BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1829, UM 1830, UM 1831, UM 1832, UM 1833

Blue Marmot V LLC (UM 1829),)	
Blue Marmot VI LLC (UM 1830),)	BLUE MARMOTS
Blue Marmot VII LLC (UM 1831),)	SUPPLEMENTAL
Blue Marmot VIII LLC (UM 1832),)	CROSS EXAM EXHIBITS
Blue Marmot IX LLC (UM 1833),)	
Complainants,)	
)	
v.)	
)	
Portland General Electric Company,)	
Defendant.)	

Blue Marmot V LLC, Blue Marmot VI LLC, Blue Marmot VII LLC, Blue Marmot VIII LLC, and Blue Marmot IX LLC (collectively the "Blue Marmots") submits the following supplemental cross examination exhibits for Portland General Electric Company ("PGE"). These are in addition to the cross examination exhibits filed on December 3, 2018. PGE does not object to the admission of these specific additional exhibits. Blue Marmots may identify additional exhibits prior to or at the evidentiary hearing.

	UM 1829 – Brett Greene
Number	Title
Blue Marmot/803	PGE's Schedule 201 (Effective May 23, 2018)
Blue Marmot/804	Affidavit of John Morton

Dated this 10th day of December 2018.

Respectfully submitted,

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SCHEDULE 201 QUALIFYING FACILITY 10 MW or LESS AVOIDED COST POWER PURCHASE INFORMATION

PURPOSE

To provide information about Standard Avoided Costs and Renewable Avoided Costs, Standard Power Purchase Agreements (PPA) and Negotiated PPAs, power purchase prices and price options for power delivered by a Qualifying Facility (QF) to the Company with nameplate capacity of 10,000 kW (10MW) or less.

AVAILABLE

To owners of QFs making sales of electricity to the Company in the State of Oregon (Seller).

APPLICABLE

For power purchased from small power production or cogeneration facilities that are QFs as defined in 18 Code of Federal Regulations (CFR) Section 292, that meet the eligibility requirements described herein and where the energy is delivered to the Company's system and made available for Company purchase pursuant to a Standard PPA.

ESTABLISHING CREDITWORTHINESS

The Seller must establish creditworthiness prior to service under this schedule. For a Standard PPA, a Seller may establish creditworthiness with a written acknowledgment that it is current on all existing debt obligations and that it was not a debtor in a bankruptcy proceeding within the preceding 24 months. If the Seller is not able to establish creditworthiness, the Seller must provide security deemed sufficient by the Company as set forth in the Standard PPA.

POWER PURCHASE INFORMATION

A Seller may call the Power Production Coordinator at (503) 464-8000 to obtain more information about being a Seller or how to apply for service under this schedule.

PPA

In accordance with terms set forth in this schedule and the Commission's Rules as applicable, the Company will purchase any Energy in excess of station service (power necessary to produce generation) and amounts attributable to conversion losses, which are made available from the Seller.

A Seller must execute a PPA with the Company prior to delivery of power to the Company. The agreement will have a term of up to 20 years as selected by the QF.

A QF with a nameplate capacity rating of 10 MW or less as defined herein may elect the option of a Standard PPA.

PPA (Continued)

Any Seller may elect to negotiate a PPA with the Company. Such negotiation will comply with the requirements of the Federal Energy Regulatory Commission (FERC), and the Commission including the guidelines in Order No. 07-360, and Schedule 202. Negotiations for power purchase pricing will be based on either the filed Standard Avoided Costs or Renewable Avoided Costs in effect at that time.

STANDARD PPA (Nameplate capacity of 10 MW or less)

A Seller choosing a Standard PPA will complete all informational and price option selection requirements in the applicable Standard PPA and submit the executed Agreement to the Company prior to service under this schedule. The Standard PPA is available at www.portlandgeneral.com. The available Standard PPAs are:

- Standard In-System Non-Variable Power Purchase Agreement
- Standard Off-System Non-Variable Power Purchase Agreement
- Standard In-System Variable Power Purchase Agreement
- Standard Off-System Variable Power Purchase Agreement
- Standard Renewable In-System Non-Variable Power Purchase Agreement
- Standard Renewable Off-System Non-Variable Power Purchase Agreement
- Standard Renewable In-System Variable Power Purchase Agreement
- Standard Renewable Off-System Variable Power Purchase Agreement

The Standard PPAs applicable to variable resources are available only to QFs utilizing wind, solar or run of river hydro as the primary motive force.

GUIDELINES FOR 10 MW OR LESS FACILITIES ELECTING STANDARD PPA

To execute the Standard PPA the Seller must complete all of the general project information requested in the applicable Standard PPA.

When all information required in the Standard PPA has been received in writing from the Seller, the Company will respond within 15 business days with a draft Standard PPA.

The Seller may request in writing that the Company prepare a final draft Standard PPA. The Company will respond to this request within 15 business days. In connection with such request, the QF must provide the Company with any additional or clarified project information that the Company reasonably determines to be necessary for the preparation of a final draft Standard PPA.

When both parties are in full agreement as to all terms and conditions of the draft Standard PPA, the Company will prepare and forward to the Seller a final executable version of the agreement within 15 business days. Following the Company's execution, an executed copy will be returned to the Seller. Prices and other terms and conditions in the PPA will not be final and binding until the Standard PPA has been executed by both parties.

OFF-SYSTEM PPA

A Seller with a facility that interconnects with an electric system other than the Company's electric system may enter into a PPA with the Company after following the applicable Standard or Negotiated PPA guidelines and making the arrangements necessary for transmission of power to the Company's system.

BASIS FOR POWER PURCHASE PRICE

AVOIDED COST SUMMARY

The power purchase prices are based on either the Company's Standard Avoided Costs or Renewable Avoided Costs in effect at the time the agreement is executed. Avoided Costs are defined in 18 CFR 292.101(6) as "the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source."

Monthly On-Peak prices are included in both the Standard Avoided Costs as listed in Tables 1a, 2a, and 3a and Renewable Avoided Costs as listed in Tables 4a, 5a, and 6a. Monthly Off-Peak prices are included in both the Standard Avoided Costs as listed in Tables 1b, 2b, and 3b and Renewable Avoided Costs as listed in Tables 4b, 5b, and 6b.

ON-PEAK PERIOD

The On-Peak period is 6:00 a.m. until 10:00 p.m., Monday through Saturday.

OFF-PEAK PERIOD

The Off-Peak period is 10:00 p.m. until 6:00 a.m., Monday through Saturday, and all day on Sunday.

Standard Avoided Costs are based on forward market price estimates through the Resource Sufficiency Period, the period of time during which the Company's Standard Avoided Costs are associated with incremental purchases of Energy and capacity from the market. For the Resource Deficiency Period, the Standard Avoided Costs reflect the fully allocated costs of a natural gas fueled combined cycle combustion turbine (CCCT) including fuel and capital costs. The CCCT Avoided Costs are based on the variable cost of Energy plus capitalized Energy costs at a 93% capacity factor based on a natural gas price forecast, with prices modified for shrinkage and transportation costs.

Renewable Avoided Costs are based on forward market price estimates through the Renewable Resource Sufficiency Period, the period of time during which the Company's Renewable Avoided Costs are associated with incremental purchases of energy and capacity from the market. For the Renewable Resource Deficiency Period, the Renewable Avoided Costs reflect the fully allocated costs of a wind plant including capital costs.

PRICING FOR STANDARD PPA

Pricing represents the purchase price per MWh the Company will pay for electricity delivered to a Point of Delivery (POD) within the Company's service territory pursuant to a Standard PPA up to the nameplate rating of the QF in any hour. Any Energy delivered in excess of the nameplate rating will be purchased at the applicable Off-Peak Prices for the selected pricing option.

The Standard PPA pricing will be based on either the Standard or Renewable Avoided Costs in effect at the time the agreement is executed.

The Company will pay the Seller either the Off-Peak Standard Avoided Cost pursuant to Tables 1b, 2b, or 3b or the Off-Peak Renewable Avoided Costs pursuant to Tables 4b, 5b, or 6b for: (a) all Net Output delivered prior to the Commercial Operation Date; (b) all Net Output deliveries greater than Maximum Net Output in any PPA year; (c) any generation subject to and as adjusted by the provisions of Section 4.3 of the Standard PPA; (d) Net Output delivered in the Off-Peak Period; and (e) deliveries above the nameplate capacity in any hour. The Company will pay the Seller either the On-Peak Standard Avoided Cost pursuant to Tables 1a, 2a, or 3a or the On-Peak Renewable Avoided Costs pursuant to Tables 4a, 5a, or 6a for all other Net Output. (See the PPA for defined terms.)

