BEFORE THE PUBLIC UTILITY COMMISSION 1 OF OREGON 2 UM 1719 3 In the Matter of: 4 PUBLIC UTILITY COMMISSION OF **STIPULATION** 5 OREGON, 6 Investigation to Explore Issues Related to a Renewable Generator's Contribution to 7 Capacity. This Stipulation is entered into for the purpose of resolving all issues in this Docket. 8 9 **PARTIES** 10 The Parties to this Stipulation are: the Staff of the Public Utility Commission of Oregon 11 (Staff), the Citizens' Utility Board of Oregon (CUB); the Oregon Department of Energy 12 (ODOE), Renewable Northwest (RWN), Renewable Energy Coalition (REC), Idaho Power Company (Idaho Power), the Industrial Customers of Northwest Utilities (ICNU), Portland 13 14 General Electric Company (PGE), and PacifiCorp d/b/a Pacific Power (PacifiCorp) (collectively, Parties). The Parties represent all persons and entities that intervened and were active in this 15 proceeding.1 16 17 **BACKGROUND** 18 1. The Commission opened this Docket pursuant to its Order No. 15-077 (issued 19 March 10, 2015). In its Order, the Commission adopted Staff's recommendation to open an 20 investigation into the determination of a renewable generator's contribution to peak-load 21 capacity. 22 2. Subsequently, on May 11, 2015, the Administrative Law Judge (ALJ) issued her Corrected Memorandum. In her Corrected Memorandum, the ALJ requested Staff to file a report 23 24 identifying independent experts able to appear at a future Commission workshop. 25

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Community Renewable Energy Association (CREA) is also a party to this Docket. Staff is authorized to state that while CREA does not object to the terms of the Stipulation, it does not intend to be a signatory on it.

1	3,	The Commission workshop was held on August 17, 2015. The following experts
2	appeared telephonically at the workshop:	
3	Andrew Mills with the Lawrence Berkeley National Laboratory;	
4		Michael Milligan with the National Renewable Energy Laboratory; and
5		John Fazio with the Northwest Power & Conservation Council.
6	4.	Pursuant to the Schedule set by the ALJ in her Prehearing Conference
7	Memorandun	n (issued September 9, 2016), the Parties filed their Opening Testimony and
8	Exhibits on D	December 14, 2015.
9	5.	Thereafter, the Parties met in person at several settlement conferences and also
10	corresponded	via electronic mail. During these discussions, the Parties considered the following
11	issues:	
12		a. The preferred methodology to calculate the capacity contribution to
13	meetin	ng peak load attributed to wind and solar generators;
14		b. Whether to require the use of an Effective Load Carrying Capability
15	calcul	ation, an alternate approximation, or some other method; and
16		c. Whether to require that each utility use the same calculation method.
17	6.	As a result of the settlement discussions and email correspondence related to the
18	discussions, t	he Parties were able to resolve the three issues set forth immediately above. As
19	such, the Parties present the following Stipulation, which resolves all issues, for the	
20	Commission's review and requested approval.	
21		SUBSTANTIVE TERMS OF STIPULATION
22	The P	arties agree that:
23	7.	As used in this Stipulation, "Effective Load Carrying Capability" is defined as the
24	estimated add	litional load that can be added to a system, or the estimated benchmark resources
25	(conventional	or perfect) that can be avoided, due to the inclusion of a particular resource or
26	group of reso	urces with no net change in system reliability as measured by Loss-Of-Load

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1	Probability (LOLP) or Loss-Of-Load Expectation (LOLE). ELCC is expressed as a percentage
2	of nameplate	capacity of the particular resource or group of resources. In the ELCC study, the
3	particular res	ource or group of resources shall be modeled as a stochastic variable or through an
4	alternative co	omparable method that captures the variability of such resource or group of
5	resources.	
6	8.	As used in this Stipulation, "Capacity Factor approximation" is defined as an
7	approximate	estimate of the ELCC of a particular generator or class of generators based on the
8	weighted sun	n of the following ratio, calculated for each hour for all hours of the year:
9		(mean generator output/maximum generator output)
10		The weight for each hour is the loss of load probability for that hour divided by
11	the sum of lo	ss of load probabilities for all hours.
12	9.	Idaho Power, PacifiCorp and PGE (Utilities) will use either an Effective Load
13	Carrying Cap	pability (ELCC) or Capacity Factor (CF) approximation for estimating capacity
14	contributions	from wind and solar generators for Integrated Resource Planning (IRP).
15	10.	The Utilities will prepare contribution estimates based on an assessment of all
16	hours in a yea	ar.
17	11.	The Utilities may interpolate or extrapolate from calculated ELCC/CF
18	approximatio	n values as needed.
19	12.	The Utilities may apply to the Commission for a waiver to allow the use of other
20	methodologie	es in the Integrated Resource Plan. Utilities must demonstrate that the proposed
21	methodology	produces results reasonably comparable to the ELCC method.
22	13.	Idaho Power's existing methodology for estimating capacity contribution of wind
23	and solar gen	erators for Integrated Resource Planning is an acceptable CF approximation
24	methodology	with the addition of an LOLP analysis that is based on all hours in a year.

