



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

May 14, 2018

Public Utility Commission of Oregon  
Attn: Filing Center  
201 High Street SE, Suite 100  
P.O. Box 1088  
Salem, OR 97308-1088

**RE: UM 1856 Sursurrebuttal Testimony for PGE's Energy Storage Proposal**

Filing Center;

Please find enclosed the following Sursurrebuttal Testimony and Exhibits in the above referenced docket:

- Exhibit 400 – Sursurrebuttal Testimony of Larry Bekkedahl
- Exhibit 500 – Sursurrebuttal Testimony of Darren Murtaugh, Jim Riehl, and Kellie Cloud
- Exhibit 501
- Exhibit 502
- Exhibit 503

If you have any questions or require further information, please call Kalia Savage at (503) 464-7432. Please direct all formal correspondence and requests to the following email: [pge.opuc.filings@pgn.com](mailto:pge.opuc.filings@pgn.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Karla Wenzel". The signature is fluid and cursive, written over a white background.

Karla Wenzel  
Manager, Pricing and Tariffs

Cc: Seth Wiggins, OPUC

Enclosure

1 **Q. Please state your name and position with Portland General Electric Company (PGE or**  
2 **the Company).**

3 A. My name is Larry Bekkedahl. I am Vice President of Transmission and Distribution. My  
4 qualifications are included at the end of this testimony.

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

6 A. The purpose of this testimony is to address the remaining issue in this docket, third-party  
7 ownership of an energy storage system (ESS) located on PGE property and the arguments in  
8 support of third-party ownership, sponsored in joint testimony by Alliance of Western  
9 Energy Consumers (AWEC)<sup>1</sup> and the Northwest and Intermountain Power Producers  
10 Coalition (NIPPC). In addition, this testimony addresses the surrebuttal testimony of the  
11 Public Utility Commission of Oregon Staff (Staff). We refer to Staff, AWEC, and NIPPC  
12 jointly as Parties.

13 **Q. Please provide some background on this issue.**

14 A. PGE filed its Energy Storage System Proposal (Proposal) with the Public Utility  
15 Commission of Oregon (OPUC or Commission) November 1, 2017. The Proposal, provided  
16 earlier as PGE Exhibit 101, was filed in compliance with House Bill 2193,<sup>2</sup> and incorporates  
17 the guidance provided by the Commission in OPUC Docket No. UM 1751. Parties have  
18 reached a partial settlement that resolves many of the issues in this docket and are drafting  
19 the stipulation and supporting testimony. As part of the settlement, there is only one  
20 remaining issue: third-party ownership, as it pertains to the Coffee Creek ESS proposal. My  
21 testimony addresses this issue at a policy level.

---

<sup>1</sup> Formerly Industrial Customers of Northwest Utilities (ICNU). The change became effective in this docket, UM 1856, on April 2, 2018.

<sup>2</sup> H.B. 2193, 78<sup>th</sup> Legislative Assembly, 2015,  
<https://olis.leg.state.or.us/liz/2015R1/Downloads/MeasureDocument/HB2193>

1 **Q. How do you respond to Staff and AWEC-NIPPC's arguments that third parties should**  
2 **have an opportunity to own the Coffee Creek ESS on PGE property?**

3 A. Given the risks, PGE does not support third-party ownership of the Coffee Creek ESS as it  
4 would be located on utility property. The Company does not lease any property in the  
5 immediate vicinity of generation or substation facilities to third parties. We believe that the  
6 decision to allow a third party to own assets on utility property is a PGE management  
7 decision, as noted by the Commission in its recent orders.

8 **Q. You reference Commission orders noting that the decision to allow third parties to own**  
9 **assets on PGE property is a PGE management decision. Please elaborate.**

10 A. The Commission stated in Order No. 11-371,<sup>3</sup> that directing PGE to make its site available  
11 to prospective bidders is a legal question, and whether the Company makes the site available  
12 is a management decision subject to a prudence review. In an earlier order regarding  
13 competitive bidding, Order No. 06-446,<sup>4</sup> the Commission declined to require a utility to  
14 offer its site locations for development by independent power producers and stated that this  
15 decision is one for the utility. The PGE executive team has decided that the risks of  
16 allowing such third-party owned ESSs on PGE property are not something the Company  
17 chooses to bear.

18 **Q. AWEC-NIPPC argue that risks (cybersecurity, financial/insolvency, transaction**  
19 **complexity) can be allocated in the contracting process. How do you respond?**

20 A. PGE recognizes that the contracting process can be used to allocate known risks. Unknown  
21 risks cannot be allocated. As we recently experienced with the Carty project, best efforts to

---

<sup>3</sup> Commission Order 11-371, page 6.

<sup>4</sup> Commission Order 06-446, pages 5-6.

1 allocate risks can end in years of litigation in multiple forums with great uncertainty as to  
2 outcomes for the Company and its customers.<sup>5</sup>

3 **Q. Looking at this issue from an industry lens, what is your understanding of the general**  
4 **state of storage development with the investor-owned utilities in the U.S.?**

5 A. From my involvement in industry groups and discussions with peers, I understand that much  
6 of the ESS activity in the last year or so has been undertaken by or for regulated utilities.  
7 PGE is not alone in now including storage in its integrated resource plan. Among the ESS  
8 projects underway are by Tucson Electric Power (solar with storage),<sup>6</sup> Arizona Public  
9 Service (APS), National Grid, and Duke Energy (Duke). The ESSs serve a number of uses,  
10 including: deferring incremental transmission, frequency regulation, bolstering grid  
11 reliability,<sup>7</sup> deferring investment in a new ocean cable to the island of Nantucket and to back  
12 up a diesel generator by National Grid,<sup>8</sup> solar and storage to power a remote  
13 communications tower in a national park which would defer Duke Transmission and  
14 Distribution costs to upgrade a distribution feeder,<sup>9</sup> and responding to emergencies and  
15 providing grid stability (e.g., Aliso Canyon gas leaks in Southern California in 2016)<sup>10</sup>.

---

<sup>5</sup> Portland General Electric Company. "10-Q." SEC Filings, PGE, 27 Apr. 2018,

<http://investors.portlandgeneral.com/static-files/fe646a25-b985-40fb-a965-89514e0b3c4f>

<sup>6</sup> Maloney, Peter. "How Can Tucson Electric Get Solar Storage for 4.5¢/KWh?" Utility Dive, Industry Dive, 30 May 2017, [www.utilitydive.com/news/how-can-tucson-electric-get-solar-storage-for-45kwh/443715/](http://www.utilitydive.com/news/how-can-tucson-electric-get-solar-storage-for-45kwh/443715/)

<sup>7</sup> Maloney, Peter. "Tucson Electric Aims for Greater Reliability with 3 New Battery Storage Projects." Utility Dive, Industry Dive, 9 Feb. 2017, [www.utilitydive.com/news/tucson-electric-aims-for-greater-reliability-with-3-new-battery-storage-pro/435758/](http://www.utilitydive.com/news/tucson-electric-aims-for-greater-reliability-with-3-new-battery-storage-pro/435758/)

<sup>8</sup> Leary, Kyree. "The Island of Nantucket Will Be Powered by a 48 MWh Tesla Powerpack System." News, Futurism, LLC, 8 Nov. 2017, <https://futurism.com/island-nantucket-powered-tesla-powerpack-system/>

<sup>9</sup> Maloney, Peter. "Top Energy Storage Projects Driving the Sector in 2017." Utility Dive, Industry Dive, 28 Nov. 2017, [www.utilitydive.com/news/top-energy-storage-projects-driving-the-sector-in-2017/511723/](http://www.utilitydive.com/news/top-energy-storage-projects-driving-the-sector-in-2017/511723/)

<sup>10</sup> Ola, Danielle. "Blackouts & Batteries: How California Pulled off the World's Fastest Grid-Scale Battery Procurement." Energy Storage News, Solar Media Ltd., 26 Apr. 2017, [www.energy-storage.news/blogs/blackouts-batteries-how-california-pulled-off-the-worlds-fastest-grid-scale](http://www.energy-storage.news/blogs/blackouts-batteries-how-california-pulled-off-the-worlds-fastest-grid-scale).

1 California is a leader in industry storage given its significant mandate.<sup>11</sup> California utilities  
2 are working toward an approved target of 1.3 Gigawatts (1,325 MW) of storage by 2020.<sup>12</sup>

3 **Q. To your knowledge, do you know of any instances in which state utility commissions**  
4 **have directed the ownership of storage facilities on utility property, such as**  
5 **substations?**

6 A. No. In reaching out to peers and our industry association, we know that our management  
7 decision is consistent with that of other investor owned utilities. Consistent with our  
8 proposal for Coffee Creek, Pacific Gas & Electric (PG&E) has maintained that the utility  
9 must own any ESSs on utility-owned property. Consistent with our proposal, PG&E has  
10 contracted with third parties to construct ESSs at their substations, but only as turn-key.<sup>13</sup>

11 We also confirmed with Southern California Edison (SCE) that it does not have any third-  
12 party owned ESS on utility property. Like PG&E, SCE has purchased turn-key storage  
13 projects, meaning they are developed by a third party and owned by the utility. One such  
14 SCE project is the Tesla-built ESS at the SCE Mira Loma substation.<sup>14</sup> Note that this is in  
15 direct contradiction to the assertions of AWEC-NIPPC in their testimony.<sup>15</sup> The Tesla  
16 developed Brown's Valley ESS at the PG&E Rio Oso substation and the Tesla developed  
17 ESS at the SCE Mira Loma substation, are not owned by Tesla or any other 3<sup>rd</sup> party; both

---

<sup>11</sup> Energy storage systems, A.B. 2154, Skinner, 2009-2010.

