PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
Portland, Oregon 97232

May 1, 2020

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

RE: UM 1729(3)—Standard Avoided Cost Purchases from Eligible Qualifying Facilities

In compliance with ORS 758.525 and Order No. 14-058 in Docket No. UM 1610, PacifiCorp d/b/a Pacific Power (PacifiCorp or Company) hereby submits the enclosed update to its standard avoided cost schedule (formerly known as Schedule 37) to the Public Utility Commission of Oregon (Commission).

This filing satisfies the Company's obligation established in Order No. 14-058 to file avoided cost updates on May 1 of each year. Consistent with Order No. 14-058, this annual update is limited to the following four factors: (i) natural gas prices; (ii) on-peak and off-peak forward looking electricity market prices; (iii) production tax credit status; and (iv) any other action or change in an acknowledged integrated resource plan relevant to the calculation of avoided costs. The proposed updates consist of changes to natural gas and electricity prices only as the Company has not identified any changes to avoided costs related to factors (iii) and (iv) from Order No. 14-058. The Company respectfully requests an effective date of June 1, 2020.

The Company's current standard avoided cost prices were approved in docket UM 2001 Order No. 19-156.

In support of this filing, PacifiCorp submits Appendix 1 – Avoided Cost Study and Appendix 2 – Method Write-up and Minimum Filing Requirements. Also provided are the supporting documentation in both "pdf" and original formats.

PacifiCorp respectfully requests that all communications related to this filing be addressed to:

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Please direct questions on this filing to Cathie Allen at (503) 813-5934.

Sincerely,

Mike Wilding
Director, Regulation

Enclosure

Revised Tariff Sheets

PACIFIC POWER
PROPOSED TARIFF CHANGES TO STANDARD RATES

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – May 2020

Monthly Payments (Continued)

Firm Market Indexed and Non-Firm Market Index Avoided Cost Prices
In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at the market prices calculated at the time of delivery. On-Peak and Off-Peak are defined in the definitions section of this schedule.

Avoided Cost Prices

Standard Fixed Avoided Cost Prices for Base Load and Wind QF (¢/kWh)

Fixed Prices ¢/kWh (C)

Deliveries During Calendar Year	Base Load QF (1,3)		Wind QF (2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)
2020	2.58	1.92	2.52	1.86
2021	3.11	2.23	3.05	2.17
2022	3.15	2.26	3.09	2.20
2023	3.24	2.24	3.18	2.17
2024	3.33	2.11	3.26	2.04
2025	3.41	2.14	3.34	2.08
2026	3.71	2.54	3.64	2.47
2027	4.12	2.72	4.05	2.64
2028	4.32	2.85	4.25	2.78
2029	4.72	3.06	4.64	2.99
2030	6.25	3.33	4.13	3.25
2031	6.45	3.46	4.28	3.38
2032	6.65	3.60	4.43	3.52
2033	6.84	3.73	4.58	3.65
2034	7.08	3.90	4.77	3.82
2035	7.31	4.07	4.95	3.98
2036	7.51	4.20	5.10	4.11
2037	7.82	4.45	5.37	4.35
2038	8.08	4.64	5.57	4.54

(C)

(continued)

Avoided Cost Prices (Continued)

Standard Fixed Avoided Cost Prices for Fixed and Tracking Solar QF (¢/kWh)

(C)

Deliveries During Calendar Year	Fixed Solar QF (2,3)		Tracking Solar QF (2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(e)	(f)	(g)	(h)
2020	2.51	1.86	2.51	1.86
2021	3.05	2.16	3.05	2.16
2022	3.08	2.19	3.08	2.19
2023	3.17	2.17	3.17	2.17
2024	3.25	2.03	3.25	2.03
2025	3.34	2.07	3.34	2.07
2026	3.63	2.46	3.63	2.46
2027	4.04	2.64	4.04	2.64
2028	4.24	2.77	4.24	2.77
2029	4.63	2.98	4.63	2.98
2030	7.46	3.24	7.67	3.24
2031	7.68	3.37	7.90	3.37
2032	7.91	3.51	8.12	3.51
2033	8.13	3.64	8.35	3.64
2034	8.39	3.81	8.62	3.81
2035	8.65	3.97	8.88	3.97
2036	8.88	4.10	9.11	4.10
2037	9.22	4.35	9.46	4.35
2038	9.50	4.54	9.75	4.54

(C)

(1) Capacity Contribution to Peak for Avoided Proxy Resource and Base Load QF resource are assumed 100%.

(2) The standard avoided cost price for wind and solar QFs located in PacifiCorp's balancing authority area (BAA) are reduced by an integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

For Solar and Wind QFs not located in PacifiCorp's BAA, the renewable avoided cost price will be increased by wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

(3) Standard Resource Sufficiency Period ends December 31, 2029 and Standard Resource Deficiency Period begins January 1, 2030.

(continued)

Avoided Cost Prices (continued)

Renewable Fixed Avoided Cost Prices for Base Load and Wind QF (¢/kWh)

(C)

Deliveries During Calendar Year	Renewable Base Load QF (1,4)		Wind QF (1,2,3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)
2020	2.58	1.92	2.52	1.86
2021	4.05	1.44	1.74	1.38
2022	4.11	1.53	1.74	1.47
2023	4.25	1.52	1.82	1.46
2024	4.38	1.51	1.89	1.45
2025	4.49	1.54	1.94	1.48
2026	4.60	1.56	2.00	1.49
2027	4.72	1.57	2.07	1.50
2028	4.81	1.63	2.09	1.56
2029	4.92	1.65	2.15	1.58
2030	5.04	1.67	2.20	1.59
2031	5.15	1.71	2.25	1.63
2032	5.22	1.79	2.26	1.71
2033	5.31	1.86	2.29	1.78
2034	5.40	1.93	2.32	1.84
2035	5.50	1.98	2.35	1.89
2036	5.61	2.02	2.40	1.93
2037	5.85	2.07	2.44	1.98
2038	5.96	2.12	2.48	2.03

(C)

(continued)

Avoided Cost Prices (continued)

Renewable Fixed Avoided Cost Prices for Fixed and Tracking Solar QF (¢/kWh)

(C)

Deliveries During Calendar Year	Fixed Solar QF (1,2,3) On-Peak Energy Price	Fixed Solar QF (1,2,3) Off-Peak Energy Price	Tracking Solar QF (1,2,3) On-Peak Energy Price	Tracking Solar QF (1,2,3) Off-Peak Energy Price
	(e)	(f)	(g)	(h)
2020	2.51	1.86	2.51	1.86
2021	4.41	1.38	4.71	1.38
2022	4.48	1.46	4.78	1.46
2023	4.62	1.45	4.94	1.45
2024	4.76	1.44	5.08	1.44
2025	4.88	1.47	5.21	1.47
2026	5.00	1.48	5.34	1.48
2027	5.13	1.49	5.48	1.49
2028	5.23	1.55	5.58	1.55
2029	5.35	1.57	5.71	1.57
2030	5.47	1.58	5.84	1.58
2031	5.59	1.63	5.97	1.63
2032	5.68	1.70	6.06	1.70
2033	5.77	1.77	6.16	1.77
2034	5.87	1.83	6.27	1.83
2035	5.98	1.88	6.38	1.88
2036	6.10	1.92	6.51	1.92
2037	6.22	1.97	6.64	1.97
2038	6.33	2.02	6.76	2.02

(C)

(1) For the purpose of determining: (i) when the Renewable Qualifying Facility is entitled to renewable avoided cost prices; and (ii) the ownership of environmental attributes and the transfer of Green Tags to PacifiCorp, Renewable Sufficiency Period ends December 31, 2020 and Renewable Deficiency Period begins January 1, 2021.

(2) During the Renewable Resource Sufficiency Period, the renewable avoided cost price for a wind and solar Qualifying Facility located in PacifiCorp's BAA is reduced by wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.
For Solar and Wind QFs not located in PacifiCorp's BAA, the renewable avoided cost price will be increased by the avoided wind integration charge of $0.57/MWh ($2016) and solar integration charge of $0.60/MWh ($2016), respectively.

(3) During the Renewable Resource Deficiency Period, the renewable avoided cost price for a solar Qualifying Facility located in PacifiCorp's BAA is reduced by the difference between the solar integration charge of $0.60/MWh ($2016) and wind integration charge of $0.57/MWh ($2016). For a wind Qualifying Facility located in PacifiCorp's (BAA), the adjustment is zero. For a solar Qualifying Facility not located in PacifiCorp's BAA, the renewable avoided cost price for solar QF will be increased by the difference between the solar integration and wind integration charges.

(4) During the Renewable Resource Deficiency Period, the renewable avoided cost price for Base Load is increased by the avoided wind integration charge of $0.57/MWh ($2016).

(continued)

Appendix 1

PACIFIC POWER
AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – MAY 2020

Exhibit 1
Standard Avoided Cost Prices for Base Load QF (1)
$/MWH

	Standard Avoided Resource		Base Load QF Resource				
Year	Avoided Firm Capacity Costs	Energy Only Price	Capacity Contribution	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	$/kW-yr	$/MWh		($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				= (a) * (c)	(d) *1000 / (100.0% x 8760 x 56%)	(e) + (b)	= (b)
2020	Market Based Prices					$25.79	$19.23
2021	2020 through 2030					$31.13	$22.30
2022						$31.52	$22.59
2023						$32.44	$22.39
2024						$33.25	$21.05
2025						$34.10	$21.44
2026						$37.06	$25.37
2027						$41.16	$27.15
2028						$43.21	$28.54
2029						$47.15	$30.61
2030	$143.51	$33.27	100.0%	143.51	$29.23	$62.50	$33.27
2031	$146.58	$34.62	100.0%	146.58	$29.86	$64.48	$34.62
2032	$149.66	$35.97	100.0%	149.66	$30.48	$66.45	$35.97
2033	$152.77	$37.32	100.0%	152.77	$31.12	$68.44	$37.32
2034	$155.92	$39.02	100.0%	155.92	$31.76	$70.78	$39.02
2035	$159.11	$40.65	100.0%	159.11	$32.41	$73.06	$40.65
2036	$162.36	$42.01	100.0%	162.36	$33.07	$75.08	$42.01
2037	$165.64	$44.46	100.0%	165.64	$33.74	$78.20	$44.46
2038	$168.95	$46.37	100.0%	168.95	$34.41	$80.78	$46.37

(1) Capacity Contribution of the Avoided Proxy
and Base Load QF resources are assumed to be 100%.

Columns

- (a) Full fixed cost of a proxy CCCT less capitalized energy
- (b) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (e) 100.0% is the on-peak capacity factor of the Base Load QF resource
- (f) 56% is the percent of all hours that are on-peak
- (f) 2020-2029 On-Peak Blended Market Prices for QF resource
- (g) 2020-2029 Off-Peak Blended Market Prices for QF resource

Exhibit 2
Standard Avoided Cost Prices for Wind QF (1,2)
$/MWH

	Standard Avoided Resource		Wind QF Resource				
Year	Avoided Firm Capacity Costs	Energy Only Price	Capacity Contribution	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	$/kW-yr	$/MWh		($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				= (a) * (c)	(d) *1000 / (39.3% x 8760 x 56%)	= (b) + (e)	= (b)
2020	Market Based Prices 2020 through 2029 less Wind Integration (2)					$25.18	$18.62
2021						$30.51	$21.68
2022						$30.89	$21.96
2023						$31.79	$21.74
2024						$32.58	$20.38
2025						$33.42	$20.76
2026						$36.37	$24.68
2027						$40.45	$26.44
2028						$42.48	$27.81
2029						$46.40	$29.86
2030	$143.51	$33.27	11.8%	16.90	$8.76	$41.26	$32.50
2031	$146.58	$34.62	11.8%	17.26	$8.95	$42.78	$33.83
2032	$149.66	$35.97	11.8%	17.62	$9.14	$44.29	$35.16
2033	$152.77	$37.32	11.8%	17.99	$9.32	$45.82	$36.49
2034	$155.92	$39.02	11.8%	18.36	$9.52	$47.68	$38.17
2035	$159.11	$40.65	11.8%	18.74	$9.71	$49.49	$39.78
2036	$162.36	$42.01	11.8%	19.12	$9.91	$51.03	$41.12
2037	$165.64	$44.46	11.8%	19.51	$10.11	$53.66	$43.55
2038	$168.95	$46.37	11.8%	19.90	$10.31	$55.75	$45.44

(1) The avoided cost price is reduced by a wind integration charge of $0.57/MWh ($2016) for wind QF resources located in PacifiCorp's Balancing Area Authority (BAA) (in-system).
If QF wind resource is not in PacifiCorp's BAA, prices will be increased by the $0.57/MWh ($2016) integration charges.

(2) Wind Integration Cost is $0.57 (2017 IRP Volume II-Appendix F)

Columns
- (a) Full fixed cost of a proxy CCCT less capitalized energy
- (b) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (c) Peak Capacity Contribution values for renewables (% of nameplate capacity), 2017 IRP
- (d) Column (c) multiplied by difference between capacity contributions of renewable Base Load QF and renewable proxy wind resource
- (e) 39.3% is the on-peak capacity factor of the Wind QF Resource
  56% is the percent of all hours that are on-peak
- (f) 2020-2029 On-Peak Blended Market Prices for QF resource
- (g) 2020-2029 Off-Peak Blended Market Prices for QF resource

Wind Capacity Contribution 11.8%

Exhibit 3
Standard Avoided Cost Prices for Fixed Solar QF
$/MWH

	Standard Avoided Resource		Fixed Solar QF				
Year	Capacity Price	Energy Only Price	Capacity Contribution	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	$/kW-yr	$/MWh		($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				= (a) * (c)	(d) *1000 / (37.3% x 8760 x 56%)	= (b) + (e)	= (b)
2020	Market Based Prices					$25.14	$18.58
2021	2020 through 2030					$30.46	$21.63
2022						$30.83	$21.90
2023						$31.73	$21.68
2024						$32.52	$20.32
2025						$33.35	$20.69
2026						$36.29	$24.60
2027						$40.37	$26.36
2028						$42.40	$27.73
2029						$46.32	$29.78
2030	$143.51	$33.27	53.86%	$77.30	$42.18	$74.60	$32.42
2031	$146.58	$34.62	53.86%	$78.95	$43.08	$76.83	$33.75
2032	$149.66	$35.97	53.86%	$80.61	$43.99	$79.07	$35.08
2033	$152.77	$37.32	53.86%	$82.28	$44.90	$81.32	$36.41
2034	$155.92	$39.02	53.86%	$83.98	$45.83	$83.92	$38.09
2035	$159.11	$40.65	53.86%	$85.70	$46.77	$86.47	$39.70
2036	$162.36	$42.01	53.86%	$87.45	$47.72	$88.76	$41.04
2037	$165.64	$44.46	53.86%	$89.22	$48.69	$92.15	$43.47
2038	$168.95	$46.37	53.86%	$91.00	$49.66	$95.02	$45.36

(1) The avoided cost price is reduced by a solar integration charge of $0.60/MWh ($2016) for solar QF resources located in PacifiCorp's Balancing Area Authority (BAA) (in-system). If QF solar resource is not in PacifiCorp's BAA, prices will be increased by the $0.60/MWh ($2016) integration charges.

