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December 20, 2019

Via Electronic Filing

Mark L. Johnson
Executive Director
Washington Utilities & Transportation Commission
621 Woodland Square Loop SE
Lacey, WA 98503

Attn: Filing Center

Re: In re Amending, Adopting, and Repealing WAC 480-100-238, Relating to Integrated Resource Planning
Docket No. UE-190698

Dear Mr. Johnson:

Enclosed for filing in the above-captioned docket, please find the Comments of the Northwest & Intermountain Power Producers Coalition ("NIPPC").

Thank you for your assistance. Please do not hesitate to contact me with any questions.

Sincerely,

Min Hu

Enclosure
cc. Carol Opatrny, NIPPC Interim Executive Director

BEFORE THE WASHINGTON UTILITIES AND

TRANSPORTATION COMMISSION

In the matter of the Amending, Adopting, and Repealing WAC 480-100-238, Relating to Integrated Resource Planning.	DOCKET NO. UE-190698 NORTHWEST & INTERMOUNTAIN POWER PRODUCERS COALITION COMMENTS

I. INTRODUCTION

The Northwest & Intermountain Power Producers Coalition ("NIPPC") appreciates this opportunity to submit comments on the Washington Utilities and Transportation Commission's ("WUTC" or "Commission") rulemaking regarding potential improvements to the utility integrated resource planning ("IRP") process and policies in light of recent advances in the energy industry and recently passed legislation. These Comments respond to the Commission's Notice of Opportunity to File Written Comments and discussion draft rules issued November 7, 2019. NIPPC, however, is only responding to certain issues, and may provide broader comments later in this proceeding.

NIPPC recommends that:

- The utilities use consistent, regionally appropriate resource adequacy ("RA") assessments;
- The IRP process be improved through greater transparency and regular utility filings and/or updates;
- The IRP should be approved rather than simply acknowledged; and
- The content of IRPs be improved by requiring the utilities to perform renewable resource capacity contribution studies.

II. COMMENTS

A. Resource Adequacy Requirements Should Be Consistent for All Three Utilities and Rely Upon Regional Standards

The Clean Energy Transformation Act ("CETA")[1] and the Commission's discussion draft rules[2] appropriately recognize that utilities must assess RA, including in the IRP process. However, the discussion draft rules leave it to each utility to choose from the universe of possible RA metrics. This approach invites confusion. NIPPC first recommends that the Commission require all three utilities to agree on and use the same RA metric or metrics, subject to stakeholder review and ultimate Commission approval of the utilities' selection. Having all investor-owned utilities use the same metrics will enable effective comparisons across utilities (and state jurisdictions), which in turn will improve understanding of both an individual utility's RA need and the aggregate RA need.

The Commission should recognize the broad regional significance of energy topics such as RA. The need for RA extends beyond the borders of any single utility, particularly as Washington becomes more integrated with other parts of the west through the Energy Imbalance Market and the forthcoming Extended Day Ahead Market. For example, E3 recently completed a comprehensive analysis which shows potentially significant regional capacity deficits, largely due to retiring coal generation and load

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1 SB 5116, 2019 Wash. Sess. Laws Ch. 288.

2 Discussion Draft Rules at WAC 480-100-610(7), (8), and (12)(d).

growth.[3] E3 notes that continuing the status quo by relying on individual planning processes, without a regional accounting, would risk over- or under-procurement.[4]

No regional RA standard has been adopted across the west; however, efforts to establish a regional standard are actively underway. The Northwest Power Pool, for instance, began work on developing a RA program in November 2019 and is aiming for full implementation by spring 2022.[5] When a regional RA standard is adopted, that is the standard that Washington's utilities likely should be required to follow. NIPPC therefore additionally recommends that the Commission require utilities to follow the guidance of regional planning organizations, such as the Northwest Power and Conservation Council and the Northwest Power Pool, in identifying and adopting appropriate RA metrics.

The Commission has specifically asked whether the metrics should be included in a rule or policy statement. As rules are less flexible to revision, NIPPC recommends that either the requirement be drafted broadly to allow changes over time, or that the requirement be implemented in a policy statement. Given that the Northwest Power Pool has not completed its work, it would be premature to lock in detailed and specific metrics at this time.

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3 E3, *Exploring a Resource Adequacy Program for the Pacific Northwest*, NORTHWEST POWER POOL 20 (Oct. 2019) available at https://www.nwpp.org/private-media/documents/2019.11.12_NWPP_RA_Assessment_Review_Final_10-23.2019.pdf.

