PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
Portland, Oregon 97232

November 25, 2015

*VIA ELECTRONIC FILING*

Steven V. King
Executive Director and Secretary
Washington Utilities and Transportation Commission
1300 S. Evergreen Park Drive SW
PO Box 47250
Olympia, WA 98504 – 7250

**RE: Compliance Filing—Order 04 in Docket UE-144160—Schedule 37—Avoided Cost Purchases from Cogeneration and Small Power Purchases**

In accordance with RCW 80.28.050, 80.28.060, WAC 480-107-095, and Order 04 in Docket UE-144160, Pacific Power & Light Company (Pacific Power or Company), a division of PacifiCorp, submits for filing a copy of proposed tariffs applicable to Pacific Power's electric service in the state of Washington. The Company respectfully requests an effective date of November 29, 2015.

| | | |
|---|---|---|
| Fourth Revision of Sheet No. 37.2 | Schedule 37 | Avoided Cost Purchases from Cogeneration and Small Power Production |

In compliance with Order 04 in Docket UE-144160, this filing updates the Company's estimated avoided cost prices and Schedule 37 based on the costs that the Company would expect to pay "but for" the Qualifying Facility resource, including separate avoided cost rates for energy and capacity consistent with the terms and requirements of the order.

The following attachments are included with this filing:

Attachment A: Summary of the Company's avoided cost calculation methodology
Attachment B: Summary Page of Tariffs
Attachment C: Proposed Tariff Schedule 37

Please direct any informal inquiries regarding this filing to Natasha Siores, Director, Regulatory Affairs & Revenue Requirement, at (503) 813-6583.

Sincerely,

R Bryce Dalley /nes

R. Bryce Dalley
Vice President, Regulation

Enclosures

# ATTACHMENT A

**PACIFIC POWER & LIGHT COMPANY**
**AVOIDED COST CALCULATION**

**WASHINGTON - NOVEMBER 2015**

Washington Utilities and Transportation Commission rule WAC 480-107-055, related to schedules of estimated avoided costs, states that avoided costs should be based on:

(a) The most recent project proposals received pursuant to an RFP issued under these rules;
(b) Estimates included in utility's current integrated resource plan filed pursuant to WAC 480-100-23;
(c) The results of the utilities most recent bidding process;
(d) Current projected market prices for power.

The starting point for the avoided cost calculation in this filing is the load and resource balance from the Company's 2013 Integrated Resource Plan (IRP) Update, filed on March 31, 2014. The avoided cost prices are then developed consistent with the west control area allocation methodology adopted by the Washington Utilities and Transportation Commission in Docket No. UE-061546.

## Loads and Resources

**Table 1** presents the Company's west control area loads and resource balance. Table 1 shows an energy balance with a surplus of 345 aMW in 2015 declining to a deficit of 111 aMW in 2024. The winter peak has a capacity deficit of 124 MW in 2015 increasing to a deficit of 858 MW in 2024. The summer peak has a capacity deficit of 191 MW in 2015 increasing to 732 in 2024.

## Avoided Cost Calculation

Resource deficiency period is assumed to begin when the load and resource balance is short in both energy and capacity on annual basis. 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 (2015 through 2020); and (2) the Long Run – a period of resource deficiency (2021-2024).

## 1. Short Run Avoided Costs

During periods of resource sufficiency, the company's avoided energy costs are based on the displacement of purchased power and existing thermal resources as modeled by the company's GRID model. The model input data includes the monthly load and resource data, which are the basis for the annual summary of loads and resources shown in **Table 1**. To calculate short-run avoided costs, two production cost studies are prepared, where the only difference between the two studies is an assumed 50 aMW resource modeled at zero cost. The outputs of the production cost model run are provided as **Table 2**.

Winter capacity costs in this period are based on a three-month capacity purchase using the cost of a simple cycle combustion turbine (SCCT). The annual value as shown in **Table 3** is one-fourth of the capacity cost of a simple cycle combustion turbine.

## 2. Long Run Avoided Costs

During the resource deficiency period, avoided costs are the fixed and variable costs of a combined cycle combustion turbine (CCCT).[1]

Long Run Avoided Costs use the peak credit method to separate the non-fuel costs of the proxy CCCT into capacity and energy components. Under the method, non-fuel costs associated with the construction of a CCCT that exceed the cost of a SCCT are designated as capitalized energy and added to the variable production (fuel) cost of the CCCT in the total avoided energy costs. **Table 3** shows the capitalized energy costs.

