

Exhibit No. RAV-1T  
Docket UE-15\_\_\_\_  
Witness: Richard A. Vail

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

In the Matter of

PACIFIC POWER & LIGHT  
COMPANY,

Petition For a Rate Increase Based on a Modified  
Commission Basis Report, Two-Year Rate Plan,  
and Decoupling Mechanism.

Docket UE-15\_\_\_\_

**PACIFIC POWER & LIGHT COMPANY  
DIRECT TESTIMONY OF RICHARD A. VAIL**

**November 2015**

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**ATTACHED EXHIBIT**

Exhibit No. RAV-2—Illustration of Idaho Power Asset Exchange

1 **Q. Please state your name, business address, and present position with PacifiCorp.**

2 A. My name is Richard A. Vail. My business address is 825 NE Multnomah Street,  
3 Suite 1600, Portland, Oregon 97232. My present position is Vice President of  
4 Transmission. I am responsible for transmission system planning, customer generator  
5 interconnection requests and transmission service requests, regional transmission  
6 initiatives, capital budgeting for transmission, and administration of the Open Access  
7 Transmission Tariff. I am testifying for Pacific Power & Light Company (Pacific  
8 Power or Company), a division of PacifiCorp.

9 **QUALIFICATIONS**

10 **Q. Please describe your education and professional experience.**

11 A. I have a Bachelor of Science degree with Honors in Electrical Engineering with a  
12 focus in electric power systems from Portland State University. I have been Vice  
13 President of Transmission for PacifiCorp since December 2012. I was Director of  
14 Asset Management from 2007 to 2012. Before that position, I had management  
15 responsibility for a number of organizations in PacifiCorp's asset management group  
16 including capital planning, maintenance policy, maintenance planning, and  
17 investment planning since joining PacifiCorp in 2001.

18 **PURPOSE OF TESTIMONY**

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

20 A. The purpose of my testimony is to support the costs associated with certain capital  
21 investments in the Company's distribution and transmission systems and the closure  
22 of the Company's transmission asset exchange with Idaho Power Company (Idaho  
23 Power Asset Exchange).

1 **Q. What capital investment are you addressing in your testimony?**

2 A. My testimony addresses the costs to plan and build the second sequence of  
3 transmission work for the Union Gap substation, which will ultimately add a  
4 230/115 kilovolt (kV) transformer and result in a rebuild of the substation (Union  
5 Gap Substation Upgrade).

6 My testimony demonstrates that the Company prudently managed these costs  
7 and that these investments will be used and useful and beneficial to Washington  
8 customers.

9 **Q. What are the projected costs associated with the distribution and transmission**  
10 **investments included in rate base in this proceeding and described in your**  
11 **testimony?**

12 A. The projected costs associated with the Union Gap Substation Upgrade project are  
13 shown below:

<b>Project</b>	<b>Total-Company (\$m)</b>	<b>Washington-Allocated (\$m)</b>
Union Gap Substation Upgrade, second sequence	20.88	4.7

14 The total cost of the second sequence includes costs associated with engineering,  
15 project management, materials and equipment, construction, right-of-way, and an  
16 allowance for funds used during construction. The costs are also shown in the  
17 testimony and exhibits of Ms. Shelley E. McCoy.

18 **UNION GAP SUBSTATION UPGRADE—SECOND SEQUENCE**

19 **Q. Please describe the investment for the Union Gap Substation Upgrade.**

20 A. The Union Gap Substation Upgrade consists of three sequences of work, with the  
21 second sequence of work included in this filing and estimated to be in service on

1 May 15, 2016. The Company is using a sequenced approach to avoid extended  
2 outages in the area system. The second sequence of work includes relocating the 230  
3 kV bus and constructing it into a ring bus with six new 230 kV breakers to  
4 accommodate the addition of a 230/115 kV, 250 MVA transformer.

5 **Q. Please describe the benefits of the second sequence of work included in this case.**

6 A. The addition of a new 230/115 kV, 250 MVA transformer will be used and useful in  
7 supporting the transmission system by increasing reliability of service to customers in  
8 the greater Yakima, Washington area. The new 230 kV ring bus will protect against  
9 breaker failure and bus fault events that currently may cause voltage impacts and  
10 thermal overloads. The new 230/115 kV transformer will mitigate thermal overload  
11 risks resulting from an outage to either of the two existing 230/115 kV transformers.