1) Standard Fixed Price Option

The Standard Fixed Price Option is based on Standard Avoided Costs including forecasted natural gas prices. It is available to all QFs.

This option is available for a maximum term of 15 years. Prices will be as established at the time the Standard PPA is executed and will be equal to the Standard Avoided Costs in Tables 1a and 1b, 2a and 2b, or 3a and 3c, depending on the type of QF, effective at execution. QFs using any resource type other than wind and solar are assumed to be Base Load QFs.

Prices paid to the Seller under the Standard Fixed Price Option include adjustments for the capacity contribution of the QF resource type relative to that of the avoided proxy resource. Both the Base Load QF resources (Tables 1a and 1b) and the avoided proxy resource, the basis used to determine Standard Avoided Costs for the Standard Fixed Price Option, are assumed to have a capacity contribution to peak of 100%. The capacity contribution for Wind QF resources (Tables 2a and 2b) is assumed to be 5%. The capacity contribution for Solar QF resources (Tables 3a and 3b) is assumed to be 5%.

Prices paid to the Seller under the Standard Fixed Price Option for Wind QFs (Tables 2a and 2b) include a reduction for the wind integration costs in Table 7. However, if the Wind QF is outside of PGE's Balancing Authority Area as contemplated in the Commission's Order No. 14-058, the Seller is paid the wind integration charges in Table 7, in addition to the prices listed in Tables 2a and 2b, for a net-zero effect.

PRICING OPTIONS FOR STANDARD PPA (Continued)
Standard Fixed Price Option (Continued)

Sellers with PPAs exceeding 15 years will receive pricing equal to the Mid-C Index Price for all years up to five in excess of the initial 15.

	TABLE 1a Avoided Costs													
					Α	voided Co	osts							
				Fix	ed Price (Option for	Base Loa	d QF						
					On-Pea	k Forecas	t (\$/MWH)							
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
2018	Jan	reb	IVIAI	Aþi	15.25	17.28	29.26	34.87	30.79	24.93	24.93	31.05		
2019	27.84	26.24	21.48	18.19	17.76	18.19	29.34	32.67	30.37	24.48	26.41	30.78		
2020	31.72	30.00	24.32	19.61	18.98	19.91	30.66	35.05	31.96	27.38	29.43	34.92		
2021	53.16	53.01	52.61	50.38	50.26	50.41	50.57	50.64	50.61	50.78	51.95	52.88		
2022	54.48	54.34	53.95	51.85	51.74	51.90	52.08	52.20	52.21	52.38	53.73	54.66		
2023	56.37	56.22	55.84	53.95	53.82	53.99	54.16	54.32	54.33	54.50	55.07	56.02		
2024	57.14	57.22	57.27	56.39	56.47	56.55	56.63	56.70	56.79	56.86	57.95	58.04		
2025	59.42	59.50	59.22	58.30	58.35	58.38	58.47	58.55	58.64	58.76	59.85	59.94		
2026	61.26	61.34	60.96	59.99	60.00	60.09	60.18	60.28	60.36	60.45	61.62	61.71		
2027	63.05	63.15	63.21	62.23	62.32	62.42	62.51	62.61	62.71	62.81	64.05	64.15		
2028	65.50	65.60	65.71	64.78	64.88	64.99	65.09	65.20	65.31	65.57	66.73	66.84		
2029	68.38	68.50	68.61	67.74	67.99	68.31	68.43	68.55	68.68	68.83	70.20	70.32		
2030	72.05	73.56	73.70	72.63	72.78	72.93	73.06	73.21	73.35	73.60	75.04	75.19		
2031	76.89	77.04	77.19	75.90	76.04	76.20	76.35	76.51	76.67	76.89	78.46	78.63		
2032	80.15	80.31	80.32	78.82	78.98	79.15	79.31	79.49	79.65	79.83	81.57	81.74		
2033	83.87	84.06	83.65	82.24	82.40	82.36	82.54	82.72	82.89	83.08	84.89	85.08		
2034	87.14	87.33	85.15	83.71	83.90	83.97	84.15	84.33	84.53	84.70	86.54	86.74		
2035	88.57	88.77	86.55	84.34	84.53	83.66	83.83	84.01	84.17	84.53	86.09	86.28		
2036	90.60	90.80	88.52	86.23	86.42	85.54	85.71	85.89	86.07	86.41	88.05	88.24		
2037	92.98	93.19	90.82	88.49	88.67	87.76	87.94	88.13	88.31	88.67	90.35	90.55		
2038	95.27	95.48	93.05	90.63	90.82	89.89	90.08	90.27	90.45	90.83	92.55	92.76		
2039	97.63	97.85	95.34	92.86	93.04	92.07	92.26	92.46	92.67	93.04	94.82	95.04		
2040	100.01	100.24	97.64	95.08	95.29	94.29	94.50	94.68	94.89	95.29	97.13	97.33		
2041	102.51	102.74	100.07	97.43	97.64	96.62	96.81	97.02	97.24	97.64	99.54	99.75		
2042	105.06	105.30	102.54	99.81	100.03	98.97	99.17	99.40	99.63	100.03	101.97	102.21		
2043	107.67	107.92	105.08	102.27	102.48	101.39	101.60	101.84	102.07	102.48	104.49	104.74		

	TABLE 1b											
					A	voided Co	sts					
				Fix	ed Price C	option for	Base Loa	d QF				
					Off-Peal	K Forecast	t (\$/MWH)					
.,									_			
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	00.04	00.00	10.07	44.00	6.58	6.58	15.91	23.91	24.42	21.36	21.36	25.69
2019	23.34	22.68	18.07	11.66	9.45	8.57	18.77	23.21	23.64	21.48	22.60	26.12
2020	25.48	25.68	20.14	14.07	10.90	10.53	19.99	26.14	26.63	24.34	25.96	30.65
2021	23.55	23.41	23.01	20.77	20.65	20.80	20.97	21.03	21.00	21.17	22.35	23.27
2022	24.28	24.14	23.76	21.65	21.54	21.70	21.88	22.00	22.01	22.18	23.53	24.47
2023	25.47	25.32	24.94	23.05	22.92	23.09	23.26	23.42	23.43	23.60	24.16	25.12
2024	25.82	25.91	25.95	25.07	25.15	25.23	25.31	25.39	25.47	25.55	26.64	26.72
2025	27.37	27.46	27.18	26.26	26.30	26.33	26.42	26.51	26.59	26.71	27.80	27.89
2026	28.57	28.66	28.27	27.30	27.31	27.40	27.49	27.59	27.68	27.77	28.93	29.02
2027	29.71	29.81	29.87	28.89	28.98	29.08	29.17	29.27	29.37	29.47	30.71	30.81
2028	31.50	31.60	31.70	30.77	30.88	30.98	31.08	31.20	31.30	31.56	32.72	32.84
2029	33.70	33.82	33.92	33.06	33.30	33.63	33.74	33.86	33.99	34.14	35.51	35.64
2030	36.67	38.19	38.32	37.26	37.40	37.55	37.69	37.83	37.97	38.22	39.67	39.81
2031	40.80	40.95	41.11	39.82	39.95	40.11	40.27	40.43	40.59	40.80	42.37	42.54
2032	43.58	43.74	43.75	42.25	42.41	42.57	42.73	42.92	43.08	43.26	44.99	45.17
2033	46.33	46.52	46.11	44.69	44.86	44.82	45.00	45.17	45.35	45.54	47.35	47.54
2034	48.72	48.91	46.73	45.30	45.48	45.56	45.74	45.92	46.11	46.28	48.13	48.32
2035	49.51	49.71	47.50	45.28	45.47	44.60	44.77	44.96	45.11	45.47	47.04	47.22
2036	50.89	51.09	48.81	46.52	46.71	45.83	46.00	46.17	46.36	46.70	48.34	48.53
2037	52.35	52.56	50.19	47.86	48.03	47.13	47.31	47.50	47.68	48.03	49.72	49.91
2038	53.83	54.04	51.61	49.19	49.37	48.45	48.63	48.82	49.01	49.38	51.10	51.31
2039	55.36	55.57	53.06	50.58	50.77	49.80	49.98	50.18	50.40	50.77	52.55	52.76
2040	56.89	57.12	54.52	51.96	52.18	51.17	51.38	51.56	51.77	52.18	54.01	54.21
2041	58.52	58.76	56.09	53.45	53.66	52.64	52.83	53.04	53.26	53.66	55.56	55.77
2042	60.20	60.44	57.68	54.95	55.17	54.11	54.31	54.54	54.76	55.17	57.11	57.35
2043	61.91	62.16	59.32	56.51	56.73	55.63	55.85	56.08	56.31	56.73	58.73	58.98

