ELLEN F. ROSENBLUM
Attorney General

FREDERICK M. BOSS
Deputy Attorney General

DEPARTMENT OF JUSTICE
GENERAL COUNSEL DIVISION

August 26, 2016

VIA ELECTRONIC MAIL ONLY

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

Re: *In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, Investigation to Determine the Resource Value of Solar*
OPUC Docket No.: UM 1716
DOJ File No.: 330030-GN0062-15

Filing Center:

On behalf of the Oregon Department of Energy, enclosed for filing today with the Commission in the above-captioned matter is the following document:

1. OREGON DEPARTMENT OF ENERGY'S PRE-HEARING BRIEF.

Sincerely,

Debra Maryanov

FOR Renee M. France
Senior Assistant Attorney General
Natural Resources Section

Enclosures
RMF:jrs/#7656480
c: Wendy Simons, ODOE

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.	)))))))	OREGON DEPARTMENT OF ENERGY'S PRE-HEARING BRIEF

Introduction

The Oregon Department of Energy (ODOE or department) submits this Pre-Hearing Brief to clarify and elaborate on points made in response and cross-response testimony. The department appreciates the thoughtful response to and discussion of the challenges of attributing value to "security, reliability and resiliency" and other ancillary benefits of distributed solar resources. In light of this discussion, ODOE offers the following summary of comments as well as additional clarity regarding ancillary services.

Summary of comments

- Value for "security, resiliency and reliability" elements may exist outside of micro grids and warrants additional research the Commission should consider requiring utilities to conduct periodic sensitivity analysis for elements where average or proxy values are used for inputs.
- Utilities should make a corollary effort to improve the granularity and accuracy of input data at the same time that the Resource Value of Solar (RVOS) model is updated, taking advantage of technological investments.

- Integration costs and ancillary services should be split into two elements. The department agrees that ancillary services are currently a cost required for integration of solar resources but advanced inverter technologies may soon provide positive ancillary services.

Additional clarity regarding positive ancillary services values

The department recognizes that potential value streams for security, reliability, resiliency and related ancillary services are largely associated with advanced inverter technologies, which have not been deployed and adopted yet in Oregon and may not become part of the mainstream market for many years. For this reason, in previous comments, the department recommended elements related to security, resiliency and reliability and ancillary services be included in the current RVOS model, with the understanding that they are elements that will require additional research and may have an immediate valuation of zero.

The grid services anticipated to be provided by advanced inverter technologies will contribute to both elements under discussion here: security, resiliency and reliability; and related ancillary services. The department references the Federal Energy Regulatory Commission (FERC) definition for ancillary services[1] for clarification: "those services necessary to support the transmission of electric power from seller to purchaser given the obligations of control areas and transmitting utilities within those control areas to maintain reliable operations of the interconnected transmission system." FERC further identifies six different kinds of ancillary services:

- scheduling and dispatch

[1] U.S. Federal Energy Regulatory Commission 1995, Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities, Docket RM95-8-000, Washington, DC, March 29.

- reactive power and voltage control
- loss compensation
- load following
- system protection
- energy imbalance

Quantifiable value of ancillary services from distributed solar resources will rely on deployment of advanced inverter technologies and will only be fully realized with utility communication and control of the devices. Under this scenario, advanced inverter technologies may be used to provide reactive power and voltage support, which may be dispatched whether the PV side of the system is operating or not. Inverters capable of feeding leading or lagging reactive power even when the DC circuit is not energized[2] are already available on the market. This reactive power support, whether used to enhance reliability or provide ancillary services, will become more valuable as renewable energy penetration increases with future RPS targets. In the long term, integration of distributed renewables can move beyond mitigating negative impacts to providing positive value. In the short term, development of a tariff specific to advanced inverter technologies may help to encourage market adoption and interactive use by utilities as referenced by staff and Olsen. Utility pilots to evaluate advanced inverters may also be useful.

In addition to the information resulting from the UM 1751 docket, several activities underway in the U.S. and abroad may aide the research referenced in the department's original comments, examples include IEEE standards modifications[3], California's rule 21[4],

[2] http://www.smainverted.com/smarter-than-ever-sunny-tripower-now-provides-reactive-power-at-night/

[3] http://spectrum.ieee.org/green-tech/solar/how-rooftop-solar-can-stabilize-the-grid

and the pilot underway at Arizona Public Service.[5] As technologies improve and as more advanced inverters are installed with utility oversight and control, there will be an increased likelihood that distributed solar resources will provide security, resiliency and reliability benefits to the grid. The department recommends the Commission require utilities to reconsider these potential benefits with the scheduled biennial updates of the model inputs.

DATED this 26th day of July 2016.

Respectfully submitted,

ELLEN F. ROSENBLUM
Attorney General

Debra Manyard #114519
FOR Renee M. France, # 004472
Senior Assistant Attorney General
Of Attorneys for Oregon Department of Energy,
State of Oregon

[4] http://www.cpuc.ca.gov/General.aspx?id=4154

[5] https://www.aps.com/en/ourcompany/news/latestnews/Pages/aps-first-us-utility-to-use-advanced-technology-to-help-manage-solar-generation.aspx