4 *Id.* at 38.

5 Keith Schreiner, *2019 3rd Quarter Update*, NORTHWEST POWER POOL (Nov. 18, 2019, 9:21 AM) available at https://www.nwpp.org/news/2019-3rd-quarter-update.

B. Utilities Should Provide Access to More Information in the IRP Process

Transparency is a major hurdle to effective stakeholder involvement in the IRP process both during the pre-filing IRP development process, in the review of final IRPs and IRP progress reports, and other proceedings that rely upon IRP inputs and assumptions. For example, utilities develop market price forecasts using methodologies that are not known to outside stakeholders and various inputs which are not accessible to everyone. The underlying methodology and inputs should be provided in the IRP development process so that stakeholders may review and comment on and have an impact on whether those methodologies and/or inputs are reasonable.

CETA allows the Commission to require that utilities "make the utility's data input files available in a native format."[6] The discussion draft rules require that a market forecast used in the utility's qualifying facility avoided cost calculation be included in the IRP;[7] however, more underlying information is needed and it is needed earlier in the process. Utility avoided cost filings are updated in filings filed on November 1 of each year and based on the utility's "current forecast of market prices."[8] Therefore, once a utility IRP is filed, the market forecast included therein will likely reflect a market price forecast that has already been accepted by the WUTC in the utility's last avoided cost update, and will be stale by the time the next avoided cost update is filed.

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6 SB 5116, 2019 Wash. Sess. Laws Ch. 288 §14 (10)(a).
7 Discussion Draft Rules at WAC 480-100-610(14)(c).
8 WAC 480-106-040.

Simply providing the market price forecast in the IRP, therefore, does not provide adequate information. As such, the utilities should be required to provide access to their market forecast methodologies and underlying inputs in the pre-filing IRP stakeholder advisory process. NIPPC also recommends an addition to discussion draft rule WAC 480-100-620(1) that would require that the utility IRP website also include a list of methodologies and underlying data or inputs that are available in native file format upon request, including the market price forecast methodology and all inputs.[9]

C. Utilities Should Be Required to Perform Renewable Resource Capacity Contribution Studies

The Commission rules should require the utilities to perform an appropriate capacity contribution study as part of the IRP process that determines renewable resource contributions to capacity. For example, the Oregon Public Utility Commission ("Oregon PUC") requires that utilities estimate capacity using either an Effective Load Carrying Capability or a Capacity Factor approximation as part of their IRPs, and also conduct one-time benchmark analyses as renewable penetration levels increase to measure the accuracy of the methodologies.[10] Requiring a standardized methodology is desirable because it can be more detailed and robust in contrast to other methods that simply look

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[9] There may be other underlying data or methodologies that would provide better transparency for stakeholders and that could be included in this list. While NIPPC has not, at this time, contemplated the entire universe of other information that could be listed here, NIPPC looks forward to working with other stakeholders and further evaluating what other information should be included.

[10] *See* Attachment A, *In re Pub. Util. Comm'n of Or. Investigation to Explore Issues Related to a Renewable Generator's Contribution to Capacity*, Or. Pub. Util. Comm'n Docket No. UM 1719, Order No. 16-326 at 1 (Aug. 26, 2016) available at https://apps.puc.state.or.us/orders/2016ords/16-326.pdf.

at a resource's likely output over peak hours.[11] The Oregon PUC adopted this requirement through approving a stipulation of the parties to that docket, all of whom expressed support for some standardization in this area and a little flexibility.[12] The Oregon PUC order and stipulation are attached to these Comments for the WUTC's consideration in this rulemaking. Specifically, NIPPC suggests that the discussion draft rule, WAC 480-100-615(1), also include in the utility work plan, a requirement that the utility provide the proposed due date and schedule for performing an appropriate capacity contribution study.

D. The Commission Should Approve Rather than Simply Acknowledge the IRP

Question 6 notes that Commission has typically "used an acknowledgment letter with comments to affirm that the utility has met the legal and regulatory requirements for filing an IRP", and then asks whether "the Commission consider a different type of response to an IRP, including but not necessarily limited to a compliance letter, an acknowledgment letter with comments, or Commission approval?" NIPPC supports more formal approval of the IRP.

