



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

September 29, 2009

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Oregon Public Utility Commission
550 Capitol Street NE, Suite 215
Salem, OR 97301-2551

Attn: Filing Center

RE: UM 1442 – Direct Testimony of Hui Shu on behalf of PacifiCorp.

PacifiCorp d/b/a Pacific Power hereby submits for filing an original and five (5) copies of the Direct Testimony of Hui Shu in the above-referenced matter.

PacifiCorp respectfully requests that all data requests regarding this matter be addressed to:

By e-mail (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah, Suite 2000
Portland, OR 97232

Please direct informal correspondence and questions regarding this filing to Joelle Steward, Regulatory Manager, at (503) 813-5542.

Very truly yours,

Andrea L. Kelly
Vice President, Regulation

Enclosures
cc: Service List UM 1442

CERTIFICATE OF SERVICE

I hereby certify that on this 29th of September, 2009, I caused to be served, via E-Mail and U.S. Mail (to those parties who have not waived paper service), a true and correct copy of the foregoing document on the following named person(s) at his or her last-known address(es) indicated below.

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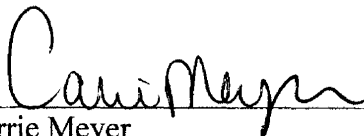
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Carrie Meyer
Coordinator, Administrative Service

Docket No. UM-1442
Exhibit PPL/100
Witness: Hui Shu

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

PACIFICORP

Direct Testimony of Dr. Hui Shu

September 2009

1 **Q. Please state your name, business address and present position with**
2 **PacifiCorp (“ Company”).**

3 A. My name is Hui Shu, my business address is 825 N.E. Multnomah, Suite 600,
4 Portland, Oregon 97232, and my present position is Manager of Net Power Costs.

5 **Q. Briefly describe your education and business experience.**

6 A. I received an undergraduate degree in Electrical Engineering and finished training
7 in the program for Master in Business Administration from University of
8 Shanghai for Science and Technology. I received a PhD degree in Systems
9 Science with a focus on Econometrics from Portland State University. I have
10 worked for PacifiCorp since 1992 and have held positions in the commercial and
11 trading and regulatory areas. I accepted my current position in February 2008.

12 **Q. Please describe your current duties.**

13 A. I am responsible for the coordination and preparation of net power costs and
14 related analyses used in retail price filings. In addition, I represent the Company
15 on various net power cost related proceedings with the six state regulatory
16 commissions to whose jurisdiction the Company is subject.

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

18 A. The purpose of my testimony is to address the Company’ s Advice Filing No. 09-
19 012, revising standard rates in Schedule 37 for avoided cost purchases from
20 Qualifying Facilities of 10,000 kW or less (“ Filing”). The Filing is attached as
21 PPL/101. Specifically, I describe the process utilized by the Company to
22 determine avoided costs and its consistency with the methodology for determining

1 avoided costs as set forth in Public Utility Commission of Oregon

2 (“ Commission”) Order No. 05-584 (Docket UM 1129).

3 **Q. Please summarize your testimony.**

4 A. In Docket UM 1129, the Commission decided key issues related to the price paid
5 to qualifying facilities (“ QFs”), including the adoption of the Commission Staff’s

6 recommendation that PacifiCorp apply the methodology historically used in

7 Oregon to calculate avoided costs. The investigation under Docket UM 1442 is

8 intended to address the sole issue of whether the Filing complies with the

9 methodologies and calculations required by Order No. 05-584. *See UM 1442 and*

10 *UM 1443 Prehearing Conference Memorandum* (issued September 17, 2009).

11 My testimony demonstrates that the Company followed the calculations and

12 methodologies set forth in Order No. 05-584.

13 **Q. Please explain your understanding of the methodology approved by the
14 Commission in Order No. 05-584 for determining avoided costs.**

15 A. I understand that in Order No. 05-584, the Commission reaffirmed that the
16 calculation of avoided costs requires differentiation between when a utility is in a

17 resource deficiency period and in a resource sufficiency period. Furthermore, the

18 Commission reaffirmed the use of the historical methodology used in Oregon by

19 PacifiCorp to calculate avoided cost rates during periods of resource deficiency.

20 Under this method, avoided cost rates when PacifiCorp is in a resource deficient

21 period are to reflect the variable and fixed costs (all-in costs) of a combined cycle

22 combustion turbine (“ CCCT”). When PacifiCorp is in a resource sufficient

23 position, avoided costs are to be valued based on monthly on- and off-peak

1 forward market prices as of the avoided cost filing. *See* Order No. 05-584 at 27-
2 28.

3 **Q. First, how are periods of resource sufficiency versus deficiency defined?**

4 A. I am aware that the methodology to define periods of resource sufficiency and
5 deficiency is the subject of an on-going Commission proceeding in UM 1396.
6 With a Commission decision outstanding in that docket, the Company used the
7 same methodology to define the resource sufficiency and deficiency periods as
8 used in its previous avoided cost filings. The load and resource balance as
9 determined by the Company' s GRID model, which is used to calculate the net
10 power costs in various rate proceedings, shows that the Company is energy
11 sufficient through 2013 and deficient beginning 2014.

12 **Q. Please describe in more detail how the Company determined when it was**
13 **resource sufficient or deficient for purposes of developing the avoided costs**
14 **in the Filing.**

15 A. The starting point for determining when the Company is resource sufficient or
16 deficient (meaning the Company requires the addition of a new base load
17 resource) is the load and resource balance. The load requirement includes the
18 Company' s retail load, and long-term and short-term firm wholesale sales
19 contracts that the Company has entered into as of the time of the study. The
20 resources include the Company owned generation resources, and the long-term
21 and short-term firm wholesale purchases contracts that the Company has entered
22 into as of the time of the study. From the amount of the resources, the reserves
23 are subtracted, which are required by the North American Electric Reliability

1 Corporation (“ NERC”) and Western Electricity Coordinating Council (“ WECC”)
2 for reliability purposes. Table 1 of the Filing (PPL/101, Shu/15) presents the
3 Company’ s load and resource balance and indicates an energy surplus from 2009
4 through 2013 and then an energy deficit of 158 average megawatts (“ aMW”) in
5 2014.

6 **Q. Next, how did the Company calculate the avoided costs for the sufficiency**
7 **period?**

8 A. As required by the Commission, avoided energy costs for the period of resource
9 sufficiency are based on market prices of the incremental transactions as the result
10 of the additional energy from the QF during periods of sufficiency. That is, for
11 the sufficiency period in the Filing (2009 through 2013), market prices are based
12 on the Company’ s most recent official forward price curve, which is June 2009,
13 and are weighted by market transactions required to support the addition of an
14 assumed 50 aMW Oregon QF. To calculate the weighting, two production cost
15 studies were prepared. The only difference between the two studies is an assumed
16 50 aMW, zero cost resource. System balancing sales energy and purchases
17 energy were extracted from both studies, and a delta in energy between the two
18 studies was calculated. The delta energy by market hubs (California Oregon
19 Border, Palo Verde and Mid Columbia) was used to weigh the Company’ s market
20 price forecast of the June 2009 official forward price curve by on-peak and off-
21 peak by month. Table 2 of the Filing (PPL/101, Shu/16) shows the results of this
22 calculation.

1 **Q. Lastly, how did the Company calculate the avoided costs for the deficiency**
2 **period?**

3 A. As required by the Commission, avoided energy costs are based on the fixed and
4 variable costs of a CCCT during periods of deficiency. The Filing shows a
5 resource deficiency period for 2014 and beyond. Since CCCTs are built as base
6 load units that provide both energy and capacity, it is appropriate to split the fixed
7 costs of this unit into energy and capacity components. The fixed costs of a
8 simple cycle combined combustion turbine (“ SCCT”), which is usually acquired
9 as a capacity resource, defines the portion of the fixed costs of the CCCT that are
10 assigned to capacity. Fixed costs associated with the construction of a CCCT that
11 are in excess of the SCCT costs are assigned to energy and are added to the
12 variable production (fuel) costs of the CCCT to determine the total avoided
13 energy costs. Table 3 of the Filing shows the capitalized energy costs (PPL/101,
14 Shu/17). The fuel costs of the CCCT define the avoided variable energy costs,
15 which are based on natural gas price forecasts for the Company’ s official forward
16 price curve in June 2009. Table 4 of the Filing shows the CCCT fuel costs, the
17 addition of capitalized energy costs at an assumed 51.5 percent capacity factor of
18 the CCCT and the total avoided energy costs (PPL/101, Shu/18). The costs and
19 characteristics of the CCCT and SCCT are from the Company’ s 2008 IRP studies,
20 which contains the latest information available to the Company.

1 **Q. Do you believe that the process utilized by the Company to determine**
2 **avoided costs for the Filing is consistent with the methodology for**
3 **determining avoided costs adopted by the Commission?**

4 A. Yes. The process used by the Company in this proceeding is identical to the
5 process used by the Company to implement Order No. 05-584 in its July 2007
6 avoided cost filing with the Commission. That filing was approved by the
7 Commission as being consistent with Order No. 05-584. In this filing, the
8 Company only updated its inputs to the avoided cost calculations.

9 **Q. Is this process and methodology consistent with how the Company calculated**
10 **avoided costs in the past?**

11 A. Yes. The Company has not changed the methodology since its last avoided cost
12 filing in July 2007.

13 **Q. Does this conclude your testimony?**

14 A. Yes.

Docket No. UM-1442
Exhibit PPL/101
Witness: Hui Shu

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

PACIFICORP

Exhibit Accompanying Direct Testimony of Dr. Hui Shu

Advice No. 09-012

September 2009



July 9, 2009

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Oregon Public Utility Commission
550 Capital Street NE, Ste. 215
Salem, OR 97301-2551

Attn: Filing Center

RE: **Advice No. 09-012**
Scheduled 37 – Avoided Cost Purchases from Qualifying Facilities
(10,000 kW or less)

PacifiCorp d/b/a Pacific Power (“PacifiCorp” or “Company”) hereby submits in electronic format proposed tariff pages, identified below, which are associated with Tariff P.U.C. OR No. 35, applicable to electric service in the state of Oregon. A signed original letter and five (5) copies will be provided via overnight delivery. The Company respectfully requests an effective date of August 12, 2009.

Seventh Revision of Sheet No. 37-3	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less
Fifth Revision of Sheet No. 37-4	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less
Fifth Revision of Sheet No. 37-5	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less
Fifth Revision of Sheet No. 37-6	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less
Fifth Revision of Sheet No. 37-7	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less
Second Revision of Sheet No. 37-11	Schedule 37	Avoided Cost Purchases from Qualifying Facilities of 10,000 kW or less

In this filing, PacifiCorp revises standard rates in Schedule 37 for avoided cost purchases from Qualifying Facilities of 10,000 kW or less. This filing is made in accordance with Commission Order No. 05-584 (entered May 13, 2005) in Docket UM 1129, in which the Commission affirmed a two-year cycle for filing avoided cost rates. PacifiCorp previously filed its standard rates for Schedule 37 on July 12, 2007.

In support of this filing, PacifiCorp submits **Appendix 1** - Qualified Facility Pricing Options and Avoided Cost Calculation, and **Appendix 2** – Avoided Cost Methodology.

Advice No. 09-012
Oregon Public Utility Commission
July 9, 2009
Page 2

Lastly, the Company notes that the methodology for the determination of the resource sufficiency period for purposes of calculating avoided costs is the subject of an on-going proceeding in Docket UM 1396. For purposes of this filing, the Company utilized the previously adopted methodology, as described in Appendix 2. At the conclusion of Docket UM 1396, if so ordered by the Commission, the Company will refile avoided costs to reflect changes in the methodology, if necessary. In the interim, the Company requests that these updated avoided costs be allowed to go into effect.