The fuel cost of the CCCT defines the avoided variable energy costs. **Table 4** shows the CCCT fuel cost and the total avoided energy costs.

Because energy generated by a qualifying facility may vary, avoided costs at 75%, 85% and 95% capacity factors are prepared to illustrate the impact of differing generation levels. These calculations are shown in **Table 5**.

Avoided energy costs are differentiated between on-peak and off-peak periods. To make this calculation, the Company applies all capacity costs to meet on-peak prices. 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.

For informational purposes, **Table 7** shows a comparison between the avoided costs currently in effect in Washington 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**.

### Gas Price Forecast

The electricity and natural gas prices used in this filing are from the Company's Official Forward Price Curve dated September 30, 2014. Both the electricity and natural gas prices are inputs to the Company's GRID model in the calculation of the proposed short-run avoided energy costs in this filing. Natural gas prices are also used to calculate the fuel costs of the CCCT proxy resource for the Long Run avoided costs, as shown in **Table 9**.

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[1] CCCT (Dry "J" Adv 1x1) - West Side Options (1500') as modeled for the 2013 IRP Update. Fuel costs are from the Company's September 2014 Official Forward Price Curve.

**Table 1**
**Loads and Resources**
**2015 through 2024**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| **aMW** | | | | | | | | | | |
| Net Load | 2,306 | 2,302 | 2,308 | 2,310 | 2,316 | 2,313 | 2,313 | 2,317 | 2,324 | 2,330 |
| Long Term Sales | 180 | 179 | 180 | 180 | 180 | 179 | 180 | 180 | 180 | 179 |
| Short Term Firm Sales | - | - | - | - | - | - | - | - | - | - |
| Total Requirements | 2,486 | 2,481 | 2,488 | 2,490 | 2,495 | 2,493 | 2,493 | 2,497 | 2,504 | 2,510 |
| | | | | | | | | | | |
| Long Term Purchases | 290 | 166 | 61 | 53 | 24 | 25 | 24 | 16 | 22 | 10 |
| Short Term Firm Purchase | 41 | - | - | - | - | - | - | - | - | - |
| Thermal Generation | 2,022 | 2,020 | 2,017 | 2,017 | 2,017 | 2,018 | 2,017 | 2,014 | 2,012 | 2,012 |
| Other Generation | 551 | 551 | 549 | 550 | 551 | 551 | 479 | 479 | 478 | 479 |
| Reserves | (73) | (79) | (80) | (83) | (87) | (88) | (101) | (103) | (104) | (103) |
| Total Resources after Reserves | 2,831 | 2,658 | 2,548 | 2,538 | 2,506 | 2,505 | 2,419 | 2,406 | 2,407 | 2,399 |
| | | | | | | | | | | |
| Surplus / (Deficit) | 345 | 176 | 60 | 48 | 10 | 13 | (73) | (91) | (97) | (111) |
| Percent Surplus / (Deficit) | 13.9% | 7.1% | 2.4% | 1.9% | 0.4% | 0.5% | -2.9% | -3.6% | -3.9% | -4.4% |
| | | | | | | | | | | |
| **Peak (July)** | | | | | | | | | | |
| Net Load | 3,343 | 3,347 | 3,353 | 3,360 | 3,363 | 3,365 | 3,369 | 3,376 | 3,385 | 3,394 |
| Long Term Sales | - | - | - | - | - | - | - | - | - | - |
| Short Term Firm Sales | - | - | - | - | - | - | - | - | - | - |
| Total Requirements | 3,343 | 3,347 | 3,353 | 3,360 | 3,363 | 3,365 | 3,369 | 3,376 | 3,385 | 3,394 |
| | | | | | | | | | | |
| Long Term Purchases | 321 | 51 | 59 | 55 | 10 | 13 | 10 | 18 | 19 | 10 |
| Short Term Firm Purchase | - | - | - | - | - | - | - | - | - | - |
