

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1793

In the Matter of

IDAHO POWER COMPANY,

Application for Approval of Solar
Integration Charge.

ORDER

DISPOSITION: SOLAR INTEGRATION CHARGE APPROVED; NEW
INTEGRATED RESOURCE PLAN REQUIREMENTS
ADOPTED

I. SUMMARY

In this order, we grant the application of Idaho Power Company and adopt the 2016 Solar Integration Study (SIS). We direct Idaho Power to file amendments to Schedule 85 setting forth new charges identifying and reflecting the incremental costs of integrating solar and wind generation into its operations. We also direct the company to conduct a new wind integration study (WIS), assess the effects of its participation in the Western Energy Imbalance Market (EIM) on variable resource integration costs, and evaluate the feasibility of estimating the wind and solar integration costs jointly prior to the submission of its 2019 Integrated Resource Plan (IRP).

II. BACKGROUND

ORS 758.525 requires electric utilities to file a schedule of avoided costs equaling the utility's forecasted incremental cost of electric resources over at least the next 20 years and to offer to purchase energy from qualifying facilities (QFs) at no less than the calculated avoided costs. Inherent in the statute is the principle that the utility's customers should not bear any additional financial burden on account of the utility's compliance with the statute.

In calculating the costs of purchasing energy from QFs, the utility may consider the incremental costs of integrating the purchased energy, which would reduce overall avoided costs, into its overall operating costs. The price that a utility pays to a wind or solar QF for the energy it purchases is directly affected by these integration costs; the greater those costs, the lower the "avoided costs" become and therefore, the less the utility pays for the energy it receives.

In docket UM 1610, Phase IIA, we undertook a generic proceeding to examine solar integration costs, but concluded in Order No. 15-292, that such costs were best examined

in the context of each utility's development of a stand-alone cost study. In that order, we also noted

As Idaho Power is the only utility to have made any progress regarding development of a solar integration charge, we will prioritize expediency and allow Idaho Power to separately file its solar integration study [SIS] and application for a solar integration charge * * *. Idaho Power's filing should be made in a new docket when the study is complete.

Following Order No. 15-292, Idaho Power filed the current application for approval of its solar integration charge, and associated direct testimony, on August 10, 2016. Petitions to intervene filed by the Oregon Solar Energy Industries Association (OSEIA) and Renewable Northwest (Renewable NW) were granted without objection.

The parties and Commission Staff agreed to submit comments and waive the right to a hearing and briefing, and asked that the Commission decide the issues presented in this docket based upon Idaho Power's application and testimony, and the comments of the parties thereon. Comments were filed by Staff and Idaho Power; joint comments were filed by OSEIA and Renewable NW.

III. APPLICATION AND STUDY METHODOLOGY

Idaho Power seeks approval of a solar integration charge to help address the operational characteristics of solar generation. Idaho Power explains that electric power from solar generation resources exhibits greater variability and uncertainty than conventional resources, and these characteristics require an electric utility integrating solar power to modify its operating practices by holding extra operating reserves using dispatchable generation resources. The company states that the objective of a solar integration charge is to recognize the costs of these operational modifications necessary to integrate solar power.

Idaho Power notes that the Idaho Public Utilities Commission (IPUC) has already adopted the use of a solar integration charge for projects in Idaho.¹ Idaho Power contends that the lack of a comparable charge in Oregon would cause a large disparity between the two jurisdictions in avoided cost pricing, driving projects to Oregon to take advantage via regulatory arbitrage.²

To calculate the solar integration charge, Idaho Power commenced its 2016 SIS to examine various solar projects under contract across the company's territory and using paired simulations with other build scenarios. This study, built upon an earlier study completed in 2014, addressed many of the concerns previously raised by interested parties.

¹ Application at 2, citing IPUC Case No. IPC-E-14-18, Order No. 33227.

² At the time of the filing of the application, Idaho Power had 289.5 MW of solar power under contract to come online in 2016—49.5 MW of which was located in Oregon. The company also had solar QF projects requesting contracts for an additional 88.75 MW, 8.75 MW of which were to be located in Oregon.

