



Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204
PortlandGeneral.com

March 16, 2012

Public Utility Commission of Oregon
Attn: Filing Center
550 Capitol Street, N.E., Suite 215
Salem, OR 97301-2551

RE: UM___ Application for Approval of Renewable and Standard Avoided Costs

Enclosed for filing are an original and five copies of the following Testimony and Exhibits of:

- Robert Macfarlane (PGE / 100)

PGE submits this Application for Approval of Renewable and Standard Avoided Costs pursuant to Commission Order No. 11-505 issued on December 13, 2011. The Commission ordered PGE to file this application and testimony "setting forth proposed rates and tariffs to effectuate the legal and policy decisions made in this order." In addition to the terms and conditions applicable to renewable qualifying facilities (QFs), PGE includes updated terms and conditions applicable to standard QFs in order to align the offerings between these alternative resources.

PGE filed Advice No. 12-02 on February 13, 2012 and accompanying testimony on February 14, 2012. At Staff's request, we are filing this application so that it does not include tariff schedules and is, thus, not an advice filing. PGE understands that our Advice No. 12-02 has not yet been accepted and therefore there is no need for PGE to withdraw the advice filing.


Aside from the use of schedules (201, 202, 211, and 212) which are included as exhibits to testimony rather than tariff sheets, there are no substantive changes in this filing from what was submitted in February.

Should you have any questions or comments regarding this filing, please contact Rob Macfarlane at (503) 464-8954.

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused **PORTLAND GENERAL ELECTRIC COMPANY'S DIRECT TESTIMONY AND EXHIBITS IN RENEWABLE AVOIDED COST** to be served by electronic mail to those parties whose email addresses appear on the attached service list from OPUC Docket No. UM 1396.

DATED at Portland, Oregon, this 16th day of March, 2012.



Randall J. Dahlgren
Portland General Electric Company
121 SW Salmon St., 1WTC0702
Portland, OR 97204
503-464-7021 Telephone
503-464-7651 Fax
randy.dahlgren@pgn.com

Daren Anderson NORTHWEST ENERGY SYSTEMS COMPANY LLC <u>da@thenescogroup.com</u> (*Waived Paper Service)	Mary Wiencke PACIFICCORP <u>mary.wiencke@pacificorp.com</u> (*Waived Paper Service)
Oregon Dockets PACIFIC POWER <u>oregondockets@papacificorp.com</u> (*Waived Paper Service)	Ed Durrenberger OREGON PUBLIC UTILITY COMMISSION <u>ed.durrenberger@state.or.us</u> (*Waived Paper Service)
Stephanie Andrus DEPARTMENT OF JUSTICE <u>stephanie.andrus@state.or.us</u> (*Waived Paper Service)	Donald Schoenbeck REGULATORY & COGENERATION SERVICES, INC. <u>dws@r-c-s-inc.com</u> (*Waived Paper Service)
John Lowe RENEWABLE ENERGY COALITION <u>jravenesanmarcos@yahoo.com</u> (*Waived Paper Service)	Gregory M. Adams RICHARDSON & O'LEARY <u>greg@richardsonandoleary.com</u> (*Waived Paper Service)
Peter J. Richardson RICHARDSON & O'LEARY <u>peter@richardsonandoleary.com</u> (*Waived Paper Service)	David Lokting STOLL BERNE <u>dlokting@stollberne.com</u> (*Waived Paper Service)

**BEFORE THE PUBLIC UTILITY COMMISSION
OF THE STATE OF OREGON**

**Renewable Avoided Cost
UM_____**

PORTLAND GENERAL ELECTRIC COMPANY

Direct Testimony and Exhibits of

Robert Macfarlane

March 16, 2012

Renewable Avoided Cost

Table of Contents

I.	Introduction and Summary	1
II.	Renewable Avoided Costs	2
	a. Renewable Resource Sufficiency and Deficiency Periods	2
	b. Basis for Renewable Resource Avoided Cost	3
	c. Basis for Renewable Resource Avoided Cost for a Variable Resource	5
	d. Basis for Renewable Resource Avoided Cost for an Integrated Resource	6
	e. Renewable Avoided Cost QF Eligibility	9
	f. Renewable Energy Certificates.....	10
	g. Standard Renewable Power Purchase Agreements.....	10
	h. Term of Agreement.....	11
III.	Standard Avoided Costs	11
IV.	Qualifications of Witness.....	14
	List of Exhibits	15

I. Introduction and Summary

1 **Q. Please state your name and position.**

2 A. My name is Robert Macfarlane. I am an Analyst in the Pricing and Tariffs Department. My
3 qualifications are listed in Section IV.

4 **Q. What is the purpose of your testimony?**

5 A. This testimony describes the methodology proposed by PGE to establish renewable avoided
6 cost prices consistent with Commission Order No. 11-505. In addition, I provide an update
7 to standard avoided costs so that reasonable comparisons can be made to renewable avoided
8 cost prices.

9 **Q. What is a renewable avoided cost?**

10 A. The renewable avoided cost is based on the requirement that investor-owned utilities meet a
11 portion of customer energy requirements from renewable resources consistent with Oregon's
12 Renewable Portfolio Standard (RPS). In Order No. 11-505, the Commission directed PGE
13 and Pacific Power to file applications with supporting testimony to set forth rates and tariffs
14 consistent with the order. The Qualifying Facility (QF) provides electricity and its
15 environmental attributes, including Renewable Energy Certificates (RECs) from a
16 renewable resource to the utility and receives compensation based upon the cost that would
17 have been incurred by the utility if not for the electricity provided by the QF.

18 **Q. What actions does PGE seek from the Commission?**

19 A. PGE requests an order from the Commission approving:

20 1. The renewable avoided cost prices described in this testimony.

21 2. Establishment of new rate Schedules 211 and 212 as described in this testimony.

1 3. An update of standard avoided costs and related language changes in Schedules 201
2 and 202.

3 4. Standard Agreements contained as exhibits to this testimony.

II. Renewable Avoided Costs

a. Renewable Resource Sufficiency and Deficiency Periods

4 **Q. Does the calculation of the renewable avoided costs reflect two distinct periods?**

5 A. Yes. Similar to the traditional avoided cost, two periods exist for the purpose of renewable
6 avoided cost. They are referred to as the renewable resource sufficiency period and the
7 renewable resource deficiency period.

8 **Q. What is the renewable resource sufficiency period?**

9 A. The renewable resource sufficiency period arises in two circumstances. First, a renewable
10 resource sufficiency period applies in the near term period when the utility has a major
11 renewable resource acquisition planned, but is avoidable; the utility has not yet made an
12 irreversible commitment to acquire that resource. Second, if the utility has no renewable
13 resource acquisitions planned, the utility is renewable resource sufficient and there is only a
14 renewable resource sufficiency period.

15 **Q. What is the renewable resource deficiency period?**

16 A. The renewable resource deficiency period begins in the year in which, according to the most
17 recent acknowledged Integrated Resource Plan (IRP), the utility plans to have a major
18 renewable resource on line, provided an irreversible commitment has not been made.

1 **Q. What constitutes an irreversible commitment?**

2 A. The Commission, in Order No. 11-505, determined that an irreversible commitment occurs
3 after the completion of the request for proposal (RFP) process with the execution of
4 contracts or award of a benchmark resource to the utility to build for itself.

5 **Q. What date does PGE use to designate the renewable resource deficiency period?**

6 A. PGE's 2009 IRP indicates a 330-385 MW wind resource is expected to be on line by
7 December 31, 2014. Therefore, the sufficiency period lasts from today through 2014 and
8 the deficiency period begins in 2015.

b. Basis for Renewable Resource Avoided Cost

9 **Q. Can you describe the renewable avoided costs PGE has developed and which types of**
10 **QFs will be eligible for each?**

11 A. Table 1 below shows the standard agreements available and the pricing basis.

Table 1
Standard Renewable PPAs and Pricing Basis

	Standard Renewable PPA	Sufficiency Price Basis	Deficiency Price Basis
1	Standard Renewable In-System Non-Variable Power Purchase Agreement	Forward energy prices	IRP wind plant plus integration II
2	Standard Renewable Off-System Non-Variable Power Purchase Agreement	Forward energy prices	IRP wind plant plus integration II
3	Standard Renewable In-System Variable Resource Power Purchase Agreement	Forward energy prices minus integration I	IRP wind plant
4	Standard Renewable Off-System Integrated Variable Resource Power Purchase Agreement	Forward energy prices	IRP wind plant plus integration II

Notes:

IRP wind plant includes capital cost, fixed O&M, and wheeling cost

Integration I = full integration cost (cost for day-ahead uncertainty,
hour-ahead uncertainty, load following, and regulation)

Integration II = partial integration (cost for hour-ahead uncertainty,
load following, and regulation)

1 **Q. What is the starting point for the renewable avoided cost during the period of**
2 **renewable resource sufficiency?**

3 A. Order No. 11-505 page 1 states that during the period of renewable resource sufficiency, the
4 rate will be based on market prices. The electric forward price curve was derived from
5 monthly on- and off-peak market quotes as of December 29, 2011. The 2012 through 2014
6 prices are based on information from broker quotes that PGE's traders observe. The 2012
7 calendar price is used to impute or shape the 2014 price. We also use similar forward price
8 curves in PGE's Net Variable Power Cost Annual Update Tariff (AUT) filing. The curve in
9 the 2012 AUT uses Mid-C on- and off-peak prices for only the test year (e.g. 2012).

1 **Q. Are the forward prices adjusted for wheeling?**

2 A. Yes. The cost to wheel the energy to PGE's service territory is added to the price.

c. Basis for Renewable Resource Avoided Cost for a Variable Resource

3 **Q. Are integration costs considered during the renewable resource sufficiency period?**

4 A. Yes. Integration is implicit in forward energy prices. Therefore, no adjustment is necessary
5 for QFs providing output from an off-system variable resource that use a third party to
6 integrate that energy into PGE's balancing authority on an hourly basis. Similarly, no
7 adjustment is necessary for QFs with a base load (firm) resource. However, integration
8 costs are subtracted from the prices for QFs that provide output from an on-system variable
9 resource since the QF does not provide or pay a third party to provide integration into PGE's
10 balancing authority.

11 **Q. What is the basis for integration costs?**

12 A. PGE provided its Wind Integration Study Phase II in Appendix A of the 2011 Update to the
13 2009 IRP, included as Exhibit 101. Per this study, PGE's wind integration costs are
14 \$9.15/MWh in 2014 dollars as shown on page 51. During the sufficiency period, this
15 amount, adjusted for inflation, is subtracted from the forward energy price.

16 **Q. What is wind integration?**

17 A. Wind integration provides firm energy into PGE's system. There are four cost components:
18 the cost for day-ahead uncertainty, hour-ahead uncertainty, load following, and regulation.
19 Both load following and regulation account for intra-hour uncertainty.

1 **Q. What is the starting point for the renewable avoided cost during the period of**
2 **renewable resource deficiency?**

3 A. During the period of renewable resource deficiency, Order No. 11-505 states that the rate
4 will be based on the next utility scale renewable resource acquisition in the IRP Action Plan.
5 For PGE, the renewable resource addition identified in the IRP is a 330-385 MW wind
6 resource.

7 **Q. How does PGE calculate the avoided cost price based on the renewable resource?**

8 A. The price includes the following costs of a wind resource: overnight capital and fixed
9 operations and maintenance (O&M) and wheeling. Production tax credits (PTC) are also
10 included over the first ten years of the facility life. No other incentives are included.

11 A revenue requirement is then calculated over the 27 year economic life. The real
12 levelized revenue requirement is then escalated at inflation from 2015 to 2031. The result is
13 a nominal flat price for each year. These flat prices are then converted to on- and off-peak
14 prices using market clearing prices from the AURORA model.

d. Basis for Renewable Resource Avoided Cost for an Integrated Resource

15 **Q. You explained how integration costs are considered during the renewable resource**
16 **sufficiency period. Are integration costs also considered during the renewable**
17 **resource deficiency period?**

18 A. Yes. Unlike forward energy prices, integration is not implicit in the IRP wind resource.
19 Therefore, no adjustment is necessary for QFs that provide output from a variable resource
20 if the QF does not provide or pay a third party to provide integration into PGE's balancing
21 authority. However, integration costs (excluding the cost for day-ahead uncertainty) are
22 added to the prices for QFs that provide output from an off-system variable resource that use

1 a third party to integrate (or self-integrate) that energy into PGE's service territory on an
2 hourly basis and for QFs with a base load (firm) resource.

3 **Q. Why is the cost of removing day-ahead uncertainty not included in the pricing adder**
4 **for integration cost?**

5 A. The Variable Energy Resource Balancing Service (VERBS) provided by BPA does not
6 remove day-ahead uncertainty. Other than self-integration, this is the third party service
7 generally available to a QF to integrate into PGE's service territory. As a result, the cost of
8 day-ahead uncertainty is absorbed by PGE irrespective of the type of renewable energy
9 supplied to PGE.

10 **Q. What is the basis for integration costs without day-ahead uncertainty?**

11 A. Again, PGE provided its Wind Integration Study Phase II in Appendix A of the 2011 Update
12 to the 2009 IRP. Per this study, PGE's full wind integration costs are \$9.15/MWh in 2014
13 dollars as shown on page 47. This page also breaks down the various components including
14 the cost of day-ahead uncertainty, which is \$3.61/MWh in 2014 dollars. The full integration
15 cost of (\$9.15/MWh) minus the cost of day-ahead uncertainty (\$3.61/MWh) provides
16 integration costs of \$5.54/MWh in 2014 dollars. During the deficiency period, this amount,
17 adjusted for inflation, is added to the \$/MWh price.

1 **Q. Given this explanation, why is it appropriate to subtract total integration costs during**
2 **the sufficiency period for a QF that provides output from an on-system variable**
3 **energy resource if the QF does not provide or pay a third party to provide integration**
4 **into PGE's service territory?**

5 A. During the period of resource sufficiency, avoided cost prices are based on forward energy
6 prices. These market prices provide firm energy (e.g., there is no day-ahead uncertainty).
7 Therefore, the cost of day-ahead uncertainty is implicit in forward energy prices. To arrive
8 at a price, based on PGE's avoided costs, that removes integration costs, all of the
9 components of integration costs must be removed. This includes the costs for day-ahead,
10 hour-ahead, and intra-hour uncertainty (load following and regulation).

11 **Q. Can an off-system QF with a variable resource provide dynamic scheduling?**

12 A. No. An off-system QF with a variable resource must either self integrate or pay for
13 integration through a third party. Only in-system QFs with a variable resource are eligible
14 for the price that doesn't include a pricing adder for integration. For in-system QFs with a
15 variable resource, PGE provides integration.

16 **Q. Why is the renewable avoided cost calculated through 2031?**

17 A. Using 2031 as an end date gives any QFs executing a Power Purchase Agreement (PPA) in
18 the next two years at least 15 years of fixed pricing consistent with Commission
19 Order No. 05-584, pages 27-28.

20 **Q. Has PGE developed schedules with pricing and conditions related to renewable**
21 **avoided costs?**

22 A. Yes. PGE Schedules 211 and 212 relate to renewable avoided costs and are included as
23 Exhibits 102 and 103, respectively.

1 **Q. What is the purpose of Schedule 211?**

2 A. Schedule 211 relates to the Standard Renewable PPA. This allows eligible renewable QFs
3 to sell power to PGE without negotiating terms and conditions. There are four Standard
4 Renewable PPAs available, which I will discuss later in my testimony.

5 **Q. What is the purpose of Schedule 212?**

6 A. Schedule 212 relates to negotiated Renewable PPAs. This allows eligible renewable QFs to
7 sell power to PGE using negotiated price, terms, and conditions.

8 **Q. What renewable QFs are eligible for Schedule 211?**

9 A. Those QFs that satisfy the eligibility requirements outlined in the next section of my
10 testimony and that have a nameplate capacity rating of 10 MW or less.

e. Renewable Avoided Cost QF Eligibility

11 **Q. What QFs are eligible for Schedule 211 or 212 renewable avoided costs?**

12 A. To be eligible for Schedule 211, the energy from the QF must provide environmental
13 attributes of the energy including RECs that PGE can use to satisfy Oregon's RPS
14 requirements. Thus, cogeneration production facilities are not eligible. In addition,
15 Oregon's RPS limits the amount of RECs from low-impact hydro generation to 50 MWa.
16 Since PGE has more than enough low-impact hydro to reach 50 MWa, hydro QFs are not
17 eligible for Schedule 211.

f. Renewable Energy Certificates

1 **Q. In the traditional avoided cost, the QF retains any RECs. Who has ownership of RECs**
2 **under the renewable avoided cost?**

3 A. Order No. 11-505 page 1 states that during the period of renewable resource sufficiency the
4 QF retains the RECs. However, during the period of renewable resource deficiency, the QF
5 must transfer all RECs to the purchasing utility. The purchasing utility avoids the resource
6 acquisitions that would otherwise be needed to satisfy Oregon's RPS, as defined in
7 ORS 469A.

8 **Q. How are the RECs tracked?**

A. The QF is responsible to assure RECs are established through Western Renewable Energy
Generation Information System (WREGIS) consistent with OAR 330-160-0020. In
addition, the QF is responsible to ensure RECs are bundled as defined in ORS 469A.005.

g. Standard Renewable Power Purchase Agreements

9 **Q. What Standard Renewable PPAs are available to a renewable QF?**

10 A. There are four Standard Renewable PPAs available under Schedule 211. They are: Standard
11 Renewable In-System Non-Variable Power Purchase Agreement, Standard Renewable Off-
12 System Non-Variable Power Purchase Agreement, Standard Renewable In-System Variable
13 Resource Power Purchase Agreement, and Standard Renewable Off-System Integrated
14 Variable Resource Power Purchase Agreement. The Renewable PPAs are provided as
15 Exhibit 104.

1 **Q. What types of renewable resources are considered variable?**

2 A. The Standard Renewable PPAs applicable to Variable Resources are available only to QFs
3 utilizing wind or solar as the primary motive force.

4 **Q. What pricing is applicable to each PPA?**

5 A. Table 1 referenced previously in this testimony provides the fixed pricing applicable to
6 each PPA.

h. Term of Agreement

7 **Q. What terms are available to a renewable QF?**

A. QFs may choose any term between 1 and 20 years per Commission Order No. 05-584.
However, the fixed price option under Schedule 211 is only available for the first 15 years of
the standard PPAs. The last 5 years of a 20 year PPA is paid at one of the variable options
in Schedule 201.

III. Standard Avoided Costs

8 **Q. Is PGE also updating the standard avoided costs included in Schedule 201?**

9 A. Yes. The avoided costs prices during the sufficiency period should have the same prices as
10 those used for renewable avoided costs. For consistency, PGE is updating the standard
11 avoided costs concurrent with the introduction of renewable avoided costs. Schedule 201
12 relates to the Standard PPA. This allows eligible renewable QFs to sell power to PGE
13 without negotiating terms and conditions. Schedule 201 is included as Exhibit 105.
14 Schedule 202 relates to negotiated PPAs. This allows eligible QFs to sell power to PGE
15 using negotiated price, terms, and conditions. Schedule 202 is included as Exhibit 106.

1 **Q. Are there other changes included in Schedule 201 other than updated avoided cost**
2 **calculations?**

3 A. Yes. PGE added a special condition that allows only one avoided cost PPA per facility
4 along with a provision that energy sales must commence within one year of executing a
5 PPA. Also, PGE added a fixed price option which reflects an adjustment for integration
6 costs associated with in-system variable energy resources.

7 **Q. What is the purpose of the additional special condition?**

8 A. The purpose is to prevent the QF from executing multiple PPAs that cover different time
9 frames. Without this special condition, the QF could attempt to sign up for Schedule 201 for
10 some years and Schedule 211 for other years.

11 **Q. Please discuss the additional fixed pricing option.**

12 A. The adjustment to the fixed pricing option is available to QFs with a variable energy
13 resource located inside PGE's system. For an in-system variable resource, the QF does not
14 provide or pay a third party to provide integration into PGE's balancing authority.

15 **Q. What is the basis of the additional fixed pricing option?**

16 A. Integration is implicit in both forward energy prices used as a basis for avoided costs pricing
17 in the sufficiency period and the CCCT proxy used in the deficiency period. Therefore, no
18 adjustment is necessary for QFs that have an off-system variable resource since they must
19 either use a third party to integrate or self-integrate that energy into PGE's balancing
20 authority on an hourly basis and for QFs with a base load (firm) resource. However,
21 integration costs are subtracted from the prices for QFs that have an in-system variable
22 resource since the QF does not provide or pay a third party to provide integration into PGE's

1 balancing authority on an hourly basis. The prices with the integration costs subtracted form
2 the basis of the additional fixed pricing option.

3 **Q. Has the start of the resource deficiency period changed?**

4 A. No. The previously filed avoided costs were based on the 2009 IRP and this avoided cost
5 filing is also based on the 2009 IRP.

6 **Q. What items have been updated from the current avoided costs?**

7 A. The calculations in this filing include updates to forward energy prices, gas prices, and
8 capital costs. Capital costs were updated in the 2011 IRP Update to the acknowledged
9 2009 IRP, filed November 23, 2011. The work papers provided with PGE Advice Filing
10 No. 12-02 provide an explanation of the avoided cost methodology.

11 **Q. What Standard PPAs are available to a QF?**

12 A. There are four Standard PPAs available under Schedule 201. They are: Standard In-System
13 Non-Variable Power Purchase Agreement, Standard Off- System Non-Variable Power
14 Purchase Agreement, Standard In-System Variable Resource Power Purchase Agreement,
15 and Standard Off-System Integrated Variable Resource Power Purchase Agreement. The
16 Standard PPAs are provided as Exhibit 107.

IV. Qualifications of Witness

1 **Q. Mr. Macfarlane, please state your educational background and qualifications.**

2 A. I received a Bachelor of Arts business degree from Portland State University with a focus in
3 finance.

4 Since joining PGE in 2008, I have worked as an analyst in the Rates and Regulatory
5 Affairs Department. My duties at PGE have focused on pricing and regulatory issues.

6 From 2004 to 2008, I was a consultant with Bates Private Capital in Lake Oswego, OR
7 where I developed, prepared, and reviewed financial analyses used in investor vs. broker
8 litigation.

9 **Q. Does this complete your testimony?**

10 A. Yes.

List of Exhibits

<u>PGE Exhibit</u>	<u>Description</u>
101	Wind Integration Study Phase II
102	Schedule 211 Qualifying Facility 10 MW or Less Renewable Avoided Cost Power Purchase Information
103	Schedule 212 Qualifying Facilities Greater Than 10 MW Renewable Avoided Cost Power Purchase Information
104	Renewable Power Purchase Agreements
105	Schedule 201 Qualifying Facility 10 MW or Less Avoided Cost Power Purchase Information
106	Schedule 202 Qualifying Facilities Greater Than 10 MW Avoided Cost Power Purchase Information
107	Power Purchase Agreements

EnerNex



PGE Wind Integration Study Phase II

Prepared by:

Portland General Electric



and

EnerNex

620 Mabry Hood Road, Suite 300

Knoxville, TN 37932

September 30, 2011



Table of Contents

- 1. EXECUTIVE SUMMARY 1
- 2. INTRODUCTION 3
 - 2.1 REASONS FOR THE PHASE 2 WIND INTEGRATION STUDY 3
 - 2.2 STUDY ASSUMPTIONS 4
- 3. PUBLIC PROCESS AND REVIEWS 7
 - 3.1 TECHNICAL REVIEW COMMITTEE (TRC) 7
 - 3.2 MIXED INTEGER PROGRAMMING CONSULTANTS 8
 - 3.3 PUBLIC MEETINGS 9
- 4. WIND INTEGRATION ISSUES & METHODOLOGY – OVERVIEW 10
 - 4.1 WIND DATA SOURCE 10
 - 4.2 WIND SITE POWER OUTPUT 10
 - 4.3 WIND SITE FORECASTS 13
- 5. WIND INTEGRATION METHODOLOGY 16
 - 5.1 OVERVIEW 16
 - 5.2 THE NEED FOR DYNAMIC CAPACITY 16
 - 5.3 MODELING TOOLS 21
 - 5.3.1 System Optimization 21
 - 5.3.2 Aurora Model 22
 - 5.4 DATA ASSUMPTIONS 23
 - 5.4.1 Plants Available for Integration 23
 - 5.4.2 Fuel Prices 25
 - 5.4.3 Regional Wholesale Electricity Prices 26
 - 5.4.4 Loads and Load Forecast Error 27
 - 5.4.5 Water Year 28
 - 5.4.6 Bid/Ask Pricing 29
 - 5.4.7 General Constraints for Hydro 30
 - 5.4.8 General Constraints for Thermal Plants Providing Ancillary Services 32
 - 5.5 MODELING APPROACH 33
 - 5.5.1 Details of Modeling Approach and Results 35
 - 5.6 CALCULATION FOR RESERVES AND UNCERTAINTY 39
 - 5.6.1 Regulation 40
 - 5.6.2 Load Following and Hour-Ahead Forecast Error 41



5.6.3	Day-Ahead Scheduling	42
5.6.4	Hour-Ahead Scheduling	43
5.6.5	Real-Time Dispatch (Within-Hour)	43
5.6.6	Issues in Reserve Requirement Data Development.....	43
6.	SUMMARY AND CONCLUSIONS.....	46
6.1	COST SUMMARY	46
6.2	CONCLUSIONS.....	47
6.3	FUTURE POTENTIAL REMEDIATION.....	48
6.3.1	30-Minute Scheduling	48
6.3.2	Energy Imbalance Market.....	49
6.3.3	Additional Flexible Generation.....	49
6.4	NEXT STEPS FOR PGE'S WIND INTEGRATION STUDY	51
7.	LIST OF APPENDICES.....	53



List of Figures

Figure 1: Location of Biglow Canyon and Site X 11

Figure 2: V90 and Siemens 2.3 MW power curves 12

Figure 3: Mean Absolute Error for PGE wind forecasts of 1, 2, and 3 days ahead 14

Figure 4: PGE forecast compared to adjusted WWRD forecast 15

Figure 5: Examples of 50 MW generator operating for one hour 18

Figure 6: Example of modeling a generator supplying Dynamic Capacity 21

Figure 7: Forecast of electricity prices for 2014 23

Figure 8: 2014 Wholesale electricity prices for the Pacific Northwest, nominal \$/MWh 27

Figure 9: Cost by utility in the WECC 48



List of Tables

Table 1: Capacity factor comparison V90 vs. Siemens 2.3 MW turbines.....12

Table 2: Pacific Northwest Day-Ahead scheduling process.....13

Table 3: Requirements for Operating Reserves.....19

Table 4: PGE's hydro and coal generation availability for ancillary services.....24

Table 5: PGE's gas and other generation availability for ancillary services25

Table 6: Hour-Ahead assumed Bid/Ask percentages of market price.....30

Table 7: Model runs summarizing wind integration cost breakout37

Table 8: Model runs detailing wind integration cost breakout38

Table 9: Integration costs by component, year 2014.....47

Table 10: Integration costs by component with two additional LMS100 SCCTs.....51



1. EXECUTIVE SUMMARY

In 2007, given projections for a significant increase in wind generating resources, Portland General Electric (PGE) began efforts to determine forecast costs associated with self-integration of wind generation. This effort entailed developing detailed (hourly) data and optimization modeling of PGE's system using mixed integer programming (MIP). This study was intended as the initial phase of an on-going process to further estimate wind integration costs and refine the associated model.

In October 2009, PGE began Phase 2 of its Wind Integration Study and contracted for additional participation from EnerNex (a leading resource for electric power research, plus engineering and consulting services to government, utilities, industry, and private institutions), who provided input data and guidance for Phase 1. A significant driver of Phase 2 was the expectation that the cost for wind integration services, as currently provided by the Bonneville Power Administration (BPA), would increase significantly as growing wind capacity in the Pacific Northwest would exceed the potential of BPA's finite supply of wind-following resources.¹ In addition, it is PGE's contention that BPA's variable energy services rate and subsequent generation imbalance charges represent only a portion of the total cost to integrate wind, as calculated in this study.

A significant goal for Phase 2 of the Wind Integration Study was to include additional refinements for estimating PGE's costs for self-integration of its wind resources. As in Phase 1 of the Wind Integration Study, Phase 2 has also sought input, deliverables, and feedback from a Technical Review Committee (TRC) and other external consultants. Since launching Phase 2, PGE has reprogrammed and refined the wind integration model, updated the study, and also held public meetings to discuss progress and modeling

¹ On July 26, 2011, BPA posted the "Administrator's Final Record of Decision" for the BP-12 Rate Proceeding. The Variable Energy Resource Balancing Service Rate decreased by 4.7% for FY 2012-2013. Although the rate has decreased for this current rate period, PGE continues to anticipate future rate increases as the level of service provided by BPA continues to decline due to policy decisions such as BPA's "Interim Environmental Redispatch and Negative Pricing Policies" issued May 13, 2011.



details. The public meetings were attended by staff representatives from the Oregon Public Utility Commission (OPUC), the Oregon Department of Energy (ODOE) and other interested parties that have participated in PGE's 2009 Integrated Resource Planning proceeding (IRP – OPUC Docket No. LC 48). In addition to these public reviews, the Phase 2 data and methodology has been vigorously evaluated by the TRC and EnerNex, who provided valuable insight and information associated with wind integration modeling.

The Phase 2 model consists of mixed integer programming using the General Algebraic Modeling System (GAMS) programming and a Gurobi optimizer. This provides greater efficiency, calculation speed, and flexibility for the more rigorous requirements of Phase 2 calculations. Additional improvements in Phase 2 include:

- Three-stage scheduling optimization with separate Day-Ahead, Hour-Ahead, and Within-Hour calculations;
- Refined estimates of PGE's reserve requirements; and
- Isolation for cost purposes of the components of ancillary services (i.e., Day-Ahead uncertainty, Hour-Ahead uncertainty, load and Load Following for Wind, and Regulation).

The results of the study indicate that PGE's estimated self-integration costs are \$11.04 per MWh and within the range calculated by other utilities in the region. Specific model assumptions are detailed below but, in short, reflect a potential 2014 state in which PGE seeks to integrate up to 850 MW of wind (to meet 2015 the Oregon physical RPS requirement) using existing (by 2014) PGE resources and associated operating limitations. This is intended to set a baseline from which subsequent remediation actions can be assessed. As the supply of variable resources and associated demand for flexible resources increases over time, subsequent phases of the Wind Integration Study can assess these changes.



2. INTRODUCTION

2.1 REASONS FOR THE PHASE 2 WIND INTEGRATION STUDY

Because wind integration costs directly affect PGE's resource acquisitions and their comparative economic evaluation, in Commission Order No. 10-457, at 25, the OPUC directed that:

In its next IRP planning cycle, PGE must include a wind integration study that has been vetted by regional stakeholders.

Another driver to the Study is the expectation that BPA will reach the limit of its available wind-integrating resources in the not-too-distant future. Currently, BPA's Federal Columbia River Power System (FCRPS) provides a majority of the wind integration capability in the Pacific Northwest. However, with regional wind capacity increasing from 250 MW to 3,500 MW from 2005 to 2010, and expectations of an additional 9,000 MW during the next 5 years, PGE expects BPA's finite resources for integrating wind will become increasingly costly and constrained. Hence, PGE needs to understand its own integration capabilities and costs.

As PGE expands its wind generating capacity to satisfy the 2015 and 2020 Oregon Renewable Energy Standard (RES) requirements, PGE's IRP Action Plan has identified the need for both traditional seasonal capacity (to which the firm contribution of variable resources is assumed at 5% of nameplate) as well as flexible generation supply to integrate variable supply. Pursuant to the Action Plan, PGE is issuing two Requests for proposal (RFPs) to acquire:

- Up to 400 MW of additional wind generation to reach physical compliance with the 2015 RPS standard and



- Dual-purpose flexible resources to provide seasonal capacity and Dynamic Capacity² suitable for self-integration of variable wind generation.

This Wind Integration Study provides the estimated wind integration cost for evaluating wind bids (including PGE's own benchmark proposal) as well as the indicative dispatch requirement for a new flexible resource.

2.2 STUDY ASSUMPTIONS

Phase 2 of the Wind Integration Study is based on existing PGE owned and contracted resources (as of 2014) plus 400 MW of additional wind generation as a proxy for meeting our Action Plan target of 122 MWa of new renewables. For generating resources, PGE has a varied mix of generation consisting of 1,827 MW of thermal generation (670 MW coal-fired and 1,157 MW gas-fired), 489 MW of PGE-owned hydro generation, approximately 300 MWa of long-term hydro power purchase agreements, and 550 MW of wind generation. (One-hundred MW of the wind plant receives long-term third-party wind integration and is not included for this study.) Because PGE is currently a "short" utility, the remainder of its load is covered by market transactions – term contracts and spot market purchases. Although future requirements for capacity and energy resources are identified in the most recent IRP (acknowledged by Commission Order No. 10-457), these were not included in the Wind Integration Study because they are not yet identified (RFPs are currently under development).

Because PGE's service territory resides entirely within Oregon, we are subject to Oregon's RES, which establishes increasing percentages of a utility's load that need to be met by renewable resources.³ In order to meet this requirement, PGE's IRP also includes an additional 122 MWa of renewable resources to be installed by 2015. Because wind energy is the resource in this region that is currently available in economic quantity, PGE

² Dynamic Capacity is the capacity used/needed to balance the within-hour variability brought on by the combination of variable energy resources and load.