| Thermal Generation | 2,034 | 2,032 | 2,029 | 2,029 | 2,029 | 2,029 | 2,029 | 2,027 | 2,024 | 2,024 |
| Other Generation | 979 | 962 | 979 | 973 | 971 | 969 | 798 | 792 | 810 | 801 |
| Reserves | (183) | (181) | (168) | (168) | (168) | (164) | (162) | (172) | (172) | (173) |
| Total Resources after Reserves | 3,151 | 2,864 | 2,899 | 2,890 | 2,843 | 2,848 | 2,675 | 2,665 | 2,681 | 2,662 |
| | | | | | | | | | | |
| Surplus / (Deficit) | (192) | (482) | (454) | (470) | (520) | (517) | (694) | (711) | (705) | (732) |
| Percent Surplus / (Deficit) | -5.7% | -14.4% | -13.6% | -14.0% | -15.5% | -15.4% | -20.6% | -21.1% | -20.8% | -21.6% |
| | | | | | | | | | | |
| **Peak (January)** | | | | | | | | | | |
| Net Load | 3,662 | 3,651 | 3,655 | 3,660 | 3,667 | 3,667 | 3,669 | 3,676 | 3,686 | 3,697 |
| Long Term Sales | - | - | - | - | - | - | - | - | - | - |
| Short Term Firm Sales | - | - | - | - | - | - | - | - | - | - |
| Total Requirements | 3,662 | 3,651 | 3,655 | 3,660 | 3,667 | 3,667 | 3,669 | 3,676 | 3,686 | 3,697 |
| | | | | | | | | | | |
| Long Term Purchases | 355 | 315 | 76 | 70 | 40 | 45 | 39 | (8) | 34 | 20 |
| Short Term Firm Purchase | 175 | - | - | - | - | - | - | - | - | - |
| Thermal Generation | 2,105 | 2,102 | 2,099 | 2,099 | 2,099 | 2,099 | 2,099 | 2,096 | 2,093 | 2,093 |
| Other Generation | 1,104 | 1,096 | 1,099 | 1,087 | 1,098 | 1,104 | 923 | 918 | 924 | 914 |
| Reserves | (200) | (200) | (186) | (189) | (188) | (187) | (182) | (188) | (188) | (188) |
| Total Resources after Reserves | 3,539 | 3,314 | 3,088 | 3,067 | 3,048 | 3,061 | 2,880 | 2,819 | 2,863 | 2,839 |
| | | | | | | | | | | |
| Surplus / (Deficit) | (124) | (337) | (567) | (593) | (619) | (607) | (789) | (857) | (823) | (858) |
| Percent Surplus / (Deficit) | -3.4% | -9.2% | -15.5% | -16.2% | -16.9% | -16.5% | -21.5% | -23.3% | -22.3% | -23.2% |
| | | | | | | | | | | |
| month offset | - | 13 | 26 | 39 | 52 | 65 | 78 | 91 | 104 | 117 |

# Table 2

## Avoided Energy - $/MWH

| Year | Winter Season | | | | Summer Season | | | | | | Winter Season | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| **GRID Production Cost Model Study** | | | | | | | | | | | | |
| 2015 | $38.26 | $35.68 | $32.09 | $26.45 | $23.13 | $21.03 | $31.50 | $36.16 | $36.02 | $34.13 | $35.55 | $39.69 |
| 2016 | $39.99 | $36.90 | $34.04 | $27.45 | $23.90 | $22.31 | $31.25 | $39.72 | $39.19 | $36.02 | $37.86 | $41.87 |
| 2017 | $42.36 | $39.21 | $36.30 | $29.09 | $26.01 | $24.13 | $33.36 | $42.10 | $41.54 | $38.37 | $40.20 | $44.03 |
| 2018 | $45.21 | $41.90 | $38.91 | $31.78 | $28.69 | $26.81 | $36.24 | $44.80 | $44.02 | $41.18 | $42.91 | $46.71 |
| 2019 | $47.81 | $44.49 | $41.35 | $34.68 | $31.25 | $29.01 | $39.22 | $47.39 | $46.58 | $43.81 | $45.48 | $49.25 |
| 2020 | $50.20 | $46.90 | $43.74 | $37.04 | $33.26 | $31.78 | $41.62 | $49.44 | $49.22 | $46.25 | $49.75 | $51.86 |
| 2021 | $51.89 | $49.01 | $43.34 | $39.04 | $34.33 | $36.51 | $46.36 | $52.06 | $50.09 | $48.12 | $54.62 | $54.34 |
| 2022 | $53.72 | $51.19 | $42.83 | $41.12 | $36.19 | $41.34 | $50.81 | $55.21 | $51.04 | $50.17 | $56.33 | $57.70 |
| 2023 | $54.99 | $52.25 | $43.40 | $43.66 | $38.86 | $42.94 | $53.80 | $57.90 | $53.01 | $53.60 | $60.15 | $60.99 |
| 2024 | $60.66 | $57.38 | $46.18 | $45.58 | $39.25 | $41.75 | $54.96 | $61.35 | $55.21 | $55.14 | $61.53 | $63.52 |