12 **UNION GAP SUBSTATION UPGRADE—FIRST SEQUENCE**

13 **Q. Please describe the first sequence of work for the Union Gap Substation**  
14 **Upgrade.**

15 A. The first sequence included the replacement of two 115/12.47 kV distribution  
16 substation transformers with a new 25 Mega Volt Ampere (MVA) transformer and  
17 relocating an existing third transformer, rated 20 MVA, onsite at the substation. This  
18 sequence also involved the relocation of the existing 115/12.47 kV distribution  
19 portion of the substation to accommodate the upgraded layout of the substation,  
20 which will be completed in the second and third sequences of work. The first  
21 sequence of work was completed and placed into service in August of 2014.

22 **Q. Was the first sequence of work included in a previous rate case?**

23 A. Yes. The first sequence of work was included in rates as part of the Company's 2014

1 general rate case (2014 Rate Case) and went into service in August 2014. In that  
2 proceeding, the Washington Utilities and Transportation Commission (Commission)  
3 found that the Company satisfactorily demonstrated that the first sequence of the  
4 Union Gap Substation Upgrade was used and useful and that the cost was known and  
5 measurable.<sup>1</sup>

6 **UNION GAP SUBSTATION UPGRADE—THIRD SEQUENCE**

7 **Q. Please describe the third sequence of work for the Union Gap Substation**  
8 **Upgrade, which is not included in the test period in this case.**

9 A. The third and final sequence of work is estimated to be placed in service in May 2017  
10 and includes a rebuild of the existing 115 kV main transfer bus to a breaker and a half  
11 scheme, and fifteen new 115 kV breakers on the 115 kV bus that connect to ten bay  
12 positions. The cost associated with the third sequence of work is not included as part  
13 of this filing.

14 **NECESSITY AND BENEFITS OF THE UNION GAP SUBSTATION UPGRADE**

15 **Q. Do each of these three sequences of work result in used and useful improvements**  
16 **beneficial to Washington customers when placed in service?**

17 A. Yes, each sequence of the Union Gap Substation Upgrade provides used and useful  
18 benefits to Washington customers as they are placed in service. As discussed above,  
19 and specific to the second sequence of work included in this case, the new 230 kV  
20 ring bus will protect against breaker failure and bus fault events that currently may  
21 cause voltage impacts and thermal overloads. The new third 230/115 kV transformer  
22 will mitigate thermal overload risks resulting from an outage to either of the two

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<sup>1</sup> *Wash. Utils. & Transp. Comm'n v. Pacific Power & Light Company*, Docket UE-140762, Order 08 (March 25, 2015).

1 existing 230/115 kV transformers. All three sequences do not need to be completed  
2 for each individual sequence to be used and useful to serve customers, consistent with  
3 the Commission's decision in the 2014 Rate Case approving the first sequence of the  
4 Union Gap Substation Upgrade.

5 **Q. Please explain why this investment in the Union Gap Substation Upgrade is**  
6 **needed.**

7 A. The plant investment for the Union Gap Substation Upgrade is needed to comply with  
8 reliability standards mandated by the North American Electric Reliability Corporation  
9 (NERC). Specifically, the project is necessary to continue to comply with NERC  
10 Standard TPL-002 "System Performance Following Loss of a Single Bulk Electric  
11 System Element (Category B)," which requires bulk electric system elements,  
12 including transmission transformers, to be within thermal limits following the single  
13 contingency loss of a transmission system element. An outage of one of the two  
14 230/115 kV transformers results in an overload of the remaining transformer of  
15 approximately 50 megawatts (MWs), which can be maintained for a maximum of  
16 four hours. PacifiCorp's West System Assessment for TPL-002 Compliance  
17 Requirements notes that for the loss of a Union Gap 230/115 kV transformer in heavy  
18 summer loading conditions, overload of the posted four-hour emergency limit of the  
19 transformer will be experienced by 2016. To correct this system deficiency, the  
20 recommended plan of service is to install a third 230/115 kV transformer at the Union  
21 Gap substation. The new 230/115 kV transformer is planned to be placed into service  
22 in May 2016.