First, the importance of the IRP has increased due the passage of CETA and the Commission's greater use of IRP inputs in other areas, including to setting of avoided cost prices. Since the IRP has more meaningful and significant impacts, greater scrutiny and review is appropriate.

Formal approval will increase the quality of participation and comments on the IRP. Presently, stakeholder participation and comments in Washington are relatively

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11 *Id.* at 4.

12 *Id.*

limited because they do not result in an actual Commission decision that addresses and resolves disputed issues. Organizations and other interested parties—nearly all of whom are working with limited resources—must decide in which of the overwhelming number of cases, rulemakings, and other forums to participate. Such organizations may not participate actively in a proceeding where the utility can simply ignore their comments and the Commission has no ability to address their concerns.

E. The IRP Cycle Should Be Structured to Provide the Most Updated Information

NIPPC recommends that the Commission not adopt a 4-year IRP cycle with 2-year progress reports. More frequent IRPs are necessary to provide the most up to date information used for utility resource procurement decisions, resource adequacy analysis, and other purposes, such as utility avoided cost updates. Utilities in far less dynamic states than Washington file biennial IRPs, and the veritable sea changes facing the state's energy industry, such as being asked to manage the transition to a renewable-based grid while grappling with a massive looming capacity deficit necessitate more frequent filings not less. A four-year cycle will mean that more variables will be out-of-date for longer periods of time, which will lead to flawed analyses and, ultimately, sub-optimal resource procurement efforts.

Moreover, the four-year cycle may result in more complex avoided cost filings, because utilities and/or stakeholders will want less stale information used in the avoided cost updates. Utility avoided capacity costs include inputs derived from the most recently acknowledged IRP, including the projected fixed cost of the next planned capacity

addition and individual resource capacity contribution values and capacity factors.[13] The IRP inputs and assumptions are just the starting point for setting avoided cost prices, as the Commission has confirmed that "any party may raise concerns with any utility's inputs and assumptions when the utility files its tariff for purchases from qualifying facilities."[14] However, as a practical matter it can be difficult to challenge these assumptions when the utilities' make their avoided cost price filings, and the Commission should strive to ensure that the best and most consistent information is used in the IRP. When such inputs are stale, there is a higher likelihood that the utility and/or stakeholders will seek to use a more updated value and challenge the utility's information used in the IRP.

An IRP update or progress report does not provide adequate information to inform the avoided cost filings. The Commission should avoid scenarios where the utilities develop a market forecast or capacity value that is only used for calculating avoided costs and not for any other utility resource procurement decisions. A requirement that utilities simply update avoided cost inputs on a more regular basis may result in skewed numbers that undervalue avoided costs. For example, while the discussion draft rules require that utility IRPs include a detailed analysis of the methodology, assumptions, and market forecasts used to calculate avoided cost prices,[15] it should be confirmed that these are not different from the assumptions and market forecasts that are used to make other resource

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13 WAC 480-106-040.

14 *In re Amending, Adopting, and Repealing Sections of WAC 480-106 and 480-107 Relating to Public Utility Regulatory Policies Act*, Docket No. U-161024, General Order R-597 at ¶ 22 (June 12, 2019).

15 Discussion Draft Rules at WAC 480-100-610(14).

decisions. As such, requiring an update to those inputs only for the purpose of updating avoided cost prices would result in a scenario where the utility can justify its own resource acquisitions with different numbers than it uses to pay qualifying facilities, which often results in new generation that is more expensive than if it was provided by independent entities.

In summary, by requiring more frequent IRPs, the Commission can ensure that utility resource planning keeps pace with the rapidly changing energy industry, leads to optimal resource procurement outcomes, and provides for an ongoing refinement of a utility's avoided cost assumptions, thereby promoting ratepayer interests in the form of lower costs and a healthy market for independent generation.

III. CONCLUSION

NIPPC appreciates the opportunity to comment on the draft rules and looks forward to further engagement in this rulemaking.

Dated this 20th day of December 2019.