[https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=200920100AB2514](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100AB2514)

<sup>12</sup> Public Utility Commission of California, "Energy Storage", CPUC, 2018,

<http://www.cpuc.ca.gov/General.aspx?id=3462>

<sup>13</sup> Anguelov, Olya, et al. "PG&E Application No. 16-03-XXX Filed in Docket CPUC U 39 E." Pacific Gas & Electric, PG&E, 1 Mar. 2016,

[www.pge.com/includes/docs/pdfs/b2b/wholesaleelectricssuppliersolicitation/Energy\\_Storage\\_2016/PGE\\_2016\\_ES\\_Plan\\_Testimony\\_FINAL.pdf](http://www.pge.com/includes/docs/pdfs/b2b/wholesaleelectricssuppliersolicitation/Energy_Storage_2016/PGE_2016_ES_Plan_Testimony_FINAL.pdf)

<sup>14</sup> Simon, Anne E., "Agenda ID #16447 Ratesetting", CPUC, 4 Apr. 2018,

<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M213/K120/213120377.PDF>

<sup>15</sup> AWEC-NIPPC Exhibit 300, page 4.

1 were developed as turn-key projects for utility ownership. Additionally, California's state  
2 statutes<sup>16</sup> make it unlawful for a third party to own distribution facilities in that state.

3 **Q. Do you believe that the positions of Staff and AWEC-NIPPC are consistent with the**  
4 **state of development of storage within the industry?**

5 A. No. For example, Parties refer to ESSs within California in their testimonies. When  
6 California adopted its ESS procurement framework, the issue of third-party ownership of  
7 storage assets serving a distribution function was discussed.<sup>17</sup> The California utilities agreed  
8 that third parties should not own storage assets serving a distribution reliability function.  
9 Other stakeholders, including the Interstate Renewable Energy Council (IREC) and Friends  
10 of the Earth agreed that third parties should not own or operate storage facilities on the  
11 utility's distribution system. California's energy storage targets and law support third party-  
12 owned, customer-owned, and utility-owned energy storage.<sup>18</sup> Unlike California, in Oregon,  
13 ESSs are still in a fledgling state, with a much smaller procurement target, aimed at pilots  
14 and gaining early learnings. Thanks to the Oregon legislature, we are prepared to launch  
15 these ESS pilots to learn more about how ESSs works with our system and demonstrate uses  
16 and value for customers. We are confident that costs will decrease and over time, more  
17 storage will be developed and procured with opportunities for third-party ownership, beyond

---

<sup>16</sup> California Public Utilities Code 399.2 states: "(a)(1) It is the policy of this state, and the intent of the Legislature, to reaffirm that each electrical corporation shall continue to operate its electric distribution grid in its service territory and shall do so in a safe, reliable, efficient, and cost-effective manner. (2) In furtherance of this policy, it is the intent of the Legislature that each electrical corporation shall continue to be responsible for operating its own electric distribution grid including, but not limited to, owning, controlling, operating, managing, maintaining, planning, engineering, designing, and constructing its own electric distribution grid, emergency response and restoration, service connections, service turnons and turnoffs, and service inquiries relating to the operation of its electric distribution grid, subject to the commission's authority."

<sup>17</sup> Ferron, Mark J., Michael R. Peevey, "Decision Adopting Energy Storage Procurement Framework and Design Program", CPUC, 16 December 2010,

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K533/79533378.pdf>

<sup>18</sup> Public Utility Commission of California, Ibid.

1 the offering of residential storage we are offering at this stage. Third parties will be offered  
2 opportunities to own—but not on our property. We want to gain the full value of the  
3 learnings associated with these pilots and take the learnings to further leverage the value of  
4 storage for our customers.

5 **Q. Is PGE generally opposed to third-party ownership of ESSs?**

6 A. No. Third parties can develop and own ESSs and interconnect it to our system today.<sup>19</sup> In  
7 addition, in our residential ESS proposal, we offer third party (customer) and utility  
8 ownership opportunities.<sup>20</sup> We anticipate that following these initial storage pilots, as ESS  
9 costs come down, more ESSs will be deployed. There will be opportunities for third-party  
10 ownership as long as the systems are not on PGE property.

11 The issue for PGE is who owns the assets on our Coffee Creek property. Since we own  
12 the site and the ESS would be connected directly to our Coffee Creek substation, third-party  
13 ownership of the Coffee Creek ESS poses safety, liability, cybersecurity, and financial risks.

14 **Q. While PGE has submitted more detailed testimony on risks, please summarize the**  
15 **identified risks.**

16 A. Our major concern is that the Coffee Creek ESS is in physical proximity to the substation,  
17 and without full control<sup>21</sup> of the asset, poses a safety risk.<sup>22</sup> Any incident (e.g.,  
18 environmental, safety) that occurs on our property poses a liability risk to PGE and our  
19 customers.<sup>23</sup> Cybersecurity risks exist any time third parties have access to our system,

---

<sup>19</sup> PGE Exhibit 300, page 3.

<sup>20</sup> PGE Exhibit 101, pages 103-104.

<sup>21</sup> Full control means that PGE would have absolute control over the operation and decision making regarding the Coffee Creek ESS.

<sup>22</sup> PGE Exhibit 300, page 3.

<sup>23</sup> PGE Exhibit 300, page 3.

1 which cannot be mitigated with additional monetary investment.<sup>24</sup> For example, a  
2 cybersecurity risk can be in the form of reduced reliability and reduced power quality,  
3 especially to the degree that the ESS is integrated into the substation control system and  
4 used as the primary means of managing the distribution voltage. Lastly, we expose  
5 ourselves, and our customers, to financial risks if the third party becomes insolvent or  
6 bankrupt.<sup>25</sup>

7 **Q. What is the trend of third-party ownership on utility critical infrastructure?**

8 A. Though Coffee Creek substation is not considered a critical infrastructure, third-party  
9 ownership of assets within a utility-owned facility, recognized as critical infrastructure, is  
10 becoming more risky due to access, including remote access. Over the last several years, the  
11 Federal Energy Regulatory Commission (FERC) has taken a close look at supply chain and  
12 vendor management that pose a risk to the Bulk Electric System.<sup>26</sup> For example, in July  
13 2016, the FERC directed the North American Electric Reliability Corporation (NERC) to  
14 draft standards to address issues including vendor remote access and vendor risk  
15 management and procurement controls.<sup>27</sup> This direction indicates real industry and  
16 regulatory cybersecurity concerns related to vendor remote access, which can come of third-  
17 party ownership on utility critical infrastructure and distribution facilities.

---

<sup>24</sup> PGE Exhibit 300, page 4.

<sup>25</sup> PGE Exhibit 300, page 4.

<sup>26</sup> As defined by NERC, the Bulk Electric System (BES) are essentially all Transmission Elements operated at 100 kV or higher and Real Power and Reactive Power resources connected at 100 kV or higher. This does not include facilities used in the local distribution of electric energy. For more information, go to:

[https://www.nerc.com/pa/RAPA/BES%20DL/bes\\_phase2\\_reference\\_document\\_20140325\\_final\\_clean.pdf](https://www.nerc.com/pa/RAPA/BES%20DL/bes_phase2_reference_document_20140325_final_clean.pdf)

<sup>27</sup> Revised Critical Infrastructure Protection Reliability Standards, Order No. 829, Docket No. RM15-14-002, Federal Energy Regulatory Commission (FERC), 21 Jul 2016, <https://www.ferc.gov/whats-new/comm-meet/2016/072116/E-8.pdf>

1 **Q. Have you identified all of the risks?**

2 A. We do not know. This is an area where we do not know what we do not know. We have  
3 undertaken our best effort to identify risks and as the projects advance we will learn more  
4 and potentially become aware of other risks.

5 **Q. Is PGE prepared to demonstrate prudence at the time it seeks cost recovery for the**  
6 **deployed?**

7 A. Yes. While the decision not to open utility-owned property to ESSs owned by third parties  
8 is a management decision, we are prepared to demonstrate the prudence of the projects when  
9 we seek cost recovery. Like stakeholders, we also are interested in minimizing costs to  
10 customers and our request for proposal process delivers on that. Following our standard  
11 procurement process and the competitive bidding requirements for storage,<sup>28</sup> we will seek  
12 competitive bids to engineer, procure, and construct the ESS at Coffee Creek. That  
13 competitive process allows us to engage the market and gain the experience of market  
14 players for the benefit of customers—without compromising security and the full knowledge  
15 of the learnings that comes from owning the ESS.