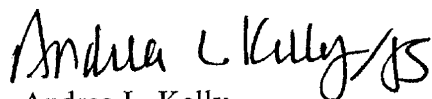
It is respectfully requested that all data requests regarding this filing be addressed to:

By e-mail (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232

Please direct any informal inquiries to Joelle Steward, Regulatory Manager, at (503) 813-5542.

Sincerely,



Andrea L. Kelly
Vice President, Regulation

Enclosures

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
Page 3

Self Supply Option

Owner shall elect to sell all Net Output to PacifiCorp and purchase its full electric requirements from PacifiCorp or sell Net Output surplus to its needs at the Facility site to PacifiCorp and purchase partial electric requirements service from PacifiCorp, in accordance with the terms and conditions of the power purchase agreement and the appropriate retail service.

Pricing Options

1. Fixed Avoided Cost Prices

Prices are fixed at the time that the contract is signed by both the Qualifying Facility and the Company and will not change during the term of the contract. Fixed Avoided Cost Prices are available for a contract term of up to 15 years and prices under a longer term contract (up to 20 years) will thereafter be under either the Firm Market Indexed, the Banded Gas Market Indexed or the Gas Market Indexed Avoided Cost pricing option.

(C)
(C)

2. Gas Market Indexed Avoided Cost Prices

Fixed prices apply during the resource sufficiency period (2009 through 2013), thereafter a portion of avoided cost prices are indexed to actual monthly West Side Gas Market Index prices. The remaining portion of avoided cost prices will be fixed at the time that the contract is signed by both the Qualifying Facility and the Company and will not change during the term of the contract. Prices are available for a term of up to 20 years.

(C)

3. Banded Gas Market Indexed Avoided Cost Prices

Fixed prices apply during the resource sufficiency period (2009 through 2013), thereafter a portion of avoided cost prices are indexed to actual monthly West Side Gas Market Index prices. The remaining portion of avoided cost prices will be fixed at the time that the contract is signed by both the Qualifying Facility and the Company and will not change during the term of the contract. The gas indexed portion of the avoided cost prices are banded to limit the amount that prices can vary with changes in gas prices. Prices are available for a term of up to 20 years.

(C)

4. Firm Market Indexed Avoided Cost Prices

Firm market index avoided cost prices are available to Qualifying Facilities that contract to deliver firm power. Monthly on-peak / off-peak prices paid are a blending of Dow Jones Index Firm day-ahead Mid-Columbia, California Oregon Border (COB), Four Corners and Palo Verde on-peak and off-peak prices. The monthly blending matrix is available upon request.

5. Non-firm Market Index Avoided Cost Prices

Non- Firm market index avoided cost prices are available to Qualifying Facilities that do not elect to provide firm power. Qualifying Facilities taking this option will have contracts that do not include minimum delivery requirements, default damages for construction delay, for under delivery or early termination, or default security for these purposes. Monthly On-Peak / Off-Peak prices paid are a blending of Dow Jones Index Non-firm day-ahead Mid-Columbia, California Oregon Border (COB), Four Corners and Palo Verde on-peak and off-peak prices. The monthly blending matrix is available upon request.

(Continued)

Issued:	July 9, 2009	P.U.C. OR No. 35
Effective:	With service rendered on and after August 12, 2009	Seventh Revision of Sheet No. 37-3 Canceling Sixth Revision of Sheet No. 37-3

Issued By
Andrea L. Kelly, Vice President, Regulation

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
Page 4

Monthly Payments

A Qualifying Facility shall select the option of payment at the time of signing the contract under one of three Pricing Options as specified above. Once an option is selected the option will remain in effect for the duration of the Facility's contract.

Fixed Avoided Cost Prices

In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at the fixed prices as provided in this tariff. The definition of On-Peak and Off-Peak is as defined in the definitions section of this tariff.

Gas Market Indexed Avoided Cost Prices

In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at On-Peak and Off-Peak prices calculated each month.

To calculate the Off-Peak price, multiply the West Side Gas Market Index price in \$/MMBtu by 0.715 to get actual gas price in cents/kWh. The Off-Peak Energy Adder is added to the actual gas price to get the Off-Peak Price. (R)

The On-Peak price is the Off-Peak price plus the On-Peak Capacity Adder.

Banded Gas Indexed Avoided Cost Prices

In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at On-Peak and Off-Peak prices calculated each month.

To calculate the Off-Peak price, multiply the West Side Gas Market Index price in \$/MMBtu by 0.715 to get actual gas price in cents/kWh. This price is banded such that the actual gas price shall be no lower than the Gas Market Index Floor nor greater than the Gas Market Index Ceiling as listed in the price section of this tariff. The Off-Peak Energy Adder is added to the actual gas price to get the Off-Peak Price. (R)

The On-Peak price is the Off-Peak price plus the On-Peak Capacity Adder.

Firm Market Indexed and Non-firm Market Index Avoided Cost Prices

In accordance with the terms of a contract with a Qualifying Facility, the Company shall pay for all separately metered kilowatt-hours of On-Peak and Off-Peak generation at the market prices calculated at the time of delivery. The definition of On-Peak and Off-Peak is as defined in the definitions section of this tariff.

(Continued)

Issued:	July 9, 2009	P.U.C. OR No. 35
Effective:	With service rendered on and after August 12, 2009	Fifth Revision of Sheet No. 37-4 Canceling Fourth Revision of Sheet No. 37-4

Issued By
Andrea L. Kelly, Vice President, Regulation

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
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Avoided Cost Prices

Pricing Option 1 – Fixed Avoided cost Prices ¢/kWh

Deliveries During Calendar Year	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)
2009	3.72	3.05
2010	4.82	3.80
2011	5.68	4.34
2012	6.16	4.50
2013	6.30	4.61
2014	8.19	6.34
2015	8.25	6.36
2016	8.13	6.21
2017	8.14	6.18
2018	8.26	6.26
2019	8.57	6.53
2020	8.94	6.86
2021	9.36	7.25
2022	9.41	7.25
2023	9.53	7.34
2024	8.74	6.50
2025	9.07	6.78
2026	9.54	7.21
2027	9.68	7.31
2028	10.03	7.62

(C)

(C)

(Continued)

Issued: July 9, 2009 P.U.C. OR No. 35
 Effective: With service rendered on and after August 12, 2009 Fifth Revision of Sheet No. 37-5
 Canceling Fourth Revision of Sheet No. 37-5

Issued By
 Andrea L. Kelly, Vice President, Regulation

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
Page 6

Avoided Cost Prices (Continued)

Pricing Option 2 – Gas Market Indexed Avoided Cost Prices €/kWh

Deliveries During Calendar Year	Fixed Prices		Gas Market Index		Forecast West Side Gas Market Index Price (2) \$/MMBtu	Estimated Prices (3)	
	On-Peak Energy Price (a)	Off-Peak Energy Price (b)	On-Peak Capacity Adder (1) (c)	Off-Peak Energy Adder (d)		On-Peak Energy Price (f)	Off-Peak Energy Price (g)
			Avoided Firm Capacity Costs / (0.876 * 90.4% * 57%)	Total Avoided Energy Costs - ((e) * 0.715)		(g) + (c)	((e) * 0.715) + (d)
2009	3.72	3.05					
2010	4.82	3.80					
2011	5.68	4.34					
2012	6.16	4.50					
2013	6.30	4.61					
			Market Based Prices 2009 through 2013				
2014			1.86	1.43	\$6.87	8.19	6.34
2015			1.89	1.43	\$6.89	8.25	6.36
2016			1.93	1.42	\$6.69	8.13	6.21
2017			1.96	1.44	\$6.63	8.14	6.18
2018			2.00	1.47	\$6.69	8.26	6.26
2019			2.04	1.51	\$7.02	8.57	6.53
2020			2.08	1.56	\$7.41	8.94	6.86
2021			2.12	1.64	\$7.84	9.36	7.25
2022			2.16	1.68	\$7.79	9.41	7.25
2023			2.20	1.71	\$7.87	9.53	7.34
2024			2.24	1.61	\$6.84	8.74	6.50
2025			2.28	1.65	\$7.18	9.07	6.78
2026			2.33	1.70	\$7.70	9.54	7.21
2027			2.37	1.76	\$7.77	9.68	7.31
2028			2.42	1.83	\$8.10	10.03	7.62
2029			2.46	1.87	\$8.37	10.32	7.86
2030			2.51	1.96	\$8.78	10.75	8.24
2031			2.56	2.01	\$8.95	10.96	8.41
2032			2.61	2.04	\$9.13	11.18	8.57

(1) Avoided Firm Capacity Costs are equal to the fixed costs of a SCCT as identified in the Company's 2008 IRP.

(2) A heat rate of 0.715 is used to adjust gas prices from \$/MMBtu to €/kWh

(3) Estimated avoided cost prices based upon forecast West Side Gas Market Index prices.

Actual prices will be calculated each month using actual index gas prices.

(Continued)

Issued: July 9, 2009
Effective: With service rendered on and after August 12, 2009

P.U.C. OR No. 35
Fifth Revision of Sheet No. 37-6
Canceling Fourth Revision of Sheet No. 37-6

Issued By
Andrea L. Kelly, Vice President, Regulation

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
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Avoided Cost Prices (Continued)

Pricing Option 3 – Banded Gas Market Indexed Avoided Cost Prices €/kWh

Deliveries During Calendar Year	Fixed Prices		Banded Gas Market Index				Forecast West Side Gas Market Index Price (2) \$/MMBtu	Estimated Prices (3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Capacity Adder (1)	Off-Peak Energy Adder	Gas Market Index			On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)	Floor 90%	Ceiling 110%	(g)	(h)	(i)
			Avoided Firm Capacity Costs / (0.876 * 90.4% * 57%)	Total Avoided Energy Costs - ((e) * 0.715)	(g) * 0.715 * 90%	(g) * 0.715 * 110%		(i) + (c)	MIN(MAX(((g) * 0.715), (e)), (f)) + (d)

2009	3.72	3.05							
2010	4.82	3.80							
2011	5.68	4.34							
2012	6.16	4.50							
2013	6.30	4.61							
			Market Based Prices 2009 through 2013						
2014			1.86	1.43	4.42	5.40	\$6.87	8.19	6.34
2015			1.89	1.43	4.43	5.42	\$6.89	8.25	6.36
2016			1.93	1.42	4.31	5.26	\$6.69	8.13	6.21
2017			1.96	1.44	4.27	5.21	\$6.63	8.14	6.18
2018			2.00	1.47	4.31	5.26	\$6.69	8.26	6.26
2019			2.04	1.51	4.52	5.52	\$7.02	8.57	6.53
2020			2.08	1.56	4.77	5.83	\$7.41	8.94	6.86
2021			2.12	1.64	5.05	6.17	\$7.84	9.36	7.25
2022			2.16	1.68	5.01	6.13	\$7.79	9.41	7.25
2023			2.20	1.71	5.06	6.19	\$7.87	9.53	7.34
2024			2.24	1.61	4.40	5.38	\$6.84	8.74	6.50
2025			2.28	1.65	4.62	5.65	\$7.18	9.07	6.78
2026			2.33	1.70	4.96	6.06	\$7.70	9.54	7.21
2027			2.37	1.76	5.00	6.11	\$7.77	9.68	7.31
2028			2.42	1.83	5.21	6.37	\$8.10	10.03	7.62
2029			2.46	1.87	5.39	6.58	\$8.37	10.32	7.86
2030			2.51	1.96	5.65	6.91	\$8.78	10.75	8.24
2031			2.56	2.01	5.76	7.04	\$8.95	10.96	8.41
2032			2.61	2.04	5.88	7.18	\$9.13	11.18	8.57

- (1) Avoided Firm Capacity Costs are equal to the fixed costs of a SCCT as identified in the Company's 2008 IRP.
- (2) A heat rate of 0.715 is used to adjust gas prices from \$/MMBtu to €/kWh
- (3) Estimated avoided cost prices based upon forecast West Side Gas Market Index prices.
Actual prices will be calculated each month using actual index gas prices.