(2) Solar Integration Cost is $0.60 (2017 IRP Volume II-Appendix F)

Columns
- (a) Full fixed cost of a proxy CCCT less capitalized energy
- (b) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (c) Peak Capacity Contribution values for renewables (% of nameplate capacity), 2017 IRP
- (d) Column (c) multiplied by the capacity contribution of a Standard Fixed Solar QF
- (e) 37.3% is the on-peak capacity factor of the Fixed Solar QF Resource
  56% is the percent of all hours that are on-peak
- (f) 2020-2029 On-Peak Blended Market Prices for QF resource
- (g) 2020-2029 Off-Peak Blended Market Prices for QF resource

Fixed Solar Capacity Contribution 53.9%

Exhibit 4
Standard Avoided Cost Prices for Tracking Solar QF
$/MWH

Year	Standard Avoided Resource: Capacity Price	Standard Avoided Resource: Energy Only Price	Tracking Solar QF: Capacity Contribution	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	$/kW-yr	$/MWh		($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				= (a) * (c)	(d) *1000 / (42.8% x 8760 x 56%)	= (b) + (e)	= (b)
2020	Market Based Prices 2020 through 2030					$25.14	$18.58
2021						$30.46	$21.63
2022						$30.83	$21.90
2023						$31.73	$21.68
2024						$32.52	$20.32
2025						$33.35	$20.69
2026						$36.29	$24.60
2027						$40.37	$26.36
2028						$42.40	$27.73
2029						$46.32	$29.78
2030	$143.51	$33.27	64.80%	$93.00	$44.26	$76.68	$32.42
2031	$146.58	$34.62	64.80%	$94.99	$45.21	$78.95	$33.75
2032	$149.66	$35.97	64.80%	96.98	$46.15	$81.23	$35.08
2033	$152.77	$37.32	64.80%	99.00	$47.11	$83.53	$36.41
2034	$155.92	$39.02	64.80%	101.04	$48.09	$86.17	$38.09
2035	$159.11	$40.65	64.80%	103.11	$49.07	$88.77	$39.70
2036	$162.36	$42.01	64.80%	105.21	$50.07	$91.11	$41.04
2037	$165.64	$44.46	64.80%	107.34	$51.08	$94.55	$43.47
2038	$168.95	$46.37	64.80%	109.48	$52.10	$97.46	$45.36

(1) The avoided cost price is reduced by a solar integration charge of $0.60/MWh ($2016) for solar QF resources located in PacifiCorp's Balancing Area Authority (BAA) (in-system). If QF solar resource is not in PacifiCorp's BAA, prices will be increased by the $0.60/MWh ($2016) integration charges.

(2) Solar Integration ($0.60 (2017 IRP Volume II-Appendix F)

Columns
- (a) Full fixed cost of a proxy CCCT less capitalized energy
- (b) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (c) Peak Capacity Contribution values for renewables (% of nameplate capacity), 2017 IRP
- (d) Column (c) multiplied by the capacity contribution of a Standard Tracking Solar QF
- (e) 42.8% is the on-peak capacity factor of the Tracking Solar QF Resource
  56% is the percent of all hours that are on-peak
- (f) 2020-2029 On-Peak Blended Market Prices for QF resource
- (g) 2020-2029 Off-Peak Blended Market Prices for QF resource

Tracking Solar Capacity Contribution 64.8%

Exhibit 5

Renewable Standard Avoided Cost Prices for Base Load QF(1)
$/MWH

	Renewable Wind Avoided Resource		Renewable Base Load QF Resource				
Year	On-Peak	Off-Peak	Avoided Firm Capacity Costs	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	($/MWh)	($/MWh)	$/kW-yr	($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				(c) x 84%	(d) *1000 / (100.0%x 8760 x 56%)	= (a) + (e)	= (b)
2020						$25.79	$19.23
2021	$19.81	$13.81	$117.10	$98.60	$20.08	$40.51	$14.43
2022	$19.91	$14.67	$120.05	$101.08	$20.59	$41.13	$15.30
2023	$20.75	$14.57	$122.90	$103.48	$21.08	$42.48	$15.22
2024	$21.55	$14.45	$125.77	$105.90	$21.57	$43.79	$15.12
2025	$22.11	$14.75	$128.69	$108.36	$22.07	$44.86	$15.43
2026	$22.78	$14.87	$131.62	$110.82	$22.57	$46.04	$15.56
2027	$23.46	$14.99	$134.52	$113.27	$23.07	$47.24	$15.70
2028	$23.80	$15.58	$137.44	$115.72	$23.57	$48.10	$16.31
2029	$24.39	$15.77	$140.44	$118.25	$24.09	$49.23	$16.52
2030	$25.01	$15.92	$143.51	$120.84	$24.61	$50.39	$16.69
2031	$25.55	$16.34	$146.58	$123.42	$25.14	$51.48	$17.13
2032	$25.77	$17.08	$149.66	$126.01	$25.67	$52.25	$17.89
2033	$26.07	$17.75	$152.77	$128.63	$26.20	$53.10	$18.58
2034	$26.42	$18.40	$155.92	$131.28	$26.74	$54.01	$19.25
2035	$26.81	$18.92	$159.11	$133.97	$27.29	$54.97	$19.79
2036	$27.36	$19.28	$162.36	$136.71	$27.85	$56.10	$20.17
2037	$27.83	$19.77	$165.64	$146.13	$29.77	$58.51	$20.68
2038	$28.31	$20.29	$168.95	$149.05	$30.36	$59.60	$21.22

Columns
- (a) Table 13 Column (d)
- (b) Table 13 Column (e)
- (c) Full fixed cost of a proxy CCCT less capitalized energy
- (d) Column (c) multiplied by difference between capacity contributions of renewable Base Load QF and renewable proxy wind resource
- (e) 100.0% is the on-peak capacity factor of the Proxy CCCT Resource
  56% is the percent of all hours that are on-peak
- (f) 2019-2020 On-Peak Blended Market Prices for QF resource
- (g) 2019-2020 Off-Peak Blended Market Prices for QF resource

(1) The renewable avoided cost prices during the deficiency period are increased by the avoided integration charge

Exhibit 6
Renewable Standard Avoided Cost Prices for Wind QF (1) (2) (3)
$/MWH

Year	Renewable Wind Avoided Resource On-Peak	Renewable Wind Avoided Resource Off-Peak	Wind QF Resource Avoided Firm Capacity Costs	Wind QF Resource QF Capacity Adder	Wind QF Resource Capacity Adder Allocated to On-Peak Hours	Wind QF Resource On-Peak	Wind QF Resource Off-Peak
	($/MWh)	($/MWh)	$/kW-yr	($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				(c) x -4%	(d) *1000 / (39.3%x 8760 x 56%)	= (a) + (e)	= (b)
2020						$25.18	$18.62
2021	$19.81	$13.81	$117.10	($4.71)	($2.44)	$17.37	$13.81
2022	$19.91	$14.67	$120.05	($4.83)	($2.50)	$17.41	$14.67
2023	$20.75	$14.57	$122.90	($4.94)	($2.56)	$18.19	$14.57
2024	$21.55	$14.45	$125.77	($5.06)	($2.62)	$18.93	$14.45
2025	$22.11	$14.75	$128.69	($5.18)	($2.68)	$19.43	$14.75
2026	$22.78	$14.87	$131.62	($5.30)	($2.74)	$20.04	$14.87
2027	$23.46	$14.99	$134.52	($5.41)	($2.81)	$20.65	$14.99
2028	$23.80	$15.58	$137.44	($5.53)	($2.87)	$20.93	$15.58
2029	$24.39	$15.77	$140.44	($5.65)	($2.93)	$21.46	$15.77
2030	$25.01	$15.92	$143.51	($5.77)	($2.99)	$22.02	$15.92
2031	$25.55	$16.34	$146.58	($5.90)	($3.06)	$22.49	$16.34
2032	$25.77	$17.08	$149.66	($6.02)	($3.12)	$22.65	$17.08
2033	$26.07	$17.75	$152.77	($6.15)	($3.19)	$22.88	$17.75
2034	$26.42	$18.40	$155.92	($6.27)	($3.25)	$23.17	$18.40
2035	$26.81	$18.92	$159.11	($6.40)	($3.32)	$23.49	$18.92
2036	$27.36	$19.28	$162.36	($6.53)	($3.39)	$23.97	$19.28
2037	$27.83	$19.77	$165.64	($6.66)	($3.45)	$24.38	$19.77
2038	$28.31	$20.29	$168.95	($6.80)	($3.52)	$24.79	$20.29

(1) During the deficiency period, avoided cost prices will be adjusted by the difference between the avoided integration costs and QF's integration costs. If the QF is in PacifiCorp's Balancing Area Authority (BAA), the adjustment is zero (integration costs cancel each other out).
If QF wind resource is not in PacifiCorp's BAA, $0.57/MWh ($2016) will be added for avoided integration charges.

(2) During the sufficiency period, avoided cost prices are reduced by an integration charge of $0.57/MWh ($2016) for wind QF resources located in PacifiCorp's BAA (in-system).
If QF wind resource is not in PacifiCorp's BAA, prices will be increased by the $0.57/MWh ($2016) integration charges.

(3) Wind Integration Charge is $0.57 (2017 IRP Volume II-Appendix F)

Columns
(a) Table 13 Column (d)
(b) Table 13 Column (e)
(c) Full fixed cost of a proxy CCCT less capitalized energy
(d) Column (c) multiplied by difference between capacity contributions of renewable Wind QF and renewable proxy wind resource
(e) 39.3% is the on-peak capacity factor of the Wind QF resource
56% is the percent of all hours that are on-peak
(f) 2020 On-Peak Blended Market Prices for QF resource
(g) 2020 Off-Peak Blended Market Prices for QF resource

Exhibit 7

Renewable Standard Avoided Cost Prices for Fixed Solar QF (1)
$/MWH

	Renewable Wind Avoided Resource		Fixed Solar QF Resource			Fixed Solar QF	
Year	On-Peak	Off-Peak	Avoided Firm Capacity Costs	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	($/MWh)	($/MWh)	$/kW-yr	($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				(c) x 38.1%	(d) *1000 / (37.3%x 8760 x 56%)	= (a) + (e)	= (b)
2020						$25.14	$18.58
2021	$19.81	$13.81	$117.10	$44.57	$24.32	$44.08	$13.76
2022	$19.91	$14.67	$120.05	$45.69	$24.94	$44.79	$14.61
2023	$20.75	$14.57	$122.90	$46.78	$25.53	$46.22	$14.51
2024	$21.55	$14.45	$125.77	$47.87	$26.12	$47.61	$14.39
2025	$22.11	$14.75	$128.69	$48.98	$26.73	$48.77	$14.68
2026	$22.78	$14.87	$131.62	$50.10	$27.34	$50.04	$14.79
2027	$23.46	$14.99	$134.52	$51.20	$27.94	$51.32	$14.91
2028	$23.80	$15.58	$137.44	$52.31	$28.55	$52.27	$15.50
2029	$24.39	$15.77	$140.44	$53.45	$29.17	$53.48	$15.69
2030	$25.01	$15.92	$143.51	$54.62	$29.81	$54.74	$15.84
2031	$25.55	$16.34	$146.58	$55.79	$30.45	$55.92	$16.26
2032	$25.77	$17.08	$149.66	$56.96	$31.09	$56.78	$17.00
2033	$26.07	$17.75	$152.77	$58.15	$31.73	$57.72	$17.67
2034	$26.42	$18.40	$155.92	$59.35	$32.39	$58.73	$18.32
2035	$26.81	$18.92	$159.11	$60.56	$33.05	$59.78	$18.84
2036	$27.36	$19.28	$162.36	$61.80	$33.72	$61.00	$19.20
2037	$27.83	$19.77	$165.64	$63.04	$34.40	$62.15	$19.69
2038	$28.31	$20.29	$168.95	$64.30	$35.09	$63.32	$20.21

Columns
- (a) Table 13 Column (d)
- (b) Table 13 Column (e)
- (c) Full fixed cost of a proxy CCCT less capitalized energy
- (d) Column (c) multiplied by difference between capacity contributions of Fixed Solar QF and renewable proxy wind resource.
- (e) 37.3% is the on-peak capacity factor of the Fixed Solar QF resource
  56% is the percent of all hours that are on-peak
- (f) 2020 On-Peak Blended Market Prices for QF resource
- (g) 2020 Off-Peak Blended Market Prices for QF resource

(1) Adjustment for integration costs:
During Renewable Sufficiency period, the prices are decreased by Solar integration charges
During Renewable Deficiency Period, the prices are decreased by the difference in Wind and Solar integration charge

Exhibit 8

Renewable Standard Avoided Cost Prices for Tracking Solar QF (1)
$/MWH

Year	Renewable Wind Avoided Resource		Tracking Solar QF Resource			Tracking Solar QF	
	On-Peak	Off-Peak	Avoided Firm Capacity Costs	QF Capacity Adder	Capacity Adder Allocated to On-Peak Hours	On-Peak	Off-Peak
	($/MWh)	($/MWh)	$/kW-yr	($/kW-yr)	($/MWh)	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				(c) x 49.0%	(d) *1000 / (42.8%x 8760 x 56%)	= (a) + (e)	= (b)
2020						$25.14	$18.58
2021	$19.81	$13.81	$117.10	$57.38	$27.31	$47.07	$13.76
2022	$19.91	$14.67	$120.05	$58.83	$28.00	$47.85	$14.61
2023	$20.75	$14.57	$122.90	$60.22	$28.66	$49.35	$14.51
2024	$21.55	$14.45	$125.77	$61.63	$29.33	$50.82	$14.39
2025	$22.11	$14.75	$128.69	$63.06	$30.01	$52.05	$14.68
2026	$22.78	$14.87	$131.62	$64.50	$30.69	$53.39	$14.79
2027	$23.46	$14.99	$134.52	$65.92	$31.37	$54.75	$14.91
2028	$23.80	$15.58	$137.44	$67.35	$32.05	$55.77	$15.50
2029	$24.39	$15.77	$140.44	$68.82	$32.75	$57.06	$15.69
2030	$25.01	$15.92	$143.51	$70.32	$33.47	$58.40	$15.84
2031	$25.55	$16.34	$146.58	$71.83	$34.18	$59.65	$16.26
2032	$25.77	$17.08	$149.66	$73.34	$34.90	$60.59	$17.00
2033	$26.07	$17.75	$152.77	$74.86	$35.63	$61.62	$17.67
2034	$26.42	$18.40	$155.92	$76.41	$36.36	$62.70	$18.32
2035	$26.81	$18.92	$159.11	$77.97	$37.11	$63.84	$18.84
2036	$27.36	$19.28	$162.36	$79.56	$37.86	$65.14	$19.20
2037	$27.83	$19.77	$165.64	$81.17	$38.63	$66.38	$19.69
2038	$28.31	$20.29	$168.95	$82.79	$39.40	$67.63	$20.21