³ The standard starts at 5% in 2011, then increases to 15% in 2015, 20% in 2020, and 25% in 2025.



has conservatively assumed for purposes of this study that the majority of the requirement will be met with wind – approximately 400 MW of new nameplate wind. As this represents a statutory requirement that directly impacts PGE’s wind integration efforts, PGE included it in the current study. Additional assumptions within the model include:

- 2014 is the Wind Integration Study year.
- 2005 actual data was used for hydro flows, wind generation, and load forecast errors.
- 2014 Mid-Columbia (Mid-C) electricity market prices (as used for economic dispatch in the wind integration model) were simulated with AURORAxmp. This is the model used in the Integrated Resource Plan (as discuss in Section 5.3.2, below).
- PGE’s 450 MW Biglow Canyon Wind Farm, located in Sherman County, Oregon, is self-integrated.
- The 400 MW of wind resources, for purposes of developing an annual capacity factor and hourly output profile, are assumed to be located east of Biglow Canyon in the Columbia River Gorge.
- PGE resources available to provide ancillary services:
 - PGE’s contractual share of Mid-Columbia hydro generation, which diminishes over time;
 - Two-thirds of Pelton-Round Butte hydro generation
 - Beaver gas-powered generation, in both combined cycle and simple cycle modes.
- PGE resources not available to provide ancillary services:
 - Port Westward gas-powered generation
 - Coyote Springs gas-powered generation
 - Boardman coal-powered generation
 - Colstrip coal-powered generation

EnerNex



Specific details of PGE's resources and their effective uses for ancillary services are provided in Section 5.4.1, below.

In Section 3 of this report, we summarize the public process and third-party review undertaken to ensure that PGE has accomplished its goal to build an accurate representation of its potential for self-integration using base-line assumptions and robust modeling techniques. In Section 4, we describe the regional wind characteristics used to establish PGE's integration requirements during Day-Ahead, Hour-Ahead, and Within-Hour time frames. In Section 5, we provide a detailed description of PGE's wind integration methodology including the programming tools, data assumptions, modeling approach, and calculations for reserves and other variables. In Section 6, we provide a summary of the results and conclusions of our findings. Section 7 provides appendices of supporting detail and documentation.



3. PUBLIC PROCESS AND REVIEWS

An important objective of Phase 2 of the Wind Integration Study was to assure a robust review by external parties of the logic, assumptions, and data within the model to ensure their accuracy and thereby comply with the Commission directive to have a “wind integration study that has been vetted by regional stakeholders.” (Op. cit.) To achieve this, several groups were invited to participate in PGE’s efforts.

3.1 TECHNICAL REVIEW COMMITTEE (TRC)

PGE’s TRC consisted of the following members⁴:

- J. Charles Smith, Executive Director, Utility Wind Integration Group (UWIG)
- Michael Milligan, Ph.D., Principal Analyst, National Renewable Energy Laboratory (NREL)
- Brendan Kirby, P.E., Consultant with NREL
- Michael Goggin, Manager of Transmission Policy, American Wind Energy Association (AWEA)

The constitution, functions and requirements of the TRC were determined in accordance with UWIG’s “Principles for Technical Review Committee (TRC) Involvement in Studies of Wind Integration into Electric Power Systems” as provided in Appendix A.

The TRC provided timely guidance that improved both the study’s methodology and data integrity. By means of periodic reviews, the TRC provided assistance on many issues including:

- Wind data development and research into 3TIER’s wind modeling methodology;
- Research into NREL Mesoscale data (commonly known as “3-day seams anomaly”);

⁴ Brad Nickells, Director of Transmission Planning for the Western Electric Coordinating Council, was an original member of PGE’s TRC. He withdrew due to a change in his job requirements.



- Definition of the time basis for deriving the Hour-Ahead forecast error;
- Identification of an error in the NREL wind data post power curve conversion;
- Distinguishing between Regulation and Regulating Margin.

In accordance with UWIG's TRC Principles agreement, PGE's TRC, in a joint letter displayed in Appendix B, "endorses the study methodology, execution, and this final report" of PGE's Phase 2 Wind Integration Study.

3.2 MIXED INTEGER PROGRAMMING CONSULTANTS

PGE employed two outside subject matter experts, Jeff Linderoth, Ph.D. and Jennifer Hodgdon, Ph.D to assist in the development of the mixed integer programming (MIP) based optimization model that PGE used to calculate costs associated with integrating wind into the PGE system. Dr. Linderoth translated PGE's model from the prior Excel-based software platform to the GAMS modeling language. Dr. Linderoth also provided guidance on model formulation and solution strategy, including guidance with selecting the Gurobi MIP solver. Dr. Hodgdon developed the Excel and visual basic code that controls model execution and data input and output.

Jeff Linderoth is an Associate Professor in the departments of Industrial and Systems Engineering and Computer Sciences (by courtesy) at the University of Wisconsin-Madison, joining both departments in 2007. He received his Ph.D. degree from the Georgia Institute of Technology in 1998. Professor Linderoth's research focuses on modeling and solving real-world, large-scale optimization problems. Specific research areas include integer programming and stochastic analysis for decision making under uncertainty. His research places a particular emphasis on developing high-performance, distributed optimization algorithms and software.

Jennifer Hodgdon is owner and Principal Consultant for Poplar ProductivityWare, Seattle and Spokane, WA. She received her Ph.D. degree from Cornell in 1993 and has more



than fifteen years of experience as a professional software developer, using a variety of languages and operating systems for many different applications and in various industries.

3.3 PUBLIC MEETINGS

PGE held three public regional stakeholder meetings in which all members of the service list from PGE's 2009 IRP (OPUC docket LC 48) were invited to attend and provided the opportunity to examine in detail, the methodology of the study and the results. The meetings were held on February 23, May 18, and August 29, 2011 and attended by OPUC staff and other interested parties. An attendee list for each meeting is included as Appendix E. Attending by phone or in person were certain members of the TRC and EnerNex.

During these meetings, PGE provided detailed explanations of the modeling approach, methodology, data inputs, assumptions, bases for cost breakdowns and reserves, and the actual integration costs. PGE also answered numerous questions and engaged in extensive discussion regarding details of the Wind Integration Study.

As part of the February and May meetings, PGE requested that attendees provide comments and recommendations within two weeks of the meetings. PGE also submitted copies of the presentations, including the request for comments and recommendations, to all members of PGE's 2009 IRP service list. For the February meeting, PGE received no comments. Subsequent to the May meeting, PGE received comments from the Renewable Northwest Project (RNP) regarding several aspects of the study. A copy of the comments is provided as Appendix C. PGE's responses to those comments are provided as Appendix D. No other party filed comments.

EnerNex



4. WIND INTEGRATION ISSUES & METHODOLOGY – OVERVIEW

4.1 WIND DATA SOURCE

The development of wind power capacity factors and shapes representative of wind generation operations was established initially by using the NREL Western Wind Resource Database (WWRD). The database is a result of 3TIER Group's modeling of wind resources across the entire western United States to generate a consistent wind dataset at a 2-km, 10-minute resolution based on actual wind measurements for the years 2004, 2005 and 2006. The NREL database converted wind to power based on the power curve for Vestas V90 3MW turbines.

The WWRD database provided the following wind data for the study:

- Date and time (mm/dd/yyyy hh:mm:ss.sss)
- Wind speed (mph)
- Actual wind power output in MW at 10 minute intervals
- Day-Ahead forecast power in MW at 1 hour intervals
- Years 2004, 2005 and 2006
- Site Id
- Site location (Longitude, Latitude)

4.2 WIND SITE POWER OUTPUT

Virtual wind farms of 400MW in Gilliam County east of Biglow Canyon in the Columbia River Gorge and 450MW in Sherman County located in Biglow Canyon (see Figure 1, below) were developed by selecting multiple wind sites and aggregating the wind site outputs from the NREL database. Capacity factors for the 400 MW and 450 MW wind farms using the V90 turbines were 21.2% and 26.0% respectively.

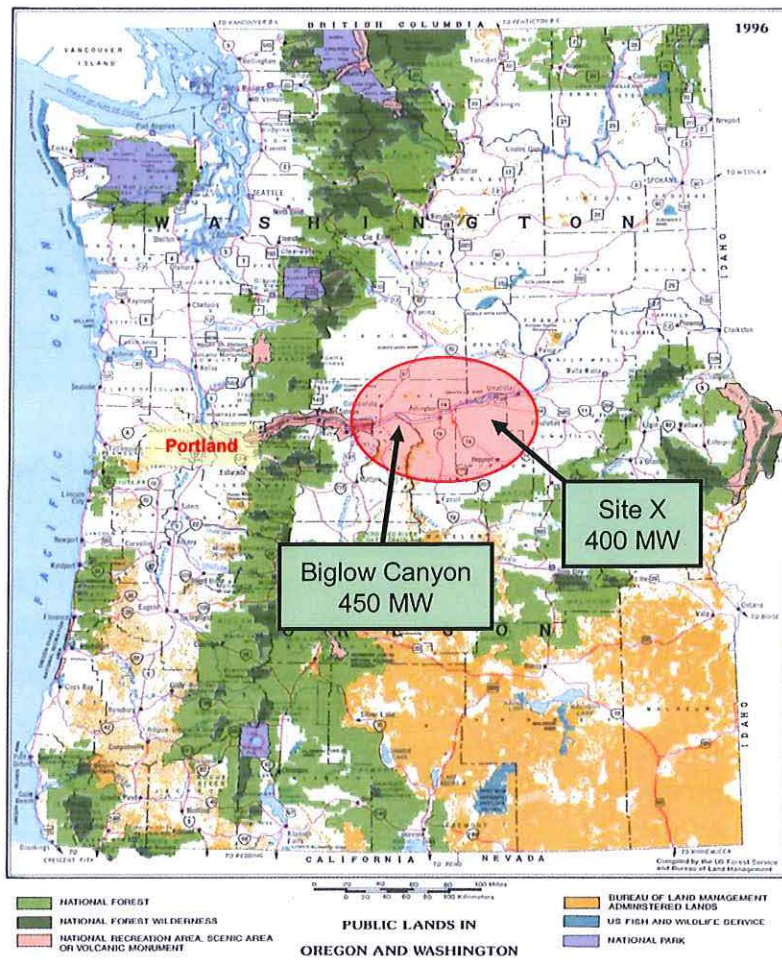


Figure 1: Location of Biglow Canyon and Site X

V90 turbines were not expected to be selected for use at these sites. Instead, a Siemens 2.3 MW turbine would be a more likely candidate considering the wind speeds in the region. The power curve for the Siemens' turbine is different from the V90 power curve



in that it provides higher per unit output at lower wind speeds see Figure 2. Using the wind speed provided in the WWRD database and applying the power curve provides the turbine output. The resulting Siemens' 2.3 MW energy production increases the capacity factor for the 400 MW and 450 MW wind farms to 28.1% and 33.8% respectively (see Table 1).

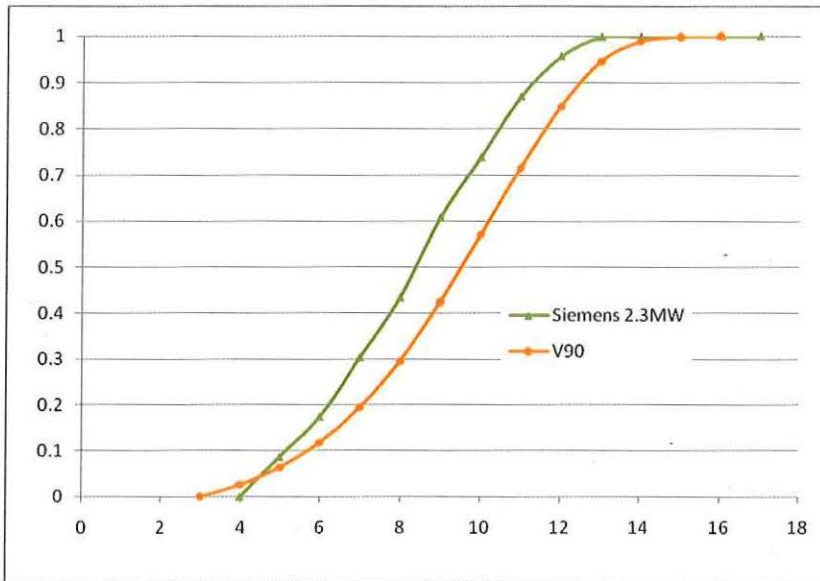


Figure 2: V90 and Siemens 2.3 MW power curves

Table 1: Capacity factor comparison V90 vs. Siemens 2.3 MW turbines (V90 is used in NREL database)

Capacity Factors	400 MW aggregated sites	450 MW aggregated sites
V90 3.0 MW	21.2%	26.0%
Siemens 2.3 MW	28.1%	33.8%



4.3 WIND SITE FORECASTS

Performing effective resource scheduling requires several inputs, one of which is a forecast schedule for load and resources. Short-term load forecasting for purposes of scheduling resources is complex and requires considering the combined effect of several parameters such as weather, day of week, time of year, historical patterns, and known events like holidays. The PGE’s current operational schedule for forecasting loads (and associated resource needs) is shown in Table 2. Forecasts (load and resource) generated on Monday, Tuesday and Wednesday provide a one Day-Ahead forecast. The forecast provided on Thursday yields a one Day-Ahead forecast for Friday and a two Day-Ahead forecast for Saturday. The forecast for Friday provides a two Day-Ahead forecast for Sunday and a three Day-Ahead forecast for Monday.

Table 2: Pacific Northwest Day-Ahead scheduling process

Scheduling Day	Scheduled Day
Monday	Tuesday
Tuesday	Wednesday
Wednesday	Thursday
Thursday	Friday and Saturday
Friday	Sunday and Monday

The forecast wind data extracted from the WWRD database provides a one Day-Ahead forecast for *every day of the week*, which does not match current PGE scheduling practice. In other words, the Friday forecast is for Saturday, the Saturday forecast is for Sunday etc. In order to augment the NREL WWRD to reflect current PGE scheduling practices, PGE provided hourly forecast data to EnerNex from 2007 through 2010 for Biglow Canyon, along with the corresponding actual generation data. From this, it was



possible to derive the error statistics for the forecast of each Scheduled Day of the week. Figure 3, below, depicts the Mean Absolute Error (MAE) for each consecutive hour for one, two and three Day-Ahead forecasts.

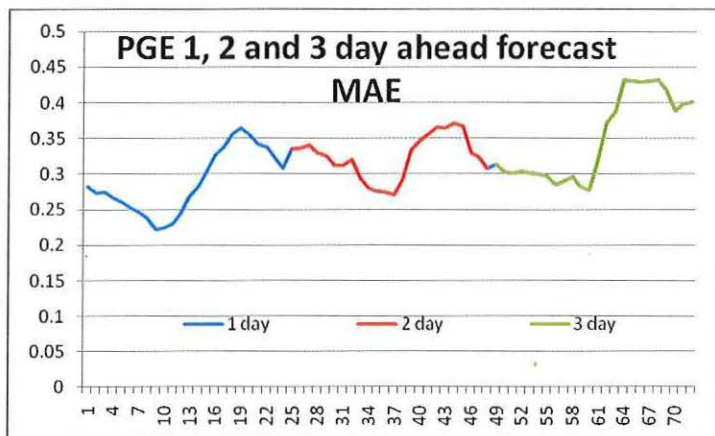


Figure 3: Mean Absolute Error for PGE wind forecasts of 1, 2, and 3 days ahead

As mentioned above, the WWRD forecast data provides only a Day-Ahead forecast not a two or three Day-Ahead forecast. Wind forecasts for Saturday, Sunday and Monday from the WWRD database would not represent the increase in forecast error that PGE experienced with the historical data. The Day-Ahead forecast from the WWRD database for Saturday, Sunday and Monday were modified for this study such that the forecast energy from the WWRD data would not change, however the forecast error would increase to approximate the same increase in error as the historical data. As can be seen in Figure 4, the Day-Ahead forecast was not changed, while the two Day-Ahead forecast was modified such that the forecast error increased by 14.1% and the three Day-Ahead forecast error increased by 24.1%. Although slightly higher than the PGE forecast error, the MAE for the adjusted WWRD forecast error for the one, two and three Day-Ahead forecasts are 17.8%, 20.3% and 22.1% respectively.

EnerNex

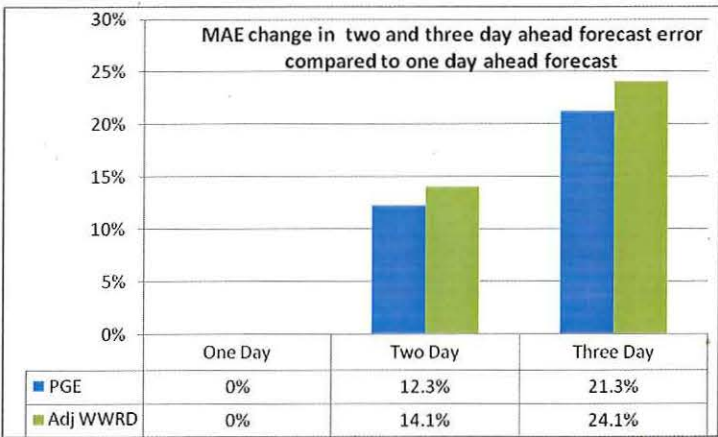


Figure 4: PGE forecast compared to adjusted WWRD forecast

EnerNex



5. WIND INTEGRATION METHODOLOGY

5.1 OVERVIEW

Phase 2 of the Wind Integration Study seeks to determine the effect on system operating costs resulting from the introduction of wind resources on PGE's system; specifically, of PGE employing its own generating resources to integrate 850 MW of wind capacity in 2014. The incremental costs of wind integration due to the incremental reserve requirements are isolated by modeling total system costs with and without the incremental reserve and other operational requirements. The cost of wind integration in this study is measured as the savings in system operating costs that would result if wind placed no incremental requirements on system operations. The cost savings are conditional on the ability of a given set of generation resources to adjust for the variability and uncertainty of wind generation.

In the remaining sections of this chapter, we will discuss:

- The need for Dynamic Capacity (Section 5.2)
- The modeling tools used by PGE in implementing the study (Section 5.3.)
- Data sources, data generation, and modeling assumptions (Section 5.4.)
- The logic and structure of the modeling approach (Section 5.5.)
- Methods for calculating incremental reserves for integrating wind (Section 5.6.)

5.2 THE NEED FOR DYNAMIC CAPACITY

One of the challenges that PGE faces as a system operator is that we are required to match our system generation to our system load while that load is constantly changing, moment-to-moment. As PGE adds variable generation, such as wind, to its portfolio of resources, that challenge becomes more demanding as both generation and load can change moment-to-moment. Addressing the challenge of matching total generation with load in real time requires flexible generation that can change production levels over a

EnerNex



significant range of operations, and do so in a short time frame. PGE refers to this capability as Dynamic Capacity. The challenge facing scheduling entities in the Pacific Northwest is that currently power, predominantly from trades, is scheduled for no less than one hour blocks.⁵ Consequently, any response to changes in load (and wind) must be managed with generators over which PGE has physical control and that have been positioned at the start of the hour to support such dynamic generation changes.

To provide Dynamic Capacity, utilities require certain types of generators. One type that cannot be employed is a base load generator that produces a constant amount of energy across the hour, as is shown in the “Energy” graph depicted in Figure 5, below. In this example, the generator has a maximum capacity of 50 MW and is producing 50 MW of energy for the entire hour. At the end of the hour, the integrated energy production will be 50 MWh and it provides no Dynamic Capacity.

When a generator is positioned to provide Dynamic Capacity, it does so by being able to operate through the entire nameplate range of the generator across the hour. This hourly generation profile will look like the “Capacity” graph in Figure 5, below. In this case the integrated energy production across the hour is 25 MWh.

When the generator is operated to provide both energy and capacity, the generation profile will look like the “Energy and Capacity” graph in Figure 5, below. In this example, the 50 MW generator is producing 25 MW of energy for the entire hour (25 MWh) and 25 MW of Dynamic Capacity range for the hour (12.5 MWh). At the end of the hour, the integrated energy production for the hour will be 37.5 MW.

⁵ Recently, there has been movement toward allowing 30-minute scheduling in the Pacific Northwest.

EnerNex

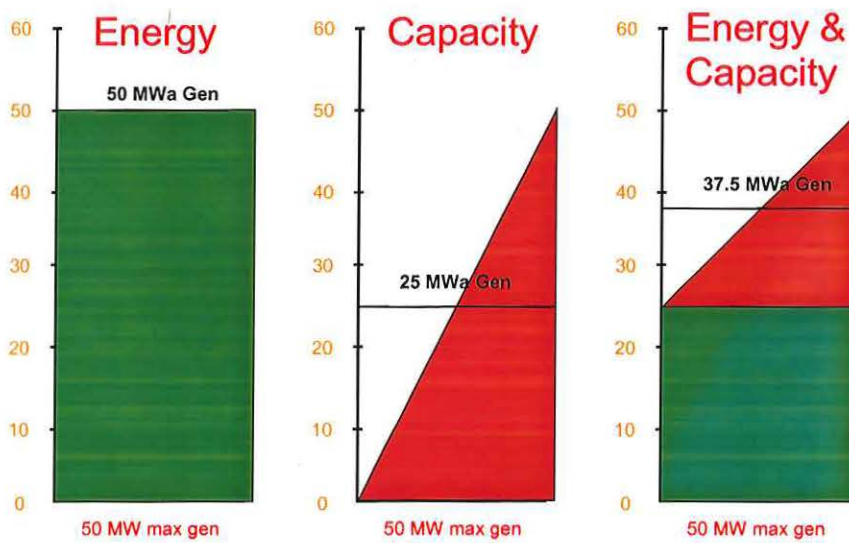


Figure 5: Examples of 50 MW generator operating for one hour

To fully address the demands of Dynamic Capacity, utilities must maintain a certain level of Operating Reserves. Generating capacity must be set aside from normal load serving operations for Load Following, Regulation, and Contingency Reserves (Spinning Reserves and Non-Spinning Reserves). Each of these has a capacity requirement and the capacity requirement is cumulative. Load Following and Regulation also have an energy requirement that must be assigned to the generator that is carrying the services. Contingency Reserves have requirements for storage (for hydro plants) or fuel (for thermal plants). For Hydro, the pond must have sufficient water to produce the energy reserved for the hour. For Thermal, fuel must be available to operate at the level of Spinning and Non-Spinning Reserves allocated for the hour. Table 3, below summarizes these requirements:



Table 3: Requirements for Operating Reserves

Requirement	Capacity	Energy	Fuel Source with Storage
Load Following	X	X	
Regulation	X	X	
Spinning Reserves	X		X
Non Spinning Reserves	X		X

Figure 6 below, provides an example of the reserve requirements and modeling for Dynamic Capacity involving a generator with a minimum generation level of 5 MW and a maximum generation output of 55 MW. Within the hour, the unit can operate between 5 MW and 55 MW, providing 50 MW of Dynamic Capacity. When modeling this generator, we first reserve the capacity and energy production associated with Dynamic Capacity requirements. Any remaining operating range is available for *discretionary energy production*. In this case, the unit is providing 6 MW of operating range for Regulation. Throughout the hour, the generator will produce 3 MWa energy associated with supporting the 6 MW of Regulation range. This is reflected in Figure 6 as:

- ½ of the Regulation range is added to the minimum output to reserve this generating space for the downward Regulation requirement; and
- ½ of the Regulation range is subtracted from the maximum output to reserve this generating space for the upward Regulation requirement.

Consequently, the new minimum generation is 8 MW (5 MW + 3 MW), and the new maximum generation is 52 MW (55 MW – 3 MW).

The Load Following requirement is treated similarly to Regulation. However, it may be unidirectional since the load trend is typically rising in the morning and declining in the evening. Similarly, when wind is at zero it can only trend up and when wind is at full

EnerNex



output it can only trend down. In the example in Figure 6, the Load Following range assigned to this generator is 20 MW, which means that the unit will produce 10 MWh of energy in the hour to provide 20 MW of Load Following range. This is reflected in Figure 6 as:

- $\frac{1}{2}$ of the Load Following range is added to the minimum output to reserve this generating space for the downward Load Following requirement; and
- $\frac{1}{2}$ of the Load Following range is subtracted from the maximum output to reserve this generating space for the upward Load Following requirement.

The new minimum generation is now 18 MW (8 MW + 10 MW) and the new maximum generation is 42 MW (52 MW – 10 MW).

Contingency Reserves (Spinning and Non-Spinning) do not have an hourly energy production until they are called upon. In the example in Figure 6, the unit is supplying 2 MW of Spinning Reserves and 2 MW of Non-Spinning Reserves. Both are subtracted from the adjusted maximum to reserve this capacity on the generator. At this point, the minimum after accounting for Contingency Reserves remains unchanged at 18 MW. The new maximum, however, is reduced to 38 MW (42 MW – 2 MW [Spinning] – 2 MW [Non-Spinning]).

As a result of these regulation, load following, and reserves requirements, the generator in Figure 6 has a remaining range to dispatch for discretionary energy production between 18 MW and 38 MW. In summary, the unit depicted in Figure 6 has the following generation capabilities:

- 5 MW of minimum generation
- 30 MW of Dynamic Capacity
 - 6 MW of Regulation
 - 20 MW of Load Following



- 2 MW of Contingency Reserves (Spinning)
- 2 MW of Contingency Reserves (Non-Spinning)
- 20 MW of discretionary energy.

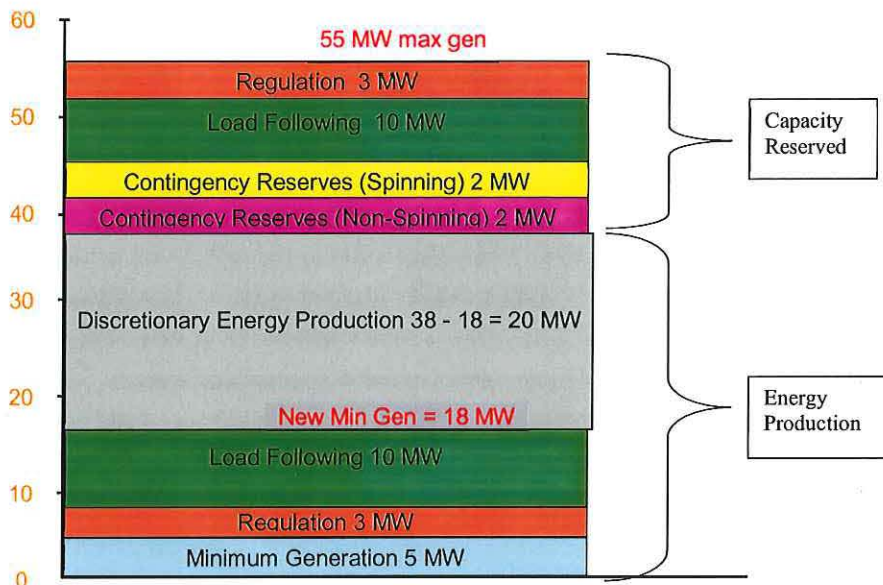


Figure 6: Example of modeling a generator supplying Dynamic Capacity

5.3 MODELING TOOLS

5.3.1 System Optimization

PGE has developed an hourly dispatch model to estimate operating costs for the PGE system. This is the principal model used in the Wind Integration Study. The model has a cost minimization objective function and a set of equations/inequalities which detail constraints on the operation of PGE's system. This model was constructed using three commercially available software products: GAMS, Gurobi, and Microsoft Excel. GAMS is used to program/compile the objective function and operating constraint equations.

EnerNex



Gurobi is used to solve the resulting constrained optimization problem. Excel (and associated VBA code) is used for data input, reporting model results, and overall model control.

GAMS is a high-level modeling system for mathematical programming and optimization. It consists of a language compiler and a set of integrated high-performance solvers. GAMS is tailored for complex, large-scale modeling applications, and facilitates the construction of large maintainable models that can be quickly adapted to new situations.

The Gurobi Optimizer is a state-of-the-art solver for linear programming (LP), quadratic programming (QP), and mixed-integer linear/quadratic programming (MILP and MIQP). It was designed to exploit modern multi-core processors. For MILP and MIQP models, the Gurobi Optimizer incorporates the latest methods including cutting planes and powerful solution heuristics. Models benefit from advanced presolve methods to simplify models and reduce solve times.

5.3.2 *Aurora Model*

PGE relies on the AURORAxmp Electric Market Model⁶ in its IRP for developing the long-term forecast of wholesale electricity prices and for portfolio analysis, as detailed in Chapter 10 of PGE's 2009 Integrated Resource Plan.⁷ AURORAxmp is a model that simulates electricity markets by NERC (North American Electric Reliability Corporation) area, detailing: 1) resources by geographical area, fuel, and technology; 2) load by area; and 3) transmission links between areas. As stated in the IRP, PGE uses it to conduct fundamental supply-demand analysis in the Western Electric Coordinating Council (WECC). AURORAxmp is also used to forecast 2014 hourly electricity prices for the Pacific Northwest. These prices were then input into the Wind Integration Model, see Figure 7.

⁶ A more detailed description of the model is on the vendor's web-site http://www.epis.com/aurora_xmp/

⁷ The Plan is available on Portland General Electric's web-site:

http://portlandgeneral.com/our_company/news_issues/current_issues/energy_strategy/docs/irp_addendum.pdf

EnerNex

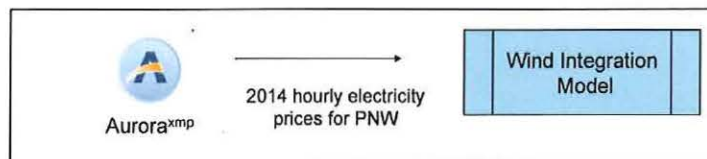


Figure 7: Forecast of electricity prices for 2014

The methodology and underlying assumptions used to project WECC prices to 2014 are detailed in the 2009 IRP Addendum, chapters 10.2 and 10.3 (see also Section 5.4.3, below). However, certain updated macroeconomic assumptions were used when new information was made available. More detail on this is provided in Section 5.4, below.

5.4 DATA ASSUMPTIONS

5.4.1 Plants Available for Integration

As noted in Section 2.2, above, PGE has a varied mix of generating resources but only a subset of these resources has the capability to provide the Dynamic Capacity required for wind integration. Specifically, we do not use the following thermal resources as part of our modeling:

- Port Westward (excluding the duct burner) – plant technology was not designed to provide Dynamic Capacity.
- Boardman – this baseload coal plant has a limited dynamic range. It is unavailable due to PGE’s interpretation of BPA’s Dynamic Transfer Operating and Scheduling Requirements Business Practice. (Please refer to PGE’s reply to RNP Comments in Appendix D for more detail.)
- Coyote – unavailable due to PGE’s interpretation of BPA’s Dynamic Transfer Operating and Scheduling Requirements Business Practice. (Please refer to PGE’s reply to RNP Comments in Appendix D for more detail.)
- Colstrip – PGE does not directly control the operation of this baseload coal plant.



As described in Section 5.2 above, for resources that are able to provide ancillary services, only the portion not used for discretionary energy production is available for Dynamic Capacity. A summary of PGE’s resources and their specific ancillary services capabilities is provided in Table 4 and Table 5, below.

Table 4: PGE’s hydro and coal generation availability for ancillary services

	Operational Reserve	Mid-C	Round Butte	Pelton	Boardman	Colstrip
Energy		√	√	√	√	√
Capacity	Load Following	√	√	√		
	Regulation	√	√	√		
	Spinning Reserve	√	√	√		
	Non-Spinning Reserve	√	√	√		



Table 5: PGE's gas and other generation availability for ancillary services

	Operational Reserve	Port Westward	Duct Burner	Coyote	Beaver-SC	Beaver-CC	DSG
Energy		√	√	√	√	√	
Capacity	Load Following		√		√	√	
	Regulation				√		
	Spinning Reserve		√		√	√	
	Non-Spinning Reserve		√		√*	√	√

* Beaver has to be operating to provide both spinning and non-spinning contingency reserve.

5.4.2 Fuel Prices

PGE relies on independent third-party sources to project fuel prices. Specifically, to be consistent with our IRP methodology,⁸ a combination of PIRA forecasts and PGE trading curves were used. Variable transportation costs were then added to the commodity price in order to compute the delivered cost of the fuel, which along with variable O&M, is used in the dispatch decision.

PGE used the most recent available fuel forecast, which is PIRA's February 2011 Scenario Planning forecast. PIRA's prices are confidential and, therefore, cannot be disclosed publicly.

⁸ See Chapter 5 of our 2009 IRP, which is available on our web-site: http://portlandgeneral.com/our_company/news_issues/current_issues/energy_strategy/docs/irp_nov2009.pdf
 Note that when we filed the IRP in 2009, the short-term was defined as 2010-11 and long term as 2014 and beyond.



5.4.3 *Regional Wholesale Electricity Prices*

PGE used AURORA_{xmp} to generate the wholesale electricity prices used in the wind integration model for the dispatch of PGE generating resources. AURORA_{xmp} simulates the fundamentals of supply and demand in the WECC and is the model used in PGE's 2009 IRP. Changes in assumptions since filing the IRP are listed below:

- Gas prices. The most recent forecast from PIRA dated February 2011 was used;
- Carbon regulation. It was assumed that no specific carbon regulation is in place by 2014 (the IRP assumed a CO₂ tax starting in 2013);
- Wind shapes. EnerNex estimated hourly wind generation for most zones (geographical entities in AURORA's topology) in the WECC using NREL's Western Wind Dataset. PGE used the simulated hourly generation for 2005 to estimate wind generation hourly shapes for the areas in AURORA for which they were available. The year 2005 was chosen because the 2005 hydro year for this region was the closest to normal runoff conditions of the three years of NREL wind data.
- Hydro in the WECC. In consultation with the Northwest Power and Conservation Council (NWPCC), PGE implemented a few enhancements to the AURORA_{xmp} default hydro tables. The intent was to better capture constraints on unused hydro capacity when used to meet reserves requirements. AURORA_{xmp} is now prevented from relying on unused capacity of run-of-river plants to provide reserves, as it is not technically possible. In addition, capacity available for reserves is capped to the maximum sustainable capacity. To reflect potential operational constraints to regulate hydro generation, non-federal hydro is constrained when providing reserves. Also, per NWPCC recommendations, hydro generation in the Pacific Northwest (PNW) is shaped to correspond with the regional load instead of the load of the entire WECC.