(Continued)

Issued:	July 9, 2009	P.U.C. OR No. 35
Effective:	With service rendered on and after August 12, 2009	Fifth Revision of Sheet No. 37-7 Canceling Fourth Revision of Sheet No. 37-7

Issued By
Andrea L. Kelly, Vice President, Regulation

PACIFIC POWER & LIGHT COMPANY
AVOIDED COST PURCHASES FROM QUALIFYING
FACILITIES OF 10,000 KW OR LESS

OREGON
SCHEDULE 37
 Page 11

Example of Gas Pricing Options given Assumed Gas Prices ¢/kWh

Banded Gas Market Index												
Year	Prices Listed in the Tariff				Example using assumed Gas Prices						Compared to Fixed Prices	
	On-Peak Capacity Adder	Off-Peak Energy Adder	Gas Market Index		Assumed Gas Price \$/MMBtu	Actual Energy Price	Fuel Index	Type of Price	Price Paid to QF		Off-Peak Price	On-Peak Price
	(a)	(b)	Floor 90%	Ceiling 110%	(e)	(f)	(g)	(h)	Off-Peak Price (i)	On-Peak Price (j)	(k)	(l)
			(c)	(d)		(e) x 0.715			(b) + (g)	(a) + (i)		
2014	1.86	1.43	4.42	5.40	\$3.00	2.15	4.42	Floor	5.85	7.71	6.34	8.19
					\$5.00	3.58	4.42	Floor	5.85	7.71		
					\$7.00	5.01	5.01	Actual	6.44	8.30		
					\$9.00	6.44	5.40	Ceiling	6.83	8.69		
					\$12.00	8.58	5.40	Ceiling	6.83	8.69		

Gas Market Method												
Year	Prices Listed in the Tariff				Example using assumed Gas Prices						Compared to Fixed Prices	
	On-Peak Capacity Adder	Off-Peak Energy Adder	Fuel Index		Assumed Gas Price \$/MMBtu	Actual Energy Price	Fuel Index	Type of Price	Price Paid to QF		Off-Peak Price	On-Peak Price
	(a)	(b)	Floor 90%	Ceiling 110%	(e)	(f)	(g)	(h)	Off-Peak Price (i)	On-Peak Price (j)	(k)	(l)
			(c)	(d)		(e) x 0.715			(b) + (i)	(a) + (j)		
2014	1.86	1.43	Not Relevant		\$3.00	2.15			3.58	5.44	6.34	8.19
					\$5.00	3.58			5.01	6.87		
					\$7.00	5.01	Not Relevant		6.44	8.30		
					\$9.00	6.44			7.87	9.73		
					\$12.00	8.58			10.01	11.87		

Issued: July 9, 2009
 Effective: With service rendered on and after August 12, 2009

P.U.C. OR No. 35
 Second Revision of Sheet No. 37-11
 Canceling First Revision of Sheet No. 37-11

Issued By
 Andrea L. Kelly, Vice President, Regulation

(C)
 (C)

**PACIFIC POWER
AVOIDED COST CALCULATION**

**STANDARD RATES FOR AVOIDED COST PURCHASES FROM
QUALIFYING FACILITIES OF 10,000 kW OR LESS, THAT
QUALIFY FOR SCHEDULE NO. 37**

OREGON – July 2009

Exhibit 1
Fixed Avoided Cost Prices

Year	Capacity Price	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	On-Peak	Off-Peak
	\$/kW-yr	(\$/MWh)	\$/MWh	\$/MWh	\$/MWh
	(a)	(b)	(c)	(d)	(e)
		(a) / (8.76 x 90.4% x 57%)		(b) + (c)	(b)

2009				\$37.19	\$30.50
2010				\$48.20	\$37.95
2011				\$56.75	\$43.39
2012				\$61.55	\$45.00
2013				\$63.04	\$46.09
2014	\$83.73	\$18.55	\$63.38	\$81.93	\$63.38
2015	\$85.32	\$18.90	\$63.58	\$82.48	\$63.58
2016	\$86.95	\$19.26	\$62.07	\$81.33	\$62.07
2017	\$88.61	\$19.63	\$61.78	\$81.41	\$61.78
2018	\$90.30	\$20.01	\$62.56	\$82.57	\$62.56
2019	\$92.03	\$20.39	\$65.29	\$85.68	\$65.29
2020	\$93.79	\$20.78	\$68.58	\$89.36	\$68.58
2021	\$95.57	\$21.17	\$72.46	\$93.63	\$72.46
2022	\$97.40	\$21.58	\$72.54	\$94.12	\$72.54
2023	\$99.26	\$21.99	\$73.35	\$95.34	\$73.35
2024	\$101.16	\$22.41	\$65.01	\$87.42	\$65.01
2025	\$103.08	\$22.84	\$67.83	\$90.67	\$67.83
2026	\$105.05	\$23.27	\$72.08	\$95.35	\$72.08
2027	\$107.06	\$23.72	\$73.12	\$96.84	\$73.12
2028	\$109.10	\$24.17	\$76.17	\$100.34	\$76.17
2029	\$111.18	\$24.63	\$78.58	\$103.21	\$78.58
2030	\$113.31	\$25.10	\$82.42	\$107.52	\$82.42
2031	\$115.47	\$25.58	\$84.06	\$109.64	\$84.06
2032	\$117.67	\$26.07	\$85.70	\$111.77	\$85.70

Columns

- (a) Full Fixed Cost of a Proxy CCCT less capitalized energy
- (b) 90.4% is the on-peak capacity factor of the Proxy Resource
- (c) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (d) 2009-2013 On-Peak Market Prices
- (e) 2009-2013 Off-Peak Market Prices

**Exhibit 2
Gas Market Indexed Avoided Cost Prices**

Year	Avoided Firm Capacity Costs (\$/kW-yr)	Total Avoided Energy Cost (\$/MWh)	West Side Raw Gas Price (l)	Proxy CCCT Raw Fuel Index (\$/MWh)	Fixed Prices		On-Peak Capacity Adder (\$/MWh)	Off-Peak Energy Adder (\$/MWh)
	(a)	(b)	(c)	(d)	On-Peak (\$/MWh)	Off-Peak (\$/MWh)	(g)	(h)
2009					\$37.19	\$30.50		
2010					\$48.20	\$37.95		
2011					\$56.75	\$43.39		
2012					\$61.55	\$45.00		
2013					\$63.04	\$46.09		
2014	\$83.73	\$63.38	\$6.87	\$49.12	\$18.55	\$14.26	\$18.55	\$14.26
2015	\$85.32	\$63.58	\$6.89	\$49.26	\$18.90	\$14.32	\$18.90	\$14.32
2016	\$86.95	\$62.07	\$6.69	\$47.83	\$19.26	\$14.24	\$19.26	\$14.24
2017	\$88.61	\$61.78	\$6.63	\$47.40	\$19.63	\$14.38	\$19.63	\$14.38
2018	\$90.30	\$62.56	\$6.69	\$47.83	\$20.01	\$14.73	\$20.01	\$14.73
2019	\$92.03	\$65.29	\$7.02	\$50.19	\$20.39	\$15.10	\$20.39	\$15.10
2020	\$93.79	\$68.58	\$7.41	\$52.98	\$20.78	\$15.60	\$20.78	\$15.60
2021	\$95.57	\$72.46	\$7.84	\$56.06	\$21.17	\$16.40	\$21.17	\$16.40
2022	\$97.40	\$72.54	\$7.79	\$55.70	\$21.58	\$16.84	\$21.58	\$16.84
2023	\$99.26	\$73.35	\$7.87	\$56.27	\$21.99	\$17.08	\$21.99	\$17.08
2024	\$101.16	\$65.01	\$6.84	\$48.91	\$22.41	\$16.10	\$22.41	\$16.10
2025	\$103.08	\$67.83	\$7.18	\$51.34	\$22.84	\$16.49	\$22.84	\$16.49
2026	\$105.05	\$72.08	\$7.70	\$55.06	\$23.27	\$17.02	\$23.27	\$17.02
2027	\$107.06	\$73.12	\$7.77	\$55.56	\$23.72	\$17.56	\$23.72	\$17.56
2028	\$109.10	\$76.17	\$8.10	\$57.92	\$24.17	\$18.25	\$24.17	\$18.25
2029	\$111.18	\$78.58	\$8.37	\$59.85	\$24.63	\$18.73	\$24.63	\$18.73
2030	\$113.31	\$82.42	\$8.78	\$62.78	\$25.10	\$19.64	\$25.10	\$19.64
2031	\$115.47	\$84.06	\$8.95	\$63.99	\$25.58	\$20.07	\$25.58	\$20.07
2032	\$117.67	\$85.70	\$9.13	\$65.28	\$26.07	\$20.42	\$26.07	\$20.42

(a)/(8.76 x 90.4% x 57%)

(c) x 7.150

(b) - (d)

Columns

- (a) Fixed Cost of a Proxy CCCT less Capitalized Energy included in Energy Component
- (b) Fuel and Capitalized Energy Cost of the Proxy CCCT
- (c) Company's Official Price Forecast (June 30, 2009) - Fuel Only Gas Price
- (d) 7.150 MMBtu/MWh Proxy CCCT Heat Rate
- (e) 2009-2013 On-Peak Market Prices
- (f) 2009-2013 Off-Peak Market Prices
- (g) 90.4% is the on-peak capacity factor of the Proxy Resource

Note:

(1) Gas Prices are the average of Opal, Sumas and Stanfield Gas Indexes
QFs are paid based on Raw Index Costs. Delivery to burnertip is included in the "Off-Peak Energy Adder"

**Exhibit 4
Market Price - Blending Matrix**

Period	Hour Class						LLH Total
	HLH			LLH			
	COB	Mid Columbia	Palo Verde	COB	Mid Columbia	Palo Verde	
1/1/2009							
2/1/2009							
3/1/2009							
4/1/2009							
5/1/2009							
6/1/2009							
7/1/2009							
8/1/2009	33%	60%	7%	100%	4%	50%	100%
9/1/2009	7%	73%	20%	100%	3%	66%	100%
10/1/2009	0%	70%	30%	100%	6%	71%	100%
11/1/2009	2%	51%	47%	100%	9%	69%	100%
12/1/2009	2%	48%	50%	100%	36%	40%	100%
1/1/2010	8%	28%	64%	100%	8%	45%	100%
2/1/2010	2%	39%	59%	100%	2%	47%	100%
3/1/2010	6%	91%	3%	100%	2%	55%	100%
4/1/2010	4%	88%	8%	100%	27%	39%	100%
5/1/2010	7%	91%	2%	100%	34%	36%	100%
6/1/2010	9%	75%	16%	100%	44%	49%	100%
7/1/2010	12%	65%	23%	100%	8%	57%	100%
8/1/2010	20%	75%	5%	100%	4%	44%	100%
9/1/2010	0%	81%	19%	100%	3%	82%	100%
10/1/2010	4%	66%	30%	100%	11%	73%	100%
11/1/2010	1%	24%	75%	100%	20%	52%	100%
12/1/2010	1%	49%	50%	100%	29%	50%	100%
1/1/2011	48%	4%	48%	100%	50%	2%	100%
2/1/2011	47%	17%	36%	100%	49%	18%	100%
3/1/2011	22%	75%	3%	100%	43%	33%	100%
4/1/2011	18%	60%	22%	100%	34%	23%	100%
5/1/2011	13%	84%	3%	100%	25%	48%	100%
6/1/2011	13%	73%	14%	100%	26%	46%	100%
7/1/2011	40%	37%	23%	100%	27%	65%	100%
8/1/2011	44%	47%	9%	100%	31%	49%	100%
9/1/2011	12%	73%	15%	100%	12%	27%	100%
10/1/2011	12%	82%	6%	100%	2%	56%	100%
11/1/2011	4%	95%	1%	100%	12%	39%	100%
12/1/2011	6%	91%	3%	100%	1%	64%	100%