Columns

(a) Table 13 Column (d)
(b) Table 13 Column (e)
(c) Full fixed cost of a proxy CCCT less capitalized energy
(d) Column (c) multiplied by difference between capacity contribution of Tracking Solar QF and renewable proxy wind resource.
(e) 42.8% is the on-peak capacity factor of the Tracking Solar QF Resource
56% is the percent of all hours that are on-peak
(f) 2020 On-Peak Blended Market Prices for QF resource
(g) 2020 Off-Peak Blended Market Prices for QF resource

(1) Adjustment for integration costs:
During Renewable Sufficiency period, the prices are decreased by Solar integration charges
During Renewable Deficiency Period, the prices are decreased by the difference in Wind and Solar integration charge

Exhibit 9
Market Price - Blending Matrix (1)

	On-Peak				Off-Peak			
Period	COB	Mid Columbia	Palo Verde	Total	COB	Mid Columbia	Palo Verde	Total
1/1/2020	0.0%	68.2%	31.8%	100.0%	0.0%	82.4%	17.6%	100.0%
2/1/2020	7.6%	74.2%	18.1%	100.0%	6.5%	92.5%	1.0%	100.0%
3/1/2020	0.0%	74.3%	25.7%	100.0%	4.9%	92.6%	2.5%	100.0%
4/1/2020	2.8%	77.9%	19.3%	100.0%	1.7%	65.3%	33.0%	100.0%
5/1/2020	56.7%	26.3%	17.0%	100.0%	60.5%	39.5%	0.0%	100.0%
6/1/2020	35.4%	64.6%	0.0%	100.0%	62.2%	37.8%	0.0%	100.0%
7/1/2020	19.3%	71.6%	9.0%	100.0%	14.6%	84.0%	1.4%	100.0%
8/1/2020	15.0%	81.9%	3.1%	100.0%	4.5%	86.5%	9.0%	100.0%
9/1/2020	10.0%	89.6%	0.5%	100.0%	0.0%	35.0%	65.0%	100.0%
10/1/2020	0.0%	50.9%	49.1%	100.0%	0.0%	0.0%	100.0%	100.0%
11/1/2020	0.0%	4.0%	96.0%	100.0%	0.0%	0.0%	100.0%	100.0%
12/1/2020	0.0%	44.9%	55.1%	100.0%	0.0%	0.0%	100.0%	100.0%
1/1/2021	0.0%	68.0%	32.0%	100.0%	0.0%	27.4%	72.6%	100.0%
2/1/2021	0.0%	43.0%	57.0%	100.0%	0.0%	0.0%	100.0%	100.0%
3/1/2021	0.0%	26.6%	73.4%	100.0%	6.0%	77.0%	17.0%	100.0%
4/1/2021	5.5%	51.6%	43.0%	100.0%	0.0%	94.4%	5.6%	100.0%
5/1/2021	0.0%	73.1%	26.9%	100.0%	33.3%	66.7%	0.0%	100.0%
6/1/2021	7.2%	92.8%	0.0%	100.0%	63.1%	36.9%	0.0%	100.0%
7/1/2021	10.7%	83.6%	5.7%	100.0%	4.7%	95.3%	0.0%	100.0%
8/1/2021	7.9%	89.5%	2.6%	100.0%	0.0%	93.7%	6.3%	100.0%
9/1/2021	5.2%	82.8%	12.0%	100.0%	0.0%	100.0%	0.0%	100.0%
10/1/2021	0.0%	8.4%	91.6%	100.0%	0.0%	0.0%	100.0%	100.0%
11/1/2021	0.0%	5.2%	94.8%	100.0%	0.0%	0.0%	100.0%	100.0%
12/1/2021	0.0%	58.1%	41.9%	100.0%	0.0%	18.0%	82.0%	100.0%
1/1/2022	0.0%	75.1%	24.9%	100.0%	0.0%	31.3%	68.7%	100.0%
2/1/2022	0.0%	51.6%	48.4%	100.0%	0.0%	0.9%	99.1%	100.0%
3/1/2022	0.0%	22.3%	77.7%	100.0%	2.8%	77.4%	19.8%	100.0%
4/1/2022	0.9%	50.3%	48.8%	100.0%	0.0%	90.6%	9.4%	100.0%
5/1/2022	0.0%	75.8%	24.2%	100.0%	33.0%	66.9%	0.1%	100.0%
6/1/2022	2.8%	97.2%	0.0%	100.0%	37.9%	62.1%	0.0%	100.0%
7/1/2022	7.6%	86.4%	6.0%	100.0%	14.3%	85.7%	0.0%	100.0%
8/1/2022	7.0%	88.0%	5.0%	100.0%	0.0%	87.3%	12.7%	100.0%
9/1/2022	6.5%	80.4%	13.1%	100.0%	0.0%	25.6%	74.4%	100.0%
10/1/2022	0.0%	9.1%	90.9%	100.0%	0.0%	0.0%	100.0%	100.0%
11/1/2022	0.0%	6.7%	93.3%	100.0%	0.0%	0.0%	100.0%	100.0%
12/1/2022	0.0%	56.3%	43.7%	100.0%	0.0%	5.9%	94.1%	100.0%
1/1/2023	0.0%	89.7%	10.3%	100.0%	0.0%	47.8%	52.2%	100.0%
2/1/2023	0.0%	58.8%	41.2%	100.0%	0.0%	29.8%	70.2%	100.0%
3/1/2023	0.8%	44.9%	54.3%	100.0%	1.9%	85.5%	12.6%	100.0%
4/1/2023	0.0%	38.1%	61.9%	100.0%	0.0%	23.3%	76.7%	100.0%
5/1/2023	8.8%	72.2%	19.0%	100.0%	36.9%	63.1%	0.0%	100.0%
6/1/2023	2.9%	97.1%	0.0%	100.0%	5.9%	94.1%	0.0%	100.0%
7/1/2023	14.2%	78.3%	7.5%	100.0%	0.0%	100.0%	0.0%	100.0%
8/1/2023	5.2%	89.5%	5.4%	100.0%	0.0%	100.0%	0.0%	100.0%
9/1/2023	6.7%	69.2%	24.0%	100.0%	0.0%	100.0%	0.0%	100.0%
10/1/2023	0.0%	18.6%	81.4%	100.0%	0.0%	0.0%	100.0%	100.0%
11/1/2023	0.0%	7.8%	92.2%	100.0%	0.0%	0.0%	100.0%	100.0%
12/1/2023	0.0%	55.5%	44.5%	100.0%	0.0%	5.5%	94.5%	100.0%
1/1/2024	0.0%	87.3%	12.7%	100.0%	0.0%	0.0%	100.0%	100.0%
2/1/2024	15.2%	48.6%	36.2%	100.0%	7.0%	62.1%	30.9%	100.0%
3/1/2024	0.0%	39.1%	60.9%	100.0%	1.1%	87.3%	11.5%	100.0%
4/1/2024	0.0%	29.7%	70.3%	100.0%	0.0%	91.7%	8.3%	100.0%
5/1/2024	46.4%	53.6%	0.0%	100.0%	52.7%	47.3%	0.0%	100.0%
6/1/2024	51.9%	34.0%	14.2%	100.0%	8.8%	91.2%	0.0%	100.0%
7/1/2024	3.8%	89.8%	6.4%	100.0%	34.6%	65.4%	0.0%	100.0%
8/1/2024	2.2%	94.4%	3.4%	100.0%	17.8%	82.2%	0.0%	100.0%
9/1/2024	2.3%	74.5%	23.2%	100.0%	0.0%	0.0%	0.0%	0.0%
10/1/2024	0.0%	78.2%	21.8%	100.0%	0.0%	0.0%	100.0%	100.0%
11/1/2024	0.0%	39.8%	60.2%	100.0%	13.6%	42.8%	43.6%	100.0%
12/1/2024	0.0%	63.1%	36.9%	100.0%	0.0%	55.7%	44.3%	100.0%

	On-Peak				Off-Peak			
Period	COB	Mid Columbia	Palo Verde	Total	COB	Mid Columbia	Palo Verde	Total
1/1/2025	0.0%	84.8%	15.2%	100.0%	0.0%	0.0%	100.0%	100.0%
2/1/2025	52.2%	4.2%	43.6%	100.0%	39.7%	60.3%	0.0%	100.0%
3/1/2025	24.1%	30.7%	45.1%	100.0%	6.7%	93.3%	0.0%	100.0%
4/1/2025	10.3%	25.6%	64.2%	100.0%	24.8%	75.2%	0.0%	100.0%
5/1/2025	61.1%	38.9%	0.0%	100.0%	46.0%	54.0%	0.0%	100.0%
6/1/2025	72.2%	27.8%	0.0%	100.0%	9.7%	90.3%	0.0%	100.0%
7/1/2025	36.2%	59.1%	4.7%	100.0%	50.1%	49.9%	0.0%	100.0%
8/1/2025	7.5%	89.6%	2.9%	100.0%	4.1%	95.9%	0.0%	100.0%
9/1/2025	52.8%	18.1%	29.1%	100.0%	0.0%	100.0%	0.0%	100.0%
10/1/2025	0.0%	61.8%	38.2%	100.0%	0.0%	0.0%	0.0%	0.0%
11/1/2025	0.0%	45.7%	54.3%	100.0%	0.0%	100.0%	0.0%	100.0%
12/1/2025	0.0%	83.1%	16.9%	100.0%	7.0%	34.9%	58.1%	100.0%
1/1/2026	0.0%	54.6%	45.4%	100.0%	0.0%	32.7%	67.3%	100.0%
2/1/2026	30.9%	15.8%	53.3%	100.0%	16.8%	39.2%	43.9%	100.0%
3/1/2026	25.8%	28.3%	45.9%	100.0%	12.0%	79.4%	8.6%	100.0%
4/1/2026	18.1%	29.8%	52.1%	100.0%	19.9%	80.1%	0.0%	100.0%
5/1/2026	65.5%	34.5%	0.0%	100.0%	41.2%	58.8%	0.0%	100.0%
6/1/2026	55.4%	44.6%	0.0%	100.0%	2.8%	97.2%	0.0%	100.0%
7/1/2026	8.4%	83.6%	8.0%	100.0%	38.5%	61.5%	0.0%	100.0%
8/1/2026	8.6%	89.5%	1.9%	100.0%	13.8%	86.2%	0.0%	100.0%
9/1/2026	9.6%	82.3%	8.1%	100.0%	0.0%	100.0%	0.0%	100.0%
10/1/2026	0.0%	62.9%	37.1%	100.0%	35.9%	0.0%	64.1%	100.0%
11/1/2026	0.0%	59.8%	40.2%	100.0%	50.0%	50.0%	0.0%	100.0%
12/1/2026	0.0%	75.2%	24.8%	100.0%	0.0%	34.9%	65.1%	100.0%
1/1/2027	0.0%	67.9%	32.1%	100.0%	0.0%	49.3%	50.7%	100.0%
2/1/2027	44.3%	9.4%	46.4%	100.0%	11.8%	82.3%	6.0%	100.0%
3/1/2027	26.3%	29.8%	43.9%	100.0%	12.5%	75.4%	12.2%	100.0%
4/1/2027	12.0%	44.0%	44.0%	100.0%	22.6%	77.4%	0.0%	100.0%
5/1/2027	67.9%	32.1%	0.0%	100.0%	33.5%	66.5%	0.0%	100.0%
6/1/2027	62.8%	37.2%	0.0%	100.0%	5.7%	94.3%	0.0%	100.0%
7/1/2027	13.3%	84.1%	2.6%	100.0%	44.7%	55.3%	0.0%	100.0%
8/1/2027	6.1%	92.6%	1.3%	100.0%	7.7%	92.3%	0.0%	100.0%
9/1/2027	42.9%	45.4%	11.7%	100.0%	0.0%	100.0%	0.0%	100.0%
10/1/2027	13.1%	52.3%	34.6%	100.0%	80.0%	20.0%	0.0%	100.0%
11/1/2027	0.0%	57.2%	42.8%	100.0%	55.6%	0.0%	44.4%	100.0%
12/1/2027	0.0%	70.7%	29.3%	100.0%	0.0%	50.0%	50.0%	100.0%
1/1/2028	3.3%	70.3%	26.4%	100.0%	16.4%	71.8%	11.8%	100.0%
2/1/2028	13.9%	52.3%	33.8%	100.0%	26.8%	65.1%	8.1%	100.0%
3/1/2028	25.8%	51.5%	22.7%	100.0%	25.1%	63.8%	11.1%	100.0%
4/1/2028	24.0%	60.6%	15.5%	100.0%	28.0%	72.0%	0.0%	100.0%
5/1/2028	41.4%	58.6%	0.0%	100.0%	27.9%	72.1%	0.0%	100.0%
6/1/2028	43.7%	56.3%	0.0%	100.0%	15.3%	84.7%	0.0%	100.0%
7/1/2028	25.6%	65.3%	9.1%	100.0%	18.2%	79.7%	2.1%	100.0%
8/1/2028	27.4%	68.2%	4.4%	100.0%	5.7%	94.3%	0.0%	100.0%
9/1/2028	12.1%	71.3%	16.6%	100.0%	51.7%	48.3%	0.0%	100.0%
10/1/2028	10.7%	58.2%	31.1%	100.0%	34.6%	59.7%	5.7%	100.0%
11/1/2028	3.6%	68.0%	28.4%	100.0%	61.3%	38.7%	0.0%	100.0%
12/1/2028	1.5%	60.2%	38.3%	100.0%	20.9%	65.9%	13.2%	100.0%
1/1/2029	2.8%	87.5%	9.7%	100.0%	26.3%	67.8%	5.9%	100.0%
2/1/2029	20.7%	49.9%	29.4%	100.0%	14.4%	85.3%	0.3%	100.0%
3/1/2029	31.0%	45.4%	23.7%	100.0%	28.9%	59.4%	11.6%	100.0%
4/1/2029	24.1%	57.4%	18.5%	100.0%	26.8%	73.2%	0.0%	100.0%
5/1/2029	59.2%	40.8%	0.0%	100.0%	26.6%	73.4%	0.0%	100.0%
6/1/2029	60.3%	39.7%	0.0%	100.0%	36.1%	63.9%	0.0%	100.0%
7/1/2029	17.1%	75.2%	7.7%	100.0%	16.6%	82.2%	1.2%	100.0%
8/1/2029	20.0%	73.4%	6.6%	100.0%	16.0%	84.0%	0.0%	100.0%
9/1/2029	6.8%	76.4%	16.8%	100.0%	43.1%	56.9%	0.0%	100.0%
10/1/2029	10.0%	63.2%	26.8%	100.0%	29.7%	68.7%	1.6%	100.0%
11/1/2029	12.6%	76.4%	10.9%	100.0%	26.3%	68.1%	5.5%	100.0%
12/1/2029	0.1%	60.3%	39.6%	100.0%	28.8%	67.2%	4.0%	100.0%