16 **Q. You mention the learnings. Why is this particular project, sited at a utility-owned**  
17 **substation important to the learnings PGE hopes to gain?**

18 A. This particular project is unique because it taps into several different use cases including  
19 capacity, energy and ancillary services, and outage mitigation/avoided distribution  
20 investment.<sup>29</sup> Given this, we have identified learnings we hope to gain, including:

- 21 • Gaining experience from contracting with an ESS developer in procuring,  
22 engineering, and constructing an ESS;

---

<sup>28</sup> Commission Order No. 16-504, page 10.

<sup>29</sup> PGE Exhibit 500, pages 24-25.

- 1           • Understanding the ability of an ESS to support the entire substation load during  
2           different transmission outage scenarios;
- 3           • Gaining experience developing, managing, contracting, constructing, operating,  
4           and maintaining a substation-located ESS;
- 5           • Gaining experience integrating the ESS into substation controls, effectiveness in  
6           replacing/supplementing other substation control devices (e.g., capacitor banks),  
7           and testing capability to influence future substation design;
- 8           • Understanding how a centralized ESS can simultaneously benefit the transmission  
9           and distribution systems; and
- 10          • Identifying which benefits and issues do and do not scale.

11   **Q. Given the importance of the learnings, what do you ask of the Commission?**

12   A. On behalf of PGE, I request that the Commission deny the request of Staff and AWEC-  
13   NIPPC to direct us to include a third-party ownership option of the ESS at Coffee Creek and  
14   to also deny AWEC-NIPPC's request that we scratch the Coffee Creek substation site and  
15   choose another one where third-party ownership is an option. To do that intrudes on the  
16   management discretion of the company and eliminates the unique learnings that can be  
17   gained from this site's multiple use cases.

## Qualifications

1 **Q. Mr. Bekkedahl, please describe your educational background and qualifications.**

2 A. I received a Bachelor of Science Degree in Electrical Engineering from Montana State  
3 University. I serve on the Electric Power Research Institute's Power Delivery executive  
4 committee, as a U.S. board member for the International Council on Large Electric Systems  
5 (CIGRE), and on the member's advisory committee for Peak Reliability, the Reliability  
6 Coordinator for the Western Grid. My employment with PGE started in August 2014 as  
7 Vice President of Transmission and Distribution. Prior to that, I served as Senior Vice  
8 President for Transmission Services at the Bonneville Power Administration (BPA), and  
9 have held other leadership and management positions at BPA, Clark Public Utilities,  
10 PacifiCorp and Montana Power Company. I also have international utility experience  
11 gained by participating in a six month exchange program with Hokuriku Electric Power  
12 Company in Toyama, Japan, developing hydro projects in the Philippines, and participating  
13 in United States Agency for International Development (USAID) exchange projects in  
14 Bangladesh, the Republic of Georgia, and the Philippines.

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

16 A. Yes.

**Contents**

I. Introduction ..... 1  
II. PGE’s Response to Staff’s Testimony..... 3  
III. PGE’s Response to AWEC-NIPPC’s Testimony ..... 9  
IV. Conclusion..... 16  
V. Qualifications..... 17  
List of Exhibits..... 18

## I. Introduction

1 **Q. Please state your name and position with Portland General Electric Company (PGE or**  
2 **the Company).**

3 A. My name is Darren Murtaugh. I am the Manager of Transmission and Distribution  
4 Planning. My qualifications appear in PGE Exhibit 300.

5 My name is Jim Riehl. I am a Project Manager in the Generation, Transmission, and  
6 Distribution Project Management Office. My qualifications appear in PGE Exhibit 100.

7 My name is Kellie Cloud. I am the Manager of Substation Operations Technology &  
8 Distribution Operations. My qualifications appear at the end of this testimony.

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

10 A. The purpose of this testimony is to supplement PGE Exhibit 400, Testimony of Larry  
11 Bekkedahl, and address the specific concerns regarding PGE’s decision not to allow third  
12 parties to own the Company’s proposed energy storage system (ESS) at the Coffee Creek  
13 substation, which is on PGE-owned property. In joint surrebuttal testimony and the  
14 arguments in support of third-party ownership by the Alliance of Western Energy  
15 Consumers (AWEC)<sup>1</sup> and the Northwest and Intermountain Power Producers Coalition  
16 (NIPPC), as well as the Public Utility Commission of Oregon Staff (Staff), they support the  
17 opportunity for third parties to own Coffee Creek ESS.<sup>2</sup> This issue and related concerns are  
18 the only remaining matters that have not been tentatively settled. The Parties are working on  
19 a stipulation and supporting testimony for the settled matters. Our testimony is organized

---

<sup>1</sup> Formerly Industrial Customers of Northwest Utilities (ICNU). The change became effective in this docket on April 2, 2018.

<sup>2</sup> PGE Exhibit 101, pages 71-86.

1 according to PGE’s response to each filed testimony: Staff and AWEC-NIPPC (joint  
2 testimony). We refer to Staff, AWEC, and NIPPC jointly as Parties.

## II. PGE’s Response to Staff’s Testimony

1 **Q. Please summarize Staff’s concerns.**

2 A. Staff opines that PGE should be open to third-party ownership of the ESS at the Coffee  
3 Creek substation, noting that there could be customer benefits associated with this  
4 ownership model. Staff then responds to the Company’s reasons for opposing third-party  
5 ownership of the ESS on the Coffee Creek substation property and advises how the risks  
6 PGE identifies could be addressed to allow for the option.<sup>3</sup>

7 **Q. How does PGE respond to these concerns?**

8 A. Like PGE, Staff is appropriately focused on customer benefits. The Company chose a  
9 substation to site an ESS to tap into multiple use cases and maximize learnings for future  
10 ESS deployment.<sup>4</sup> Staff asserts that PGE’s position in not allowing third-party ownership of  
11 the ESS at the Coffee Creek substation means that customers may lose benefits of the  
12 experience, expertise, and potentially lower costs through economies of scale, brought by  
13 competitive market participants like Tesla Motors (Tesla).<sup>5</sup> Staff may not fully appreciate  
14 the Company’s plans to tap the competitive marketplace and expertise through its Request  
15 for Proposal (RFP) process. Like the California utilities, PGE’s RFP process could result in  
16 a third party engineering, procuring, and constructing a turn-key ESS that, when it becomes  
17 ready for in-service, is then turned over to the utility to own and operate. With regard to  
18 Staff’s suggestions on how the Company might address the identified risks of third-party  
19 ownership at the Coffee Creek site, we appreciate the suggestions, noting that this is a PGE

---

<sup>3</sup> Staff Exhibit 200, pages 2-3. Among the Staff suggestions are to: evaluate the benefits of third-party ownership of an ESS at Coffee Creek substation and weigh costs and benefits; write the RFP to allocate risks identified (including cybersecurity), share operational data, and lease or sell part of its Coffee Creek substation property.

<sup>4</sup> PGE Exhibit 101, pages 73-74.

<sup>5</sup> Staff Exhibit 200, pages 5-6.

1 management decision and we understand that the Coffee Creek ESS will undergo a  
2 prudency review on the reasonableness of its choice of the projects. It bears noting that  
3 these are pilot projects, at a nascent stage in ESS deployment, and we envision that with  
4 more development, costs will come down, and there will be more opportunities for third-  
5 party ownership of ESSs.<sup>6</sup>

6 **Q. So, PGE is not opposed to third-party ownership of ESSs?**

7 A. Correct. PGE is not opposed to third-party ownership of ESSs on nonutility-owned sites. In  
8 fact, third parties can develop and own an ESS and interconnect it to PGE’s system today.<sup>7</sup>  
9 In addition, we anticipate we will see more ESSs owned by third parties as the market  
10 develops.

11 **Q. Describe PGE’s plan for procuring the Coffee Creek ESS.**

12 A. Should the Commission approve the project’s development, PGE will develop site specific  
13 requirements and project specifications for the project to include in a RFP for portions of or  
14 all of the engineering, procurement, and construction services required. Following the  
15 development of the RFP, and in compliance with the Commission’s storage guidelines, PGE  
16 will solicit feedback on the draft RFP from stakeholders and the Commission. In addition,  
17 PGE will develop bid evaluation criteria with the RFP and scoring, which PGE will submit  
18 to the Commission pursuant to the guidelines.<sup>8</sup>

---

<sup>6</sup> See PGE Exhibit 101, pages 24-27, for more information on the ESS landscape.

<sup>7</sup> PGE Exhibit 300, page 3.

<sup>8</sup> For more information on the procurement process, see PGE/PGE Exhibit 101, page 76.

1 **Q. How would the procurement process differ if a third party were to own and procure**  
2 **the ESS?**

3 A. Unless the third parties were self-performing the work or a portion of the work, a third party  
4 would likely seek bids from the same competitive market ESS developers as PGE. That  
5 third party would then use the most competitive bid received, with a mark-up, and submit it  
6 into a utility’s RFP specifying the ESS would retain ownership of the system following  
7 commissioning.