**Annual Seasonal Average**

| Year | Winter Season | Summer Season | Annual Average |
|---|---|---|---|
| 2015 | $34.64 | $30.35 | $32.48 |
| 2016 | $36.39 | $32.08 | $34.12 |
| 2017 | $38.56 | $34.27 | $36.40 |
| 2018 | $41.27 | $36.97 | $39.10 |
| 2019 | $43.88 | $39.56 | $41.70 |
| 2020 | $46.61 | $41.94 | $44.14 |
| 2021 | $48.72 | $44.59 | $46.64 |
| 2022 | $50.49 | $47.47 | $48.97 |
| 2023 | $52.59 | $50.04 | $51.30 |
| 2024 | $55.82 | $51.31 | $53.39 |

Source: GRID Production Cost Computer Model Study - Dated 2014, December 2

# Table 3
## Capitalized Energy Costs

| Year | Combined Cycle CT Fixed Costs ($/kW-yr) (a) | Simple Cycle CT Fixed Costs ($/kW-yr) (b) | Capitalized Energy Costs ($/kW-yr) (c) ((a) - (b)) | Capitalized Energy Costs 52.3% CF ($/MWH) (d) (c)/(8.760 x 52.3%) |
|---|---|---|---|---|
| **Avoided Resource** | | Fixed Cost x 3 Months | | |
| 2015 | | $29.95 | | |
| 2016 | | $30.40 | | |
| 2017 | | $30.95 | | |
| 2018 | | $31.54 | | |
| 2019 | | $32.11 | | |
| 2020 | | $32.71 | | |
| **CCCT Proxy Resource** | | Fixed Cost | | |
| 2021 | $133.64 | $133.48 | $0.16 | $0.00 |
| 2022 | $136.34 | $136.15 | $0.19 | $0.00 |
| 2023 | $139.08 | $138.88 | $0.20 | $0.00 |
| 2024 | $142.00 | $141.80 | $0.20 | $0.00 |

Columns

(a) Table 8 Column (f) - Table 8 Page 2

(b) Table 8 Column (f) - Table 8 Page 1

(d) 52.3% CCCT Energy Weighted Capacity Factor - Table 8 Page 3

# Table 4
## Total Avoided Energy Cost

| Year | Gas Fuel Costs Delivered | Energy Cost | Capitalized Energy Costs 52.3% CF | Total Avoided Energy Cost |
|---|---|---|---|---|
| | ($/MMBtu) | ($/MWH) | ($/MWH) | ($/MWH) |
| | (a) | (b) | (c) | (d) |
| | | (a) x 6.550 | | (b) + (c) |
| **Avoided Resource** | | | | |
| 2015 | | | | $32.48 |
| 2016 | | | | $34.12 |
| 2017 | | | | $36.40 |
| 2018 | | | | $39.10 |
| 2019 | | | | $41.70 |
| 2020 | | | | $44.14 |
| **CCCT Proxy Resource** | | | | |
| 2021 | $5.16 | $33.80 | $0.00 | $33.80 |
| 2022 | $5.60 | $36.68 | $0.00 | $36.68 |
| 2023 | $5.80 | $37.99 | $0.00 | $37.99 |
| 2024 | $6.01 | $39.37 | $0.00 | $39.37 |

Columns

(a) Table 8 Page 2 Column (g)

(b) Table 8 Page 2 Column (i) Heat rate 6.550 MMBtu/MWh

(c) Table 3 Column (d)