The resulting average 2014 wholesale electricity price is \$44.47 per MWh (\$50.60 on-peak and \$36.29 off-peak). In the Pacific Northwest, prices tend to peak in winter, when PNW load peaks, and in July-August, when California's load is peaking. Spring is



typically a low price season, because of the abundance of hydro. Hydro is a major driver of prices in the Pacific Northwest. For modeling purposes we assume average hydro conditions.

Figure 8 below, shows the seasonal behavior of prices in the Pacific Northwest as simulated for 2014, assuming average water, wind, and load conditions.

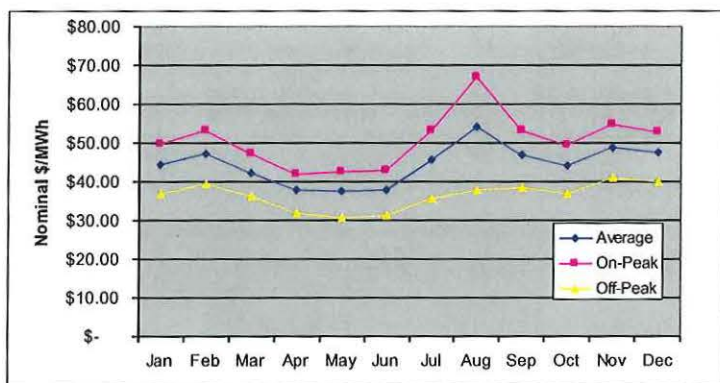


Figure 8: 2014 Wholesale electricity prices for the Pacific Northwest, nominal \$/MWh

5.4.4 Loads and Load Forecast Error

For Phase 2 of the Wind Integration Study, PGE projected its 2014 load data by employing a three-step process using 2005 actual load and 2005 Day-Ahead and Hour-Ahead load forecast data. The wind data is based on 10-minute intervals for the necessary Within-Hour granularity.

Step 1. Realign Days of Week

PGE developed the 2014 load data from 2005 load data by first aligning the 2005 actual load data days of the week with the 2014 days of the week. Because January 1, 2005 fell on a Saturday and January 1, 2014 falls on a Wednesday, we used the first Wednesday of January 2005 (January 5th) for Wednesday, January 1st, 2014. Thursday, Jan. 6th, 2005



was then used for Thursday, Jan. 2nd, 2014, and so on. This step is important because the load and wind data must correspond to the same days for consistency in deriving the “load net wind” concept.

Step 2. Escalate 2005 to 2014

The realigned 2005 data was then scaled up to 2014 levels by an escalation factor equal to the percentage increase from PGE’s 2005 average annual actual load to PGE’s 2014 average annual forecast load. The realigned and scaled data was then used to develop the projected 2014 real-time load data in the model.

Step 3. Develop Hour-Ahead and Day-Ahead Forecast Loads

PGE’s 2014 Hour-Ahead and Day-Ahead forecast load data was derived by summing the 2014 forecasted-actual load data (derived in steps 1 and 2 above) with the corresponding 2014 Hour-Ahead or Day-Ahead load forecast error data. Specifically, the 2014 Hour-Ahead and Day-Ahead load forecast error data was created by: 1) taking the difference between the respective forecasted and actual 2005 loads, and then realigning to the matching day of the week, and 2) scaling the actual 2005 Hour-Ahead and Day-Ahead forecast errors in the same way the 2005 actual load data was escalated to 2014 forecast load data (described in step 2, above).

5.4.5 Water Year

PGE selected 2005 hydro flows for use in the wind integration model as a proxy for 2014 hydro flows. Of the three years (2004-2006) of NREL wind data used in the Western Wind and Solar Integration Study (from which EnerNex derived the wind energy data), 2005 was nearest to a normal hydro year for the Pacific Northwest. PGE did not use a 3-year hydro average of those years because the resulting hourly averages would mask the interactive effect of localized weather on hydro flows and wind speeds. The inputs of the wind integration model are temporally aligned to try to capture the effect of weather

EnerNex



creating volatility in loads, wind, and hydro, and the resulting effect on the system trying to provide the Dynamic Capacity to meet the reserve needs of such volatility.

Specific hydro data used in the wind integration model includes:

- Mid-Columbia hydro energy – this is treated as one resource in the model, so historical (2005) flows from Chief Joseph were used.
- Deschutes hydro project inflows – USGS daily average inflows from 2005 were the assumed inflows for Round Butte.
- Hourly energy for PGE’s run-of-river hydro – PGE historical PSAS (Power Scheduling and Accounting System) data from 2005 was used as proxy hourly energy data for Oak Grove, North Fork, Sullivan, Faraday, River Mill, and PGE’s portion of Portland Hydro Project. (These hydro facilities do not provide ancillary services for wind integration.)

5.4.6 Bid/Ask Pricing

The wind integration model assumes virtually unlimited access to the energy market in the Day-Ahead and Hour-Ahead schedules. When the model chooses to purchase or sell energy in the Day-Ahead or Hour-Ahead stages to balance generation to load net of wind, there is an assumed bid/ask spread that affects the economics of using the market to meet load.⁹

In the model, the Day-Ahead market has a fixed bid/ask price of \$0.25 per MWh. In the Hour-Ahead stage of the model, a sliding bid/ask spread is used as a function of the desired transaction block size based on the operational experience of PGE’s Real Time Power Operations. Table 6, below, represents the assumed bid/ask percentage premiums that are applied to Hour-Ahead market purchases and sales.

⁹ In the Within-Hour stage, the market is not available to meet load; PGE controlled resources are relied upon for balancing within the hour.



Table 6: Hour-Ahead assumed Bid/Ask percentages of market price

MW Range	Bid/Ask Percent of Price
0 to <50	0
50 to <100	5%
100 to <200	10%
200 to <300	20%
300 to <400	25%
>=400	30%

5.4.7 General Constraints for Hydro

For hydro resources, PGE utilized data from PGE’s contractual portion of the Mid-Columbia system and our share of the Pelton/Round Butte project, located on the Deschutes River in Oregon, to provide integration services in the optimization model. For both systems the hydro generation was limited to meet physical operating constraints specific to each system including minimum flow, minimum generation, maximum generation, water available, and pond elevations. In all cases, the projects were operated on a weekly basis, and pond volumes at the end of the week were set equal to pond volumes at the start of the week. This preserved the water balance within each week and allowed the weeks to be run independently. Because the model starts each week at midnight Sunday, the starting ponds are set to a position to allow either draft or fill at that point in time. This reflects PGE’s actual operations. Specific constraints for each system are provided below.

Mid- Columbia System

The Mid-Columbia system utilizes an accounting concept of hourly energy inflow and pond elevation limits which is calculated in MWh terms. PGE’s generation requests on the Mid-Columbia are combined with the signals of many other parties. This total generation request is then split among several plants providing generation. Because the signal is combined and blended and several units are responding, the individual unit



movement away from its mechanical efficiency is very small. Generation plus spill, on an hourly basis at the Mid-Columbia, is allowed when the following conditions are met:

- Generation greater than minimum required generation and less than maximum capacity generation.
- Pond levels are below pond maximum and above pond minimum.

Finally, the available generation (based on historical hourly discharge data) is not impacted by a reduction in unit mechanical operating efficiency when the system is used to provide regulation or load following.

Deschutes River System

The Deschutes River system has three projects: Round Butte, Pelton, and the Pelton Regulating Project, which acts as a buffer to ensure that discharge for the three-project system is consistent throughout the day. The modeling reflects the capabilities of PGE's share of the dams.

This system has fairly restrictive discharge requirements that govern the rate at which the discharge can be changed. By having the model run for one week intervals, we simplified the discharge constraint to make discharge equal to inflow. This allowed the Pelton and Round Butte projects to move water from day to day and within the day. On an hourly basis, however, we ensured that the outflow from the Pelton Regulation Project was held constant.

PGE modeled specific aspects of the Deschutes system as follows:

- When the individual units operate to provide power, the volume of water needed to produce that energy is based on the relationship between MW production and water utilization (i.e., historical inflow and outflow data is converted to power based on MW/flow efficiency curves).

EnerNex



- When the individual units provide Load Following or Regulation, the reduction in mechanical operating efficiency is based on the difference between: 1) the average mechanical operating efficiency over the range of operation when providing Load Following and Regulation, and 2) the point-mechanical operating efficiency. This was applied as an increased cost factor in the cost calculation.
- For each hour, the model calculated the volume of water utilized as well as the resulting impact to pond elevations – both upstream and downstream.
- When the plants provide Spinning and Non-Spinning Reserves, there is a check to ensure that water exists in the upstream pond and space exists in the downstream pond to support the reserve operation for the entire hour.
- For the one week optimization with one-hour time steps, generation and spill are allowed at each project as long as the following operating constraints are met in each hour:
 - Outflow at Pelton Regulating Plant equals Round Butte inflow;
 - Hourly pond elevations are within project minimum and maximum allowable elevations;
 - Unit minimum generation meets but does not exceed maximum capacity.

5.4.8 *General Constraints for Thermal Plants Providing Ancillary Services*

PGE's Beaver plant is the primary thermal resource for ancillary services in Phase 2 of the Wind Integration model, with the plant available in simple cycle and combined cycle modes. In simple cycle, Beaver has a 5 MW minimum production level and a 55 MW maximum output for each hour per turbine. Within each hour, the Beaver turbines are free to move between the minimum and maximum, although the number of turbines available at any hour is determined by the designated scheduled outage rate. When operating in combined cycle mode (if economic, per model criteria), Beaver is not available as a simple cycle resource. Consequently, the maximum movement for available gas turbines is between 40 MW and 55 MW.

EnerNex



A secondary thermal resource for ancillary services is PGE's Port Westward duct burner. This resource can fluctuate between zero and 25 MW, and is available only when Port Westward is operating. As with the Beaver plant, an operating efficiency curve converts fuel to MW production.

Finally, for hydro and thermal plants that provide ancillary services, generation was limited to what can be provided in 10 minutes for spinning reserves. For example, if a plant can ramp three MW per minute, then the model allows 30 MW ramping over 10 minutes, even if the plant has 100 MW of available capacity.

5.5 MODELING APPROACH

With the assistance of two external consultants, PGE has developed a mixed integer programming model to assess the incremental operating (non-capital) costs of integrating wind resources into PGE's system. The model is a "constrained optimization model" with an objective function to minimize total system operating costs given a set of operational constraints. These operational constraints include plant dispatch requirements (minimum plant up-times, minimum plant generation requirements, etc.) and system requirements (Contingency Reserves [Spinning and Non-Spinning], Regulation, Load Following, etc.). The model allocates the total system requirements (e.g., total Spinning Reserve requirements) to the individual generators to minimize overall system costs.

By altering the constraints in the model, the costs of different operational policies are isolated. For example, if the regulation constraint is relaxed (removed), the cost of providing regulation is calculated as the difference in the cost from a model run that includes the constraint and the cost from a model run that excludes the constraint. Similar types of analyses are possible for other ancillary services: Spinning Reserves, Non-Spinning Reserves and Load Following. The effect of changing constraints on least-cost plant dispatch can also be determined.

EnerNex



Currently the model optimizes plant dispatch and system operation for a single year (2014). Given the heavy computational requirements, each of the 52 weeks is run separately on an hourly basis although functions for reserve requirements are developed from 10-minute data.

Phase 2 of the Wind Integration Study considers four elements of wind integration costs:

- Costs resulting from Day-Ahead wind forecast error (Day-Ahead uncertainty)
- Costs resulting from Hour-Ahead wind forecast error (Hour-Ahead uncertainty)
- Costs incurred in using generation resources to follow the wind generation trend within the hour (Load Following)
- Costs incurred in using generation resources to follow Within-Hour departures of wind generation from the wind generation schedule (Regulation)

In order to distinguish between these four categories of costs within the model, the model is run in three stages corresponding to Day-Ahead, Hour-Ahead, and Within-Hour. At each stage, PGE's system is optimized subject to the operational constraints relevant at that stage. Commitments made in prior stages (e.g., purchase or sale commitments) are carried forward to the next stage as constraints. Total system operating costs at the third stage are used in assessing the costs of wind integration.

The model incorporates explicit reserves (reserved generation capacity) to address:

- 1) the Hour-Ahead uncertainty of wind;
- 2) generation resource requirements for Within-Hour Load Following for wind; and
- 3) generation resource requirements for Within-Hour Regulation for wind.

As explained previously, an element of "integration cost" is identified by running the model with and without the reserve constraint and observing the difference in total system operating costs between the two model runs.



No reserves are specified in the model to address Day-Ahead wind uncertainty. The cost of Day-Ahead uncertainty is identified by comparing total system costs from a model run *with* Day-Ahead forecast error, to total system costs from a model run *without* Day-Ahead forecast error. Details of the cost estimation methods and results are presented in Section 6.1.

For defining the time basis for each Hour-Ahead wind forecast, PGE followed the TRC recommendation of using the average wind production for the 10 minute period ending at 20 minutes after the hour. As described earlier, the information for the Hour-Ahead forecast when using ten-minute averages, can come no later than 20 minutes after the hour since, operationally, schedules must be entered at 30 minutes after the hour. Initially, PGE modeled the Hour-Ahead forecast as the average of the *two* 10-minute wind generation data points between the top of the hour and 20 minutes after the hour. After much analysis and discussion between TRC members, EnerNex and PGE, it was decided that the single 10-minute persistence forecast was the most appropriate proxy for the Hour-Ahead data. This is because the mean absolute error of the persistence forecast for 20 minutes past the previous hour was less than the average of the value at 10 minutes and 20 minutes past the hour.

5.5.1 *Details of Modeling Approach and Results*

As discussed above, the costs of wind integration are identified by comparing total system operating costs, from a model run that incorporates the system requirements for wind integration, to total system operating costs, from a model run that excludes the system requirements for wind integration. We have segmented the costs of wind integration into five components:

- The “total” cost of wind integration including the costs due to Day-Ahead uncertainty, Hour-Ahead uncertainty, Within-Hour Load Following for wind, and Within-Hour Regulation for wind.
- The cost of wind integration due to Day-Ahead uncertainty alone.

EnerNex



- The cost of wind integration due to Hour-Ahead uncertainty alone.
- The cost of wind integration due to Within-Hour Load Following for wind alone.
- The cost of wind integration due to Within-Hour Regulation for wind alone.

To compute these component costs, the model is run incorporating all system requirements for wind integration. Next, the model is run with one or more of the wind integration requirements removed. The cost of the second run will be lower than the first run and this cost savings represents the cost of wind integration for the requirement that is absent in the second model run. To derive each of the cost components, six model runs are required, which are summarized in Table 7, below. For instance, to determine the cost of Hour-Ahead uncertainty, the difference between Run 3 and Run 1 is calculated. The overall cost of wind integration is the difference between Run 7 and Run 1. These calculations are summarized in Table 9 (see Section 6.1, below), which also includes the resulting cost estimates expressed on a dollar per MWh basis.

Additional details on the model runs are provided in Table 8 (with definitions for abbreviations following the table). This table details the constraints placed on the model at each of the three stages. For example, for Run 1 and the "Day-Ahead" stage, LF (W, L) indicates that the model incorporates reserves for Load Following for both wind and load. Similarly, R (W, L) indicates that the model includes reserves for Regulation for both wind and load, and UN (W, L) indicates that reserves have been included for both wind and load uncertainty. The rows labeled "Input" indicate the assumptions about hourly data for load and wind generation that apply to that stage in the model run.



Table 7: Model runs summarizing wind integration cost breakout

Identification	Description
RUN 1	PGE integrates Regulation, Load Following, Hour-Ahead and Day-Ahead Uncertainty of wind
RUN 2	N/A*
RUN 3	PGE doesn't Integrate Hour-Ahead Uncertainty of wind
RUN 4	PGE doesn't Integrate Load Following for wind
RUN 5	PGE doesn't Integrate Regulation for wind
RUN 6	PGE doesn't Integrate Day-Ahead Uncertainty of wind
RUN 7	PGE doesn't Integrate Load Following and Regulation for wind, Hour-Ahead and Day-Ahead Uncertainty of wind

* Run 2 was eliminated because, in testing, it provided no relevant information.



Table 8: Model runs detailing wind integration cost breakout

Model Stage Scenarios	<i>Day-Ahead</i>	<i>Hour-Ahead</i>	<i>Within-Hour</i>	<i>Included Costs</i>
RUN 1	<i>PGE Integrates All</i>			
Reserves	LF(W,L), R(W,L)	LF(W,L), R(W,L), UN(W,L)	LF(W,L), R(W,L)	R(L,W), LF(L,W), DA-UN(L,W), HA-UN(L,W)
Input	Day-Ahead Load and Wind Forecast	Hour-Ahead Load and Wind Forecast	"Actual" Load and Wind	
RUN 3	<i>PGE Doesn't Integrate HA-UN(W)</i>			
Reserves	LF(W,L), R(W,L)	LF(W,L), R(W,L), UN(L)	LF(W,L), R(W,L)	R(L,W), LF(L,W), DA-UN(L,W), HA-UN(L)
Input	Day-Ahead Load and Wind Forecast	Hour-Ahead Load and Wind Forecast	Actual Load and Hour-Ahead Wind	
RUN 4	<i>PGE Doesn't Integrate LF(W)</i>			
Reserves	LF(L), R(L,W),	LF(L), R(W,L), UN(W,L)	LF(L), R(W,L)	R(L,W), LF(L), DA-UN(L,W), HA-UN(L,W)
Input	Day-Ahead Load and Wind Forecast	Hour-Ahead Load and Wind Forecast	Actual Load and Wind	



Model Stage Scenarios	Day-Ahead	Hour-Ahead	Within-Hour	Included Costs
RUN 5	PGE Doesn't Integrate R(W)			
Reserves	LF(L,W), R(L)	LF(W,L), R(L), UN(W,L)	LF(W,L), R(L)	R(L), LF(L,W), DA-UN(L,W), HA-UN(L,W)
Input	Day-Ahead Load and Wind Forecast	Hour-Ahead Load and Wind Forecast	Actual Load and Wind	
RUN 6	PGE Does Not Integrate DA-UN(W)			
Reserves	LF(L,W), R(L,W)	LF(L,W), R(L,W), UN(L,W)	LF(L,W), R(L,W)	R(L), LF(L,W), DA-UN(L,W), HA-UN(L,W)
Input	Day-Ahead Load and Hour-Ahead Wind Forecast	Hour-Ahead Load and Wind Forecast	Actual Load and Wind	
RUN 7	PGE Does Not Integrate LF(W),R(W),HA-UN(W) and DA-UN(W)			
Reserves	LF(L), R(L)	LF(L), R(L), UN(L)	LF(L), R(L)	R(L), LF(L), DA-UN(L),HA-UN(L)
Input	Day-Ahead Load and Actual-Wind Forecast	Hour-Ahead Load and Actual Wind Forecast	Actual Load and Wind	

Definitions for Table 8:

L = Load; W = Wind; LF = Load Following; R = Regulation; UN = Uncertainty;
 DA = Day-Ahead; HA = Hour-Ahead;

5.6 CALCULATION FOR RESERVES AND UNCERTAINTY

The wind integration model accounts for three categories of reserves: Regulation, Load Following (including forecast error), and Contingency Reserves. The Contingency Reserve requirement is defined by the WECC (i.e., 5% for hydro and wind, and 7% for thermal resources) with requirements split equally between Spinning and Non-Spinning Contingency Reserves. The model simulates the different reserve requirements as hourly

EnerNex



constraints for resource scheduling and dispatch across each of the three time horizons: Day-Ahead scheduling, Hour-Ahead scheduling and Real Time dispatch (Within-Hour). EnerNex provided PGE with a methodology for estimating regulation and load variability parameters for Day-Ahead, Hour-Ahead and Real Time (Within-Hour) scheduling, as well as the Hour-Ahead forecast error. Currently, however, PGE does not explicitly set aside reserves for Day-Ahead forecast error for either load or wind generation. Specific modeling for the reserves, by category and time frame, are described below.

5.6.1 Regulation

The reserves held for Regulation are intended to cover “short time scale deviations” in scheduled wind generation and load. We define a “short time scale deviation” for wind to be a ten-minute deviation off a trend of ten-minute wind generation data. Regulation is split into the following sub-categories (as derived by EnerNex): 1) Regulation for load-only, and 2) Regulation for load and wind.

The Regulation for load-only is assumed to be one percent of the total load for a ten-minute average load data point. This assumption is per page 7 in the October 2010 NREL paper¹⁰, “for load-only the regulating reserve requirement was assumed to be 1% of the total load and assumed to be equal to three times the standard deviation of the load variability.”

The additional regulation requirement due to wind on the system was determined by calculating the amount of regulation necessary at a wind production level in an hour. The ten-minute deviations of actual wind from a trend are calculated and then sorted by wind production level (i.e., 0 MW to 850 MW separated into equal sets of ten – deciles). To determine the variability in each wind production decile, we took the standard deviation of the ten-minute wind deviation data points in that decile. Using those standard deviations of the wind deviations for each wind production decile, and the average wind

¹⁰ “Operating Reserves and Wind Power Integration: An International Comparison”, Milligan, Donohoo, Lew, Ela, and Kirby
National Renewable Energy Laboratory October 2010

EnerNex



production value of each decile, a least squares fit was generated to a quadratic polynomial. The quadratic function is then used to determine how much additional regulation is required due to wind at a particular production level of wind.

To calculate the regulation for load and wind, the October 2010 NREL paper again provided guidance: “since load and all wind variability on this timeframe were also considered to be independent of one another, the standard deviations of all wind and all load were then geometrically added together by calculating the square root of the sum of their squares.” Thus, analogous to the regulation for load-only calculation, three times the standard deviation of load and wind variability will be held back as the hourly regulation requirement for load and wind (for additional detail, see Appendix G).

5.6.2 *Load Following and Hour-Ahead Forecast Error*

The reserves held for Load Following are intended to cover a longer time scale representing 1) the Within-Hour trend of load and wind, and 2) forecast uncertainty in the Hour-Ahead time frame. The three components of Load Following reserves are calculated (per the EnerNex methodology) as follows:

- Reserves are calculated in two steps. First, the difference in the maximum and minimum load in the hour is established as the range for load variability in the hour. Second, a PGE baseline was calculated by determining the percentage of the time that taking half of the hourly range of load variability in 2005 historical load data met the actual Load Following requirement for the hour. To be consistent with historical PGE operations, half of the hourly range for 2014 load is scaled to satisfy the PGE baseline percentage. This scaled hourly range is the Load Following for load-only reserves held back in the model. To keep the same level of reliability as when PGE integrated only load, additional reserves due to wind are added such that the baseline percentage is once again satisfied.
- Additional Load Following requirement due to wind (perfect forecast) – the calculated reserves will be based on the ten-minute deviations of a load-net-wind



trend from the hourly average load-net-wind amount. If the ten-minute deviations exceed the amount of reserves held for load-only, then additional reserves are needed. The model determines the amount of additional reserves by wind production level based on the wind generation variability within an hour (using 2004-2006 NREL wind data). After the wind variability is determined for each hour, at each production level, the result is calibrated such that, when it is summed with the previously established Load Following for load-only requirement, the resulting hourly reserve requirement maintains the PGE baseline requirement.

- Hour-Ahead forecast error due to wind – the calculated reserves are first based on the difference between the Hour-Ahead forecast of wind generation and the actual generation by production level of wind (based on the 2004-2006 NREL data). A new “forecasted” wind data stream is then created by adding the hourly forecast error to the corresponding hour’s 10 minute wind data. The new “forecasted” wind is also used to define a new load-net-wind forecast. Next, the model calculates 10-minute deviations from the hourly average load-net-wind amounts by subtracting the average from the “forecasted” load-net-wind trend. This result is calibrated such that, when it is summed with the previously established Load Following for load-only and the additional Load Following due to wind requirements, the resulting hourly reserve requirement maintains the PGE baseline requirement. Please note that the addition of the forecast error reserve requirement is only relevant for the Hour-Ahead time frame.

5.6.3 Day-Ahead Scheduling

In Day-Ahead scheduling, reserve predictions must be made for load variability and regulation for both load and wind generation. The Day-Ahead load forecast is input with a forecast error, but the model does not explicitly hold back reserves to cover the forecast error.



5.6.4 *Hour-Ahead Scheduling*

For Hour-Ahead scheduling, reserve predictions for the load variability and regulation from the Day-Ahead Scheduling step must be recalibrated to account for the Hour-Ahead load and wind generation forecast. Since PGE explicitly holds back reserves for forecast error in Hour-Ahead scheduling, additional reserves are calculated as follows:

- Reserves to cover the load forecast error are derived from historical PGE information (i.e., 2005 load data escalated to 2014 levels, as described in Section 5.4.4.)
- Additional reserves held to cover the wind generation Hour-Ahead forecast error are determined by the EnerNex methodology described above.

Plant dispatch is recalibrated from the Day-Ahead schedule to reflect the different reserve, wind generation, and load requirements.

5.6.5 *Real-Time Dispatch (Within-Hour)*

The forecast error reserve obligations that were established in the preceding Hour-Ahead scheduling step are released (where necessary) in the Real Time (Within-Hour) dispatch step, and the reserve requirements for load variability and regulation are recalibrated. Plant dispatch is also recalibrated from the Hour-Ahead schedule to reflect different reserve, wind generation, and load requirements.

Consequently, in each stage of the simulation, (i.e., Day-Ahead, Hour-Ahead and Within-Hour), the calculated reserve requirements for Regulation, Load Following, and Contingency Reserves are factored into the model's optimization of dispatching generation, capacity, and market resources.

5.6.6 *Issues in Reserve Requirement Data Development*

As part of our model validation process, certain issues were discovered with the 2004-2006, 10-minute wind generation data from NREL. Resolution of these issues was



coordinated and completed by consultation with the TRC. First, preliminary simulations indicated a Regulation reserve requirement that the TRC considered high. Their observations suggested that the source wind data displayed more 10-minute variability than the TRC would have expected. The following two sections describe these issues, the actions taken to address them, and the impact of the corrections. Note that all changes described below apply to the 10-minute wind generation data used to derive reserve requirements, but not the hourly wind generation values used in the production simulation.

2004 Wind Generation Data

EnerNex used 2004-2006 10-minute wind generation data to determine the functions that relate reserve requirements to production levels of wind. The 10-minute wind generation data (representing the output of a Siemens 2.3 MW unit at a particular wind speed) was developed as described in Section 4.1 and summarized below:

- Develop Day-Ahead, Hour-Ahead and Actual wind datasets.
- Identify the appropriate subset of the output of the NREL Western Wind Resource Database (WWRD) (i.e., 10 Vestas, 3 MW, V90 turbines at each of 32,043 sample locations) based upon the physical location of the two wind projects in the study.
- Apply the power curve of a Siemens 2.3 MW wind turbine to the wind speeds from the WWRD subset to convert the wind speed to the corresponding Siemens 2.3 MW unit output data.

For modeling purposes (as noted above), two projects make up the 850 MW installed wind capacity assumption: 450 MW at Biglow Canyon and 400 MW to be installed at a nearby site. Following up on TRC concerns, PGE discovered an error in the conversion of the 2004 Vestas data to the wind speed data for the 450 MW plant, which produced a higher variability in the short-term deviations in wind generation data. After the data was corrected, PGE verified that 2004 was the only affected year, and the Regulation

EnerNex



requirement (i.e., ancillary service cost) derived from the 2004-2006 wind data was reduced.

Seam Issue with NREL dataset

Per the “Western Dataset Irregularity”¹¹ the NREL Western Wind Data Set had certain irregularities related to the aggregation of the mesoscale wind speed data samples at the different test sites. 3-TIER, who was responsible for the mesoscale modeling, had to separate the wind speed data samples into approximately three-day blocks for data handling purposes. After they combined the three-day data sets into one combined data set they noticed that there was reduced short term variability at the “seams” of the data sets. They then used an algorithm to impart more short term variability at each seam, which seemed to work correctly at the test-site level, but when aggregated the data displayed excessive short term variability. The TRC recognized this issue by observing PGE’s high Regulation signal (short term variability) for the wind-penetration level. In consultation with the TRC, PGE removed the 24-hour period from hour 2200 on 1/1/2006 to hour 2150 on 1/2/2006. As a proxy for removing additional short-term variation introduced by the seam algorithm, a 24-hour period from the 2004-2006 data corresponding with every third day beginning with hour 2200 on 1/1/2006 was removed. Similarly, a 24-hour period beginning with hour 2200 on 12/31/2003 was removed.

¹¹ www.nrel.gov/wind/integrationdatasets/pdfs/western/2009/western_dataset_irregularity.pdf

- A description of the Western Wind Dataset Seam Irregularity.

EnerNex



6. SUMMARY AND CONCLUSIONS

6.1 COST SUMMARY

PGE estimates that it would cost approximately \$11.04 per MWH (in 2014\$) to self-integrate 850 MW of wind generation in 2014 using existing PGE and contract resources. This result is a function of several factors including the assumptions and modeling techniques detailed above. In particular, the study reflects the existing limitation that the only current resources certain to be available for Dynamic Capacity are PGE's hydro projects with automatic generation control and the Beaver plant in both simple cycle and combined cycle mode, as applicable. Another significant factor is the impact of this high penetration level of wind generation into PGE's system, which has a current generation resource mix that remains "short" of total load. This places considerable demand on existing resources to provide reserves rather than energy and increases PGE's reliance on market purchases to cover Day-Ahead and Hour-Ahead uncertainty.

Specific components of PGE's estimated integration costs are summarized in Table 9, the derivation of which is described in Section 5.5, above. The sum of the components (Identifiers B through E) will not equal the total (Identifier A) because the interactive effect of the components and resultant resource dispatch within the model will vary between the runs.



Table 9: Integration costs by component, year 2014

Identifier	Cost Saving For PGE	Run Delta Measures:	Cost/MWh (\$2014)
A	RUN 7 – RUN 1	Cost of Wind Integration Cost for Day-Ahead Uncertainty, Hour-Ahead Uncertainty, Load Following and Regulation	\$11.04
B	RUN 6 – RUN 1	Cost for Day-Ahead Uncertainty	\$3.44
C	RUN 3 – RUN 1	Cost for Hour-Ahead Uncertainty	\$4.59
D	RUN 4 – RUN 1	Cost for Load Following	\$1.03
E	RUN 5 – RUN 1	Cost for Regulation	\$1.50

6.2 CONCLUSIONS

PGE believes that Phase 2 of the Wind Integration Study accurately simulates the constraints associated with existing conditions and available resources to estimate the costs attributed to the self-integration of 850 MW of wind generation in 2014. The study has been subject to regular and rigorous reviews from EnerNex, the TRC, and major participants in PGE’s 2009 IRP, Docket No. LC 48. The TRC considers this study to be technically sound and have provided their unanimous endorsement. Regional stakeholders and PGE’s Wind Integration Study Project Team have participated in three detailed public presentations regarding the intricacies of the study. The stakeholders have been provided the opportunity to examine, in detail, the methodology of the study and the results. They have also had the opportunity to comment on the methodology and make recommendations. In short, Phase 2 of the Wind Integration Study has been vetted in accordance with Commission Order No. 10-457.

Although the estimated costs for self-integration appear somewhat high compared to other utilities, they do not significantly exceed the range of costs found among utilities in the Pacific Northwest given the limitations and constraints discussed above. It must also



be noted that the results of the study can vary materially, if alternative or additional flexible resources are available for ancillary services (see Section 6.3.3, below). With the availability of more efficient balancing resources that can provide Dynamic Capacity, PGE's wind integration model cost estimates are well within the range found in the Northwest. In addition, it is evident that utilities in the Northwest estimate higher than average costs compared to other regions, particularly those with regional transmission organizations. This may indicate the effects on other utilities' study results from the benefits of organized markets with independent system operators compared to study results from utilities operating in bilateral markets only such as in the Pacific Northwest. We summarize this effect in Figure 9, below.

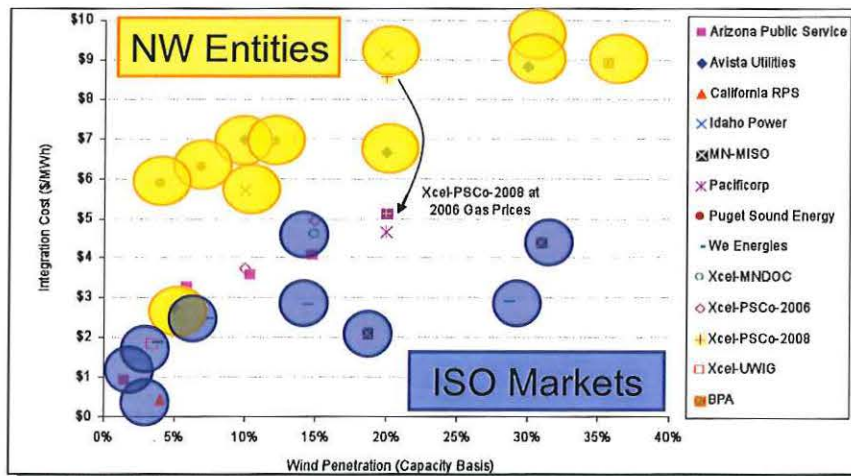


Figure 9: Cost by utility in the WECC

6.3 FUTURE POTENTIAL REMEDIATION

6.3.1 30-Minute Scheduling

In the Pacific Northwest, the Real Time energy market trades on an hourly basis and energy is purchased in one hour blocks. PGE and other Balancing Authorities (BAs)

EnerNex



must manage any change in generation or system load across generators they control based on this time horizon. The current modeling methodology assumes one-hour energy markets, consistent with current regional practice. Moving to 30-minute scheduling would presumably reduce the amount of reserves needed to cover system load and generation movement due to the variability of wind within the shorter window. In a 30-minute market, BAs would be able to make energy transactions for a shorter time period. For this market to be viable, however, the transmission scheduling would need to migrate to the same time horizon. In addition, significant model changes will need to be made to PGE's current model to accommodate 30-minute scheduling, which include, but are not limited to: 1) restructuring the load forecast error calculation, 2) restructuring the incremental wind reserve calculations, and 3) modifying the hydro dispatch logic.