	TABLE 2a											
					A	voided Co	sts					
					Fixed Pric	e Option t	for Wind (QF .				
	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			On-Peal	k Forecas	t (\$/MWH)			-	· · · · · · · · · · · · · · · · · · ·	
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018				. . .	14.38	16.41	28.39	34.00	29.92	24.06	24.06	30.18
2019	26.96	25.36	20.60	17.31	16.88	17.31	28.46	31.79	29.49	23.60	25.53	29.90
2020	30.82	29.10	23.42	18.71	18.08	19.01	29.76	34.15	31.06	26.48	28.53	34.02
2021	35.34	35.20	34.80	32.56	32.44	32.60	32.76	32.83	32.79	32.96	34.14	35.06
2022	36.31	36.16	35.78	33.68	33.57	33.73	33.91	34.03	34.03	34.21	35.56	36.49
2023	37.78	37.63	37.25	35.36	35.23	35.40	35.57	35.72	35.74	35.91	36.47	37.43
2024	38.29	38.37	38.42	37.54	37.62	37.70	37.78	37.85	37.94	38.01	39.10	39.19
2025	40.13	40.22	39.94	39.02	39.06	39.09	39.18	39.27	39.35	39.47	40.56	40.65
2026	41.59	41.67	41.29	40.32	40.33	40.42	40.51	40.61	40.69	40.78	41.95	42.04
2027	42.99	43.09	43.14	42.16	42.25	42.36	42.45	42.55	42.65	42.75	43.99	44.09
2028	45.04	45.14	45.24	44.32	44.42	44.52	44.63	44.74	44.84	45.11	46.26	46.38
2029	47.51	47.63	47.73	46.87	47.11	47.44	47.56	47.68	47.80	47.96	49.32	49.45
2030	50.76	52.28	52.41	51.35	51.49	51.65	51.78	51.92	52.06	52.31	53.76	53.90
2031	55.18	55.33	55.48	54.19	54.33	54.49	54.64	54.80	54.96	55.18	56.75	56.92
2032	58.14	58.30	58.32	56.82	56.98	57.14	57.30	57.49	57.65	57.82	59.56	59.73
2033	61.28	61.47	61.06	59.64	59.81	59.77	59.95	60.13	60.30	60.49	62.30	62.49
2034	64.03	64.22	62.04	60.61	60.79	60.86	61.04	61.23	61.42	61.59	63.43	63.63
2035	65.07	65.27	63.06	60.85	61.03	60.16	60.33	60.52	60.68	61.03	62.60	62.78
2036	66.70	66.90	64.62	62.34	62.52	61.64	61.81	61.99	62.17	62.51	64.15	64.34
2037	68.54	68.74	66.37	64.05	64.22	63.32	63.50	63.69	63.87	64.22	65.91	66.10
2038	70.34	70.54	68.11	65.70	65.88	64.95	65.14	65.33	65.51	65.89	67.61	67.82
2039	72.20	72.41	69.91	67.43	67.61	66.64	66.83	67.03	67.24	67.61	69.39	69.61
2040	74.06	74.29	71.69	69.13	69.35	68.35	68.55	68.74	68.94	69.35	71.18	71.39
2041	76.04	76.28	73.61	70.97	71.18	70.15	70.35	70.55	70.78	71.18	73.07	73.28
2042	78.07	78.31	75.56	72.82	73.05	71.99	72.18	72.41	72.64	73.05	74.98	75.23
2043	80.14	80.39	77.55	74.74	74.96	73.86	74.08	74.31	74.54	74.96	76.96	77.21

	TABLE 2b											
					A	voided Co	sts					
					Fixed Pric	e Option f	or Wind (QF				
					Off-Peal	Forecast	t (\$/MWH)					
	_			_		-		_	_	_		_
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018					5.71	5.71	15.04	23.04	23.55	20.49	20.49	24.82
2019	22.46	21.80	17.19	10.78	8.57	7.69	17.89	22.33	22.76	20.60	21.72	25.24
2020	24.58	24.78	19.24	13.17	10.00	9.63	19.09	25.24	25.73	23.44	25.06	29.75
2021	22.63	22.49	22.09	19.85	19.73	19.88	20.05	20.11	20.08	20.25	21.43	22.35
2022	23.34	23.20	22.82	20.71	20.60	20.76	20.94	21.06	21.07	21.24	22.59	23.53
2023	24.51	24.36	23.98	22.09	21.96	22.13	22.30	22.46	22.47	22.64	23.20	24.16
2024	24.84	24.93	24.97	24.09	24.17	24.25	24.33	24.41	24.49	24.57	25.66	25.74
2025	26.37	26.46	26.18	25.26	25.30	25.33	25.42	25.51	25.59	25.71	26.80	26.89
2026	27.55	27.64	27.25	26.28	26.29	26.38	26.47	26.57	26.66	26.75	27.91	28.00
2027	28.67	28.77	28.83	27.85	27.94	28.04	28.13	28.23	28.33	28.43	29.67	29.77
2028	30.44	30.54	30.64	29.71	29.82	29.92	30.02	30.14	30.24	30.50	31.66	31.78
2029	32.62	32.74	32.84	31.98	32.22	32.55	32.66	32.78	32.91	33.06	34.43	34.56
2030	35.57	37.09	37.22	36.16	36.30	36.45	36.59	36.73	36.87	37.12	38.57	38.71
2031	39.68	39.83	39.99	38.70	38.83	38.99	39.15	39.31	39.47	39.68	41.25	41.42
2032	42.44	42.60	42.61	41.11	41.27	41.43	41.59	41.78	41.94	42.12	43.85	44.03
2033	45.16	45.35	44.94	43.52	43.69	43.65	43.83	44.00	44.18	44.37	46.18	46.37
2034	47.53	47.72	45.54	44.11	44.29	44.37	44.55	44.73	44.92	45.09	46.94	47.13
2035	48.30	48.50	46.29	44.07	44.26	43.39	43.56	43.75	43.90	44.26	45.83	46.01
2036	49.65	49.85	47.57	45.28	45.47	44.59	44.76	44.93	45.12	45.46	47.10	47.29
2037	51.09	51.30	48.93	46.60	46.77	45.87	46.05	46.24	46.42	46.77	48.46	48.65
2038	52.54	52.75	50.32	47.90	48.08	47.16	47.34	47.53	47.72	48.09	49.81	50.02
2039	54.05	54.26	51.75	49.27	49.46	48.49	48.67	48.87	49.09	49.46	51.24	51.45
2040	55.55	55.78	53.18	50.62	50.84	49.83	50.04	50.22	50.43	50.84	52.67	52.87
2041	57.15	57.39	54.72	52.08	52.29	51.27	51.46	51.67	51.89	52.29	54.19	54.40
2042	58.81	59.05	56.29	53.56	53.78	52.72	52.92	53.15	53.37	53.78	55.72	55.96
2043	60.49	60.74	57.90	55.09	55.31	54.21	54.43	54.66	54.89	55.31	57.31	57.56

