

**Exh. JES-1T
Dockets UE-170033/UG-170034
Witness: Jennifer Snyder**

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**DOCKETS UE-170033 and
UG-170034 (*Consolidated*)**

TESTIMONY OF

Jennifer Snyder

**STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION**

2017 General Rate Case Adjustment 14.07 Glacier Battery Storage

June 30, 2017

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1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 A. I am Jennifer Elizabeth Snyder. My business address is 1300 S. Evergreen Park
5 Drive S.W., P.O. Box 47250, Olympia, WA 98504.

6

7 **Q. By whom are you employed and in what capacity?**

8 A. I am employed by the Washington Utilities and Transportation Commission
9 (Commission) as a Regulatory Analyst in the Conservation and Energy Planning
10 section of the Regulatory Services Division.

11

12 **Q. How long have you been employed by the Commission?**

13 A. I have worked at the Commission since November 2013.

14

15 **Q. Would you please state your educational and professional background?**

16 A. I have a Master's degree in Environmental Studies with an emphasis in Energy
17 Policy and a Bachelor of Science degree, both from The Evergreen State College. I
18 attended New Mexico State University's rate case basics workshop in May 2016, the
19 National Association of Regulatory Utility Commissioners' Annual Regulatory
20 Studies Program intermediate course in August 2016, as well as other sector-specific
21 workshops, trainings, and conferences. I completed Public Utilities Reports Guide's
22 "Principles of Public Utilities Operations and Management" in October 2016.

1 As a Regulatory Analyst, I am responsible for the development of Staff
2 recommendations concerning tariff filings and conservation plans by regulated
3 companies for presentation to the Commission at open public meetings and
4 adjudications. I have provided testimony in support of settlement in docket UE-
5 161123.

6
7 **II. SCOPE AND SUMMARY OF TESTIMONY**

8
9 **Q. Please explain the purpose of your testimony.**

10 A. The purpose of my testimony is to provide Staff’s perspective on the Glacier Battery
11 Storage pro forma adjustment (14.07) and plant addition. The adjustment is
12 addressed in the testimony of PSE’s witness Ms. Katherine J. Barnard.¹ The
13 prudence of the plant addition is addressed by Company witness Michael Mullally.²

14
15 **Q. Please summarize the Company’s proposed pro forma adjustment regarding**
16 **Glacier Battery Storage.**

17 A. This adjustment increases the test year rate base by \$2,842,787 and decreases net
18 operating income by \$145,490. Glacier Battery Storage is a 2.0 MW/4.4 MWh
19 lithium-ion phosphate battery storage system that interconnects to the 12.5 kV
20 Glacier 12 distribution circuit in Whatcom County, Washington. The project
21 achieved full commercial operation in September of 2016.³ The adjustment, as

¹ Barnard, Exh. KJB-1T.

² Mullally, Exh. MM-1HCT at 3-10.

³ Snyder, Exh. JES-2, PSE response to Staff Data Request No. 253.

1 described in Ms. Barnard’s testimony, accounts for the differing depreciation rates
2 associated with the FERC accounts the project is allocated to and calculates the
3 deferred taxes resulting from bonus depreciation.
4

5 **Q. Please summarize Staff’s conclusions and recommendations regarding Glacier
6 Battery Storage.**

7 A. Staff recommends accepting PSE’s proposed adjustment and plant addition. The
8 adjustment satisfies standards for prudence and pro forma adjustments, with the
9 exception of whether or not the plant is considered “major.” While the comparatively
10 small magnitude of the adjustment means there is minimal economic impact, Staff
11 believes the unique characteristics of the project justify Commission consideration.
12

