



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

April 7, 2010

**Email / US Mail**

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

**RE: PGE 2009 Renewable Portfolio Implementation Plan**

On December 31, 2009, PGE filed its 2009 Renewable Portfolio Standard Implementation Plan (Plan) with supporting Work Papers. The Plan was filed pursuant to OAR 860-083-0400. Subsequently, on March 2, 2010, PGE filed a Revised 2009 Implementation Plan (with supporting Work Papers) due to errors found in its original filing on December 31, 2010.

On March 22, 2010, the Parties in UM 1466 conducted a Workshop to discuss the methodologies and details of the calculation of incremental costs for renewable resources. As a result of those discussions and agreements made at the Workshop, PGE is now filing a second Revised 2009 Implementation Plan.

OAR 860-083-0100 describes how to calculate the incremental cost of renewable resources. Those cumulative incremental costs are then compared to the 4% cap as allowed in ORS 469A.100. This report, in compliance with OPUC rules, provides information regarding our current and planned renewable resources for the years 2011 through 2015. As such, PGE provides the levelized annual cost-based difference between “qualifying electricity” and a like amount of non-qualifying electricity (in this instance, the cost of a CCCT). There is no material impact resulting from the amended filing. The incremental cost the PGE incurs to provide renewable resources continues to be substantially below the 4% cap as stated in ORS 469A.100.

This amended filing includes modifications to Tabs 1, 2, and 5 of Attachment A as well as changes to the costs of the proxy combined cycle combustion turbine models and the renewables resource models provided in Confidential Work Papers. Tabs 3 and 4 of Attachment A and Confidential Attachment B remain unchanged. A red-line version of the Amended 2009 Implementation Plan (dated March 2, 2010) is included for comparison with this current Amended Implementation Plan.

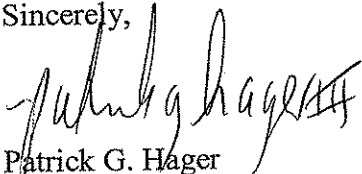
Included in this filing are the following Attachments:

- Attachment 1 – Amended Implementation Plan
- Attachment 2 – First Amended Implementation Plan with red-line edits
- Attachment 3 – Amended Implementation Plan Attachment A
- Attachment 4 – Implementation Plan Confidential Attachment B
- Attachment 5 – Amended Non-Confidential Work Papers
- Attachment 6 – Amended Confidential Work Papers

Confidential Attachments 4 and 6 are subject to Protective Order No. 10-049 and are provided under separate cover. Attachments 5 and 6 are Work Papers and are provided in CD format only.

If you have any questions or require further information, please call Rebecca Brown at (503) 464-8545. Please direct all formal correspondence and requests to the following email address [pge.opuc.filings@pgn.com](mailto:pge.opuc.filings@pgn.com)

Sincerely,



Patrick G. Hager  
Manager, Regulatory Affairs

PGH/jaw

Encl.

# **Attachment 1**

## **Amended Implementation Plan**

## Implementation Plan<sup>1</sup>

The renewable portfolio standard (RPS), ORS 469A.052, states that at least five percent of the electricity sold by a large utility to retail electricity consumers must come from qualifying resources in each of the calendar years 2011, 2012, 2013, and 2014. In 2015 the percentage that must come from qualifying resources increases to 15 percent.

ORS 469A.075 required electric companies subject to ORS 469A.052 to develop an implementation plan for meeting the requirements of the standard and file the plan with the Public Utility Commission. Pursuant to OAR 860-083-0400, the first implementation plan is due January 1, 2010. The Plan should include how PGE will meet compliance with ORS 469.100 for the Years 2011 through 2015.

The following information is provided pursuant to OAR 860-083-0400 – Implementation Plans:

**a) Annual MWh target for compliance with RPS.**

2011 – 1,051,200 MWh  
2012 – 1,071,648 MWh  
2013 – 1,077,480 MWh  
2014 – 1,095,000 MWh  
2015 – 3,302,520 MWh

**b) Accounting of the planned method for compliance in each year (including banked RECs by year of issuance, the number of bundled/unbundled RECs and ACP):**

See Attachment A, which is an Excel spreadsheet, Tab 3 - Annual Compliance by Resource and Tab 4 - Annual Compliance by Year for detail by year.