	TABLE 3a												
					Α	voided Co	sts						
					Fixed Pric	e Option 1	or Solar C	QF					
					On-Peal	k Forecast	t (\$/MWH)						
	_			_		_		_	_	_			
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018					15.25	17.28	29.26	34.87	30.79	24.93	24.93	31.05	
2019	27.84	26.24	21.48	18.19	17.76	18.19	29.34	32.67	30.37	24.48	26.41	30.78	
2020	31.72	30.00	24.32	19.61	18.98	19.91	30.66	35.05	31.96	27.38	29.43	34.92	
2021	34.38	34.23	33.83	31.60	31.48	31.63	31.79	31.86	31.83	32.00	33.17	34.09	
2022	35.32	35.18	34.80	32.69	32.58	32.75	32.92	33.04	33.05	33.22	34.57	35.51	
2023	36.77	36.62	36.24	34.35	34.22	34.39	34.56	34.71	34.73	34.90	35.46	36.42	
2024	37.27	37.36	37.40	36.52	36.61	36.68	36.76	36.84	36.92	37.00	38.09	38.17	
2025	39.09	39.18	38.89	37.98	38.02	38.05	38.14	38.22	38.31	38.43	39.52	39.61	
2026	40.52	40.61	40.22	39.26	39.27	39.35	39.44	39.54	39.63	39.72	40.89	40.97	
2027	41.90	42.00	42.06	41.08	41.17	41.27	41.36	41.46	41.56	41.66	42.90	43.00	
2028	43.93	44.03	44.14	43.21	43.31	43.41	43.52	43.63	43.74	44.00	45.16	45.27	
2029	46.38	46.50	46.60	45.74	45.98	46.31	46.43	46.54	46.67	46.83	48.19	48.32	
2030	49.61	51.12	51.25	50.19	50.34	50.49	50.62	50.76	50.91	51.16	52.60	52.74	
2031	54.00	54.14	54.30	53.01	53.15	53.31	53.46	53.62	53.78	54.00	55.57	55.74	
2032	56.95	57.11	57.13	55.62	55.78	55.95	56.11	56.29	56.46	56.63	58.37	58.54	
2033	60.05	60.24	59.84	58.42	58.59	58.55	58.73	58.90	59.08	59.27	61.08	61.27	
2034	62.77	62.96	60.78	59.35	59.53	59.60	59.79	59.97	60.16	60.33	62.17	62.37	
2035	63.79	63.99	61.78	59.57	59.75	58.88	59.05	59.24	59.40	59.75	61.32	61.50	
2036	65.41	65.61	63.33	61.04	61.23	60.35	60.52	60.70	60.88	61.22	62.86	63.05	
2037	67.21	67.41	65.04	62.71	62.89	61.99	62.17	62.36	62.54	62.89	64.58	64.77	
2038	68.98	69.19	66.76	64.34	64.52	63.60	63.78	63.98	64.16	64.54	66.26	66.47	
2039	70.82	71.03	68.52	66.04	66.23	65.26	65.44	65.64	65.85	66.23	68.01	68.22	
2040	72.65	72.89	70.28	67.72	67.94	66.94	67.14	67.33	67.54	67.94	69.77	69.98	
2041	74.61	74.84	72.17	69.53	69.74	68.72	68.91	69.12	69.34	69.74	71.64	71.85	
2042	76.60	76.84	74.09	71.35	71.58	70.52	70.71	70.94	71.17	71.58	73.51	73.76	
2043	78.64	78.89	76.05	73.24	73.46	72.36	72.58	72.81	73.04	73.46	75.46	75.71	

	TABLE 3b												
					Α	voided Co	sts						
					Fixed Pric	e Option f	or Solar C	QF					
					Off-Peal	k Forecast	(\$/MWH)						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018					6.58	6.58	15.91	23.91	24.42	21.36	21.36	25.69	
2019	23.34	22.68	18.07	11.66	9.45	8.57	18.77	23.21	23.64	21.48	22.60	26.12	
2020	25.48	25.68	20.14	14.07	10.90	10.53	19.99	26.14	26.63	24.34	25.96	30.65	
2021	23.55	23.41	23.01	20.77	20.65	20.80	20.97	21.03	21.00	21.17	22.35	23.27	
2022	24.28	24.14	23.76	21.65	21.54	21.70	21.88	22.00	22.01	22.18	23.53	24.47	
2023	25.47	25.32	24.94	23.05	22.92	23.09	23.26	23.42	23.43	23.60	24.16	25.12	
2024	25.82	25.91	25.95	25.07	25.15	25.23	25.31	25.39	25.47	25.55	26.64	26.72	
2025	27.37	27.46	27.18	26.26	26.30	26.33	26.42	26.51	26.59	26.71	27.80	27.89	
2026	28.57	28.66	28.27	27.30	27.31	27.40	27.49	27.59	27.68	27.77	28.93	29.02	
2027	29.71	29.81	29.87	28.89	28.98	29.08	29.17	29.27	29.37	29.47	30.71	30.81	
2028	31.50	31.60	31.70	30.77	30.88	30.98	31.08	31.20	31.30	31.56	32.72	32.84	
2029	33.70	33.82	33.92	33.06	33.30	33.63	33.74	33.86	33.99	34.14	35.51	35.64	
2030	36.67	38.19	38.32	37.26	37.40	37.55	37.69	37.83	37.97	38.22	39.67	39.81	
2031	40.80	40.95	41.11	39.82	39.95	40.11	40.27	40.43	40.59	40.80	42.37	42.54	
2032	43.58	43.74	43.75	42.25	42.41	42.57	42.73	42.92	43.08	43.26	44.99	45.17	
2033	46.33	46.52	46.11	44.69	44.86	44.82	45.00	45.17	45.35	45.54	47.35	47.54	
2034	48.72	48.91	46.73	45.30	45.48	45.56	45.74	45.92	46.11	46.28	48.13	48.32	
2035	49.51	49.71	47.50	45.28	45.47	44.60	44.77	44.96	45.11	45.47	47.04	47.22	
2036	50.89	51.09	48.81	46.52	46.71	45.83	46.00	46.17	46.36	46.70	48.34	48.53	
2037	52.35	52.56	50.19	47.86	48.03	47.13	47.31	47.50	47.68	48.03	49.72	49.91	
2038	53.83	54.04	51.61	49.19	49.37	48.45	48.63	48.82	49.01	49.38	51.10	51.31	
2039	55.36	55.57	53.06	50.58	50.77	49.80	49.98	50.18	50.40	50.77	52.55	52.76	
2040	56.89	57.12	54.52	51.96	52.18	51.17	51.38	51.56	51.77	52.18	54.01	54.21	
2041	58.52	58.76	56.09	53.45	53.66	52.64	52.83	53.04	53.26	53.66	55.56	55.77	
2042	60.20	60.44	57.68	54.95	55.17	54.11	54.31	54.54	54.76	55.17	57.11	57.35	
2043	61.91	62.16	59.32	56.51	56.73	55.63	55.85	56.08	56.31	56.73	58.73	58.98	

PRICING OPTIONS FOR STANDARD PPA (Continued)

2) Renewable Fixed Price Option

The Renewable Fixed Price Option is based on Renewable Avoided Costs. It is available only to Renewable QFs that generate electricity from a renewable energy source that may be used by the Company to comply with the Oregon Renewable Portfolio Standard as set forth in ORS 469A.005 to 469A.210.

This option is available for a maximum term of 15 years. Prices will be as established at the time the Standard PPA is executed and will be equal to the Renewable Avoided Costs in Tables 4a and 4b, 5a and 5b, or 6a and 6b, depending on the type of QF, effective at execution. QFs using any resource type other than wind and solar are assumed to be Base Load QFs.

Sellers will retain all Environmental Attributes generated by the facility during the Renewable Resource Sufficiency Period. A Renewable QF choosing the Renewable Fixed Price Option must cede all RPS Attributes generated by the facility to the Company from the start of the Renewable Resource Deficiency Period through the remainder of the PPA term.

Prices paid to the Seller under the Renewable Fixed Price Option include adjustments for the capacity contribution of the QF resource type relative to that of the avoided proxy resource. Both Wind QF resources (Tables 5a and 5b) and the avoided proxy resource, the basis used to determine Renewable Avoided Costs for the Renewable Fixed Price Option, are assumed to have a capacity contribution to peak of 5%. The capacity contribution for Solar QF resources (Tables 6a and 6b) is assumed to be 5%. The capacity contribution for Base Load QF resources (Tables 4a and 4b) is assumed to be 100%.

The Renewable Avoided Costs during the Renewable Resource Deficiency Period reflect an increase for avoided wind integration costs, shown in Table 7.

Prices paid to the Seller under the Renewable Fixed Price Option for Wind QFs (Tables 5a and 5b) include a reduction for the wind integration costs in Table 7, which cancels out wind integration costs included in the Renewable Avoided Costs during the Renewable Resource Deficiency Period. However, if the Wind QF is outside of PGE's Balancing Authority Area as contemplated in the Commission's Order No. 14-058, the Seller is paid the wind integration charges in Table 7, in addition to the prices listed in Tables 5a and 5b.

Sellers with PPAs exceeding 15 years will receive pricing equal to the Mid-C Index Price for all years up to five in excess of the initial 15.