13 III. STAFF’S GLACIER BATTERY STORAGE ANALYSIS

14

15 **Q. What standard did you rely on to evaluate Glacier Battery Storage?**

16 A. I analyzed the project using Commission standards for pro forma adjustments and
17 prudence, as explained in detail by Staff witness E. Cooper Wright. I relied on four
18 basic questions for reviewing pro forma adjustments: (1) If the pro forma adjustment
19 is to add new plant, is it “major?” (2) Are the costs associated with the adjustment
20 known and measurable? (3) If the pro forma adjustment is to add new plant, has it
21 been shown that the new plant will be used and useful to serve Washington
22 customers? (4) Have the costs related to the adjustment been prudently incurred?
23 To determine prudence, Staff reviewed four factors the Commission focuses on in

1 applying this standard: (1) Resource need; (2) Evaluation of alternatives; (3)
2 Communication with and involvement of the company's board of directors; and, (4)
3 Adequate documentation.

4
5 **Q. Does this adjustment meet the criteria for a major plant addition?**

6 A. No. Glacier Battery Storage does not meet the threshold of Production Materiality or
7 Distribution Materiality as Staff generally defined it in this case.⁴ However, Staff
8 believes it is appropriate to review the acquisition in this case because battery storage
9 is a new, unique type of resource for PSE as well as a technology that has received
10 specific policy consideration from the Commission.⁵

11
12 **Q. Has the Commission offered guidance concerning the role of energy storage in
13 electric utility planning?**

14 A. Yes. Although currently in draft form, the Commission has issued a policy statement
15 that states:

16 *Where utilities historically served generally predictable customer loads with*
17 *a predictable portfolio of generation resources, current policies and recent*
18 *technological advances have introduced unpredictability on both sides of the*
19 *supply and demand equation. Energy storage, with its ability to act as either*
20 *load or generation, is a flexible resource uniquely suited to address these*
21 *challenges from both sides of the equation.*⁶

⁴ Wright, Exh. ECW-1T.

⁵ Dockets UE-151069 and U-161024, DRAFT Report and Policy Statement on Treatment of Energy Storage Technologies in Integrated Resource Planning and Resource Acquisition, (March 6, 2017).

⁶ Id. at ¶ 24

1 **Q. Please describe the unique funding source for this project.**

2 A. PSE took advantage of a portion of the \$40 million the Washington Legislature
3 allocated for clean energy programs in 2013. The company applied for funding and
4 was ultimately awarded a \$3.8 million Smart Grid grant from the Clean Energy
5 Fund. By leveraging the opportunity for this high level of outside funding, PSE was
6 able to build the project for the price at which it became cost-effective.

7
8 **Q. Are the costs related to Glacier Battery Storage known and measurable?**

9 A. Yes. PSE clearly accounted for the costs incurred to install the energy storage system
10 (ESS). PSE has yet to complete its actual testing of optimal use of the system, so
11 future system operating expenses may eventually be even lower. As of May 22,
12 2017, no offsetting costs had been ascertained.⁷ However, the process of learning and
13 quantifying the cost reductions is one of the significant benefits of the project.

14
15 **Q. How have the benefits of Glacier Battery Storage been quantified by PSE?**

16 A. PSE initially identified three main value drivers in their application to Commerce for
17 the Washington Clean Energy Fund:

- 18 1. System Capacity - \$2,217,300 based on avoided incremental peaker cost,
19 2. System Flexibility - \$1,806,200 based on resource integration modeling,
20 and
21 3. Outage Mitigation - \$4,652,166 based on internal PSE modeling.⁸

22

⁷ Snyder, Exh. JES-3 PSE response to Staff Data Request No. 394.

⁸ Snyder, Exh. JES-4C, PSE response to Staff Data Request No. 252, Attachment A, p. 18.