(d) For 2021-2024 - Table 2

# Table 5
## Total Avoided Cost

| Year | Avoided Firm Capacity Costs | Total Avoided Energy Cost | Total Avoided Costs At Stated Capacity Factor | | |
|---|---|---|---|---|---|
| | | | 75% | 85% | 95% |
| | ($/kW-yr) | ($/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 0.95) |
| **Avoided Resource** | | | | | |
| 2015 | $29.95 | $32.48 | $37.04 | $36.50 | $36.08 |
| 2016 | $30.40 | $34.12 | $38.75 | $38.20 | $37.77 |
| 2017 | $30.95 | $36.40 | $41.11 | $40.56 | $40.12 |
| 2018 | $31.54 | $39.10 | $43.90 | $43.34 | $42.89 |
| 2019 | $32.11 | $41.70 | $46.59 | $46.01 | $45.56 |
| 2020 | $32.71 | $44.14 | $49.12 | $48.53 | $48.07 |
| **CCCT Proxy Resource** | | | | | |
| 2021 | $133.48 | $33.80 | $54.11 | $51.72 | $49.84 |
| 2022 | $136.15 | $36.68 | $57.40 | $54.97 | $53.04 |
| 2023 | $138.88 | $37.99 | $59.13 | $56.64 | $54.68 |
| 2024 | $141.80 | $39.37 | $60.95 | $58.41 | $56.40 |

Columns

(a) Table 3 Column (b)

(b) Table 4 Column (d)

## Table 6
## Illustrative Base Load - On- & Off Peak- Avoided Cost Prices (1)

| Year | Avoided Firm Capacity Costs | Capacity Cost Allocated to On-Peak Hours | Total Avoided Energy Cost | On-Peak 4,993 Hours (3) | Off-Peak 3,767 Hours (2) |
|---|---|---|---|---|---|
| | ($/kW-yr) | ($/MWH) | ($/MWH) | ($/MWH) | ($/MWH) |
| | (a) | (b) | (c) | (d) | (e) |
| | | (a) /(8.76 x 91.8% x 57%) | | (b) + (c) | (b) |
| **Avoided Resource** | | | | | |
| 2015 | $29.95 | $6.53 | $32.48 | $39.01 | $32.48 |
| 2016 | $30.40 | $6.63 | $34.12 | $40.75 | $34.12 |
| 2017 | $30.95 | $6.75 | $36.40 | $43.15 | $36.40 |
| 2018 | $31.54 | $6.88 | $39.10 | $45.98 | $39.10 |
| 2019 | $32.11 | $7.00 | $41.70 | $48.70 | $41.70 |
| 2020 | $32.71 | $7.14 | $44.14 | $51.28 | $44.14 |
| **CCCT Proxy Resource** | | | | | |
| 2021 | $133.48 | $29.12 | $33.80 | $62.92 | $33.80 |
| 2022 | $136.15 | $29.70 | $36.68 | $66.38 | $36.68 |
| 2023 | $138.88 | $30.30 | $37.99 | $68.29 | $37.99 |
| 2024 | $141.80 | $30.94 | $39.37 | $70.31 | $39.37 |

Columns

(a) Table 3 Column (b)

(b) Table 8 91.8% is the on-peak capacity factor of the Proxy Resource

(c) Table 4 Column (d)

Notes

(1) Total Avoided Costs at Stated Capacity Factor are provided for illustrative purposes and are not used for QF pricing.

(2) Off-Peak is the average annual energy only cost including capitalized energy

(3) On-Peak is average annual energy plus capacity costs

# Table 7
## Comparison between Proposed and Current Avoided Costs

| Year | Total Avoided Costs with Capacity Costs included at 85.0% Capacity Factor | | |
|---|---|---|---|
| | Proposed (1) Avoided Costs ($/MWH) | Current Avoided Costs ($/MWH) | Difference ($/MWH) |
| | (a) | (b) | (c) (a) - (b) |
| 2015 | $36.50 | $35.93 | $0.57 |
| 2016 | $38.20 | $37.74 | $0.46 |
| 2017 | $40.56 | $39.74 | $0.82 |
| 2018 | $43.34 | $41.65 | $1.69 |
| 2019 | $46.01 | $44.51 | $1.50 |
| 2020 | $48.53 | $47.64 | $0.89 |
| 2021 | $51.72 | $50.48 | $1.24 |
| 2022 | $54.97 | $57.63 | ($2.66) |
| 2023 | $56.64 | $62.06 | ($5.42) |
| 2024 | $58.41 | | |
| 9 Year (2015 to 2023) Levelized Prices (Nominal) @ 6.882% Discount Rate (2) | | | |
| $/MWH | $45.11 | $44.99 | $0.12 |