8 **Q. If there is no difference between PGE and a third party receiving bids from an ESS**  
9 **developer, do you agree with Staff<sup>9</sup> and AWEC-NIPPC<sup>10</sup> that there is a possibility of**  
10 **third-party ownership reducing costs?**

11 A. It is hard to know, but unlikely. Neither PGE nor the third party could be able to confirm  
12 more definitively estimated project costs without issuing a RFP to ESS developers or  
13 subcontractors. The resulting RFP bids would help determine the total project costs for PGE  
14 or the third party. Despite this, Parties made claims regarding cost reductions or savings  
15 from third-party ownership of the ESS at Coffee Creek. For example, Staff stated that they  
16 “[believe] that ratepayers could potentially save a significant amount from [third-party  
17 ownership]”,<sup>11</sup> but then failed to state how. AWEC-NIPPC referenced ICNU-NIPPC  
18 Exhibit 200 in which Daniel Crotzer testifies that it would cost more for PGE to own the  
19 ESS versus Fractal Energy Storage Consultants (Fractal). However, this argument is flawed  
20 and is addressed in PGE Exhibit 300, pages 5-6.<sup>12</sup>

---

<sup>9</sup> Staff Exhibit 200, page 5.

<sup>10</sup> AWEC-NIPPC Exhibit 300, page 3.

<sup>11</sup> Staff Exhibit 200, page 6.

<sup>12</sup> Crotzer estimates achievable project costs based upon its recent RFP results, with a 20% reduction to battery costs applied as Crotzer’s own estimation of the declining cost curve. In contrast, PGE’s indicative pricing was derived

1 A likely variation in project cost between possible ownership entities is the cost of  
2 capital. Due to regulation, PGE’s cost of capital is public<sup>13</sup> whereas a third-party’s cost of  
3 capital is not. Thus, the Company cannot speculate on whose cost of capital is more  
4 competitive.

5 **Q. Does PGE’s procurement process conform to the storage guidelines<sup>14</sup> issued by the**  
6 **Commission governing ESSs?**

7 A. Yes. In its order setting forth storage guidelines, the Commission adopted competitive  
8 bidding requirements for House Bill 2193<sup>15</sup> (HB 2193) projects, noting that the energy  
9 storage procurements contemplated by the legislation would not meet the threshold for the  
10 guidelines that apply to major resource acquisitions under OPUC Docket No. UM 1182  
11 (UM 1182).<sup>16</sup>

12 **Q. What are the competitive bidding requirements for bidding storage projects,**  
13 **Commission Order No. 16-504<sup>17</sup> (Order 16-504) and how will PGE meet each one?**

14 A. The competitive bidding requirements are provided below, along with an explanation of how  
15 PGE will meet them:

16 “1. An electric company may award a contract for a project without  
17 competition if it determines and presents justification that only a

---

from a request for information (RFI) process, reflecting battery manufacturers’ internal cost curve assumptions for a 2020 Cash on Demand project. PGE has repeatedly stated that these cost estimates may not reflect current market prices or the competitive prices that will ultimately be determined via a RFP process (PGE Exhibit 200, page 5; PGE Exhibit 300, page 6).

<sup>13</sup> Commission Order No. 17-511, page 6.

<sup>14</sup> Commission Order No. 16-504, filed in UM 1751, adopt the storage guidelines that apply to PGE’s proposal.

<sup>15</sup> H.B. 2193, 78<sup>th</sup> Legislative Assembly, 2015,

<https://olis.leg.state.or.us/liz/2015R1/Downloads/MeasureDocument/HB2193>

<sup>16</sup> Commission Order No. 16-504, page 10.

<sup>17</sup> Commission Order No. 16-504, Ibid.

1 single vendor or contractor is capable of meeting the requirements of  
2 the project.”

3 The Company does not plan to award the contract without competition.

4 “2. Where the requirements for sole source procurement are unmet,  
5 electric companies must use a competitive process to award contracts.

6 a. The electric companies will bear the burden of demonstrating that  
7 they followed a fair, competitive solicitation process to identify  
8 all vendors with the requisite expertise, experience, and  
9 capability to install viable projects.”

10 PGE plans to use a competitive process, as outlined above, to award contracts and is  
11 prepared to demonstrate, during prudency review, that we followed a fair and competitive  
12 solicitation process to identify vendors with the needed expertise, experience and capability  
13 to install the project.

14 “b. The electric companies must give the Commission and  
15 stakeholders the opportunity to review the electric companies'  
16 Request for Proposal (RFP) design and offer nonbinding input.”

17 The Company will provide this opportunity for stakeholder review and nonbinding input  
18 of the RFP design as part of the RFP process.

19 “c. The electric companies must summarize and report to the  
20 Commission their solicitation process and scoring approach. The  
21 report should be included with the formal project proposal  
22 submitted to the Commission, or, if bidding occurs after  
23 Commission authorization, at a special public meeting to follow.”

1 PGE will prepare and issue a final report on the RFP process and scoring approach to the  
2 Commission as required.

3 **Q. Do the Commission storage guidelines, or the authority under which the guidelines**  
4 **were issued (HB 2193),<sup>18</sup> direct the utilities to consider third-party ownership for ESSs**  
5 **at sites owned by the utility?**

6 A. No. With regard to the sponsoring legislation, HB 2193, the legislature did not direct third-  
7 party ownership for these initial ESS pilots.<sup>19</sup>

8 **Q. Rather than the Commission’s competitive guidelines for storage you just discussed,**  
9 **Staff raises competitive bidding guidelines in the AR 600 rulemaking underway,**  
10 **related to major resource acquisitions.<sup>20</sup> Does that apply to PGE’s proposal?**

11 A. No. As noted above, the Order 16-504, states that the UM 1182 major resource acquisitions  
12 process does not apply to storage procured under HB 2193.

---

<sup>18</sup> H.B. 2193, Ibid.

<sup>19</sup> In Section 1 of HB 2193, it only refers to procure, and defines it as part of a qualifying energy storage systems that have the capacity of or the energy.

<sup>20</sup> Staff Exhibit 200, page 8.

### III. PGE’s Response to AWEC-NIPPC’s Testimony

1 **Q. Please summarize the recommendation, issues, and concerns expressed in the AWEC-**  
2 **NIPPC joint testimony.**

3 A. AWEC-NIPPC recommend that the Commission direct PGE to consider third-party  
4 ownership of the ESS at the Coffee Creek substation. Alternatively, they recommend the  
5 Commission reject the Coffee Creek project and require the Company to choose project sites  
6 at which third-party ownership is an option. As a foundation to their joint testimony,  
7 AWEC-NIPPC rely on other utilities having allowed third-party owners of ESSs on utility  
8 substation property, claiming that PGE is being unreasonable given that this has already  
9 been done in other states. AWEC-NIPPC take issue with the Company’s identified potential  
10 risks of third-party ownership of the Coffee Creek ESS project and assert that economic  
11 benefits of utility ownership do not apply here. AWEC-NIPPC take issue with utility  
12 ownership of the Coffee Creek ESS.

13 **Q. How does PGE respond to the recommended Commission action?**

14 A. PGE disagrees with the recommendation. It ignores that the ownership of an asset on the  
15 Company’s property is a PGE management decision, recognized by the Commission in  
16 recent orders.<sup>21</sup> PGE management will assess the risks,<sup>22</sup> determine what risks are  
17 acceptable to bear, and make decisions. Ultimately, all the projects in its proposal are  
18 subject to Commission review for prudence, which the Company is prepared to make at the  
19 time cost recovery is sought. If the Coffee Creek ESS site were rejected altogether, PGE,  
20 stakeholders, and the Commission would lose the learnings associated with this site. In

---

<sup>21</sup> PGE Exhibit 400, page 2.

<sup>22</sup> PGE Exhibit 400, pages 6-7.

1 proposing the Coffee Creek ESS, the Company seeks to maximize the learnings from these  
2 use cases, sharing the knowledge with stakeholders and the Commission and thus advancing  
3 energy storage in Oregon.

4 **Q. What does AWEC-NIPPC assert about other utilities allowing third-party ownership**  
5 **of ESSs on utility property?**

6 A. AWEC-NIPPC assert that allowing for third-party ownership of the Coffee Creek ESS  
7 should not be too difficult, given that other utilities have been able to reach such  
8 agreements.<sup>23</sup> They also assert that other utilities have already found ways to contract with  
9 third-party owners of ESSs sited at utility substations,<sup>24</sup> and that other utilities have  
10 confronted and solved the very issues PGE claims as obstacles.<sup>25</sup> AWEC-NIPPC provide, as  
11 substation sited ESSs with third-party ownership, examples of the Tesla systems at Southern  
12 California Edison’s (SCE’s) Mira Loma substation and Pacific Gas and Electric’s (PG&E’s)  
13 Rio Oso (Browns Valley) substation.<sup>26</sup> AWEC-NIPPC also imply that the San Diego Gas &  
14 Electric (SDG&E) Escondido substation ESS may also be a third-party owned ESS on utility  
15 property.

16 **Q. Is this assertion that these utility substations have third-party owned ESSs true?**

17 A. No. With regard to all three cited ESSs, PGE has confirmed that the utilities contracted with  
18 Tesla to develop the ESS at their respective substations as a turn-key operation—turning  
19 ownership over to the utility when the systems are completed.

---

<sup>23</sup> AWEC-NIPPC Exhibit 300, page 2.

<sup>24</sup> AWEC-NIPPC Exhibit 300, page 3.