In conducting its study, Idaho Power utilized a technical review committee (TRC), including experts from Commission Staff, which provided substantial guidance to shape the study methods. The study was organized and executed in four primary steps; (1) data gathering and scenario development; (2) statistical-based analysis of solar characteristics; (3) production cost simulation analysis; and (4) study conclusions and results.

Using the study, Idaho Power calculated integration costs using two different methodologies. First, Idaho Power calculated integration costs by averaging the costs over all solar projects as later projects came online:

**Average Integration Cost per MWh
(2016 cost and dollars)**

Build-out Scenarios	0-400 MW	0-800 MW	0-1,200 MW	0-1600 MW
Integration Cost	\$0.27	\$0.57	\$0.69	\$0.85

Second, Idaho Power calculated the incremental costs for each new project added. These rates were as follows:

**Incremental Integration Cost per MWh
(2016 cost and dollars)**

Build-out Scenarios	0-400 MW	400-800 MW	800-1,200 MW	1200-1600 MW
Integration Cost	\$0.27	\$0.88	\$0.92	\$1.31

IV. DISCUSSION

All parties support approval of the Idaho Power SIS methodology and the resulting charges per MWh. However, Staff, Renewable NW, and OSEIA urge certain changes to the Idaho Power application. The proposed changes relate to (a) the choice of implementation alternatives (averaging vs. incremental); (b) reflecting the role of the energy imbalance market (EIM); (c) conformity of wind integration cost methodology; and (d) the timing and procedural framework for addressing integration-related issues.

A. Average vs. Incremental Cost Methods

No party disputes Idaho Power's calculation of the integration charges; however, they do disagree as to which method (average or incremental) should be used to set the charges to be reflected in Schedule 85. Under the incremental cost method, a QF would know what its surcharge would be at the time its contract was signed, and would know that the surcharge would not change through the life of the contract. As a result, earlier QF projects would have lower per MWh surcharges than later solar QF projects being submitted. Under the average cost method, all QF projects, regardless of the date of filing of their proposal, would have identical surcharges that would escalate for all QFs contracted for subsequent to the effective date of this order over time as additional QF contracts were signed.

1. Positions of the Parties

Idaho Power proposes to use the incremental cost approach. Under this method, Idaho Power identifies the number of QF megawatts under contract subsequent to the effective date of its application in this docket. Each contract reflects the integration charge in effect at that time. For example, if four new contracts totaling 400 MW are executed, each of those contracts will include an integration charge of \$0.27 per MW. Idaho Power would then file an amendment to Schedule 85 noting that the next tier has been reached. When a new contract is subsequently negotiated, the integration charge will be \$0.88 per MW, and so forth.

Idaho Power contends that the incremental cost method is superior for four primary reasons. First, the company notes that it used the incremental cost approach in its acknowledged 2015 IRP and for its intermittent generation integration charges for both solar and wind integration costs in Idaho reflected in its Schedule 87. Second, it claims that the incremental cost approach more closely aligns the costs with the energy production source that drives up the integration costs because each additional variable energy source increases the overall variability of the total generating base. Third, the company adds that, unlike the average cost methodology, the incremental cost approach does not require the resetting or reopening of prices during the term of a contract. Idaho Power believes that QF developers will likely object and may challenge the practice of re-opening costs or resetting integration rates throughout their contract term based on the actions of others. Finally, Idaho Power contends the incremental cost approach is more equitable, as the average cost methodology would force earlier QFs to pay greater costs than the company actually incurred to have them on the system.

OSEIA and Renewable NW favor the average cost method, saying that it is more fair and accurate because the incremental approach is divorced from the operations. They explain that the incremental cost approach assumes that a newcomer project inherently brings higher incremental integration costs when, in fact, integration costs account for the net variability of the entire system, not just that of individual projects. Furthermore, the parties contend that newer projects may have technological features that reduce integration costs. OSEIA and Renewable NW recommend that any future updates to Schedule 85 use an average cost approach on all future projects, acknowledging the difficulties inherent in reopening existing contracts or calculating a unique integration cost for each plant.

