

Exhibit No. TJH-1T  
Docket UE-180778  
Witness: Timothy J. Hemstreet

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

In the Matter of the Petition of

PACIFIC POWER & LIGHT COMPANY

For an Order Approving a Change in  
Depreciation Rates Applicable to Electric  
Property.

Docket UE-180778

**PACIFIC POWER & LIGHT COMPANY**  
**DIRECT TESTIMONY OF TIMOTHY J. HEMSTREET**

**September 2018**

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**ATTACHED EXHIBIT**

Exhibit No. TJH-2—Existing and Proposed Depreciable Lives for Renewable Resources

1 **Q. Please state your name, business address, and present position with Pacific**  
2 **Power & Light Company (Pacific Power), a division of PacifiCorp.**

3 A. My name is Timothy J. Hemstreet. My business address is 825 NE Multnomah  
4 Street, Suite 1500, Portland, Oregon 97232. My present position is Director of  
5 Renewable Energy Development.

### 6 **QUALIFICATIONS**

7 **Q. Briefly describe your education and professional experience.**

8 A. I hold a Bachelor of Science degree in Civil Engineering from the University of Notre  
9 Dame in Indiana and a Master of Science degree in Civil Engineering from the  
10 University of Texas at Austin. I am also a Registered Professional Engineer in the  
11 state of Oregon. Before joining the company in 2004, I held positions in engineering  
12 consulting and environmental compliance. Since joining the company, I have held  
13 positions in environmental policy, engineering, project management, and  
14 hydroelectric project licensing and program management. In 2016, I assumed the role  
15 of Director of Renewable Energy Development, in which I oversee the development  
16 of renewable energy resources.

17 **Q. Please explain your responsibilities as Director of Renewable Energy**  
18 **Development.**

19 A. The renewable energy development group is responsible for identifying and  
20 developing company-owned renewable generation resource options and efficiency  
21 improvements—including wind, solar, and hydroelectric resources—to enhance or  
22 improve the efficiency of the company's renewable resources portfolio.

1 **PURPOSE OF TESTIMONY**

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

3 A. My testimony:

- 4 • Provides an overview of the company’s recommended depreciable lives for its  
5 renewable generating resources. The company reviewed its hydro and wind  
6 resource generating assets and performed an evaluation of depreciable lives in  
7 support of this filing. Based on this assessment, the company proposes certain  
8 changes to the depreciable lives established in the previous depreciation study  
9 filed in 2013.<sup>1</sup>
- 10 • Describes how the company developed estimated plant economic lives for its  
11 wind and hydro generation resources included in the company’s new depreciation  
12 study submitted with Mr. John J. Spanos’s testimony as Exhibit No. JJS-3 (the  
13 Depreciation Study) in this filing.
- 14 • Summarizes the proposed changes in the depreciable plant lives of the renewable  
15 resources and the basis therefor including updated information regarding new and  
16 anticipated hydroelectric operating licenses, the repowering of the company’s  
17 existing wind fleet, as well as the assumed depreciation lives for new wind  
18 resources that will be brought online in 2020.

19 **Q. Have you provided the company’s estimated plant economic lives for its**  
20 **renewable generation assets?**

21 A. Yes. Exhibit No. TJH-2 contains a complete list of the company’s renewable  
22 generation plants and their recommended depreciable lives.

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<sup>1</sup> *In the matter of the Petition of Pacific Power & Light Company For An Accounting Order Authorizing a Revision to Depreciation Rates, Docket UE-130052.*

1        **DEPRECIABLE LIVES FOR HYDROELECTRIC GENERATION RESOURCES**

2        **Q.     What is the company’s general approach for developing the depreciable lives of**  
3        **its hydroelectric generating facilities?**

4        A.     The company’s approach, as reflected in the Depreciation Study, is primarily based on  
5        Federal Energy Regulatory Commission (FERC) hydroelectric plant license  
6        expiration dates. The vast majority of the facilities (comprising 99 percent of the  
7        company’s installed hydroelectric generating capacity) require a FERC license to  
8        operate. The terms of the FERC license requirements largely determine the capital  
9        expenditures required to make necessary improvements to the hydroelectric plant  
10       during the license period to implement protection, mitigation and enhancement  
11       measures. It is therefore appropriate for the term of the FERC license to set the  
12       depreciable life of the hydroelectric generation resource.