<sup>25</sup> AWEC-NIPPC Exhibit 300, pages 4, 8, and 11-12.

<sup>26</sup> AWEC-NIPPC Exhibit 300, page 4.

1 **Q. Please describe the SCE Mira Loma substation site.**

2 A. As authorized in Resolution E-4791, SCE filed its application<sup>27</sup> where it proposed four  
3 ESSs, including two adjacent to the Mira Loma substation (Mira Loma) and filed  
4 testimony<sup>28</sup> in support of its application. The Public Utility Commission of California  
5 (CPUC) approved SCE’s application in which SCE procured the utility-owned ESSs at Mira  
6 Loma from Tesla.<sup>29</sup>

7 **Q. Please describe the PG&E Brown’s Valley (Rio Oso) ESS site.**

8 A. As authorized in Resolution E-4791, PG&E filed its application (2016 Energy Storage  
9 Procurement Plan) and prepared testimony.<sup>30</sup> In its Plan, PG&E discusses the CPUC’s  
10 Energy Storage Decision’s identification of specific projects that are approved to offset  
11 PG&E’s storage targets including installations associated with the Electric Program  
12 Investment Charge (EPIC) program. In that discussion, PG&E notes that it has begun  
13 construction of its Brown’s Valley Project as part of EPIC.<sup>31</sup> In its Plan, PG&E states that if  
14 the energy storage device is a distribution assets that supports distribution system reliability,  
15 it must be utility owned.

---

<sup>27</sup> Combs, Janet S., Jeffrey Renzi, Rebecca Meiers-De Pastino, “Application of Southern California Edison Company (U 338-E) For Recovery of Aliso Canyon Utility Owned Energy Storage Costs”, CPUC, SCE, 30 Mar. 2017, <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M183/K389/183389097.PDF>

<sup>28</sup> Kaushik, V. et al, “Testimony in Support of Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs”, CPUC, SCE, 30 Mar. 2017, <http://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1703020/596/191912172.pdf>

<sup>29</sup> Simon, Anne E., “Agenda ID #16447 Ratesetting”, CPUC, 4 April 2018, <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M213/K120/213120377.PDF>;

<sup>30</sup> Anguelov, Olya, et al. “PG&E Application No. 16-03-XXX Filed in Docket CPUC U 39 E.” Pacific Gas & Electric, PG&E, 1 Mar. 2016, [www.pge.com/includes/docs/pdfs/b2b/wholesaleelectricssuppliersolicitation/Energy\\_Storage\\_2016/PGE\\_2016\\_ES\\_Plan\\_Testimony\\_FINAL.pdf](http://www.pge.com/includes/docs/pdfs/b2b/wholesaleelectricssuppliersolicitation/Energy_Storage_2016/PGE_2016_ES_Plan_Testimony_FINAL.pdf)

<sup>31</sup> Anguelov, Olya, et al. Ibid; see pages 2-2 to 2-3 and Chapter 2 Attachment A for inclusion of Browns Valley in a list of storage resources procured to date in all Commission proceedings and noting PG&E as owner with Tesla as technology manufacturer.

1 **Q. Please describe the SDG&E Escondido substation site.**

2 A. As authorized in Resolution E-4791, SDG&E filed its application with Advice Letter 2924-  
3 E requesting approval of two utility-owned energy storage contracts with AES Energy  
4 Storage LLC for ESSs to come online in early 2017. On August 19, 2016, in Resolution E-  
5 4798 (provided as Exhibit 501), the CPUC approved them.

6 **Q. Given that AWEC-NIPPC’s claim of the three existing third-party substation sited**  
7 **ESSs is not true, is PGE’s position disallowing third-party ownership at the Coffee**  
8 **Creek substation ESS, unreasonable?**

9 A. No. The basis for AWEC-NIPPC’s claim that PGE is being unreasonable—because there  
10 are other utilities that have solved the problems and address the concerns PGE raises, is  
11 untrue. They asserted, and then relied on extensively in their testimony, that other utilities  
12 (SDG&E, PG&E, and SCE) allowed third-party ESS ownership at their, respectively,  
13 Escondido, Rio Oso, and Mira Loma substations. This is a significant misrepresentation and  
14 the arguments they build on this foundation fail. PGE is being reasonable and is acting  
15 consistent with the cited California utilities approach for procuring ESSs—aiming to reach  
16 out to experts in the competitive market for the engineering and construction of the ESS but,  
17 given recognized risks, ultimately retaining ownership once complete. In this way, PGE  
18 better manages the risks and customers benefit from market experience, expertise,  
19 economies of scale, and potential cost savings given its competitive bidding process.

20 **Q. To your knowledge, are there any utilities that have third parties owning ESSs on**  
21 **utility substation property?**

22 A. No. After outreach to peers in California and an industry association, PGE knows of no  
23 third-party owned ESSs that are sited on utility-owned property. We did, however, learn of

1 projects in which the utility ran a competitive process for third parties to engineer and  
2 construct ESSs on substation property and once operable, turned them over to the utility to  
3 own.

4 **Q. After its multiple false assertions about other utilities allowing third-party ownership**  
5 **of utility substation-sited ESSs, AWEC-NIPPC attempt to counter PGE’s reasons for**  
6 **not allowing such ownership arrangement. How does PGE respond?**

7 A. With regard to concerns about a third-party ownership model offering cost savings, PGE’s  
8 RFP process discussed above, is directed at providing the lowest cost for customers. While  
9 AWEC-NIPPC assert that the risks PGE identifies are speculative, the potential for those  
10 risks is real and PGE management must manage those risks. As these projects are pilots, we  
11 have not identified all potential and real risks.<sup>32</sup> Moreover, it is not at the pilot stage that the  
12 Company should be required to take on and attempt to allocate known and unknown risks  
13 associated with third party ESS ownership at the Coffee Creek substation. AWEC-NIPPC  
14 argue for the least cost resource while PGE is balancing cost and risk. We do not want to  
15 expose customers to the consequences of failing to anticipate and mitigate all risks.  
16 Contrary to AWEC-NIPPC’s assertion, PGE customers will get the benefits of competition  
17 and of ESS experts in the engineering and construction of the Coffee Creek ESS. The  
18 ownership structure does not preclude these benefits.

---

<sup>32</sup> PGE has identified and discussed a number of risks including: safety, financial/insolvency risk of a third party, contract complexity, see PGE Exhibit 300, pages 3-4, and PGE Exhibit 400, pages 2-3.

1 **Q. AWEC-NIPPC argue that the Commission should not view these pilots as a “trial run”**  
2 **for educational purposes. Do you agree?**

3 A. No. These projects are being proposed as a result of the Oregon legislature passing HB  
4 2193.<sup>33</sup> That bill directs an electric company to procure ESS, up to a stated limit, submitting  
5 a proposal to the Commission. The legislation identifies some of the learnings intended.  
6 Given the limit on procurement, these are, by nature, pilots to effectuate learning about  
7 ESSs, its costs and benefits.<sup>34</sup> The pilots that PGE proposed are aimed at gaining knowledge  
8 which will be shared with stakeholders and the Commission.

9 **Q. AWEC-NIPPC argue that the educational value is not enhanced at the Coffee Creek**  
10 **substation ESS site if PGE (rather than a third party) owns the ESS. Do you agree?**

11 A. No. As stated in PGE’s Response to AWEC Data Request No. 024, provided as PGE  
12 Exhibit 502, PGE identified learnings that would be precluded due to third-party ownership  
13 at Coffee Creek as substation-specific learnings. Due to cybersecurity risks, PGE would be  
14 unable to fully integrate the ESS into the substation control if owned by a third party. Thus,  
15 lessons associated with local control would not be gained. In addition, operational learnings  
16 gleaned by PGE owning and operating would be lost.

---

<sup>33</sup> H.B. 2193, Ibid.

<sup>34</sup> H.B. 2193, Ibid.

1 **Q. AWEC-NIPPC testimony suggests that PGE’s unwillingness to allow third-party**  
2 **ownership is about controlling the information gained from these pilots, and shielding**  
3 **itself from competition.<sup>35</sup> Is that the case?**

4 A. No. As stated in PGE’s Response to ICNU Data Response No. 012, provided as PGE  
5 Exhibit 503, PGE expects to share the learnings with stakeholders and the Commission.  
6 Rather than shielding PGE from competition, PGE is engaging competition to engineer and  
7 construct the ESS at the Coffee Creek substation. Competitive pressures in the RFP process  
8 will drive down costs and bring efficiencies for customers. After it is complete, PGE is  
9 insisting on ownership, given that the ESS is on utility property.

10 **Q. AWEC-NIPPC assert that PGE’s refusal to consider third-party ownership of the ESS**  
11 **at the Coffee Creek substation does not align with the Commission’s competitive**  
12 **bidding guidelines.<sup>36</sup> How does PGE respond?**

13 A. PGE submitted its proposal to the Commission in accordance with the Commission issued  
14 guidelines on storage, as discussed above in testimony responding to Staff. AWEC-NIPPC,  
15 like Staff, argue that PGE should comply with not yet adopted, still in process, competitive  
16 bidding guidelines in a pending docket, AR 600. In short, AR 600 does not apply, nor do  
17 the current Competitive Bidding Guidelines. AWEC-NIPPC call attention to Senate Bill  
18 1547 and the legislative intent regarding diverse ownership of resources. No such intent was  
19 expressed in HB 2193, which is the basis for this docket and pursuant to which the  
20 Commission issued guidelines with which PGE’s proposal complies.