Columns

(a) Table 5 Column (d)

(b) Avoided Costs Approved by the Commission January 30, 2014

Note: (1) Avoided costs are presented at expected levels. Actual prices received by QFs will depend upon actual generation levels.

(2) Discount Rate - 2013 IRP Update Discount Rate

# Table 8
## Total Cost of Displaceable Resources



| Year | Estimated Capital Cost | Capital Cost at Real Levelized Rate | Fixed O&M | Variable O&M | Total O&M at Expected CF | Total Resource Fixed Costs |
|---|---|---|---|---|---|---|
| | $/kW | $/kW-yr | $/kW-yr | $/MWH | $/kW-yr | $/kW-yr |
| | (a) | (b) | (c) | (d) | (e) | (f) |
| **SCCT Frame "F"x1 - West Side Options (1500')** | | | | | | |
| 2012 | $699 | $55.56 | $41.29 | $9.39 | $58.56 | $114.12 |
| 2013 | | $56.34 | $41.87 | $9.52 | $59.38 | $115.72 |
| 2014 | | $57.30 | $42.58 | $9.68 | $60.39 | $117.69 |
| 2015 | | $58.33 | $43.35 | $9.85 | $61.47 | $119.80 |
| 2016 | | $59.20 | $44.00 | $10.00 | $62.40 | $121.60 |
| 2017 | | $60.27 | $44.79 | $10.18 | $63.52 | $123.79 |
| 2018 | | $61.42 | $45.64 | $10.37 | $64.72 | $126.14 |
| 2019 | | $62.53 | $46.46 | $10.56 | $65.89 | $128.42 |
| 2020 | | $63.72 | $47.34 | $10.76 | $67.13 | $130.85 |
| 2021 | | $64.99 | $48.29 | $10.98 | $68.49 | $133.48 |
| 2022 | | $66.29 | $49.26 | $11.20 | $69.86 | $136.15 |
| 2023 | | $67.62 | $50.25 | $11.42 | $71.26 | $138.88 |
| 2024 | | $69.04 | $51.31 | $11.66 | $72.76 | $141.80 |

Source: (a)(c)(d) Plant Costs - 2013 IRP - Table 6.1 & 6.2
(b) = (a) x 0.07954 Payment Factor
(e) = (d) x (8.76 x 21% ) + (c)
(f) = (b) + (e)

| SCCT Frame "F"x1 - West Side Options (1500') | |
|---|---|
| 197 | MW Plant capacity |
| $699 | Plant capacity cost - in $/kW |
| $8.08 | Fixed O&M & Capitalized O&M |
| $33.21 | Fixed Pipeline |
| $41.29 | Fixed O&M including Fixed Pipeline & Capitalized O&M ($/kW-Yr) |
| $9.39 | Variable O&M Costs inluding O&M Capitalized in $/MWh |
| 7.954% | Payment Factor |
| 21% | Capacity Factor |
| 36.8% | Capacity Factor - On-peak 21.0% / 57% (percent of hours on-peak) |

