



**Portland General Electric Company**  
*Legal Department*  
121 SW Salmon Street • Portland, Oregon 97204  
503-464-7611 • Facsimile 503- 464-2200

**Richard George**  
*Assistant General Counsel*

August 26, 2016

***Via Electronic Filing***

Oregon Public Utility Commission  
Attention: Filing Center  
P.O. Box 1088  
Salem, OR 97308-1088

**Re: UM 1716- Investigation to Determine Resource Value of Solar**

Attention Filing Center:

Enclosed for filing in the above-referenced docket is Portland General Electric Company's **OPENING BRIEF** to be electronically filed with the Public Utility Commission of Oregon.

Thank you in advance for your assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Richard George", with a long, sweeping horizontal line extending to the right.

Richard George  
Assistant General Counsel

RG:lgh  
Enclosures

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**UM 1716**

In the Matter of

PUBLIC UTILITY COMMISSION OF  
OREGON

Investigation to Determine the Resource  
Value of Solar.

Opening Brief of Portland General  
Electric Company

**I. INTRODUCTION AND PROCEDURAL BACKGROUND**

In 2013, the Oregon State Legislature passed House Bill 2893, which directed the Public Utility Commission of Oregon (OPUC) to undertake a study to report on the effectiveness of the state’s solar energy programs in the following ways:

- a. Investigate the resource value of solar energy;
- b. Investigate the costs and benefits of existing solar incentive programs;
- c. Forecast future costs for solar energy systems;
- d. Identify barriers to the development of solar energy systems; and
- e. Recommend new programs or program modifications that encourage solar development in a way that is cost effective and protects ratepayers.

The July 1, 2014 report from the Commission to the Oregon Legislature made no recommendations for changes to programs, but pledged to open a formal administrative proceeding to determine the resource value of solar and the extent of cost-shifting (if any) from net metering. The investigation into the resource value of solar was divided into two distinct phases, with Phase I examining elements and methodologies, and Phase II examining values for each utility using those adopted methodologies. The stated Commission goal was to have an in-

depth review with “detailed explanations and justifications of which elements are included in the resource value and why, and which methodologies are appropriate for valuing an element”.<sup>1</sup>

Beginning in January 2015, parties have participated in an extensive and inclusive process that included workshops, discussions, and technical conferences as stakeholders worked to determine what factors should constitute a resource value of solar calculation. This collaborative stakeholder process initially generated 26 elements for potential inclusion in a resource value of solar methodology. In Order 15-296, the Commission directed that only elements that directly impact the cost of service to utility customers should be considered as part of this proceeding. In following this Commission directive, Staff issued a request for proposals and retained consultant Energy and Environmental Economics, Inc. (E3) to provide third-party expertise in determining the proper elements to effectuate the Commission directive. Staff and E3 subsequently pared down the 26 proposed potential elements to the ten that were deemed to directly impact the cost of service to customers. We respectfully encourage the Commission to maintain specifically these ten elements selected by Staff and its consultant. *See* Staff/200, Olson.

## II. ISSUES

### **What elements should make up the value of solar calculation?**

As stated above, the Commission’s policy on this issue was clearly articulated in Order 15-296:

“We decline to identify elements for inclusion at this time. However, we will only consider elements that could directly impact the cost of service to utility customers. For example, we would consider the potential financial costs to utilities of future carbon regulation. On the other hand, for example, we will not consider job impacts of solar development. Any parties proposing inclusion must make this threshold determination.”<sup>2</sup>

---

<sup>1</sup> Order 15-296, 1-2

<sup>2</sup> Order 15-296 at 2 (emphasis added)

In Staff/200 Olson/18, Staff “adopts the perspective” of a utility customer (that is, selecting elements based on utility avoided costs with a direct link to the utility electric rates)<sup>3</sup>, and subsequently supports the following ten elements to comprise the value of solar methodology for the State of Oregon:

- i) Energy
- ii) Generation Capacity
- iii) Line Losses
- iv) Transmission and Distribution Capacity
- v) RPS Compliance
- vi) Integration
- vii) Administration
- viii) Market Price Response
- ix) Hedging Costs
- x) Environmental Compliance

Using these elements, utilities will calculate the avoided cost or benefit of solar by inputting values that will be determined in Phase II of this docket.<sup>4</sup> Each utility will develop its own discrete inputs for these values.<sup>5</sup> PGE agrees with the ten elements selected by Staff and endorses the recommended methodology to calculate the value of solar as described in the written testimonies of Staff witnesses Dolezel and Olson.

Response testimony filed on June 30, 2016, by the Oregon Department of Energy (ODOE), and Citizens Utility Board (CUB) and the joint testimony of Renewable Northwest (RNW) /Oregon Solar Energy Industries Association (OSEIA) /NW Energy Coalition (NWEC) /Northwest Sustainable Energy for Economic Development (NW SEED) argued for the inclusion of an additional element “Security, Reliability, and Resiliency.”<sup>6,7,8</sup> This element was rejected by Staff on the following basis:

---

<sup>3</sup> Staff/200 Olson/19

<sup>4</sup> Staff/100, Dolezel and Staff/200, Olson

<sup>5</sup> Id.

<sup>6</sup> ODOE/100, Broad/2

“There is one additional element, ‘Security, Reliability, and Resiliency’ that could potentially have value for utility ratepayers. However, this would depend on solar being deployed in a microgrid application that would provide electric service to utility ratepayers who do not adopt solar PV. These applications are quite expensive, and I am not aware of any such applications in Oregon at this time...”<sup>9</sup>

ODOE, CUB, and the jointly testifying parties advocate for the inclusion of Security, Reliability, and Resiliency based on the purported ability of solar resources to provide backup power in the case of a grid event.