1 **Q. Are there other system limitations that this investment will alleviate?**

2 A. Yes. PacifiCorp's West System Assessment for TPL-003 Compliance Requirements  
3 notes nine outages involving 115 kV, 230 kV breaker and bus faults, with stuck  
4 breakers and protection systems failures at Union Gap that result in thermal and  
5 voltage performance deficiencies. Loss of both 230/115 kV transformers results in  
6 30 MWs of load being shed (approximately 6,000 customers) for the initial outage.  
7 This will also result in the remaining transformers at the nearby Pomona Heights  
8 substation being overloaded by approximately 150 MWs, which would require  
9 corrective measures to remove the overloads from the transformers. To correct all  
10 aforementioned system limitations in a cost-effective manner, this plan of service was  
11 selected to rebuild the 230 kV and 115 kV buses into a ring bus for the 230 kV bus  
12 and breaker and a half configuration for the 115 kV bus, which will eliminate the  
13 TPL-003 system deficiencies at the Union Gap substation. Deficiencies related to the  
14 230 kV bus are resolved by the second sequence. Deficiencies related to the 115 kV  
15 bus will be resolved by completion of the third sequence. Additionally, the two  
16 existing distribution transformers replaced by this project were loaded to 99.5 percent  
17 of their combined thermal capability. Completion of the first sequence increased  
18 115/12.47 kV summer capacity by 4 MVA, providing the ability to serve future local  
19 distribution load increases from the Union Gap substation.

20 **IDAHO POWER ASSET EXCHANGE**

21 **Q. Please describe the investment for the Idaho Power Asset Exchange.**

22 A. The Idaho Power Asset Exchange included the purchase of transmission and  
23 substation assets by PacifiCorp from Idaho Power and the sale of like kind assets by



1 PacifiCorp to Idaho Power. Please refer to Exhibit No. RAV-2, which is a diagram  
2 that generally shows the assets that were included as part of the Idaho Power Asset  
3 Exchange.

4 **Q. What was the value of the assets PacifiCorp sold and purchased?**

5 A. PacifiCorp sold transmission and substation assets with a net book value of  
6 approximately \$43.5 million and purchased like kind assets with a net book value of  
7 approximately \$43.7 million.

8 **Q. Was the Idaho Power Asset Exchange previously approved by the Commission?**

9 A. Yes. The Commission approved the Company's petition for authorization to  
10 exchange certain assets with Idaho Power on September 24, 2015, in Docket  
11 UE-144136, Order 01.

12 **Q. Can the purchased assets be used to move resources into the PacifiCorp's  
13 Western Balancing Authority Area (PACW)?**

14 A. Yes. The assets connect directly to the Jim Bridger generating plant which is  
15 designated as a PACW resource. The purchase provided PacifiCorp with an owned  
16 transmission path across what was formerly the Idaho Power transmission system to  
17 connect into the PACW transmission system. Associated with the purchase,  
18 point-to-point transmission service rights were secured across the Idaho Power  
19 system to PacifiCorp's PACW system. In combination, this provides for 1,600  
20 megawatts of capacity that connects into the PACW system from the Jim Bridger  
21 plant.

1 **Q. Under the new agreement is PacifiCorp limited to use of the transmission system**  
2 **to only move Jim Bridger resources?**

3 A. No.

4 **Q. Why was the Idaho Power Asset Exchange needed?**

5 A. The completion of the new agreement eliminated legacy agreements that hampered  
6 the use of the transmission systems and moved all transmission service under the  
7 terms and conditions of the parties' Open Access Transmission Tariffs.

8 Under the new operating agreement, the Company acquired capacity and  
9 ownership of transmission lines that augment the Company's ability to serve west  
10 control area load. The new arrangements will enable the Company to more  
11 efficiently operate its transmission system consistent with current regulatory  
12 requirements, and provide the Company with the ability to more effectively manage  
13 required system upgrades and serve expected load growth.

14 **Q. Are there additional benefits?**

15 A. Yes. Additional benefits PacifiCorp realized in the purchase of these assets include:

- 16 • Long term firm transmission service to Hurricane and La Grande substations in  
17 Oregon, eliminating prior conditional transmission service to those substations.
- 18 • Maintaining the same level of service (1,600 megawatts) with 1,090 megawatts of  
19 owned capacity and 510 megawatts of tariff long term firm transmission service.
- 20 • Cost of new tariff service for use of Idaho Power's transmission is commensurate  
21 with costs associated with prior service provided under the legacy agreements.  
22 There is no financial impact in terms of additional load or measurement changes  
23 for PacifiCorp's load service on PacifiCorp's transmission system.
- 24 • Addition of 200 megawatts (for a total of 400 megawatts) of dynamic transfer  
25 capability between PacifiCorp's eastern and western balancing authority areas.

1 **Q. Does the allocation of transmission assets discussed in the direct testimony of**  
2 **Ms. Shelley E. McCoy reflect current system operations?**

3 A. Yes. The allocation of the assets acquired through the Idaho Power Asset Exchange,  
4 along with the reallocation of certain transmission assets previously allocated to  
5 PacifiCorp's eastern balancing authority area and the corrected allocation of the  
6 specific transmission assets identified in Ms. McCoy's direct testimony, reflects  
7 current system operations.

8 **Q. Does this conclude your direct testimony?**

9 A. Yes.