	<u>Banked</u>	<u>Bundled</u>	<u>Unbundled</u>	<u>ACP</u>
2011	1,051,200	951,200	100,000	0
2012	1,071,648	1,071,648	0	0
2013	1,077,480	1,077,480	0	0
2014	1,095,000	1,095,000	0	0
2015	3,302,520	3,302,520	0	0

**c) Identification of generating facilities (either owned or under contract) that are expected to provide RECs for compliance with RPS.**

**Name:** Biglow Canyon Wind Farm (Phases 1, 2, and 3)

**Source:** Wind

**Year:** Phase 1 – 2008; Phase 2 – 2010; Phase 3 – 2011 (first full year of operation for each phase)

**State:** Oregon

**Expected MWh output:** (125+150+175 MW); 1.4 million MWh output (1.4GWh)

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<sup>1</sup> Throughout this document the term ‘issued’ refers to generated RECs and the term ‘acquired’ refers to purchased RECs (unbundled or bundled).

**Name:** Pelton Round Butte  
**Source:** Hydroelectric (certified low impact)  
**Year:** 2007  
**State:** Oregon  
**Expected MWh output:** 50 MWa = 438,000 MWh

**Name:** North Fork (upgrade)  
**Source:** Hydroelectric  
**Year:** 2001  
**State:** Oregon  
**Expected MWh output:** .94 MWa = 8234 MWh

**Name:** Faraday (upgrade)  
**Source:** Hydroelectric  
**Year:** 2002  
**State:** Oregon  
**Expected MWh output:** 1.03 MWa = 9,023 MWh

**Name:** Klondike Wind Farm  
**Source:** Wind - PPA  
**Year:** 2005  
**State:** Oregon  
**Expected MWh output:** 26 MWa<sup>2</sup> = 231,519 MWh (187,716 MWh)

**Name:** Vansycle Ridge Wind Farm  
**Source:** Wind – PPA  
**Year:** 1997  
**State:** Oregon  
**Expected MWh output:** 8 MWa = 71,777 MWh

**Name:** SunWay 1  
**Source:** Solar  
**Year:** 2008  
**State:** Oregon  
**Expected MWh output:** 0.013 MWa = 112 MWh

**Name:** SunWay 2  
**Source:** Solar  
**Year:** 2009  
**State:** Oregon  
**Expected MWh output:** 0.13 MWa = 1,168 MWh

**Name:** IRP Project 1  
**Source:** Renewable  
**Year:** 2012

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<sup>2</sup> Currently of the 26 MWa generated, 5 MWa is allocated to PGE Rate Schedule 9, Stable Rate Pilot. Service under this schedule terminates December 31, 2011.

State: Oregon

Expected MWh output: 61 MWa = 534,360 MWh

**d) Forecast of expected incremental cost of compliance of new qualifying electricity for facilities or contracts planned for first operation in the compliance year.**

2011: We currently do not anticipate adding new renewables that would come on-line in 2011; however, since this is the first Implementation Plan we have provided the incremental cost for all resources identified in Section (c) above. With the exception of Biglow 1, 2, and 3, the incremental cost of all these resources is deemed zero pursuant to OAR 860-083-0100 (1)(i) because the resources qualify as “generating facilities or contracts that became operational before June 6, 2007 and for certified low-impact hydroelectric facilities under ORS 469A.125(5).” The 2011 estimated incremental cost of Biglow 1, 2, and 3 is shown on Attachment A, Tab 2 – Incremental Cost of RECs Generated. Tab 2 is the product of Attachment A, Tab 5 – Incremental Cost By Resource and Confidential Attachment B.