6.3.2 *Energy Imbalance Market*

Currently, the WECC is considering a proposal to create an Energy Imbalance Market (EIM), which is a hybrid of a bilaterally based market and a centrally cleared market model. In the fully implemented EIM, parties must enter the market balanced between their energy and their load as demonstrated via schedules. If their generators do not perform as expected, or their load deviates from their projections, the EIM will provide the difference via a security constrained dispatch. Market participants will either pay or be paid for the difference between their actuals and schedules (i.e., their energy imbalance, paid to or by the EIM).

The expectation is that the EIM might be implemented in the next five to ten years. PGE will explore modifying a future Wind Integration Study to calculate system costs should PGE decide to participate in the EIM.

6.3.3 *Additional Flexible Generation*

As stated earlier, the cost for wind integration is dependent on the characteristics of the system available to provide the moment-to-moment movement that is required to keep

EnerNex



generation and system load in balance. If additional flexible resources are added to the PGE system, then the cost to provide wind integration will change. PGE is currently in the process of seeking up to 200 MW of flexible resources in its Request for Proposals for Capacity Resources (Docket UM 1535). It is expected that these new resources will be added to the portfolio in the 2013-2015 timeframe.

In order to further test the validity of its Phase 2 wind integration study, PGE revised the model assumptions to include a new efficient thermal resource with sufficient flexibility to provide Dynamic Capacity. For this purpose, and in accordance to what was assumed in the 2009 IRP preferred portfolio, we assumed PGE could employ two, 100 MW, LMS100, simple cycle combustion turbines along with the existing hydro resources and Beaver plant for ancillary services. The results from this secondary set of model runs is that PGE's estimated total cost for self-integration would be approximately \$9.15 per MWh (in 2014\$) after incorporating the additional resource.

We note that this modified total cost is within the range of wind integration estimates for Northwest utilities identified in Figure 9 above. This provides additional validation for the reasonableness of the model results. Specific wind integration cost estimates, which incorporate the LMS100 resource, are summarized in Table 10, below.



Table 10: Integration costs by component with two additional LMS100 SCCTs

Identifier	Cost Saving For PGE	Run Delta Measures:	Cost/MWh (\$2014)
A	RUN 7 – RUN 1	Cost of Wind Integration Cost for Day-Ahead Uncertainty, Hour-Ahead Uncertainty, Load Following and Regulation	\$9.15
B	RUN 6 – RUN 1	Cost for Day-Ahead Uncertainty	\$3.61
C	RUN 3 – RUN 1	Cost for Hour-Ahead Uncertainty	\$2.86
D	RUN 4 – RUN 1	Cost for Load Following	\$0.75
E	RUN 5 – RUN 1	Cost for Regulation	\$0.98

6.4 NEXT STEPS FOR PGE’S WIND INTEGRATION STUDY

Because variable generation resources place unique demands on system operation and reliability, PGE reiterates that understanding the physical needs and costs of wind integration is an ongoing effort. While PGE has not yet formulated a formal list of next steps, or tried to prioritize them, the following items are presented for further consideration. PGE’s Wind Integration Study Project Team welcomes suggestions and feedback from stakeholders regarding prioritization or other study items may not be listed. In this regard, PGE wishes to recognize the suggestions that the RNP submitted in their formal comments to this Study, which are incorporated below. Future Phases of PGE’s Wind Integration Study may include:

- Evaluating the net impact of moving to 30-minute scheduling;
- Evaluating the net impact of developing and operating a regional energy imbalance market;
- The value of adding additional flexible gas generation;
- How wind integration costs change with a higher or lower amount of variable resources to integrate;

EnerNex



- Understanding the impact of a poor water year;
- Understanding the impact of a higher natural gas price; and,
- Exploring changes to scheduled maintenance outages.

The PGE Wind Integration Study Project Team will continue to evaluate and improve its modeling tools and software, as needed, and will also continue to monitor the industry for Wind Integration Study best practices.

EnerNex



7. LIST OF APPENDICES

- Appendix A Principles for Technical Review Committee Involvement in Studies of Wind Integration into Electric Power Systems
- Appendix B TRC Endorsement
- Appendix C RNP Comments
- Appendix D PGE Response to RNP Comments
- Appendix E Power Point Presentations from Public Meetings
- Appendix F Wind Integration Report by MBA Team from the University of Oregon
- Appendix G Detailed Reserve Calculations

**Portland General Electric Company
Effective**

**SCHEDULE 211
QUALIFYING FACILITY 10 MW or LESS
RENEWABLE AVOIDED COST POWER PURCHASE INFORMATION**

PURPOSE

To provide information about Renewable Avoided Costs, Standard Renewable Power Purchase Agreements (PPA) and Negotiated Renewable PPAs, and power purchase prices 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 eligible electricity and environmental attributes, including renewable energy certificates (REC) to the Company in the State of Oregon (Seller).

APPLICABLE

For power purchased from small power production or cogeneration facilities that meet the definition of QF in 18 Code of Federal Regulations (CFR) Section 292, meet the eligibility requirements described herein and make energy available for Company purchase and deliver to the Company's system pursuant to a Standard Renewable PPA.

ESTABLISHING CREDITWORTHINESS

The Seller must establish creditworthiness prior to service under this schedule. For a Standard Renewable 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 as deemed sufficient by the Company as set out in the applicable Standard Renewable 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.

RENEWABLE PPA

In accordance with terms set out in this schedule and the Commission's Rules as applicable, the Company will purchase Net Output from Seller. Net Output shall mean the Energy no greater than the Nameplate Rating expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

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

DOCKETED

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

RENEWABLE PPA (Continued)

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

Any Seller may elect to negotiate a Renewable 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 212. Negotiations for power purchase pricing may use the applicable filed Renewable Avoided Costs in effect at that time as a starting point for negotiations. Avoided Costs for Negotiated PPAs may be updated and will not be final until execution of a Renewable PPA.

STANDARD RENEWABLE PPA (Nameplate capacity of 10 MW or less)

A Seller choosing a Standard Renewable PPA will complete all informational and price option selection requirements in the applicable Standard Renewable PPA and submit the executed Agreement to the Company prior to service under this schedule. The Standard Renewable PPA is available at www.portlandgeneral.com. The available Standard Renewable PPAs are: Standard Renewable In System Non-Variable Power Purchase Agreement, Standard Renewable Off System Non-Variable Power Purchase Agreement, Standard Renewable In System Variable Resource Power Purchase Agreement, and Standard Renewable Off System Integrated Variable Resource Power Purchase Agreement. The Standard PPAs applicable to Variable Resources are available only to QFs utilizing wind or solar as the primary motive force. Standard Renewable PPAs are not available for QFs with cogeneration facilities or QFs utilizing hydro as the primary motive force.

GUIDELINES FOR 10 MW OR LESS FACILITIES ELECTING STANDARD RENEWABLE PPA

In order to execute a Standard Renewable PPA the Seller must complete all of the general project information requested in the applicable Standard Renewable PPA.

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

The Seller may request in writing that the Company prepare a final draft Standard Renewable 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 Renewable PPA.

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

GUIDELINES FOR 10 MW OR LESS FACILITIES (Continued)

When both parties are in full agreement as to all terms and conditions of the draft Standard Renewable 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, a completely 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 Renewable PPA has been executed by both parties.

OFF SYSTEM RENEWABLE PPA

A Seller with a facility that interconnects with an electric system other than the Company's electric system may enter into a Renewable PPA with the Company after following the applicable off-system Standard or Negotiated PPA guidelines set forth above and making the arrangements necessary for transmission of power to the Company's system. Off System PPAs are available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory. PGE is not responsible for Seller's transmission costs, including ancillary services such as imbalance service or integration costs provided by Seller or a third party.

BASIS FOR POWER PURCHASE PRICE

RENEWABLE AVOIDED COST SUMMARY

The power purchase rates are based on the Company's Renewable Avoided Costs. 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."

The Renewable Avoided Costs as listed in Tables 1, 2, 3, and 4 below include monthly On- and Off-Peak prices.

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.

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

PRICING FOR STANDARD RENEWABLE PPA

Renewable Avoided Costs are based on forward market price estimates through December 2014, the period of time during which the Company's Renewable Avoided Costs are associated with incremental purchases of Energy and capacity from the market. Avoided integration costs are deducted from the prices for in system variable resources. For the period 2015 through 2031, the Renewable Avoided Costs reflect the fully allocated costs of a wind plant identified in the Company's Updated Integrated Resource Plan (IRP) including capital costs and wheeling. Integration is reflected in the value for non-variable resources and off system variable resources where the the QF must provide or pays a third party to provide integration to the Company's service territory.

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 Renewable PPA up to the Net Output of the QF in any hour.

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

The pricing options include two Fixed Rate Options.

1) Renewable Fixed Price for an in System Variable Resource

The Renewable Fixed Price for an In System Variable Resource is based on Renewable Avoided Costs.

This option is available for a maximum period of 15 years immediately following the effective date of the Standard Renewable PPA. Sellers with a PPA term exceeding 15 years will make a one time election at execution to select a Market-Based Option from Schedule 201 for all years up to five after the initial 15 years immediately following the effective date of the Standard Renewable PPA. Under the Renewable Fixed Price for a Variable Resource without Integration, prices will be as established at the time the Standard Renewable PPA is executed and will be equal to the Renewable Avoided Costs in Tables 1 and 2 effective at execution for a period of up to 15 years immediately following the effective date of the Standard Renewable PPA.

Portland General Electric Company
Effective

SCHEDULE 211 (Continued)

PRICING FOR STANDARD RENEWABLE PPA (Continued)

TABLE 1												
Renewable Avoided Costs												
Fixed Price Option for an In System Variable Resource												
On-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	24.21	21.92	19.88	19.37	16.32	13.01	25.74	29.56	27.79	26.00	28.29	31.86
2013	31.18	30.17	28.13	24.56	21.25	18.70	35.52	39.85	37.82	34.24	34.75	38.57
2014	33.88	32.78	30.59	26.76	23.19	20.46	38.54	43.20	41.02	37.17	37.71	41.83
2015	83.87	84.24	84.43	85.73	92.91	96.74	89.67	88.81	85.48	84.10	85.03	84.09
2016	86.48	86.47	85.78	86.48	91.60	92.55	90.39	89.15	86.95	86.73	86.71	85.58
2017	88.44	88.50	87.32	87.63	90.45	90.36	90.48	90.03	88.28	88.73	88.55	87.29
2018	89.74	90.40	89.07	89.76	92.13	91.20	92.45	92.05	90.47	90.02	89.80	89.19
2019	91.60	92.06	90.94	91.09	94.39	93.92	93.84	93.53	92.65	91.60	91.51	91.22
2020	93.62	93.60	92.70	93.24	97.01	95.95	95.58	95.44	93.92	92.78	93.77	92.57
2021	95.39	95.66	93.89	95.15	98.49	97.60	96.93	97.53	95.75	94.57	96.10	94.54
2022	97.45	97.30	95.07	97.11	100.59	99.39	98.86	98.82	97.53	96.35	98.02	96.33
2023	99.63	99.12	96.80	99.23	102.10	101.24	100.83	100.40	99.42	98.06	100.07	98.77
2024	101.12	101.30	99.00	101.37	104.56	103.37	103.24	102.93	102.71	99.91	101.09	101.24
2025	103.08	103.46	100.90	103.65	107.68	106.30	105.19	105.34	104.38	101.76	103.12	102.71
2026	105.82	105.43	103.73	106.28	111.48	107.41	107.42	107.89	107.56	103.98	106.12	105.02
2027	107.80	107.29	105.36	107.84	114.81	109.45	109.02	110.70	109.35	106.05	107.56	107.00
2028	109.98	108.76	106.39	110.32	116.80	111.12	111.95	111.96	110.94	108.59	109.84	108.93
2029	111.96	111.69	108.59	112.53	124.19	114.22	114.30	114.31	114.36	110.45	111.39	111.26
2030	114.25	113.91	111.26	114.62	127.63	118.35	115.84	115.70	117.31	112.51	113.16	113.22
2031	116.21	115.63	113.74	117.63	129.93	122.00	117.86	118.95	119.20	114.76	116.04	115.54

**Portland General Electric Company
 Effective**

SCHEDULE 211 (Continued)

PRICING FOR STANDARD RENEWABLE PPA (Continued)

TABLE 2												
Renewable Avoided Costs												
Fixed Price Option for an In System Variable Resource												
Off-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	20.90	18.10	15.81	13.51	5.36	0.00	13.51	18.86	20.91	21.92	23.70	26.51
2013	25.84	24.82	22.27	16.66	7.49	0.36	19.98	25.84	28.39	28.13	27.87	30.68
2014	26.79	25.74	23.10	17.30	7.82	0.44	20.74	26.79	29.44	29.16	28.90	31.80
2015	68.65	68.48	68.69	66.21	57.93	51.15	60.63	63.14	66.56	68.34	68.07	68.35
2016	69.79	69.19	69.90	69.06	63.29	60.75	64.83	65.23	68.41	69.48	68.73	70.18
2017	70.61	70.01	71.24	71.76	66.91	67.20	68.02	67.49	70.04	70.24	69.67	72.07
2018	71.42	70.94	72.36	72.44	68.12	69.55	68.88	68.23	71.55	71.05	71.47	73.02
2019	72.98	72.77	74.74	73.81	69.12	71.14	69.89	70.32	72.72	72.98	73.23	74.38
2020	73.87	74.18	76.00	74.53	70.53	70.81	71.16	72.53	73.59	75.03	74.80	75.32
2021	76.16	75.24	77.24	75.62	72.22	72.27	73.04	73.44	74.80	77.19	74.34	76.34
2022	77.17	76.78	79.42	76.74	73.18	73.61	75.38	74.23	76.16	78.56	75.48	77.68
2023	78.09	78.15	80.90	78.76	73.57	74.94	76.57	75.92	77.43	80.09	76.55	79.18
2024	78.88	78.95	82.66	78.70	74.11	77.33	75.95	76.38	78.14	80.55	79.08	79.82
2025	80.19	80.17	84.07	79.57	73.83	77.46	77.28	78.44	78.57	82.03	81.43	80.71
2026	80.51	81.57	84.39	80.05	74.56	78.49	78.29	79.11	78.30	83.04	81.56	81.61
2027	83.19	83.17	85.31	82.06	74.30	79.86	80.25	79.52	80.00	85.42	82.45	83.04
2028	84.48	85.20	88.14	84.27	73.74	81.80	81.99	80.43	82.05	86.25	83.54	85.81
2029	84.76	85.72	89.43	85.59	67.84	81.86	83.12	81.52	83.30	86.86	85.73	86.97
2030	86.00	87.06	91.18	85.68	67.48	82.48	83.80	83.99	83.77	88.42	87.68	88.69
2031	87.79	89.17	92.31	86.03	68.79	82.15	85.50	85.69	83.89	89.80	89.60	88.72

Under the Fixed Price Option, the Company will pay Seller the Off-Peak Avoided Cost pursuant to Table 2 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; and (d) Net Output delivered in the Off-Peak Period. The Company will pay the Seller the On-Peak Avoided Cost pursuant to Table 1 for all other delivered Net Output. (See the Standard Renewable PPA for defined terms.)

2) Renewable Fixed Price for a Non-variable Resource or an Off System Integrated Variable Resource

The Renewable Fixed Price for a Firm Resource or an Integrated Variable Resource is based on Renewable Avoided Costs plus avoided integration costs. This option is available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory

**Portland General Electric Company
 Effective**

SCHEDULE 211 (Continued)

PRICING FOR STANDARD RENEWABLE PPA (Continued)

This option is available for a maximum period of 15 years immediately following the effective date of the Standard Renewable PPA. Sellers with a PPA term exceeding 15 years will make a one time election at execution to select a Market-Based Option from Schedule 201 for all years up to five in excess of the initial 15 years immediately following the effective date of the Standard Renewable PPA. Under the Renewable Fixed Price for a Firm Resource or an Integrated Variable Resource, prices will be as established at the time the Standard Renewable PPA is executed and will be equal to the Renewable Avoided Costs in Tables 3 and 4 effective at execution for a period of up to 15 years immediately following the effective date of the Standard Renewable PPA.

TABLE 3												
Renewable Avoided Costs												
Fixed Price Option for a Non-variable Resource or an Off System Integrated Variable Resource												
On-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	33.04	30.74	28.71	28.20	25.14	21.83	34.56	38.39	36.61	34.82	37.11	40.68
2013	40.17	39.15	37.11	33.55	30.23	27.69	44.50	48.83	46.80	43.23	43.74	47.56
2014	43.03	41.93	39.74	35.91	32.34	29.61	47.69	52.35	50.17	46.32	46.86	50.98
2015	90.10	90.50	90.70	92.10	99.81	103.92	96.32	95.40	91.82	90.34	91.34	90.34
2016	92.89	92.87	92.13	92.88	98.38	99.40	97.08	95.75	93.39	93.15	93.13	91.92
2017	94.98	95.06	93.78	94.12	97.14	97.05	97.18	96.70	94.81	95.30	95.10	93.75
2018	96.39	97.09	95.66	96.40	98.95	97.95	99.29	98.86	97.16	96.68	96.45	95.79
2019	98.37	98.86	97.65	97.82	101.36	100.85	100.77	100.43	99.49	98.37	98.27	97.96
2020	100.53	100.51	99.55	100.12	104.17	103.04	102.64	102.49	100.86	99.63	100.69	99.41
2021	102.43	102.72	100.82	102.18	105.76	104.81	104.08	104.73	102.82	101.55	103.19	101.52
2022	104.64	104.48	102.09	104.28	108.02	106.73	106.16	106.11	104.73	103.47	105.26	103.44
2023	106.98	106.44	103.95	106.56	109.64	108.71	108.28	107.81	106.76	105.30	107.45	106.06
2024	108.59	108.77	106.31	108.85	112.28	111.00	110.86	110.53	110.30	107.29	108.55	108.71
2025	110.69	111.10	108.35	111.30	115.63	114.15	112.95	113.12	112.09	109.27	110.73	110.29
2026	113.63	113.21	111.38	114.12	119.71	115.34	115.35	115.85	115.50	111.66	113.95	112.77
2027	115.76	115.22	113.14	115.80	123.29	117.53	117.07	118.87	117.42	113.88	115.50	114.90
2028	118.10	116.79	114.25	118.46	125.42	119.32	120.21	120.23	119.13	116.60	117.95	116.98
2029	120.23	119.93	116.60	120.83	133.35	122.65	122.74	122.75	122.80	118.60	119.62	119.48
2030	122.69	122.32	119.47	123.09	137.05	127.08	124.39	124.24	125.97	120.81	121.52	121.57
2031	124.79	124.17	122.13	126.32	139.52	131.01	126.56	127.74	128.00	123.23	124.61	124.07

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

PRICING FOR STANDARD RENEWABLE PPA (Continued)

TABLE 4												
Renewable Avoided Costs												
Fixed Price Option for a Non-variable Resource or an Off System Integrated Variable Resource												
Off-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	29.72	26.92	24.63	22.34	14.18	6.80	22.34	27.69	29.73	30.74	32.53	35.33
2013	34.82	33.80	31.25	25.65	16.48	9.34	28.96	34.82	37.38	37.11	36.86	39.66
2014	35.94	34.89	32.25	26.45	16.97	9.59	29.89	35.94	38.59	38.31	38.05	40.95
2015	73.74	73.57	73.78	71.12	62.23	54.94	65.13	67.82	71.50	73.42	73.12	73.42
2016	74.95	74.31	75.08	74.17	67.98	65.25	69.63	70.06	73.47	74.62	73.82	75.37
2017	75.84	75.19	76.52	77.07	71.86	72.17	73.06	72.49	75.23	75.44	74.83	77.41
2018	76.71	76.19	77.72	77.80	73.17	74.70	73.98	73.28	76.85	76.31	76.76	78.43
2019	78.37	78.15	80.25	79.26	74.23	76.40	75.05	75.51	78.09	78.37	78.64	79.87
2020	79.33	79.65	81.61	80.03	75.74	76.04	76.41	77.88	79.02	80.57	80.32	80.88
2021	81.78	80.79	82.94	81.21	77.55	77.61	78.43	78.86	80.33	82.89	79.82	81.98
2022	82.87	82.45	85.28	82.40	78.58	79.04	80.94	79.71	81.79	84.36	81.05	83.41
2023	83.86	83.92	86.88	84.58	79.00	80.47	82.22	81.53	83.15	86.00	82.20	85.03
2024	84.70	84.78	88.76	84.51	79.58	83.03	81.56	82.02	83.91	86.50	84.92	85.71
2025	86.11	86.09	90.28	85.44	79.28	83.18	82.98	84.24	84.37	88.08	87.45	86.67
2026	86.45	87.59	90.62	85.96	80.06	84.29	84.07	84.95	84.08	89.18	87.58	87.64
2027	89.34	89.31	91.61	88.12	79.79	85.76	86.18	85.39	85.90	91.73	88.53	89.17
2028	90.72	91.49	94.65	90.49	79.18	87.84	88.04	86.37	88.11	92.61	89.71	92.14
2029	91.02	92.04	96.04	91.91	72.84	87.90	89.26	87.53	89.45	93.27	92.06	93.40
2030	92.35	93.49	97.91	92.01	72.46	88.57	89.99	90.19	89.96	94.94	94.16	95.24
2031	94.27	95.75	99.12	92.38	73.86	88.22	91.82	92.02	90.08	96.43	96.21	95.27

Under the Fixed Price Option, the Company will pay Seller the Off-Peak Avoided Cost pursuant to Table 4 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; and (d) Net Output delivered in the Off-Peak Period. The Company will pay the Seller the On-Peak Avoided Cost pursuant to Table 3 for all other delivered Net Output. (See the Standard Renewable PPA for defined terms.)

RENEWABLE ENERGY CERTIFICATES

The QF must provide the bundled energy and all Environmental Attributes, including RECs, to the Company from January 1, 2015 through the end of the PPA.

MONTHLY SERVICE CHARGE

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

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

INSURANCE REQUIREMENTS

The following insurance requirements are applicable to Sellers with a Standard Renewable 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 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 his/her 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 to the Company's service territory, including third party charges for ancillary services such as imbalance service or integration, as applicable.

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 must 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.

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

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.

METERING DATA

Seller shall maintain a minimum of two years records of scheduled and metered Net Output and shall allow PGE to have access to such records and imbalance information kept by the Transmission Provider as applicable. Seller shall take all required actions and grant permissions as necessary to allow PGE access to such information.

**DEFINITION OF A SMALL POWER PRODUCTION FACILITY ELIGIBLE TO RECEIVE
THE STANDARD RENEWABLE RATES AND STANDARD RENEWABLE PPA**

A QF will be eligible to receive the applicable standard rates and Standard Renewable 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. In addition, post January 1, 2015, the QF must provide all environmental attributes, including RECs that may be used to satisfy Oregon's Renewable Portfolio Standard (RPS).

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 and MACRS depreciation as the primary ownership benefit. A unit of Oregon local government may also be a "passive investor" 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.

**Portland General Electric Company
Effective**

SCHEDULE 211 (Continued)

**DEFINITION OF A SMALL COGENERATION FACILITY OR SMALL POWER
PRODUCTION FACILITY ELIGIBLE TO RECEIVE THE STANDARD RATES
AND STANDARD PPA (Continued)**

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 the standard rates and Standard Renewable 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 the standard rates and standard PPA is sought.

Shared Interconnection and Infrastructure

QFs otherwise meeting the above-described separate ownership test and thereby qualified for entitlement to the standard rate and Standard Renewable 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 the standard rate and Standard Renewable 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.

Definition of Environmental Attributes

As used in this schedule, Environmental Attributes shall mean means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standards, and any Green Tag Reporting Rights to such Environmental Attributes.

**Portland General Electric Company
Effective**

SCHEDULE 211 (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 the standard rates and Standard Renewable PPA. Any dispute concerning a QF's entitlement to the standard rates and Standard Renewable PPA may be presented to the Commission for resolution.

SPECIAL CONDITIONS

1. Delivery of energy by Seller will be at a voltage, phase, frequency, and power factor as specified by the Company.
2. 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. The Seller may enter into only one PPA at any given time per facility with the Company for power sales. All sales must commence within 12 months of execution of a PPA.
4. PPAs entered into pursuant to this schedule will not terminate prior to the Standard or Negotiated PPA's termination date if the 1978 Public Utility Regulatory Policies Act (PURPA) is repealed.

TERM OF AGREEMENT

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

Portland General Electric Company
Effective

SCHEDULE 212
QUALIFYING FACILITIES GREATER THAN 10MW
RENEWABLE AVOIDED COST POWER PURCHASE INFORMATION

PURPOSE

To provide information regarding procedures and timelines leading to a power purchase agreement (PPA) between the Company and a Qualifying Facility (QF) with an aggregate nameplate capacity greater than 10,000 kW.

AVAILABLE

To owners of QFs making sales of electricity and environmental attributes, including renewable energy certificates (REC) to the Company in the State of Oregon (Seller).

APPLICABLE

To qualifying cogeneration facilities or qualifying small power production facilities within the meaning of section 201 and 210 of the Public Utility Regulatory Act of 1978 (PURPA), 16 U.S.C. 796 and 824a-3.

A QF with nameplate capacity greater than 10,000 kW will be required to enter into a Negotiated Renewable PPA with the Company.

A QF with nameplate capacity less than 10,000 kW or less may elect the option of a Standard Renewable PPA with terms and pricing as defined in Schedule 211.

POWER PURCHASE INFORMATION

A QF 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.

GUIDELINES

In accordance with terms set out in this schedule and the Commission's Rules as applicable, the Company will purchase Net Output from Seller. Net Output shall mean the Energy no greater than the Nameplate Rating expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity. The Negotiated PPA will comply with the requirements of the Federal Energy Regulatory Commission (FERC) and the guidelines established by Commission Order No. 07-360.

The Negotiated PPA may have a term of up to 20 years, as selected by the Seller.

DOCKETED

**Portland General Electric Company
Effective**

SCHEDULE 212 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED PPA

1. The Seller may request indicative power purchase prices. To obtain an indicative pricing proposal for a proposed project, the Seller must provide in writing, general project information reasonably required for the development of indicative pricing, including, but not limited to:
 - Demonstration of ability to obtain QF status.
 - Design capacity (MW), station service requirements, and net amount of power to be delivered to the Company's electric system.
 - Generation technology and other related technology applicable to the site.
 - Quantity and timing of monthly power deliveries (including project ability to respond to dispatch orders from the Company).
 - Proposed site location and electrical interconnection point.
 - Status of interconnection and transmission arrangements.
 - Proposed on-line date and outstanding permitting requirements.
 - Motive force or fuel plan consisting of fuel type(s) and source(s).
 - Proposed PPA term and pricing provisions.

2. The Company will not be obligated to provide an indicative pricing proposal until all the information described above has been received in writing from the Seller. Within 30 business days following receipt of all required information, the Company will provide the Seller with an indicative pricing proposal, which may include other terms and conditions, tailored to the individual characteristics of the proposed project. Such proposal may be used by the Seller to make determinations regarding project planning, financing and feasibility. However, such prices are indicative and are not final and binding. Prices and other terms and conditions are only final and binding to the extent contained in Negotiated PPA, once executed by both parties. The Company will provide with the indicative prices a description of the methodology used to develop the prices.

**Portland General Electric Company
Effective**

SCHEDULE 212 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED RENEWABLE PPA (Continued)

3. The Avoided Cost Prices specified in Schedule 211 provide a starting point for indicative prices, and will be modified to address the following specific factors established in OPUC Order No. 07-360 and FERC 18 § CFR 292.304(e):
 - (e) *Factors affecting rates for purchases. In determining avoided costs, the following factors will, to the extent practicable, be taken into account.*
 - (1) *The data provided pursuant to 18 CFR § 292.302(b), (c), or (d), including State review of any such data;*
 - (2) *The availability of capacity or energy from a qualifying facility during the system daily and seasonal peak periods, including:*
 - (i) *The ability of the Company to dispatch the qualifying facility;*
 - (ii) *The expected or demonstrated reliability of the qualifying facility;*
 - (iii) *The terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirement and sanctions for non-compliance;*
 - (iv) *The extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the Company's facilities;*
 - (v) *The usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation;*
 - (vi) *The individual and aggregate value of energy and capacity from qualifying facilities on the Company's system; and*
 - (vii) *The smaller capacity increments and the shorter lead time available with additions of capacity from qualifying facilities; and*
 - (3) *The relationship of the availability of energy or capacity from the qualifying facility as derived in part (e) (2) of this section, to the ability of the Company to avoid costs, including the deferral of capacity additions and the reduction of fossil fuel use; and*
 - (4) *The costs or savings resulting from variations in line losses from those that would have existed in the absence of purchases from a qualifying facility, if the Company generated an equivalent amount of energy itself or purchased an equivalent amount of electric energy or capacity.*

**Portland General Electric Company
Effective**

SCHEDULE 212 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED RENEWABLE PPA (Continued)

4. If the Seller desires to proceed with negotiations after reviewing the Company's indicative price proposal, the Seller must request in writing that the Company prepare a draft Negotiated Renewable PPA to serve as the basis for negotiations between the parties. In connection with such request, the Seller must provide the Company with any additional project information that the Company reasonably determines to be necessary for the preparation of the Negotiated Renewable PPA, which may include, but will not be limited to:
 - Updated information for the project information listed above in paragraphs 1 and 3.
 - Evidence of adequate control of proposed site.
 - Timelines for obtaining any necessary governmental permits, approvals or authorizations.
 - Assurance of fuel supply or motive force.
 - Anticipated timelines for completion of key project milestones.
 - Evidence that any necessary interconnection studies have been completed and assurance that the necessary interconnection arrangements have been executed or are under negotiation.
5. Within 30 days following receipt of updated information required by the Company, the Company will provide the Seller with a draft Negotiated Renewable PPA. The draft agreement will contain proposed terms and conditions in addition to indicative pricing. The draft agreement is not binding; however, it will serve as the basis for subsequent negotiations.
6. After reviewing the draft Negotiated Renewable PPA, the Seller will notify the Company in writing of its intent to proceed with negotiations. The Seller may prepare an initial set of written comments and proposals regarding the agreement and forward them to the Company. The Company will not be obligated to begin negotiations with a Seller until the Company has received an initial set of written comments. After the Company's receipt of comments and proposals, the Seller may contact the Company to schedule contract negotiations at such times and places as are mutually agreeable to the parties. In connection with such negotiations, the Company:
 - Will not unreasonably delay negotiations and will respond in good faith to any additions, deletions or modifications to the draft Negotiated Renewable PPA that are proposed by the Seller.
 - May request to visit the site of the proposed project if such a visit has not previously occurred.
 - Will update its pricing proposals at appropriate intervals to accommodate any changes to the Company's avoided-cost calculations, the proposed project or proposed terms of the draft Negotiated Renewable PPA.
 - May request any additional information from the Seller necessary to finalize the terms of the Negotiated Renewable PPA and satisfy the Company's due diligence regarding the QF project.

**Portland General Electric Company
Effective**

SCHEDULE 212 (Concluded)

PROCEDURES TO DEVELOP A NEGOTIATED RENEWABLE PPA (Continued)

7. When both parties are in full agreement as to all terms and conditions of the draft Negotiated Renewable PPA, the Company will prepare and forward to the Seller a final, executable version of the agreement within 15 business days. Prices and other terms and conditions in the Negotiated Renewable PPA will not be final and binding until the agreement has been executed by both parties.
8. If parties are not in full agreement within 60 days from the date of written notice, the Seller may file a complaint with the Commission asking the Commission to adjudicate the disputed contract terms.

RENEWABLE ENERGY CERTIFICATES

The QF must provide the bundled energy and all Environmental Attributes, including RECs, to the Company from January 1, 2015 through the end of the PPA.

OFF SYSTEM RENEWABLE POWER PURCHASE AGREEMENT

A Seller with a facility that interconnects with an electric system other than the Company's electric system may enter into a Renewable PPA with the Company after following the applicable Negotiated PPA guidelines and making the arrangements necessary for transmission of power to the Company's system. Off System PPAs are available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory. PGE is not responsible for Seller's transmission costs, including ancillary services such as imbalance service or integration costs provided by Seller or a third party.

STANDARD RENEWABLE IN SYSTEM NON-VARIABLE POWER PURCHASE

AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit B ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.19, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit B provided by Seller in accordance with Section 4.4 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.3. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.4. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion, require, among other things, that all of the following events have occurred:

1.4.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in amounts required by this Agreement and in accordance with all other terms and conditions of this Agreement (certifications required under this Section 1.4 can be provided by one or more LPEs);

1.4.2. (facilities with nameplate under 500 kW exempt from following requirement) Start-Up Testing of the Facility has been completed in accordance with Section 1.28;

1.4.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.4.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that in accordance with the Generation Interconnection Agreement, all required interconnection facilities have been constructed, all required interconnection tests have been completed; and the Facility is physically interconnected with PGE's electric system.

1.4.5. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.5. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.6. "Contract Year" means each twelve (12) month period during the Term commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.7. "Effective Date" has the meaning set forth in Section 2.1.

1.8. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standards, and any Green Tag Reporting Rights to such Environmental Attributes.

1.9. "Facility" has the meaning set forth in the Recitals.

1.10. "Forward Replacement Price" means the price at which PGE, acting in a commercially reasonable manner, purchases for delivery at the Point of Delivery a replacement for any Net Output that Seller is required to deliver under this Agreement plus (i) costs reasonably incurred by PGE in purchasing such replacement Net Output, and (ii) additional transmission charges, if any, reasonably incurred by PGE in causing replacement energy to be delivered to the Point of Delivery.