Respectfully submitted,

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Of Attorneys for Northwest &
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Attachment A

In re Pub. Util. Comm'n of Or. Investigation to Explore Issues Related to a Renewable Generator's Contribution to Capacity

Or. Pub. Util. Comm'n Docket No. UM 1719

Order No. 16-326

(Aug. 26, 2016)

ORDER NO. 16 326

ENTERED AUG 26 2016

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1719

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, Investigation to Explore Issues Related to a Renewable Generator's Contribution to Capacity.	ORDER

DISPOSITION: STIPULATION ADOPTED

I. SUMMARY

We opened this investigation in Order No. 15-077 to address differences in the methodologies used to determine a renewable generator's contribution to capacity. After a Commission workshop, initial testimony, and several settlement conferences, the parties to these proceedings agreed to a stipulation.[1] The stipulation provides that, for the purpose of an Integrated Resource Plan (IRP), Portland General Electric Company, PacifiCorp, dba Pacific Power, and Idaho Power Company will estimate the capacity contributions from wind and solar generators using either an Effective Load Carrying Capability (ELCC) or a Capacity Factor (CF) approximation. In this order, we adopt the stipulation, attached as Appendix A. We also find that, as the utilities' renewable penetration level increases in the future (e.g., 20 to 25 percent of system mix), we will require the utilities to perform a one-time benchmark of the CF approximation method against an ELCC calculation.

II. BACKGROUND

A renewable generator's contribution to capacity is a measure of the most likely amount of capacity—ability to generate electric energy—the resource can deliver at the utility's annual peak load or other periods when the grid is stressed. Contribution to capacity is

[1] The parties to these proceedings include: Portland General Electric Company, PacifiCorp, dba Pacific Power, Idaho Power Company, Staff of the Public Utility Commission of Oregon, the Citizens' Utility Board of Oregon (CUB), the Industrial Customers of Northwest Utilities (ICNU), the Oregon Department of Energy (ODOE); Renewable Northwest (Renewable NW), the Renewable Energy Coalition (REC), and the Community Renewable Energy Association (CREA). CREA is not a signatory to the stipulation, but does not object to its terms.

represented as a percentage of plant capacity.[2] As described in Order No. 15-077, PGE, PacifiCorp, and Idaho Power calculate wind and solar contribution to capacity in their IRPs.[3] We opened this investigation to compare the different methodologies used by the three electric utilities to determine contribution to capacity and to consider whether we should adopt a standardized calculation methodology.

We examined two methodologies: an ELCC method and the CF approximation method.[4]

ELCC is a reliability-based method that estimates the additional load that can be served by adding an incremental generator while maintaining the same level of system reliability. System reliability is measured with metrics such as the loss of load probability (LOLP) and the loss of load expectation (LOLE). The LOLP is the probability of a loss of load event in which the system load is greater than available hourly generating capacity. The LOLE is the sum of LOLPs during a planning period, usually one year, for example, 0.1 days per year. ELCC is generally determined by modeling the system with and without the renewable generation in question, and comparing how much capacity the generator adds while still maintaining the same level of LOLE.

The CF approximation method approximates ELCC by calculating the capacity factor for a generator or class of generators for each hour of the year (mean generator output/maximum generator output). The weight for each hour is the LOLP for that hour divided by the sum of LOLPs for all hours. While there is an initial LOLP calculation for each hour, there are no iterative LOLP calculations.

We began this investigation with a Commission workshop where three independent experts provided background information. Subsequently, we asked the parties to file testimony addressing certain issues related to the calculation of contribution to capacity.

III. INITIAL TESTIMONY

We asked the parties to address four issues. We asked them: (1) to describe their preferred methodology to calculate a renewable generator's contribution to capacity, (2) to address the advantages and disadvantages of an ELCC calculation, (3) to address whether an approximation method should be benchmarked against an ELCC calculation, and (4) whether the utilities should all be required to use the same calculation method.

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[2] Parties distinguish capacity factor of a generating resource, which just measures how much energy that resource is expected to produce over a given period of time, and capacity contribution, which considers how much the resource produces during peak load periods or other periods when the grid is stressed. *See, e.g.,* PAC/100, Link/4.

[3] *See e.g., In the Matter of Portland General Electric Co., 2013 Integrated Resource Plan,* Docket No. LC 56, Order No. 14-415 at 13-14 (Dec 2, 2014) (taking under advisement the recommendation to open an investigation into a renewable generator's contribution to capacity).

[4] Stipulation at 2-3 defines ELCC and CF approximation.

To provide the proper context for evaluating the parties' stipulation, we briefly summarize the testimony of PGE, PacifiCorp, Idaho Power, Staff, ICNU, CUB, and Renewable NW on these four issues.

A. Parties' Preferred Methodologies

The utilities prefer flexibility in choosing a method. The other parties prefer the ELCC method but are generally open to the CF approximation method.