(1) Blending weights are calculated using system balancing purchases and sales from GRID run using March 2020 Official Forward Price Curve

Table 1
2017 IRP Preferred Portfolio
Excerpt from 2017 IRP Table 8.17

		Capacity (MW)																				Resource Totals 1/	
	Resource	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-year	20-year
East	**Expansion Resources**																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	477	-	-	-	-	477
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	477	-	-	-	-	477
	SCCT Frame DJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	200
	SCCT Frame UTN	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	200
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	-	-	-	-	-	85
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	774	-	774
	Wind, WYAE	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,100	1,100
	Total Wind	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	85	-	-	-	-	774	1,100	1,959
	Utility Solar - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79	167	210	41	291	13	-	800
	DSM, Class 1 Total	-	-	-	-	-	-	-	-	-	-	-	123.8	90.5	4.8	-	3.4	3.1	3.7	3.1	11.6	-	243.8
	DSM, Class 2 Total	97	74	79	75	81	77	85	85	82	84	82	77	73	73	74	62	55	47	44	44	819	1,450
	FOT Mona - SMR	-	-	-	-	-	-	-	-	-	27	27	300	300	291	300	300	300	300	300	300	3	137
West	**Expansion Resources**																						
	CCCT - WillamValcc - G 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	436	-	-	-	-	-	-	-	436
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	436	-	-	-	-	-	-	-	436
	Utility Solar - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	11	97	-	38	70	16	8	-	-	-	240
	DSM, Class 1 Total	-	-	-	-	-	-	-	-	-	-	-	69.1	49.1	-	3.3	-	-	-	-	-	-	121.5
	DSM, Class 2 Total	57	53	52	46	42	37	33	33	29	27	27	25	23	23	22	21	20	19	19	18	410	627
	Geothermal, Greenfield - West	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	30
	FOT COB - SMR	-	-	3	-	-	41	-	10	167	76	137	400	400	400	400	400	400	400	400	364	30	200
	FOT MidColumbia - SMR	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
	FOT MidColumbia - SMR - 2	-	21	375	307	299	375	344	375	375	375	375	375	375	375	375	375	375	375	375	375	285	330
	FOT NOB - SMR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	FOT MidColumbia - WTR	281	332	273	307	-	308	-	287	295	-	-	-	400	41	390	351	-	377	4	291	208	197
	FOT MidColumbia - WTR2	-	-	-	-	319	-	306	-	-	297	289	312	51	375	-	-	337	-	375	375	92	152
	FOT NOB - WTR	-	-	-	-	-	-	-	-	53	54	8	100	100	100	100	100	100	100	100	100	11	51
	Existing Plant Retirements/Conversions	-	-	(257)	-	(387)	-	-	-	-	(82)	-	(762)	(354)	(357)	(78)	-	(717)	-	(82)	-		
	Annual Additions, Long Term Resources	154	128	131	122	1,223	114	118	118	112	111	109	306	563	536	303	323	980	117	356	861		
	Annual Additions, Short Term Resources	781	853	1,151	1,115	1,118	1,223	1,150	1,172	1,390	1,329	1,336	1,987	2,126	2,081	2,065	2,026	2,012	2,052	2,054	2,305		
	Total Annual Additions	935	981	1,282	1,236	2,341	1,337	1,268	1,289	1,501	1,440	1,445	2,293	2,688	2,618	2,368	2,349	2,992	2,169	2,411	3,166		

The 2017 IRP was prepared using a 13% planning reserve margin. See 2017 IRP, page 10.

Table 2
Avoided Costs ($/MWh)
Energy Prices

Year	Winter Season					Summer Season				Winter Season		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
On-Peak (HLH Market Purchase)												
2020	22.54	17.84	23.78	18.04	14.47	15.79	35.91	42.54	32.31	26.56	26.00	33.71
2021	35.52	30.64	22.20	19.25	18.21	17.67	45.81	50.47	45.32	25.63	25.93	36.95
2022	36.66	31.40	24.84	20.17	19.66	19.92	46.43	50.93	46.51	24.63	24.53	32.51
2023	36.86	31.81	25.80	22.25	19.84	21.78	47.30	52.05	40.63	29.32	28.24	33.39
2024	34.98	32.89	26.98	24.07	18.35	25.31	47.26	53.02	34.43	35.40	31.72	34.55
2025	33.28	32.98	27.79	25.98	19.56	25.57	51.23	55.61	34.80	33.51	32.70	36.19
2026	35.23	35.25	29.99	28.41	19.81	27.67	61.36	60.48	37.34	35.65	34.95	38.51
2027	36.53	36.96	30.54	28.94	21.18	30.23	72.80	76.60	40.87	40.63	37.09	41.50
2028	39.51	39.40	31.35	27.45	22.86	33.99	76.99	79.03	42.06	40.65	40.08	45.10
2029	43.77	42.90	33.62	31.84	23.96	30.81	78.67	103.58	46.56	43.05	39.88	47.22
2030	47.60	45.72	35.67	32.28	24.95	33.26	92.67	106.19	51.38	50.88	42.92	50.38
2031	48.66	48.01	37.02	34.54	25.43	36.95	101.53	104.65	53.48	48.27	45.77	54.89
2032	50.95	49.73	38.84	37.78	26.65	39.18	89.61	97.52	53.28	49.61	49.06	55.70
2033	50.66	50.04	38.17	34.36	27.32	40.68	86.54	91.76	53.13	58.57	51.45	58.45
2034	53.28	52.21	39.70	35.05	28.91	41.47	86.48	89.48	53.65	53.84	53.77	61.04
2035	58.03	56.73	41.06	37.50	30.01	38.57	82.36	102.67	58.19	55.33	51.36	61.71
2036	59.94	58.36	41.12	37.04	29.45	40.86	88.00	94.25	60.95	65.57	53.22	66.65
Off-Peak (LLH Market Purchase)												
2020	21.38	14.61	21.09	16.80	7.66	7.98	18.55	24.87	25.30	22.11	22.19	28.17
2021	30.03	25.98	19.79	15.70	12.06	10.82	21.64	25.73	24.79	24.61	24.22	32.17
2022	29.67	27.68	24.10	16.39	12.93	11.55	24.24	27.52	26.81	23.00	22.75	24.40
2023	25.47	23.03	21.47	17.82	13.46	13.25	21.53	26.27	26.44	26.39	26.08	27.48
2024	27.16	25.91	21.28	18.89	13.85	16.16	19.61	25.21	-	29.78	26.13	28.56
2025	31.29	25.31	20.14	17.01	15.44	18.14	21.01	27.39	26.58	-	24.63	30.38
2026	30.87	29.33	21.99	19.30	15.88	18.58	22.13	30.73	28.04	29.32	25.72	32.54
2027	31.42	28.12	23.45	19.88	17.76	20.02	24.96	35.25	31.70	28.55	30.67	33.97
2028	30.77	30.21	25.17	20.75	19.10	21.86	28.53	37.76	33.32	29.96	30.06	34.99
2029	32.79	31.91	27.31	23.74	20.24	22.61	31.04	41.45	38.33	30.90	30.96	36.03
2030	35.87	34.99	29.97	24.23	21.76	24.89	32.18	45.39	40.60	35.51	33.32	38.07
2031	36.05	36.00	29.20	25.67	22.33	25.70	33.84	48.11	41.61	34.50	35.74	40.27
2032	37.51	37.85	32.10	28.54	23.30	26.74	34.33	47.64	40.67	36.08	37.01	41.49
2033	39.80	38.96	31.52	28.70	24.28	27.58	37.18	46.78	41.23	41.55	38.87	43.31
2034	40.44	40.55	33.77	29.39	25.42	29.01	38.33	46.97	42.15	39.63	40.69	46.20
2035	42.63	43.20	36.49	32.33	26.32	29.79	39.48	50.94	45.82	40.73	40.38	46.49
2036	44.56	44.18	35.42	31.47	26.11	30.55	38.88	53.20	46.78	45.64	42.74	48.42

Combined

2020	22.04	16.45	22.62	17.50	11.54	12.43	28.44	34.95	29.30	24.65	24.36	31.33
2021	33.16	28.64	21.16	17.72	15.56	14.72	35.42	39.83	36.49	25.19	25.20	34.90
2022	33.66	29.80	24.52	18.54	16.76	16.32	36.89	40.87	38.04	23.93	23.76	29.02
2023	31.96	28.04	23.94	20.35	17.10	18.11	36.22	40.96	34.53	28.06	27.31	30.85
2024	31.62	29.89	24.53	21.84	16.41	21.38	35.37	41.06	19.63	32.98	29.32	31.97
2025	32.43	29.68	24.50	22.12	17.79	22.38	38.24	43.48	31.26	19.10	29.23	33.69
2026	33.36	32.70	26.55	24.49	18.12	23.76	44.49	47.69	33.34	32.93	30.98	35.95
2027	34.33	33.16	27.49	25.04	19.71	25.84	52.23	58.82	36.93	35.44	34.33	38.26
2028	35.75	35.45	28.70	24.57	21.25	28.77	56.15	61.28	38.30	36.05	35.77	40.75
2029	39.05	38.17	30.90	28.36	22.36	27.28	58.19	76.87	43.02	37.82	36.04	42.41
2030	42.56	41.11	33.22	28.82	23.58	29.66	66.66	80.05	46.75	44.27	38.80	45.09
2031	43.24	42.85	33.66	30.73	24.10	32.11	72.42	80.34	48.38	42.35	41.45	48.61
2032	45.17	44.63	35.94	33.81	25.21	33.83	65.84	76.07	47.86	43.79	43.88	49.59
2033	45.99	45.28	35.31	31.93	26.01	35.04	65.32	72.42	48.01	51.25	46.04	51.94
2034	47.76	47.19	37.15	32.62	27.41	36.11	65.78	71.20	48.71	47.73	48.14	54.66
2035	51.41	50.91	39.10	35.28	28.43	34.79	63.92	80.43	52.87	49.05	46.64	55.16
2036	53.33	52.26	38.67	34.64	28.01	36.43	66.88	76.60	54.86	57.00	48.71	58.81
2037	56.23	56.04	42.39	37.60	30.24	39.72	70.69	81.09	60.45	54.68	53.22	62.26

Annual Average

	On-Peak	Off-Peak	Combined
2020	$25.79	$19.23	$22.97
2021	$31.13	$22.30	$27.33
2022	$31.52	$22.59	$27.68
2023	$32.44	$22.39	$28.12
2024	$33.25	$21.05	$28.00
2025	$34.10	$21.44	$28.66
2026	$37.06	$25.37	$32.03
2027	$41.16	$27.15	$35.13
2028	$43.21	$28.54	$36.90
2029	$47.15	$30.61	$40.04
2030	$51.16	$33.07	$43.38
2031	$53.27	$34.09	$45.02
2032	$53.16	$35.27	$45.47
2033	$53.43	$36.65	$46.21
2034	$54.07	$37.71	$47.04
2035	$56.13	$39.55	$49.00
2036	$57.95	$40.66	$50.52

Source Offical Market Price Forecast dated March 2020
Blended Market Prices (Blending weights which are used to calculate blended prices are based
on system balancing purchases and sales from GRID run using March 2020 Official Forward Price Curve

Table 3
Capitalized Energy Costs

Year	Combined Cycle CT Fixed Costs ($/kW-yr)	Simple Cycle CT Fixed Costs ($/kW-yr)	Capitalized Energy Costs ($/kW-yr)	Capitalized Energy Costs 70.5% CF ($/MWh)
	(a)	(b)	(c)	(d)
			((a) - (b))	(c)/(8.760 x 70.5%)
2030	$200.13	$143.51	$56.62	$9.17
2031	$204.39	$146.58	$57.81	$9.36
2032	$208.67	$149.66	$59.01	$9.56
2033	$213.01	$152.77	$60.24	$9.75
2034	$217.41	$155.92	$61.49	$9.96
2035	$221.88	$159.11	$62.77	$10.16
2036	$226.39	$162.36	$64.03	$10.37
2037	$230.95	$165.64	$65.31	$10.58
2038	$235.57	$168.95	$66.62	$10.79
2039	$240.27	$172.33	$67.94	$11.00
2040	$245.07	$175.78	$69.29	$11.22

Columns

(a) Table 9 Column (f)

(b) Table 9 Column (f)

(c) and (d) Capitalized energy costs reflect the incremental fixed cost of CCCT versus a SCCT

Table 4
Total Standard Avoided Energy Cost

Year	Combined Cycle Gas Price ($/MMBtu)	Combined Cycle Energy Cost ($/MWh)	Capitalized Energy Costs 70.5% CF ($/MWh)	Total Standard Avoided Energy Cost ($/MWh)
	(a)	(b)	(c)	(d)
		(a) x 6.790		(b) + (c)
2030	$3.55	$24.10	$9.17	$33.27
2031	$3.72	$25.26	$9.36	$34.62
2032	$3.89	$26.41	$9.56	$35.97
2033	$4.06	$27.57	$9.75	$37.32
2034	$4.28	$29.06	$9.96	$39.02
2035	$4.49	$30.49	$10.16	$40.65
2036	$4.66	$31.64	$10.37	$42.01
2037	$4.99	$33.88	$10.58	$44.46
2038	$5.24	$35.58	$10.79	$46.37
2039	$5.58	$37.89	$11.00	$48.89
2040	$5.69	$38.64	$11.22	$49.85

Columns
- (a) Table 10
- (b) 6.790 MWh/MMBtu Heat Rate - Table 9
- (c) Table 3 Column (d)