1.11. "Generation Interconnection Agreement" means the generation interconnection agreement to be entered into separately between Seller and PGE, providing for the construction, operation, and maintenance of PGE's interconnection facilities required to accommodate deliveries of Seller's Net Output.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Lost Energy Value" means for a Contract Year: zero, unless the Net Output is less than Minimum Net Output and the mean Dow Jones Mid C Index Price is greater than the Contract Price, in which case Lost Energy Value equals: (Minimum Net Output - Net Output) X (the lower of the mean Contract Price or the Mean Dow Jones Mid C Index Price - mean Contract Price).

1.15. "Mid-Columbia" means an area which includes points at any of the switchyards associated with the following four hydro projects: Rocky Reach, Rock Island, Wanapum and Priest Rapids. These switchyards include: Rocky Reach, Rock Island, Wanapum, McKenzie, Valhalla, Columbia, Midway and Vantage. Mid-Columbia shall also include points in the "Northwest Hub," as defined by Bonneville Power Administration. For scheduling purposes, the footprint described above shall dictate the delivery point name for the then current Western Electricity Coordinating Council ("WECC") scheduling protocols. If the footprint changes during the Term, a mutually agreed upon footprint that describes an area containing the most liquidity for trading purposes shall apply.

1.16. "Minimum Net Output" shall have the meaning provided in Section 4.2 of this Agreement.

1.17. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.18. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.19. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes imbalance power, or power from an integrating entity.

1.20. "Off-Peak Hours" has the meaning provided in the Schedule.

1.21. "On-Peak Hours" has the meaning provided in the Schedule.

1.22. "Point of Delivery" means the high side of the generation step up transformer(s) located at the point of interconnection between the Facility and PGE's distribution or transmission system, as specified in the Generation Interconnection Agreement.

1.23. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.24. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to

accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.25. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit C.

1.26. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.27. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit D.

1.28. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.29. "Schedule" shall mean PGE Schedule 211 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit E, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.30. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.31. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.32. References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.4 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, Seller shall pay damages equal to the Lost Energy Value. In calculating the Lost Energy Value for use in this section, the Minimum Net Output shall be prorated and applied to the period of time between the Commercial Operation Date and the date specified in 2.2.1.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 10 or 12.2, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-

party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output").

3.1.11 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.12 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.13 Seller warrants that the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule and Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Commission upon the Commission's request.

3.1.14 Seller warrants that it will comply with all requirements necessary for all renewable energy credits associated with Net Output to be issued, monitored, accounted for, and transferred by and through the Western

Renewable Energy Generation System consistent with the provisions of OAR 330-160-0005 through OAR 330-160-0050.

SECTION 4: DELIVERY OF POWER AND ENVIRONMENTAL ATTRIBUTES

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller shall deliver to PGE from the Facility for each Contract Year Net Output equal to or greater than the Minimum Net Output (either (a) if Seller does not select the Alternative Minimum Amount as defined in Exhibit A of this Agreement, a minimum of seventy-five percent (75%) of its average annual Net Output or (b) if selected by Seller, the Alternative Minimum Amount), provided that such Minimum Net Output for the final Contract Year shall be reduced pro rata to reflect the Commercial Operation Date, and further provided that such Minimum Net Output shall be reduced on a pro-rata basis for any periods during a Contract Year that the Facility was prevented from generating electricity for reasons of Force Majeure. PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller agrees that if Seller does not deliver the Minimum Net Output each Contract Year, PGE will suffer losses equal to the Lost Energy Value. As damages for Seller's failure to deliver the Minimum Net Output (subject to adjustment for reasons of Force Majeure as provided in Section 4.2) in any Contract Year, notwithstanding any other provision of this Agreement, the purchase price payable by PGE for future deliveries shall be reduced until Lost Energy Value is recovered. PGE and Seller shall work together in good faith to establish the period, in monthly amounts, of such reduction so as to avoid Seller's default on its commercial or financing agreements necessary for its continued operation of the Facility. For QF Facilities sized at 100 kW or smaller, the provisions of this section shall not apply.

4.4 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit B or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.10 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.5 To the extent not otherwise provided in the Generation Interconnection Agreement, all costs associated with the modifications to PGE's interconnection facilities or electric system occasioned by or related to the interconnection of the Facility with PGE's system, or any increase in generating capability of the Facility, or any increase of delivery of Net Dependable Capacity from the Facility, shall be borne by Seller.

4.6 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall provide and PGE shall acquire the Environmental Attributes for the Contract Years specified in the Schedule. The Contract Price includes full payment for the Net Output and any Environmental Attributes transferred to PGE under this Agreement. With respect to Environmental Attributes not transferred to PGE under this Agreement ("Seller-Retained RECs") Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Seller-Retained RECs, and PGE shall not report under such program that such Seller-Retained RECs belong to it. With respect to Environmental Attributes transferred to PGE under this Agreement ("Transferred RECs"), PGE may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to it any of the Transferred RECs, and Seller shall not report under such program that such Transferred RECs belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X, a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

- 5.1 ___ Renewable Fixed Price for Non-Variable Resources
 5.2 ___ Deadband Index Gas Price
 5.3 ___ Index Gas Price
 5.4 ___ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction

taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Minimum Net Output / 8760). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: METERING

8.1 PGE shall design, furnish, install, own, inspect, test, maintain and replace all metering equipment at Seller's cost and as required pursuant to the Generation Interconnection Agreement.

8.2 Metering shall be performed at the location and in a manner consistent with this Agreement and as specified in the Generation Interconnection Agreement. All Net Output purchased hereunder shall be adjusted to account for electrical losses, if any, between the point of metering and the Point of Delivery, so that the purchased amount reflects the net amount of power flowing into PGE's system at the Point of Delivery.

8.3 PGE shall periodically inspect, test, repair and replace the metering equipment as provided in the Generation Interconnection Agreement. If any of the inspections or tests discloses an error exceeding two (2%) percent of the actual energy

delivery, either fast or slow, proper correction, based upon the inaccuracy found, shall be made of previous readings for the actual period during which the metering equipment rendered inaccurate measurements if that period can be ascertained. If the actual period cannot be ascertained, the proper correction shall be made to the measurements taken during the time the metering equipment was in service since last tested, but not exceeding three (3) months, in the amount the metering equipment shall have been shown to be in error by such test. Any correction in billings or payments resulting from a correction in the meter records shall be made in the next monthly billing or payment rendered. Such correction, when made, shall constitute full adjustment of any claim between Seller and PGE arising out of such inaccuracy of metering equipment.

8.4 To the extent not otherwise provided in the Generation Interconnection Agreement, all of PGE's costs relating to all metering equipment installed to accommodate Seller's Facility shall be borne by Seller.

SECTION 9: BILLINGS, COMPUTATIONS AND PAYMENTS

9.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement, the Generation Interconnection Agreement, and any other agreement related to the Facility between the Parties or otherwise.

9.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 10: DEFAULT, REMEDIES AND TERMINATION

10.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

10.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

10.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

10.1.3 Seller's failure to deliver the Minimum Net Output for two consecutive Contract Years.

10.1.4 If Seller is no longer a Qualifying Facility.

10.1.5 Failure of PGE to make any required payment pursuant to Section 9.1.

10.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 10.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21.1. The rights provided in this Section 10 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

10.3 If this Agreement is terminated as provided in this Section 10 PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

10.4 If this Agreement is terminated as a result of Seller's default, Seller shall pay PGE the positive difference, if any, obtained by subtracting the Contract Price from the sum of the Forward Replacement Price for the Minimum Net Output that Seller was otherwise obligated to provide for a period of twenty-four (24) months from the date of termination. Accounts owed by Seller pursuant to this paragraph shall be due within five (5) business days after any invoice from PGE for the same.

10.5 In the event PGE terminates this Agreement pursuant to this Section 10, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

10.6 Sections 10.1 10.3 10.4 10.5, 11, and 20.2 shall survive termination of this Agreement.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions

or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of

written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be

required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

21.1 All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

with a copy to: _____

To PGE: Contracts Manager
QF Contracts, 3WTCBR06
PGE - 121 SW Salmon St.
Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
MINIMUM NET OUTPUT

In this Exhibit, Seller may designate an alternative Minimum Net Output to seventy-five (75%) percent of annual average Net Output specified in Section 3.1.9 of the Agreement ("Alternative Minimum Amount"). Such Alternative Minimum Amount, if provided, shall exceed zero, and shall be established in accordance with Prudent Electrical Practices and documentation supporting such a determination shall be provided to PGE upon execution of the Agreement. Such documentation shall be commercially reasonable, and may include, but is not limited to, documents used in financing the project, and data on output of similar projects operated by seller, PGE or others.

EXHIBIT B
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

Standard Renewable In System Non-Variable Power Purchase Agreement

EXHIBIT C
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT D START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

EXHIBIT E

SCHEDULE

[Attach currently in-effect Schedule 211]

STANDARD RENEWABLE OFF SYSTEM NON-VARIABLE POWER PURCHASE

AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit B ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.19, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit B provided by Seller in accordance with Section 4.4 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.3. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.4. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion require, among other things, that all of the following events have occurred:

1.4.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in amounts required by this Agreement and in accordance with all other terms and conditions of this Agreement (certifications required under this Section 1.4 can be provided by one or more LPEs);

1.4.2. Start-Up Testing of the Facility has been completed in accordance with Section 1.27;

1.4.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.4.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that all required interconnection facilities have been constructed and all required interconnection tests have been completed;

1.4.5. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.4.6. PGE has received a copy of the Transmission Agreement.

1.5. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.6. "Contract Year" means each twelve (12) month period commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.7. "Effective Date" has the meaning set forth in Section 2.1.

1.8. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction

credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standard, and any Green Tag Reporting Rights to such Environmental Attributes.

1.9. "Facility" has the meaning set forth in the Recitals.

1.10. "Forward Replacement Price" means the price at which PGE, acting in a commercially reasonable manner, purchases for delivery at the Point of Delivery a replacement for any Net Output that Seller is required to deliver under this Agreement plus (i) costs reasonably incurred by PGE in purchasing such replacement Net Output, and (ii) additional transmission charges, if any, reasonably incurred by PGE in causing replacement energy to be delivered to the Point of Delivery. If PGE elects not to make such a purchase, costs of purchasing replacement Net Output shall be Dow Jones Mid C Index Price for such energy not delivered, plus any additional cost or expense incurred as a result of Seller's failure to deliver, as determined by PGE in a commercially reasonable manner (but not including any penalties, ratcheted demand or similar charges).

1.11. "Generation Interconnection Agreement" means an agreement governing the interconnection of the Facility with _____ electric system.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Lost Energy Value" means for a Contract Year: zero, unless the Net Output is less than Minimum Net Output and the mean Dow Jones Mid C Index Price is greater than the Contract Price, in which case Lost Energy Value equals: (Minimum Net Output - Net Output) X (the lower of the mean Contract Price or the mean Dow Jones

Mid C Index Price – mean Contract Price) minus Transmission Curtailment Replacement Energy Cost if any for like period.

1.15. "Mid-Columbia" means an area which includes points at any of the switchyards associated with the following four hydro projects: Rocky Reach, Rock Island, Wanapum and Priest Rapids. These switchyards include: Rocky Reach, Rock Island, Wanapum, McKenzie, Valhalla, Columbia, Midway and Vantage. Mid-Columbia shall also include points in the "Northwest Hub," as defined by Bonneville Power Administration. For scheduling purposes, the footprint described above shall dictate the delivery point name for the then current Western Electricity Coordinating Council ("WECC") scheduling protocols. If the footprint changes during the Term, a mutually agreed upon footprint that describes an area containing the most liquidity for trading purposes shall apply.

1.16. "Minimum Net Output" shall have the meaning provided in Section 4.2 of this Agreement.

1.17. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.18. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.19. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes imbalance power, or power from an integrating entity.

1.20. "Off-Peak Hours" has the meaning provided in the Schedule.

1.21. "On-Peak Hours" has the meaning provided in the Schedule.

1.22. "Point of Delivery" means the PGE System.

1.23. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.24. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to

accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.25. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit C.

1.26. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.27. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit D.

1.28. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.29. "Schedule" shall mean PGE Schedule 211 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit E, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.30. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.31. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.32. "Transmission Agreement" means an agreement executed by the Seller and the Transmission Provider(s) for Transmission Services.

1.33. "Transmission Curtailment" means a limitation on Seller's ability to deliver any portion of the scheduled energy to PGE due to the unavailability of transmission to the Point of Delivery or a generating facility limitation by a Transmission Provider (for any reason other than Force Majeure).

1.34. "Transmission Curtailment Replacement Energy Cost" means the greater of zero or the difference between Dow Jones Mid C Index Price – Contract Price X curtailed energy for periods of Transmission Curtailment.

1.35. "Transmission Provider(s)" means the signatory (other than the Seller) to the Transmission Agreement.

1.36. "Transmission Services" means any and all services (including but not limited to ancillary services and control area services) required for the firm transmission and delivery of Energy from the Facility to the Point of Delivery for a term not less than the Term of this Agreement.

1.37. References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.4 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, Seller shall pay damages equal to the Lost Energy Value. In calculating the Lost Energy Value for use in this section, the Minimum Net Output shall be prorated and applied to the period of time between the Commercial Operation date and the date specified in 2.2.1.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 9 or 12.2, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid

order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller will schedule and deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output"). The cost of delivering energy from the Facility to PGE is the sole responsibility of the Seller.

3.1.11 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.12 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.13 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission's request.

3.1.14 Seller warrants that it will comply with all requirements necessary for all renewable energy credits associated with Net Output to be issued, monitored, accounted for, and transferred by and through the Western Renewable Energy Generation System consistent with the provisions of OAR 330-160-0005 through OAR 330-160-0050.

SECTION 4: DELIVERY OF POWER AND ENVIRONMENTAL ATTRIBUTES

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output from the Facility. Seller's Net Output shall be scheduled and delivered to PGE at the Point of Delivery in accordance with Section 4.5.

4.2 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller shall schedule and deliver to PGE from the Facility for each Contract Year Net Output equal to or greater than the Minimum Net Output (either (a) if Seller does not select the Alternative Minimum Amount as defined in Exhibit A of this Agreement, a minimum of seventy-five percent (75%) of its average annual Net Output or (b) if selected by Seller, the Alternative Minimum Amount), provided that such Minimum Net Output for the final Contract Year shall be reduced pro rata to reflect the Commercial Operation Date, and further provided that such Minimum Net Output shall be reduced on a pro-rata basis for any periods during a Contract Year that the Facility was prevented from generating electricity for reasons of Force Majeure. PGE shall pay Seller the Contract Price for all scheduled and delivered Net Output.

4.3 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller agrees that if Seller does not deliver the Minimum Net Output each

Contract Year for reasons other than Transmission Curtailment, PGE will suffer losses equal to the Lost Energy Value. As damages for Seller's failure to deliver the Minimum Net Output (subject to adjustment for reasons of Force Majeure as provided in Section 4.2) in any Contract Year, notwithstanding any other provision of this Agreement the purchase price payable by PGE for future deliveries shall be reduced until Lost Energy Value is recovered. PGE and Seller shall work together in good faith to establish the period, in monthly amounts, of such reduction so as to avoid Seller's default on its commercial or financing agreements necessary for its continued operation of the Facility for QF Facilities sized at 100 kW or smaller, the provisions of this section shall not apply.

4.4 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit B or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.10 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating of the Facility to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.5 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain hourly real-time schedule coordination; provided, however, that in the absence of such coordination, the hourly schedule established by the exchange of preschedules shall be considered final. Seller and PGE shall maintain records of hourly energy schedules for accounting and operating purposes. Deliveries shall not be made on a dynamic basis, and Seller shall insure that all deliveries of energy under this Agreement will be equal on an hourly basis to the amounts scheduled in the final schedule. Seller shall bear the cost of any transmission services, including but not limited to imbalance services, necessary to insure that energy deliveries under this Agreement are equal on an hourly basis to the amount of energy scheduled for each hour in the final schedule. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g., 1:30 to 2:00). The final E-Tag shall be the controlling evidence of the Parties' final schedule. Seller shall make commercially reasonable efforts to schedule in any hour an amount equal to its expected Net Output for such hour. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records and to imbalance information kept by the Transmission Provider.

4.6 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall provide and PGE shall acquire the Environmental Attributes for the Contract Years specified in the Schedule. The Contract Price includes full payment for the Net Output and any Environmental Attributes transferred to PGE under this Agreement. With respect to Environmental Attributes not transferred to PGE under this Agreement ("Seller-Retained RECs") Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Seller-Retained RECs, and PGE shall not report under such program that such Seller-Retained RECs belong to it. With respect to Environmental Attributes transferred to PGE under this Agreement ("Transferred RECs"), PGE may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to it any of the Transferred RECs, and Seller shall not report under such program that such Transferred RECs belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

- 5.1 Renewable Fixed Price Non Variable or Integrated Variable Resource
- 5.2 Deadband Index Gas Price
- 5.3 Index Gas Price
- 5.4 Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility or transmission to PGE's electric system is curtailed, disconnected, suspended or interrupted, in whole or in part. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance that could affect the generation, scheduling or delivery of energy to PGE, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than ten (10) days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Minimum Net Output / 8760). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: BILLINGS, COMPUTATIONS AND PAYMENTS

8.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement and any other agreement related to the Facility between the Parties or otherwise.

8.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 9: DEFAULT, REMEDIES AND TERMINATION

9.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

9.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

9.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within ten (10) days of notice.

9.1.3 Seller's failure to deliver the Minimum Net Output for two consecutive Contract Years.

9.1.4 If Seller is no longer a Qualifying Facility.

9.1.5 Failure of PGE to make any required payment pursuant to Section 8.1.

9.1.6 Seller's failure to accurately schedule Net Output, as required by Section 4.5, where there is a demonstrated pattern of scheduling errors. Scheduling errors may include: scheduled energy that differs from Net Output by more than 10% for multiple monthly periods, or in cases where net deviations result in demonstrated excess payments by PGE to the Seller.

9.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 9.1.3, by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21.1. The rights provided in this Section 9 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

9.3 If this Agreement is terminated as provided in this Section 9, PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

9.4 If this Agreement is terminated as a result of Seller's default, Seller shall pay PGE the positive difference, if any, obtained by subtracting the Contract Price from the sum of the Forward Replacement Price for the Minimum Net Output that Seller was otherwise obligated to provide for a period of twenty-four (24) months from the date of termination plus any cost incurred for transmission purchased by PGE to deliver the replacement power to the Point of Delivery and the estimated administrative cost to the utility to acquire replacement power. Accounts owed by Seller pursuant to this paragraph shall be due within five (5) business days after any invoice from PGE for the same.

9.5 In the event PGE terminates this Agreement pursuant to this Section 9, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

9.6 Sections 9.1, 9.3, 9.4, 9.5, 11, and 20.2 shall survive termination of this Agreement.

SECTION 10: TRANSMISSION CURTAILMENTS

10.1 Seller shall give PGE notice as soon as reasonably practicable of any Transmission Curtailment that is likely to affect Seller's ability to deliver any portion of energy scheduled pursuant to Sections 4.5 of this Agreement.

10.2 If as the result of a Transmission Curtailment, Seller does not deliver any portion of energy (including real-time adjustments), scheduled pursuant to Section 4.5 of this Agreement, Seller shall pay PGE the Transmission Curtailment Replacement Energy Cost for the number of MWh of energy reasonably determined by PGE as the difference between (i) the scheduled energy that would have been delivered to PGE under this Agreement during the period of Transmission Curtailment and (ii) the actual energy, if any, that was delivered to PGE for the period.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes Transmission Curtailment, the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding

PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

21.1 All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

with a copy to: _____

To PGE: Contracts Manager
QF Contracts, 3WTCBR06
PGE - 121 SW Salmon St.
Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

Standard Renewable Off System Non-Variable Power Purchase Agreement

Effective _____

(Name Seller)

By: _____

Name: _____

Title: _____

Date: _____

EXHIBIT A
MINIMUM NET OUTPUT

In this Exhibit, Seller may designate an alternative Minimum Net Output to seventy-five (75%) percent of annual average Net Output specified in Section 3.1.9 of the Agreement ("Alternative Minimum Amount"). Such Alternative Minimum Amount, if provided, shall exceed zero, and shall be established in accordance with Prudent Electrical Practices and documentation supporting such a determination shall be provided to PGE upon execution of the Agreement. Such documentation shall be commercially reasonable, and may include, but is not limited to, documents used in financing the project, and data on output of similar projects operated by seller, PGE or others.

EXHIBIT B
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT C
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement with interconnecting utility

Firm Transmission Agreement between Seller and Transmission Provider

EXHIBIT D START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

EXHIBIT E
SCHEDULE

[Attach currently in-effect Schedule 211]

STANDARD RENEWABLE IN SYSTEM VARIABLE RESOURCE POWER

PURCHASE AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit A ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.17, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit A provided by Seller in accordance with Section 4.3 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Base Hours" is defined as the total number of hours in each Contract Year (8,760 or 8,784 for leap year).

1.3. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.4. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.5. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion, require, among other things, that all of the following events have occurred:

1.5.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in accordance with the terms and conditions of this Agreement (certifications required under this Section 1.5 can be provided by one or more LPEs);

1.5.2. (facilities with nameplate under 500 kW exempt from following requirement) Start-Up Testing of the Facility has been completed in accordance with Section 1.26;

1.5.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.5.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that in accordance with the Generation Interconnection Agreement, all required interconnection facilities have been constructed all required interconnection tests have been completed; and the Facility is physically interconnected with PGE's electric system.

1.5.5. PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.6. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.7. "Contract Year" means each twelve (12) month period during the Term commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.8. "Effective Date" has the meaning set forth in Section 2.1.

1.9. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standard, and any Green Tag Reporting Rights to such Environmental Attributes.

1.10. "Facility" has the meaning set forth in the Recitals.

1.11. "Generation Interconnection Agreement" means the generation interconnection agreement to be entered into separately between Seller and PGE, providing for the construction, operation, and maintenance of PGE's interconnection facilities required to accommodate deliveries of Seller's Net Output.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Mechanical Availability Percentage" or "MAP" shall mean that percentage for any Contract Year for the Facility calculated in accordance with the following formula:

$$\text{MAP} = 100 \times (\text{Operational Hours}) / (\text{Base Hours})$$

1.15. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.16. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.17. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.18. "Off-Peak Hours" has the meaning provided in the Schedule.

1.19. "On-Peak Hours" has the meaning provided in the Schedule.

1.20. "Operational Hours" for the Facility means the number of hours the Facility is potentially capable of producing power at its Nameplate Capacity Rating regardless of actual weather or seasonal conditions and the time of day or night, without any mechanical operating constraint or restriction, and potentially capable of delivering such power to the Point of Delivery. Hours during which an event of Force Majeure exists that prevent the Facility from producing or delivering power shall be considered Operational Hours.

1.21. "Point of Delivery" means the high side of the generation step up transformer(s) located at the point of interconnection between the Facility and PGE's distribution or transmission system, as specified in the Generation Interconnection Agreement.

1.22. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.23. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.24. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit B.

1.25. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.26. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit C.

1.27. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.28. "Schedule" shall mean PGE Schedule 211 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit D, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.29. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.30. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.5 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, PGE may terminate this agreement in accordance with Section 10.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is

terminated in accordance with Section 10 or 12, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours (“kWh”), which amount PGE will include in its resource planning.

3.1.10 Seller represents and warrants that the Facility shall achieve the following Mechanical Availability Percentages (“Guarantee of Mechanical Availability”):

3.1.10.1 Ninety-one percent (91%) for the first Contract Year;
and

3.1.10.2 Ninety-five percent (95%) beginning Contract Year two and extending throughout the remainder of the Term.

3.1.10.3 Annually, within 90 days of the end of each Contract Year Seller shall send to PGE a detailed written report demonstrating and providing evidence of the actual MAP for the previous Contract Year.

3.1.11 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year (“Maximum Net Output”).

3.1.12 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.13 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.14 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE’s Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE’s Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller’s continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission’s request.

3.1.15 Seller warrants that it will comply with all requirements necessary for all renewable energy credits associated with Net Output to be issued, monitored, accounted for, and transferred by and through the Western

Renewable Energy Generation Information System consistent with the provisions of OAR 330-160-0005 through OAR 330-160-0050.

SECTION 4: DELIVERY OF POWER AND ENVIRONMENTAL ATTRIBUTES

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit A or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.11 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.4 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain accurate dynamic schedule coordination; provided, however, that in the absence of such coordination, the schedule established by the exchange of preschedules shall be considered final. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g., 1:30 to 2:00). Seller and PGE shall maintain records of energy schedules for delivery for accounting and operating purposes. The final E-Tag shall be the controlling evidence of the Parties' schedule. Seller shall be obligated to meet a certain minimum scheduling accuracy level which shall measure the level of variation between the final schedule(s) for the applicable interval and the Net Output delivered for that same interval. The actual final schedules provided by Seller shall meet or exceed the scheduling accuracy level of 30-Minute Persistence Scheduling. For purposes of this section, the accuracy level of 30-Minute Persistence Scheduling is the accuracy level that would be achieved if Seller's final schedule(s) for the next schedule interval is the Seller's instantaneous actual generation from the Facility 30 minutes prior. For example, under 30-Minute Persistence Scheduling, the Seller's schedule for 2:00 to 2:30 is the Seller's Facility's actual instantaneous generation at 1:30 and the Seller's schedule for 2:30 to 3:00 is the Seller's Facility's actual instantaneous generation at 2:00. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records.

4.5 To the extent not otherwise provided in the Generation Interconnection Agreement, all costs associated with the modifications to PGE's interconnection facilities or electric system occasioned by or related to the interconnection of the Facility with PGE's system, or any increase in generating capability of the Facility, or any increase of delivery of Net Dependable Capacity from the Facility, shall be borne by Seller.

4.6 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall provide and PGE shall acquire the Environmental Attributes for the Contract Years specified in the Schedule. The Contract Price includes full payment for the Net Output and any Environmental Attributes transferred to PGE under this Agreement. With respect to Environmental Attributes not transferred to PGE under this Agreement ("Seller-Retained RECs") Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Seller-Retained RECs, and PGE shall not report under such program that such Seller-Retained RECs belong to it. With respect to Environmental Attributes transferred to PGE under this Agreement ("Transferred RECs"), PGE may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to it any of the Transferred RECs, and Seller shall not report under such program that such Transferred RECs belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

- 5.1 _____ Renewable Fixed Price for Variable Resources
- 5.2 _____ Deadband Index Gas Price
- 5.3 _____ Index Gas Price
- 5.4 _____ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Net Dependable Capacity). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: METERING

8.1 PGE shall design, furnish, install, own, inspect, test, maintain and replace all metering equipment at Seller's cost and as required pursuant to the Generation Interconnection Agreement.

8.2 Metering shall be performed at the location and in a manner consistent with this Agreement and as specified in the Generation Interconnection Agreement. All Net Output purchased hereunder shall be adjusted to account for electrical losses, if any, between the point of metering and the Point of Delivery, so that the purchased amount reflects the net amount of power flowing into PGE's system at the Point of Delivery.

8.3 PGE shall periodically inspect, test, repair and replace the metering equipment as provided in the Generation Interconnection Agreement. If any of the inspections or tests discloses an error exceeding two (2%) percent of the actual energy delivery, either fast or slow, proper correction, based upon the inaccuracy found, shall be made of previous readings for the actual period during which the metering equipment rendered inaccurate measurements if that period can be ascertained. If the actual period cannot be ascertained, the proper correction shall be made to the measurements taken during the time the metering equipment was in service since last tested, but not exceeding three (3) months, in the amount the metering equipment shall have been shown to be in error by such test. Any correction in billings or payments resulting from a correction in the meter records shall be made in the next monthly billing or payment rendered. Such correction, when made, shall constitute full adjustment of any claim between Seller and PGE arising out of such inaccuracy of metering equipment.

8.4 To the extent not otherwise provided in the Generation Interconnection Agreement, all of PGE's costs relating to all metering equipment installed to accommodate Seller's Facility shall be borne by Seller.

SECTION 9: BILLINGS, COMPUTATIONS AND PAYMENTS

9.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement, the Generation Interconnection Agreement, and any other agreement related to the Facility between the Parties or otherwise.

9.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 10: DEFAULT, REMEDIES AND TERMINATION

10.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

10.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

10.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

10.1.3 Seller's failure to meet the MAP established in Section 3.1.10 – Guarantee of Mechanical Availability for any single Contract Year or Seller's failure to provide any written report required by that section.

10.1.4 If Seller is no longer a Qualifying Facility.

10.1.5 Failure of PGE to make any required payment pursuant to Section 9.1.

10.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 10.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21. The rights provided in this Section 10 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

10.3 If this Agreement is terminated as provided in this Section 10 PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

10.4 In the event PGE terminates this Agreement pursuant to this Section 10, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

10.5 Sections 10.1, 10.3, 10.4, 11, and 20.2 shall survive termination of this Agreement.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may

be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be

excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

Standard Renewable In System Variable Resource Power Purchase Agreement
Effective _____

with a copy to:

To PGE: Contracts Manager
 QF Contracts, 3WTCBR06
 PGE - 121 SW Salmon St.
 Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

Standard Renewable In System Variable Resource Power Purchase Agreement

EXHIBIT A
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT B
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT C START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements

EXHIBIT D
SCHEDULE
[Attach currently in-effect Schedule 211]

**STANDARD RENEWABLE OFF SYSTEM INTEGRATED VARIABLE RESOURCE
POWER PURCHASE AGREEMENT**

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit A ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.17, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit A provided by Seller in accordance with Section 4.3 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Base Hours" is defined as the total number of hours in each Contract Year (8,760 or 8,784 for leap year).

1.3. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.4. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.5. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion require, among other things, that all of the following events have occurred:

1.5.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in accordance with the terms and conditions of this Agreement (certifications required under this Section 1.5 can be provided by one or more LPEs);

1.5.2. Start-Up Testing of the Facility has been completed in accordance with Section 1.26;

1.5.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.5.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that all required interconnection facilities have been constructed and all required interconnection tests have been completed;

1.5.5. PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.5.6. PGE has received a copy of the Transmission Agreement.

1.6. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.7. "Contract Year" means each twelve (12) month period commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.8. "Effective Date" has the meaning set forth in Section 2.1.

1.9. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standard, and any Green Tag Reporting Rights to such Environmental Attributes.

1.10. "Facility" has the meaning set forth in the Recitals.

1.11. "Generation Interconnection Agreement" means an agreement governing the interconnection of the Facility with _____ electric system.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Mechanical Availability Percentage" or "MAP" shall mean that percentage for any Contract Year for the Facility calculated in accordance with the following formula:

$$\text{MAP} = 100 \times (\text{Operational Hours}) / (\text{Base Hours})$$

1.15. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.16. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.17. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission

losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.18. "Off-Peak Hours" has the meaning provided in the Schedule.

1.19. "On-Peak Hours" has the meaning provided in the Schedule.

1.20. "Operational Hours" for the Facility means the number of hours the Facility is potentially capable of producing power at its Nameplate Capacity Rating regardless of actual weather conditions, season and the time of day or night, without any mechanical operating constraint or restriction, and potentially capable of delivering such power to the Point of Delivery. Hours during which an event of Force Majeure exists that prevent the Facility from producing or delivering power shall be considered Operational Hours.

1.21. "Point of Delivery" means the PGE System.

1.22. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.23. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.24. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit B.

1.25. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.26. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit C.

1.27. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.28. "Schedule" shall mean PGE Schedule 211 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit D, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.29. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.30. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.31. "Transmission Agreement" means an agreement executed by the Seller and the Transmission Provider(s) for Transmission Services.

1.32. "Transmission Curtailment" means a limitation on Seller's ability to deliver any portion of the scheduled energy to PGE due to the unavailability of transmission to the Point of Delivery or a generating facility limitation by a Transmission Provider (for any reason other than Force Majeure).

1.33. "Transmission Curtailment Replacement Energy Cost" means the greater of zero or the amount calculated as: $((\text{Dow Jones Mid C Index Price} - \text{Contract Price}) \times \text{curtailed energy})$ for periods of Transmission Curtailment.

1.34. "Transmission Provider(s)" means the signatory (other than the Seller) to the Transmission Agreement.

1.35. "Transmission Services" means any and all services (including but not limited to ancillary services and control area services) required for the firm transmission and delivery of Energy from the Facility to the Point of Delivery for a term not less than the Term of this Agreement.

References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

Standard Renewable Off System Integrated Variable Resource Power Purchase Agreement
Effective _____

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.5 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, PGE may terminate this agreement in accordance with Section 9.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 9 or 12, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

Standard Renewable Off System Integrated Variable Resource Power Purchase Agreement
Effective _____

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller represents and warrants that the Facility shall achieve the following Mechanical Availability Percentages ("Guarantee of Mechanical Availability"):

3.1.10.1 Ninety-one percent (91%) for the first Contract Year;
and

3.1.10.2 Ninety-five percent (95%) beginning Contract Year two and extending throughout the remainder of the Term.

3.1.10.3 Annually, within 90 days of the end of each Contract Year, Seller shall send to PGE a detailed written report demonstrating and providing evidence of the actual MAP for the previous Contract Year.

3.1.11 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output"). The cost of delivering energy from the Facility to PGE is the sole responsibility of the Seller.

3.1.12 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.13 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.14 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Renewable Rates and Standard Renewable PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission's request.

3.1.15 Seller warrants that it will comply with all requirements necessary for all renewable energy credits associated with Net Output to be issued, monitored, accounted for, and transferred by and through the Western Renewable Energy Generation Information System consistent with the provisions of OAR 330-160-0005 through OAR 330-160-0050.