---

<sup>35</sup> AWEC-NIPPC Exhibit 300, page 10.

<sup>36</sup> AWEC-NIPPC Exhibit 300, page 13.

#### IV. Conclusion

1 **Q. What do you ask of the Commission?**

2 A. We ask the Commission to approve PGE’s proposal to develop the ESS projects and reject  
3 AWEC-NIPPC’s request to direct PGE to include a third-party ownership option in the RFP  
4 for the Coffee Creek substation ESS. We also ask the Commission to reject the alternative  
5 proposal from AWEC-NIPPC that the Commission reject the Coffee Creek site and direct  
6 PGE to make sites available where third-party ownership is an option. As stated earlier, the  
7 Commission has ruled that this is a legal matter and that it is up to PGE management  
8 whether to allow third parties to own assets on PGE-owned property. PGE will continue to  
9 comply with the Commission’s storage guidelines as described above.

## V. Qualifications

1 **Q. Ms. Cloud, please describe your qualifications.**

2 A. I received my Bachelor of Science degree from Trinity University in Engineering Science,  
3 graduating Magna Cum Laude in 1995. I am registered with the State of Oregon as a  
4 Professional Engineer in Electrical Engineering. I began my career as an Instrumentation  
5 Engineer for Brown & Root and shortly thereafter began designing substations for  
6 Bonneville Power Administration while employed by Pacific Engineering Corporation. I  
7 worked as a substation engineer and project engineer for Black & Veatch for five years  
8 before taking a job as a protection engineer for PGE in 2003. I served as Supervisor of  
9 System Protection and Automation Engineering with a focus on reliability and compliance.  
10 I went on to manage both Engineering and Field Operational Technology departments in the  
11 areas of protection, control systems, and telecommunications. I helped define the  
12 governance for PGE's Integrated Security Program, serving as Chair of the Integrated  
13 Security Steering Committee and expanding cybersecurity measures beyond NERC CIP  
14 requirements. I am currently the Manager of Substation Operations Technology and  
15 Distribution Operations at PGE.

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

17 A. Yes.

**List of Exhibits**

<b><u>Exhibit</u></b>	<b><u>Description</u></b>
501	CPUC Resolution E-4798
502	PGE's Response to AWEC Data Request No. 024
502	PGE's Response to ICNU Data Request No. 012

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

**ENERGY DIVISION**

**RESOLUTION E-4798  
August 18, 2016**

**R E S O L U T I O N**

Resolution E-4798. San Diego Gas & Electric Company (SDG&E) requests approval of engineering, procurement and construction contracts with AES Energy Storage LLC.

**PROPOSED OUTCOME:**

- This Resolution approves SDG&E's Advice Letter 2924-E requesting approval of contracts with AES Energy Storage LLC., with one modification to the requested relief.

**SAFETY CONSIDERATIONS:**

- This Resolution supports the Governor's Emergency Proclamation to protect public safety by ensuring the continued reliability of natural gas and electric supplies while there is a moratorium on gas injections at Aliso Canyon Natural Gas Storage Facility.
- This contract requires SDG&E to operate the energy storage facilities in accordance with prudent and safe electrical practices.

**ESTIMATED COST:**

- Actual cost of the project is confidential at this time.

By Advice Letter 2924-E, Filed on July 18, 2016.

---

**SUMMARY**

This Resolution approves the requested relief, with one modification noted in the Discussion below, in Advice Letter ("AL") 2924-E for two SDG&E contracts with AES Energy Storage LLC for the engineering, procurement and construction ("EPC") of energy storage facilities to address electrical reliability risks in the Los Angeles ("LA") Basin arising from the moratorium on injections into the Aliso Canyon Natural Gas Storage Facility ("Aliso Canyon").

Resolution E-4798  
SDG&E AL 2924-E/ WR1

## **BACKGROUND**

On January 6, 2016, Governor Brown declared a state of emergency in Los Angeles County due to the duration of the natural gas leak and well failure at Aliso Canyon. As Aliso Canyon's natural gas storage capacity has been critical to help meet peak electrical demands during the summer months and peak gas usage demands in winter months, the Commission is pursuing activities that could be quickly implemented to alleviate these electric reliability and natural gas supply risks.

### Resolution E-4791

Resolution E-4791, approved by the Commission on May 26, 2016, ordered SCE to hold an expedited energy storage procurement solicitation to mitigate potential Aliso Canyon-related reliability problems. The Resolution required that storage resources solicited in the expedited storage procurement must:

- Be located in front of the meter ("IFOM");
- Be operational by December 31, 2016;
- Interconnect in a location that helps to alleviate electric reliability concerns associated with Aliso Canyon;
- Qualify for Resource Adequacy credit;<sup>1</sup>
- Be price competitive with previous solicitations; and
- Have a contract term of 10 years or less.

Resolution E-4791 found that all procurement to alleviate reliability risks associated with the partial shutdown of Aliso Canyon will benefit all customers connected to the grid and therefore would be eligible for Cost Allocation Mechanism ("CAM") treatment.

Although SDG&E was not originally mentioned in the Resolution E-4791, the Resolution was modified based on comments to find it reasonable that SDG&E leverage its ongoing 2016 Preferred Resources Local Capacity Requirement ("LCR") Request for Offer ("RFO") to find projects that could conceivably come online in the same time frame. SDG&E was asked to share the results of that inquiry with Energy Division and the Procurement Review Group ("PRG") within 30 days of the Resolution's effective date.

---

<sup>1</sup> See Cal. Pub. Utils. Code, Sec. 380.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

SDG&E complied with Resolution E-4791 and shared the results of its ongoing LCR RFO with SDG&E's PRG beginning on June 17, 2016.

### SDG&E AL 2924-E

SDG&E filed AL 2924-E on July 18, 2016, requesting approval of two utility-owned energy storage EPC contracts with AES Energy Storage LLC. The proposed projects consist of two lithium-ion battery energy storage facilities to be located at two SDG&E substations: a 30 MW/120MWh project in Escondido, and a 7.5MW/30 MWh project in El Cajon. The projects will be constructed on a turnkey basis with AES, but SDG&E will have a long term service contract with AES covering the first 10 years of operation. The projects will interconnect under the Wholesale Distribution Access Tariff ("WDAT") and will be scheduled/bid into the CAISO markets. The contracts specify that the projects will be online on or before January 31, 2017.

SDG&E requests that the Commission issue a resolution that:

1. Finds the project reasonable and consistent with Resolution E-4791;  
Finds the contract between AES and SDG&E reasonable and approves;
2. Finds an online date of January 31, 2017 reasonable;
3. Finds the contract provision granting AES relief from delay damages if the AL is not approved at the Commission's August 18, 2016 voting meeting;
4. Approves the project in its entirety;
5. Finds SDG&E's proposed cost recovery up to the cost cap reasonable;
6. Grants cost recovery beginning from project approval, regardless of whether an appeal occurs post-approval;
7. Finds that costs approved by the Commission will be allocated through the CAM treatment;
8. Finds that the project complies with the requirements of General Order 131-D ("GO 131-D");
9. Finds that AL 2924-E satisfies reasonableness review and that SDG&E is not required to file an application after the fact;
10. Finds the project eligible to count towards SDG&E's energy storage procurement targets consistent with D.13-10-040;
11. Finds the project eligible to count towards SDG&E's local capacity and preferred resource requirements consistent with D.14-03-004

### **NOTICE**

Notice of AL 2924-E was made by publication in the Commission's Daily Calendar. SDG&E states that a copy of the AL was mailed and distributed in accordance with Section 4 of General Order 96-B.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

## **PROTESTS**

### **Joint Protest of the Alliance for Retail Energy Markets and the Direct Access Customer Coalition**

The Alliance for Retail Energy Markets (AReM) and the Direct Access Customer Coalition (DACC) filed a timely joint protest to SDG&E AL 2924-E on July 22, 2016. In their protest, AReM and DACC contend that Resolution E-4791 did not authorize or instruct any procurement by SDG&E and that SDG&E did not provide adequate documentation to justify the reasonableness of the project and cost recovery. AReM/DACC protested AL 2924-E on the following grounds:

1. By statute, AReM/DACC state that CAM treatment is limited to procurement needed to address reliability issues. AReM/DACC assert that SDG&E has failed to demonstrate that the proposed storage resources are needed to alleviate reliability issues created by the limited operation of Aliso Canyon, making them ineligible for CAM treatment.
2. AReM/DACC state that Resolution E-4791 did not authorize or “instruct” any procurement by SDG&E, as SDG&E alleges. Instead, AReM/DACC assert that SDG&E is obligated to provide adequate documentation to justify the reasonableness both of the proposed project and the requested cost recovery, which it did not do.
3. AReM/DACC state that SDG&E’s proposed on-line date of January 31, 2017 does not comply with the parameters for storage procurement for Aliso Canyon specified in Resolution E-4791, resulting in the storage being available to meet reliability needs for only 40% or less of the 2016-17 winter period, and thus should be rejected.
4. AReM/DACC state that in spite of these deficiencies, if the Commission were to approve the proposed project and CAM cost recovery, the term of CAM cost recovery must be defined. They argue that CAM has not previously been applied to utility-owned generation for SDG&E, as it proposes here, and the term for CAM cost recovery should only extend for the period the project provides reliability relief for Aliso Canyon or 10 years, in accordance with Resolution E-4791, whichever is earlier.