Staff does not oppose the use of the incremental cost calculation method. Regardless of which methodology is used, however Staff believes that the integration charge component should be clearly displayed in the schedule and the schedule must include tables for both wind and solar charges showing the charges for each tier of penetration.³

While new Commission approval would not be required, Staff believes that the company should file the changes to its schedule immediately after the threshold for the next tier has

³ Currently, integration charges are not listed in Schedule 85 separately from other QF-associated costs. Staff proposes that, going forward, Idaho Power's Schedule 85 will clearly segregate and identify these charges for both wind and solar QFs.

been reached and should clarify whether the penetration determination is based on installed capacity only or capacity that is contracted for as well as installed capacity.

2. Resolution

We agree with Idaho Power and Staff that the Schedule 85 tariff should reflect and clearly identify the incremental (tiered) pricing results, using the same methods as those reflected in the company's Schedule 87 filings in Idaho. In so doing, we find that incremental, rather than average pricing, best serves the public interest because: (1) pricing will most closely reflect Idaho Power's ongoing operating costs, (2) QFs will have pricing certainty going forward and its attendant benefits, (3) contracts will be less likely to generate disputes, and (4) consistency between jurisdictions will remove the incentive to arbitrage the regulatory environment in making investment and siting decisions. We also conclude that calculating the tier level capacity based upon contracted capacity, rather than installed capacity, will provide all parties with greater certainty.

Idaho Power shall file revisions to Schedule 85 as each capacity threshold is passed—400 MW, 800 MW, 1200 MW—in order to promptly provide notice to interested parties. Such revisions shall become effective when filed, but may be examined for the correctness of the calculations in the company's representations in the filed revisions. Integration charges for both solar and wind generation shall be listed separately in the schedule and made readily identifiable.

B. Reflecting the Role of the Western Energy Imbalance Market (EIM)

The parties dispute whether Idaho Power's integration charge should be modified once the company joins the Western Energy Imbalance Market (EIM) in April 2018. Idaho Power expects that a major benefit of EIM participation is the capability to provide flexibility for balancing variable energy sources, such as solar. Idaho Power has conducted a preliminary analysis of EIM benefits related to solar integration.

1. Positions of the Parties

Staff, OSEIA, and Renewable NW believe that Idaho Power should conduct additional analysis to determine whether the company's solar integration costs should be reduced once it joins the EIM, due to the availability of 15-minute scheduling and 5-minute dispatch of resources. Staff notes that Idaho Power did conduct an "EIM sensitivity analysis" as part of the solar integration study, thus inferentially acknowledging that they are interrelated. OSEIA and Renewable NW recommend that Idaho Power expand on its EIM sensitivity analysis as part of its 2017 IRP. OSEIA and Renewable NW believe that the current analysis is too conservative with respect to projected reductions in integration costs because Idaho Power only considered the benefits of a 15-minute market, even though the EIM currently has the ability to dispatch on both a 15-minute and 5-minute basis.

Idaho Power disagrees, stating that the recommended cost-benefit analysis should not be included in the 2017 IRP or evaluated within the context of the IRP process. The company argues that, while EIM participation will be ultimately beneficial, the

evaluation of the costs and benefits of participation are not directly related to the long-term resource plan of the IRP. The company explains that EIM participation does not release a utility from the peaking capacity and energy capability resource adequacy requirement studied as part of integrated resource planning. Idaho Power contends that the impact of EIM participation on integration costs of intermittent resources are more appropriately addressed in future integration cost studies rather than in the IRP planning process.

2. Resolution

We agree with Staff, OSEIA, and Renewable NW that Idaho Power should examine the quantitative benefits of EIM participation in the IRP process. EIM participation may well provide Idaho Power with improved flexibility in responding to variability of wind and solar resources, thus directly affecting both integration costs; it is therefore worthy of consideration by a TRC in studying both wind and solar integration costs and the interrelationship of these variable resources.

C. Conformity of Wind Integration Cost Methodology

The parties disagree whether Idaho Power should conduct a new wind integration study (WIS). For its 2016 WIS, Idaho Power relied on its most recent WIS, which was completed in February 2013.