1 **Q. Have other benefits of the ESS been identified?**

2 A. Pacific Northwest National Laboratory (PNNL) is currently testing multiple
3 applications of the Glacier Battery Storage project including:

4 1. Bulk energy services, such as system capacity and shifting energy
5 production needs from peak to off-peak on a daily basis;

6 2. Ancillary services, such as frequency regulation, load following, and wind
7 resource integration;

8 3. Distribution infrastructure services, such as local load shaping and
9 postponement of the distribution system upgrade; and

10 4. Customer energy management, such as outage mitigation.⁹

11 In addition to these direct applications, there is inherent value in the
12 Company investing in an innovative technology. By partnering with PNNL, PSE's
13 demonstration project will help quantify the benefits of the ESS and identify
14 economically optimal usage of storage in PSE's territory and the region.

15
16 **Q. Is Glacier Battery Storage used and useful to Washington customers?**

17 A. Yes. The project is fully functional and, as of June 2, the battery has delivered
18 633,143 kWh of total energy to the grid and received 746,845 kWh.¹⁰ The primary
19 use of the system will be for testing various uses and analysis by PNNL until
20 approximately December 31, 2017. The work done by PNNL can provide significant
21 value to PSE customers as recent rapid cost declines for lithium ion batteries are

⁹ Snyder, Exh. JES-5, PSE response to Staff Data Request No. 392.

¹⁰ Snyder, Exh. JES-6, PSE supplemental response to Staff Data Request No. 392.

1 expected to continue.¹¹ The combination of significant cost declines and
2 demonstrated stacked benefits from PNNL’s analysis may make new energy storage
3 resources a prudent utility investment, without outside funding, in the future.
4 Gaining insight into properly valuing this technology is useful to customers, as
5 energy storage is a key technology to implementing state policy goals of diversifying
6 and decarbonizing energy resources.¹²

7
8 **Q. Has the Company provided adequate support for a prudency finding by the**
9 **Commission for the investment in Glacier Battery Storage?**

10 A. Yes. Company witness Mr. Mullally, through testimony and responses to data
11 requests, provides ample evidence to support the prudency of the Company’s
12 acquisition of the ESS. The Glacier Battery Storage project meets system capacity
13 needs identified in the 2013 IRP as well as distribution needs identified on the
14 Glacier-12 line.¹³ Alternatives were considered, including alternate battery
15 chemistries and alternate sites.^{14,15,16} Mr. Mullally verified that PSE management
16 was consistently updated at project decision points.¹⁷ PSE also kept adequate
17 documentation explaining the Company’s decision to invest in the project.¹⁸

18

¹¹ Snyder, Exh. JES-7, Lazard, “Lazard’s Levelized Cost of Storage Analysis 2.0 – Key Findings” at p. 3.

¹² Dockets UE-151069 and U-161024, DRAFT Report and Policy Statement on Treatment of Energy Storage Technologies in Integrated Resource Planning and Resource Acquisition, at ¶ 41 (March 6, 2017).

¹³ Mullally, Exh. MM-1HCT at 13:3-5 and 14:11-13.

¹⁴ Mullally, Exh. MM-1HCT at 11:8.

¹⁵ Snyder, Exh. JES-8, PSE response to Staff Data Request No. 247.

¹⁶ Snyder, Exh. JES-9, PSE response to Staff Data Request No. 250.

¹⁷ Mullally, Exh. MM-1HCT at 12:14-16.

¹⁸ Snyder, Exh. JES-4C, PSE confidential response to Staff Data Request No. 252. The Clean Energy Fund grant application demonstrates the initial business case that PSE presented to the Department of Commerce prior to commencing construction of the project.

1 **Q. Does Staff support the Company’s proposal to include \$2.8 million in costs**
2 **associated with Glacier Battery Storage in the 2018 rate year?**

3 A. Yes. Staff believes the adjustment adequately satisfies standards for prudence and
4 pro forma adjustments. While the plant is not considered “major,” the project is
5 noteworthy and merits Commission consideration in this case because of the unique
6 technology involved and its direct impact on achieving stated policy goals.

7
8 **Q. What is Staff’s recommendation for Glacier Battery Storage?**

9 A. Staff recommends accepting PSE’s proposed adjustment and plant addition.

10

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

12 A. Yes.