### **SDG&E’s Reply to Protest**

SDG&E replied to the joint protest of AReM/DACC on July 26, 2016. In its reply to the protest, SDG&E argues that the AL is in response to the modifications to the

Resolution E-4798  
SDG&E AL 2924-E/ WR1

Resolution E-4791 that encouraged SDG&E to leverage its ongoing RFO process to respond to immediate Aliso Canyon reliability issues.

SDG&E states that the projects will be located south of Path 26, as specified in the Resolution, and will therefore provide reliability for Aliso Canyon outage related problems. It further asserts that the projects will provide local Resource Adequacy capacity benefits and satisfy preferred resource procurement requirements related to the retirement of San Onofre Nuclear Generating Station, both functions that provide ongoing reliability benefits to customers. It argues that for these reasons the term for CAM cost allocation should not be limited.

With regards to the question of CAM treatment for utility owned storage, SDG&E defers to Resolution E-4791, which states that CAM will apply to all contracts resulting from the procurement.

Lastly, SDG&E asserts in its reply that it is simply not possible for new storage systems to be online by December 31, 2016 and that projects that come online 30 days later can still address winter reliability issues.

## **DISCUSSION**

The Commission has reviewed SDG&E AL 2924-E for consistency with Resolution E-4791, specifically:

- Compliance with the RFO inquiry process from page 10 of the Resolution;
- Cost-effectiveness;
- Online date for projects;
- Project location and contribution to reliability;
- Eligibility for CAM treatment; and
- Reasonableness review.

We discuss these issues in the context of AREM/DACC's joint protest here.

### **Protest First Issue: Reliability and location**

One of the parameters for storage procurement laid out in Resolution E-4791 was that projects procured under the expedited Aliso Canyon solicitation must interconnect in a location that helps to alleviate electric reliability concerns associated with the partial shutdown of Aliso Canyon and that they qualify for Resource Adequacy credit.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

In Resolution E-4791, the Commission found that new energy storage resources located south of Path 26 have the ability to enhance Southern California electric grid reliability. Parties including SCE and CAISO indicated in comments to the draft resolution that resources in Southern California outside the LA Basin can be effective in mitigating the effects of potential gas curtailments on the SoCal Gas system. We find that the proposed projects, being south of Path 26, can contribute to mitigating Aliso Canyon related reliability issues.

#### Protest Second Issue: Authorization or Instruction

Resolution E-4791 encouraged SDG&E to leverage its ongoing LCR RFO process to approach "qualified respondents to see if they could provide projects by the on-line date." The Resolution also found it reasonable for SDG&E to share the results of that inquiry with Energy Division and SDG&E's PRG. The Resolution did not specify a process for evaluating those projects for SDG&E, only stating that projects should be cost-effective.

As discussed in AL 2924-E, SDG&E evaluated proposed projects based on the parameters established on page 5 of Resolution E-4791:

"Resources procured in the Aliso Canyon Energy Solicitation should be price-competitive with previous solicitations in which SCE has awarded contracts to energy storage resources, adjusting for different contract terms such as contract length and expedited delivery date impacts."

SDG&E provided confidential cost data for projects from its 2014 All-Source RFO with similar on-line dates to the Energy Division and the SDG&E PRG. Additionally, SDG&E provided cost data for several other third party offers it received to their inquiry in a confidential analysis. These offers were discussed and evaluated with Energy Division and the PRG on June 17, 2016 and July 11, 2016.

The AES contracts compared reasonably to the cost of projects from the previous RFO. The short timeline imposed on projects (for online dates that could serve load this winter) eliminated most third party offers and the costs of the utility-owned projects were competitive to those that remained. Furthermore, SDG&E has suggested a cost cap for the project equal to the current total project cost including the 10-year operation and maintenance costs.

Therefore it is reasonable that payments made by SDG&E to AES for the project are fully recoverable in rates up to the cost cap.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

Protest Third Issue: Online date

We find that SDG&E has provided adequate documentation for why the December 31, 2016 online date cannot be met, in particular the list of essential equipment that require long lead times for manufacturing and delivery. The online date of December 31, 2016 was introduced to ensure that resources procured would actually address the short term problems associated the moratorium on gas injections into Aliso Canyon. As AReM and DACC asserted, SDG&E was not actually ordered to procure storage by a certain date, but to determine if the online date for projects in its current RFO process could be expedited to resolve immediate Aliso Canyon reliability issues. As both parties stated, the projects will still be online for 40% of the winter season. These projects will be able to address potential 2017 and beyond summer Aliso Canyon-related reliability issues as well. SDG&E has complied with the intent of Resolution E-4791 by presenting projects with on-line dates as close to the recommended on-line date as possible. We find that the anticipated online date of January 31, 2017 is reasonable.

Protest Fourth Issue: Cost Allocation Mechanism

Resolution E-4791 found it reasonable to apply CAM treatment to procurement costs for all IFOM storage systems procured in the solicitation authorized by the Resolution. This conclusion was based on the determination that alleviating the reliability risks associated with Aliso Canyon would benefit all customers in the service area.

We agree with AReM/DACC that no utility owned storage has received CAM treatment in SDG&E territory and that this is a new situation. However, D.14-03-004 and D.14-11-027 authorized CAM treatment for procurement related to SONGs replacement. Considering that the instant projects were provided from qualified bidders in SDG&E's current LCR RFO process conducted in response to D.14-03-004, these projects are eligible for CAM treatment. Furthermore, if SDG&E is able to allocate deliverability to the projects as they have indicated, they will be eligible to count towards SDG&E's local capacity and preferred resource requirements stemming from D.14-03-004.

Further, we reject AReM/DACC's objection to the application of CAM to the proposed utility owned generation facilities as an attempt to re-litigate D. 14-03-004 and Resolution E-4791. (See CPUC Rules of Practice and Procedure, Article 16 regarding Applications for Rehearing and Petitions for Modification.)

Resolution E-4798  
SDG&E AL 2924-E/ WR1

We decline to adopt AReM/DACC's request to limit CAM treatment to 10 years, and instead we allow merely the requested relief of SDG&E, "Costs Approved by the Commission will be allocated through the CAM mechanism". (Advice Letter 2924-E, page 17, item 7). SDG&E does not specify a term of the CAM treatment, and we do not impose one. Instead, we expect and require SDG&E to rely on existing CAM and ratemaking principles as they move forward in the implementation of the CAM treatment of this resource.

### Energy Storage Procurement Targets

Finally, SDG&E requests that the Commission clarify that the proposed storage projects proposed herein are eligible to count towards its energy storage procurement targets established in D.13-04-010, Decision Adopting Energy Storage Procurement Framework and Design Program. We find that the projects as proposed will not cause SDG&E to exceed its targets for utility owned storage and are eligible to count towards its storage procurement requirements consistent with D.13-04-010.

### Discussion Conclusion

The Commission approves the relief, with one modification noted below, sought in SDG&E AL 2924-E despite the points raised in the joint protest of AReM/DACC. Although Resolution E-4791 did not specifically instruct SDG&E to procure storage projects, the Resolution states that including SDG&E in a separate Aliso Canyon Energy Storage solicitation would take up "precious time" and instead suggested SDG&E seek resources in its ongoing process. Whether resources would be procured would be contingent on whether any resources from qualified respondents in the current RFO could be brought online within the time frame required to address near term reliability concerns. We find that SDG&E's procurement of these projects is consistent with the objectives and intent of Resolution E-4791, and furthermore that these projects address the Governor's January 6, 2016 emergency declaration due to the duration of the natural gas leak and well failure at Aliso Canyon.

One item of SDG&E's list of requested relief on page 17 of the Advice Letter cannot be granted. Specifically, SDG&E requested in Item 8 that "the Commission find that the Project complies with the requirements of GO 131-D, permitting jurisdiction rests with the Commission, and no further [California Environmental Quality Act] CEQA review is needed." (Advice Letter 2924-E, page 17).

Resolution E-4798  
SDG&E AL 2924-E/ WR1

We deny, rather than grant, this requested relief. In doing so, we make a modification to the requested relief. Having reviewed detailed maps of the existing facilities and the footprint of the proposed facilities, we have determined that both proposed facilities fall within a categorical exemption from CEQA. Specifically, under CEQA Guidelines, Section 15061, subdivision (b)(3), we can see with certainty the proposed facilities will have no significant effect on the environment beyond those created by the currently existing facilities.

## **COMMENTS**

Public Utilities Code section 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived "in an unforeseen emergency ... ." The Commission's Rules of Practice and Procedure also provides that public review and comment may be waived or reduced in an "unforeseen emergency situation" specifically where there are "[a]ctivities that severely impair or threaten to severely impair public health or safety..." (Rule 14.6(a)(1) and/or where there are "[c]rippling disasters that severely impair public health or safety." (Rule 14.6(a)(2)).