SECTION 4: DELIVERY OF POWER AND ENVIRONMENTAL ATTRIBUTES

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit A or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.11 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.4 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain hourly real-time schedule coordination; provided, however, that in the absence of such coordination, the schedule established by the exchange of preschedules shall be considered final. Seller and PGE shall maintain records of energy schedules for accounting and operating purposes. Deliveries shall not be made on a dynamic basis, and Seller shall insure that all deliveries of energy under this Agreement will be equal on an hourly basis to the amounts scheduled in the final schedule. Seller shall bear the cost of any transmission services, including but not limited to imbalance services, necessary to insure that energy deliveries under this Agreement are equal on an hourly basis to the amount of energy scheduled for each hour in the final schedule. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g. 1:30 to 2:00). The final E-Tag shall be the controlling evidence of the Parties' final schedule. Seller shall make commercially reasonable efforts to schedule in any hour an amount equal to its expected Net Output for such hour. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records and to imbalance information kept by the Transmission Provider.

4.5 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall provide and PGE shall acquire the Environmental Attributes for the Contract Years specified in the Schedule. The Contract Price includes full payment for the Net Output and any Environmental Attributes transferred to PGE under this Agreement. With respect to Environmental Attributes not transferred to PGE under this Agreement ("Seller-Retained RECs") Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Seller-Retained RECs, and PGE shall not report under such program that such Seller-Retained RECs belong to it. With respect to Environmental Attributes transferred to PGE under this Agreement ("Transferred RECs"), PGE may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to it any of the Transferred RECs, and Seller shall not report under such program that such Transferred RECs belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

5.1 _____ Renewable Fixed Price for Non Variable or Integrated Variable Resources

- 5.2 _____ Deadband Index Gas Price
- 5.3 _____ Index Gas Price
- 5.4 _____ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Net Dependable Capacity). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: BILLINGS, COMPUTATIONS AND PAYMENTS

8.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement and any other agreement related to the Facility between the Parties or otherwise.

8.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 9: DEFAULT, REMEDIES AND TERMINATION

9.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

9.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

9.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

9.1.3 Seller's failure to meet the MAP established in Section 3.1.10 – Guarantee of Mechanical Availability for any single Contract Year or Seller's failure to provide any written report required by that section.

9.1.4 If Seller is no longer a Qualifying Facility.

9.1.5 Failure of PGE to make any required payment pursuant to Section 8.1.

9.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 9.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21. The rights provided in this Section 9 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

9.3 If this Agreement is terminated as provided in this Section 9, PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

9.4 In the event PGE terminates this Agreement pursuant to this Section 9, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

9.5 Sections 9.1, 9.3, 9.4, 11, and 20.2 shall survive termination of this Agreement.

SECTION 10: TRANSMISSION CURTAILMENTS

10.1 Seller shall give PGE notice as soon as reasonably practicable of any Transmission Curtailment that is likely to affect Seller's ability to deliver any portion of energy scheduled pursuant to Sections 4.4 of this Agreement.

10.2 If as the result of a Transmission Curtailment, Seller does not deliver any portion of energy (including real-time adjustments), scheduled pursuant to Section 4.4 of this Agreement, Seller shall pay PGE the Transmission Curtailment Replacement Energy Cost for the number of MWh of energy reasonably determined by PGE as the difference between (i) the scheduled energy that would have been delivered to PGE under this Agreement during the period of Transmission Curtailment and (ii) the actual energy, if any, that was delivered to PGE for the period.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest

clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

Standard Renewable Off System Integrated Variable Resource Power Purchase Agreement
Effective _____

with a copy to:

To PGE: Contracts Manager
 QF Contracts, 3WTCBR06
 PGE - 121 SW Salmon St.
 Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT B
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT C START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

Standard Renewable Off System Integrated Variable Resource Power Purchase Agreement

EXHIBIT D
SCHEDULE
[Attach currently in-effect Schedule 211]

Portland General Electric Company
Effective

RECEIVED
MAR 19 2012

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

Public Utility Commission of Oregon
Administrative Hearings Division

PURPOSE

To provide information about 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 meet the definition of QF in 18 Code of Federal Regulations (CFR) Section 292, meet the eligibility requirements described herein and make energy available for Company purchase and deliver to the Company's system 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 as deemed sufficient by the Company as set out 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 out in this schedule and the Commission's Rules as applicable, the Company will purchase Net Output from Seller. Net Output shall mean the Energy no greater than the Nameplate Rating expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

A Seller must execute a Power Purchase Agreement 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.

**Portland General Electric Company
Effective**

SCHEDULE 201 (Continued)

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 may use the applicable filed Avoided Costs in effect at that time as a starting point for negotiations. Avoided Costs for Negotiated PPAs may be updated and will not be final until execution of a PPA.

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 Resource Power Purchase Agreement, and Standard Off System Integrated Variable Resource 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

In order 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, a completely 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.

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

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 set forth above and making the arrangements necessary for transmission of power to the Company's system. Off System PPAs are available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory. PGE is not responsible for Seller's transmission costs, including ancillary services such as imbalance service or integration costs provided by Seller or a third party.

BASIS FOR POWER PURCHASE PRICE

AVOIDED COST SUMMARY

The power purchase rates are based on the Company's Avoided Costs. 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."

The Avoided Costs as listed in Tables 1a, 1b, 2a, and 2b below include monthly On- and Off-Peak prices.

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.

Avoided Costs are based on forward market price estimates through December 2014, the period of time during which the Company's Avoided Costs are associated with incremental purchases of Energy and capacity from the market. For the period 2015 through 2030, the 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.

PRICING OPTIONS FOR STANDARD PPA

Pricing options represent 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 Net Output of the QF in any hour.

The Standard PPA pricing will be based on the Avoided Cost in effect at the time the agreement is executed.

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)

Four pricing options are available for Standard PPAs. The pricing options include one Fixed Rate Option and three Market Based Options.

1) Fixed Price Option for a Non-variable Resource or an Off System Integrated Variable Resource

The Fixed Price Option is based on Avoided Costs including forecasted natural gas prices. This option is available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory

This option is available for a maximum period of 15 years immediately following the effective date of the Standard PPA. Sellers with a PPA term exceeding 15 years will make a one time election at execution to select a Market-Based Option for all years up to five after of the initial 15 years immediately following the effective date of the Standard PPA. Under the Fixed Price Option, prices will be as established at the time the Standard PPA is executed and will be equal to the Avoided Costs in Tables 1a and 1b effective at execution for a period of up to 15 years immediately following the effective date of the Standard PPA.

TABLE 1a												
Avoided Costs												
Fixed Price Option for Non-variable and Off System Integrated Variable Resources												
On-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	33.04	30.74	28.71	28.20	25.14	21.83	34.56	38.39	36.61	34.82	37.11	40.68
2013	40.28	39.26	37.22	33.65	30.34	27.79	44.61	48.94	46.91	43.33	43.84	47.67
2014	43.18	42.08	39.89	36.06	32.49	29.76	47.84	52.50	50.32	46.48	47.02	51.13
2015	83.36	83.15	82.54	81.21	81.29	81.48	81.75	81.90	81.92	82.18	82.87	84.41
2016	86.95	86.74	86.11	84.74	84.82	85.02	85.30	85.46	85.51	85.77	86.60	88.26
2017	91.15	90.94	90.30	88.74	88.82	89.03	89.30	89.53	89.59	89.84	90.74	92.47
2018	95.32	95.09	94.40	92.71	92.79	93.02	93.31	93.56	93.63	93.90	94.88	96.75
2019	98.99	98.75	98.01	96.22	96.31	96.55	96.86	97.13	97.20	97.48	98.53	100.51
2020	103.47	103.21	102.41	100.48	100.57	100.84	101.17	101.46	101.54	101.84	102.97	105.11
2021	108.21	107.93	107.08	105.00	105.11	105.39	105.75	106.06	106.14	106.47	107.67	109.97
2022	112.94	112.63	111.72	109.51	109.62	109.92	110.30	110.63	110.72	111.07	112.36	114.82
2023	117.99	117.67	116.70	114.33	114.45	114.77	115.18	115.53	115.63	116.00	117.37	120.00
2024	122.66	122.31	121.28	118.76	118.89	119.23	119.67	120.04	120.14	120.54	122.00	124.80
2025	128.02	127.65	126.55	123.87	124.00	124.37	124.84	125.23	125.34	125.76	127.32	130.29
2026	130.37	129.99	128.88	126.15	126.28	126.66	127.13	127.53	127.64	128.07	129.66	132.68
2027	132.77	132.38	131.25	128.47	128.61	128.99	129.47	129.88	129.99	130.43	132.04	135.12
2028	135.22	134.83	133.67	130.84	130.98	131.37	131.86	132.28	132.39	132.83	134.48	137.62
2029	137.69	137.29	136.12	133.23	133.38	133.77	134.27	134.70	134.81	135.26	136.94	140.13
2030	140.22	139.82	138.62	135.68	135.83	136.23	136.74	137.17	137.29	137.75	139.46	142.71
2031	142.80	142.39	141.17	138.18	138.32	138.74	139.25	139.69	139.81	140.28	142.02	145.33

**Portland General Electric Company
 Effective**

SCHEDULE 201 (Continued)

**PRICING OPTIONS FOR STANDARD PPA (Continued)
 FIXED PRICE OPTION (Continued)**

TABLE 1b												
Avoided Costs												
Fixed Price Option for Non-variable and Off System Integrated Variable Resources												
Off-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	29.72	26.92	24.63	22.34	14.18	6.80	22.34	27.69	29.73	30.74	32.53	35.33
2013	34.93	33.91	31.36	25.76	16.59	9.45	29.07	34.93	37.49	37.22	36.97	39.77
2014	36.09	35.04	32.40	26.60	17.12	9.74	30.04	36.09	38.74	38.47	38.20	41.11
2015	34.15	33.95	33.34	32.01	32.08	32.28	32.55	32.70	32.72	32.98	33.67	35.21
2016	37.00	36.79	36.17	34.80	34.87	35.07	35.35	35.51	35.56	35.83	36.65	38.31
2017	39.96	39.74	39.11	37.55	37.62	37.84	38.11	38.34	38.40	38.65	39.55	41.28
2018	43.35	43.12	42.43	40.74	40.82	41.05	41.35	41.60	41.66	41.93	42.91	44.78
2019	46.07	45.82	45.09	43.29	43.38	43.63	43.94	44.20	44.28	44.56	45.60	47.59
2020	49.75	49.48	48.69	46.75	46.85	47.11	47.45	47.73	47.81	48.12	49.24	51.39
2021	53.32	53.04	52.19	50.11	50.22	50.50	50.86	51.17	51.25	51.58	52.78	55.08
2022	57.04	56.73	55.82	53.61	53.72	54.02	54.40	54.73	54.82	55.17	56.46	58.92
2023	60.88	60.55	59.59	57.22	57.34	57.66	58.07	58.42	58.51	58.89	60.26	62.89
2024	64.87	64.52	63.49	60.97	61.10	61.44	61.88	62.25	62.35	62.75	64.21	67.00
2025	68.97	68.60	67.51	64.83	64.96	65.33	65.79	66.19	66.29	66.72	68.27	71.24
2026	70.24	69.86	68.75	66.02	66.15	66.53	67.00	67.40	67.51	67.94	69.53	72.55
2027	71.53	71.15	70.01	67.23	67.37	67.75	68.23	68.64	68.75	69.19	70.80	73.88
2028	72.86	72.47	71.31	68.48	68.62	69.01	69.50	69.91	70.03	70.47	72.12	75.25
2029	74.18	73.78	72.61	69.72	69.87	70.26	70.76	71.19	71.30	71.75	73.43	76.62
2030	75.54	75.14	73.94	71.01	71.15	71.55	72.06	72.49	72.61	73.07	74.78	78.03
2031	76.93	76.52	75.30	72.31	72.46	72.87	73.38	73.83	73.94	74.41	76.15	79.46

Under the Fixed Price Option, the Company will pay Seller the Off-Peak Avoided Cost pursuant to Table 1b 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; and (d) Net Output delivered in the Off-Peak Period. The Company will pay the Seller the On-Peak Avoided Cost pursuant to Table 1a for all other delivered Net Output. (See the Standard PPA for defined terms.)

**Portland General Electric Company
 Effective**

SCHEDULE 201 (Continued)

**PRICING OPTIONS FOR STANDARD PPA (Continued)
 FIXED PRICE OPTION (Continued)**

2) Fixed Price Option for an On System Variable Resource

The Fixed Price Option for an On System Variable Resource is based on Avoided Costs including forecasted natural gas prices minus integration costs.

This option is available for a maximum period of 15 years immediately following the effective date of the Standard PPA. Sellers with a PPA term exceeding 15 years will make a one time election at execution to select a Market-Based Option for all years up to five after of the initial 15 years immediately following the effective date of the Standard PPA. Under the Fixed Price Option, prices will be as established at the time the Standard PPA is executed and will be equal to the Avoided Costs in Tables 2a and 2b effective at execution for a period of up to 15 years immediately following the effective date of the Standard PPA.

TABLE 2a												
Avoided Costs												
Fixed Price Option for In System Variable Resources												
On-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	24.21	21.92	19.88	19.37	16.32	13.01	25.74	29.56	27.79	26.00	28.29	31.86
2013	31.29	30.27	28.24	24.67	21.36	18.81	35.62	39.95	37.93	34.35	34.86	38.68
2014	34.03	32.93	30.74	26.91	23.34	20.61	38.69	43.35	41.17	37.33	37.87	41.98
2015	74.04	73.83	73.23	71.89	71.97	72.17	72.44	72.58	72.60	72.86	73.56	75.09
2016	77.46	77.25	76.62	75.25	75.33	75.53	75.81	75.97	76.02	76.28	77.11	78.77
2017	81.49	81.27	80.63	79.08	79.15	79.37	79.64	79.87	79.93	80.17	81.08	82.81
2018	85.48	85.24	84.55	82.86	82.95	83.18	83.47	83.72	83.79	84.05	85.04	86.91
2019	88.97	88.72	87.99	86.20	86.28	86.53	86.84	87.11	87.18	87.46	88.50	90.49
2020	93.27	93.00	92.21	90.27	90.37	90.63	90.97	91.25	91.33	91.63	92.76	94.91
2021	97.82	97.53	96.68	94.61	94.71	95.00	95.35	95.66	95.74	96.07	97.28	99.58
2022	102.35	102.04	101.14	98.92	99.03	99.33	99.72	100.04	100.13	100.48	101.77	104.23
2023	107.21	106.88	105.92	103.55	103.67	103.99	104.40	104.75	104.84	105.22	106.59	109.21
2024	111.68	111.33	110.30	107.78	107.91	108.25	108.69	109.06	109.16	109.56	111.02	113.82
2025	116.83	116.46	115.37	112.69	112.82	113.19	113.65	114.05	114.16	114.58	116.13	119.10
2026	118.98	118.61	117.49	114.76	114.90	115.27	115.74	116.15	116.25	116.68	118.27	121.29
2027	121.17	120.78	119.65	116.87	117.01	117.39	117.87	118.28	118.39	118.83	120.44	123.52
2028	123.41	123.02	121.86	119.03	119.17	119.56	120.05	120.47	120.58	121.02	122.67	125.80
2029	125.66	125.27	124.09	121.21	121.35	121.75	122.24	122.67	122.78	123.24	124.91	128.10
2030	127.97	127.57	126.37	123.43	123.58	123.98	124.49	124.92	125.04	125.50	127.21	130.46
2031	130.33	129.91	128.69	125.70	125.85	126.26	126.78	127.22	127.34	127.81	129.55	132.86

**Portland General Electric Company
 Effective**

SCHEDULE 201 (Continued)

**PRICING OPTIONS FOR STANDARD PPA (Continued)
 FIXED PRICE OPTION (Continued)**

TABLE 2b												
Avoided Costs												
Fixed Price Option for In System Variable Resources												
Off-Peak Forecast (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	20.90	18.10	15.81	13.51	5.36	(2.03)	13.51	18.86	20.91	21.92	23.70	26.51
2013	25.94	24.92	22.38	16.77	7.60	0.47	20.08	25.94	28.50	28.24	27.98	30.78
2014	26.94	25.89	23.25	17.45	7.97	0.59	20.89	26.94	29.59	29.32	29.05	31.96
2015	24.84	24.63	24.02	22.69	22.77	22.96	23.23	23.38	23.40	23.66	24.35	25.89
2016	27.51	27.30	26.68	25.31	25.38	25.58	25.86	26.02	26.07	26.34	27.16	28.82
2017	30.29	30.08	29.44	27.88	27.96	28.18	28.44	28.67	28.74	28.98	29.89	31.61
2018	33.51	33.28	32.59	30.90	30.98	31.21	31.50	31.75	31.82	32.09	33.07	34.94
2019	36.05	35.80	35.07	33.27	33.36	33.61	33.92	34.18	34.25	34.54	35.58	37.57
2020	39.54	39.27	38.48	36.54	36.64	36.91	37.24	37.53	37.60	37.91	39.03	41.18
2021	42.93	42.64	41.79	39.72	39.82	40.11	40.46	40.77	40.85	41.18	42.39	44.68
2022	46.45	46.14	45.24	43.02	43.13	43.43	43.82	44.14	44.23	44.58	45.87	48.33
2023	50.10	49.77	48.80	46.44	46.56	46.88	47.29	47.64	47.73	48.11	49.48	52.10
2024	53.89	53.54	52.51	49.99	50.12	50.46	50.90	51.27	51.37	51.77	53.23	56.02
2025	57.79	57.42	56.33	53.65	53.78	54.15	54.61	55.01	55.11	55.53	57.09	60.06
2026	58.85	58.48	57.36	54.63	54.77	55.14	55.61	56.02	56.12	56.55	58.14	61.16
2027	59.93	59.55	58.41	55.64	55.77	56.16	56.63	57.04	57.15	57.59	59.21	62.29
2028	61.05	60.65	59.50	56.67	56.81	57.20	57.69	58.10	58.22	58.66	60.31	63.44
2029	62.15	61.76	60.58	57.70	57.84	58.24	58.73	59.16	59.27	59.73	61.40	64.59
2030	63.29	62.89	61.69	58.76	58.90	59.30	59.81	60.24	60.36	60.82	62.53	65.78
2031	64.46	64.04	62.82	59.83	59.98	60.39	60.91	61.35	61.47	61.94	63.68	66.99

Under the Fixed Price Option, the Company will pay Seller the Off-Peak Avoided Cost pursuant to Table 2b 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; and (d) Net Output delivered in the Off-Peak Period. The Company will pay the Seller the On-Peak Avoided Cost pursuant to Table 2a for all other delivered Net Output. (See the Standard PPA for defined terms.)

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)

MARKET BASED PRICE OPTIONS:

Market Based Price Options include Option 2, Deadband Index Gas Price; Option 3, Index Gas Price; and Option 4, Dow Jones Mid-Columbia Daily On- and Off-Peak Electricity Firm Price Index (DJ-Mid-C Firm Index). The price components for pricing Options 2 and 3 are defined as follows:

On Peak Price:	P_{Peak}
Off Peak Price:	P_{Off}
Variable Operating and Maintenance, Fixed Costs, and Gas Transportation (Table 6):	VFG
Capacity Value (Table 7):	C
Heat Rate:	HR = 6,732 BTU/kWh
Losses:	1.9%
Forecasted Gas Price (Table 5):	GP_F
First of Month* Northwest Pipeline Corp. Canadian Border Index as Reported in <u>Platts</u> <u>Inside FERC's Gas Market Report</u>	GP_{Sumas}
First of Month* one-month spot price averages for AECO/NIT transactions as Reported in <u>Canadian Gas Price Reporter</u> <u>Natural Gas Market Report</u> (in US dollars):	GP_{AECO}
Monthly Indexed Gas Price:	$GP_{MI} = (GP_{Sumas} + GP_{AECO})/2$
Deadband Gas Index:	GP_{DB}

Where:

If $GP_{MI} > GP_F$

$GP_{DB} = \text{Minimum of } (GP_{MI} \text{ or } 1.1 * GP_F)$

Otherwise

$GP_{DB} = \text{Maximum of } (GP_{MI} \text{ or } .9 * GP_F)$

* "First of Month" means the first such monthly issuance.

**Portland General Electric Company
 Effective**

SCHEDULE 201 (Continued)

**PRICING OPTIONS FOR STANDARD PPA (Continued)
 MARKET BASED PRICE OPTIONS (Continued)**

Tables 3 and 4 below list applicable rates for Options 2 (Deadband Index Gas Price Option) and 3 (Index Gas Price Option) for the period through 2014. The monthly On- and Off-Peak prices will be applied for all Market Based Price Options.

TABLE 3												
Avoided Costs												
On-Peak Resource Sufficiency Rate (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	33.04	30.74	28.71	28.20	25.14	21.83	34.56	38.39	36.61	34.82	37.11	40.68
2013	40.28	39.26	37.22	33.65	30.34	27.79	44.61	48.94	46.91	43.33	43.84	47.67
2014	43.18	42.08	39.89	36.06	32.49	29.76	47.84	52.50	50.32	46.48	47.02	51.13

TABLE 4												
Avoided Costs												
Off-Peak Resource Sufficiency Rate (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	29.72	26.92	24.63	22.34	14.18	6.80	22.34	27.69	29.73	30.74	32.53	35.33
2013	34.93	33.91	31.36	25.76	16.59	9.45	29.07	34.93	37.49	37.22	36.97	39.77
2014	36.09	35.04	32.40	26.60	17.12	9.74	30.04	36.09	38.74	38.47	38.20	41.11

For all market based pricing options, the prices are applicable to non-variable or off system integrated variable resources. For Sellers providing an on system variable resource, the prices will be net of the prices listed in Table 8. The net price shall not be less than zero.

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)
MARKET BASED PRICE OPTIONS (Continued)

3) Deadband Index Gas Price Option

The Deadband Index Gas Price Option bases the fuel price component of the Energy rate on comparisons between the Forecast Gas Price (Table 5) and the simple average of the First of Month gas indices for Sumas and AECO trading hubs. The Northwest Pipeline Gas Index (Sumas) will be as reported in Platts Inside FERC's Gas Market Report. The AECO/NIT (AECO) Gas Index will be as reported in Canadian Gas Price Reporter Natural Gas Market Report (in US dollars). The fuel price component used will be bound between 90% and 110% of the natural gas price forecast but based on the then current gas price.

The price paid per MWh will be:

$$\begin{aligned} P_{\text{Peak}} &= GP_{\text{DB}} * HR / 1,000 / (1 - \text{Losses}) + VFG + C \\ P_{\text{Off}} &= GP_{\text{DB}} * HR / 1,000 / (1 - \text{Losses}) + VFG \end{aligned}$$

Under the Deadband method, the Company will pay Seller the Off-Peak prices 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; and (d) Net Output delivered in the Off-Peak Period. All other purchases of Net Output will be at On-Peak prices. (See the Standard PPA for defined terms.)

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)
MARKET BASED PRICE OPTIONS (Continued)

4) Index Gas Price Option

The Index Gas Price Option is the simple average of the First of Month gas indices for Sumas and AECO trading hubs used in establishing the Avoided Costs. The Sumas Gas Index will be as reported in Platts Inside FERC's Gas Market Report. The AECO Gas Index will be as reported in the Canadian Gas Price Reporter Natural Gas Market Report (in US dollars).

The price paid per MWh will be:

$$\begin{aligned} P_{\text{Peak}} &= GP_{\text{MI}} * \text{HR} / 1,000 / (1 - \text{Losses}) + \text{VFG} + \text{C} \\ P_{\text{Off}} &= GP_{\text{MI}} * \text{HR} / 1,000 / (1 - \text{Losses}) + \text{VFG} \end{aligned}$$

Under the Index Gas Price, the Company will pay Seller the Off-Peak Prices for: (a) for 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; and (d) for Net Output delivered in the Off-Peak Period. All other purchases of Net Output will be at On-Peak prices. (See the Standard PPA for defined terms.)

5) Mid C Index Price Option

Under this option, prices paid per MWh will be based on the DJ-Mid-C Firm Index plus 0.211 ¢ per kWh for wholesale wheeling.

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)

MARKET BASED PRICE OPTIONS (Continued)

Table 5 contains the gas pricing components for Option 1 (Fixed Price Option) and Option 2 (Deadband Index Gas Price Option).

TABLE 5												
Forecasted Gas Price - GP _F (\$/MMBTU) - Without Transportation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	4.97	4.94	4.86	4.67	4.68	4.71	4.74	4.77	4.77	4.81	4.90	5.13
2016	5.38	5.35	5.26	5.07	5.08	5.11	5.15	5.17	5.18	5.21	5.33	5.57
2017	5.81	5.78	5.69	5.46	5.48	5.51	5.55	5.58	5.59	5.62	5.75	6.00
2018	6.30	6.27	6.17	5.92	5.94	5.97	6.01	6.05	6.06	6.09	6.24	6.50
2019	6.69	6.66	6.55	6.29	6.31	6.34	6.39	6.42	6.43	6.47	6.62	6.91
2020	7.22	7.18	7.07	6.79	6.80	6.84	6.89	6.93	6.94	6.98	7.15	7.45
2021	7.74	7.69	7.57	7.28	7.29	7.33	7.38	7.43	7.44	7.48	7.66	7.99
2022	8.27	8.23	8.10	7.78	7.79	7.84	7.89	7.94	7.95	8.00	8.19	8.54
2023	8.82	8.78	8.64	8.30	8.32	8.36	8.42	8.47	8.48	8.54	8.74	9.11
2024	9.40	9.35	9.20	8.84	8.86	8.91	8.97	9.02	9.04	9.09	9.30	9.70
2025	9.99	9.94	9.78	9.39	9.41	9.47	9.53	9.59	9.60	9.67	9.89	10.32
2026	10.17	10.12	9.96	9.57	9.59	9.64	9.71	9.77	9.78	9.84	10.07	10.50
2027	10.36	10.31	10.14	9.74	9.76	9.82	9.89	9.95	9.96	10.02	10.26	10.70
2028	10.55	10.50	10.33	9.92	9.94	10.00	10.07	10.13	10.14	10.21	10.45	10.90
2029	10.75	10.69	10.52	10.11	10.13	10.18	10.25	10.32	10.33	10.40	10.64	11.10
2030	10.94	10.88	10.71	10.29	10.31	10.37	10.44	10.51	10.52	10.59	10.83	11.30
2031	11.14	11.09	10.91	10.48	10.50	10.56	10.64	10.70	10.72	10.78	11.03	11.51

Portland General Electric Company
Effective

SCHEDULE 201 (Continued)

PRICING OPTIONS FOR STANDARD PPA (Continued)
MARKET BASED PRICE OPTIONS (Continued)

Table 6 contains the Variable O&M and Fixed Costs that are derived from a natural gas-fired CCCT.

TABLE 6												
Variable O&M, Fixed Costs and Gas Transportation Forecast - VFG (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	0.02	0.02	0.01	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	0.00	0.01	0.04
2016	0.06	0.06	0.05	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.06	0.08
2017	0.08	0.08	0.07	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.08	0.10
2018	0.12	0.12	0.11	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.12	0.15
2019	0.15	0.15	0.14	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.15	0.18
2020	0.21	0.20	0.19	0.16	0.16	0.17	0.17	0.18	0.18	0.18	0.20	0.23
2021	0.24	0.23	0.22	0.19	0.19	0.20	0.20	0.21	0.21	0.21	0.23	0.26
2022	0.28	0.28	0.26	0.23	0.23	0.24	0.24	0.25	0.25	0.25	0.27	0.31
2023	0.33	0.32	0.31	0.27	0.27	0.28	0.28	0.29	0.29	0.30	0.32	0.36
2024	0.38	0.38	0.36	0.33	0.33	0.33	0.34	0.34	0.35	0.35	0.37	0.42
2025	0.42	0.42	0.40	0.36	0.36	0.37	0.37	0.38	0.38	0.39	0.41	0.46
2026	0.43	0.42	0.40	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.42	0.46
2027	0.43	0.43	0.41	0.37	0.37	0.38	0.38	0.39	0.39	0.40	0.42	0.47
2028	0.45	0.44	0.43	0.38	0.39	0.39	0.40	0.41	0.41	0.41	0.44	0.49
2029	0.44	0.44	0.42	0.38	0.38	0.38	0.39	0.40	0.40	0.41	0.43	0.48
2030	0.45	0.44	0.43	0.38	0.38	0.39	0.40	0.40	0.41	0.41	0.44	0.49
2031	0.46	0.45	0.43	0.39	0.39	0.39	0.40	0.41	0.41	0.42	0.44	0.49

**Portland General Electric Company
Effective**

SCHEDULE 201 (Continued)

**PRICING OPTIONS FOR STANDARD PPA (Continued)
INTEGRATION PRICE ADJUSTMENT**

For Sellers providing an in system variable resource, the prices will be net of the prices listed in Table 8. The net price shall not be less than zero.

TABLE 8												
Avoided Integration Costs (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82
2013	8.98	8.98	8.98	8.98	8.98	8.98	8.98	8.98	8.98	8.98	8.98	8.98
2014	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
2015	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32
2016	9.49	9.49	9.49	9.49	9.49	9.49	9.49	9.49	9.49	9.49	9.49	9.49
2017	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66
2018	9.84	9.84	9.84	9.84	9.84	9.84	9.84	9.84	9.84	9.84	9.84	9.84
2019	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02
2020	10.21	10.21	10.21	10.21	10.21	10.21	10.21	10.21	10.21	10.21	10.21	10.21
2021	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40
2022	10.59	10.59	10.59	10.59	10.59	10.59	10.59	10.59	10.59	10.59	10.59	10.59
2023	10.78	10.78	10.78	10.78	10.78	10.78	10.78	10.78	10.78	10.78	10.78	10.78
2024	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98
2025	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18
2026	11.39	11.39	11.39	11.39	11.39	11.39	11.39	11.39	11.39	11.39	11.39	11.39
2027	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60
2028	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81

MONTHLY SERVICE CHARGE

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

**Portland General Electric Company
Effective****SCHEDULE 201 (Continued)****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 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 his/her 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, including third party charges for ancillary services such as imbalance service or integration, as applicable.

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 must 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.

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.

**Portland General Electric Company
Effective****SCHEDULE 201 (Continued)****METERING DATA**

Seller shall maintain a minimum of two years records of scheduled and metered Net Output and shall allow PGE to have access to such records and to imbalance information kept by the Transmission Provider as applicable. Seller shall take all required actions and grant permissions as necessary to allow PGE access to such information.

**DEFINITION OF A SMALL COGENERATION FACILITY OR SMALL POWER
PRODUCTION FACILITY ELIGIBLE TO RECEIVE THE STANDARD RATES
AND STANDARD PPA**

A QF will be eligible to receive the standard rates and 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.

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. A unit of Oregon local government may also be a "passive investor" 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 the standard rates and 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 the standard rates and standard PPA is sought.

**Portland General Electric Company
Effective**

SCHEDULE 201 (Concluded)

**DEFINITION OF A SMALL COGENERATION FACILITY OR SMALL POWER
PRODUCTION FACILITY ELIGIBLE TO RECEIVE THE STANDARD RATES
AND STANDARD PPA (Continued)**

Shared Interconnection and Infrastructure

QFs otherwise meeting the above-described separate ownership test and thereby qualified for entitlement to the standard rates and 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 the standard rates and 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.

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 the standard rates and Standard PPA. Any dispute concerning a QF's entitlement to the standard rates and Standard PPA may be presented to the Commission for resolution.

SPECIAL CONDITIONS

1. Delivery of energy by Seller will be at a voltage, phase, frequency, and power factor as specified by the Company.
2. 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. The Seller may enter into only one PPA at any given time per facility with the Company for power sales. All sales must commence within 12 months of execution of a PPA.
4. PPAs entered into pursuant to this schedule will not terminate prior to the Standard or Negotiated PPA's termination date if the 1978 Public Utility Regulatory Policies Act (PURPA) is repealed.

TERM OF AGREEMENT

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

**Portland General Electric Company
Effective**

**SCHEDULE 202
QUALIFYING FACILITIES GREATER THAN 10MW
AVOIDED COST POWER PURCHASE INFORMATION**

PURPOSE

To provide information regarding procedures and timelines leading to a power purchase agreement (PPA) between the Company and a Qualifying Facility (QF) with an aggregate nameplate capacity greater than 10,000 kW.

AVAILABLE

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

APPLICABLE

To qualifying cogeneration facilities or qualifying small power production facilities within the meaning of section 201 and 210 of the Public Utility Regulatory Act of 1978 (PURPA), 16 U.S.C. 796 and 824a-3.

A QF with nameplate capacity greater than 10,000 kW will be required to enter into a Negotiated PPA with the Company.

A QF with nameplate capacity less than 10,000 kW or less may elect the option of a Standard PPA with terms and pricing as defined in Schedule 201.

POWER PURCHASE INFORMATION

A QF 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.

GUIDELINES

In accordance with terms set out in this schedule and the Commission's Rules as applicable, the Company will purchase Net Output from Seller. Net Output shall mean the Energy no greater than the Nameplate Rating expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity. The Negotiated Agreement will comply with the requirements of the Federal Energy Regulatory Commission (FERC) and the guidelines established by Commission Order No. 07-360.

The Negotiated PPA may have a term of up to 20 years, as selected by the Seller.

Portland General Electric Company
Effective

SCHEDULE 202 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED PPA

1. The Seller may request indicative power purchase prices. To obtain an indicative pricing proposal for a proposed project, the Seller must provide in writing, general project information reasonably required for the development of indicative pricing, including, but not limited to:
 - Demonstration of ability to obtain QF status.
 - Design capacity (MW), station service requirements, and net amount of power to be delivered to the Company's electric system.
 - Generation technology and other related technology applicable to the site.
 - Quantity and timing of monthly power deliveries (including project ability to respond to dispatch orders from the Company).
 - Proposed site location and electrical interconnection point.
 - Status of interconnection and transmission arrangements.
 - Proposed on-line date and outstanding permitting requirements.
 - Motive force or fuel plan consisting of fuel type(s) and source(s).
 - Proposed PPA term and pricing provisions.