$$\text{Biglow 1: } 417,570 \times \$ (5.676) = \$ (2,370,127)$$

$$\text{Biglow 2: } 475,132 \times \$ (4.466) = \$ (2,121,940)$$

$$\text{Biglow 3: } 522,769 \times \$ 5.438 = \$ 2,842,818$$

2012: 61 MWa forecast to be on-line in 2012 (leap-year so 8784 hours in the year). See Attachment A, Tab 2– Incremental Cost of RECs Generated for estimated incremental cost (calculated the same as 2011).

$$\text{IRP Project 1: } 534,360 \times \$ 7.349 = \$ 3,927,012$$

SunWay 1 and 2 produce RECs used for compliance with RPS in the years 2012-2015. However, pursuant to OAR 860-083-0100(13)(a), the incremental cost of each project is not included in this Plan.

2013: 61 MWa forecast to be on-line in 2013.<sup>3</sup> See Attachment A, Tab 2– Incremental Cost of RECs Generated for estimated incremental cost (calculated the same as 2011).

$$\text{IRP Project 2: } 534,360 \times \$ 5.036 = \$ 2,691,037$$

2014: Zero; we currently do not anticipate adding new renewables that would come on-line in 2014

2015: Zero; we currently do not anticipate adding new renewables that would come on-line in 2015

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<sup>3</sup> PGE does not plan to use any output from the IRP Project 2 during the compliance years 2011 through 2015.

- e) **Forecast of expected incremental costs of compliance, cost of using unbundled RECs and ACP, compared to annual revenue requirements.**

PGE does not plan to use Alternative Compliance Payments in any of the compliance years 2011 through 2015. See Attachment A, Tab 1 - Incremental Cost Summary, for the incremental cost and the cost of unbundled RECs for RECs used to comply.

- f) **Forecast of the number and cost of bundled RECs issued.**

See Attachment A, Tab 2 - Incr Cost of RECs Generated. Bundled RECs are the RECs from each resource with incremental costs.

- g) **Must provide sufficient documentation to demonstrate how the IP appropriately balances risk and expected cost if there is a material difference between the IP and the IRP Action Plan filed November 5, 2009; or if conditions materially change – (Section 4 of IP rule OAR 860-083-0400)**

There are no material differences between the IP and the 2009 IRP Action Plan and conditions have not materially changed.

**Unless provided in a recently filed IRP, must provide (h) and (i):**

- h) **Forecast of (d), (e), and (f) above assuming government incentives continue; forecast assuming government incentives end.** (Section 4(a) of IP rule)

See Attachment A, Tab 5 - Incremental Cost by Resource. The Biglow Canyon resources are assumed to receive government incentives currently in place.

- i) **Range of estimates for forecasts of (d), (e), and (f) above.** (Section 4(b) of IP rule)

PGE uses the Base case, a high gas price and a low gas price for the range of estimates. See Attachment A, Tab 5 - Incremental Cost by Resource.

(Section 5 of IP rule)

**Must file sufficient documentation or citations to demonstrate how the Implementation Plan appropriately balances risks and expected costs as required by the IRP guidelines 1.b and c of Commission Order No. 07-047 if any of the following apply:**

- j) **If the sum of costs in Section (e) above expected to exceed four percent of more of the annual revenue requirement in any reported compliance year.**  
(Section 5(a) of IP rule)

The costs in Section (e) above are not expected to exceed four percent of the annual revenue requirement in any compliance year reported in the plan. See Attachment A, Tab 1 - Incremental Cost Summary.

- k) **If using any of the following: 1) unbundled RECs, 2) bundled RECs issued January 1 through March 31 for the previous compliance year, 3) ACP, or 4) plan to sell bundled RECs that are included in retail rates.**

(Section 5(b) of IP rule)

PGE plans to use unbundled RECs to meet RPS compliance targets if the market price for unbundled RECs warrants it. Pursuant to OAR 860-083-0300 (3)(b)(B), an electric utility company must use, in chronological order (from first issued to last issued) its banked RECs before using 1) RECs generated in the compliance year, and 2) RECs generated between Jan. 1 through March 31 of the year following the compliance year. Therefore, PGE must use its 100,000 banked unbundled RECs in the first compliance year, 2011.