The 30-day comment period was reduced pursuant to these authorities and notification of the shortened comment period was included with the cover letter that was circulated with the Draft Resolution.

Pursuant to the shortened comment period, comments on the Draft Resolution were timely filed on August 11, 2016 by AReM/DACC and SDG&E.

### Comments by AReM/DACC

In comments, AReM/DACC note their concern that the resolution does not define a term for CAM treatment for the project. They reiterate their request from their protest of AL 2924-E that if CAM is authorized for the projects, that CAM cost recovery should be specified by the Resolution to approve CAM treatment for these projects for no more than 10 years. In Resolution E-4791, the Commission limited the term of contracts for SCE to 10 years or less, but it did not specifically limit the term of CAM. In SDG&E's Advice Letter, Table 2 "Summary of Third Party Offers and Proposed Agreement Costs, in \$/kW-year", there is a column heading "Proposed Agreement – 10 year Term; Post contract use for years 11-20." SDG&E's asset procured under this contract could have residual Resource Adequacy benefits in years 11-20. Even though the proposed engineer, procurement and construction

Resolution E-4798  
SDG&E AL 2924-E/ WR1

agreements between SDG&E and AES have 10-year terms, the constructed asset will be put into rate base and the post-contract term may have residual benefit for all customers. Therefore, we decline to adopt AReM/DACC's request from their protest to limit CAM treatment for 10 years, and instead we allow merely the requested relief of SDG&E, "Costs Approved by the Commission will be allocated through the CAM mechanism". (Advice Letter 2924-E, page 17, item 7). SDG&E does not specify a term, and we do not impose one. The Advice Letter process here will not impose new policy on proper implementation of the CAM mechanism in the context of utility owned storage, especially when an asset will enter rate-base for a period of time (unspecified by the Resolution) and be used and useful for a period of time (implied by the Resolution to possibly be 20 years). Instead, we expect and require SDG&E to rely on existing CAM and ratemaking principles as they move forward in the implementation of the CAM treatment of this resource.

AReM/DACC also note that the Commission is required to authorize CAM treatment pursuant to the statutory requirements of Public Utilities Code, and requested that the Resolution correctly reference that D.14-03-004 and D.14-11-027 specifically authorized CAM treatment for procurement by SDG&E to meet the reliability need created by the closure of SONGs. The Resolution was revised to reflect this clarification.

#### Comments by SDG&E

SDG&E comments that the Draft Resolution does meet its requests for relief but that the ordering paragraph is not particularly clear. They wish to modify the Resolution to read that the request of the approval of the contracts "and other relief" as requested in Advice Letter 2924-E is approved "in its entirety". (in quotes are the requested edits of SDG&E).

We approve AL 2924-E and other relief with the exception of the relief requested (item 8) on page 17 of the Advice Letter, SDG&E specifically requests that "the Commission find that the Project complies with the requirements of GO 131-D, permitting jurisdiction rests with the Commission, and no further CEQA review is needed."

We deny this requested relief. Rather, we have determined that both proposed facilities fall within a categorical exemption from CEQA. As discussed above, under CEQA Guidelines, Section 15061, subdivision (b)(3), we can see with certainty the proposed facilities will have no significant effect on the environment beyond those

Resolution E-4798  
SDG&E AL 2924-E/ WR1

created by the currently existing facilities. Resolution edits were made to reflect this change.

## **FINDINGS**

1. Resolution E-4791, adopted by the Commission on May 26, 2016, states that SDG&E can leverage its current Local Capacity Requirement (“LCR”) Request For Offer (“RFO”) process to determine if current bids for energy storage resources can help alleviate Aliso Canyon issues.
2. SDG&E filed Advice Letter (“AL”) 2924-E on July 18, 2016 requesting approval of two utility-owned energy storage EPC contracts with AES Energy Storage LLC.
3. The Alliance for Retail Energy Markets (“AReM”) and the Direct Access Customer Coalition (“DACC”) filed a timely joint protest of SDG&E AL 2924-E on July 22, 2016.
4. SDG&E responded to the joint protest of AReM/DACC on July 26, 2016.
5. The proposed projects, to be located south of Path 26, can contribute to mitigating Aliso Canyon related reliability issues.
6. The SDG&E contracts with AES compare reasonably to the cost of projects from the previous SDG&E storage RFO.
7. The short timeline imposed on projects (for online dates that could serve load this winter) eliminated most third party offers, and the costs of the utility-owned projects were competitive to those that remained.
8. Payments made by SDG&E to AES for the project are fully recoverable in rates up to the cost cap.
9. The SDG&E proposed online date of January 31, 2017 for these projects is reasonable.
10. Considering that the instant projects were provided from qualified bidders in SDG&E's current LCR RFO process, these projects are eligible for Cost Allocation Mechanism (“CAM”) treatment. We find it is reasonable to expect SDG&E to rely on existing CAM and ratemaking principles as they move forward in the implementation of the CAM treatment of this resource.
11. If the projects are allocated deliverability, they will be eligible to count towards SDG&E's local capacity and preferred resource requirements stemming from D.14-03-004.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

12. The projects as proposed will not cause SDG&E to exceed its targets for utility owned storage and are eligible to count towards its storage procurement requirements consistent with D.13-04-010.
13. SDG&E's procurement of these projects is consistent with the objectives and intent of Resolution E-4791.
14. The SDG&E contracts for energy storage address the Governor's January 6, 2016 emergency declaration in Los Angeles County due to the duration of the natural gas leak and well failure at Aliso Canyon.
15. We find that both proposed facilities fall within a categorical exemption from CEQA Guidelines, Section 15061, subdivision (b)(3); we can see with certainty the proposed facilities will have no significant effect on the environment beyond those created by the currently existing facilities.

**THEREFORE IT IS ORDERED THAT:**

1. The Advice Letter 2924-E is approved, with one modification to the requested relief, for the engineering, procurement and construction contracts with AES Energy Storage LLC.
2. We deny SDG&E's request relief to find that the project meets the requirements of GO 131-D, rather we order that this project meets the requirements of a categorical exemption from CEQA, per CEQA Guidelines, Section 15061, subdivision (b)(3) and thus no further CEQA analysis is required.

This Resolution is effective today.

Resolution E-4798  
SDG&E AL 2924-E/ WR1

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on August 18, 2016 the following Commissioners voting favorably thereon:

/s/ TIMOTHY J. SULLIVAN  
TIMOTHY J. SULLIVAN  
Executive Director

MICHAEL PICKER  
President

MICHEL PETER FLORIO  
CATHERINE J.K. SANDOVAL  
CARLA J. PETERMAN  
LIANE M. RANDOLPH  
Commissioners

April 19, 2018

TO: Haley M. Thomas  
Davison Van Cleve, P.C.

FROM: Robert Macfarlane  
Interim Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC  
UM 1856  
PGE Response to AWEC Data Request No. 024  
Dated April 12, 2018**

**Request:**

**Reference UM 1856/PGE/300, Murtaugh-Riehl/2 at 9. Please identify which if any of the referenced “learnings on how an ESS operates on our system” would be precluded under third-party ownership of the proposed ESS at Coffee Creek and explain with specificity why each identified learning would be precluded.**

**Response:**

The referenced “learnings” would be obtained through PGE operation of the ESS on our system. Learnings that would be precluded, due to third-party ownership of Coffee Creek, would be substation-specific learnings as PGE would be unable to fully integrate due to cyber security risks. If PGE does not fully integrate the ESS into the substation control, it would forego the opportunity to learn how best to optimize the comprehensive substation control package to leverage additional value from the ESS. As stated in PGE Exhibit 300/4, lines 5-16, cyber security risks exist when connecting with a third-party storage system as there would need to be two-way communication (full integration) to capture the substation-specific learnings. In addition, PGE would need full real-time operational control of the ESS to gain the operational learnings. ESS operation and associated learnings will be dependant on real-time system conditions, day-ahead planning, and dispatch test plans for specific use cases.

As stated in PGE Exhibit 300, the Coffee Creek ESS intends to give us insights to risks that exist in ownership and operation. These lessons may be used to develop contracts with third-party ESS vendors in the future. Also in PGE’s Response to AWEC Data Request No, 023, the learnings gained from this project will include identifying cyber security risks and how to mitigate them.

February 13, 2018

TO: Benjamin Fitch-Fleischmann  
Riley Peck  
Tyler Pepple  
Davison Van Cleve, PC

FROM: Robert Macfarlane  
Interim Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC  
UM 1856  
PGE Response to ICNU Data Request No. 012  
Dated January 30, 2018**

**Request:**

**Does PGE intend to share the knowledge gained from its experience with the proposed projects with other utilities?**

**Response:**

Yes, PGE typically shares knowledge and experiences through industry conferences, workshops, and direct communications with other utilities. PGE also proposed to report out on progress, learnings, costs, benefits and evaluation of the proposed projects as part of the Smart Grid Report for 5 years (2018-2022), with a final report at the end of the 5 year term. Additional information on project reporting is included in Section 10.1 of the proposal.