## 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 | Fuel Cost $/MMBtu | Total Resource Energy Cost $/MWh | Total Resource Costs $/MWh |
|---|---|---|---|---|---|---|---|---|---|
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) |
| **CCCT (Dry "J" Adv 1x1) - West Side Options (1500')** | | | | | | | | | |
| 2012 | $918 | $72.39 | $31.06 | $2.36 | $41.87 | $114.26 | | | |
| 2013 | | $73.41 | $31.49 | $2.39 | $42.44 | $115.85 | | | |
| 2014 | | $74.66 | $32.03 | $2.43 | $43.16 | $117.82 | | | |
| 2015 | | $76.00 | $32.61 | $2.47 | $43.93 | $119.93 | | | |
| 2016 | | $77.14 | $33.10 | $2.51 | $44.60 | $121.74 | | | |
| 2017 | | $78.53 | $33.70 | $2.56 | $45.43 | $123.96 | | | |
| 2018 | | $80.02 | $34.34 | $2.61 | $46.30 | $126.32 | | | |
| 2019 | | $81.46 | $34.96 | $2.66 | $47.15 | $128.61 | | | |
| 2020 | | $83.01 | $35.62 | $2.71 | $48.04 | $131.05 | | | |
| 2021 | | $84.67 | $36.33 | $2.76 | $48.97 | $133.64 | $5.16 | $33.80 | $62.97 |
| 2022 | | $86.36 | $37.06 | $2.82 | $49.98 | $136.34 | $5.60 | $36.68 | $66.44 |
| 2023 | | $88.09 | $37.80 | $2.88 | $50.99 | $139.08 | $5.80 | $37.99 | $68.35 |
| 2024 | | $89.94 | $38.59 | $2.94 | $52.06 | $142.00 | $6.01 | $39.37 | $70.36 |

# Table 8
# Total Cost of Displaceable Resources



## Sources, Inputs and Assumptions

Source: (a)(c)(d) Plant Costs - 2013 IRP - Table 6.1 & 6.2
(b) = (a) x 0.07886 Payment Factor
(e) = (d) x (8.76 x 52.3%) + (c)
(f) = (b) + (e)
(g) -
(h) = 6,550 MMBtu/MWH x (g)
(i) = (f) / (8.76 x 'Capacity Factor' ) + (h)

**CCCT (Dry "J" Adv 1x1) - West Side Options (1500')**

| CCCT Statistics | MW | Percent | Cap Cost | Fixed |
|---|---|---|---|---|
| CCCT (Dry "J" 1x1) | 425 | 90.8% | $962 | $31.29 |
| CCCT Duct Firing (Dry "J" 1x1) | 43 | 9.2% | $486 | $28.74 |
| Capacity Weighted | 468 | 100.0% | $918 | $31.06 |

| CCCT Statistics | MW | CF | aMW | Percent | Variable | Heat Rate |
|---|---|---|---|---|---|---|
| CCCT (Dry "J" 1x1) | 425 | 56.0% | 238 | 97.2% | $2.43 | 6,495 |
| CCCT Duct Firing (Dry "J" 1x1) | 43 | 16.0% | 7 | 2.8% | 0.08 | 8,611 |
| Energy Weighted | 468 | 52.3% | 245 | 100.0% | $2.36 | 6,550 |

Rounded

| CCCT | Duct Firing | Plant Costs - 2013 IRP - Table 6.1 & 6.2 |
|---|---|---|
| 425 | 43 | MW Plant capacity |
| $962 | $486 | Plant capacity cost |
| $9.61 | $0.00 | Fixed O&M & Capitalized O&M |
| $21.68 | $28.74 | Fixed Pipeline |
| $31.29 | $28.74 | Fixed O&M including Fixed Pipeline & on-going capital cost |
| $2.43 | $0.08 | Variable O&M Costs & Capitalized Variable O&M ($/MWh) |
| 6,495 | 8,611 | Heat Rate in btu/kWh |
| 7.886% | 7.886% | Payment Factor |
| 56% | 16% | Capacity Factor |
| | 52.3% | Energy Weighted Capacity Factor |
| | 91.8% | Capacity Factor - On-peak 52.3% / 57% (percent of hours on-peak) |

**Company Official Inflation Forecast Dated September 2014 Forecast**

| | | | | | |
|---|---|---|---|---|---|
| 2012 | | 2021 | 2.0% | 2030 | 1.9% |
| 2013 | 1.4% | 2022 | 2.0% | 2031 | 1.9% |
| 2014 | 1.7% | 2023 | 2.0% | 2032 | 1.9% |
| 2015 | 1.8% | 2024 | 2.1% | 2033 | 2.0% |
| 2016 | 1.5% | 2025 | 2.0% | 2034 | 1.9% |
| 2017 | 1.8% | 2026 | 2.0% | 2035 | 2.0% |
| 2018 | 1.9% | 2027 | 2.0% | 2036 | 2.0% |
| 2019 | 1.8% | 2028 | 1.9% | 2037 | 2.0% |
| 2020 | 1.9% | 2029 | 1.9% | 2038 | 2.0% |