PGE recommends no changes to existing policy and procedures, in part, because there is no single industry standard method. PGE used an ELCC methodology for its 2016 IRP, resulting in 14.1 percent of nameplate capacity for PGE's portfolio of mostly wind resources in the Columbia Gorge. Previously, in its 2013 IRP, PGE used 5 percent as the assigned contribution to capacity estimate.

PacifiCorp prefers the CF approximation method. PacifiCorp believes it produces results similar to ELCC results—and uses only a fraction of the computational resources. For support, PacifiCorp and several other parties point to a National Renewable Energy Laboratory (NREL) study that found the CF approximation method the most dependable technique for approximating the ELCC method.[5] PacifiCorp used a CF approximation in its 2015 IRP, resulting in 14.5 percent for its East Balancing Authority Area (BAA) wind and 25.4 percent for West BAA wind, and values in the mid-30 percent range for solar PV.[6]

Idaho Power prefers an approximation method, stating that its approximation is reasonably accurate, transparent, can be easily verified by an independent party, and comparable to the ELCC. For planning purposes, Idaho Power uses a 5 percent peak capacity contribution for wind resources, and for PURPA avoided cost pricing, it uses actual wind data with a 3.9 percent contribution to peak capacity.

Staff, ICNU, CUB, and Renewable NW all support the ELCC method as the most accurate measure of capacity—during the system peak load, and for other times during the year that the system may be stressed. Staff, CUB, and Renewable NW (not ICNU) allow that the CF approximation method is also acceptable, considering that it is less computationally intensive and requires less data.

ICNU offers step-by-step technical recommendations for performing ELCC calculations.[7] First, the ELCC of a renewable resource should be compared to the ELCC of a thermal resource. Second, the generation profile of the wind and solar resource should be modeled as a stochastic variable in the reliability studies underlying the ELCC calculations. Third, the reliability metric used in the ELCC calculation should be based

[5] *See* NREL/Milligan presentation at exhibit Staff/103.
[6] PAC/102, Link/3.
[7] ICNU/100, Mullins/14.

on LOLE days/year. Fourth, diversity benefits associated with a portfolio of renewables should be reflected in the ELCC calculations.[8]

B. Advantages and Disadvantages of ELCC Methodology

The parties generally recognize the wide-spread use of the ELCC method and describe both its advantages and disadvantages.

PGE explains that ELCC methods are more detailed and analytically robust than heuristic time-window methods[9] and are more appropriate at a higher penetration level of variable resources. PGE explains that heuristic, time-window methods estimate the resource's likely output over peak hours. Their principal advantage is that they are easy to understand and to calculate, as they generally consist of simple statistics averaged over a large number of hours. The disadvantage, PGE explains, is that heuristic methods may not use the most critical hours. ELCC methodologies, by contrast, capture the correlations among load and variable resource production in order to identify the critical set of hours in which a system has a non-zero loss of load probability. Renewable resources that are expected to produce at a high level during either the summer or the winter peak hours can be expected to have a high marginal ELCC relative to resources producing at lower levels during those hours.

PacifiCorp states the primary advantages of the ELCC method are that it is a robust technique, tied to system reliability, and widely accepted in the literature. The disadvantage, PacifiCorp maintains, is that it is computationally burdensome and involves a five-step process.[10] With these steps, the ELCC is iterative in nature, meaning that it may take many trial runs for the model to converge to an answer.

Idaho Power appreciates that the ELCC method is accepted as the theoretical standard. However, Idaho Power lists several disadvantages, including the extensive data required, the lack of transparency that comes with complex software and specialized consultants, and the fact that current power supply models may not be easily adapted to the iterative ELCC process.

ICNU states that approximation methods have the potential to create a wide range of capacity contribution values. ICNU recommends full ELCC studies and states that the computational intensity is not as problematic as it once was because the utilities commonly develop and perform reliability studies in their IRPs to calculate planning reserve margins.

Staff and Renewable NW agree that the ELCC method is recognized as a common and robust approach to determining capacity credit. They state that the disadvantage of the

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[8] Because only one round of testimony was filed, the utilities did not respond to ICNU's proposal. In addition, the stipulation does not address these ELCC calculation issues, but ICNU is a signatory to it.
[9] PGE/200, Olson/14.
[10] PAC/100, Link/9.

ELCC method is that it requires synchronized generation and load data, which utilities may not have readily available.

