FYI Items

Grant County
PUBLIC UTILITY DISTRICT

Connecting Generations
Since 1938

June 10, 2020

Mr. Chet Perry / Mr. Jim Schroeder
PacifiCorp

Mr. Jay Hiner / Jonathan Hart
Eugene Water & Electric

Mr. Rahul Venkatesh
Puget Sound Energy, Inc.

Mr. Rick Applegate
Tacoma Power

Ms. Robin Cross
City of Seattle, City Light Dept.

Mr. Steve Lentini
Avista Corp.

Mr. Todd McConachie
Portland General Electric

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

Mr. Matt Boast
Kittitas County PUD

Ms. Jaime Phillips
McMinnville Water & Light

Mr. Mike Watkins
City of Milton-Freewater

Mr. Bob Essex
Cowlitz PUD

Subject: Priest Rapids Project Highlights for May

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

Wanapum Generator Operations/Turbine Restoration:

W-1, 2, 3, 5, 6, 7, 8, 9, 10: Operational.

W-4 was removed from service July 15, 2019 for generator/governor replacement and turbine overhaul. W-4 is scheduled to return to service August 26, 2020.

W-7 was removed from service May 18, 2020 for brake track measurements. W-7 was returned to service May 20, 2020

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Priest Rapids Project Highlights
May 10, 2020

Priest Rapids Generator Operations/Turbine Restoration:

P-1, 2, 3, 4, 5, 6, 7, 9, 10: Operational.

P-8 was removed from service April 1, 2019 due to turbine/generator rehabilitation and governor replacement. P-8 is scheduled to return to service July 31, 2020.

Line 1 was forced out May 2, 2020 due to C phase PT breaking free and contacting the powerhouse. Line 1 was restored to service May 3, 2020.

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

ELECTRIC SERVICE INTERRUPTION REPORTS: May 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, June 17th 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

Dale Campbell, P.E.
Senior Manager of Power Production Engineering

DC:cec

Attachments

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

Wanapum

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

May 2020

Installed Capacity (A)	1,111,800	kW	Hours Plant Operated:	744	
Gross Generation (B)	521,541,800	kWH	Plant Use	578,300	kWH
Max. Hourly Generation (C)	801,200	kWH	Net Generation	520,963,500	kWH
Time of Max. Hourly Gen.	05/04/2020 1700		Water for Generation (D)	7,679,350	A.F.
Plant Factor	63.05%		Water Bypassed (E)	4,175,850	A.F.
Utilization Factor	72.06%		Water for Fish (F)	123,070	A.F.
Water Factor:	64.11%		Average Hydraulic Head:	76.4	Feet

UNIT SERVICE RECORD

Unit No	Monthly Gen. (mWH)	Hrs. Operation	Hrs Down For Maint.	Availability Factor (G)	Nature of Maintenance
W-1	51,794	631.57	0.00	1.00	
W-2	56,387	691.88	8.45	0.99	Cooling Water repair
W-3	58,944	732.77	0.00	1.00	
W-4	0	0.00	744.00	0.00	Generator, Governor, and Exciter Replacement
W-5	59,485	741.52	0.00	1.00	
W-6	59,480	738.03	4.07	0.99	Governor Aux PLC Update Unit Tripped Offline Due To Unit Aux Comm Failure
W-7	55,208	688.08	55.88	0.92	W-7 Brake Ring Work
W-8	59,709	744.00	0.00	1.00	
W-9	60,096	744.00	0.00	1.00	
W-10	60,439	744.00	0.00	1.00	

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

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

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

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

Plant Service Interruptions

Plant: WANAPUM

May, 2020

Date	Time	Duration Month	Duration Total	Unit	Circuit Breaker Tripped	Relays Operated Type	Relays Operated Cause	Remarks
05/01/2020	0000	744:00	7722:00	W-4	W-432	MAN	11	Generator, Governor, and Exciter Replacement
05/02/2020	2124	3:01	3:01	W-6	W-632	THER	6	Unit Tripped Offline Due To Unit Aux Comm Failure
05/04/2020	0703	8:27	8:27	W-2	W-232	MAN	11	Cooling Water repair
05/18/2020	0605	55:53	55:53	W-7	W-732	MAN	11	W-7 Brake Ring Work
05/26/2020	0901	1:03	1:03	W-6	W-632	MAN	11	Governor Aux PLC Update