Table 5
Total Standard Avoided Cost

Year	Avoided Firm Capacity Costs	Total Standard Avoided Energy Cost	Total Standard Avoided Costs At Stated Capacity Factor		
			75%	85%	90%
	($/kW-yr)	($/MWh)	($/MWh)	($/MWh)	($/MWh)
	(a)	(b)	(c)	(d)	(e)
			(b)+(a) x1000/(8760 x 0.75)	(b)+(a) x1000/(8760 x 0.85)	(b)+(a) x1000/(8760 x 0.9)
2030	$143.51	$33.27	$55.12	$52.55	$51.48
2031	$146.58	$34.62	$56.93	$54.31	$53.21
2032	$149.66	$35.97	$58.75	$56.07	$54.95
2033	$152.77	$37.32	$60.57	$57.84	$56.70
2034	$155.92	$39.02	$62.75	$59.96	$58.79
2035	$159.11	$40.65	$64.87	$62.02	$60.83
2036	$162.36	$42.01	$66.72	$63.81	$62.60
2037	$165.64	$44.46	$69.67	$66.70	$65.47
2038	$168.95	$46.37	$72.08	$69.06	$67.80
2039	$172.33	$48.89	$75.12	$72.03	$70.75
2040	$175.78	$49.85	$76.61	$73.46	$72.15

Columns
- (a) Table 3 Column (a) minus Column (c)
- (b) Table 4 Column (d)

Table 6
On- & Off- Peak Energy Prices

Year	Avoided Firm Capacity Costs	Capacity Cost Allocated to On-Peak Hours	Total Standard Avoided Energy Cost	On-Peak 4,909 Hours	Off-Peak 3,851 Hours
	($/kW-yr)	($/MWh)	($/MWh)	($/MWh)	($/MWh)
	(a)	(b)	(c)	(d)	(e)
		(a) *1000 / (100.0% x 8760 x 56%		(b) + (c)	(c)
2030	$143.51	$29.23	$33.27	$62.50	$33.27
2031	$146.58	$29.86	$34.62	$64.48	$34.62
2032	$149.66	$30.48	$35.97	$66.45	$35.97
2033	$152.77	$31.12	$37.32	$68.44	$37.32
2034	$155.92	$31.76	$39.02	$70.78	$39.02
2035	$159.11	$32.41	$40.65	$73.06	$40.65
2036	$162.36	$33.07	$42.01	$75.08	$42.01
2037	$165.64	$33.74	$44.46	$78.20	$44.46
2038	$168.95	$34.41	$46.37	$80.78	$46.37
2039	$172.33	$35.10	$48.89	$83.99	$48.89
2040	$175.78	$35.81	$49.85	$85.66	$49.85

Columns
- (a) Table 3 Column (a) minus Column (c)
- (b) Table 9 100.0% is the on-peak capacity factor of the Proxy CCCT Resource
- (d) 56% is the percent of all hours that are on-peak
- (c) Table 4 Column (d)

Table 3 (Renewable)
Capitalized Energy Costs

Year	Combined Cycle CT Fixed Costs ($/kW-yr)	Simple Cycle CT Fixed Costs ($/kW-yr)	Capitalized Energy Costs ($/kW-yr)	Capitalized Energy Costs 70.5% CF ($/MWh)
	(a)	(b)	(c) ((a) - (b))	(d) (c)/(8.760 x 70.5%)
2018	$151.52	$108.67	$42.85	$6.94
2019	$155.00	$111.16	$43.84	$7.10
2020	$159.12	$114.11	$45.01	$7.29
2021	$163.31	$117.10	$46.21	$7.48
2022	$167.42	$120.05	$47.37	$7.67
2023	$171.42	$122.90	$48.52	$7.86
2024	$175.43	$125.77	$49.66	$8.04
2025	$179.49	$128.69	$50.80	$8.23
2026	$183.58	$131.62	$51.96	$8.41
2027	$187.62	$134.52	$53.10	$8.60
2028	$191.68	$137.44	$54.24	$8.78
2029	$195.88	$140.44	$55.44	$8.98
2030	$200.13	$143.51	$56.62	$9.17
2031	$204.39	$146.58	$57.81	$9.36
2032	$208.67	$149.66	$59.01	$9.56
2033	$213.01	$152.77	$60.24	$9.75
2034	$217.41	$155.92	$61.49	$9.96
2035	$221.88	$159.11	$62.77	$10.16
2036	$226.39	$162.36	$64.03	$10.37
2037	$230.95	$165.64	$65.31	$10.58
2038	$235.57	$168.95	$66.62	$10.79
2039	$240.27	$172.33	$67.94	$11.00
2040	$245.07	$175.78	$69.29	$11.22

Columns
- (a) Table 9 Column (f)
- (b) Table 9 Column (f)
- (c) and (d) Capitalized energy costs reflect the incremental fixed cost of CCCT versus a SCCT

Table 4 (Renewable)
Avoided Capacity Costs

Year	Avoided Firm Capacity Costs ($/kW-yr)
	(a)
2018	$108.67
2019	$111.16
2020	$114.11
2021	$117.10
2022	$120.05
2023	$122.90
2024	$125.77
2025	$128.69
2026	$131.62
2027	$134.52
2028	$137.44
2029	$140.44
2030	$143.51
2031	$146.58
2032	$149.66
2033	$152.77
2034	$155.92
2035	$159.11
2036	$162.36
2037	$165.64
2038	$168.95
2039	$172.33
2040	$175.78

Columns
- (a) Table 3 (Renewable) Column (a) minus Column (c)

Table 7

Comparison between Proposed and Current Standard Fixed Avoided Costs

$/MWh

Year	Proposed Standard Base Load QF	Current Standard Base Load QF	Difference Standard Base Load QF	Proposed Standard Wind QF (2)	Current Standard Wind QF (2)	Difference Standard Wind QF (2)	Proposed Standard Fixed Solar QF	Current Standard Fixed Solar QF	Difference Standard Fixed Solar QF	Proposed Standard Tracking Solar QF	Current Standard Tracking Solar QF	Difference Standard Tracking Solar QF
2020	$22.91	$27.28	($4.38)	$22.42	$26.86	($4.43)	$24.10	$29.29	($5.19)	$24.05	$29.23	($5.18)
2021	$27.25	$28.41	($1.16)	$26.80	$27.94	($1.14)	$29.05	$29.89	($0.83)	$29.00	$29.84	($0.84)
2022	$27.59	$31.19	($3.60)	$27.14	$30.72	($3.58)	$29.41	$32.71	($3.30)	$29.35	$32.66	($3.31)
2023	$28.02	$33.56	($5.54)	$27.57	$33.07	($5.50)	$30.13	$35.13	($5.00)	$30.06	$35.08	($5.02)
2024	$27.89	$37.52	($9.63)	$27.46	$37.04	($9.58)	$30.58	$39.46	($8.88)	$30.50	$39.39	($8.90)
2025	$28.53	$40.29	($11.76)	$28.10	$39.81	($11.71)	$31.33	$42.39	($11.05)	$31.25	$42.32	($11.07)
2026	$31.92	$42.97	($11.05)	$31.46	$42.49	($11.03)	$34.43	$45.17	($10.74)	$34.35	$45.10	($10.75)
2027	$35.00	$42.88	($7.88)	$34.57	$42.37	($7.80)	$38.14	$44.93	($6.79)	$38.05	$44.87	($6.82)
2028	$36.76	$43.00	($6.24)	$36.32	$42.47	($6.15)	$40.06	$44.98	($4.92)	$39.97	$44.92	($4.95)
2029	$39.88	$46.57	($6.69)	$39.45	$46.02	($6.57)	$43.69	$48.70	($5.01)	$43.58	$48.63	($5.05)
2030	$49.65	$59.50	($9.85)	$37.58	$47.43	($9.85)	$67.89	$77.73	($9.85)	$69.34	$79.19	($9.85)
2031	$51.35	$62.22	($10.86)	$39.02	$49.88	($10.86)	$69.97	$80.84	($10.86)	$71.46	$82.32	($10.86)
2032	$53.05	$64.94	($11.88)	$40.46	$52.34	($11.88)	$72.06	$83.94	($11.88)	$73.58	$85.46	($11.88)
2033	$54.76	$67.66	($12.90)	$41.90	$54.80	($12.90)	$74.16	$87.06	($12.90)	$75.71	$88.61	($12.90)
2034	$56.82	$70.33	($13.51)	$43.69	$57.20	($13.51)	$76.62	$90.13	($13.51)	$78.20	$91.71	($13.51)
2035	$58.81	$68.66	($9.85)	$45.41	$55.26	($9.85)	$79.02	$88.87	($9.85)	$80.63	$90.48	($9.85)
2036	$60.54	$69.57	($9.03)	$46.87	$55.90	($9.03)	$81.16	$90.19	($9.03)	$82.81	$91.84	($9.03)
2037	$63.37	$72.53	($9.17)	$49.41	$58.58	($9.17)	$84.40	$93.57	($9.17)	$86.08	$95.24	($9.17)
2038	$65.65	$76.52	($10.86)	$51.42	$62.28	($10.86)	$87.11	$97.97	($10.86)	$88.82	$99.68	($10.86)

15 Year (2020 - 2034) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$35.03	$42.68	($7.65)	$31.80	$39.42	($7.62)	$41.22	$48.47	($7.25)	$41.51	$48.77	($7.26)

Notes: (1) Discount Rate - 2019 IRP. Levelized values are for informational purposes only.
(2) Avoided cost prices have been reduced by a wind and solar integration charges for QFs located in PacifiCorp's Balancing Area Authority (BAA) (in-system) .
If the QF resource is not in PacifiCorp's BAA, prices will be increased by the applicable integration charges

15 Year (2021 - 2035) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$37.31	$45.40	($8.09)	$33.37	$41.42	($8.06)	$44.60	$52.19	($7.58)	$44.98	$52.58	($7.59)

15 Year (2022 - 2036) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$39.34	$48.22	($8.89)	$34.62	$43.48	($8.85)	$47.77	$56.14	($8.38)	$48.25	$56.64	($8.39)

Table 8
Comparison between Proposed and Current Renewable Standard Fixed Avoided Costs
$/MWh

Year	Proposed Renewable Standard Base Load QF	Current Renewable Standard Base Load QF	Difference Renewable Standard Base Load QF	Proposed Renewable Standard Wind QF (2)	Current Renewable Standard Wind QF (2)	Difference Renewable Standard Wind QF (2)	Proposed Renewable Standard Fixed Solar QF	Current Renewable Standard Fixed Solar QF	Difference Renewable Standard Fixed Solar QF	Proposed Renewable Standard Tracking Solar QF	Current Renewable Standard Tracking Solar QF	Difference Renewable Standard Tracking Solar QF
2020	$22.91	$27.28	($4.38)	$22.42	$26.86	($4.43)	$24.10	$29.29	($5.19)	$24.05	$29.23	($5.18)
2021	$29.05	$29.05	$0.00	$15.87	$15.87	$0.00	$39.25	$39.28	($0.03)	$41.54	$41.57	($0.03)
2022	$29.78	$29.78	($0.00)	$16.26	$16.26	($0.01)	$39.98	$40.08	($0.10)	$42.33	$42.43	($0.09)
2023	$30.50	$30.50	($0.01)	$16.67	$16.65	$0.01	$41.17	$40.88	$0.29	$43.57	$43.29	$0.28
2024	$31.19	$31.21	($0.02)	$17.05	$17.03	$0.01	$42.32	$41.84	$0.48	$44.78	$44.31	$0.47
2025	$31.92	$31.93	($0.00)	$17.46	$17.42	$0.04	$43.34	$42.77	$0.57	$45.85	$45.29	$0.56
2026	$32.64	$32.64	$0.00	$17.87	$17.81	$0.05	$44.42	$43.68	$0.75	$46.99	$46.26	$0.73
2027	$33.38	$33.38	$0.00	$18.28	$18.21	$0.07	$45.52	$44.61	$0.91	$48.14	$47.25	$0.89
2028	$34.13	$34.12	$0.01	$18.69	$18.62	$0.07	$46.41	$45.57	$0.85	$49.09	$48.27	$0.83
2029	$34.85	$34.86	($0.01)	$19.07	$19.01	$0.06	$47.46	$46.55	$0.92	$50.20	$49.31	$0.89
2030	$35.58	$35.62	($0.04)	$19.46	$19.42	$0.03	$48.54	$47.54	$1.01	$51.34	$50.36	$0.98
2031	$36.38	$36.36	$0.02	$19.91	$19.81	$0.09	$49.60	$48.50	$1.10	$52.46	$51.38	$1.08
2032	$37.15	$37.15	($0.00)	$20.31	$20.24	$0.07	$50.44	$49.49	$0.95	$53.36	$52.43	$0.93
2033	$37.93	$37.92	$0.01	$20.73	$20.66	$0.07	$51.34	$50.47	$0.87	$54.33	$53.48	$0.85
2034	$38.73	$38.71	$0.02	$21.17	$21.09	$0.08	$52.29	$51.51	$0.78	$55.34	$54.58	$0.76
2035	$39.51	$39.50	$0.01	$21.57	$21.52	$0.05	$53.26	$52.63	$0.63	$56.37	$55.76	$0.61
2036	$40.30	$40.30	$0.00	$22.00	$21.96	$0.05	$54.35	$53.71	$0.63	$57.52	$56.91	$0.62
2037	$41.88	$41.12	$0.76	$22.44	$22.40	$0.04	$55.39	$54.80	$0.59	$58.63	$58.05	$0.58
2038	$42.73	$41.95	$0.78	$22.90	$22.85	$0.05	$56.46	$55.84	$0.61	$59.77	$59.17	$0.60

15 Year (2020 - 2034) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$31.97	$32.42	($0.45)	$18.50	$18.91	($0.42)	$42.65	$42.66	($0.01)	$44.98	$45.00	($0.02)

Notes: (1) Discount Rate - 2019 IRP. Levelized values are for informational purposes only.
(2) Avoided cost prices have been reduced by a wind and solar integration charges for QFs located in PacifiCorp's Balancing Area Authority (BAA) (in-system) .
If the QF resource is not in PacifiCorp's BAA, prices will be increased by the applicable integration charges

15 Year (2021 - 2035) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$33.27	$33.27	($0.00)	$18.19	$18.15	$0.04	$45.11	$44.52	$0.58	$47.73	$47.16	$0.57

15 Year (2021 - 2035) Nominal levelized Price at 6.920% Discount Rate (1)

$/MWh	$34.01	$34.01	($0.00)	$18.60	$18.55	$0.04	$46.12	$45.46	$0.65	$48.79	$48.16	$0.64