PGE agrees with Staff Witness Olson’s appraisal of the appropriateness of excluding Security, Reliability, and Resiliency benefits from the value of solar calculation methodology. Distributed solar in isolation (that is, behind-the-meter PV or solar that is otherwise not utility controlled or part of a microgrid application) does not provide a direct reliability benefit to the distribution system or to utility customers, and therefore should not be included in a renewable value of solar application that is based on the cost of service impacts to customers.<sup>10</sup> A benefit that applies only to a very small subset of customers – and not the resiliency of the grid more broadly – does meet the criteria set forth by the Commission in Order 15-296 that RVOS elements should have an “impact to cost of service to customers.”

**How should the elements in the value of solar methodology be calculated?**

In addition to selecting the ten elements that will act as a framework to determine the value of solar, Staff also proposed methodologies for the calculation of each element. PGE generally supports these methodologies, but provided testimony that certain modifications to the proposed calculation methods are necessary. Such modifications to the Staff-proposed calculation are noted below.

---

<sup>7</sup> CUB/100, Jenks-Hanhan/6

<sup>8</sup> RNW, OSEIA, NWECA, NW SEED/100, O’Brien/4

<sup>9</sup> Staff/100, Olson/25

<sup>10</sup> See PGE/200, Brown-Murtaugh/2-3

**Energy** – “Hourly marginal cost of energy including fuel (and associated fuel and transportation costs), variable operations and maintenance, labor, and all other variable costs.”<sup>11</sup> As PGE does not currently calculate the hourly marginal cost of energy, we propose to use Schedule 201 avoided costs to obtain this value.<sup>12</sup>

**Generation Capacity** – “Marginal avoided cost of building and maintaining the lowest net cost generation capacity resource.”<sup>13</sup> As with avoided energy value, PGE advocates that the Schedule 201 avoided cost price is the best current calculation of avoided generation capacity.<sup>14</sup>

**Transmission and Distribution Capacity** – “Avoided or deferred costs of expanding, replacing, or upgrading transmission and distribution infrastructure such as substations, lines, and transformers.”<sup>15</sup> PGE does not currently calculate potential avoided T&D calculations at this level of granularity, but is open to developing a proxy. Also, we advocate for maintaining a bright-line demarcation between infrastructure upgrades due to load growth and upgrades due to reliability and replacing aging infrastructure.<sup>16</sup>

**Market Price Response** – “The change in utility costs due to lower wholesale energy market prices caused by increased solar PV production, affecting the price at which the utility transacts in the wholesale market when managing its portfolio of resources on behalf of its retail customers. Lower market prices result in lower costs for utility market purchases, but reduced margins for utility market sales. The net effect on the utility could be either positive or negative, depending on the relative magnitude and timing of market

---

<sup>11</sup> Staff/200, Olson/21

<sup>12</sup> PGE/100, Brown-Murtaugh/5

<sup>13</sup> Staff/200, Olson/21

<sup>14</sup> PGE/100, Brown-Murtaugh/5

<sup>15</sup> Id.

<sup>16</sup> PGE/100, Brown-Murtaugh/5

purchases and sales. Lower market prices are not a societal benefit, because they represent a transfer of wealth from one member of society (electricity producers) to another member (electricity consumers).”<sup>17</sup> We agree with this element from a high level perspective. However, PGE does not currently track or calculate market price fluctuations as a result of solar penetration. We are willing to work with Staff and stakeholders to determine the form of this calculation and the appropriate values associated with it.<sup>18</sup>

**Avoided Hedge Value** – “Avoided cost of utility fuel cost hedging activities (i.e. transactions intended solely to provide a more stable retail rate over time).”<sup>19</sup> We note that this could be a potential cost of solar if PGE plans for a reduced hedge and the solar resource is not available when needed or solar penetration does not materialize to the level PGE expects.<sup>20</sup>

**Administration Cost** – “Increased costs to administer distributed solar PV programs such as net energy metering (NEM). This includes the cost of additional staff, incremental billing software, incremental costs of interconnection, and any other utility-specific costs. Incremental costs of interconnection are defined as the total cost of interconnection less the portion of the cost paid by the interconnecting solar generator.”<sup>21</sup> This description of this cost is similar to what is calculated as part of the customer marginal cost study that the Company undertakes as part of a general rate case. We advocate that the costs associated with this element should be treated similarly and be based on the number of interconnected solar customers.<sup>22</sup>

---

<sup>17</sup> Staff/200, Olson/22

<sup>18</sup> PGE/100, Brown-Murtaugh/5

<sup>19</sup> Staff/200, Olson/22

<sup>20</sup> Id.

<sup>21</sup> Staff/200, Olson/22

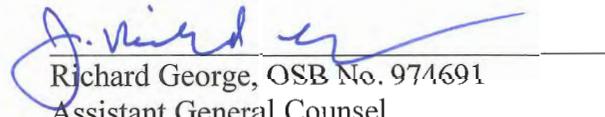
<sup>22</sup> PGE/200, Brown-Murtaugh/5

### III. Conclusion

For the reasons set forth above, the Commission should adopt the ten elements proposed by Witness Olson – with the proposed modifications to the calculation methodology suggested above – as the methodology for calculating the resource value of solar in Oregon.

DATED this 26 day of August, 2016.

Respectfully submitted,



Richard George, OSB No. 974691  
Assistant General Counsel  
Portland General Electric Company  
121 SW Salmon Street, 1WTC1301  
Portland, Oregon 97204  
(503) 464-7611 (Telephone)  
(503) 464-2200 (Facsimile)  
Richard.george@pgn.com