PRICING OPTIONS FOR STANDARD PPA (Continued)

Renewable Fixed Price Option (Continued)

TABLE 4a												
					Renewa	able Avoid	led Costs			_		
				Renewal	ole Fixed F	Price Option	on for Bas	se Load Q	F			
					On-Peal	(Forecas	t (\$/MWH))				
Vaan	lan	F-b	Man	A	Mari	l	11	A	Cam	0-4	Nave	D
Year 2018	Jan	Feb	Mar	Apr	May 15.25	Jun 17.28	Jul 29.26	Aug 34.87	Sep 30.79	Oct 24.93	Nov 24.93	Dec 31.05
	07.04	26.24	04.40	10.10								
2019	27.84	26.24	21.48	18.19	17.76	18.19	29.34	32.67	30.37	24.48	26.41	30.78
2020	31.72	30.00	24.32	19.61	18.98	19.91	30.66	35.05	31.96	27.38	29.43	34.92
2021	35.25	33.33	26.96	21.68	20.97	22.02	34.07	38.99	35.53	30.39	32.69	38.84
2022	37.42	35.37	28.60	22.99	22.23	23.34	36.16	41.39	37.71	32.25	34.69	41.23
2023	37.44	35.39	28.62	23.01	22.25	23.36	36.18	41.41	37.73	32.26	34.71	41.25
2024	33.46	31.46	29.68	24.29	21.51	14.47	26.46	29.70	32.48	32.50	33.08	34.88
2025	109.78	104.72	100.19	86.52	79.49	61.62	92.04	100.26	107.30	107.36	108.82	113.41
2026	111.98	106.82	102.20	88.25	81.08	62.85	93.88	102.27	109.44	109.51	111.00	115.68
2027	114.22	108.95	104.24	90.01	82.70	64.11	95.75	104.31	111.63	111.70	113.22	117.99
2028	116.27	110.92	106.12	91.65	84.21	65.30	97.49	106.20	113.64	113.71	115.26	120.11
2029	118.83	113.35	108.45	93.65	86.04	66.70	99.62	108.52	116.14	116.20	117.79	122.75
2030	121.20	115.61	110.61	95.52	87.76	68.03	101.61	110.69	118.46	118.53	120.14	125.20
2031	123.62	117.92	112.82	97.43	89.51	69.39	103.64	112.90	120.83	120.90	122.54	127.71
2032	125.62	119.82	114.63	98.97	90.92	70.45	105.29	114.71	122.77	122.84	124.52	129.77
2033	128.61	122.69	117.38	101.36	93.12	72.19	107.82	117.46	125.70	125.78	127.49	132.86
2034	131.31	125.26	119.85	103.51	95.11	73.75	110.10	119.93	128.34	128.41	130.16	135.64
2035	133.81	127.64	122.12	105.45	96.88	75.10	112.18	122.20	130.78	130.85	132.64	138.22
2036	136.09	129.81	124.20	107.25	98.53	76.38	114.09	124.28	133.01	133.09	134.90	140.58
2037	139.21	132.79	127.05	109.71	100.80	78.14	116.70	127.13	136.06	136.14	137.99	143.80
2038	141.99	135.44	129.59	111.90	102.81	79.70	119.04	129.68	138.78	138.86	140.75	146.68
2039	144.83	138.15	132.18	114.14	104.86	81.29	121.41	132.27	141.55	141.63	143.56	149.61
2040	147.44	140.64	134.57	116.22	106.79	82.81	123.62	134.66	144.10	144.18	146.15	152.30
2041	150.67	143.73	137.51	118.75	109.10	84.57	126.32	137.61	147.26	147.35	149.36	155.65
2042	153.68	146.60	140.26	121.12	111.28	86.26	128.84	140.36	150.21	150.29	152.34	158.76
2043	156.76	149.53	143.06	123.54	113.50	87.99	131.42	143.16	153.21	153.30	155.38	161.93

						TABLE 4						
				Ponowak	Renewa Ie Fixed F	able Avoid		o Load Ol	=			
				Iteriewak		Forecast						
							(4,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018					6.58	6.58	15.91	23.91	24.42	21.36	21.36	25.69
2019	23.34	22.68	18.07	11.66	9.45	8.57	18.77	23.21	23.64	21.48	22.60	26.12
2020	25.48	25.68	20.14	14.07	10.90	10.53	19.99	26.14	26.63	24.34	25.96	30.65
2021	29.15	29.38	22.96	15.91	12.23	11.81	22.79	29.92	30.49	27.83	29.70	35.15
2022	31.09	31.33	24.47	16.93	13.00	12.55	24.28	31.91	32.52	29.67	31.68	37.50
2023	31.41	31.65	24.71	17.09	13.12	12.66	24.53	32.24	32.85	29.98	32.00	37.89
2024	29.94	27.68	27.33	23.19	20.10	12.65	23.44	27.06	29.10	29.67	31.04	32.02
2025	68.81	63.08	62.21	51.70	43.86	24.97	52.32	61.52	66.70	68.13	71.61	74.10
2026	70.19	64.34	63.45	52.73	44.74	25.47	53.37	62.75	68.03	69.49	73.04	75.58
2027	71.59	65.63	64.72	53.78	45.63	25.97	54.44	64.01	69.39	70.88	74.50	77.09
2028	72.82	66.76	65.83	54.71	46.42	26.42	55.37	65.11	70.58	72.10	75.78	78.41
2029	74.48	68.28	67.33	55.95	47.47	27.02	56.63	66.59	72.19	73.74	77.50	80.20
2030	75.97	69.64	68.68	57.07	48.42	27.56	57.77	67.92	73.63	75.22	79.05	81.80
2031	77.49	71.03	70.05	58.21	49.39	28.11	58.92	69.28	75.10	76.72	80.63	83.44
2032	78.82	72.25	71.26	59.21	50.24	28.60	59.93	70.47	76.40	78.04	82.02	84.87
2033	80.61	73.90	72.88	60.56	51.38	29.25	61.30	72.08	78.14	79.82	83.89	86.80
2034	82.23	75.38	74.33	61.77	52.41	29.83	62.52	73.52	79.70	81.41	85.56	88.54
2035	83.87	76.88	75.82	63.01	53.46	30.43	63.77	74.99	81.29	83.04	87.27	90.31
2036	85.31	78.21	77.12	64.09	54.38	30.95	64.87	76.28	82.69	84.47	88.77	91.86
2037	87.25	79.99	78.88	65.55	55.62	31.66	66.35	78.01	84.57	86.39	90.80	93.95
2038	89.00	81.59	80.46	66.86	56.73	32.29	67.67	79.57	86.26	88.12	92.61	95.83
2039	90.78	83.22	82.07	68.20	57.86	32.94	69.03	81.16	87.99	89.88	94.46	97.75
2040	92.34	84.65	83.48	69.37	58.86	33.50	70.21	82.56	89.50	91.43	96.09	99.43
2041	94.44	86.57	85.38	70.95	60.20	34.27	71.81	84.44	91.54	93.51	98.28	101.69
2042	96.33	88.31	87.08	72.37	61.40	34.95	73.25	86.13	93.37	95.38	100.24	103.73
2043	98.25	90.07	88.83	73.81	62.63	35.65	74.71	87.85	95.23	97.28	102.24	105.80