Table 9
Total Cost of Displaceable Resources

Year	Estimated Capital Cost $/kW	Capital Cost at Real Levelized Rate $/kW-yr	Fixed O&M $/kW-yr	Variable O&M $/MWh	Total O&M at Expected CF $/kW-yr	Total Resource Fixed Costs $/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)
194 MW - SCCT Frame "F" x1 - East Side Resource (5,050')						
2018	$843	$58.66	$30.90	$6.61	$50.01	$108.67
2019		$60.01	$31.61	$6.76	$51.15	$111.16
2020		$61.60	$32.45	$6.94	$52.51	$114.11
2021		$63.22	$33.30	$7.12	$53.88	$117.10
2022		$64.81	$34.14	$7.30	$55.24	$120.05
2023		$66.36	$34.95	$7.47	$56.54	$122.90
2024		$67.91	$35.77	$7.64	$57.86	$125.77
2025		$69.48	$36.60	$7.82	$59.21	$128.69
2026		$71.06	$37.43	$8.00	$60.56	$131.62
2027		$72.62	$38.25	$8.18	$61.90	$134.52
2028		$74.19	$39.08	$8.36	$63.25	$137.44
2029		$75.81	$39.94	$8.54	$64.63	$140.44
2030		$77.46	$40.81	$8.73	$66.05	$143.51
2031		$79.11	$41.68	$8.92	$67.47	$146.58
2032		$80.77	$42.55	$9.11	$68.89	$149.66
2033		$82.45	$43.44	$9.30	$70.32	$152.77
2034		$84.15	$44.34	$9.49	$71.77	$155.92
2035		$85.88	$45.25	$9.68	$73.23	$159.11
2036		$87.63	$46.17	$9.88	$74.73	$162.36
2037		$89.40	$47.10	$10.08	$76.24	$165.64
2038		$91.19	$48.04	$10.28	$77.76	$168.95
2039		$93.01	$49.00	$10.49	$79.32	$172.33
2040		$94.87	$49.98	$10.70	$80.91	$175.78

Source: (a)(c)(d) Plant Costs - 2019 IRP - Table 6.1 & 6.2
(b) = (a) x Payment Factor
(e) = (d) x (8.76 x 33%) + (c)
(f) = (b) + (e)

		194 MW - SCCT Frame "F" x1 - East Side Resource (5,050')	
	194	MW Plant capacity	MW
2018 $	$843	Plant capacity cost	$/kW
2018 $	$15.97	Fixed O&M & Capitalized O&M	$/kW-yr
2018 $	$14.93	Fixed Pipeline	$/kW-yr
2018 $	$30.90	Fixed O&M Including Fixed Pipeline & Capitalized	$/kW-yr
2018 $	$6.61	Variable O&M and Other Costs	$/MWH
	6.959%	Payment Factor	
	33%	Capacity Factor	

Table 9
Total Cost of Displaceable Resources

Year	Estimated Capital Cost	Capital Cost at Real Levelized Rate	Fixed O&M	Variable O&M	Total O&M at Expected CF	Total Resource Fixed Costs	Fuel Cost	IRP Resource Energy Cost	Total Avoided Costs
	$/kW	$/kW-yr	$/kW-yr	$/MWh	$/kW-yr	$/kW-yr	$/MMBtu	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
447 MW - CCCT Dry "G/H", 1x1 - West Side Resource (1,500')									
2018	$1,429	$97.03	$43.19	$1.83	$54.49	$151.52			
2019		$99.26	$44.18	$1.87	$55.74	$155.00			
2020		$101.90	$45.35	$1.92	$57.22	$159.12			
2021		$104.58	$46.54	$1.97	$58.73	$163.31			
2022		$107.21	$47.71	$2.02	$60.21	$167.42			
2023		$109.77	$48.85	$2.07	$61.65	$171.42			
2024		$112.34	$49.99	$2.12	$63.09	$175.43			
2025		$114.94	$51.15	$2.17	$64.55	$179.49			
2026		$117.56	$52.31	$2.22	$66.02	$183.58			
2027		$120.15	$53.46	$2.27	$67.47	$187.62			
2028		$122.75	$54.62	$2.32	$68.93	$191.68			
2029		$125.44	$55.82	$2.37	$70.44	$195.88			
2030		$128.16	$57.03	$2.42	$71.97	$200.13	$3.55	$24.10	$56.51
2031		$130.89	$58.24	$2.47	$73.50	$204.39	$3.72	$25.26	$58.36
2032		$133.63	$59.46	$2.52	$75.04	$208.67	$3.89	$26.41	$60.20
2033		$136.41	$60.70	$2.57	$76.60	$213.01	$4.06	$27.57	$62.06
2034		$139.23	$61.95	$2.62	$78.18	$217.41	$4.28	$29.06	$64.26
2035		$142.09	$63.22	$2.67	$79.79	$221.88	$4.49	$30.49	$66.42
2036		$144.98	$64.51	$2.72	$81.41	$226.39	$4.66	$31.64	$68.30
2037		$147.90	$65.81	$2.77	$83.05	$230.95	$4.99	$33.88	$71.28
2038		$150.86	$67.13	$2.83	$84.71	$235.57	$5.24	$35.58	$73.72
2039		$153.87	$68.47	$2.89	$86.40	$240.27	$5.58	$37.89	$76.80
2040		$156.94	$69.84	$2.95	$88.13	$245.07	$5.69	$38.64	$78.32

Table 9
Total Cost of Displaceable Resources

Sources, Inputs and Assumptions

Source: (a)(c)(d)		Plant Costs - 2019 IRP - Table 6.1 & 6.2
	(b)	= (a) x 0.0679
	(e)	= (d) x (8.76 x 70.5%) + (c)
	(f)	= (b) + (e)
	(g)	Gas Price Forecast
	(h)	= 6790 x (g) / 1000
	(i)	= (f) / (8.76 x 'Capacity Factor') + (h)

447 MW - CCCT Dry "G/H", 1x1 - West Side Resource (1,500')

CCCT Statistics	MW	Percent	Cap Cost	Fixed
CCCT (Dry "G/H" 1x1)	396	88.6%	$1,552	$45.05
CCCT Duct Firing (Dry "G/H" 1x1)	51	11.4%	$478	$28.76
Capacity Weighted	447	100.0%	$1,429	$43.19

CCCT Statistics	MW	CF	aMW	Percent	Variable	Heat Rate
CCCT (Dry "G/H" 1x1)	396	78.0%	309	98.1%	$1.86	6,788
CCCT Duct Firing (Dry "G/H" 1x1)	51	12.0%	6	1.9%	0.15	6,788
Energy Weighted	447	70.5%	315	100.0%	$1.83	6,790
						Rounded

	CCCT	Duct Firing	Plant Costs - 2019 IRP - Table 6.1 & 6.2
	396	51	MW Plant capacity
2018 $	$1,552	$478	Plant capacity cost
2018 $	$21.68	$5.39	Fixed O&M & Capitalized O&M
2018 $	$23.37	$23.37	Fixed Pipeline
	$45.05	$28.76	Fixed O&M Including Fixed Pipeline & Capitalized O&M ($/kW-Yr)
	$1.86	$0.15	Variable O&M and Other Costs
	6,788	6,788	Heat Rate in btu/kWh
	6.790%	6.790%	Payment Factor
	78.0%	12.0%	Capacity Factor
		70.5%	Energy Weighted Capacity Factor
		100.0%	Capacity Factor - On-peak 70.5% / 56.0% (percent of hours on-peak)

Company Official Inflation Forecast - Dated March 2018

2017	1.8%	2023	2.4%	2029	2.2%	2035	2.1%
2018	2.0%	2024	2.3%	2030	2.2%	2036	2.0%
2019	2.3%	2025	2.3%	2031	2.1%	2037	2.0%
2020	2.7%	2026	2.3%	2032	2.1%	2038	2.0%
2021	2.6%	2027	2.2%	2033	2.1%	2039	2.0%
2022	2.5%	2028	2.2%	2034	2.1%	2040	2.0%

Table 10
Gas Price Forecast
$/MMBtu

Year	Burner tip West Side Gas Fuel Cost
2020	$1.89
2021	$2.32
2022	$2.22
2023	$2.30
2024	$2.40
2025	$2.50
2026	$2.60
2027	$2.80
2028	$3.05
2029	$3.30
2030	$3.55
2031	$3.72
2032	$3.89
2033	$4.06
2034	$4.28
2035	$4.49
2036	$4.66
2037	$4.99
2038	$5.24
2039	$5.58
2040	$5.69

Source
Offical Market Price Forecast dated March 2020

Table 11
Integration Cost

Year	Wind Integration Cost $/MWh	Solar Integration Cost $/MWh
2016	$0.57	$0.60
2017	$0.58	$0.62
2018	$0.59	$0.63
2019	$0.60	$0.64
2020	$0.61	$0.65
2021	$0.62	$0.67
2022	$0.63	$0.69
2023	$0.65	$0.71
2024	$0.67	$0.73
2025	$0.68	$0.75
2026	$0.69	$0.77
2027	$0.71	$0.79
2028	$0.73	$0.81
2029	$0.75	$0.83
2030	$0.77	$0.85
2031	$0.79	$0.87
2032	$0.81	$0.89
2033	$0.83	$0.91
2034	$0.85	$0.93
2035	$0.87	$0.95
2036	$0.89	$0.97
2037	$0.91	$0.99
2038	$0.93	$1.01
2039	$0.95	$1.03
2040	$0.97	$1.05

Note: 2017 IRP Volume II-Appendix F

Company Official Inflation Forecast Dated December 31, 2018

2017	2.0%	2023	2.4%	2029	2.3%	2035	2.2%
2018	2.3%	2024	2.4%	2030	2.3%	2036	2.2%
2019	2.2%	2025	2.2%	2031	2.3%	2037	2.2%
2020	2.3%	2026	2.2%	2032	2.3%	2038	2.2%
2021	2.4%	2027	2.2%	2033	2.2%	2039	2.2%
2022	2.4%	2028	2.3%	2034	2.2%	2040	2.2%

Table 12
2019 IRP Wyoming Wind Resource
44% Capacity Factor

Year	Estimated Capital Cost $/kW	Capital Cost at Real Levelized Rate $/kW-yr	Fixed O&M $/kW-yr	Fixed Costs $/MWh	Variable O&M $/MWh	Tax Credit $/MWh	Avoided Cost $/MWh	Wind Integration Cost $/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
2019 IRP Wyoming Wind Resource - 44% Capacity Factor								
2016								
2017								
2018	$1,301	$89.76	$27.99	$30.83	$0.65	($15.55)	$15.93	$0.59
2019		$91.82	$28.63	$31.54	$0.66	($15.91)	$16.29	$0.60
2020		$94.26	$29.39	$32.37	$0.68	($16.33)	$16.72	$0.61
2021		$96.74	$30.16	$33.23	$0.70	($16.76)	$17.17	$0.62
2022		$99.18	$30.92	$34.06	$0.72	($17.18)	$17.60	$0.63
2023		$101.55	$31.66	$34.88	$0.74	($17.59)	$18.03	$0.65
2024		$103.92	$32.40	$35.69	$0.76	($18.00)	$18.45	$0.67
2025		$106.32	$33.15	$36.52	$0.78	($18.42)	$18.88	$0.68
2026		$108.74	$33.90	$37.35	$0.80	($18.84)	$19.31	$0.69
2027		$111.13	$34.65	$38.17	$0.82	($19.25)	$19.74	$0.71
2028		$113.54	$35.40	$39.00	$0.84	($19.67)	$20.17	$0.73
2029		$116.02	$36.17	$39.85	$0.86	($20.10)	$20.61	$0.75
2030		$118.54	$36.96	$40.71	$0.88	($20.54)	$21.05	$0.77
2031		$121.06	$37.75	$41.58	$0.90	($20.98)	$21.50	$0.79
2032		$123.59	$38.54	$42.45	$0.92	($21.42)	$21.95	$0.81
2033		$126.16	$39.34	$43.33	$0.94	($21.87)	$22.40	$0.83
2034		$128.77	$40.15	$44.23	$0.96	($22.32)	$22.87	$0.85
2035		$131.42	$40.97	$45.14	$0.98	($22.78)	$23.34	$0.87
2036		$134.09	$41.80	$46.05	$1.00	($23.24)	$23.81	$0.89
2037		$136.79	$42.64	$46.98	$1.02	($23.71)	$24.29	$0.91
2038		$139.52	$43.49	$47.92	$1.04	($24.18)	$24.78	$0.93
2039		$142.32	$44.36	$48.88	$1.06	($24.67)	$25.27	$0.95
2040		$145.19	$45.25	$49.86	$1.08	($25.17)	$25.77	$0.97

Sources, Inputs and Assumptions

Source:	(c)(f)	Plant Costs 2017 IRP (Table 6.2) in $2016
	(a)	Plant capacity cost
	(b)	= (a) x 0.06899
	(d)	= ((b) + (c)) / (8.76 x 43.6%)
	(g)	= (d) + (f)
	(h)	2017 IRP Volume II-Appendix F

	Wind	Cost and Input Assumptions	
2019 IRP Wyoming Wind Resource - 44% Capacity Factor			
2018 $	$1,301	Plant capacity cost	$/kW-yr
2018 $	$27.99	Fixed O&M, plus on-going capital cost	$/kW-yr
2018 $	0.57	Integration Cost	
2018 $	$0.65	Variable O&M	$/MWH
2019 $	($15.55)	Tax Credit $/MWh	$/MWH
	15.8%	East Wind Capacity Contribution	
	6.899%	Payment Factor	
	43.6%	Capacity Factor	

Company Official Inflation Forecast - Dated March 2018

2017	1.8%	2023	2.4%	2029	2.2%	2035	2.1%	
2018	2.0%	2024	2.3%	2030	2.2%	2036	2.0%	
2019	2.3%	2025	2.3%	2031	2.1%	2037	2.0%	
2020	2.7%	2026	2.3%	2032	2.1%	2038	2.0%	
2021	2.6%	2027	2.2%	2033	2.1%	2039	2.0%	Company Official Inflatior
2022	2.5%	2028	2.2%	2034	2.1%	2040	2.0%	

Table 13
2019 IRP Wind Resource Costs
Adjusted to On-Peak / Off-Peak Prices

	Renewable Avoided Resource Cost	On-Peak / Off-Peak Factors		On-Peak Renewable Avoided Resource Cost	Off-Peak Renewable Avoided Resource Cost
Year	$/MWH	On-Peak	Off-Peak	On-Peak	Off-Peak
	(a)	(b)	(c)	(d)	(e)
				(a) x (b)	(a) x (c)
2020	$16.72	1.1234	0.8427	$18.79	$14.09
2021	$17.17	1.1538	0.8048	$19.81	$13.81
2022	$17.60	1.1312	0.8334	$19.91	$14.67
2023	$18.03	1.1512	0.8084	$20.75	$14.57
2024	$18.45	1.1679	0.7831	$21.55	$14.45
2025	$18.88	1.1712	0.7815	$22.11	$14.75
2026	$19.31	1.1797	0.7700	$22.78	$14.87
2027	$19.74	1.1884	0.7596	$23.46	$14.99
2028	$20.17	1.1800	0.7727	$23.80	$15.58
2029	$20.61	1.1834	0.7651	$24.39	$15.77
2030	$21.05	1.1877	0.7562	$25.01	$15.92
2031	$21.50	1.1886	0.7598	$25.55	$16.34
2032	$21.95	1.1742	0.7781	$25.77	$17.08
2033	$22.40	1.1636	0.7923	$26.07	$17.75
2034	$22.87	1.1553	0.8046	$26.42	$18.40
2035	$23.34	1.1487	0.8107	$26.81	$18.92
2036	$23.81	1.1489	0.8095	$27.36	$19.28
2037	$24.29	1.1457	0.8138	$27.83	$19.77
2038	$24.78	1.1427	0.8189	$28.31	$20.29

Columns

(a) Table 12 Column (g)
(b) Ratio blended market On-Peak to annual prices
(c) Ratio blended market Off-Peak to annual prices

PACIFIC POWER
AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – MAY 2020

PACIFIC POWER
AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM ELIGIBLE QUALIFYING FACILITIES

OREGON – MAY 2020

Standard avoided cost rates are paid to eligible small qualifying facilities (QFs). Oregon avoided cost filing requirements as listed in OAR 860-029-0040 and 860-029-0080 require the Company to file updated avoided costs at least every two years. The Commission Order No. 14-058, requires the Oregon investor owned utilities to update avoided cost prices annually on May 1 of each year and within 30-days of Integrated Resource Plan (IRP) acknowledgment. Annual updates, filed on May 1 of each year, are required to update the following data inputs: (1) natural gas prices; (2) on-peak and off-peak forward looking electricity market prices; (3) production tax credit status; and (4) any other action or change in an acknowledged IRP relevant to the calculation of avoided costs.