**Exhibit 4
Market Price - Blending Matrix**

Period	Hour Class									
	HLH					LLH				
	COB	Mid Columbia	Palo Verde	HLH Total	COB	Mid Columbia	Palo Verde	LLH Total		
1/1/2012	72%	7%	21%	100%	44%	10%	48%	100%		
2/1/2012	30%	44%	26%	100%	54%	23%	23%	100%		
3/1/2012	47%	49%	4%	100%	47%	23%	30%	100%		
4/1/2012	54%	0%	46%	100%	30%	48%	22%	100%		
5/1/2012	58%	6%	36%	100%	26%	33%	41%	100%		
6/1/2012	48%	0%	52%	100%	73%	17%	10%	100%		
7/1/2012	35%	24%	41%	100%	14%	49%	37%	100%		
8/1/2012	36%	33%	31%	100%	17%	34%	49%	100%		
9/1/2012	23%	67%	10%	100%	9%	53%	38%	100%		
10/1/2012	14%	82%	4%	100%	6%	57%	37%	100%		
11/1/2012	7%	92%	1%	100%	14%	70%	16%	100%		
12/1/2012	10%	89%	1%	100%	12%	73%	15%	100%		
1/1/2013	30%	62%	8%	100%	67%	17%	16%	100%		
2/1/2013	12%	60%	28%	100%	48%	36%	16%	100%		
3/1/2013	59%	34%	7%	100%	40%	37%	23%	100%		
4/1/2013	51%	0%	49%	100%	36%	47%	17%	100%		
5/1/2013	46%	4%	50%	100%	29%	27%	44%	100%		
6/1/2013	55%	0%	45%	100%	82%	4%	14%	100%		
7/1/2013	37%	17%	46%	100%	13%	42%	45%	100%		
8/1/2013	44%	18%	38%	100%	18%	39%	43%	100%		
9/1/2013	34%	53%	13%	100%	5%	63%	32%	100%		
10/1/2013	41%	42%	17%	100%	4%	87%	9%	100%		
11/1/2013	72%	27%	1%	100%	23%	65%	12%	100%		
12/1/2013	73%	26%	1%	100%	30%	61%	9%	100%		

Blended to be applied to any contract after 2014 - Average of the last two deficit years

Jan	50%	35%	15%	100%	55%	14%	31%	100%
Feb	21%	52%	27%	100%	50%	30%	20%	100%
Mar	52%	42%	6%	100%	43%	30%	27%	100%
Apr	52%	0%	48%	100%	32%	48%	20%	100%
May	52%	5%	43%	100%	27%	30%	43%	100%
Jun	51%	0%	49%	100%	77%	11%	12%	100%
Jul	35%	21%	44%	100%	13%	46%	41%	100%
Aug	39%	26%	35%	100%	17%	37%	46%	100%
Sep	28%	60%	12%	100%	7%	58%	35%	100%
Oct	27%	62%	11%	100%	5%	72%	23%	100%
Nov	39%	60%	1%	100%	18%	68%	14%	100%
Dec	41%	58%	1%	100%	21%	67%	12%	100%

Table 1
Loads and Resources
2009 through 2014

aMW	2009	2010	2011	2012	2013	2014
Net Load	6,619	6,716	6,871	7,022	7,174	7,329
Long Term Sales	294	236	210	182	181	181
Short Term Firm Sales	<u>1,427</u>	<u>358</u>	<u>60</u>	<u>14</u>	<u>-</u>	<u>-</u>
Total Requirements	8,340	7,311	7,142	7,218	7,355	7,511
Long Term Purchases	1,040	1,036	994	814	748	746
Short Term Firm Purchase	758	87	11	-	-	-
Thermal Generation	6,428	6,320	6,288	6,188	6,027	6,019
Other Generation	931	975	969	954	969	990
Reserves	<u>(229)</u>	<u>(228)</u>	<u>(329)</u>	<u>(385)</u>	<u>(347)</u>	<u>(402)</u>
Total Resources after Reserves	8,929	8,189	7,933	7,571	7,396	7,353
Surplus / (Deficit)	589	878	791	353	41	(158)
Percent Surplus / (Deficit)	7.1%	12.0%	11.1%	4.9%	0.6%	-2.1%
Peak (July)						
Net Load		9,651	9,898	10,182	10,332	10,508
Long Term Sales	N/A	432	397	361	310	310
Short Term Firm Sales		<u>225</u>	<u>25</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Requirements		10,309	10,320	10,543	10,641	10,818
Long Term Purchases		1,492	1,667	811	709	585
Short Term Firm Purchase		450	-	-	-	-
Thermal Generation		7,638	7,674	7,723	7,735	7,740
Other Generation		1,196	1,191	1,111	1,164	1,182
Reserves		<u>(617)</u>	<u>(950)</u>	<u>(975)</u>	<u>(974)</u>	<u>(1,120)</u>
Total Resources after Reserves		10,158	9,582	8,670	8,634	8,387
Surplus / (Deficit)		(150)	(738)	(1,873)	(2,007)	(2,430)
Percent Surplus / (Deficit)		-1.5%	-7.2%	-17.8%	-18.9%	-22.5%

Table 2
Avoided Costs (\$/MWh)
Energy Prices 2009 through 2013

Year	Winter Season					Summer Season				Winter Season		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

On-Peak (HLH Market Purchase)

2009								34.39	33.20	32.78	38.76	46.80
2010	48.28	46.01	40.63	40.75	34.63	35.74	55.04	61.18	57.82	52.90	50.78	54.63
2011	58.37	56.17	51.17	49.35	41.25	41.87	64.36	70.22	65.47	59.49	60.31	63.01
2012	61.09	58.72	53.35	57.02	52.41	54.77	69.31	73.49	68.42	61.81	62.68	65.54
2013	62.83	59.56	53.88	57.89	54.23	54.83	71.25	75.48	69.50	63.13	65.54	68.37

Off-Peak (LLH Market Purchase)

2009								25.42	25.98	27.38	32.21	41.50
2010	40.49	37.30	34.12	33.98	26.67	24.91	39.02	41.72	40.64	45.02	44.53	47.04
2011	48.19	46.77	42.74	39.63	31.36	29.40	44.40	47.20	44.72	47.20	48.96	50.06
2012	49.66	48.59	43.94	40.53	33.21	33.28	44.93	47.85	45.68	48.76	50.81	52.78
2013	52.35	49.80	44.84	41.29	34.05	34.80	45.21	48.40	46.04	50.82	51.57	53.93

Combined (57% On-Peak 43% Off-Peak)

2009								30.53	30.09	30.46	35.94	44.52
2010	44.93	42.26	37.83	37.84	31.21	31.08	48.15	52.81	50.44	49.51	48.09	51.36
2011	53.99	52.13	47.55	45.17	37.00	36.51	55.78	60.32	56.55	54.20	55.43	57.44
2012	56.18	54.36	49.31	49.93	44.15	45.53	58.82	62.46	58.64	56.20	57.58	60.05
2013	58.32	55.36	49.99	50.76	45.55	46.22	60.05	63.83	59.41	57.84	59.53	62.16

Annual Average

	On-Peak	Off-Peak	Combined
2009	\$37.19	\$30.50	\$34.31
2010	\$48.20	\$37.95	\$43.79
2011	\$56.75	\$43.39	\$51.01
2012	\$61.55	\$45.00	\$54.44
2013	\$63.04	\$46.09	\$55.75

Source Official Price Forecast - June 2009
Weighted Market Price based on Company incremental system balancing transactions
2009 is August through December

Table 3
Capitalized Energy Costs

Year	Combined Cycle CT Fixed Costs	Simple Cycle CT Fixed Costs	Capitalized Energy Costs	Capitalized Energy Costs 51.5% CF
	(\$/kW-yr)	(\$/kW-yr)	(\$/kW-yr)	(\$/MWh)
	(a)	(b)	(c) (a) - (b)	(d) (c)/(8.760 x 51.5%)
2014	\$131.59	\$83.73	\$47.86	\$10.61
2015	\$134.09	\$85.32	\$48.77	\$10.81
2016	\$136.65	\$86.95	\$49.70	\$11.02
2017	\$139.26	\$88.61	\$50.65	\$11.23
2018	\$141.91	\$90.30	\$51.61	\$11.44
2019	\$144.63	\$92.03	\$52.60	\$11.66
2020	\$147.39	\$93.79	\$53.60	\$11.88
2021	\$150.21	\$95.57	\$54.64	\$12.11
2022	\$153.07	\$97.40	\$55.67	\$12.34
2023	\$155.99	\$99.26	\$56.73	\$12.57
2024	\$158.97	\$101.16	\$57.81	\$12.81
2025	\$162.01	\$103.08	\$58.93	\$13.06
2026	\$165.10	\$105.05	\$60.05	\$13.31
2027	\$168.25	\$107.06	\$61.19	\$13.56
2028	\$171.46	\$109.10	\$62.36	\$13.82
2029	\$174.74	\$111.18	\$63.56	\$14.09
2030	\$178.07	\$113.31	\$64.76	\$14.35
2031	\$181.47	\$115.47	\$66.00	\$14.63
2032	\$184.94	\$117.67	\$67.27	\$14.91

Columns

- (a) Table 8 Column (f)
- (b) Table 8 Column (f)
- (d) 51.5% CCCT Energy Weighted Capacity Factor - Table 8 page 3

Table 4
Total Avoided Energy Cost

Year	Combined Cycle		Capitalized Energy Costs 51.5% CF	Total Avoided Energy Cost
	Gas Price	Energy Cost		
	(\$/MMBtu)	(\$/MWh)	(\$/MWh)	(\$/MWh)
	(a)	(b) (a) x 7.150	(c)	(d) (b) + (c)
2014	\$7.38	\$52.77	\$10.61	\$63.38
2015	\$7.38	\$52.77	\$10.81	\$63.58
2016	\$7.14	\$51.05	\$11.02	\$62.07
2017	\$7.07	\$50.55	\$11.23	\$61.78
2018	\$7.15	\$51.12	\$11.44	\$62.56
2019	\$7.50	\$53.63	\$11.66	\$65.29
2020	\$7.93	\$56.70	\$11.88	\$68.58
2021	\$8.44	\$60.35	\$12.11	\$72.46
2022	\$8.42	\$60.20	\$12.34	\$72.54
2023	\$8.50	\$60.78	\$12.57	\$73.35
2024	\$7.30	\$52.20	\$12.81	\$65.01
2025	\$7.66	\$54.77	\$13.06	\$67.83
2026	\$8.22	\$58.77	\$13.31	\$72.08
2027	\$8.33	\$59.56	\$13.56	\$73.12
2028	\$8.72	\$62.35	\$13.82	\$76.17
2029	\$9.02	\$64.49	\$14.09	\$78.58
2030	\$9.52	\$68.07	\$14.35	\$82.42
2031	\$9.71	\$69.43	\$14.63	\$84.06
2032	\$9.90	\$70.79	\$14.91	\$85.70