TABLE 5a												
					Renewa	able Avoid	led Costs					
				Renev	wable Fixe							
					On-Pea	k Forecas	t (\$/MWH)					
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018				•	14.38	16.41	28.39	34.00	29.92	24.06	24.06	30.18
2019	26.96	25.36	20.60	17.31	16.88	17.31	28.46	31.79	29.49	23.60	25.53	29.90
2020	30.82	29.10	23.42	18.71	18.08	19.01	29.76	34.15	31.06	26.48	28.53	34.02
2021	34.33	32.41	26.04	20.76	20.05	21.10	33.15	38.07	34.61	29.47	31.77	37.92
2022	36.48	34.43	27.66	22.05	21.29	22.40	35.22	40.45	36.77	31.31	33.75	40.29
2023	36.48	34.43	27.66	22.05	21.29	22.40	35.22	40.45	36.77	31.30	33.75	40.29
2024	32.48	30.48	28.70	23.31	20.53	13.49	25.48	28.72	31.50	31.52	32.10	33.90
2025	90.50	85.44	80.91	67.24	60.21	42.34	72.75	80.98	88.01	88.08	89.54	94.12
2026	92.31	87.15	82.53	68.58	61.41	43.18	74.21	82.60	89.77	89.84	91.33	96.01
2027	94.15	88.89	84.18	69.95	62.64	44.04	75.69	84.25	91.57	91.63	93.15	97.92
2028	95.81	90.45	85.66	71.19	63.75	44.84	77.03	85.73	93.18	93.25	94.79	99.65
2029	97.96	92.48	87.58	72.78	65.17	45.82	78.75	87.65	95.27	95.33	96.92	101.88
2030	99.91	94.33	89.33	74.23	66.47	46.74	80.32	89.40	97.17	97.24	98.85	103.92
2031	101.91	96.21	91.11	75.72	67.80	47.68	81.93	91.19	99.12	99.18	100.83	106.00
2032	103.61	97.81	92.62	76.96	68.91	48.44	83.28	92.70	100.76	100.83	102.51	107.76
2033	106.02	100.09	94.79	78.77	70.53	49.60	85.23	94.87	103.11	103.18	104.90	110.27
2034	108.20	102.15	96.74	80.40	72.00	50.65	86.99	96.82	105.23	105.30	107.05	112.53
2035	110.31	104.14	98.62	81.96	73.39	51.61	88.68	98.71	107.28	107.36	109.14	114.73
2036	112.19	105.92	100.30	83.35	74.63	52.48	90.19	100.39	109.11	109.19	111.00	116.68
2037	114.76	108.34	102.60	85.26	76.35	53.69	92.26	102.69	111.61	111.69	113.54	119.36
2038	117.05	110.51	104.65	86.96	77.87	54.76	94.10	104.74	113.84	113.92	115.81	121.74
2039	119.40	112.72	106.74	88.71	79.43	55.86	95.98	106.83	116.12	116.20	118.13	124.18
2040	121.49	114.70	108.62	90.28	80.84	56.86	97.68	108.72	118.16	118.24	120.20	126.36
2041	124.21	117.26	111.05	92.28	82.63	58.11	99.85	111.14	120.80	120.88	122.89	129.18
2042	126.70	119.61	113.27	94.13	84.29	59.27	101.85	113.37	123.22	123.31	125.35	131.77
2043	129.23	122.00	115.53	96.01	85.97	60.46	103.89	115.63	125.68	125.77	127.86	134.40

	TABLE 5b Renewable Avoided Costs												
					Renewa	able Avoid	led Costs						
				Renev		d Price O							
		1	1	1	Off-Pea	k Forecas	t (\$/MWH)						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018	Jan	160	IVICI	Api	5.71	5.71	15.04	23.04	23.55	20.49	20.49	24.82	
2019	22.46	21.80	17.19	10.78	8.57	7.69	17.89	22.33	22.76	20.60	21.72	25.24	
2020	24.58	24.78	19.24	13.17	10.00	9.63	19.09	25.24	25.73	23.44	25.06	29.75	
2021	28.23	28.46	22.04	14.99	11.31	10.89	21.87	29.00	29.57	26.91	28.78	34.23	
2022	30.15	30.39	23.53	15.99	12.06	11.61	23.34	30.97	31.58	28.73	30.74	36.56	
2023	30.45	30.69	23.75	16.13	12.16	11.70	23.57	31.28	31.89	29.02	31.04	36.93	
2024	28.96	26.70	26.35	22.21	19.12	11.67	22.46	26.08	28.12	28.69	30.06	31.04	
2025	67.81	62.08	61.21	50.70	42.86	23.97	51.32	60.52	65.70	67.13	70.61	73.10	
2026	69.17	63.32	62.43	51.71	43.72	24.45	52.35	61.73	67.01	68.47	72.02	74.56	
2027	70.55	64.59	63.68	52.74	44.59	24.93	53.40	62.97	68.35	69.84	73.46	76.05	
2028	71.76	65.70	64.77	53.65	45.36	25.36	54.31	64.05	69.52	71.04	74.72	77.35	
2029	73.40	67.20	66.25	54.87	46.39	25.94	55.55	65.51	71.11	72.66	76.42	79.12	
2030	74.87	68.54	67.58	55.97	47.32	26.46	56.67	66.82	72.53	74.12	77.95	80.70	
2031	76.37	69.91	68.93	57.09	48.27	26.99	57.80	68.16	73.98	75.60	79.51	82.32	
2032	77.68	71.11	70.12	58.07	49.10	27.46	58.79	69.33	75.26	76.90	80.88	83.73	
2033	79.44	72.73	71.71	59.39	50.21	28.08	60.13	70.91	76.97	78.65	82.72	85.63	
2034	81.04	74.19	73.14	60.58	51.22	28.64	61.33	72.33	78.51	80.22	84.37	87.35	
2035	82.66	75.67	74.61	61.80	52.25	29.22	62.56	73.78	80.08	81.83	86.06	89.10	
2036	84.07	76.97	75.88	62.85	53.14	29.71	63.63	75.04	81.45	83.23	87.53	90.62	
2037	85.99	78.73	77.62	64.29	54.36	30.40	65.09	76.75	83.31	85.13	89.54	92.69	
2038	87.71	80.30	79.17	65.57	55.44	31.00	66.38	78.28	84.97	86.83	91.32	94.54	
2039	89.47	81.91	80.76	66.89	56.55	31.63	67.72	79.85	86.68	88.57	93.15	96.44	
2040	91.00	83.31	82.14	68.03	57.52	32.16	68.87	81.22	88.16	90.09	94.75	98.09	
2041	93.07	85.20	84.01	69.58	58.83	32.90	70.44	83.07	90.17	92.14	96.91	100.32	
2042	94.94	86.92	85.69	70.98	60.01	33.56	71.86	84.74	91.98	93.99	98.85	102.34	
2043	96.83	88.65	87.41	72.39	61.21	34.23	73.29	86.43	93.81	95.86	100.82	104.38	

TABLE 6a												
Renewable Avoided Costs												
Renewable Fixed Price Option for Solar QF												
On-Peak Forecast (\$/MWH)												
Year	lon	Feb	Mar	A	May	Jun	Jul	A	Con	Oct	Nov	Dec
2018	Jan	гер	IVIAI	Apr	15.25	17.28	29.26	Aug 34.87	Sep 30.79	24.93	24.93	31.05
2019	27.84	26.24	21.48	18.19	17.76	18.19	29.34	32.67	30.73	24.48	26.41	30.78
2020	31.72	30.00	24.32	19.61	18.98	19.91	30.66	35.05	31.96	27.38	29.43	34.92
2021	35.25	33.33	26.96	21.68	20.97	22.02	34.07	38.99	35.53	30.39	32.69	38.84
2022	37.42	35.37	28.60	22.99	22.23	23.34	36.16	41.39	37.71	32.25	34.69	41.23
2023	37.44	35.39	28.62	23.01	22.25	23.36	36.18	41.41	37.73	32.26	34.71	41.25
2024	33.46	31.46	29.68	24.29	21.51	14.47	26.46	29.70	32.48	32.50	33.08	34.88
2025	89.46	84.40	79.87	66.19	59.16	41.29	71.71	79.93	86.97	87.03	88.50	93.08
2026	91.24	86.08	81.46	67.52	60.35	42.12	73.14	81.53	88.71	88.77	90.26	94.94
2027	93.07	87.80	83.09	68.86	61.55	42.96	74.60	83.16	90.48	90.55	92.07	96.84
2028	94.70	89.35	84.55	70.08	62.64	43.73	75.92	84.63	92.07	92.14	93.69	98.54
2029	96.82	91.35	86.44	71.64	64.04	44.69	77.62	86.52	94.14	94.20	95.78	100.75
2030	98.76	93.17	88.17	73.08	65.32	45.59	79.17	88.25	96.02	96.08	97.70	102.76
2031	100.73	95.03	89.93	74.54	66.62	46.50	80.75	90.01	97.94	98.00	99.65	104.82
2032	102.42	96.62	91.43	75.77	67.72	47.25	82.09	91.51	99.57	99.64	101.32	106.57
2033	104.80	98.87	93.56	77.55	69.31	48.37	84.01	93.64	101.89	101.96	103.67	109.05
2034	106.94	100.89	95.48	79.14	70.74	49.39	85.73	95.56	103.97	104.04	105.79	111.27
2035	109.03	102.86	97.34	80.68	72.11	50.33	87.40	97.43	106.00	106.08	107.86	113.45
2036	110.90	104.62	99.01	82.06	73.34	51.19	88.90	99.09	107.82	107.89	109.71	115.39
2037	113.43	107.01	101.27	83.93	75.02	52.36	90.93	101.36	110.28	110.36	112.21	118.03
2038	115.70	109.15	103.29	85.61	76.52	53.41	92.74	103.38	112.49	112.56	114.46	120.39
2039	118.01	111.33	105.36	87.32	78.05	54.47	94.60	105.45	114.73	114.81	116.74	122.79
2040	120.08	113.29	107.21	88.87	79.43	55.45	96.27	107.31	116.75	116.83	118.79	124.95
2041	122.77	115.83	109.61	90.85	81.20	56.67	98.42	109.71	119.36	119.45	121.46	127.75
2042	125.23	118.14	111.80	92.66	82.82	57.80	100.38	111.90	121.75	121.84	123.88	130.30
2043	127.73	120.50	114.04	94.51	84.48	58.96	102.39	114.14	124.18	124.27	126.36	132.91