The last Oregon avoided costs were approved on April 24, 2019.

Sufficiency and Deficiency Periods

In Docket UM-1396 Order 10-488, the Commission directed that the start date of the first “major resource acquisition” in the action plan of the IRP determines the resource “sufficiency” and “deficiency” periods to be used in calculations of standard avoided cost prices. The sufficiency and deficiency periods used in this filing are based on the 2017 IRP which was acknowledged by the Commission on March 27, 2018.

Table 1 presents 2017 IRP Preferred Portfolio and shows that the earliest acquisition of a Combine Cycle Combustion Turbine (CCCT) is planned to be in 2030. Therefore, the resource sufficiency period for the standard avoided cost rates is from 2020-2029 and the non-renewable resource deficiency period starts in 2030. Table 1 also shows that earliest acquisition of the utility scale renewable resource is in 2021, and therefore the start of the renewable resource deficiency period is 2021.

Avoided Cost Calculation

Based on the 2017 IRP preferred portfolio shown in **Table 1**, the standard avoided cost calculation is separated into two distinct periods: (1) Standard non-renewable resource sufficiency (2020 through 2029) period; and (2) Standard non-renewable resource deficiency (2030 and beyond) period. During the non-renewable resource sufficiency period (2020 through 2029), standard avoided energy costs are based on blended market prices. Market prices from the Company’s Official Forward Price Curve are weighted by market transactions required to support the addition of an assumed 50 MW Oregon

Qualified Facility. To calculate the weighting, two production cost studies are prepared. The only difference between the two studies is an assumed 50 aMW, zero running cost resource. System balancing sales and purchase volumes are extracted from both studies and the change between the two studies is calculated for each market hub. This volume impact is used to weight the Company's Official Market Price Forecast on-peak and off-peak market prices for COB, Mid-Columbia, and Palo Verde for each month. **Table 2** shows the result of this calculation.

The sufficiency period for standard renewable rates is 2020 and the standard renewable resource deficiency period starts in 2021. During the renewable resource sufficiency period (2020), the renewable avoided energy costs are based on blended market prices.

During the non-renewable resource deficiency period, the avoided costs are based on the fixed and variable costs of a CCCT proxy resource that could be avoided or deferred. The capacity and fixed costs of CCCT proxy resource used to set standard avoided cost rates beginning in 2030 is a west side CCCT from the 2019 IRP Supply Side Table.[1]

Since CCCTs are built as base load units that provide both capacity and energy, it is appropriate to split the fixed costs of this unit into capacity and energy components. The fixed cost of a simple cycle combustion turbine (SCCT), which is usually acquired as a capacity resource, defines the portion of the fixed cost of the CCCT that is assigned to capacity.[2] Fixed costs associated with the construction of a CCCT which are in excess of SCCT costs are assigned to energy and are added to the variable production (fuel) cost of the CCCT to determine the total avoided energy costs. **Table 3** shows the capitalized energy costs, which are calculated based on the difference between fixed costs of CCCT and SCCT. The fuel cost of the CCCT defines the avoided variable energy costs. The gas price forecast used as the basis for the CCCT fuel cost is discussed later in this document.

During standard renewable resource deficiency period, the standard renewable avoided cost prices are based on resource costs of renewable proxy wind resource from the 2019 IRP Supply Side Table. The standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT adjusted by the incremental capacity contribution of the QF resource relative to the avoided renewable proxy resource. The capacity adder is allocated to on peak hours by using the on peak capacity factor of the QF resource.

Table 4 shows the CCCT fuel cost, the addition of capitalized energy costs at an assumed 72.1% capacity factor, and the total avoided energy costs.

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[1] 396 MW CCCT (Dry "G/H" 1x1) - West Side Resource (1500') –as listed in Tables 6.1 and 6.2 of the 2019 IRP. Fuel costs are from the Company's March 2020 Official Forward Price Curve (2003 OFPC).
[2] SCCT Frame ("F"x1) – East Side Resource (5,050'), as listed in Tables 6.1 and 6.2 of the 2019 IRP.

Because energy generated by a QF may vary, total standard avoided costs are calculated at 75%, 85% and 90% capacity factor to illustrate the impact of differing generation levels. This calculation is shown in **Table 5**.

Standard avoided costs are differentiated between on-peak and off-peak periods, with capacity costs allocated to on-peak periods. On an annual basis, approximately 56% of all hours are on-peak and 44% are off-peak. **Table 6** shows the calculation of on-peak and off-peak avoided energy prices.

For informational purposes, **Tables 7 and 8** show a comparison between current avoided costs currently in effect in Oregon and the avoided costs proposed by Staff in this filing. An alternate version of Tables 7 and 8 compares Staff's proposal to the Company's proposed avoided costs.

Table 9 shows the calculation of the total fixed costs and fuel costs of the CCCT and SCCT that are used in **Table 3** and **Table 4**. In this filing, the Company's thermal proxy resource is a CCCT located on the west side of the Company's system. Current Commission approved standard non-renewable avoided costs are also based upon a CCCT located on the west side of the Company's system. The costs of SCCT and CCCT resources are updated based on 2019 Supply Side Table. Inflation forecast is not updated and still based on values from March 2018 Official Forward Price Curve.

Gas Price Forecast

Gas prices used in this filing utilize the Company's March 2020 Official Forward Price Curve (2003 OFPC). **Table 10** shows the natural gas price used in this avoided cost calculation.

Table 11 shows wind and solar integration costs used in 2017 IRP.

Table 12 shows the calculation of total resource cost of the renewable proxy wind plant in Wyoming. The capacity costs, fixed O&M plus on-going capital costs, variable O&M, PTC tax credit and capacity factor values of the Wyoming Wind resource are updated based on 2019 IRP Supply Side Table. The total cost of the proxy wind resource is used in the calculation of standard renewable avoided cost rates as shown in "**Exhibits 5 through 8**".

Table 13 shows the calculation of on-peak and off-peak standard renewable avoided cost prices by applying on-peak and off-peak factors. On-peak and off-peak factors are calculated as a ratio of the average annual on-peak Mid-C market price to the flat Mid-C market price.

Exhibit 1- Std Base Load QF tab shows the calculation of proposed standard avoided cost rates for a base load QF. On and off-peak avoided cost rates are based on blended

market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a capacity adder based on the fixed costs of the SCCT proxy (in $/kW-yr). The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of the base load QF resource, which is assumed to be equal to on peak capacity factor of CCCT proxy resource.

Exhibit 2- Std Wind QF tab shows the calculation of proposed standard avoided cost rates for a wind QF. On and off-peak avoided cost rates are based on blended market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a capacity adder calculated based on fixed costs of SCCT (in $/kW-yr) adjusted by the expected capacity contribution of a wind QF as identified in the 2017 IRP (West side Wind: 11.8%). The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder (in $/kW-yr) is allocated to on peak hours by using the on peak capacity factor of a west side wind QF resource. Standard avoided cost rates for a wind QF are reduced by a wind integration charge of $0.57/MWh ($2016).

Exhibits 3 & 4- Std Solar QF tab shows the calculation of proposed standard avoided cost rates for a solar QF. On and off-peak avoided cost rates are based on blended market rates for 2020-2029. For 2030 and beyond, the off-peak price is based on the fuel and capitalized energy cost of the CCCT proxy. The on-peak price also includes a capacity adder calculated based on the fixed costs of SCCT (in $/kW-yr) adjusted by expected capacity contribution of a solar QF as identified in the 2017 IRP (West side fixed solar: 53.9%, tracking solar: 64.8%). The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder (in $/kW-yr) is allocated to on peak hours by using the on peak capacity factor of a solar QF resource. Standard avoided cost rates for a solar QF are reduced by a solar integration charge of $0.60/MWh ($2016).

Exhibit 5- Renewable Base Load tab shows the calculation of proposed standard renewable avoided cost rates for renewable base load QF. For 2020, on- and off-peak renewable avoided cost rates are based on blended market rates. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 12 and Table 13 with resource costs updated based on 2019 IRP Supply Side Table. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable Base Load QF relative to the avoided renewable east side wind proxy resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of a base load QF resource, which is assumed to be equal to on peak capacity factor of CCCT proxy resource. During resource deficiency period rates are increased by avoided wind integration charge.

Exhibit 6- Renewable Wind tab shows the calculation of proposed standard renewable avoided cost rates for a wind QF. On- and off-peak renewable avoided cost rates are based on blended market rates for 2020. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 13 reflecting resource costs from 2019 IRP Supply Side Table. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of the SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable west side Wind QF relative to the capacity contribution of the avoided east side renewable proxy wind resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factor of a west side wind QF resource. During renewable resource sufficiency period of 2020, the standard renewable avoided cost rates for a wind QF are reduced by wind integration charge.

Exhibits 7 & 8- Renewable Solar tab shows the calculation of proposed standard renewable avoided cost rates for a Renewable Solar QF. On- and off-peak renewable avoided cost rates are based on blended market rates for 2020. For 2021 and beyond, on- and off-peak prices are based on on-peak and off-peak prices of the renewable wind proxy resource as calculated in Table 12 and Table 13 with resource costs updated based on 2019 IRP Supply Side Table.. Starting in 2021, the standard renewable on-peak price also includes a capacity adder calculated based on the fixed costs of SCCT (in $/kW-yr), adjusted by the incremental capacity contribution of a renewable Fixed and Tracking Solar QF relative to the avoided renewable east side wind proxy resource. The fixed costs of SCCT was updated based on 2019 Supply Side Table. The adjusted capacity adder in $/kW-yr is allocated to on peak hours by using the on peak capacity factors of a solar QF resource. During renewable resource sufficiency period, the standard renewable avoided costs rates for fixed and tracking solar QF resources are reduced by solar integration charge. During renewable resource deficiency period, the rates are adjusted by the difference in avoided wind and solar integration charges.

Exhibit 9– Blending tab shows the market blending used to weight the Company's Official Forward Price Curve on-peak and off-peak market prices at COB, Palo Verde and Mid-Columbia by month, which are used in the calculation of rates shown in **Table 2.**

Docket UM 1729 / Compliance Filing
Minimum Filing Requirements
Public Utility Commission of Oregon (OPUC) Order No. 16-174 dated May 13, 2016

I. Resource Sufficiency / Deficiency Demarcation

		Explanation	IRP Reference
1.	Non-renewable: Identify the demarcation year for the end of sufficiency period / start of deficiency period.	Deficiency starting in 2030.	Table 8.17 – 2017 IRP Preferred Portfolio, page 244
2.	Non-renewable: Identify the major resource to be acquired (>100 megawatts (MW) and longer than five years) at end of sufficiency period.	West Side Combined-Cycle Combustion Turbine (CCCT) (Dry "G/H" 1x1) with Duct Firing - West Side Resource (1500').	2019 IRP Supply Side Table 6.1 and 6.2 http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2019_IRP/Table_6.1-6.3-TRC_for_Supply-Side_Resource_Options_19_IRP_for_PDF.pdf
3.	Renewable: Identify the demarcation year for the end of sufficiency period / start of deficiency period.	Deficiency starting in 2021	Table 8.17 – 2017 IRP Preferred Portfolio, page 244
4.	Renewable: Identify the major resource to be acquired (>100 MW and longer than five years) at end of sufficiency period.	Wyoming wind resource starting in 2021	2019 IRP Supply Side Table 6.1 and 6.2

Docket UM 1729 / Compliance Filing
Minimum Filing Requirements
Public Utility Commission of Oregon (OPUC) Order No. 16-174 dated May 13, 2016

II. Gas Price Forecast

		Explanation	IRP Reference
1.	Identify the source of the gas price forecast.	Official forward price curve (OFPC) March 2020	-
2.	If the forecast source differs from that used in the most recent approved avoided cost filing / explain the reason(s) for the change.	The Company updates its OFPC every quarter. The March 2020 OFPC was the most recent curve available at the time of this filing. Currently effective rates were based on the December 2018 OFPC.	-
3.	Provide the yearly forecast price by year / and identify any rounding that has been applied.	Refer to the tabs entitled "Table 10" and "OFPC Source" of the "7_OR Sch 37 AC Study_2020 04 14.xlsx"	-
4.	Quantify and describe the extent to which the gas price forecast differs from the most recent approved avoided cost filing, include a description of carbon cost / tax assumption(s).	The Company updates its OFPC every quarter. The March 2020 OFPC was the most recent curve available for the Company's May 2020 update. Currently approved rates were based on December 2018 OFPC. Refer to the spreadsheet entitled "12_MFR - II.Gas Price Forecast_20200417" for the comparison of the gas price forecast. Refer to the files entitled "10_MFR - 202003 OFPC - Environmental" and "11_MFR 201812 OFPC - Environmental" for the March 2020 OFPC and December 2018 OFPC carbon tax assumptions.	-

Docket UM 1729 / Compliance Filing
Minimum Filing Requirements
Public Utility Commission of Oregon (OPUC) Order No. 16-174 dated May 13, 2016