13                The status of the FERC relicensing processes for the company’s licensed  
14       hydroelectric facilities was reviewed to determine any changes required by new  
15       licensing information. These changes are due to either recent license issuances or the  
16       company’s expectations of the term of new licenses based upon the scope of likely or  
17       proposed protection, mitigation, and enhancement measures that will be required  
18       during a new license term, which FERC uses to assess the appropriate new license  
19       term in a licensing order.

20                For its unlicensed hydroelectric facilities, the company assessed the  
21       depreciation lives based on the current operating conditions of the facilities as  
22       observed since the last depreciation study and the estimated remaining life of the  
23       physical assets as determined by the company’s hydro resources engineering staff.

1 **Q. What major changes did the company make regarding the depreciable lives of its**  
2 **hydroelectric generating resources?**

3 A. The major changes the company made are driven primarily by changes in expected  
4 license terms for FERC regulated projects that have either been recently issued a new  
5 license or that the company intends to relicense in the near future. FERC issued a  
6 new 40-year license for the Wallowa Falls project in Oregon in January 2017 so the  
7 company extended the depreciable life of that project to 2057 to match the new  
8 license term.<sup>2</sup> Additionally, the company expects FERC to issue a new 40-year  
9 license for the Prospect No. 3 project in Oregon in late 2018 so the company proposes  
10 extending the depreciable life of the Prospect No. 3 facility to 2058. The company  
11 also expects that FERC will issue new 40-year licenses for the Weber and Cutler  
12 facilities in Utah when their existing licenses expire in 2020 and 2024, respectively.  
13 Exhibit No. TJH-2, “Existing and Proposed Depreciable Lives for Renewable  
14 Resources” lists the estimated retirement dates of the company’s hydro and wind  
15 generating resources and the proposed changes to the existing depreciable lives.

16 **Q. Why does the company assume that facilities it intends to relicense will be issued**  
17 **40-year licenses?**

18 A. The company’s recent experience with new license terms for projects with moderate  
19 changes or for which construction is required to comply with new license  
20 requirements, like the Wallowa Falls project, is that FERC will issue a 40-year license  
21 unless unique conditions are met. This is consistent with FERC’s recent “Policy

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<sup>2</sup> The new license for Prospect No. 3 is available at <https://www.ferc.gov/industries/hydropower/gen-info/licensing/active-licenses/P-308.pdf>.

1 Statement on Establishing License Terms for Hydroelectric Projects,” issued in  
2 October 2017.<sup>3</sup> In the policy statement, FERC adopted a default 40-year license term  
3 for licensed hydro-power projects at non-federal dams. FERC also articulated that  
4 projects with limited new improvements or construction that are required under a new  
5 license could justify a shorter license term of not less than 30 years. The company  
6 estimates that moderate infrastructure improvements will be necessary during new  
7 license terms for its hydroelectric projects; thus, a 40-year depreciable life was  
8 viewed as appropriate.

9 **Q. Did the company extend the depreciable life of any of its other hydro facilities**  
10 **for reasons other than new or anticipated license terms?**

11 A. Yes. The company made slight adjustments to extend the depreciable lives of several  
12 small hydro facilities with less than three megawatt capacity that are not licensed by  
13 FERC. Small extensions of between four to eight years are proposed for the Paris,  
14 Gunlock, Santa Clara, Veyo, Last Chance, and Granite facilities to reflect their  
15 continuing operational status and the estimated remaining life of their physical assets.  
16 The company also extended the depreciable lives for the Bend and Eagle Point  
17 facilities of 14 and 15 years, respectively, because these facilities will not be  
18 decommissioned in the near-term and will continue to provide service to customers  
19 for the new proposed depreciable life.