Columns

- (a) Table 9 Column (b)
- (b) 7.150 MWh/MMBtu Heat Rate - Table 8
- (c) Table 3 Column (d)

Table 5
Total Avoided Cost

Year	Avoided Firm Capacity Costs	Total Avoided Energy Cost	Total Avoided Costs At Stated Capacity Factor		
			75%	85%	90%
	(\$/kW-yr)	(\$/MWh)	(\$/MWh)	(\$/MWh)	(\$/MWh)
	(a)	(b)	(c)	(d)	(e)
			(b)+((a)/8.76 x 0.75)	(b)+((a)/8.76 x 0.85)	(b)+((a)/8.76 x 0.9)
2014	\$83.73	\$63.38	\$76.12	\$74.62	\$74.00
2015	\$85.32	\$63.58	\$76.57	\$75.04	\$74.40
2016	\$86.95	\$62.07	\$75.30	\$73.75	\$73.10
2017	\$88.61	\$61.78	\$75.27	\$73.68	\$73.02
2018	\$90.30	\$62.56	\$76.30	\$74.69	\$74.01
2019	\$92.03	\$65.29	\$79.30	\$77.65	\$76.96
2020	\$93.79	\$68.58	\$82.86	\$81.18	\$80.48
2021	\$95.57	\$72.46	\$87.01	\$85.30	\$84.58
2022	\$97.40	\$72.54	\$87.36	\$85.62	\$84.89
2023	\$99.26	\$73.35	\$88.46	\$86.68	\$85.94
2024	\$101.16	\$65.01	\$80.41	\$78.60	\$77.84
2025	\$103.08	\$67.83	\$83.52	\$81.67	\$80.90
2026	\$105.05	\$72.08	\$88.07	\$86.19	\$85.40
2027	\$107.06	\$73.12	\$89.42	\$87.50	\$86.70
2028	\$109.10	\$76.17	\$92.78	\$90.82	\$90.01
2029	\$111.18	\$78.58	\$95.50	\$93.51	\$92.68
2030	\$113.31	\$82.42	\$99.67	\$97.64	\$96.79
2031	\$115.47	\$84.06	\$101.64	\$99.57	\$98.71
2032	\$117.67	\$85.70	\$103.61	\$101.50	\$100.63

Columns

- (a) Table 3 Column (b)
- (b) Table 4 Column (d)

Table 6
On- & Off- Peak Energy Prices

Year	Avoided Firm Capacity Costs	Capacity Cost Allocated to On-Peak Hours	Total Avoided Energy Cost	On-Peak 4,993 Hours	Off-Peak 3,767 Hours
	(\$/kW-yr)	(\$/MWh)	(\$/MWh)	(\$/MWh)	(\$/MWh)
	(a)	(b)	(c)	(d)	(e)
		(a) / (8.76 x 90.4% x 57%)		(b) + (c)	(c)
2014	\$83.73	\$18.55	\$63.38	\$81.93	\$63.38
2015	\$85.32	\$18.90	\$63.58	\$82.48	\$63.58
2016	\$86.95	\$19.26	\$62.07	\$81.33	\$62.07
2017	\$88.61	\$19.63	\$61.78	\$81.41	\$61.78
2018	\$90.30	\$20.01	\$62.56	\$82.57	\$62.56
2019	\$92.03	\$20.39	\$65.29	\$85.68	\$65.29
2020	\$93.79	\$20.78	\$68.58	\$89.36	\$68.58
2021	\$95.57	\$21.17	\$72.46	\$93.63	\$72.46
2022	\$97.40	\$21.58	\$72.54	\$94.12	\$72.54
2023	\$99.26	\$21.99	\$73.35	\$95.34	\$73.35
2024	\$101.16	\$22.41	\$65.01	\$87.42	\$65.01
2025	\$103.08	\$22.84	\$67.83	\$90.67	\$67.83
2026	\$105.05	\$23.27	\$72.08	\$95.35	\$72.08
2027	\$107.06	\$23.72	\$73.12	\$96.84	\$73.12
2028	\$109.10	\$24.17	\$76.17	\$100.34	\$76.17
2029	\$111.18	\$24.63	\$78.58	\$103.21	\$78.58
2030	\$113.31	\$25.10	\$82.42	\$107.52	\$82.42
2031	\$115.47	\$25.58	\$84.06	\$109.64	\$84.06
2032	\$117.67	\$26.07	\$85.70	\$111.77	\$85.70

Columns

- (a) Table 3 Column (b)
- (b) Table 8 90.4% is the on-peak capacity factor of the Proxy Resource
- (c) Table 4 Column (d)
Table 8 - CCCT (Wet "F" 2x1) - West Side Options (1500')

Table 7
Comparison between Proposed and Current Avoided Costs

Year	Total Avoided Costs with Capacity Costs included at 85% Capacity Factor		
	Proposed Avoided Costs (1) (\$/MWh) (a)	Oregon Approved Avoided Costs (\$/MWh) (b)	Difference (\$/MWh) (c) (a) - (b)
2009	\$34.31	\$64.69	-\$30.38
2010	\$43.79	\$65.16	-\$21.37
2011	\$51.01	\$64.09	-\$13.08
2012	\$54.44	\$69.03	-\$14.59
2013	\$55.75	\$69.24	-\$13.49
2014	\$74.62	\$71.41	\$3.21
2015	\$75.04	\$74.24	\$0.80
2016	\$73.75	\$75.61	-\$1.86
2017	\$73.68	\$76.92	-\$3.24
2018	\$74.69	\$78.24	-\$3.55
2019	\$77.65	\$79.71	-\$2.06
2020	\$81.18	\$81.25	-\$0.07
2021	\$85.30	\$80.92	\$4.38
2022	\$85.62	\$80.87	\$4.75
2023	\$86.68	\$81.05	\$5.63
2024	\$78.60	\$80.66	-\$2.06
2025	\$81.67	\$80.50	\$1.17
2026	\$86.19	\$80.26	\$5.93
2027	\$87.50	\$80.77	\$6.73
2028	\$90.82	\$81.62	\$9.20
20 Year (2009 - 2028) levelized Price at 7.10% Discount Rate (2)			
\$/MWh	66.87	73.54	(6.67)

Columns

- (a) Table 2 Section 'Annual Average'
Table 5 Column (d)
- (b) Avoided Costs Approved by the Commission 8/13/2007

Note: (1) Avoided costs are presented at expected levels. Actual prices received by QFs will depend upon the pricing option selected.
(2) Discount Rate - Company Official Discount Rate - Dated June 2009

Table 8
Total Cost of Displaceable Resources

Year	Estimated Capital Cost \$/kW	Capital Cost at Real Levelized Rate \$/kW-yr	Fixed O&M \$/kW-yr	Variable O&M \$/MWh	Total O&M at Expected CF \$/kW-yr	Total Resource Fixed Costs \$/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)

SCCT Frame (2 Frame "F") - West Side Options (1500')

2008	\$679	\$58.53	\$3.90	\$7.77	\$18.19	\$76.72
2009		\$58.71	\$3.91	\$7.79	\$18.24	\$76.95
2010		\$59.36	\$3.95	\$7.88	\$18.45	\$77.81
2011		\$60.43	\$4.02	\$8.02	\$18.77	\$79.20
2012		\$61.52	\$4.09	\$8.16	\$19.10	\$80.62
2013		\$62.69	\$4.17	\$8.32	\$19.48	\$82.17
2014		\$63.88	\$4.25	\$8.48	\$19.85	\$83.73
2015		\$65.10	\$4.33	\$8.64	\$20.22	\$85.32
2016		\$66.34	\$4.41	\$8.80	\$20.61	\$86.95
2017		\$67.61	\$4.50	\$8.97	\$21.00	\$88.61
2018		\$68.90	\$4.58	\$9.14	\$21.40	\$90.30
2019		\$70.22	\$4.67	\$9.32	\$21.81	\$92.03
2020		\$71.56	\$4.76	\$9.50	\$22.23	\$93.79
2021		\$72.92	\$4.85	\$9.68	\$22.65	\$95.57
2022		\$74.31	\$4.94	\$9.86	\$23.09	\$97.40
2023		\$75.73	\$5.04	\$10.05	\$23.53	\$99.26
2024		\$77.18	\$5.13	\$10.24	\$23.98	\$101.16
2025		\$78.65	\$5.23	\$10.44	\$24.43	\$103.08
2026		\$80.15	\$5.33	\$10.64	\$24.90	\$105.05
2027		\$81.68	\$5.43	\$10.84	\$25.38	\$107.06
2028		\$83.24	\$5.54	\$11.05	\$25.86	\$109.10
2029		\$84.83	\$5.64	\$11.26	\$26.35	\$111.18
2030		\$86.45	\$5.75	\$11.47	\$26.86	\$113.31
2031		\$88.10	\$5.86	\$11.69	\$27.37	\$115.47
2032		\$89.78	\$5.97	\$11.92	\$27.89	\$117.67

Source: (a)(c)(d) Plant Costs 2008 IRP (Table 6.3 and 6.5)
 (b) = (a) x Payment Factor
 (e) = (d) x (8.76 x 21%) + (c)
 (f) = (b) + (e)

SCCT Frame (2 Frame "F") - West Side Options (1500')	
338	MW Plant capacity
\$ 679	Plant capacity cost - in \$/kW
\$ 3.90	Fixed O&M plus on-going capital cost
\$ 7.77	Variable O&M Costs in \$/MWh (includes Environmental Adders of \$3.70/MWh)
\$ 3.70	Environmental Adders (Primarily Carbon Tax)
8.62%	Payment Factor
21%	Capacity Factor