III. Sufficiency Period Prices

		Explanation	IRP Reference
1.	List the market hub(s) used for market price projections, the source for the forward price curves, and any adjustments or blending used in deriving the sufficiency period prices.	Market prices for California-Oregon Border (COB), Mid-Columbia (Mid-C) and Palo Verde (PV) from the March 2016 OFPC are blended based on the change in system balancing purchases and sales using two the Generation and Regulation Initiative Decision Tool (GRID) runs - with and without a 50 MW qualifying facility (QF) resource.	-
2.	Provide the transmission costs assumed used in sufficiency period prices.	No transmission costs are incorporated in standard sufficiency period avoided cost pricing.	-
3.	Provide all other component(s) used to calculate sufficiency period prices.	Prices for wind resources are adjusted to account for wind and solar integration costs. Wind integration cost: \$0.57/MWh (2016\$), Solar integration cost:\$0.60/MWh (2016\$) For the complete calculation of sufficiency period prices, refer to "7_OR Sch 37 AC Study_2020 04 14.xlsx".	Flexible Reserve Study from 2017 IRP, 2017 IRP Volume II-Appendix F, Table F.2 on Page 75

Docket UM 1729 / Compliance Filing
Minimum Filing Requirements
Public Utility Commission of Oregon (OPUC) Order No. 16-174 dated May 13, 2016

IV. Standard Rates Deficiency Period Resource

		Explanation	IRP Reference
1.	Provide the resource type, geographic location, nameplate capacity, and annual capacity factor.	CCCT (Dry "G/H" 1X1) West Side Resource (1,500') with Duct Firing available in 2030, Annual Energy weighted CF is 70.5 percent. Refer to Table 9 of "7_OR Sch 37 AC Study_2020 04 14.xlsx"	2019 IRP Supply Side Table 6.1 and 6.2
2.	Provide the source of natural gas supply / and the costs assumed for interconnection / infrastructure upgrades, transmission, storage, and any other costs necessary to deliver gas.	Burner Tip West Side Gas, refer to Table 10 of "7_OR Sch 37 AC Study_2020 04 14.xlsx"	-
3.	Provide the assumed heat rate. Include assumptions to account for elevation / temperature, and cooling method.	Refer to Table 9 of "7_OR Sch 37 AC Study_2020 04 14.xlsx"	2019 IRP Supply Side Table 6.1 and 6.2
4.	List the costs assumed for interconnection facilities.	-	2019 IRP Supply Side Table 6.1 and 6.2
5.	List the components of transmission costs used and their respective values.	-	2019 IRP Supply Side Table 6.1 and 6.2
6.	List the tax assumptions used.	-	2019 IRP Supply Side Table 6.1 and 6.2

Docket UM 1729 / Compliance Filing
Minimum Filing Requirements
Public Utility Commission of Oregon (OPUC) Order No. 16-174 dated May 13, 2016

V. Renewable Rates Deficiency Period Resource

		Explanation	IRP Reference
1.	Provide the resource type, geographic location / nameplate capacity, and annual capacity factor.	Wyoming wind resource with 43.6% CF from the 2019 IRP Supply Side Table. Refer to Table 12 of "7_OR Sch 37 AC Study_2020 04 14.xlsx"	2019 IRP Supply Side Table 6.1 and 6.2
2.	Provide assumptions used for mechanical availability, annual hours of curtailment / and annual megawatt-hours (MWh) of energy curtailed.	None.	
3.	List the costs assumed for interconnection facilities.	-	2019 IRP Supply Side Table 6.1 and 6.2
4.	List the components of transmission costs used and their respective values.	-	2019 IRP Supply Side Table 6.1 and 6.2
5.	List the tax assumptions used. This includes assumed taxes paid (federal, state / local), and assumed tax benefits (e.g. PTC / investment tax credits (ITC) / grants in lieu of credits).	PTC (First Year levelized value of $15.55/MWh (in 2018$) escalated by inflation rate from March 2018 OFPC). Refer to Table 12 of "7_OR Sch 37 AC Study_2020 04 14.xlsx"	2019 IRP Supply Side Table 6.1 and 6.2
6.	Provide the capacity contribution value, and the method used to derive the capacity contribution value / for solar and wind resource types.	Capacity Contribution values - Wind: 11.8 percent, Fixed Solar: 53.9 percent, and Tracking Solar: 64.8 percent.	2017 IRP Wind and Solar Capacity Contribution Study, 2017 IRP Volume II-Appendix N, Table N.1, page 316.
7.	Provide the wind integration cost used / and the method used to derive the wind integration cost.	Wind integration cost: $0.57/MWh (2016$), Solar integration cost:$0.60/MWh (2016$)	Flexible Reserve Study from 2017 IRP, 2017 IRP Volume II-Appendix F, Table F.2 on Page 75

Official Market Price Projection Final Documentation

March 31, 2020

PACIFICORP
POWERING YOUR GREATNESS

Aurora Assumptions
Environmental

State & Federal CO_2: No Update

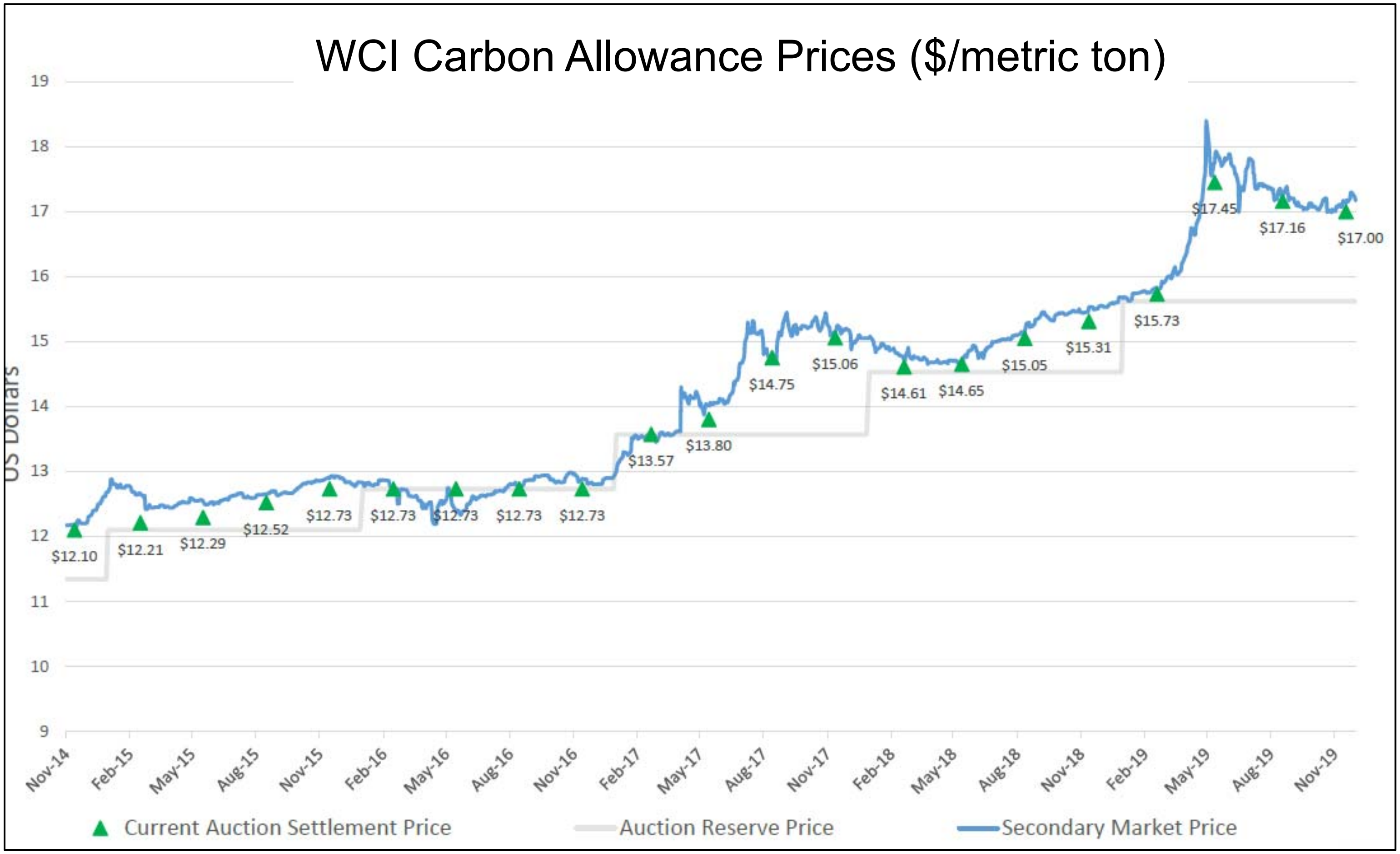
California cap-and-trade policy assumptions in Aurora

- In the absence of a Federal CO_2 tax, California CO_2 is assumed to continue post 2030. July 25, 2017 Governor Jerry Brown signed into law the extension of California's existing cap-and-trade program to 2030, per Assembly Bill 398.
- Aurora's cap-and-trade prices come from an third-party expert's forecast of California Carbon Allowance (CCA) prices.
- All fossil-fired generating units operating within California generate emissions consistent with the CO_2 content of the fuel and the unit's heat rate
- For instance, a combined cycle plant with a 7,500 Btu/kWh heat rate burning natural gas, with a CO_2 content of 118 lb/MMBtu, would produce 0.44 tons of CO_2 emissions for each MWh generated
- The assumed California CO_2 allowance price is modeled as a dispatch cost adder and applied to plant CO_2 emissions.

June 19, 2019 the Trump administration finalized a rule to repeal and replace the Clean Power Plan (CPP) with the Affordable Clean Energy (ACE) rule. PacifiCorp's understanding of ACE, as it stands today, is that the rule includes no provisions to establish a federal carbon price.

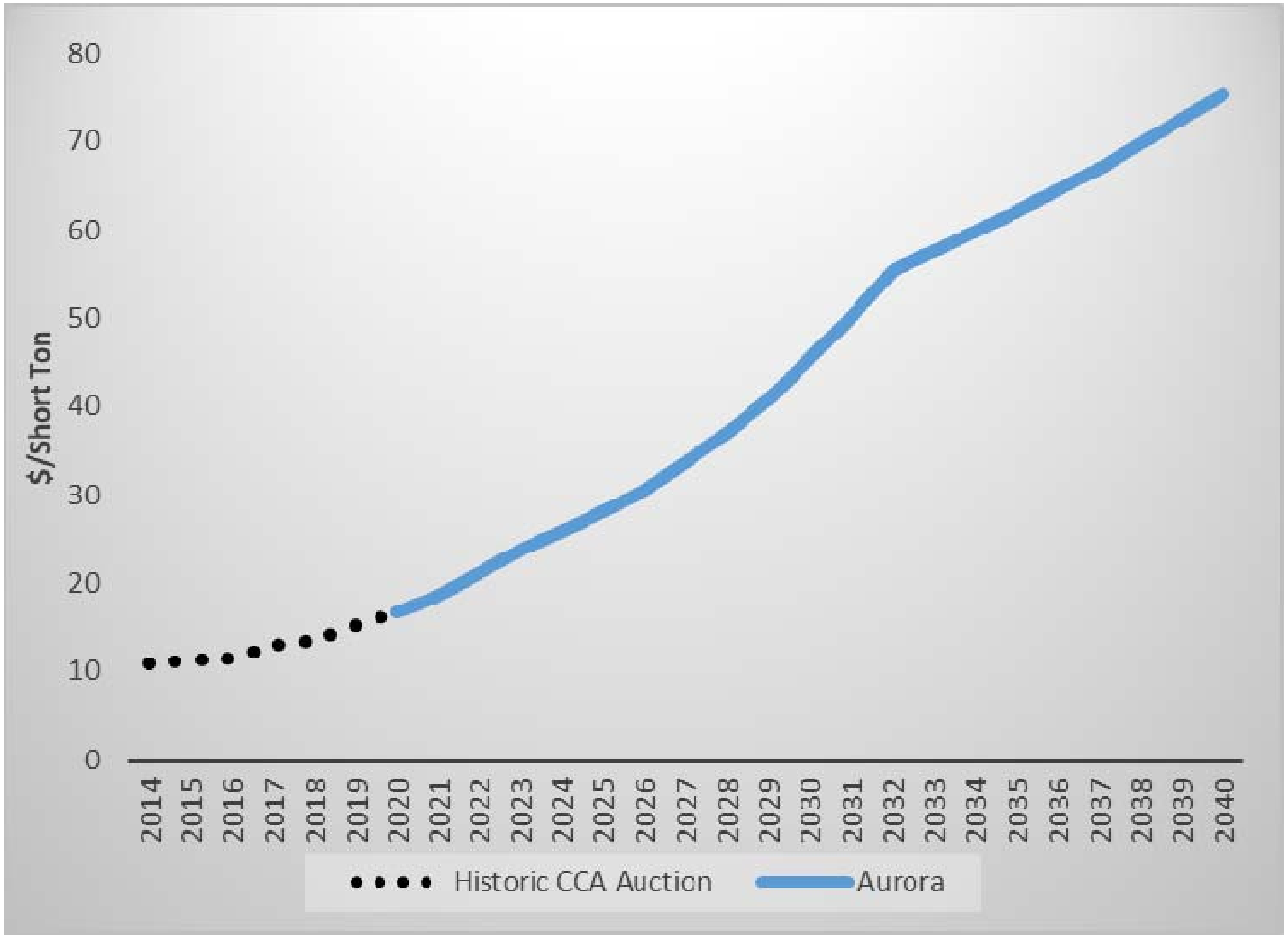
- The CPP was removed from the Aurora model in the April 2017 OFPC.
- No Federal CO_2 prices are assumed in Aurora. PacifiCorp continues to follow climate change legislation and EPA Rulings and update Aurora assumptions accordingly.

Historic CA CO_2:



https://ww3.arb.ca.gov/cc/capandtrade/wcicarbonallowanceprices.pdf

Assumptions: California CO_2



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Official Market Price Projection
Final Documentation

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Aurora Assumptions
Environmental

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State & Federal CO_2: No Update

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October 10, 2017 EPA Chief Scott Pruitt signed a proposal for EPA to withdraw its Clean Power Plan, without an immediate replacement.

- The CPP is no longer assumed and no Federal CO2 program is currently modeled in Aurora.

Gas Price Forecast Comparison

	OFPC March 2020	OFPC December 2018		
	West Side Gas	West Side Gas	Change	% Change
2030	3.55	5.00	(1.45)	-29%
2031	3.72	5.32	(1.60)	-30%
2032	3.89	5.64	(1.75)	-31%
2033	4.06	5.96	(1.90)	-32%
2034	4.28	6.27	(1.99)	-32%
2035	4.49	5.94	(1.45)	-24%
2036	4.66	5.99	(1.33)	-22%
2037	4.99	6.34	(1.35)	-21%
2038	5.24	6.84	(1.60)	-23%