Further, we do not currently forecast using unbundled RECs in years after 2011 (2012 through 2015) for the purposes of complying with RPS but we reserve the right to do so if the market prices for unbundled RECs in the future warrants it.

Using unbundled RECs may appropriately balance the risks and expected costs, depending upon the market prices for unbundled RECs. The ability to use unbundled RECs to meet the renewable portfolio standard is an integral part of the RPS legislation. It provides another source for acquiring RECs in a competitive environment in addition to constructing renewable resources, and/or purchasing output and associated environmental attributes through a power purchase agreement. More sources of REC supply reduces supply and price risk of RPS compliance. The competitive nature of a bi-lateral or multi-lateral market for RECs reduces the overall price risk associated with acquisition. PGE intends to continue monitoring active REC markets and may purchase and sell RECs in the market when price is perceived to be a good value in relation to other means of achieving RPS compliance.

- 1) Implementation Plan must provide a detailed explanation of how the Plan complies, or does not comply, with any conditions specified in a Commission acknowledgement order on the previous implementation and any relevant conditions specified in the most recent acknowledged order of an IRP.**

Not applicable. PGE does not have a recently acknowledged IRP order and there are no special conditions from the previous IRP (LC 43 – final PUC order 08-246) order related to renewable resource actions, which were considered reasonable.

## **Attachment 2**

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First Amended Implementation Plan with Red-Line Edits

## Implementation Plan<sup>1</sup>

The renewable portfolio standard (RPS), ORS 469A.052, states that at least five percent of the electricity sold by a large utility to retail electricity consumers must come from qualifying resources in each of the calendar years 2011, 2012, 2013, and 2014. In 2015 the percentage that must come from qualifying resources increases to 15 percent.

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$$\text{Biglow 3: } 522,769 \times \$5.438 = \$2,842,818$$

Deleted: 8.837

Deleted: 3,690,006

Deleted: 11.878

Deleted: 5,643,618

Deleted: (1.882)

Deleted: (983,851)

2012: 61 MWa forecast to be on-line in 2012 (leap-year so 8784 hours in the year). See Attachment A, Tab 2– Incremental Cost of RECs Generated for estimated incremental cost (calculated the same as 2011).

$$\text{IRP Project 1: } 534,360 \times \$7.349 = \$3,927,012$$

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Deleted: 535,824

Deleted: (0.200)

Deleted: (106,872)

2013: 61 MWa forecast to be on-line in 2013.<sup>3</sup> See Attachment A, Tab 2– Incremental Cost of RECs Generated for estimated incremental cost (calculated the same as 2011).

$$\text{IRP Project 2: } 534,360 \times \$5.036 = \$2,691,037$$

Deleted: (3.019)

Deleted: (1,613,233)

2014: Zero; we currently do not anticipate adding new renewables that would come on-line in 2014

2015: Zero; we currently do not anticipate adding new renewables that would come on-line in 2015

<sup>3</sup> PGE does not plan to use any output from the IRP Project 2 during the compliance years 2011 through 2015.

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See Attachment A, Tab 5 - Incremental Cost by Resource. The Biglow Canyon resources are assumed to receive government incentives currently in place.

- i) **Range of estimates for forecasts of (d), (e), and (f) above.** (Section 4(b) of IP rule)

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(Section 5 of IP rule)

**Must file sufficient documentation or citations to demonstrate how the Implementation Plan appropriately balances risks and expected costs as required by the IRP guidelines 1.b and c of Commission Order No. 07-047 if any of the following apply:**

- j) **If the sum of costs in Section (e) above expected to exceed four percent of more of the annual revenue requirement in any reported compliance year.**  
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Further, we do not currently forecast using unbundled RECs in years after 2011 (2012 through 2015) for the purposes of complying with RPS but we reserve the right to do so if the market prices for unbundled RECs in the future warrants it.