# Table 9
# Natural Gas Price - Delivered to Plant
# $/MMBtu

| Year | Burnertip East Side Gas Fuel Cost |
|---|---|
| | (a) |
| 2021 | $5.16 |
| 2022 | $5.60 |
| 2023 | $5.80 |
| 2024 | $6.01 |

**Source**

Offical Market Price Forecast dated September 2014

# ATTACHMENT B

The proposed tariff sheet to be revised in Pacific Power & Light Company's currently effective Tariff WN U-75 are designated as follows:

| | | |
|---|---|---|
| Fourth Revision of Sheet No. 37.2 | Schedule 37 | Avoided Cost Purchases from Cogeneration and Small Power Production |

# ATTACHMENT C

## Schedule 37
**COGENERATION AND SMALL POWER PRODUCTION**

TERMS AND CONDITIONS: (continued)

6. The Company will purchase the entire output from the Seller's facility, or if the Seller wishes to reduce his net delivery and billing from the Company, the Company will purchase the net output from the Seller's facility. The metering configuration to measure such purchases will be specified in the Power Purchase Agreement and/or Interconnection Agreement.

7. The Avoided Cost rates are fixed for five years. However, these rates are recalculated every year and applicable to any seller that enters into power purchase agreement with PacifiCorp in that year.

GENERAL RULES AND PROVISIONS:

Service under this schedule is subject to the General Rules and Provisions contained in this tariff.

AVOIDED COST RATES:

| Deliveries During Calendar Year | Capacity Payment $/kW - Month | Energy Payment $/MWH | |
|---|---|---|---|
| 2015 | $2.50 | $32.48 | (C)(D)(I) |
| 2016 | $2.53 | $34.12 | |
| 2017 | $2.58 | $36.40 | |
| 2018 | $2.63 | $39.10 | |
| 2019 | $2.68 | $41.70 | |
| 2020 | $2.73 | $44.14 | |
| 2021 | $11.12 | $33.80 | |
| 2022 | $11.35 | $36.68 | |
| 2023 | $11.57 | $37.99 | |
| 2024 | $11.82 | $39.37 | (C)(D)(I) |

## Schedule 37
**COGENERATION AND SMALL POWER PRODUCTION**

TERMS AND CONDITIONS: (continued)

6. The Company will purchase the entire output from the Seller's facility, or if the Seller wishes to reduce his net delivery and billing from the Company, the Company will purchase the net output from the Seller's facility. The metering configuration to measure such purchases will be specified in the Power Purchase Agreement and/or Interconnection Agreement.

7. The Avoided Cost rates are fixed for five years. However, these rates are recalculated every year and applicable to any seller that enters into power purchase agreement with PacifiCorp in that year.

GENERAL RULES AND PROVISIONS:

Service under this schedule is subject to the General Rules and Provisions contained in this tariff.

AVOIDED COST RATES:

| Deliveries During Calendar Year | Capacity Payment $/kW - Month | Energy Payment $/MWH |
|---|---|---|
| 2015~~2014~~ | $2.50~~$2.45~~ | $32.48~~29.62~~ |
| 2016~~2015~~ | $2.53~~$2.49~~ | $34.12~~31.92~~ |
| 2017~~2016~~ | $2.58 ~~$2.53~~ | $36.40~~33.67~~ |
| 2018~~2017~~ | $2.63~~$2.57~~ | $39.10~~35.60~~ |
| 2019~~2018~~ | $2.68~~$2.61~~ | $41.70~~37.44~~ |
| 2020~~2019~~ | $2.73~~$2.66~~ | $44.14~~40.22~~ |
| 2021~~2020~~ | $11.12~~$2.71~~ | $33.80~~43.28~~ |
| 2022~~2021~~ | $11.35~~$2.76~~ | $36.68~~46.04~~ |
| 2023~~2022~~ | $11.57~~$2.81~~ | $37.99~~53.10~~ |
| 2024~~2023~~ | $11.82~~$2.86~~ | $39.37~~57.45~~ |