C. Advantages and Disadvantages of Requiring an Alternative or Approximation Method to be Benchmarked Against ELCC Calculation

Only two parties addressed the use of a benchmark for an approximation method.

PacifiCorp cautions that a benchmark requirement would effectively eliminate the efficiencies that make an approximation method desirable. If PacifiCorp uses an ELCC method, it would rely on that calculation and not perform a redundant approximation.

Idaho Power states that an approximation method should be verified by comparison with other calculations, but believes that requiring an ELCC comparison is overly prescriptive.

D. Advantages and Disadvantages of Requiring Utilities to Use Same Method

The utilities agree that they should have flexibility in choosing the methodology that produces reasonable results for their particular systems. PacifiCorp states that the Commission can still achieve consistency among utilities by identifying more than one acceptable methodology, including the CF approximation method or by requiring that the chosen method be based on hourly LOLP metrics. Renewable NW agrees that the utilities should not be required to use the same calculation method.

Staff believes that all electric utilities should use the full ELCC methodology, and that the Commission should waive the requirement upon a showing by the utility that synchronized load and generation data is unavailable.

After initial testimony, the parties participated in settlement conferences and ultimately filed a stipulation and supporting joint testimony.

IV. DISCUSSION

A. The Stipulation

As discussed above, the parties eventually reached a settlement on these issues and submitted a stipulation for our review. [11]

The parties agree that, for the purpose of the IRP, the utilities will estimate the capacity contributions from wind and solar generators using either an ELCC or CF approximation methodology. The stipulation requires that the contribution be estimated based on all

[11] The stipulating parties filed motions to have their pre-filed testimony and exhibits admitted into the record. The motions are granted and the stipulation and the following testimony and exhibits are received as evidence in this proceeding: Albi – Macfarlane (PGE/100), Olson (PGE/200-202), Link (PAC/100-101), Haener (Idaho Power/100), Hanhan (CUB/100-101), Mullins (ICNU/100-102), O'Brien (RNW/100), Crider (Staff/100-107), Joint Party/100.

hours in a year to address concerns raised in testimony over using only peak hours. The parties generally agree that both of these methods should produce reasonable and accurate results.

The stipulation contains a provision for using interpolation or extrapolation from calculated ELCC and CF approximation values as needed. The parties explain that it is impractical to produce full ELCC calculations for every year of an entire IRP or for every resource combination. The stipulation also contains a waiver process so that a utility may apply to the Commission for permission to use an alternate methodology.

Regarding Idaho Power's methodology, the parties agree that Idaho Power's existing methodology can continue to be used as a CF approximation method, with the addition of a LOLP analysis based on all hours in a year.

The stipulation also clarifies that it does not establish the translation from renewable capacity contribution percentages to prices or dollar values for other dockets or filings.

The parties request that we approve and adopt the stipulation and order that the capacity contribution of wind and solar generators be calculated by using the ELCC method or the CF approximation method (as defined in the stipulation) for inclusion in a utility's IRP.

B. Commission Resolution

We adopt the stipulation. The parties all agree that both the ELCC method and the CF approximation method produce reasonably accurate values for wind and solar resources' contribution to capacity for IRP purposes. The stipulation provides that the utilities will use one of these methods, and we find that this agreement is in the public interest.

In reaching this decision, we note that the studies relied on by the parties are limited by historical data with low renewable penetration levels. Specifically, the study that concludes that the CF approximation method is the most dependable approximation method considers solar at less than 0.1 percent of penetration.[12] No evidence was presented as to the reasonableness of the CF approximation method at higher penetration levels. Thus, as the utilities' renewable penetration level increases in the future (e.g., 20 – 25 percent of system mix), we will require the utilities to perform a one-time benchmark of the CF approximation method against an ELCC calculation.