						TABLE 6						-
	Renewable Avoided Costs Renewable Fixed Price Option for Solar QF											
				Renev		•						
Off-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018				-	6.58	6.58	15.91	23.91	24.42	21.36	21.36	25.69
2019	23.34	22.68	18.07	11.66	9.45	8.57	18.77	23.21	23.64	21.48	22.60	26.12
2020	25.48	25.68	20.14	14.07	10.90	10.53	19.99	26.14	26.63	24.34	25.96	30.65
2021	29.15	29.38	22.96	15.91	12.23	11.81	22.79	29.92	30.49	27.83	29.70	35.15
2022	31.09	31.33	24.47	16.93	13.00	12.55	24.28	31.91	32.52	29.67	31.68	37.50
2023	31.41	31.65	24.71	17.09	13.12	12.66	24.53	32.24	32.85	29.98	32.00	37.89
2024	29.94	27.68	27.33	23.19	20.10	12.65	23.44	27.06	29.10	29.67	31.04	32.02
2025	68.81	63.08	62.21	51.70	43.86	24.97	52.32	61.52	66.70	68.13	71.61	74.10
2026	70.19	64.34	63.45	52.73	44.74	25.47	53.37	62.75	68.03	69.49	73.04	75.58
2027	71.59	65.63	64.72	53.78	45.63	25.97	54.44	64.01	69.39	70.88	74.50	77.09
2028	72.82	66.76	65.83	54.71	46.42	26.42	55.37	65.11	70.58	72.10	75.78	78.41
2029	74.48	68.28	67.33	55.95	47.47	27.02	56.63	66.59	72.19	73.74	77.50	80.20
2030	75.97	69.64	68.68	57.07	48.42	27.56	57.77	67.92	73.63	75.22	79.05	81.80
2031	77.49	71.03	70.05	58.21	49.39	28.11	58.92	69.28	75.10	76.72	80.63	83.44
2032	78.82	72.25	71.26	59.21	50.24	28.60	59.93	70.47	76.40	78.04	82.02	84.87
2033	80.61	73.90	72.88	60.56	51.38	29.25	61.30	72.08	78.14	79.82	83.89	86.80
2034	82.23	75.38	74.33	61.77	52.41	29.83	62.52	73.52	79.70	81.41	85.56	88.54
2035	83.87	76.88	75.82	63.01	53.46	30.43	63.77	74.99	81.29	83.04	87.27	90.31
2036	85.31	78.21	77.12	64.09	54.38	30.95	64.87	76.28	82.69	84.47	88.77	91.86
2037	87.25	79.99	78.88	65.55	55.62	31.66	66.35	78.01	84.57	86.39	90.80	93.95
2038	89.00	81.59	80.46	66.86	56.73	32.29	67.67	79.57	86.26	88.12	92.61	95.83
2039	90.78	83.22	82.07	68.20	57.86	32.94	69.03	81.16	87.99	89.88	94.46	97.75
2040	92.34	84.65	83.48	69.37	58.86	33.50	70.21	82.56	89.50	91.43	96.09	99.43
2041	94.44	86.57	85.38	70.95	60.20	34.27	71.81	84.44	91.54	93.51	98.28	101.69
2042	96.33	88.31	87.08	72.37	61.40	34.95	73.25	86.13	93.37	95.38	100.24	103.73
2043	98.25	90.07	88.83	73.81	62.63	35.65	74.71	87.85	95.23	97.28	102.24	105.80

WIND INTEGRATION

TABLE 7								
Integration Costs								
Year	Wind	Solar						
2018	0.87	0.00						
2019	0.88	0.00						
2020	0.90	0.00						
2021	0.92	0.00						
2022	0.94	0.00						
2023	0.96	0.00						
2024	0.98	0.00						
2025	1.00	0.00						
2026	1.02	0.00						
2027	1.04	0.00						
2028	1.06	0.00						
2029	1.08	0.00						
2030	1.10	0.00						
2031	1.12	0.00						
2032	1.14	0.00						
2033	1.17	0.00						
2034	1.19	0.00						
2035	1.21	0.00						
2036	1.24	0.00						
2037	1.26	0.00						
2038	1.29	0.00						
2039	1.31	0.00						
2040	1.34	0.00						
2041	1.37	0.00						
2042	1.39	0.00						
2043	1.42	0.00						

MONTHLY SERVICE CHARGE

Each separately metered QF not associated with a retail Customer account will be charged \$10.00 per month.

INSURANCE REQUIREMENTS

The following insurance requirements are applicable to Sellers with a Standard PPA:

- 1) QFs with nameplate capacity ratings greater than 200 kW are required to secure and maintain a prudent amount of general liability insurance. The Seller must certify to the Company that it is maintaining general liability insurance coverage for each QF at prudent amounts. A prudent amount will be deemed to mean liability insurance coverage for both bodily injury and property damage liability in the amount of not less than \$1,000,000 each occurrence combined single limit, which limits may be required to be increased or decreased by the Company as the Company determines in its reasonable judgment, that economic conditions or claims experience may warrant.
- 2) Such insurance will include an endorsement naming the Company as an additional insured insofar as liability arising out of operations under this schedule and a provision that such liability policies will not be canceled or their limits reduced without 30 days' written notice to the Company. The Seller will furnish the Company with certificates of insurance together with the endorsements required herein. The Company will have the right to inspect the original policies of such insurance.
- 3) QFs with a design capacity of 200 kW or less are encouraged to pursue liability insurance on their own. The Oregon Public Utility Commission in Order No. 05-584 determined that it is inappropriate to require QFs that have a design capacity of 200 kW or less to obtain general liability insurance.

TRANSMISSION AGREEMENTS

If the QF is located outside the Company's service territory, the Seller is responsible for the transmission of power at its cost to the Company's service territory.

INTERCONNECTION REQUIREMENTS

Except as otherwise provided in a generation Interconnection Agreement between the Company and Seller, if the QF is located within the Company's service territory, switching equipment capable of isolating the QF from the Company's system will be accessible to the Company at all times. At the Company's option, the Company may operate the switching equipment described above if, in the sole opinion of the Company, continued operation of the QF in connection with the utility's system may create or contribute to a system emergency.

INTERCONNECTION REQUIREMENTS (Continued)

The QF owner interconnecting with the Company's distribution system must comply with all requirements for interconnection as established pursuant to Commission rule, in the Company's Rules and Regulations (Rule C) or the Company's Interconnection Procedures contained in its FERC Open Access Transmission Tariff (OATT), as applicable. The Seller will bear full responsibility for the installation and safe operation of the interconnection facilities.

DEFINITION OF A SMALL COGENERATION FACILITY OR SMALL POWER PRODUCTION FACILITY ELIGIBLE TO RECEIVE PRICING UNDER THE STANDARD PPA

A QF will be eligible to receive pricing under the Standard PPA if the nameplate capacity of the QF, together with any other electric generating facility using the same motive force, owned or controlled by the Same Person(s) or Affiliated Person(s), and located at the Same Site, does not exceed 10 MW. A Community-Based or Family-Owned QF is exempt from these restrictions.

Definition of Community-Based

- a. A community project (or a community sponsored project) must have a recognized and established organization located within the county of the project or within 50 miles of the project that has a genuine role in helping the project be developed and must have some not insignificant continuing role with or interest in the project after it is completed and placed in service.
- b. After excluding the passive investor whose ownership interests are primarily related to green tag values and tax benefits as the primary ownership benefit, the equity (ownership) interests in a community sponsored project must be owned in substantial percentage (80 percent or more) by the following persons (individuals and entities): (i) the sponsoring organization, or its controlled affiliates; (ii) members of the sponsoring organization (if it is a membership organization) or owners of the sponsorship organization (if it is privately owned); (iii) persons who live in the county in which the project is located or who live a county adjoining the county in which the project is located; or (iv) units of local government, charities, or other established nonprofit organizations active either in the county in which the project is located or active in a county adjoining the county in which the project is located.