Table 8
Total Cost of Displaceable Resources

Year	Estimated Capital Cost \$/kW (a)	Capital Cost at Real Levelized Rate \$/kW-yr (b)	Fixed O&M \$/kW-yr (c)	Variable O&M \$/MWh (d)	Total O&M at Expected CF \$/kW-yr (e)	Total Resource Fixed Costs \$/kW-yr (f)	Fuel Cost \$/MMBtu (g)	IRP Resource Energy Cost \$/MWh (h)	Total Avoided Costs \$/MWh (i)
CCCT (Wet "F" 2x1) - West Side Options (1500')									
2008	\$1,068	\$91.74	\$6.94	\$4.86	\$28.87	\$120.61			
2009		\$92.02	\$6.96	\$4.87	\$28.93	\$120.95			
2010		\$93.03	\$7.04	\$4.92	\$29.24	\$122.27			
2011		\$94.70	\$7.17	\$5.01	\$29.77	\$124.47			
2012		\$96.40	\$7.30	\$5.10	\$30.31	\$126.71			
2013		\$98.23	\$7.44	\$5.20	\$30.90	\$129.13			
2014		\$100.10	\$7.58	\$5.30	\$31.49	\$131.59	\$7.38	\$52.77	\$81.94
2015		\$102.01	\$7.72	\$5.40	\$32.08	\$134.09	\$7.38	\$52.77	\$82.49
2016		\$103.96	\$7.87	\$5.50	\$32.69	\$136.65	\$7.14	\$51.05	\$81.34
2017		\$105.94	\$8.02	\$5.61	\$33.32	\$139.26	\$7.07	\$50.55	\$81.42
2018		\$107.96	\$8.17	\$5.72	\$33.95	\$141.91	\$7.15	\$51.12	\$82.58
2019		\$110.03	\$8.33	\$5.82	\$34.60	\$144.63	\$7.50	\$53.63	\$85.69
2020		\$112.13	\$8.49	\$5.94	\$35.26	\$147.39	\$7.93	\$56.70	\$89.37
2021		\$114.27	\$8.65	\$6.05	\$35.94	\$150.21	\$8.44	\$60.35	\$93.65
2022		\$116.45	\$8.81	\$6.16	\$36.62	\$153.07	\$8.42	\$60.20	\$94.13
2023		\$118.67	\$8.98	\$6.28	\$37.32	\$155.99	\$8.50	\$60.78	\$95.36
2024		\$120.94	\$9.15	\$6.40	\$38.03	\$158.97	\$7.30	\$52.20	\$87.44
2025		\$123.25	\$9.33	\$6.52	\$38.76	\$162.01	\$7.66	\$54.77	\$90.68
2026		\$125.60	\$9.51	\$6.65	\$39.50	\$165.10	\$8.22	\$58.77	\$95.37
2027		\$128.00	\$9.69	\$6.78	\$40.25	\$168.25	\$8.33	\$59.56	\$96.85
2028		\$130.44	\$9.87	\$6.90	\$41.02	\$171.46	\$8.72	\$62.35	\$100.36
2029		\$132.93	\$10.06	\$7.04	\$41.81	\$174.74	\$9.02	\$64.49	\$103.22
2030		\$135.47	\$10.25	\$7.17	\$42.60	\$178.07	\$9.52	\$68.07	\$107.54
2031		\$138.05	\$10.45	\$7.31	\$43.42	\$181.47	\$9.71	\$69.43	\$109.65
2032		\$140.69	\$10.65	\$7.45	\$44.25	\$184.94	\$9.90	\$70.79	\$111.78

Table 8
Total Cost of Displaceable Resources

Sources, Inputs and Assumptions

- Source: (a)(c)(d) Plant Costs 2008 IRP (Table 6.3 and 6.5)
 (b) = (a) x 0.0859
 (e) = (d) x (8.76 x 51.5%) + (c)
 (f) = (b) + (e)
 (g) Gas Price Forecast
 (h) = 7150 x (g) / 1000
 (i) = (f) / (8.76 x 'Capacity Factor') + (h)

CCCT (Wet "F" 2x1) - West Side Options (1500')

CCCT Statistics	MW	Percent	Cap Cost	Fixed
CCCT (Wet "F" 2x1)	557	88.8%	\$1,131	\$7.57
CCCT Duct Firing (Wet "F" 2x1)	70	11.2%	\$570	\$1.95
Capacity Weighted	627	100.0%	\$1,068	\$6.94

CCCT Statistics	MW	CF	aMW	Percent	Variable	Heat Rate
CCCT (Wet "F" 2x1)	557	56.0%	312	96.5%	\$4.92	7,098
CCCT Duct Firing (Wet "F" 2x1)	70	16.0%	11	3.5%	3.07	8,557
Energy Weighted	627	51.5%	323	100.0%	\$4.86	7,150

Rounded

CCCT Duct Firing Plant Costs 2008 IRP (Table 6.3 and 6.5)

CCCT	Duct Firing	Plant Costs 2008 IRP (Table 6.3 and 6.5)
557	70	MW Plant capacity
\$1,131	\$570	Plant capacity cost - Average of high and low capital costs in \$/kW
\$7.57	\$1.95	Fixed O&M plus on-going capital cost
4.92	3.07	Variable O&M Costs in \$/MWh includes Environmental Adders (See Below)
2.25	2.71	Environmental Adders (Primarily Carbon Tax) in \$/MWh
7,098	8,557	Heat Rate in btu/kWh
8.59%	8.59%	Payment Factor
56%	16%	Capacity Factor
	51.5%	Energy Weighted Capacity Factor
	90.4%	Capacity Factor - On-peak 51.5% / 57% (percent of hours on-peak)

Company Official Inflation Forecast - Dated June 2009

2009	0.30%
2010	1.10%
2011	1.80%
2012	1.80%
2013	1.90%
2014	1.90%
After 2014	1.91%

Table 9
Gas Price Forecast
\$/MMBtu

Year	Average Cost of Gas Average of Opal, Sumas and Stanfield Gas Indexes	Burnertip West Side Gas Fuel Cost
	(a)	(b)
2014	\$6.87	\$7.38
2015	\$6.89	\$7.38
2016	\$6.69	\$7.14
2017	\$6.63	\$7.07
2018	\$6.69	\$7.15
2019	\$7.02	\$7.50
2020	\$7.41	\$7.93
2021	\$7.84	\$8.44
2022	\$7.79	\$8.42
2023	\$7.87	\$8.50
2024	\$6.84	\$7.30
2025	\$7.18	\$7.66
2026	\$7.70	\$8.22
2027	\$7.77	\$8.33
2028	\$8.10	\$8.72
2029	\$8.37	\$9.02
2030	\$8.78	\$9.52
2031	\$8.95	\$9.71
2032	\$9.13	\$9.90

Source

Offical Market Price Forecast dated June 2009

Table 10
Example of Fuel Indexed Avoided Costs
\$/MWh

Banded Gas Market Index				Example using assumed Gas Prices						Compared to Fixed Prices	
Year	Prices Listed in the Tariff			Fuel Index			Price Paid to QF			Off-Peak Price (k)	On-Peak Price (l)
	On-Peak Capacity Adder (a)	Off-Peak Energy Adder (b)	Floor 90% (c)	Floor / Ceiling Component (g)	Type of Price (h)	Off-Peak Price (i)	On-Peak Price (j)	Off-Peak Price (i) + (g)	On-Peak Price (a) + (j)		
2014	\$18.55	\$14.26	\$44.21	\$3.00	Floor	\$58.47	\$77.02	\$63.38	\$81.93		
				\$5.00	Floor	\$58.47	\$77.02				
				\$7.00	Actual	\$64.31	\$82.86				
				\$9.00	Ceiling	\$68.29	\$86.84				
				\$12.00	Ceiling	\$68.29	\$86.84				

Gas Market Method				Example using assumed Gas Prices						Compared to Fixed Prices	
Year	Prices Listed in the Tariff			Fuel Index			Price Paid to QF			Off-Peak Price (k)	On-Peak Price (l)
	On-Peak Capacity Adder (a)	Off-Peak Energy Adder (b)	Floor 90% (c)	Floor / Ceiling Component (g)	Type of Price (h)	Off-Peak Price (i)	On-Peak Price (j)	Off-Peak Price (i) + (f)	On-Peak Price (a) + (j)		
2014	\$18.55	\$14.26	Not Relevant	\$3.00	Not Relevant	\$35.71	\$54.26	\$63.38	\$81.93		
				\$5.00	Not Relevant	\$50.01	\$68.56				
				\$7.00	Not Relevant	\$64.31	\$82.86				
				\$9.00	Not Relevant	\$78.61	\$97.16				
				\$12.00	Not Relevant	\$100.06	\$118.61				

Columns

- (a) Exhibit 3 Column (g)
- (b) Exhibit 3 Column (h)
- (c) Exhibit 3 Column (i)
- (d) Exhibit 3 Column (k)
- (f) 7.150 MWh/MMBtu Heat Rate - Table 8 - CCCT (Wet "F" 2x1) - West Side Options (1500')

Fixed Prices €/kWh

Deliveries During Calendar Year	On-Peak Energy Price	Off-Peak Energy Price
---------------------------------	----------------------	-----------------------

(a) (b)

2009	3.72	3.05
2010	4.82	3.80
2011	5.68	4.34
2012	6.16	4.50
2013	6.30	4.61
2014	8.19	6.34
2015	8.25	6.36
2016	8.13	6.21
2017	8.14	6.18
2018	8.26	6.26
2019	8.57	6.53
2020	8.94	6.86
2021	9.36	7.25
2022	9.41	7.25
2023	9.53	7.34
2024	8.74	6.50
2025	9.07	6.78
2026	9.54	7.21
2027	9.68	7.31
2028	10.03	7.62

Gas Market Indexed Prices €/kWh

Deliveries During Calendar Year	Fixed Prices		Gas Market Index		Forecast West Side Gas Index Price (2)		Estimated Prices (3)	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Capacity Adder (1)	Off-Peak Energy Adder	\$/MMBtu	Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)

$$\text{Avoided Firm Capacity Costs} / (0.876 \text{ Total Avoided Energy Costs} - ((e) * 0.715)) + (d)$$

$$* 90.4\% * 57\%$$

2009	3.72	3.05						
2010	4.82	3.80						
2011	5.68	4.34						
2012	6.16	4.50						
2013	6.30	4.61						
2014			1.86	1.43	\$6.87	8.19	6.34	6.34
2015			1.89	1.43	\$6.89	8.25	6.36	6.36
2016			1.93	1.42	\$6.69	8.13	6.21	6.21
2017			1.96	1.44	\$6.63	8.14	6.18	6.18
2018			2.00	1.47	\$6.69	8.26	6.26	6.26
2019			2.04	1.51	\$7.02	8.57	6.53	6.53
2020			2.08	1.56	\$7.41	8.94	6.86	6.86
2021			2.12	1.64	\$7.84	9.36	7.25	7.25
2022			2.16	1.68	\$7.79	9.41	7.25	7.25
2023			2.20	1.71	\$7.87	9.53	7.34	7.34
2024			2.24	1.61	\$6.84	8.74	6.50	6.50
2025			2.28	1.65	\$7.18	9.07	6.78	6.78
2026			2.33	1.70	\$7.70	9.54	7.21	7.21
2027			2.37	1.76	\$7.77	9.68	7.31	7.31
2028			2.42	1.83	\$8.10	10.03	7.62	7.62
2029			2.46	1.87	\$8.37	10.32	7.86	7.86
2030			2.51	1.96	\$8.78	10.75	8.24	8.24
2031			2.56	2.01	\$8.95	10.96	8.41	8.41
2032			2.61	2.04	\$9.13	11.18	8.57	8.57

(1) Avoided Firm Capacity Costs are equal to the fixed costs of a SCCT as identified in the Company's 2008 IRP.

(2) A heat rate factor of 0.715 is used to adjust gas prices from \$/MMBtu to €/kWh

(3) Estimated avoided cost prices based upon forecast West Side Gas Market Index prices.