Finally, we note that the stipulation is limited to IRP purposes and, for reference, we explain how the capacity contribution affects IRPs. In the IRP, capacity contribution values are used to calculate load and resource balances from existing resources. Through this analysis, the capacity contribution values affect the timing and amount of additional capacity needed to reliably serve customer load over time, as reflected in the utility's action plan.[13] While the stipulation states that it does not establish the translation from

[12] PAC/101, Link/35 (NREL study examining 100 MW nameplate solar facility against 110 GW of Western interconnection-wide load).
[13] PAC/100, Link/12.

renewable capacity contribution percentages to prices or dollar values for other dockets or filings, we note that the IRP-derived capacity contribution value is currently used in other Commission proceedings.[14] For example, the capacity contribution value from the IRP currently feeds into PURPA avoided costs, and is currently proposed to be used as an input to calculate the resource value of solar.[15]

V. ORDER

IT IS ORDERED that the stipulation by and between Portland General Electric Company; PacifiCorp, dba Pacific Power; Idaho Power Company; Staff of the Public Utility Commission of Oregon; the Citizens' Utility Board of Oregon; the Industrial Customers of Northwest Utilities; Renewable Northwest; Renewable Energy Coalition; and the Oregon Department of Energy attached as Appendix A, is adopted.

Made, entered, and effective AUG 26 2016.

Lisa D. Hardie
Chair

John Savage
Commissioner

Stephen M. Bloom
Commissioner

A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Court of Appeals in compliance with ORS 183.480 through 183.484.

[14] Stipulation at 3.

[15] *In re Investigation into Qualifying Facility Contracting and Pricing*, Order No. 16-174, Docket UM 1610 (May 13, 2016) (reconsideration pending); *In re Investigation to Determine Resource Value of Solar*, Docket UM 1716, Staff Opening Testimony, Staff/200, Olson 30-31 (Jun 1, 2016).

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1719

In the Matter of: PUBLIC UTILITY COMMISSION OF OREGON, Investigation to Explore Issues Related to a Renewable Generator's Contribution to Capacity.	STIPULATION

This Stipulation is entered into for the purpose of resolving all issues in this Docket.

PARTIES

The Parties to this Stipulation are: the Staff of the Public Utility Commission of Oregon (Staff), the Citizens' Utility Board of Oregon (CUB); the Oregon Department of Energy (ODOE), Renewable Northwest (RWN), Renewable Energy Coalition (REC), Idaho Power Company (Idaho Power), the Industrial Customers of Northwest Utilities (ICNU), Portland 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 proceeding.[1]

BACKGROUND

1. The Commission opened this Docket pursuant to its Order No. 15-077 (issued March 10, 2015). In its Order, the Commission adopted Staff's recommendation to open an investigation into the determination of a renewable generator's contribution to peak-load capacity.

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 identifying independent experts able to appear at a future Commission workshop.

[1] 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.

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3. The Commission workshop was held on August 17, 2015. The following experts appeared telephonically at the workshop:

Andrew Mills with the Lawrence Berkeley National Laboratory;

Michael Milligan with the National Renewable Energy Laboratory; and

John Fazio with the Northwest Power & Conservation Council.

4. Pursuant to the Schedule set by the ALJ in her Prehearing Conference Memorandum (issued September 9, 2016), the Parties filed their Opening Testimony and Exhibits on December 14, 2015.

5. Thereafter, the Parties met in person at several settlement conferences and also corresponded via electronic mail. During these discussions, the Parties considered the following issues:

a. The preferred methodology to calculate the capacity contribution to meeting peak load attributed to wind and solar generators;

b. Whether to require the use of an Effective Load Carrying Capability calculation, an alternate approximation, or some other method; and

c. Whether to require that each utility use the same calculation method.

6. As a result of the settlement discussions and email correspondence related to the discussions, the Parties were able to resolve the three issues set forth immediately above. As such, the Parties present the following Stipulation, which resolves all issues, for the Commission's review and requested approval.

SUBSTANTIVE TERMS OF STIPULATION

The Parties agree that:

7. As used in this Stipulation, "Effective Load Carrying Capability" is defined as the estimated additional load that can be added to a system, or the estimated benchmark resources (conventional or perfect) that can be avoided, due to the inclusion of a particular resource or group of resources with no net change in system reliability as measured by Loss-Of-Load

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Probability (LOLP) or Loss-Of-Load Expectation (LOLE). ELCC is expressed as a percentage of nameplate capacity of the particular resource or group of resources. In the ELCC study, the particular resource or group of resources shall be modeled as a stochastic variable or through an alternative comparable method that captures the variability of such resource or group of resources.

8. As used in this Stipulation, "Capacity Factor approximation" is defined as an approximate estimate of the ELCC of a particular generator or class of generators based on the weighted sum of the following ratio, calculated for each hour for all hours of the year:

(mean generator output/maximum generator output)

The weight for each hour is the loss of load probability for that hour divided by the sum of loss of load probabilities for all hours.