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Not applicable. PGE does not have a recently acknowledged IRP order and there are no special conditions from the previous IRP (LC 43 – final PUC order 08-246) order related to renewable resource actions, which were considered reasonable.

## **Attachment 3**

Amended Implementation Plan Attachment A

## Incremental Cost Summary

Base Case	Total Incremental Cost to Comply				
	2011	2012	2013	2014	2015
Unbundled RECS	90,000				
Biglow 1	(1,004,195)	(1,831,509)	(1,693,144)	(1,253,030)	(4,147,271)
Biglow 2	-	(132,649)	(479,840)	(925,600)	(3,526,033)
Biglow 3	-	-	-	304,579	3,751,012
IRP Project 1	-	-	-	-	557,273
<b>Total Incremental Cost</b>	<b>(1,363,740)</b>	<b>(2,932,449)</b>	<b>(3,467,711)</b>	<b>(3,758,107)</b>	<b>(13,132,790)</b>
Revenue Requirement (\$000)	1,664,093	1,690,569	1,717,028	1,750,711	1,785,725
<b>Percentage of Rev Requirement</b>	<b>-0.08%</b>	<b>-0.17%</b>	<b>-0.20%</b>	<b>-0.21%</b>	<b>-0.74%</b>

Low Case	2011	2012	2013	2014	2015
Unbundled RECS	90,000				
Biglow 1	1,684,338	3,071,993	2,839,914	2,101,709	6,956,225
Biglow 2	-	418,085	1,512,367	2,917,319	11,113,398
Biglow 3	-	-	-	1,458,370	17,960,438
IRP Project 1	-	-	-	-	2,326,383
<b>Total Incremental Cost</b>	<b>1,513,472</b>	<b>2,931,942</b>	<b>3,614,543</b>	<b>5,425,739</b>	<b>33,012,359</b>
Revenue Requirement (\$000)	1,664,093	1,690,569	1,717,028	1,750,711	1,785,725
<b>Percentage of Rev Requirement</b>	<b>0.09%</b>	<b>0.17%</b>	<b>0.21%</b>	<b>0.31%</b>	<b>1.85%</b>

High Case	2011	2012	2013	2014	2015
Unbundled RECS	90,000				
Biglow 1	(5,461,517)	(9,961,032)	(9,208,509)	(6,814,858)	(22,555,773)
Biglow 2	-	(1,091,428)	(3,948,099)	(7,615,786)	(29,012,001)
Biglow 3	-	-	-	(1,666,444)	(20,522,963)
IRP Project 1	-	-	-	-	(2,460,905)
<b>Total Incremental Cost</b>	<b>(6,846,326)</b>	<b>(14,098,401)</b>	<b>(16,931,387)</b>	<b>(21,170,996)</b>	<b>(100,442,514)</b>
Revenue Requirement (\$000)	1,664,093	1,690,569	1,717,028	1,750,711	1,785,725
<b>Percentage of Rev Requirement</b>	<b>-0.41%</b>	<b>-0.83%</b>	<b>-0.99%</b>	<b>-1.21%</b>	<b>-5.62%</b>

### Notes:

Although the SunWay project produce RECs that PGE uses for compliance, until the sum of these projects is 20 MW, they are not included in the incremental cost calculation (pursuant to OAR 860-0830100(13)(a))

The following hydroelectric resources are deemed to be zero incremental cost:

- North Fork Upgrade
- Faraday Upgrade
- Round Butte Upgrade
- Pelton-Round Butte Low-Impact Hydro
- PPM Klondike II
- Vansycle Ridge

## Incremental Cost for RECs Generated

<b>Base Case</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Biglow 1	(2,407,732)	(2,414,328)	(2,407,732)	(2,407,732)	(2,407,732)
Biglow 2	(2,047,067)	(2,052,675)	(2,047,067)	(2,047,067)	(2,047,067)
Biglow 3	2,914,424	2,922,409	2,914,425	2,914,425	2,914,424
IRP Project 1		3,937,771	3,927,012	3,927,012	3,927,012
<b>Total Incremental Cost</b>	<b>(1,540,374)</b>	<b>2,393,176</b>	<b>2,386,638</b>	<b>2,386,638</b>	<b>2,386,637</b>

