	50,275	50,275	11.55 (A)	11.55
P-2	97.80	0	0	744.00 (B)	744.00
P-3	95.00	50,755	50,755	11.48 (C)	11.48
P-4	95.00	49,059	49,059	11.32 (C)	11.32
P-5	95.00	42,320	42,320	107.47 (D)	107.47
P-6	95.00	51,796	51,796	0.00	0.00
P-7	95.00	48,870	48,870	0.00	0.00
P-8	95.00	49,882	49,882	0.00	0.00
P-9	97.80	23,650	23,650	257.67 (E)	257.67
P-10	95.00	38,015	38,015	9.08 (F)	9.08
PROJECT TOTAL	955.60	404,622	404,622	1,152.57	1,152.57
PLANT USE:		1,093	1,093		
NET GENERATION:		403,529	403,529		

PLANT RATING CURVE CAPACITY BASED ON 40 YR WATER

912,300

- (A) Reinstalling Transformer A Flex Links for P-2 Restoration
- (B) P-2 Turbine/Generator Rehabilitation
- (C) Substation 1 Outage for Unit Aux Switchgear 2 Power Termination for P-2 Restoration
- (D) Replace Packing
- (E) 12 Month Turbine Runner Inspection & Limited Generator Acceptance Testing
- (F) Left Bank Fish Ladder, Divers Pump House Deck, WECC Testing

**PRIEST RAPIDS POWERPLANT
WATER UTILIZATION
JANUARY 2019**

	WATER UTILIZED (ACRE FEET)	EQUIVALENT ENERGY (MWH)
TOTAL RIVER FLOW	6,067,520	405,972
WATER FOR GENERATION	6,047,310	404,620
WATER FOR FISH FACILITIES	16,190	1,083
WATER FOR FISH SPILL	0	0
WATER SPILLED	4,020	269

PRIEST RAPIDS WATER UTILIZATION REPORT JANUARY 2019