Actual prices will be calculated each month using actual index gas prices

Banded Gas Market Indexed Prices ¢/kWh

Deliveries During Calendar Year	Fixed Prices		Banded Gas Market Index		Forecast		Estimated Prices (3)		
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Capacity Adder (1)	Off-Peak Energy Adder (d)	Gas Market Index Floor 90%	Gas Market Index Ceiling 110%	West Side Gas Index Price (2) \$/MMBtu	On-Peak Energy Price (h)	Off-Peak Energy Price (i)
2009	3.72	3.05							
2010	4.82	3.80							
2011	5.68	4.34							
2012	6.16	4.50							
2013	6.30	4.61							
2014			1.86	1.43	4.42	5.40	\$6.87	8.19	6.34
2015			1.89	1.43	4.43	5.42	\$6.89	8.25	6.36
2016			1.93	1.42	4.31	5.26	\$6.69	8.13	6.21
2017			1.96	1.44	4.27	5.21	\$6.63	8.14	6.18
2018			2.00	1.47	4.31	5.26	\$6.69	8.26	6.26
2019			2.04	1.51	4.52	5.52	\$7.02	8.57	6.53
2020			2.08	1.56	4.77	5.83	\$7.41	8.94	6.86
2021			2.12	1.64	5.05	6.17	\$7.84	9.36	7.25
2022			2.16	1.68	5.01	6.13	\$7.79	9.41	7.25
2023			2.20	1.71	5.06	6.19	\$7.87	9.53	7.34
2024			2.24	1.61	4.40	5.38	\$6.84	8.74	6.50
2025			2.28	1.65	4.62	5.65	\$7.18	9.07	6.78
2026			2.33	1.70	4.96	6.06	\$7.70	9.54	7.21
2027			2.37	1.76	5.00	6.11	\$7.77	9.68	7.31
2028			2.42	1.83	5.21	6.37	\$8.10	10.03	7.62
2029			2.46	1.87	5.39	6.58	\$8.37	10.32	7.86
2030			2.51	1.96	5.65	6.91	\$8.78	10.75	8.24
2031			2.56	2.01	5.76	7.04	\$8.95	10.96	8.41
2032			2.61	2.04	5.88	7.18	\$9.13	11.18	8.57

(a) (b) (c) (d) (e) (f) (g) (h) (i)

Avoided Firm Capacity Costs / (0.876 * 90.4% * 57%)

Total Avoided Energy Costs - ((g) * 0.715 * 90% + (g) * 0.715 * 110%)

MIN(MAX(((g) * 0.715), (e)), (f)) + (d)

Market Based Prices 2009 through 2013	
2009	3.72
2010	4.82
2011	5.68
2012	6.16
2013	6.30
2014	1.86
2015	1.89
2016	1.93
2017	1.96
2018	2.00
2019	2.04
2020	2.08
2021	2.12
2022	2.16
2023	2.20
2024	2.24
2025	2.28
2026	2.33
2027	2.37
2028	2.42
2029	2.46
2030	2.51
2031	2.56
2032	2.61

- (1) Avoided Firm Capacity Costs are equal to the fixed costs of a SCCT as identified in the Company's 2008 IRP.
- (2) A heat rate factor of 0.715 is used to adjust gas prices from \$/MMBtu to ¢/kWh
- (3) Estimated avoided cost prices based upon forecast West Side Gas Market Index prices. Actual prices will be calculated each month using actual index gas prices

Price in ¢/kWh to be Cut and Pasted directly into the Tariff

Example of Gas Pricing Options given Assumed Gas Prices ¢/kWh

Banded Gas Market Index												
Year	Prices Listed in the Tariff				Example using assumed Gas Prices						Compared to Fixed Prices	
	On-Peak Capacity Adder	Off-Peak Energy Adder	Gas Market Index		Assumed Gas Price \$/MMBtu	Actual Energy Price	Fuel Index		Price Paid to QF		Off-Peak Price	On-Peak Price
(a)	(b)	Floor 90%	Ceiling 110%	(c)			(d)	Floor / Ceiling Component	Type of Price	Off-Peak Price		
					(e)	(f)	(g)	(h)	(i)	(j)		
						(e) x 0.715			(b) + (g)	(a) + (i)		
2014	1.86	1.43	4.42	5.40	\$3.00	2.15	4.42	Floor	5.85	7.71	6.34	8.19
					\$5.00	3.58	4.42	Floor	5.85	7.71		
					\$7.00	5.01	5.01	Actual	6.44	8.30		
					\$9.00	6.44	5.40	Ceiling	6.83	8.69		
					\$12.00	8.58	5.40	Ceiling	6.83	8.69		

Gas Market Method												
Year	Prices Listed in the Tariff				Example using assumed Gas Prices						Compared to Fixed Prices	
	On-Peak Capacity Adder	Off-Peak Energy Adder	Fuel Index		Assumed Gas Price \$/MMBtu	Actual Energy Price	Fuel Index		Price Paid to QF		Off-Peak Price	On-Peak Price
(a)	(b)	Floor 90%	Ceiling 110%	(c)			(d)	Floor / Ceiling Component	Type of Price	Off-Peak Price		
					(e)	(f)	(g)	(h)	(i)	(j)		
						(e) x 0.715			(b) + (f)	(a) + (j)		
2014	1.86	1.43	Not Relevant		\$3.00	2.15			3.58	5.44	6.34	8.19
					\$5.00	3.58			5.01	6.87		
					\$7.00	5.01	Not Relevant		6.44	8.30		
					\$9.00	6.44			7.87	9.73		
					\$12.00	8.58			10.01	11.87		

Natural Gas (\$/MMBtu)
FORWARD PRICE CURVE SUMMARY

Quotes Dated: 6/30/2009

Sample of source data			
Month	Raw Index Cost	West Side Gas	Year
Jan-14	7.605	8.171	2014
Feb-14	7.603	8.166	2014
Mar-14	7.360	7.931	2014
Apr-14	6.355	6.782	2014
May-14	6.315	6.741	2014
Jun-14	6.395	6.824	2014
Jul-14	6.495	6.929	2014
Aug-14	6.565	7.002	2014
Sep-14	6.595	7.033	2014
Oct-14	6.514	7.122	2014
Nov-14	7.126	7.801	2014
Dec-14	7.535	8.098	2014
Jan-15	7.779	8.320	2015
Feb-15	7.777	8.315	2015
Mar-15	7.528	8.075	2015
Apr-15	6.495	6.931	2015
May-15	6.460	6.895	2015
Jun-15	6.540	6.978	2015
Jul-15	6.640	7.082	2015
Aug-15	6.375	6.809	2015
Sep-15	6.417	6.856	2015
Oct-15	6.446	6.973	2015
Nov-15	6.976	7.541	2015
Dec-15	7.217	7.735	2015
Jan-16	7.427	7.940	2016
Feb-16	7.449	7.961	2016
Mar-16	7.020	7.518	2016
Apr-16	6.443	6.864	2016
May-16	6.423	6.832	2016
Jun-16	6.445	6.879	2016
Jul-16	6.491	6.917	2016
Aug-16	6.187	6.619	2016
Sep-16	6.240	6.682	2016
Oct-16	6.377	6.823	2016
Nov-16	6.827	7.282	2016
Dec-16	6.897	7.371	2016

Year	Raw Gas Index Price	Burnertip Annual Average Price \$/MMBtu
2014	6.87	7.38
2015	6.89	7.38
2016	6.69	7.14
2017	6.63	7.07
2018	6.69	7.15
2019	7.02	7.50
2020	7.41	7.93
2021	7.84	8.44
2022	7.79	8.42
2023	7.87	8.50
2024	6.84	7.30
2025	7.18	7.66
2026	7.70	8.22
2027	7.77	8.33
2028	8.10	8.72
2029	8.37	9.02
2030	8.78	9.52
2031	8.95	9.71
2032	9.13	9.90

**System Balancing Weighted Average Market Prices
Source Market Prices and Final Weighted Price**

Start	HLH			LLH			Volume Weighted Average Market	
	COB	Mid C	PV	COB	Mid C	PV	HLH	LLH
Jan-09								
Feb-09								
Mar-09								
Apr-09								
May-09								
Jun-09								
Jul-09								
Aug-09	36.50	33.00	36.25	28.00	26.75	23.75	34.39	25.42
Sep-09	35.00	33.00	33.25	28.50	27.50	22.50	33.20	25.98
Oct-09	36.08	32.79	32.78	29.93	28.40	23.65	32.78	27.38
Nov-09	43.12	40.67	36.51	35.04	33.73	26.40	38.76	32.21
Dec-09	52.80	51.05	42.47	44.53	44.38	32.18	46.80	41.50
Jan-10	52.38	50.33	46.87	45.51	44.55	35.78	48.28	40.49
Feb-10	48.99	46.67	45.50	42.59	41.31	33.41	46.01	37.30
Mar-10	44.14	40.26	44.14	37.16	35.64	32.06	40.63	34.12
Apr-10	48.01	39.83	47.04	37.52	33.08	32.24	40.75	33.98
May-10	41.95	33.84	46.56	27.68	23.63	29.14	34.63	26.67
Jun-10	39.79	32.08	50.40	27.06	22.05	31.62	35.74	24.91
Jul-10	57.96	50.40	66.78	41.71	39.12	38.22	55.04	39.02
Aug-10	66.78	59.36	66.15	44.29	41.97	41.34	61.18	41.72
Sep-10	64.26	58.24	56.07	43.00	41.16	37.44	57.82	40.64
Oct-10	56.02	53.35	51.51	47.27	46.06	38.71	52.90	45.02
Nov-10	57.17	54.45	49.47	46.80	46.53	39.11	50.78	44.53
Dec-10	60.06	57.20	52.02	49.18	48.41	40.69	54.63	47.04
Jan-11	59.63	61.08	56.87	51.26	53.80	44.78	58.37	48.19
Feb-11	56.24	57.42	55.50	48.34	50.56	42.41	56.17	46.77
Mar-11	51.39	51.01	54.14	42.91	44.89	41.06	51.17	42.74
Apr-11	55.26	45.58	54.54	43.27	38.08	36.99	49.35	39.63
May-11	49.20	39.59	54.06	33.43	28.63	33.89	41.25	31.36
Jun-11	47.04	37.83	57.90	32.81	27.05	36.37	41.87	29.40
Jul-11	65.21	56.90	74.78	47.46	43.62	42.47	64.36	44.40

Calculation of Weighted Average Market Prices

System Balancing Purchases and Sales

Sum of Delta Period	Hour Class		Bubble		HLH		HLH Total	LLH		LLH Total
	COB	Palo Verde	Mid Columbia	Palo Verde	COB	Mid Columbia		Palo Verde		
									COB	
1/1/2009	-	-	-	-	-	-	-	-	-	-
2/1/2009	-	-	-	-	-	-	-	-	-	-
3/1/2009	-	-	-	-	-	-	-	-	-	-
4/1/2009	-	-	-	-	-	-	-	-	-	-
5/1/2009	-	-	-	-	-	-	-	-	-	-
6/1/2009	-	-	-	-	-	-	-	-	-	-
7/1/2009	-	-	-	-	-	-	-	-	-	-
8/1/2009	6,950	1,364	12,347	1,364	-	-	20,661	613	7,032	14,197
9/1/2009	1,117	2,919	10,732	2,919	-	-	14,768	250	6,588	9,909
10/1/2009	-	4,589	10,958	4,589	-	-	15,547	526	6,843	9,610
11/1/2009	350	8,745	9,556	8,745	-	-	18,651	1,301	9,733	14,209
12/1/2009	295	8,880	8,640	8,880	-	-	17,815	5,842	6,416	16,129
1/1/2010	1,241	9,711	4,205	9,711	-	-	15,157	936	5,411	12,005
2/1/2010	250	9,688	6,458	9,688	-	-	16,397	200	5,803	12,268
3/1/2010	543	205	7,140	205	-	-	7,888	188	6,730	12,172
4/1/2010	898	1,621	18,154	1,621	-	-	20,673	3,702	5,451	13,811
5/1/2010	1,344	320	17,315	320	-	-	18,979	4,432	4,658	12,795
6/1/2010	1,689	3,087	14,242	3,087	-	-	19,018	3,512	4,547	8,068
7/1/2010	2,398	4,492	12,881	4,492	-	-	19,771	770	5,546	9,651
8/1/2010	4,239	944	15,585	944	-	-	20,768	373	4,899	11,040
9/1/2010	-	3,120	13,071	3,120	-	-	16,191	234	7,570	9,188
10/1/2010	621	4,791	10,563	4,791	-	-	15,976	1,195	7,610	10,481
11/1/2010	271	13,746	4,421	13,746	-	-	18,438	2,179	5,412	10,495
12/1/2010	100	8,511	8,430	8,511	-	-	17,041	4,084	7,139	14,145
1/1/2011	9,385	9,242	744	9,242	-	-	19,371	5,596	266	11,317
2/1/2011	8,872	6,991	3,334	6,991	-	-	19,197	5,881	2,174	12,065
3/1/2011	4,023	4,77	13,864	4,77	-	-	18,364	4,849	2,577	11,203
4/1/2011	3,915	4,481	12,339	4,481	-	-	20,735	4,027	5,689	11,891
5/1/2011	2,448	603	16,348	603	-	-	19,400	2,646	4,863	10,604
6/1/2011	2,645	2,886	14,817	2,886	-	-	20,349	1,958	4,876	7,518
7/1/2011	7,478	4,350	6,916	4,350	-	-	18,745	3,567	6,357	12,984
8/1/2011	9,649	1,846	10,086	1,846	-	-	21,581	3,765	3,261	12,187
9/1/2011	2,393	2,846	14,332	2,846	-	-	19,571	1,037	5,236	9,269
10/1/2011	2,448	1,258	16,567	1,258	-	-	20,273	106	5,625	9,461
11/1/2011	803	223	18,974	223	-	-	20,000	1,061	5,846	9,124
12/1/2011	1,138	714	18,945	714	-	-	20,798	32	7,594	10,972