<b>Low Case</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Biglow 1	4,038,493	4,038,493	4,049,557	4,038,493	4,038,493
Biglow 2	6,451,974	6,469,651	6,451,974	6,451,974	6,451,974
Biglow 3	13,954,722	13,992,955	13,954,728	13,954,728	13,954,722
IRP Project 1		16,438,544	16,393,630	16,393,630	16,393,630
<b>Total Incremental Cost</b>	<b>24,445,189</b>	<b>40,939,643</b>	<b>40,849,889</b>	<b>40,838,825</b>	<b>40,838,820</b>

<b>High Case</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Biglow 1	(13,094,938)	(13,094,938)	(13,130,814)	(13,094,938)	(13,094,938)
Biglow 2	(14,376,681)	(14,416,069)	(14,376,681)	(14,376,681)	(14,376,681)
Biglow 3	(15,945,728)	(15,989,415)	(15,945,734)	(15,945,734)	(15,945,728)
IRP Project 1	-	(17,389,096)	(17,341,585)	(17,341,585)	(17,341,585)
<b>Total Incremental Cost</b>	<b>(43,417,346)</b>	<b>(60,889,518)</b>	<b>(60,794,814)</b>	<b>(60,758,937)</b>	<b>(60,758,931)</b>

\* The following hydroelectric resources are deemed to be zero incremental cost:

- North Fork Upgrade
- Faraday Upgrade
- Round Butte Upgrade
- Pelton-Round Butte Low-Impact Hydro
- PPM Klondike II
- Vansycle Ridge

## Annual Compliance by Resource

Facility	Number of RECs Used for Compliance				
	2011 MWh	2012 MWh	2013 MWh	2014 MWh	2015 MWh
Unbundled RECs	100,000	-	-	-	-
Biglow 1	174,128	317,584	293,592	217,276	719,138
Biglow 2	-	29,702	107,443	207,255	789,528
Biglow 3	-	-	-	56,009	689,778
North Fork Upgrade	11,387	6,705	5,791	4,285	14,184
Faraday Upgrade	12,477	7,347	6,345	4,696	15,542
Round Butte Upgrade	83,585	49,219	42,505	31,456	104,114
Pelton-Round Butte Low-Impact Hydro	438,000	439,200	438,000	438,000	438,000
PPM Klondike II	166,633	159,009	132,004	97,691	329,552
Vansycle Ridge	64,991	62,514	50,474	37,354	123,635
Sunway 1	-	26	95	70	229
Sunway 2	-	341	1,232	908	2,990
IRP Project 1	-	-	-	-	75,830
<b>TOTAL</b>	<b>1,051,200</b>	<b>1,071,648</b>	<b>1,077,480</b>	<b>1,095,000</b>	<b>3,302,520</b>