2. The Company will not be obligated to provide an indicative pricing proposal until all the information described above has been received in writing from the Seller. Within 30 business days following receipt of all required information, the Company will provide the Seller with an indicative pricing proposal, which may include other terms and conditions, tailored to the individual characteristics of the proposed project. Such proposal may be used by the Seller to make determinations regarding project planning, financing and feasibility. However, such prices are indicative and are not final and binding. Prices and other terms and conditions are only final and binding to the extent contained in Negotiated PPA, once executed by both parties. The Company will provide with the indicative prices a description of the methodology used to develop the prices.

**Portland General Electric Company
Effective**

SCHEDULE 202 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED PPA (Continued)

3. The Avoided Cost Prices specified in Schedule 201 provide a starting point for indicative prices, and will be modified to address the following specific factors established in OPUC Order No. 07-360 and FERC 18 § CFR 292.304(e):
 - (e) *Factors affecting rates for purchases. In determining avoided costs, the following factors will, to the extent practicable, be taken into account.*
 - (1) *The data provided pursuant to 18 CFR § 292.302(b), (c), or (d), including State review of any such data;*
 - (2) *The availability of capacity or energy from a qualifying facility during the system daily and seasonal peak periods, including:*
 - (i) *The ability of the Company to dispatch the qualifying facility;*
 - (ii) *The expected or demonstrated reliability of the qualifying facility;*
 - (iii) *The terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirement and sanctions for non-compliance;*
 - (iv) *The extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the Company's facilities;*
 - (v) *The usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation;*
 - (vi) *The individual and aggregate value of energy and capacity from qualifying facilities on the Company's system; and*
 - (vii) *The smaller capacity increments and the shorter lead time available with additions of capacity from qualifying facilities; and*
 - (3) *The relationship of the availability of energy or capacity from the qualifying facility as derived in part (e) (2) of this section, to the ability of the Company to avoid costs, including the deferral of capacity additions and the reduction of fossil fuel use; and*
 - (4) *The costs or savings resulting from variations in line losses from those that would have existed in the absence of purchases from a qualifying facility, if the Company generated an equivalent amount of energy itself or purchased an equivalent amount of electric energy or capacity.*

Portland General Electric Company
Effective

SCHEDULE 202 (Continued)

PROCEDURES TO DEVELOP A NEGOTIATED PPA (Continued)

4. If the Seller desires to proceed with negotiations after reviewing the Company's indicative price proposal, the Seller must request in writing that the Company prepare a draft Negotiated PPA to serve as the basis for negotiations between the parties. In connection with such request, the Seller must provide the Company with any additional project information that the Company reasonably determines to be necessary for the preparation of the Negotiated PPA, which may include, but will not be limited to:
 - Updated information for the project information listed above in paragraphs 1 and 3.
 - Evidence of adequate control of proposed site.
 - Timelines for obtaining any necessary governmental permits, approvals or authorizations.
 - Assurance of fuel supply or motive force.
 - Anticipated timelines for completion of key project milestones.
 - Evidence that any necessary interconnection studies have been completed and assurance that the necessary interconnection arrangements have been executed or are under negotiation.
5. Within 30 days following receipt of updated information required by the Company, the Company will provide the Seller with a draft Negotiated PPA. The draft agreement will contain proposed terms and conditions in addition to indicative pricing. The draft agreement is not binding; however, it will serve as the basis for subsequent negotiations.
6. After reviewing the draft Negotiated PPA, the Seller will notify the Company in writing of its intent to proceed with negotiations. The Seller may prepare an initial set of written comments and proposals regarding the agreement and forward them to the Company. The Company will not be obligated to begin negotiations with a Seller until the Company has received an initial set of written comments. After the Company's receipt of comments and proposals, the Seller may contact the Company to schedule contract negotiations at such times and places as are mutually agreeable to the parties. In connection with such negotiations, the Company:
 - Will not unreasonably delay negotiations and will respond in good faith to any additions, deletions or modifications to the draft Negotiated PPA that are proposed by the Seller.
 - May request to visit the site of the proposed project if such a visit has not previously occurred.
 - Will update its pricing proposals at appropriate intervals to accommodate any changes to the Company's avoided-cost calculations, the proposed project or proposed terms of the draft Negotiated PPA.
 - May request any additional information from the Seller necessary to finalize the terms of the Negotiated PPA and satisfy the Company's due diligence regarding the QF project.

**Portland General Electric Company
Effective**

SCHEDULE 202 (Concluded)

PROCEDURES TO DEVELOP A NEGOTIATED AGREEMENT (Continued)

7. When both parties are in full agreement as to all terms and conditions of the draft Negotiated PPA, the Company will prepare and forward to the Seller a final, executable version of the agreement within 15 business days. Prices and other terms and conditions in the Negotiated PPA will not be final and binding until the agreement has been executed by both parties.
8. If parties are not in full agreement within 60 days from the date of written notice, the Seller may file a complaint with the Commission asking the Commission to adjudicate the disputed contract terms.

OFF SYSTEM POWER PURCHASE AGREEMENT

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 Negotiated PPA guidelines and making the arrangements necessary for transmission of power to the Company's system. Off System PPAs are available for non-variable resources and variable resources for which the QF provides or pays a third party to provide integration to the Company's service territory. PGE is not responsible for Seller's transmission costs, including ancillary services such as imbalance service or integration costs provided by Seller or a third party.

STANDARD IN SYSTEM NON-VARIABLE POWER PURCHASE AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit B ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.19, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit B provided by Seller in accordance with Section 4.4 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.3. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.4. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion require, among other things, that all of the following events have occurred:

1.4.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed

Standard In System Non-Variable Power Purchase Agreement
Effective _____

Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in amounts required by this Agreement and in accordance with all other terms and conditions of this Agreement (certifications required under this Section 1.4 can be provided by one or more LPEs);

1.4.2. (facilities with nameplate under 500 kW exempt from following requirement) Start-Up Testing of the Facility has been completed in accordance with Section 1.27;

1.4.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.4.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that in accordance with the Generation Interconnection Agreement, all required interconnection facilities have been constructed, all required interconnection tests have been completed; and the Facility is physically interconnected with PGE's electric system.

1.4.5. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.5. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and specified in the Schedule.

1.6. "Contract Year" means each twelve (12) month period during the Term commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.7. "Effective Date" has the meaning set forth in Section 2.1.

1.8. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the

emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, and any Green Tag Reporting Rights to such Environmental Attributes.

1.9. "Facility" has the meaning set forth in the Recitals.

1.10. "Forward Replacement Price" means the price at which PGE, acting in a commercially reasonable manner, purchases for delivery at the Point of Delivery a replacement for any Net Output that Seller is required to deliver under this Agreement plus (i) costs reasonably incurred by PGE in purchasing such replacement Net Output, and (ii) additional transmission charges, if any, reasonably incurred by PGE in causing replacement energy to be delivered to the Point of Delivery.

1.11. "Generation Interconnection Agreement" means the generation interconnection agreement to be entered into separately between Seller and PGE, providing for the construction, operation, and maintenance of PGE's interconnection facilities required to accommodate deliveries of Seller's Net Output.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Lost Energy Value" means for a Contract Year: zero, unless the Net Output is less than Minimum Net Output and the mean Dow Jones Mid C Index Price is greater than the Contract Price, in which case Lost Energy Value equals: (Minimum Net Output - Net Output) X (the lower of the mean Contract Price or the Mean Dow Jones Mid C Index Price - mean Contract Price).

1.15. "Mid-Columbia" means an area which includes points at any of the switchyards associated with the following four hydro projects: Rocky Reach, Rock Island, Wanapum and Priest Rapids. These switchyards include: Rocky Reach, Rock

Island, Wanapum, McKenzie, Valhalla, Columbia, Midway and Vantage. Mid-Columbia shall also include points in the "Northwest Hub," as defined by Bonneville Power Administration. For scheduling purposes, the footprint described above shall dictate the delivery point name for the then current Western Electricity Coordinating Council ("WECC") scheduling protocols. If the footprint changes during the Term, a mutually agreed upon footprint that describes an area containing the most liquidity for trading purposes shall apply.

1.16. "Minimum Net Output" shall have the meaning provided in Section 4.2 of this Agreement.

1.17. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.18. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.19. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.20. "Off-Peak Hours" has the meaning provided in the Schedule.

1.21. "On-Peak Hours" has the meaning provided in the Schedule.

1.22. "Point of Delivery" means the high side of the generation step up transformer(s) located at the point of interconnection between the Facility and PGE's distribution or transmission system, as specified in the Generation Interconnection Agreement.

1.23. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.24. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by

applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.25. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit C.

1.26. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.27. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit D.

1.28. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.29. "Schedule" shall mean PGE Schedule 201 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit E, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.30. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.31. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.32. References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.4 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, Seller shall pay damages equal to the Lost Energy Value. In calculating the Lost Energy Value for use in this section, the Minimum Net Output shall be prorated and applied to the period of time between the Commercial Operation Date and the date specified in 2.2.1.

2.3 This Agreement shall terminate on _____, ____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 10 or 12.2, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a

performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output").

3.1.11 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.12 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.13 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission's request.

SECTION 4: DELIVERY OF POWER

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller shall deliver to PGE from the Facility for each Contract Year Net Output equal to or greater than the Minimum Net Output (either (a) if Seller does not select the Alternative Minimum Amount as defined in Exhibit A of this Agreement, a minimum of seventy-five percent (75%) of its average annual Net Output or (b) if selected by Seller, the Alternative Minimum Amount), provided that such Minimum Net Output for the final Contract Year shall be reduced pro rata to reflect the Commercial Operation Date, and further provided that such Minimum Net Output shall be reduced on a pro-rata basis for any periods during a Contract Year that the Facility was prevented from generating electricity for reasons of Force Majeure. PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller agrees that if Seller does not deliver the Minimum Net Output each Contract Year, PGE will suffer losses equal to the Lost Energy Value. As damages for Seller's failure to deliver the Minimum Net Output (subject to adjustment for reasons of Force Majeure as provided in Section 4.2) in any Contract Year, notwithstanding any other provision of this Agreement, the purchase price payable by PGE for future deliveries shall be reduced until Lost Energy Value is recovered. PGE and Seller shall work together in good faith to establish the period, in monthly amounts, of such reduction so as to avoid Seller's default on its commercial or financing agreements necessary for its continued operation of the Facility. For QF Facilities sized at 100 kW or smaller, the provisions of this section shall not apply.

4.4 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit B or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.10 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.5 To the extent not otherwise provided in the Generation Interconnection Agreement, all costs associated with the modifications to PGE's interconnection facilities or electric system occasioned by or related to the interconnection of the Facility with PGE's system, or any increase in generating capability of the Facility, or any increase of delivery of Net Dependable Capacity from the Facility, shall be borne by Seller.

4.6 Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Environmental Attributes

produced with respect to the Facility, and PGE shall not report under such program that such Environmental Attributes belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

- 5.1 ___ Fixed Price for Non-Variable Resources
- 5.2 ___ Deadband Index Gas Price
- 5.3 ___ Index Gas Price
- 5.4 ___ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Minimum Net Output / 8760). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: METERING

8.1 PGE shall design, furnish, install, own, inspect, test, maintain and replace all metering equipment at Seller's cost and as required pursuant to the Generation Interconnection Agreement.

8.2 Metering shall be performed at the location and in a manner consistent with this Agreement and as specified in the Generation Interconnection Agreement. All Net Output purchased hereunder shall be adjusted to account for electrical losses, if any, between the point of metering and the Point of Delivery, so that the purchased amount reflects the net amount of power flowing into PGE's system at the Point of Delivery.

8.3 PGE shall periodically inspect, test, repair and replace the metering equipment as provided in the Generation Interconnection Agreement. If any of the inspections or tests discloses an error exceeding two (2%) percent of the actual energy delivery, either fast or slow, proper correction, based upon the inaccuracy found, shall be made of previous readings for the actual period during which the metering equipment rendered inaccurate measurements if that period can be ascertained. If the actual period cannot be ascertained, the proper correction shall be made to the measurements taken during the time the metering equipment was in service since last tested, but not exceeding three (3) months, in the amount the metering equipment shall have been shown to be in error by such test. Any correction in billings or payments resulting from a correction in the meter records shall be made in the next monthly billing or payment rendered. Such correction, when made, shall constitute full adjustment of any claim between Seller and PGE arising out of such inaccuracy of metering equipment.

8.4 To the extent not otherwise provided in the Generation Interconnection Agreement, all of PGE's costs relating to all metering equipment installed to accommodate Seller's Facility shall be borne by Seller.

SECTION 9: BILLINGS, COMPUTATIONS AND PAYMENTS

9.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement, the Generation Interconnection Agreement, and any other agreement related to the Facility between the Parties or otherwise.

9.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 10: DEFAULT, REMEDIES AND TERMINATION

10.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

10.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

10.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

10.1.3 Seller's failure to deliver the Minimum Net Output for two consecutive Contract Years.

10.1.4 If Seller is no longer a Qualifying Facility.

10.1.5 Failure of PGE to make any required payment pursuant to Section 9.1.

10.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 10.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21.1. The rights provided in this Section 10 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

10.3 If this Agreement is terminated as provided in this Section 10 PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

10.4 If this Agreement is terminated as a result of Seller's default, Seller shall pay PGE the positive difference, if any, obtained by subtracting the Contract Price from the sum of the Forward Replacement Price for the Minimum Net Output that Seller was

otherwise obligated to provide for a period of twenty-four (24) months from the date of termination. Accounts owed by Seller pursuant to this paragraph shall be due within five (5) business days after any invoice from PGE for the same.

10.5 In the event PGE terminates this Agreement pursuant to this Section 10, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

10.6 Sections 10.1 10.3 10.4 10.5, 11, and 20.2 shall survive termination of this Agreement.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM

CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding

Standard In System Non-Variable Power Purchase Agreement
Effective _____

PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

with a copy to: _____

To PGE: Contracts Manager
QF Contracts, 3WTCBR06
PGE - 121 SW Salmon St.
Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

Standard In System Non-Variable Power Purchase Agreement
Effective _____

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
MINIMUM NET OUTPUT

In this Exhibit, Seller may designate an alternative Minimum Net Output to seventy-five (75%) percent of annual average Net Output specified in Section 3.1.9 of the Agreement ("Alternative Minimum Amount"). Such Alternative Minimum Amount, if provided, shall exceed zero, and shall be established in accordance with Prudent Electrical Practices and documentation supporting such a determination shall be provided to PGE upon execution of the Agreement. Such documentation shall be commercially reasonable, and may include, but is not limited to, documents used in financing the project, and data on output of similar projects operated by seller, PGE or others.

EXHIBIT B
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT C
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT D START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

Standard In System Non-Variable Power Purchase Agreement
Effective _____

EXHIBIT E
SCHEDULE

[Attach currently in-effect Schedule 201]

STANDARD OFF SYSTEM NON-VARIABLE POWER PURCHASE AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit B ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.19, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit B provided by Seller in accordance with Section 4.4 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.3. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.4. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion require, among other things, that all of the following events have occurred:

1.4.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed

Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in amounts required by this Agreement and in accordance with all other terms and conditions of this Agreement (certifications required under this Section 1.4 can be provided by one or more LPEs);

1.4.2. Start-Up Testing of the Facility has been completed in accordance with Section 1.27;

1.4.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.4.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that all required interconnection facilities have been constructed and all required interconnection tests have been completed;

1.4.5. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.4.6. PGE has received a copy of the Transmission Agreement.

1.5. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.6. "Contract Year" means each twelve (12) month period during the Term commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.7. "Effective Date" has the meaning set forth in Section 2.1.

1.8. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the

Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standard and any Green Tag Reporting Rights to such Environmental Attributes.

1.9. "Facility" has the meaning set forth in the Recitals.

1.10. "Forward Replacement Price" means the price at which PGE, acting in a commercially reasonable manner, purchases for delivery at the Point of Delivery a replacement for any Net Output that Seller is required to deliver under this Agreement plus (i) costs reasonably incurred by PGE in purchasing such replacement Net Output, and (ii) additional transmission charges, if any, reasonably incurred by PGE in causing replacement energy to be delivered to the Point of Delivery. If PGE elects not to make such a purchase, costs of purchasing replacement Net Output shall be Dow Jones Mid C Index Price for such energy not delivered, plus any additional cost or expense incurred as a result of Seller's failure to deliver, as determined by PGE in a commercially reasonable manner (but not including any penalties, ratcheted demand or similar charges).

1.11. "Generation Interconnection Agreement" means an agreement governing the interconnection of the Facility with _____ electric system.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Lost Energy Value" means for a Contract Year: zero, unless the Net Output is less than Minimum Net Output and the mean Dow Jones Mid C Index Price is greater than the Contract Price, in which case Lost Energy Value equals: (Minimum Net Output - Net Output) X (the lower of the mean Contract Price or the mean Dow Jones Mid C Index Price - mean Contract Price) minus Transmission Curtailment Replacement Energy Cost if any for like period.

1.15. "Mid-Columbia" means an area which includes points at any of the switchyards associated with the following four hydro projects: Rocky Reach, Rock Island, Wanapum and Priest Rapids. These switchyards include: Rocky Reach, Rock Island, Wanapum, McKenzie, Valhalla, Columbia, Midway and Vantage. Mid-Columbia shall also include points in the "Northwest Hub," as defined by Bonneville Power Administration. For scheduling purposes, the footprint described above shall dictate the delivery point name for the then current Western Electricity Coordinating Council ("WECC") scheduling protocols. If the footprint changes during the Term, a mutually agreed upon footprint that describes an area containing the most liquidity for trading purposes shall apply.

1.16. "Minimum Net Output" shall have the meaning specified in Section 4.2 of this Agreement.

1.17. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.18. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.19. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.20. "Off-Peak Hours" has the meaning provided in the Schedule.

1.21. "On-Peak Hours" has the meaning provided in the Schedule.

1.22. "Point of Delivery" means the PGE System.

1.23. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.24. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by

applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.25. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit C.

1.26. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.27. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit D.

1.28. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.29. "Schedule" shall mean PGE Schedule 201 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit E, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.30. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.31. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.32. "Transmission Agreement" means an agreement executed by the Seller and the Transmission Provider(s) for Transmission Services.

1.33. "Transmission Curtailment" means a limitation on Seller's ability to deliver any portion of the scheduled energy to PGE due to the unavailability of transmission to the Point of Delivery or a generating facility limitation by a Transmission Provider (for any reason other than Force Majeure).

1.34. "Transmission Curtailment Replacement Energy Cost" means the greater of zero or the difference between Dow Jones Mid C Index Price – Contract Price X curtailed energy for periods of Transmission Curtailment.

1.35. "Transmission Provider(s)" means the signatory (other than the Seller) to the Transmission Agreement.

1.36. "Transmission Services" means any and all services (including but not limited to ancillary services and control area services) required for the firm transmission and delivery of Energy from the Facility to the Point of Delivery for a term not less than the Term of this Agreement.

1.37. References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.4 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, Seller shall pay damages equal to the Lost Energy Value. In calculating the Lost Energy Value for use in this section, the Minimum Net Output shall be prorated and applied to the period of time between the Commercial Operation date and the date specified in 2.2.1.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 9 or 12.2, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller will schedule and deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output"). The cost of delivering energy from the Facility to PGE is the sole responsibility of the Seller.

3.1.11 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.12 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.13 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission's request.

SECTION 4: DELIVERY OF POWER

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output from the Facility. Seller's Net Output shall be scheduled and delivered to PGE at the Point of Delivery in accordance with Section 4.5.

4.2 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller shall schedule and deliver to PGE from the Facility for each Contract Year Net Output equal to or greater than the Minimum Net Output (either (a) if Seller does not select the Alternative Minimum Amount as defined in Exhibit A, a minimum of seventy-five percent (75%) of its average annual Net Output or (b) if selected by Seller, the Alternative Minimum Amount, provided that such Minimum Net Output for the final Contract Year shall be reduced pro rata to reflect the Commercial Operation Date, and further provided that such Minimum Net Output shall be reduced on a pro-rata basis for any periods during a Contract Year that the Facility was prevented from generating electricity for reasons of Force Majeure. PGE shall pay Seller the Contract Price for all scheduled and delivered Net Output.

4.3 Provided Seller has elected the Contract Price options in Section 5.1, 5.2, or 5.3, Seller agrees that if Seller does not deliver the Minimum Net Output each Contract Year for reasons other than Transmission Curtailment, PGE will suffer losses equal to the Lost Energy Value. As damages for Seller's failure to deliver the Minimum Net Output (subject to adjustment for reasons of Force Majeure as provided in Section 4.2) in any Contract Year, notwithstanding any other provision of this Agreement the purchase price payable by PGE for future deliveries shall be reduced until Lost Energy Value is recovered. PGE and Seller shall work together in good faith to establish the period, in monthly amounts, of such reduction so as to avoid Seller's default on its commercial or financing agreements necessary for its continued operation of the Facility for QF Facilities sized at 100 kW or smaller, the provisions of this section shall not apply.

4.4 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit B or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.10 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating of the Facility to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.5 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain hourly real-time schedule coordination; provided, however, that in the absence of such coordination, the hourly schedule established by the exchange of preschedules shall be considered final. Seller and PGE shall maintain records of hourly energy schedules for accounting and operating purposes. Deliveries shall not be made on a dynamic basis, and Seller shall insure that all deliveries of energy under this Agreement will be equal on an hourly basis to the amounts scheduled in the final schedule. Seller shall bear the cost of any transmission services, including but not limited to imbalance services, necessary to insure that energy deliveries under this Agreement are equal on an hourly basis to the amount of energy scheduled for each hour in the final schedule. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g., 1:30 to 2:00). The final E-Tag shall be the controlling evidence of the Parties' final schedule. Seller shall make commercially reasonable efforts to schedule in any hour an amount equal to its expected Net Output for such hour. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records and to imbalance information kept by the Transmission Provider.

4.6 Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Environmental Attributes produced with respect to the Facility, and PGE shall not report under such program that such Environmental Attributes belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all

Contract Years in excess of 15 until the end of the Term. Except as provided herein, Sellers selection is for the Term and shall not be changed during the Term.

- 5.1 _____ Fixed Price for Non-Variable or Integrated Variable Resource
- 5.2 _____ Deadband Index Gas Price
- 5.3 _____ Index Gas Price
- 5.4 _____ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility or transmission to PGE's electric system is curtailed, disconnected, suspended or interrupted, in whole or in part. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance that could affect the generation, scheduling or delivery of energy to PGE, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than ten (10) days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Minimum Net Output / 8760). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: BILLINGS, COMPUTATIONS AND PAYMENTS

8.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement and any other agreement related to the Facility between the Parties or otherwise.

8.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 9: DEFAULT, REMEDIES AND TERMINATION

9.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

9.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

9.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within ten (10) days of notice.

9.1.3 Seller's failure to deliver the Minimum Net Output for two consecutive Contract Years.

9.1.4 If Seller is no longer a Qualifying Facility.

9.1.5 Failure of PGE to make any required payment pursuant to Section 8.1.

9.1.6 Seller's failure to accurately schedule Net Output, as required by Section 4.5, where there is a demonstrated pattern of scheduling errors. Scheduling errors may include: scheduled energy that differs from Net Output by more than 10% for multiple monthly periods, or in cases where net deviations result in demonstrated excess payments by PGE to the Seller.

9.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 9.1.3, by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21.1. The rights provided in this Section 9 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

9.3 If this Agreement is terminated as provided in this Section 9, PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

9.4 If this Agreement is terminated as a result of Seller's default, Seller shall pay PGE the positive difference, if any, obtained by subtracting the Contract Price from the sum of the Forward Replacement Price for the Minimum Net Output that Seller was otherwise obligated to provide for a period of twenty-four (24) months from the date of termination plus any cost incurred for transmission purchased by PGE to deliver the replacement power to the Point of Delivery and the estimated administrative cost to the utility to acquire replacement power. Accounts owed by Seller pursuant to this paragraph shall be due within five (5) business days after any invoice from PGE for the same.

9.5 In the event PGE terminates this Agreement pursuant to this Section 9, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

9.6 Sections 9.1, 9.3, 9.4, 9.5, 11, and 20.2 shall survive termination of this Agreement.

SECTION 10: TRANSMISSION CURTAILMENTS

10.1 Seller shall give PGE notice as soon as reasonably practicable of any Transmission Curtailment that is likely to affect Seller's ability to deliver any portion of energy scheduled pursuant to Sections 4.5 of this Agreement.

10.2 If as the result of a Transmission Curtailment, Seller does not deliver any portion of energy (including real-time adjustments), scheduled pursuant to Section 4.5 of this Agreement, Seller shall pay PGE the Transmission Curtailment Replacement Energy Cost for the number of MWh of energy reasonably determined by PGE as the difference between (i) the scheduled energy that would have been delivered to PGE under this Agreement during the period of Transmission Curtailment and (ii) the actual energy, if any, that was delivered to PGE for the period.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account

of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated

not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes Transmission Curtailment, the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

21.1 All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

with a copy to: _____

To PGE: Contracts Manager
 QF Contracts, 3WTCBR06
 PGE - 121 SW Salmon St.
 Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
MINIMUM NET OUTPUT

In this Exhibit, Seller may designate an alternative Minimum Net Output to seventy-five (75%) percent of annual average Net Output specified in Section 3.1.9 of the Agreement ("Alternative Minimum Amount"). Such Alternative Minimum Amount, if provided, shall exceed zero, and shall be established in accordance with Prudent Electrical Practices and documentation supporting such a determination shall be provided to PGE upon execution of the Agreement. Such documentation shall be commercially reasonable, and may include, but is not limited to, documents used in financing the project, and data on output of similar projects operated by seller, PGE or others.

EXHIBIT B
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT C
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement with interconnecting utility

Firm Transmission Agreement between Seller and Transmission Provider

EXHIBIT D START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

EXHIBIT E
SCHEDULE
[Attach currently in-effect Schedule 201]

STANDARD IN SYSTEM VARIABLE RESOURCE POWER PURCHASE

AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit A ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.17, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit A provided by Seller in accordance with Section 4.3 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Base Hours" is defined as the total number of hours in each Contract Year (8,760 or 8,784 for leap year).

1.3. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.4. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.5. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, in its discretion require, among other things, that all of the following events have occurred:

1.5.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in accordance with the terms and conditions of this Agreement (certifications required under this Section 1.5 can be provided by one or more LPEs);

1.5.2. (facilities with nameplate under 500 kW exempt from following requirement) Start-Up Testing of the Facility has been completed in accordance with Section 1.26;

1.5.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.5.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that in accordance with the Generation Interconnection Agreement, all required interconnection facilities have been constructed all required interconnection tests have been completed; and the Facility is physically interconnected with PGE's electric system.

1.5.5. PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.6. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and specified in the Schedule.

1.7. "Contract Year" means each twelve (12) month period during the Term commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.8. "Effective Date" has the meaning set forth in Section 2.1.

1.9. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, and any Green Tag Reporting Rights to such Environmental Attributes.

1.10. "Facility" has the meaning set forth in the Recitals.

1.11. "Generation Interconnection Agreement" means the generation interconnection agreement to be entered into separately between Seller and PGE, providing for the construction, operation, and maintenance of PGE's interconnection facilities required to accommodate deliveries of Seller's Net Output.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Mechanical Availability Percentage" or "MAP" shall mean that percentage for any Contract Year for the Facility calculated in accordance with the following formula:

$$\text{MAP} = 100 \times (\text{Operational Hours}) / (\text{Base Hours})$$

1.15. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.16. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.17. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.18. "Off-Peak Hours" has the meaning provided in the Schedule.

1.19. "On-Peak Hours" has the meaning provided in the Schedule.

1.20. "Operational Hours" for the Facility means the number of hours the Facility is potentially capable of producing power at its Nameplate Capacity Rating regardless of actual weather or seasonal conditions, the time of day or night, without any mechanical operating constraint or restriction, and potentially capable of delivering such power to the Point of Delivery. Hours during which an event of Force Majeure exists that prevent the Facility from producing or delivering power shall be considered Operational Hours.

1.21. "Point of Delivery" means the high side of the generation step up transformer(s) located at the point of interconnection between the Facility and PGE's distribution or transmission system, as specified in the Generation Interconnection Agreement.

1.22. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.23. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.24. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit B.

1.25. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.26. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit C.

1.27. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.28. "Schedule" shall mean PGE Schedule 201 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit D, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.29. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.30. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [*date to be determined by the Seller*] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [*date to be determined by the Seller*] Seller shall have completed all requirements under Section 1.5 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, PGE may terminate this agreement in accordance with Section 10.

2.3 This Agreement shall terminate on _____, _____ [*date to be chosen by Seller*], up to 20 years from the Effective Date, or the date the Agreement is

terminated in accordance with Section 10 or 12, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours (“kWh”), which amount PGE will include in its resource planning.

3.1.10 Seller represents and warrants that the Facility shall achieve the following Mechanical Availability Percentages (“Guarantee of Mechanical Availability”):

3.1.10.1 Ninety-one percent (91%) for the first Contract Year;
and

3.1.10.2 Ninety-five percent (95%) beginning Contract Year two and extending throughout the remainder of the Term.

3.1.10.3 Annually, within 90 days of the end of each Contract Year, Seller shall send to PGE a detailed written report demonstrating and providing evidence of the actual MAP for the previous Contract Year.

3.1.11 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year (“Maximum Net Output”).

3.1.12 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.13 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.14 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard Contract in PGE’s Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard Contract in PGE’s Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller’s continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission’s request.

SECTION 4: DELIVERY OF POWER

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit A or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.11 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.4 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain accurate dynamic schedule coordination; provided, however, that in the absence of such coordination, the schedule established by the exchange of preschedules shall be considered final. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g., 1:30 to 2:00). Seller and PGE shall maintain records of energy schedules for delivery for accounting and operating purposes. The final E-Tag shall be the controlling evidence of the Parties' schedule. Seller shall be obligated to meet a certain minimum scheduling accuracy level which shall measure the level of variation between the final schedule(s) for the applicable interval and the Net Output delivered for that same interval. The actual final schedules provided by Seller shall meet or exceed the scheduling accuracy level of 30-Minute Persistence Scheduling. For purposes of this section, the accuracy level of 30-Minute Persistence Scheduling is the accuracy level that would be achieved if Seller's final schedule(s) for the next schedule interval is the Seller's instantaneous actual generation from the Facility 30 minutes prior. For example, under 30-Minute Persistence Scheduling, the Seller's schedule for 2:00 to 2:30 is the Seller's Facility's actual instantaneous generation at 1:30 and the Seller's schedule for 2:30 to 3:00 is the Seller's Facility's actual instantaneous generation at 2:00. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records.

4.5 To the extent not otherwise provided in the Generation Interconnection Agreement, all costs associated with the modifications to PGE's interconnection facilities or electric system occasioned by or related to the interconnection of the Facility with PGE's system, or any increase in generating capability of the Facility, or any

increase of delivery of Net Dependable Capacity from the Facility, shall be borne by Seller.

4.6 Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Environmental Attributes produced with respect to the Facility, and PGE shall not report under such program that such Environmental Attributes belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Sellers selection is for the Term and shall not be changed during the Term.

- 5.1 _____ Fixed Price Variable Resource
- 5.2 _____ Deadband Index Gas Price
- 5.3 _____ Index Gas Price
- 5.4 _____ Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Net Dependable Capacity). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: METERING

8.1 PGE shall design, furnish, install, own, inspect, test, maintain and replace all metering equipment at Seller's cost and as required pursuant to the Generation Interconnection Agreement.

8.2 Metering shall be performed at the location and in a manner consistent with this Agreement and as specified in the Generation Interconnection Agreement. All Net Output purchased hereunder shall be adjusted to account for electrical losses, if any, between the point of metering and the Point of Delivery, so that the purchased amount reflects the net amount of power flowing into PGE's system at the Point of Delivery.

8.3 PGE shall periodically inspect, test, repair and replace the metering equipment as provided in the Generation Interconnection Agreement. If any of the inspections or tests discloses an error exceeding two (2%) percent of the actual energy delivery, either fast or slow, proper correction, based upon the inaccuracy found, shall be made of previous readings for the actual period during which the metering equipment rendered inaccurate measurements if that period can be ascertained. If the actual period cannot be ascertained, the proper correction shall be made to the measurements taken during the time the metering equipment was in service since last tested, but not exceeding three (3) months, in the amount the metering equipment shall have been shown to be in error by such test. Any correction in billings or payments resulting from a correction in the meter records shall be made in the next monthly billing or payment rendered. Such correction, when made, shall constitute full adjustment of any claim between Seller and PGE arising out of such inaccuracy of metering equipment.

8.4 To the extent not otherwise provided in the Generation Interconnection Agreement, all of PGE's costs relating to all metering equipment installed to accommodate Seller's Facility shall be borne by Seller.

SECTION 9: BILLINGS, COMPUTATIONS AND PAYMENTS

9.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement, the Generation Interconnection Agreement, and any other agreement related to the Facility between the Parties or otherwise.

9.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 10: DEFAULT, REMEDIES AND TERMINATION

10.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

10.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

10.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

10.1.3 Seller's failure to meet the MAP established in Section 3.1.10 – Guarantee of Mechanical Availability for any single Contract Year or Seller's failure to provide any written report required by that section.

10.1.4 If Seller is no longer a Qualifying Facility.

10.1.5 Failure of PGE to make any required payment pursuant to Section 9.1.

10.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 10.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21. The rights provided in this Section 10 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

10.3 If this Agreement is terminated as provided in this Section 10 PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

10.4 In the event PGE terminates this Agreement pursuant to this Section 10, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

10.5 Sections 10.1, 10.3, 10.4, 11, and 20.2 shall survive termination of this Agreement.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may

be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be

excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

Standard In System Variable Resource Power Purchase Agreement
Effective _____

with a copy to:

To PGE: Contracts Manager
 QF Contracts, 3WTCBR06
 PGE - 121 SW Salmon St.
 Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT B
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT C START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements

EXHIBIT D
SCHEDULE
[Attach currently in-effect Schedule 201]

STANDARD OFF SYSTEM INTEGRATED VARIABLE RESOURCES POWER

PURCHASE AGREEMENT

THIS AGREEMENT, entered into this _____ day, _____ 201____, is between _____ ("Seller") and Portland General Electric Company ("PGE") (hereinafter each a "Party" or collectively, "Parties").