Calculation of Weighted Average Market Prices

Percent Breakdown of System Balancing Purchases and Sales

Sum of Delta Period	Hour Class			HLH			HLH Total			LLH			LLH Total
	COB	Mid Columbia	Palo Verde (1)	COB	Mid Columbia	Palo Verde (1)	COB	Mid Columbia	Palo Verde (1)	COB	Mid Columbia	Palo Verde (1)	
1/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7/1/2009	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8/1/2009	34%	60%	7%	34%	60%	7%	100%	4%	50%	46%	100%	46%	100%
9/1/2009	8%	73%	20%	8%	73%	20%	100%	3%	66%	31%	100%	31%	100%
10/1/2009	0%	70%	30%	0%	70%	30%	100%	5%	71%	23%	100%	23%	100%
11/1/2009	2%	51%	47%	2%	51%	47%	100%	9%	69%	22%	100%	22%	100%
12/1/2009	2%	48%	50%	2%	48%	50%	100%	36%	40%	24%	100%	24%	100%
1/1/2010	8%	28%	64%	8%	28%	64%	100%	8%	45%	47%	100%	47%	100%
2/1/2010	2%	39%	59%	2%	39%	59%	100%	2%	47%	51%	100%	51%	100%
3/1/2010	7%	91%	3%	7%	91%	3%	100%	2%	55%	43%	100%	43%	100%
4/1/2010	4%	88%	8%	4%	88%	8%	100%	27%	39%	34%	100%	34%	100%
5/1/2010	7%	91%	2%	7%	91%	2%	100%	35%	36%	30%	100%	30%	100%
6/1/2010	9%	75%	16%	9%	75%	16%	100%	44%	49%	7%	100%	7%	100%
7/1/2010	12%	65%	23%	12%	65%	23%	100%	8%	57%	35%	100%	35%	100%
8/1/2010	20%	75%	5%	20%	75%	5%	100%	3%	44%	52%	100%	52%	100%
9/1/2010	0%	81%	19%	0%	81%	19%	100%	3%	82%	15%	100%	15%	100%
10/1/2010	4%	66%	30%	4%	66%	30%	100%	11%	73%	16%	100%	16%	100%
11/1/2010	1%	24%	75%	1%	24%	75%	100%	21%	52%	28%	100%	28%	100%
12/1/2010	1%	49%	50%	1%	49%	50%	100%	29%	50%	21%	100%	21%	100%
1/1/2011	48%	4%	48%	48%	4%	48%	100%	49%	2%	48%	100%	48%	100%
2/1/2011	46%	17%	36%	46%	17%	36%	100%	49%	18%	33%	100%	33%	100%
3/1/2011	22%	75%	3%	22%	75%	3%	100%	43%	23%	34%	100%	34%	100%
4/1/2011	19%	60%	22%	19%	60%	22%	100%	34%	48%	18%	100%	18%	100%
5/1/2011	13%	84%	3%	13%	84%	3%	100%	25%	46%	29%	100%	29%	100%
6/1/2011	13%	73%	14%	13%	73%	14%	100%	26%	65%	9%	100%	9%	100%
7/1/2011	40%	37%	23%	40%	37%	23%	100%	27%	49%	24%	100%	24%	100%
8/1/2011	45%	47%	9%	45%	47%	9%	100%	31%	27%	42%	100%	42%	100%
9/1/2011	12%	73%	15%	12%	73%	15%	100%	11%	56%	32%	100%	32%	100%
10/1/2011	12%	82%	6%	12%	82%	6%	100%	1%	59%	39%	100%	39%	100%
11/1/2011	4%	95%	1%	4%	95%	1%	100%	12%	64%	24%	100%	24%	100%
12/1/2011	5%	91%	3%	5%	91%	3%	100%	0%	69%	30%	100%	30%	100%

**PACIFIC POWER
AVOIDED COST CALCULATION**

**STANDARD RATES FOR AVOIDED COST PURCHASES FROM
QUALIFYING FACILITIES OF 10,000 kW OR LESS, THAT
QUALIFY FOR SCHEDULE NO. 37**

OREGON – July 2009

PACIFIC POWER AVOIDED COST CALCULATION

STANDARD RATES FOR AVOIDED COST PURCHASES FROM QUALIFYING FACILITIES OF 10,000 kW OR LESS, THAT QUALIFY FOR SCHEDULE NO. 37

OREGON – July 2009

The starting point for the avoided cost calculation is the load and resource balance developed for the Company's 2008 Integrated Resource Plan (IRP). It should be noted that many of the input assumptions for the IRP were fixed in November 2008, in order to enable filing of the IRP in May 2009. Due to the age of the input assumptions, many of the inputs have been updated for known changes for purposes of this avoided cost calculation.

Loads and Resources (L&R)

The Company used the February 2009 load forecast which was included in the 2008 IRP as a sensitivity. Company owned wind resources and long-term sales and purchase contracts were updated to include information available as of May 2009. These changes include the addition or revision of several long-term purchase contracts¹.

Table 1 presents the Company's load and resource balance. Table 1 shows an energy surplus from 2009 through 2013 and then an energy deficit of 158 average megawatts (aMW) in 2014. This result is consistent with the timing of the Company's addition of a Combined Cycle Combustion Turbine (CCCT) as shown in Table 8.44 of the 2008 IRP. Summer peak capacity shows a deficit of 150 megawatts (MW) starting in 2010, growing to 2,430 MW in 2014.

Avoided Cost Calculation

Based on the load and resource balance shown in **Table 1**, the avoided cost calculation is separated into two distinct periods: (1) the Short Run – a period of resource sufficiency (2009 through 2013); and (2) the Long Run – a period of resource deficiency (2014 and beyond).

1. Short Run Avoided Costs

During the resource sufficiency period (2009 through 2013), avoided energy costs are based on market purchases. Market prices from the Company's Official Market Price Forecast are weighted by market transactions required to support the addition of an

¹ Additions and revisions to the long-term contracts portfolio include power purchase agreements with the Los Angeles Department of Water and Power (LADWP) and CoGen II QF. New company owned wind resources include McFadden Ridge and Three Buttes Wind.

assumed 50 MW Oregon Qualified Facility. To calculate the weighting, two production cost studies are prepared. The only difference between the two studies is an assumed 50 aMW, zero running cost resource. System balancing sales and purchases are extracted from both studies and a delta of the megawatt transactions is calculated. The delta by market hub is used to weight the Company's Official Market Price Forecast on-peak and off-peak market prices (COB, Palo Verde and Mid-Columbia) by month. **Table 2** shows the result of this calculation.

2. Long Run Avoided Costs

During the resource deficiency period (2014 and beyond) in which new resources are required to provide both summer and winter capacity and energy to meet the Company's resource requirements, avoided costs are the fixed and variable costs of a proxy resource that could be avoided or deferred. The current proxy resource is a combined cycle combustion turbine (CCCT)².

Since CCCTs are built as base load units that provide both capacity and energy, it is appropriate to split the fixed costs of this unit into capacity and energy components. The fixed cost of a simple cycle combustion turbine (SCCT), which is usually acquired as a capacity resource, defines the portion of the fixed cost of the CCCT that is assigned to capacity³. Fixed costs associated with the construction of a CCCT which are in excess of SCCT costs are assigned to energy and are added to the variable production (fuel) cost of the CCCT to determine the total avoided energy costs. **Table 3** shows the capitalized energy costs.

The fuel cost of the CCCT defines the avoided variable energy costs. The gas price forecast used as the basis for the CCCT fuel cost is discussed later in this document. **Table 4** shows the CCCT fuel cost, the addition of capitalized energy costs at an assumed 51.5% capacity factor and the total avoided energy costs.

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

Avoided energy costs can be differentiated between on-peak and off-peak periods. To make this calculation, the Company assumed that all capacity costs are incurred to meet on-peak load requirements. On an annual basis, approximately 57% of all hours are on-peak and 43% are off-peak. **Table 6** shows the calculation of on-peak and off-peak avoided energy prices.

² CCCT (Wet "F" 2x1) - West Side Options (1500') as listed in Tables 6.3 and 6.5 of the 2008 IRP. Fuel costs are from the Company's June 2009 (0609) Official Market Price Forecast.

³ SCCT Frame (2 Frame "F") - West Side Options (1500'), as listed in Tables 6.3 and 6.5 of the 2008 IRP.

For informational purposes, **Table 7** shows a comparison between the avoided costs currently in effect in Oregon and the proposed avoided costs in this filing.

Table 8 shows the calculation of the total fixed costs and fuel costs of the CCCT and SCCT that are used in **Table 3** and **Table 4**. In this filing, the Company's next deferrable resource is a CCCT located on the west side of the Company's system. Current Commission approved avoided costs are based upon a CCCT located on the west side of the Company's system.

Gas Price Forecast

Gas prices used in this filing utilize the Official Forward Gas Curve as presented in the Company's Official Market Price Forecast. **Table 9** shows the natural gas price used in this avoided cost calculation. Gas prices are the average of the Opal, Sumas and Stanfield gas indices. The use of an average of three indices is used to recognize that the CCCT is located on the west side of the Company's system rather than the east side.

The Official Forward Gas Curve consists of a blend of the June 30, 2009 market gas curve and long term gas prices.

	Market	Long Term
Through July 2015	100%	0%
August 2015 – July 2016	50%	50%
August 2016 and beyond	0%	100%

Example of Gas Pricing Options given Assumed Gas Prices.

Table 10 is provided to assist potential Qualified Facility developers to understand the gas pricing options. The example shows the impact on the avoided cost prices paid by the Company given assumed gas prices from \$3.00 to \$12.00/MMBtu.

Qualified Facility Pricing Options

With avoided cost prices calculated as discussed above, the Company has prepared the Qualified Facility pricing options consistent with the Commission's Order No. 05-584 and 07-360 in Docket UM-1129. The five options are Fixed Avoided Cost Prices, Gas Market Indexed Avoided Cost Prices, Banded Gas Indexed Avoided Cost Prices, Firm Market Indexed and Non-firm Market Indexed Avoided Cost. The first three pricing options are shown in **Appendix 1**, as **Exhibits 1 through 3**. Exhibit 4 is the monthly blending matrix used to blend market indexes for use with the Firm and Non-firm Market Indexed Avoided Cost prices.