### Annual Compliance by Year

Compliance by Resource and Year

Year	RECs used for Compliance									
	2011		2012		2013		2014		2015	
Facility	MWh	Vintage	MWh	Vintage	MWh	Vintage	MWh	Vintage	MWh	Vintage
Unbundled RECs	100,000	2008	-	-	-	-	-	-	-	-
Biglow 1	28,115	2007	236,423	2008	293,592	2009	42,748	2009	242,390	2010
Biglow 2	-	2007	-	2008	107,443	2009	15,644	2009	266,115	2010
Biglow 3	-	2007	-	2008	-	2009	-	2009	77,788	2010
North Fork Upgrade	8,234	2007	5,104	2008	5,791	2009	843	2009	4,781	2010
Faraday Upgrade	9,023	2007	5,593	2008	6,345	2009	924	2009	5,238	2010
Round Butte Upgrade	60,444	2007	37,469	2008	42,505	2009	6,189	2009	35,092	2010
Pelton-Round Butte Low-Impact Hydro	438,000	2007	439,200	2008	438,000	2009	-	2009	-	2010
PPM Klondike II	90,967	2007	122,517	2008	132,004	2009	19,220	2009	108,983	2010
Vansycle Ridge	35,000	2007	48,561	2008	50,474	2009	7,349	2009	41,672	2010
Sunway 1	-	2007	-	2008	95	2009	14	2009	78	2010
Sunway 2	-	2007	-	2008	1,232	2009	179	2009	1,012	2010
IRP Project 1	-	2007	-	2008	-	2009	-	2009	-	2010
IRP Project 2	-	2007	-	2008	-	2009	-	2009	-	2010
Biglow 1	146,013	2008	81,162	2009	-	2010	174,528	2010	417,502	2011
Biglow 2	-	2008	29,702	2009	-	2010	191,611	2010	458,367	2011
Biglow 3	-	2008	-	2009	-	2010	56,009	2010	535,937	2011
North Fork Upgrade	3,152	2008	1,601	2009	-	2010	3,442	2010	8,234	2011
Faraday Upgrade	3,454	2008	1,754	2009	-	2010	3,772	2010	9,023	2011
Round Butte Upgrade	23,141	2008	11,750	2009	-	2010	25,267	2010	60,444	2011
Pelton-Round Butte Low-Impact Hydro	-	2008	-	2009	-	2010	438,000	2010	438,000	2011
PPM Klondike II	75,666	2008	36,492	2009	-	2010	78,471	2010	187,716	2011
Vansycle Ridge	29,991	2008	13,953	2009	-	2010	30,005	2010	71,777	2011
Sunway 1	-	2008	26	2009	-	2010	56	2010	133	2011
Sunway 2	-	2008	341	2009	-	2010	729	2010	1,734	2011
IRP Project 1	-	2008	-	2009	-	2010	-	2010	-	2011
IRP Project 2	-	2008	-	2009	-	2010	-	2010	-	2011
Biglow 1									59,247	2012
Biglow 2									65,046	2012
Biglow 3									76,054	2012
North Fork Upgrade									1,169	2012
Faraday Upgrade									1,280	2012
Round Butte Upgrade									8,577	2012
Pelton-Round Butte Low-Impact Hydro									0	2012
PPM Klondike II									32,854	2012
Vansycle Ridge									10,186	2012
Sunway 1									19	2012
Sunway 2									244	2012
IRP Project 1									75,830	2012
IRP Project 2									-	2012

## Incremental Cost by Resource

		Expected Incremental Cost of Qualifying Electricity					
		\$/MWh			\$000's		
Base Case	Low Case	High Case	Busbar Energy (MWh)	Base Case	Low Case	High Case	
<b>With Government Incentives:</b>							
Biglow 1	(5.767)	9.673	(31.365)	417,570	(2,408)	4,039	(13,097)
Biglow 2	(4.466)	14.076	(36.746)	475,132	(2,122)	6,688	(17,459)
Biglow 3	5.438	26.038	(29.753)	522,769	2,843	13,612	(15,554)
<b>First Year of operation - 2012</b>							
IRP Project 1	7.349	30.679	(32.453)	534,360	3,069	12,811	(13,551)
<b>First Year of operation - 2013</b>							
IRP Project 2	5.036	30.273	(37.761)	534,360	2,103	12,641	(15,768)
<b>Without Government Incentives:</b>							
<b>First Year of operation - 2012</b>							
IRP Project 1	8.775	32.105	(31.027)	534,360	3,664	13,406	(12,956)
<b>First Year of operation - 2013</b>							
IRP Project 2	31.055	596.293	(11.741)	534,360	12,968	248,994	(4,903)

**Attachment 4**

**Confidential and Subject to Protective Order No. 10-049**

**Implementation Plan Confidential Attachment B**

**Attachment 5**

**Provided Electronically (CD) Only**

Amended Non-Confidential Work Papers

**Attachment 6**

**Confidential and Subject to Protective Order No. 10-049**

**Provided Electronically (CD) Only**

Amended Confidential Work Papers