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
MAY 2020

		GENERATION (MWH)		MAINTENANCE HOURS	
UNIT	100% RATED INSTALLED CAPACITY	CURRENT	YTD	CURRENT	YTD
W-1	112.00	51,794	229,348	0.00	7.54
W-2	112.00	56,387	261,794	8.45 (A)	12.63
W-3	112.00	58,944	242,240	0.00	60.97
W-4	103.80	0	0	744.00 (B)	3,647.00
W-5	112.00	59,485	182,860	0.00	5.70
W-6	112.00	59,480	273,438	4.07 (C)	8.65
W-7	112.00	55,208	253,637	55.88 (D)	173.15
W-8	103.80	59,709	242,071	0.00	13.25
W-9	112.00	60,096	247,586	0.00	8.97
W-10	112.00	60,439	253,119	0.00	32.30
PROJECT TOTAL	**1103.60**	**521,542**	**2,186,093**	**812.40**	**3,970.16**
PLANT USE:		**578**	**3,236**		
NET GENERATION:		**520,964**	**2,182,857**		

PLANT RATING CURVE CAPACITY BASED ON 40 YR WATER

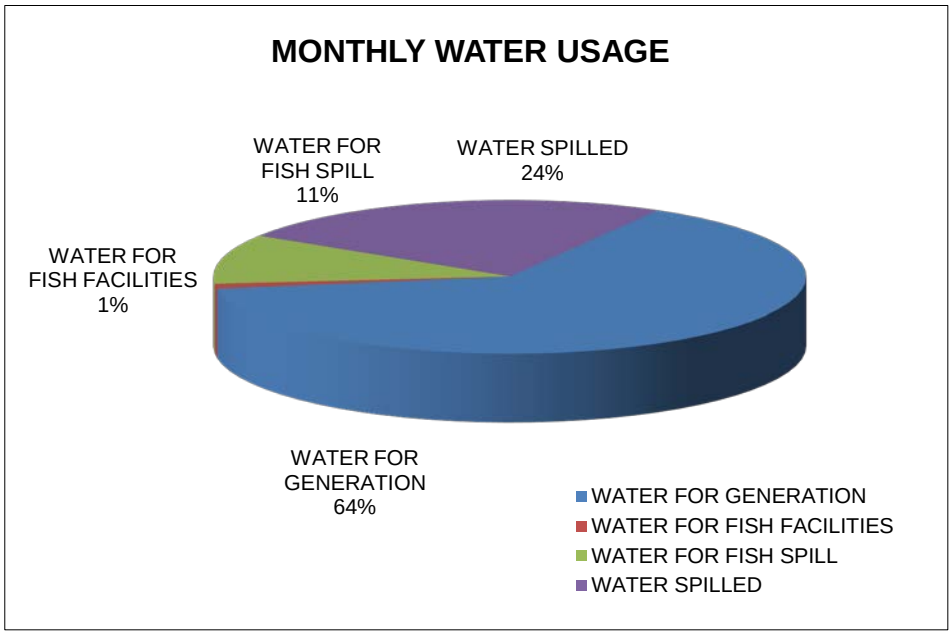
996,910

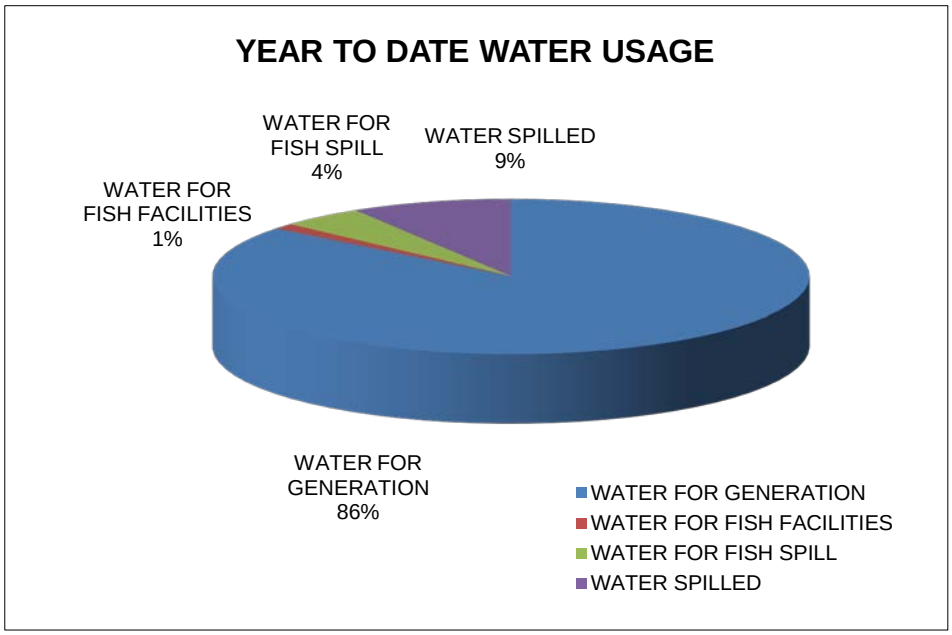
(A) Cooling water repair
(B) Generator, governor, and exciter replacement
(C) Unit tripped offline due to unit aux comm failure, Governor aux PLC update
(D) W-07 Brake ring work