RECITALS

Seller intends to construct, own, operate and maintain a _____ facility for the generation of electric power located in _____ County, _____ with a Nameplate Capacity Rating of _____ kilowatt ("kW"), as further described in Exhibit A ("Facility"); and

Seller intends to operate the Facility as a "Qualifying Facility," as such term is defined in Section 3.1.3, below.

Seller shall sell and PGE shall purchase the entire Net Output, as such term is defined in Section 1.17, below, from the Facility in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW, THEREFORE, the Parties mutually agree as follows:

SECTION 1: DEFINITIONS

When used in this Agreement, the following terms shall have the following meanings:

1.1. "As-built Supplement" means the supplement to Exhibit A provided by Seller in accordance with Section 4.3 following completion of construction of the Facility, describing the Facility as actually built.

1.2. "Base Hours" is defined as the total number of hours each Contract Year (8,760 or 8,784 for leap year).

1.3. "Billing Period" means a period between PGE's readings of its power purchase billing meter at the Facility in the normal course of PGE's business. Such periods typically vary and may not coincide with calendar months.

1.4. "Cash Escrow" means an agreement by two parties to place money into the custody of a third party for delivery to a grantee only after the fulfillment of the conditions specified.

1.5. "Commercial Operation Date" means the date that the Facility is deemed by PGE to be fully operational and reliable. PGE may, at its discretion require, among other things, that all of the following events have occurred:

1.5.1. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from a Licensed Professional Engineer ("LPE") acceptable to PGE in its reasonable judgment stating that the Facility is able to generate electric power reliably in accordance with the terms and conditions of this Agreement (certifications required under this Section 1.5 can be provided by one or more LPEs);

1.5.2. Start-Up Testing of the Facility has been completed in accordance with Section 1.26;

1.5.3. (facilities with nameplate under 500 kW exempt from following requirement) After PGE has received notice of completion of Start-Up Testing, PGE has received a certificate addressed to PGE from an LPE stating that the Facility has operated for testing purposes under this Agreement uninterrupted for a Test Period at a rate in kW of at least 75 percent of average annual Net Output divided by 8,760 based upon any sixty (60) minute period for the entire testing period. The Facility must provide ten (10) working days written notice to PGE prior to the start of the initial testing period. If the operation of the Facility is interrupted during this initial testing period or any subsequent testing period, the Facility shall promptly start a new Test Period and provide PGE forty-eight (48) hours written notice prior to the start of such testing period;

1.5.4. (facilities with nameplate under 500 kW exempt from following requirement) PGE has received a certificate addressed to PGE from an LPE stating that all required interconnection facilities have been constructed and all required interconnection tests have been completed;

1.5.5. PGE has received a certificate addressed to PGE from an LPE stating that Seller has obtained all Required Facility Documents and, if requested by PGE in writing, has provided copies of any or all such requested Required Facility Documents;

1.5.6. PGE has received a copy of the Transmission Agreement.

1.6. "Contract Price" means the applicable price, including on-peak and off-peak prices, as selected by Seller in Section 5 and as specified in the Schedule.

1.7. "Contract Year" means each twelve (12) month period commencing upon the Commercial Operation Date or its anniversary during the Term, except the final contract year will be the period from the last anniversary of the Commercial Operation Date during the Term until the end of the Term.

1.8. "Effective Date" has the meaning set forth in Section 2.1.

1.9. "Environmental Attributes" means any and all current or future credits, benefits, emissions reductions, environmental air quality credits, emissions reduction credits, offsets and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical or other substance attributable to the Facility during the Term, or otherwise attributable to the generation, purchase, sale or use of energy from or by the Facility during the Term, including without limitation any of the same arising out of legislation or regulation concerned with oxides of nitrogen, sulfur or carbon, with particulate matter, soot or mercury, or implementing the United Nations Framework Convention on Climate Change (the "UNFCCC") or the Kyoto Protocol to the UNFCCC or crediting "early action" emissions reduction, or laws or regulations involving or administered by the Clean Air Markets Division of the Environmental Protection Agency or successor administrator, or any State or federal entity given jurisdiction over a program involving transferability of Environmental Attributes, including the Oregon Renewable Portfolio Standard, and any Green Tag Reporting Rights to such Environmental Attributes.

1.10. "Facility" has the meaning set forth in the Recitals.

1.11. "Generation Interconnection Agreement" means an agreement governing the interconnection of the Facility with _____ electric system.

1.12. "Letter of Credit" means an engagement by a bank or other person made at the request of a customer that the issuer will honor drafts or other demands for payment upon compliance with the conditions specified in the letter of credit.

1.13. "Licensed Professional Engineer" or "LPE" means a person who is licensed to practice engineering in the state where the Facility is located, who has no economic relationship, association, or nexus with the Seller, and who is not a representative of a consulting engineer, contractor, designer or other individual involved in the development of the Facility, or of a manufacturer or supplier of any equipment installed in the Facility. Such Licensed Professional Engineer shall be licensed in an appropriate engineering discipline for the required certification being made and be acceptable to PGE in its reasonable judgment.

1.14. "Mechanical Availability Percentage" or "MAP" shall mean that percentage for any Contract Year for the Facility calculated in accordance with the following formula:

$$\text{MAP} = 100 \times (\text{Operational Hours}) / (\text{Base Hours})$$

1.15. "Nameplate Capacity Rating" means the maximum capacity of the Facility as stated by the manufacturer, expressed in kW, which shall not exceed 10,000 kW.

1.16. "Net Dependable Capacity" means the maximum capacity the Facility can sustain over a specified period modified for seasonal limitations, if any, and reduced by the capacity required for station service or auxiliaries.

1.17. "Net Output" means all energy expressed in kWhs produced by the Facility, less station and other onsite use and less transformation and transmission

losses. Net Output does not include any environmental attributes, imbalance power, or power from an integrating entity.

1.18. "Off-Peak Hours" has the meaning provided in the Schedule.

1.19. "On-Peak Hours" has the meaning provided in the Schedule.

1.20. "Operational Hours" for the Facility means the number of hours the Facility is potentially capable of producing power at its Nameplate Capacity Rating regardless of actual weather conditions, season and time of day or night, without any mechanical operating constraint or restriction, and potentially capable of delivering such power to the Point of Delivery. Hours during which an event of Force Majeure exists that prevent the Facility from producing or delivering power shall be considered Operational Hours.

1.21. "Point of Delivery" means the PGE System.

1.22. "Prime Rate" means the publicly announced prime rate or reference rate for commercial loans to large businesses with the highest credit rating in the United States in effect from time to time quoted by Citibank, N.A. If a Citibank, N.A. prime rate is not available, the applicable Prime Rate shall be the announced prime rate or reference rate for commercial loans in effect from time to time quoted by a bank with \$10 billion or more in assets in New York City, N.Y., selected by the Party to whom interest based on the prime rate is being paid.

1.23. "Prudent Electrical Practices" means those practices, methods, standards and acts engaged in or approved by a significant portion of the electric power industry in the Western Electricity Coordinating Council that at the relevant time period, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with good business practices, reliability, economy, safety and expedition, and which practices, methods, standards and acts reflect due regard for operation and maintenance standards recommended by applicable equipment suppliers and manufacturers, operational limits, and all applicable laws and regulations. Prudent Electrical Practices are not intended to be limited to the optimum practice, method, standard or act to the exclusion of all others, but rather to those practices, methods and acts generally acceptable or approved by a significant portion of the electric power generation industry in the relevant region, during the relevant period, as described in the immediate preceding sentence.

1.24. "Required Facility Documents" means all licenses, permits, authorizations, and agreements necessary for construction, operation, interconnection, and maintenance of the Facility including without limitation those set forth in Exhibit B.

1.25. "Senior Lien" means a prior lien which has precedence as to the property under the lien over another lien or encumbrance.

1.26. "Start-Up Testing" means the completion of applicable required factory and start-up tests as set forth in Exhibit C.

1.27. "Step-in Rights" means the right of one party to assume an intervening position to satisfy all terms of an agreement in the event the other party fails to perform its obligations under the agreement.

1.28. "Schedule" shall mean PGE Schedule 201 filed with the Oregon Public Utilities Commission ("Commission") in effect on the Effective Date of this Agreement and attached hereto as Exhibit D, the terms of which are hereby incorporated by reference. In the event of a conflict between this Agreement and the Schedule, this Agreement shall apply.

1.29. "Term" shall mean the period beginning on the Effective Date and ending on the Termination Date.

1.30. "Test Period" shall mean a period of sixty (60) days or a commercially reasonable period determined by the Seller.

1.31. "Transmission Agreement" means an agreement executed by the Seller and the Transmission Provider(s) for Transmission Services.

1.32. "Transmission Curtailment" means a limitation on Seller's ability to deliver any portion of the scheduled energy to PGE due to the unavailability of transmission to the Point of Delivery or a generating facility limitation by a Transmission Provider (for any reason other than Force Majeure).

1.33. "Transmission Curtailment Replacement Energy Cost" means the greater of zero or the amount calculated as: $((\text{Dow Jones Mid C Index Price} - \text{Contract Price}) \times \text{curtailed energy})$ for periods of Transmission Curtailment.

1.34. "Transmission Provider(s)" means the signatory (other than the Seller) to the Transmission Agreement.

1.35. "Transmission Services" means any and all services (including but not limited to ancillary services and control area services) required for the firm transmission and delivery of Energy from the Facility to the Point of Delivery for a term not less than the Term of this Agreement.

References to Recitals, Sections, and Exhibits are to be the recitals, sections and exhibits of this Agreement.

SECTION 2: TERM; COMMERCIAL OPERATION DATE

2.1 This Agreement shall become effective upon execution by both Parties ("Effective Date").

2.2 Time is of the essence of this Agreement, and Seller's ability to meet certain requirements prior to the Commercial Operation Date and to complete all requirements to establish the Commercial Operation Date is critically important. Therefore,

2.2.1 By _____ [date to be determined by the Seller] Seller shall begin initial deliveries of Net Output; and

2.2.2 By _____ [date to be determined by the Seller] Seller shall have completed all requirements under Section 1.5 and shall have established the Commercial Operation Date.

2.2.3 In the event Seller is unable to meet the requirements of Sections 2.2.1 and 2.2.2, PGE may terminate this agreement in accordance with Section 9.

2.3 This Agreement shall terminate on _____, _____ [date to be chosen by Seller], up to 20 years from the Effective Date, or the date the Agreement is terminated in accordance with Section 9 or 12, whichever is earlier ("Termination Date").

SECTION 3: REPRESENTATIONS AND WARRANTIES

3.1 Seller and PGE represent, covenant, and warrant as follows:

3.1.1 Seller warrants it is a _____ duly organized under the laws of _____.

3.1.2 Seller warrants that the execution and delivery of this Agreement does not contravene any provision of, or constitute a default under, any indenture, mortgage, or other material agreement binding on Seller or any valid order of any court, or any regulatory agency or other body having authority to which Seller is subject.

3.1.3 Seller warrants that the Facility is and shall for the Term of this Agreement continue to be a "Qualifying Facility" ("QF") as that term is defined in the version of 18 C.F.R. Part 292 in effect on the Effective Date. Seller has provided the appropriate QF certification, which may include a Federal Energy Regulatory Commission ("FERC") self-certification to PGE prior to PGE's execution of this Agreement. At any time during the Term of this Agreement, PGE may require Seller to provide PGE with evidence satisfactory to PGE in its reasonable discretion that the Facility continues to qualify as a QF under all applicable requirements.

3.1.4 Seller warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and Seller is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.5 Seller warrants that during the Term of this Agreement, all of Seller's right, title and interest in and to the Facility shall be free and clear of all liens and encumbrances other than liens and encumbrances arising from third-party financing of the Facility other than workers', mechanics', suppliers' or similar liens, or tax liens, in each case arising in the ordinary course of business that are either not yet due and payable or that have been released by means of a

performance bond acceptable to PGE posted within eight (8) calendar days of the commencement of any proceeding to foreclose the lien.

3.1.6 Seller warrants that it will design and operate the Facility consistent with Prudent Electrical Practices.

3.1.7 Seller warrants that the Facility has a Nameplate Capacity Rating not greater than 10,000 kW.

3.1.8 Seller warrants that Net Dependable Capacity of the Facility is _____ kW.

3.1.9 Seller estimates that the average annual Net Output to be delivered by the Facility to PGE is _____ kilowatt-hours ("kWh"), which amount PGE will include in its resource planning.

3.1.10 Seller represents and warrants that the Facility shall achieve the following Mechanical Availability Percentages ("Guarantee of Mechanical Availability"):

3.1.10.1 Ninety-one percent (91%) for the first Contract Year;
and

3.1.10.2 Ninety-five percent (95%) beginning Contract Year two and extending throughout the remainder of the Term.

3.1.10.3 Annually, within 90 days of the end of each Contract Year, Seller shall send to PGE a detailed written report demonstrating and providing evidence of the actual MAP for the previous Contract Year.

3.1.11 Seller will deliver from the Facility to PGE at the Point of Delivery Net Output not to exceed a maximum of _____ kWh of Net Output during each Contract Year ("Maximum Net Output"). The cost of delivering energy from the Facility to PGE is the sole responsibility of the Seller.

3.1.12 Seller has entered into a Generation Interconnection Agreement for a term not less than the term of this Agreement.

3.1.13 PGE warrants that it has not within the past two (2) years been the debtor in any bankruptcy proceeding, and PGE is and will continue to be for the Term of this Agreement current on all of its financial obligations.

3.1.14 Seller warrants that (i) the Facility satisfies the eligibility requirements specified in the Definition of a Small Cogeneration Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule and (ii) Seller will not make any changes in its ownership, control or management during the term of this Agreement that would cause it to not be in compliance with the Definition of a Small Cogeneration

Facility or Small Power Production Facility Eligible to Receive the Standard Rates and Standard PPA in PGE's Schedule. Seller will provide, upon request by Buyer not more frequently than every 36 months, such documentation and information as may be reasonably required to establish Seller's continued compliance with such Definition. Buyer agrees to take reasonable steps to maintain the confidentiality of any portion of the above described documentation and information that the Seller identifies as confidential except Buyer will provide all such confidential information to the Public Utility Commission of Oregon upon the Commission's request.

SECTION 4: DELIVERY OF POWER

4.1 Commencing on the Effective Date and continuing through the Term of this Agreement, Seller shall sell to PGE the entire Net Output delivered from the Facility at the Point of Delivery.

4.2 PGE shall pay Seller the Contract Price for all delivered Net Output.

4.3 Upon completion of construction of the Facility, Seller shall provide PGE an As-built Supplement to specify the actual Facility as built. Seller shall not increase the Nameplate Capacity Rating above that specified in Exhibit A or increase the ability of the Facility to deliver Net Output in quantities in excess of the Net Dependable Capacity, or the Maximum Net Output as described in Section 3.1.11 above, through any means including, but not limited to, replacement, modification, or addition of existing equipment, except with prior written notice to PGE. In the event Seller increases the Nameplate Capacity Rating of the Facility to no more than 10,000 kW pursuant to this section, PGE shall pay the Contract Price for the additional delivered Net Output. In the event Seller increases the Nameplate Capacity Rating to greater than 10,000 kW, then Seller shall be required to enter into a new power purchase agreement for all delivered Net Output proportionally related to the increase of Nameplate Capacity above 10,000 kW.

4.4 All energy shall be scheduled according to the most current North America Energy Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) scheduling rules and practices. The Parties' respective representatives shall maintain hourly real-time schedule coordination; provided, however, that in the absence of such coordination, the hourly schedule established by the exchange of preschedules shall be considered final. Seller and PGE shall maintain records of hourly energy schedules for accounting and operating purposes. Deliveries shall not be made on a dynamic basis, and Seller shall insure that all deliveries of energy under this Agreement will be equal on an hourly basis to the amounts scheduled in the final schedule. Seller shall bear the cost of any transmission services, including but not limited to imbalance services, necessary to insure that energy deliveries under this Agreement are equal on an hourly basis to the amount of energy scheduled for each hour in the final schedule. The final schedule shall be provided by Seller to PGE no later than 20 minutes prior to delivery for the first 30 minutes of an hour (e.g., 1:00 to 1:30) and 15 minutes prior to delivery for the second 30 minutes of the hour (e.g., 1:30 to 2:00). The final E-Tag shall

be the controlling evidence of the Parties' final schedule. Seller shall make commercially reasonable efforts to schedule in any hour an amount equal to its expected Net Output for such hour. Seller shall maintain a minimum of two years records of Net Output and shall agree to allow PGE to have access to such records and to imbalance information kept by the Transmission Provider.

4.5 Seller may report under §1605(b) of the Energy Policy Act of 1992 or under any applicable program as belonging to Seller any of the Environmental Attributes produced with respect to the Facility, and PGE shall not report under such program that such Environmental Attributes belong to it.

SECTION 5: CONTRACT PRICE

PGE shall pay Seller for the price options 5.1, 5.2, 5.3 or 5.4, as selected below, pursuant to the Schedule. Seller shall indicate which price option it chooses by marking its choice below with an X. If Seller chooses the option in Section 5.1, it must mark below with a second X a single second option from Section 5.2, 5.3, or 5.4 for all Contract Years in excess of 15 until the end of the Term. Except as provided herein, Seller's selection is for the Term and shall not be changed during the Term.

- 5.1 Fixed Price for Non Variable or Integrated Variable Resources
- 5.2 Deadband Index Gas Price
- 5.3 Index Gas Price
- 5.4 Mid-C Index Rate Price

SECTION 6: OPERATION AND CONTROL

6.1 Seller shall operate and maintain the Facility in a safe manner in accordance with the Generation Interconnection Agreement, and Prudent Electrical Practices. PGE shall have no obligation to purchase Net Output from the Facility to the extent the interconnection of the Facility to PGE's electric system is disconnected, suspended or interrupted, in whole or in part, pursuant to the Generation Interconnection Agreement, or to the extent generation curtailment is required as a result of Seller's noncompliance with the Generation Interconnection Agreement. Seller is solely responsible for the operation and maintenance of the Facility. PGE shall not, by reason of its decision to inspect or not to inspect the Facility, or by any action or inaction taken with respect to any such inspection, assume or be held responsible for any liability or occurrence arising from the operation and maintenance by Seller of the Facility.

6.2 Seller agrees to provide sixty (60) days advance written notice of any scheduled maintenance that would require shut down of the Facility for any period of time.

6.3 If the Facility ceases operation for unscheduled maintenance, Seller immediately shall notify PGE of the necessity of such unscheduled maintenance, the time when such maintenance has occurred or will occur, and the anticipated duration of

such maintenance. Seller shall take all reasonable measures and exercise its best efforts to avoid unscheduled maintenance, to limit the duration of such unscheduled maintenance, and to perform unscheduled maintenance during Off-Peak hours.

SECTION 7: CREDITWORTHINESS

In the event Seller: a) is unable to represent or warrant as required by Section 3 that it has not been a debtor in any bankruptcy proceeding within the past two (2) years; b) becomes such a debtor during the Term; or c) is not or will not be current on all its financial obligations, Seller shall immediately notify PGE and shall promptly (and in no less than 10 days after notifying PGE) provide default security in an amount reasonably acceptable to PGE in one of the following forms: Senior Lien, Step-in Rights, a Cash Escrow or Letter of Credit. The amount of such default security that shall be acceptable to PGE shall be equal to: (annual On Peak Hours) X (On Peak Price – Off Peak Price) X (Net Dependable Capacity). Notwithstanding the foregoing, in the event Seller is not current on construction related financial obligations, Seller shall notify PGE of such delinquency and PGE may, in its discretion, grant an exception to the requirements to provide default security if the QF has negotiated financial arrangements with the construction loan lender that mitigate Seller's financial risk to PGE.

SECTION 8: BILLINGS, COMPUTATIONS AND PAYMENTS

8.1 On or before the thirtieth (30th) day following the end of each Billing Period, PGE shall send to Seller payment for Seller's deliveries of Net Output to PGE, together with computations supporting such payment. PGE may offset any such payment to reflect amounts owing from Seller to PGE pursuant to this Agreement and any other agreement related to the Facility between the Parties or otherwise.

8.2 Any amounts owing after the due date thereof shall bear interest at the Prime Rate plus two percent (2%) from the date due until paid; provided, however, that the interest rate shall at no time exceed the maximum rate allowed by applicable law.

SECTION 9: DEFAULT, REMEDIES AND TERMINATION

9.1 In addition to any other event that may constitute a default under this Agreement, the following events shall constitute defaults under this Agreement:

9.1.1 Breach by Seller or PGE of a representation or warranty, except for Section 3.1.4, set forth in this Agreement.

9.1.2 Seller's failure to provide default security, if required by Section 7, prior to delivery of any Net Output to PGE or within 10 days of notice.

9.1.3 Seller's failure to meet the MAP established in Section 3.1.10 – Guarantee of Mechanical Availability for any single Contract Year or Seller's failure to provide any written report required by that section.

9.1.4 If Seller is no longer a Qualifying Facility.

9.1.5 Failure of PGE to make any required payment pursuant to Section 8.1.

9.2 In the event of a default hereunder, the non-defaulting party may immediately terminate this Agreement at its sole discretion by delivering written notice to the other Party, and, except for damages related to a default pursuant to Section 9.1.3 by a QF sized at 100 kW or smaller, may pursue any and all legal or equitable remedies provided by law or pursuant to this Agreement including damages related to the need to procure replacement power. Such termination shall be effective upon the date of delivery of notice, as provided in Section 21. The rights provided in this Section 9 are cumulative such that the exercise of one or more rights shall not constitute a waiver of any other rights.

9.3 If this Agreement is terminated as provided in this Section 9, PGE shall make all payments, within thirty (30) days, that, pursuant to the terms of this Agreement, are owed to Seller as of the time of receipt of notice of default. PGE shall not be required to pay Seller for any Net Output delivered by Seller after such notice of default.

9.4 In the event PGE terminates this Agreement pursuant to this Section 9, and Seller wishes to again sell Net Output to PGE following such termination, PGE in its sole discretion may require that Seller shall do so subject to the terms of this Agreement, including but not limited to the Contract Price until the Term of this Agreement (as set forth in Section 2.3) would have run in due course had the Agreement remained in effect. At such time Seller and PGE agree to execute a written document ratifying the terms of this Agreement.

9.5 Sections 9.1, 9.3, 9.4, 11, and 20.2 shall survive termination of this Agreement.

SECTION 10: TRANSMISSION CURTAILMENTS

10.1 Seller shall give PGE notice as soon as reasonably practicable of any Transmission Curtailment that is likely to affect Seller's ability to deliver any portion of energy scheduled pursuant to Sections 4.4 of this Agreement.

10.2 If as the result of a Transmission Curtailment, Seller does not deliver any portion of energy (including real-time adjustments), scheduled pursuant to Section 4.4 of this Agreement, Seller shall pay PGE the Transmission Curtailment Replacement Energy Cost for the number of MWh of energy reasonably determined by PGE as the difference between (i) the scheduled energy that would have been delivered to PGE under this Agreement during the period of Transmission Curtailment and (ii) the actual energy, if any, that was delivered to PGE for the period.

SECTION 11: INDEMNIFICATION AND LIABILITY

11.1 Seller agrees to defend, indemnify and hold harmless PGE, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with Seller's delivery of electric power to PGE or with the facilities at or prior to the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of PGE, its directors, officers, employees, agents or representatives.

11.2 PGE agrees to defend, indemnify and hold harmless Seller, its directors, officers, agents, and representatives against and from any and all loss, claims, actions or suits, including costs and attorney's fees, both at trial and on appeal, resulting from, or arising out of or in any way connected with PGE's receipt of electric power from Seller or with the facilities at or after the Point of Delivery, or otherwise arising out of this Agreement, including without limitation any loss, claim, action or suit, for or on account of injury, bodily or otherwise, to, or death of, persons, or for damage to, or destruction or economic loss of property belonging to PGE, Seller or others, excepting to the extent such loss, claim, action or suit may be caused by the negligence of Seller, its directors, officers, employees, agents or representatives.

11.3 Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to any person not a Party to this Agreement. No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public, nor affect the status of PGE as an independent public utility corporation or Seller as an independent individual or entity.

11.4 NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

SECTION 12: INSURANCE

12.1 Prior to the connection of the Facility to PGE's electric system, provided such Facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, with an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance policies for bodily injury and property damage liability. Such insurance shall include provisions or endorsements naming PGE, its directors, officers and employees as additional insureds; provisions that such insurance is primary insurance with respect to the interest of PGE and that any insurance maintained by PGE is excess and not contributory insurance with the insurance required hereunder; a cross-liability or severability of insurance interest

clause; and provisions that such policies shall not be canceled or their limits of liability reduced without thirty (30) days' prior written notice to PGE. Initial limits of liability for all requirements under this section shall be \$1,000,000 million single limit, which limits may be required to be increased or decreased by PGE as PGE determines in its reasonable judgment economic conditions or claims experience may warrant.

12.2 Prior to the connection of the Facility to PGE's electric system, provided such facility has a design capacity of 200 kW or more, Seller shall secure and continuously carry for the Term hereof, in an insurance company or companies rated not lower than "B+" by the A. M. Best Company, insurance acceptable to PGE against property damage or destruction in an amount not less than the cost of replacement of the Facility. Seller promptly shall notify PGE of any loss or damage to the Facility. Unless the Parties agree otherwise, Seller shall repair or replace the damaged or destroyed Facility, or if the facility is destroyed or substantially destroyed, it may terminate this Agreement. Such termination shall be effective upon receipt by PGE of written notice from Seller. Seller shall waive its insurers' rights of subrogation against PGE regarding Facility property losses.

12.3 Prior to the connection of the Facility to PGE's electric system and at all other times such insurance policies are renewed or changed, Seller shall provide PGE with a copy of each insurance policy required under this Section, certified as a true copy by an authorized representative of the issuing insurance company or, at the discretion of PGE, in lieu thereof, a certificate in a form satisfactory to PGE certifying the issuance of such insurance. If Seller fails to provide PGE with copies of such currently effective insurance policies or certificates of insurance, PGE at its sole discretion and without limitation of other remedies, may upon ten (10) days advance written notice by certified or registered mail to Seller either withhold payments due Seller until PGE has received such documents, or purchase the satisfactory insurance and offset the cost of obtaining such insurance from subsequent power purchase payments under this Agreement.

SECTION 13: FORCE MAJEURE

13.1 As used in this Agreement, "Force Majeure" or "an event of Force Majeure" means any cause beyond the reasonable control of the Seller or of PGE which, despite the exercise of due diligence, such Party is unable to prevent or overcome. By way of example, Force Majeure may include but is not limited to acts of God, fire, flood, storms, wars, hostilities, civil strife, strikes, and other labor disturbances, earthquakes, fires, lightning, epidemics, sabotage, restraint by court order or other delay or failure in the performance as a result of any action or inaction on behalf of a public authority which by the exercise of reasonable foresight such Party could not reasonably have been expected to avoid and by the exercise of due diligence, it shall be unable to overcome, subject, in each case, to the requirements of the first sentence of this paragraph. Force Majeure, however, specifically excludes the cost or availability of resources to operate the Facility, changes in market conditions that affect the price of energy or transmission, wind or water droughts, and obligations for the payment of money when due.

13.2 If either Party is rendered wholly or in part unable to perform its obligation under this Agreement because of an event of Force Majeure, that Party shall be excused from whatever performance is affected by the event of Force Majeure to the extent and for the duration of the Force Majeure, after which such Party shall recommence performance of such obligation, provided that:

13.2.1 the non-performing Party, shall, promptly, but in any case within one (1) week after the occurrence of the Force Majeure, give the other Party written notice describing the particulars of the occurrence; and

13.2.2 the suspension of performance shall be of no greater scope and of no longer duration than is required by the Force Majeure; and

13.2.3 the non-performing Party uses its best efforts to remedy its inability to perform its obligations under this Agreement.

13.3 No obligations of either Party which arose before the Force Majeure causing the suspension of performance shall be excused as a result of the Force Majeure.

13.4 Neither Party shall be required to settle any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to the Party's best interests.

SECTION 14: SEVERAL OBLIGATIONS

Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership or joint venture or to impose a trust or partnership duty, obligation or liability between the Parties. If Seller includes two or more parties, each such party shall be jointly and severally liable for Seller's obligations under this Agreement.

SECTION 15: CHOICE OF LAW

This Agreement shall be interpreted and enforced in accordance with the laws of the state of Oregon, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

SECTION 16: PARTIAL INVALIDITY AND PURPA REPEAL

It is not the intention of the Parties to violate any laws governing the subject matter of this Agreement. If any of the terms of the Agreement are finally held or determined to be invalid, illegal or void as being contrary to any applicable law or public policy, all other terms of the Agreement shall remain in effect. If any terms are finally held or determined to be invalid, illegal or void, the Parties shall enter into negotiations concerning the terms affected by such decision for the purpose of achieving conformity with requirements of any applicable law and the intent of the Parties to this Agreement.

In the event the Public Utility Regulatory Policies Act (PURPA) is repealed, this Agreement shall not terminate prior to the Termination Date, unless such termination is mandated by state or federal law.

SECTION 17: WAIVER

Any waiver at any time by either Party of its rights with respect to a default under this Agreement or with respect to any other matters arising in connection with this Agreement must be in writing, and such waiver shall not be deemed a waiver with respect to any subsequent default or other matter.

SECTION 18: GOVERNMENTAL JURISDICTION AND AUTHORIZATIONS

This Agreement is subject to the jurisdiction of those governmental agencies having control over either Party or this Agreement. Seller shall at all times maintain in effect all local, state and federal licenses, permits and other approvals as then may be required by law for the construction, operation and maintenance of the Facility, and shall provide upon request copies of the same to PGE.

SECTION 19: SUCCESSORS AND ASSIGNS

This Agreement and all of the terms hereof shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. No assignment hereof by either Party shall become effective without the written consent of the other Party being first obtained and such consent shall not be unreasonably withheld. Notwithstanding the foregoing, either Party may assign this Agreement without the other Party's consent as part of (a) a sale of all or substantially all of the assigning Party's assets, or (b) a merger, consolidation or other reorganization of the assigning Party.

SECTION 20: ENTIRE AGREEMENT

20.1 This Agreement supersedes all prior agreements, proposals, representations, negotiations, discussions or letters, whether oral or in writing, regarding PGE's purchase of Net Output from the Facility. No modification of this Agreement shall be effective unless it is in writing and signed by both Parties.

20.2 By executing this Agreement, Seller releases PGE from any third party claims related to the Facility, known or unknown, which may have arisen prior to the Effective Date.

SECTION 21: NOTICES

All notices except as otherwise provided in this Agreement shall be in writing, shall be directed as follows and shall be considered delivered if delivered in person or when deposited in the U.S. Mail, postage prepaid by certified or registered mail and return receipt requested:

To Seller: _____

with a copy to:

To PGE: Contracts Manager
 QF Contracts, 3WTCBR06
 PGE - 121 SW Salmon St.
 Portland, Oregon 97204

21.2 The Parties may change the person to whom such notices are addressed, or their addresses, by providing written notices thereof in accordance with this Section 21.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in their respective names as of the Effective Date.

PGE

By: _____
Name: _____
Title: _____
Date: _____

(Name Seller)

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT A
DESCRIPTION OF SELLER'S FACILITY

[Seller to Complete]

EXHIBIT B
REQUIRED FACILITY DOCUMENTS

[Seller list all permits and authorizations required for this project]

Sellers Generation Interconnection Agreement

EXHIBIT C
START-UP TESTING

[Seller identify appropriate tests]

Required factory testing includes such checks and tests necessary to determine that the equipment systems and subsystems have been properly manufactured and installed, function properly, and are in a condition to permit safe and efficient start-up of the Facility, which may include but are not limited to (as applicable):

1. Pressure tests of all steam system equipment;
2. Calibration of all pressure, level, flow, temperature and monitoring instruments;
3. Operating tests of all valves, operators, motor starters and motor;
4. Alarms, signals, and fail-safe or system shutdown control tests;
5. Insulation resistance and point-to-point continuity tests;
6. Bench tests of all protective devices;
7. Tests required by manufacturer of equipment; and
8. Complete pre-parallel checks with PGE.

Required start-up test are those checks and tests necessary to determine that all features and equipment, systems, and subsystems have been properly designed, manufactured, installed and adjusted, function properly, and are capable of operating simultaneously in such condition that the Facility is capable of continuous delivery into PGE's electrical system, which may include but are not limited to (as applicable):

1. Turbine/generator mechanical runs including shaft, vibration, and bearing temperature measurements;
2. Running tests to establish tolerances and inspections for final adjustment of bearings, shaft run-outs;
3. Brake tests;
4. Energization of transformers;
5. Synchronizing tests (manual and auto);
6. Stator windings dielectric test;
7. Armature and field windings resistance tests;
8. Load rejection tests in incremental stages from 5, 25, 50, 75 and 100 percent load;
9. Heat runs;
10. Tests required by manufacturer of equipment;
11. Excitation and voltage regulation operation tests;
12. Open circuit and short circuit; saturation tests;
13. Governor system steady state stability test;
14. Phase angle and magnitude of all PT and CT secondary voltages and currents to protective relays, indicating instruments and metering;
15. Auto stop/start sequence;
16. Level control system tests; and
17. Completion of all state and federal environmental testing requirements.

EXHIBIT D
SCHEDULE
[Attach currently in-effect Schedule 201]