20 **Q. Did the company reduce the depreciable life of any of its hydro facilities?**

21 A. Yes. The depreciable life of the Viva Naughton hydroelectric facility, a small  
22 0.74 megawatt capacity hydroelectric facility located at the cooling water storage

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<sup>3</sup> FERC’s policy statement is available at <https://www.ferc.gov/whats-new/comm-meet/2017/101917/H-1.pdf>.

1 reservoir for the Naughton steam generating facility in Wyoming, was reduced by  
2 11 years, from 2040 to 2029, to reflect the planned retirement date of the Naughton  
3 steam generating station.

4 **Q. Has the company proposed any changes to the estimated retirement date of its**  
5 **Klamath hydroelectric assets?**

6 A. No. The company's estimated retirement dates for the Klamath hydroelectric  
7 facilities are unchanged from the 2013 depreciation study and remain consistent with  
8 the timing of decommissioning anticipated by the Klamath Hydroelectric Settlement  
9 Agreement.

10 **Q. Could environmental issues affect the estimated plant economic life of hydro**  
11 **resources in the future?**

12 A. Yes. While no new significant environmental compliance issues have emerged since  
13 the 2013 depreciation study, the dynamic nature of evolving environmental  
14 stewardship requirements and FERC licensing requirements, coupled with asset  
15 specific attributes will continue to impact the company's ability to economically  
16 achieve license extensions or economically operate unlicensed hydro facilities for the  
17 benefit of customers. For instance, assets that must mitigate project effects on species  
18 listed under the Endangered Species Act may be subject to unique environmental  
19 stewardship requirements, which can change based upon the status of the listed  
20 species. On the other hand, long-term investments the company is making to comply  
21 with its current license requirements – such as the installation of fish passage  
22 measures at many of its newly relicensed hydroelectric facilities – may positively  
23 influence the ability to relicense these facilities in the future and continue economic



1 operation. If conditions change as a result of evolving requirements or unforeseen  
2 circumstances, the depreciable lives of the company's hydroelectric assets will be  
3 adjusted accordingly in a future depreciation study.

4 **DEPRECIABLE LIVES FOR NEW WIND GENERATING RESOURCES**

5 **Q. Please describe the process the company used to assess the depreciable lives of its**  
6 **wind resources.**

7 A. In the company's 2013 depreciation study, the company recommended, and the  
8 Commission adopted, extending the previously assumed 25-year depreciable life for  
9 its wind-powered generation resources to 30 years. The company has assessed this  
10 depreciable life against current industry trends for wind generation facilities and  
11 continues to believe that a 30-year depreciable life is appropriate for such facilities  
12 whose wind turbine generators are designed to meet industry standards and that are  
13 maintained consistent with manufacturer recommendations. New wind projects  
14 require a greater investment per turbine due to the larger wind turbine size as  
15 compared to earlier turbine technologies. Thus, some new utility-owned wind assets,  
16 for which ongoing generation offtake and maintenance funding is more certain, have  
17 been considered for longer asset lives of up to 40 years.

18 **Q. What asset life is the company proposing for the new wind facilities that are**  
19 **currently being developed and expected to enter service in 2020?**

20 A. The company is currently developing 950 megawatts of new wind facilities in  
21 Wyoming associated with its Energy Vision 2020 that are expected to commercially  
22 operate in 2020. The company proposes a 30-year asset life for these new facilities,

1 consistent with the 30-year asset life for the company's existing wind facilities that  
2 was approved in the 2013 Depreciation Study.