1. Positions of the Parties

Staff, OSEIA, and Renewable NW all believe that Idaho Power should perform a new WIS to correct two primary infirmities contained in the 2013 WIS: (1) forecast error was based on day-ahead schedules rather than on hour-ahead; and (2) calculation of reserve requirements was based on the variability of wind alone, rather than of the company's total load net of wind. Specifically, OSEIA and Renewable NW urge that we direct Idaho Power to apply the methodological improvements in the 2016 SIS to the company's existing WIS analysis in conjunction with an expanded EIM study as part of Idaho Power's 2017 IRP.

Idaho Power opposes conducting a new WIS, stating that the comparison with solar integration is inapt because solar resources have fundamentally less variability than wind, allowing for a lower impact on reserve requirements. While Idaho Power acknowledges the need to develop the best and most appropriate analysis possible, the company contends that "the assumption that the techniques used in the 2016 Solar Study are appropriate for a wind integration study is not correct."⁴

2. Resolution

While we agree with the company that the variability characteristics of wind and solar resources are different, we nevertheless find that Idaho Power's wind integration cost

⁴ Idaho Power Reply Comments at 9.

methodology can be improved. . We direct Idaho Power to undertake a new WIS utilizing the TRC process following the procedural path outlined below.

D. Timing and Procedural Framework

The 2016 SIS was a stand-alone project, rather than part of Idaho Power's overall planning process. The parties address the issue of how solar and wind integration and the role of the EIM should be resolved in Commission proceedings, whether through the current or future IRP processes, a combination of both, or by other means.

1. Positions of the Parties

Generally, OSEIA, Renewable NW, and Staff support the submission of integration studies exclusively with IRPs and approved via the use of the IRP acknowledgement process. Idaho Power does not oppose this procedural path.⁵

While, ideally, Staff would prefer that a new WIS would be a "re-run" for the 2017 IRP as an interim measure, and then revisited more thoroughly with a TRC in advance of the 2019 IRP, it acknowledges that time constraints preclude that path. Assuming a wind study would take roughly the same amount of time as the solar study did (ten months), Staff believes that a WIS could be concluded by the spring of 2018, well ahead of the 2019 IRP.⁶

2. Resolution

We adopt the general principle of considering integration studies, as well as the additional factor of EIM participation, in the annual IRP update and IRP acknowledgement processes. Given that there are no additional wind QFs currently proposed in Oregon, it is not appropriate to compress a new WIS process to fit within the constraints of the 2017 IRP.

Accordingly, after the filing of the 2017 IRP on June 30, 2017, the company shall work with the TRC to thoroughly evaluate whether to conduct a joint wind and solar integration cost study. As part of this assessment, the Company shall assess different methods for allocating jointly determined costs between wind and solar. The Company shall submit a study report and recommendation to the Commission no later than April 30, 2018, well ahead of the beginning of the 2019 IRP.

⁵ "Idaho Power would update the wind and solar integration charges in accordance with future IRP acknowledgments." *Id.* at 10.

⁶ An alternative approach would be to have a "unified" study of variable resources rather than separate wind and solar calculations and then develop an allocation scheme; however, Staff does not recommend one approach over the other, but believes that the question should be addressed by the TRC. None of the parties directly addressed the implications of this "unified" alternative.

V. ORDER

IT IS ORDERED that:

1. Idaho Power Company shall file an updated Schedule 85 consistent with the terms of this order.
2. Idaho Power Company shall conduct a new Wind Integration Study consistent with this order.
3. Idaho Power Company shall evaluate the effects of the company's participation in the Energy Imbalance Market on the costs of integrating variable resources into its operations and report back to the Commission on its findings.
4. Upon completion of the Wind Integration Study and the Energy Imbalance Market Report, Idaho Power Company shall establish a Technical Review Committee, which shall include Commission Staff and interested persons. The company with the Technical Review Committee shall assess the feasibility of estimating the unified costs of integrating wind and solar into its system and evaluate methods for sharing out those estimated costs between wind and solar resources.
5. Idaho Power Company shall submit the updated Solar Integration Study, new Wind Integration Study, and assessment of joint integration cost study to the Commission no later than April 30, 2018, in advance of filing its 2019 Integrated Resource Plan, along with a Report and recommendations from the Technical Review Committee described above.

Made, entered, and effective MAR 02 2017.

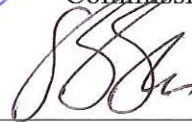


Lisa D. Hardie
Chair





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.