WANAPUM POWERPLANT
WATER UTILIZATION
MAY 2020

	WATER UTILIZED (ACRE FEET)	EQUIVALENT ENERGY (MWH)
TOTAL RIVER FLOW	11,978,270	813,502
WATER FOR GENERATION	7,679,350	521,542
WATER FOR FISH FACILITIES	123,070	8,358
WATER FOR FISH SPILL	1,255,915	85,295
WATER SPILLED	2,919,935	198,307

Wanapum Water Utilization Report May 2020





Priest Rapids

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

May 2020

Installed Capacity (A)	955,600	kW	Hours Plant Operated:	744	
Gross Generation (B)	501,076,500	kWH	Plant Use	1,271,600	kWH
Max. Hourly Generation (C)	784,400	kWH	Net Generation	499,804,900	kWH
Time of Max. Hourly Gen.	05/16/2020 0400		Water for Generation (D)	7,939,430	A.F.
Plant Factor	70.48%		Water Bypassed (E)	3,784,100	A.F.
Utilization Factor	82.08%		Water for Fish (F)	95,330	A.F.
Water Factor:	67.18%		Average Hydraulic Head:	73.1	Feet

UNIT SERVICE RECORD

Unit No	Monthly Gen. (mWH)	Hrs. Operation	Hrs Down For Maint.	Availability Factor (G)	Nature of Maintenance
P-1	58,258	730.43	13.00	0.98	Line 1 Trip
P-2	55,357	730.22	13.00	0.98	Line 1 Trip
P-3	54,468	730.50	13.00	0.98	Line 1 Trip
P-4	58,224	730.93	13.00	0.98	Line 1 Trip
P-5	58,915	744.00	0.00	1.00	
P-6	55,543	744.00	0.00	1.00	
P-7	56,078	744.00	0.00	1.00	
P-8	0	0.00	744.00	0.00	Turbine Replacement and Generator Upgrade.
P-9	49,980	663.92	0.00	1.00	
P-10	54,252	725.43	0.00	1.00	

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

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

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

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

Plant Service Interruptions

Plant: PRIEST RAPIDS

May, 2020

Date	Time	Duration Month	Duration Total	Unit	Circuit Breaker Tripped	Relays Operated Type	Relays Operated Cause	Remarks
05/01/2020	0000	744:00	10241:43	P-8	832	MAN	11	Turbine Replacement and Generator Upgrade.
05/02/2020	1730	13:00	13:00	P-1	132	GRD	6	Line 1 Trip
05/02/2020	1730	13:00	13:00	P-2	232	GRD	6	Line 1 Trip
05/02/2020	1730	13:00	13:00	P-3	332	GRD	6	Line 1 Trip
05/02/2020	1730	13:00	13:00	P-4	432	GRD	6	Line 1 Trip

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
MAY 2020

		GENERATION (MWH)		MAINTENANCE HOURS	
UNIT	100% RATED INSTALLED CAPACITY	CURRENT	YTD	CURRENT	YTD
P-1	95.00	58,258	246,683	13.00 (A)	39.13
P-2	97.80	55,357	268,993	13.00 (A)	17.50
P-3	95.00	54,468	240,823	13.00 (A)	60.43
P-4	95.00	58,224	194,248	13.00 (A)	169.02
P-5	95.00	58,915	190,093	0.00	22.67
P-6	95.00	55,543	251,778	0.00	17.35
P-7	95.00	56,078	234,588	0.00	32.64
P-8	95.00	0	0	744.00 (B)	3,647.00
P-9	97.80	49,980	220,597	0.00	0.63
P-10	95.00	54,252	237,264	0.00	19.73
PROJECT TOTAL	**955.60**	**501,075**	**2,085,067**	**796.00**	**4,026.10**
PLANT USE:		**1,272**	**4,896**		
NET GENERATION:		**499,803**	**2,080,171**		

PLANT RATING CURVE CAPACITY BASED ON 40 YR WATER

912,300

(A) Line 1 trip
(B) P-08 turbine/generator rehabilitation

PRIEST RAPIDS POWERPLANT
WATER UTILIZATION
MAY 2020

	WATER UTILIZED (ACRE FEET)	EQUIVALENT ENERGY (MWH)
TOTAL RIVER FLOW	11,818,860	745,917
WATER FOR GENERATION	7,939,430	501,077
WATER FOR FISH FACILITIES	95,330	6,017
WATER FOR FISH SPILL	1,759,644	111,055
WATER SPILLED	2,024,456	127,768

PRIEST RAPIDS WATER UTILIZATION REPORT MAY 2020