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This Stipulation does not establish the translation from renewable capacity

contribution percentages to prices or dollar values for other dockets or filings.

1	15. This Stipulation will be offered into the record in this proceeding as evidence
2	pursuant to OAR 860-001-0350(7). The Parties agree to support this Stipulation throughout this
3	proceeding and any appeal. The Parties further agree to provide witnesses to sponsor the
4	Stipulation at any hearing held, or, in a Party's discretion, to provide a representative at the
5	hearing authorized to respond to the Commission's questions on the Party's position as may be
6	appropriate.
7	16. If this Stipulation is challenged by any other party to this proceeding, the Parties
8	to this Stipulation reserve the right to cross-examine witnesses and put on such case as they deem
9	appropriate to respond fully to the issues presented, including the right to raise issues that are
10	incorporated in the Settlement embodied in this Stipulation. Notwithstanding this reservation of
11	rights, the Parties agree that they will continue to support the Commission's adoption of the
12	terms of this Stipulation.
13	17. The Parties have negotiated this Stipulation as an integrated document. If the
14	Commission rejects all or any material portion of this Stipulation, or imposes additional material
15	conditions in approving this Stipulation, any Party disadvantaged by such action shall have the
16	rights provided in OAR 860-001-0350(9) and shall be entitled to seek reconsideration or appeal
17	of the Commission's Order.
18	18. By entering into this Stipulation, no Party shall be deemed to have approved,
19	admitted, or consented to the facts, principles, methods, or theories employed by any other Party
20	in arriving at the terms of this Stipulation. No Party shall be deemed to have agreed that any
21	provision of this Stipulation is appropriate for resolving the issues in any other proceeding.
22	19. This Stipulation may be executed in counterparts and each signed counterpart

25 20. This Stipulation may not be modified or amended except by written agreement 26 among all Parties who have executed it.

Party's signature is valid and binding to the same extent as an original signature.

shall constitute an original document. The Parties further agree that any facsimile copy of a

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1	This Stipulation is entered into by each	Party on the date entered below such Party's
2	signature.	*
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4	STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON	CITIZENS' UTILITY BOARD OF OREGON
5	By: Will	By:
6 7	Date: 4/27/16	Date:
8	OREGON DEPARTMENT OF ENERGY	RENEWABLE NORTHWEST
9	Ву:	By:
10	Date:	Date:
11 12	RENEWABLE ENERGY COALITION	IDAHO POWER COMPANY
13 .	By:	By:
14	Date:	Date:
15 16	INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES	PORTLAND GENERAL ELECTRIC
17	By:	By:
18	Date:	Date:
19 20	PACIFICORP d/b/a PACIFIC POWER	
21	By:	
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5	COMMISSION OF OREGON	Will P. St
6	By:	By: 4/18/16
7	Date:	Date: 4/18/16
8	OREGON DEPARTMENT OF ENERGY	RENEWABLE NORTHWEST
9	Ву:	Ву:
10	Date:	Date:
11	RENEWABLE ENERGY COALITION	IDAHO POWER COMPANY
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8	OREGON DEPARTMENT OF ENERGY	RENEWABLE NORTHWEST
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10	Date: 4/18/16	Date:
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9	By:	By:
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12	By: Jun Songo	Ву:
13 14	Date: 4/28/16	Date:
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12	By:	By Du E. Will
13 14	Date:	Date: 4-22-16
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13	By:	By:
14	Date:	Date:
15	INDUSTRIAL CUSTOMERS OF	PORTLAND GENERAL ELECTRIC
16	NORTHWEST UTILITIES	
17	By:	By: V. Dis Junes
18	Date:	Date: 04/22/2016
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20	PACIFICORP d/b/a PACIFIC POWER	
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