3 **Q. Is a 30-year asset life consistent with how the company evaluated proposed new**  
4 **wind projects as part of its Energy Vision 2020 proposal?**

5 A. Yes. In the Energy Vision 2020 cases, and in the company's Integrated Resource  
6 Plan, the company assumed a 30-year asset life for new company-owned wind assets  
7 as part of such new wind resources' economic evaluation.<sup>4</sup>

8 **DEPRECIABLE LIVES FOR REPOWERING WIND GENERATING RESOURCES**

9 **Q. Is the company proposing changes to the depreciable lives of its existing wind**  
10 **resources?**

11 A. Yes. The company is currently repowering the majority of its existing wind fleet,  
12 which, for its wind facilities constructed between 2006 and 2010, will result in the  
13 replacement of the existing nacelles and rotors at the facilities with more modern  
14 equipment that includes longer blades and higher capacity generators.<sup>5</sup>

15 Repowering of the company's wind fleet will benefit customers by  
16 requalifying the repowered facilities for the full value of available production tax  
17 credits when brought online by the end of 2020, increasing zero-fuel cost generation  
18 from the existing wind fleet by an average of approximately 26 percent, and  
19 extending the asset lives of the repowered facilities. The company plans to repower

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<sup>4</sup> The Energy Vision 2020 cases are resource pre-approval proceedings in Idaho (Case No. PAC-E-17-07), Utah (Docket No. 17-035-40), and Wyoming (Docket No. 20000-520-EA-17) related to new wind resources and transmission infrastructure.

<sup>5</sup> The company is also evaluating repowering its Foote Creek I facility, which would involve the replacement of the existing wind turbine generators installed in 1999 with new, modern equipment. The company anticipates that this facility will be repowered in 2020 if satisfactory arrangements are obtained and permits are received that would allow this facility to be repowered and provide benefits to customers as compared to the status quo.

1 its existing wind facilities in 2019 and 2020. The company therefore recommends  
2 extending the depreciable lives of the repowered facilities to provide for a 30-year  
3 asset life after the repowering equipment upgrades are installed. This results in an  
4 extension of the depreciable lives of the company's existing wind facilities by 10 to  
5 21 years, depending on the facility. The company's proposed depreciable lives for its  
6 wind facilities are shown in Exhibit No. TJH-2.

7 **Q. What are the current asset lives of the wind facilities to be repowered?**

8 A. All of the existing wind facilities are currently being depreciated assuming a 30-year  
9 asset life. The facilities the company plans to repower or is evaluating for repowering  
10 are currently scheduled to be retired between 2029 and 2040. The retired assets from  
11 repowering are treated as an interim retirement for accounting purposes and  
12 transferred to the wind plant depreciation reserve.

13 **Q. Will repowering the wind facilities extend their useful operating lives beyond the**  
14 **currently planned retirement dates?**

15 A. Yes. The company believes that repowering the wind facilities will extend their  
16 operation 30 years from the repowering date, extending their useful lives by at least  
17 10 years.

18 **Q. How will repowering extend the useful life for 30 years from the repowering**  
19 **date?**

20 A. The repowering projects are being designed by the turbine equipment suppliers to  
21 meet the same design requirements that apply to complete wind turbine generators  
22 used in new wind facility construction. The wind turbine equipment suppliers will  
23 have their wind turbine designs for the repowering projects certified by an

1 independent third party to ensure that they meet or exceed applicable International  
2 Electrotechnical Commission design standards used in the wind turbine industry.

3 These design standards are intended to ensure that the equipment is appropriate for  
4 the site conditions and will perform satisfactorily over the standard design life.

5 **Q. What factors are independently reviewed to assess and certify the design of the**  
6 **repowered wind facilities?**

7 A. The third-party design assessment evaluates the site-specific load assumptions based  
8 upon the climactic conditions at each facility and will assess the control and  
9 protection systems for the wind turbine and their ability to meet the site design  
10 conditions. It will also assess the electric components, the rotor blades, hub, machine  
11 components (*i.e.*, drivetrain, main bearing, and gearbox), and the suitability of the  
12 existing tower upon which the new wind turbine equipment will be installed to meet  
13 the new design loads.

14 **Q. Does the company have land rights that allow its repowered wind facilities to**  
15 **operate for 30 years after repowering?**

16 A. The company reviewed its existing land rights for its existing wind generation  
17 facilities and determined that nearly all projects have land rights that will allow the  
18 facilities to operate for 30 years after repowering is completed. The company will  
19 seek to prudently extend lease terms beyond the initial period, as required, to support  
20 the longer depreciable lives of its repowered wind resources.

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

22 A. Yes.