9. Idaho Power, PacifiCorp and PGE (Utilities) will use either an Effective Load Carrying Capability (ELCC) or Capacity Factor (CF) approximation for estimating capacity contributions from wind and solar generators for Integrated Resource Planning (IRP).

10. The Utilities will prepare contribution estimates based on an assessment of all hours in a year.

11. The Utilities may interpolate or extrapolate from calculated ELCC/CF approximation values as needed.

12. The Utilities may apply to the Commission for a waiver to allow the use of other methodologies in the Integrated Resource Plan. Utilities must demonstrate that the proposed methodology produces results reasonably comparable to the ELCC method.

13. Idaho Power's existing methodology for estimating capacity contribution of wind and solar generators for Integrated Resource Planning is an acceptable CF approximation methodology with the addition of an LOLP analysis that is based on all hours in a year.

14. This Stipulation does not establish the translation from renewable capacity contribution percentages to prices or dollar values for other dockets or filings.

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15. This Stipulation will be offered into the record in this proceeding as evidence pursuant to OAR 860-001-0350(7). The Parties agree to support this Stipulation throughout this proceeding and any appeal. The Parties further agree to provide witnesses to sponsor the Stipulation at any hearing held, or, in a Party's discretion, to provide a representative at the hearing authorized to respond to the Commission's questions on the Party's position as may be appropriate.

16. If this Stipulation is challenged by any other party to this proceeding, the Parties to this Stipulation reserve the right to cross-examine witnesses and put on such case as they deem appropriate to respond fully to the issues presented, including the right to raise issues that are incorporated in the Settlement embodied in this Stipulation. Notwithstanding this reservation of rights, the Parties agree that they will continue to support the Commission's adoption of the terms of this Stipulation.

17. The Parties have negotiated this Stipulation as an integrated document. If the Commission rejects all or any material portion of this Stipulation, or imposes additional material conditions in approving this Stipulation, any Party disadvantaged by such action shall have the rights provided in OAR 860-001-0350(9) and shall be entitled to seek reconsideration or appeal of the Commission's Order.

18. By entering into this Stipulation, no Party shall be deemed to have approved, admitted, or consented to the facts, principles, methods, or theories employed by any other Party in arriving at the terms of this Stipulation. No Party shall be deemed to have agreed that any provision of this Stipulation is appropriate for resolving the issues in any other proceeding.

19. This Stipulation may be executed in counterparts and each signed counterpart shall constitute an original document. The Parties further agree that any facsimile copy of a Party's signature is valid and binding to the same extent as an original signature.

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

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This Stipulation is entered into by each Party on the date entered below such Party's signature.

STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By: Mike

Date: 4/27/16

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

Department of Justice
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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By: Michael P. Goetz

Date: 4/18/16

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By: Wendy Simons

Date: 4/18/16

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By: _____

Date: _____

CITIZENS' UTILITY BOARD OF OREGON

By: _____

Date: _____

OREGON DEPARTMENT OF ENERGY

By: _____

Date: _____

RENEWABLE NORTHWEST

By: M. H. O'Brien

Date: 4/27/16

RENEWABLE ENERGY COALITION

By: _____

Date: _____

IDAHO POWER COMPANY

By: _____

Date: _____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By: _____

Date: _____

PORTLAND GENERAL ELECTRIC

By: _____

Date: _____

PACIFICORP d/b/a PACIFIC POWER

By: _____

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By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By: Irion Sanger

Date: 4/28/16

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

Department of Justice
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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By: Lisa E. Alexander

Date: 4-22-16

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

Department of Justice
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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date: 4/5/16

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

Department of Justice
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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

By:_____

Date:_____

OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By: V. Denise Saunders

Date: 04/22/2016

PACIFICORP d/b/a PACIFIC POWER

By:_____

Date:_____

Department of Justice
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STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By:_____

Date:_____

CITIZENS' UTILITY BOARD OF OREGON

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OREGON DEPARTMENT OF ENERGY

By:_____

Date:_____

RENEWABLE NORTHWEST

By:_____

Date:_____

RENEWABLE ENERGY COALITION

By:_____

Date:_____

IDAHO POWER COMPANY

By:_____

Date:_____

INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

By:_____

Date:_____

PORTLAND GENERAL ELECTRIC

By:_____

Date:_____

PACIFICORP d/b/a PACIFIC POWER

By: R B Duke

Date: 4/28/16

Department of Justice
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