Definition of Family-Owned

After excluding the ownership interest of the passive investor whose ownership interests are primarily related to green tag values and tax benefits as the primary ownership benefit, five or fewer individuals own 50 percent or more of the equity of the project entity, or fifteen or fewer individuals own 90 percent or more of the project entity. A "look through" rule applies to closely held entities that hold the project entity, so that equity held by LLCs, trusts, estates, corporations, partnerships or other similar entities is considered held by the equity owners of the look through entity. An individual is a natural person. In counting to five or fifteen, spouses or children of an equity owner of the project owner who also have an equity interest are aggregated and counted as a single individual.

DEFINITION OF A SMALL COGENERATION FACILITY OR SMALL POWER PRODUCTION FACILITY ELIGIBLE TO RECEIVE PRICING UNDER THE STANDARD PPA (Continued)

Definition of Person(s) or Affiliated Person(s)

As used above, the term "Same Person(s)" or "Affiliated Person(s)" means a natural person or persons or any legal entity or entities sharing common ownership, management or acting jointly or in concert with or exercising influence over the policies or actions of another person or entity. However, two facilities will not be held to be owned or controlled by the Same Person(s) or Affiliated Person(s) solely because they are developed by a single entity.

Furthermore, two facilities will not be held to be owned or controlled by the Same Person(s) or Affiliated Person(s) if such common person or persons is a "passive investor" whose ownership interest in the QF is primarily related to utilizing production tax credits, green tag values and MACRS depreciation as the primary ownership benefit and the facilities at issue are independent family-owned or community-based projects. A unit of Oregon local government may also be a "passive investor" in a community-based project if the local governmental unit demonstrates that it will not have an equity ownership interest in or exercise any control over the management of the QF and that its only interest is a share of the cash flow from the QF, which share will not exceed 20%. The 20% cash flow share limit may only be exceeded for good cause shown and only with the prior approval of the Commission.

Definition of Same Site

For purposes of the foregoing, generating facilities are considered to be located at the same site as the QF for which qualification for pricing under the Standard PPA is sought if they are located within a five-mile radius of any generating facilities or equipment providing fuel or motive force associated with the QF for which qualification for pricing under the Standard PPA is sought.

Definition of Shared Interconnection and Infrastructure

QFs otherwise meeting the above-described separate ownership test and thereby qualified for entitlement to pricing under the Standard PPA will not be disqualified by utilizing an interconnection or other infrastructure not providing motive force or fuel that is shared with other QFs qualifying for pricing under the Standard PPA so long as the use of the shared interconnection complies with the interconnecting utility's safety and reliability standards, interconnection agreement requirements and Prudent Electrical Practices as that term is defined in the interconnecting utility's approved Standard PPA.

OTHER DEFINITIONS

Mid-C Index Price

As used in this schedule, the daily Mid-C Index Price shall be the Day Ahead Intercontinental Exchange ("ICE") for the bilateral OTC market for energy at the Mid-C Physical for Average

OTHER DEFINITIONS (Continued)

On-Peak Power and Average Off-Peak Power found on the following website: https://www.theice.com/products/OTC/Physical-Energy/Electricity. In the event ICE no longer publishes this index, PGE and the Seller agree to select an alternative successor index representative of the Mid-C trading hub.

Definition of RPS Attributes

As used in this schedule, RPS Attributes means all attributes related to the Net Output generated by the Facility that are required in order to provide PGE with "qualifying electricity," as that term is defined in Oregon's Renewable Portfolio Standard Act, Ore. Rev. Stat. 469A.010, in effect at the time of execution of this Agreement. RPS Attributes do not include Environmental Attributes that are greenhouse gas offsets from methane capture not associated with the generation of electricity and not needed to ensure that there are zero net emissions associated with the generation of electricity.

Definition of Environmental Attributes

As used in this schedule, Environmental Attributes shall mean any and all claims, credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical, or other substance to the air, soil or water. Environmental Attributes include but are not limited to: (1) any avoided emissions of pollutants to the air, soil, or water such as (subject to the foregoing) sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), and other pollutants; and (2) any avoided emissions of carbon dioxide (CO2), methane (CH4), and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere.

Definition of Resource Sufficiency Period

This is the period from the current year through 2020.

Definition of Resource Deficiency Period

This is the period from 2021.

Definition of Renewable Resource Sufficiency Period

This is the period from the current year through 2024.

Definition of Renewable Resource Deficiency Period

This is the period from 2025.

SCHEDULE 201 (Concluded)

DISPUTE RESOLUTION

Upon request, the QF will provide the purchasing utility with documentation verifying the ownership, management and financial structure of the QF in reasonably sufficient detail to allow the utility to make an initial determination of whether or not the QF meets the above-described criteria for entitlement to pricing under the Standard PPA.

The QF may present disputes to the Commission for resolution using the following process:

The QF may file a complaint asking the Commission to adjudicate disputes regarding the formation of the standard contract. The QF may not file such a complaint during any 15-day period in which the utility has the obligation to respond, but must wait until the 15-day period has passed.

The utility may respond to the complaint within ten days of service.

The Commission will limit its review to the issues identified in the complaint and response, and utilize a process similar to the arbitration process adopted to facilitate the execution of interconnection agreements among telecommunications carriers. See OAR 860, Division 016. The administrative law judge will not act as an arbitrator.

SPECIAL CONDITIONS

- 1. Delivery of energy by Seller will be at a voltage, phase, frequency, and power factor as specified by the Company.
- If the Seller also receives retail Electricity Service from the Company at the same location, any payments under this schedule will be credited to the Seller's retail Electricity Service bill.
 At the option of the Customer, any net credit over \$10.00 will be paid by check to the Customer.
- 3. Unless required by state or federal law, if the 1978 Public Utility Regulatory Policies Act (PURPA) is repealed, PPAs entered into pursuant to this schedule will not terminate prior to the Standard or Negotiated PPA's termination date.

TERM OF AGREEMENT

Not less than one year and not to exceed 20 years.

November 13, 2017

TO: EDP Renewables (EDPR), the Blue Marmot LLCs, and their attorney

Irion Sanger

FROM: Portland General Electric Company and its attorney Lisa Rackner

RE: UM 1829 - Portland General Electric Company's Affidavit regarding

Airport Solar PPA

Pursuant to the ALJ's October 30 ruling regarding the Blue Marmots' Motion to Compel, please find attached a signed Affidavit from Portland General Electric Company regarding the Airport Solar PPA.

DIRECT QUESTIONS TO: Lisa Rackner or Jordan Schoonover

McDowell Rackner Gibson PC

Attorney for Portland General Electric Company

Telephone No: (503) 595-3922

BEFORE THE PUBLIC UTILITY COMMISSION OF THE STATE OF OREGON

UM 1829

Blue Marmot V LLC Blue Marmot VI LLC Blue Marmot VII LLC Blue Marmot VIII LLC Blue Marmot IX LLC,

Complainants,

v.

Portland General Electric Company,

Defendant.

AFFID	A	VIT	OF	JOHN	1	40	RT	ON

- I, John Morton, swear under penalty of perjury under the laws of the state of Oregon:
- 2 1. My full name is John Morton. I am employed by Portland General Electric
- 3 Company (PGE or the Company) as Originator, Power Operations.
- 4 2. I am responsible for negotiating nonstandard Power Purchase Agreements (PPAs)
- 5 with Qualifying Facilities (QFs) under PGE's Schedule 202, and I was responsible for
- 6 negotiating the Airport Solar PPA.
- 7 3. The Airport Solar PPA is the only off-system, nonstandard, QF PPA with
- 8 deliveries to the PACW.PGE Point of Delivery (POD) that PGE has signed.

- 9 4. None of the terms in the Airport Solar PPA pertain to the constraint at the 10 PACW.PGE POD.
- I hereby swear and affirm that the above statement is true to the best of my knowledge
- 12 and belief, and that I understand it is made for use as evidence before the Public Utility
- 13 Commission of Oregon and is subject to penalty for perjury.

SIGNED this 3 day of November, 2017, at Portland, Oregon.

Signed

SUBSCRIBED AND SWORN to before me this

this ____ day of N, 2017.

Notary Public, State of Oregon

country of multiman

My Commission Expires

