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July 12, 2016

VIA ELECTRONIC MAIL

PUC Filing Center
Public Utility Commission of Oregon
PO Box 1088
Salem, OR 97308-1088

Re: UM 1610 – In the Matter of OREGON PUBLIC UTILITY COMMISSION, Investigation into Qualifying Facility Contracting and Pricing

Attention Filing Center:

Attached for filing in the above-captioned docket is an electronic copy of Idaho Power Company's Compliance Filing and Application for Reconsideration, Rehearing, and/or Clarification.

Please contact this office with any questions.

Very truly yours,

Wendy McIndoo

Wendy McIndoo
Office Manager

Attachments

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1610

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, Investigation into Qualifying Facility Contracting and Pricing.	**IDAHO POWER COMPANY'S COMPLIANCE FILING AND APPLICATION FOR RECONSIDERATION, REHEARING, AND/OR CLARIFICATION.**

Pursuant to ORS 756.561, OAR 860-001-0720, and OAR 860-001-0420, Idaho Power Company ("Idaho Power" or "the Company") makes this Compliance Filing and Application for Reconsideration, Rehearing, and/or Clarification of Order No. 16-174 issued in this proceeding on May 13, 2016 ("the Order"). Because the revised avoided cost prices submitted herewith in compliance with Order No. 16-174 appear to implement an unintended result of increasing solar avoided cost prices above those of the proxy resource, Idaho Power asks for reconsideration, rehearing, and/or clarification of those portions of the Order related to: (1) Issues 3 and 4 that direct modifications to the capacity contribution of Qualifying Facilities ("QF") in standard avoided cost prices; and (2) Issue 7 that directs the imposition of the wholesale power price forecast as a floor for non-standard avoided cost prices. The Public Utility Commission of Oregon ("Commission") may grant an application for rehearing or reconsideration if there is an error of law or fact in the order that is essential to the decision.[1] Here, the Commission's order results in avoided cost prices that exceed the Company's actual avoided costs, in violation of state and federal law.

[1] OAR 860-001-0720(3)(c).

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Included with this filing as Attachment A are Idaho Power's revised avoided cost price schedules contained in Schedule 85.[2] This revised Schedule 85 is filed in compliance with Order No. 16-174; however, Idaho Power asks that the Commission suspend this compliance filing pending resolution of the Company's Application for Reconsideration, Rehearing, and/or Clarification. The avoided cost prices resulting from Order No. 16-174 exceed the Company's full avoided cost, are erroneous, unreasonable, unlawful, and harmful to customers, and good cause exists to reconsider those prices.

The Commission's modifications to the capacity contribution calculation result in Idaho Power's standard, non-renewable[3] avoided cost prices for a solar QF resource exceeds the avoided cost prices for the natural gas-fired combined cycle combustion turbine ("CCCT") proxy resource—a result that appears to be unintended and inconsistent with the direction from Order No. 14-058. A solar QF has a capacity factor and contribution to peak that is less than the proxy resource; however, the modifications to the capacity contribution calculation result in solar QF capacity prices that exceed the capacity price of the proxy resource, even though the proxy resource is deemed to have a 100 percent contribution to peak. This results in prices for solar QFs that exceed Idaho Power's avoided costs as

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[2] Included with this filing as Attachment B is a redline version of those portions of Schedule 85 showing the changes thereto. Attachment A is a clean version of the new avoided cost price schedules. In complying with the Commission's direction to adopt the adjusted calculation, as it is specified in Staff's testimony at Staff/500, Andrus/18-20 and Staff/500, Andrus/21, attached as Appendix A to Order No. 16-174, the Company also changed the determination of on-peak hours per year from 4,862 to 4,912 to conform to that used by Staff. This change results in a small change to the avoided cost prices for base load QF on-peak and off-peak pricing.

[3] Idaho Power only has *non-renewable* standard avoided cost rates. With no currently applicable renewable portfolio standard Idaho Power does not have *renewable* avoided cost rates like the other utilities.

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determined by the proxy resource, and consequently are unreasonable and unlawful and harmful Idaho Power customers.

Similarly, the imposition of wholesale power price forecasts as a floor for non-standard avoided cost prices appears to have a similar unintended outcome, resulting in a price that exceeds Idaho Power's avoided cost, and is thus unreasonable and unlawful and harms Idaho Power customers.

I. BACKGROUND

A. The Public Utility Regulatory Policies Act Requires Customer Indifference in Avoided Cost Prices.

Congress passed the Public Utility Regulatory Policies Act ("PURPA") to encourage the development of renewable energy technology as an alternative to fossil fuel technology and as an alternative to utility owned generation.[4] Under Section 210 of PURPA, a public utility must generally purchase all output from a QF at the utility's "avoided cost" price.[5] "Avoided cost" is the cost that the utility would have paid for the capacity and energy obtained from the QF if the utility had purchased the capacity and energy from another source or generated the power itself.[6] The avoided cost price paid by a utility for QF output must be just and reasonable to the ratepayers of the utility, in the public interest, and must not discriminate against QFs.[7]

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[4] *So. Calif. Edison Co. San Diego Gas & Elec. Co.,* 71 F.E.R.C. ¶ 61,269, 62,079 (1995).

[5] *See* 16 U.S.C. §§ 824a-3(b), (d) (rates for purchases by utilities must be at the avoided cost).

[6] 18 C.F.R. § 292.101(b)(6).

[7] 16 U.S.C. § 824a-3(b).

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Congress directed the Federal Energy Regulatory Commission ("FERC") to promulgate regulations to implement PURPA.[8] FERC's regulations delegate to the States the responsibility to establish avoided cost prices.[9] In setting PURPA avoided cost prices, States may not require utilities to pay more than their avoided cost.[10] In general, the avoided cost prices paid for QF output are fully recoverable from a utility's ratepayers.[11] It is a fundamental premise of PURPA implementation that ratepayers should remain indifferent to, and unharmed by, avoided cost prices.[12] The Commission has recognized the need to uphold this important principle in its implementation of PURPA in Oregon.[13]

B. Oregon's Avoided Cost Price Methodologies.

Oregon's PURPA implementation provides for different methodologies to determine avoided cost prices for small and large QF projects.[14] Standard avoided cost prices for small QFs are based on a proxy resource avoided cost methodology, which makes the assumption that the utility avoids the cost to purchase and operate the proxy resource due to the required purchase of the QF generation. The proxy

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[8] 16 U.S.C. § 824a-3(a)-(b); *Connecticut Light and Power Co.*, 70 FERC ¶ 61,012, 61,023 (1995).

[9] *Connecticut Light and Power Co.*, 70 FERC ¶ 61,012, 61,024.

[10] *Id.* at 61,029-030; *So. Cal. Edison v. Pub. Util. Comm.*, 101 Cal. App. 4th 384, 398-99, 124 Cal. Rptr. 2d 281 (2002).

[11] 16 U.S.C. § 824a-3(m)(7).

[12] 16 U.S.C. § 824a-3(b); 18 CFR § 292.304(a)(2); *Indep. Energy Producers Ass'n v. Cal. Pub. Utils. Comm'n*, 36 F.3d 848, 858 (9th Cir. 1994).

[13] *Re Investigation Relating to Electric Utility Purchases from Qualifying Facilities*, Docket No. UM 1129, Order No. 05-584 at 11 and 19 (May 13, 2005); *Re Adoption of Administrative Rules Relating to Cost-Effective Fuel Use and Resource Development*, Docket No. AR 112, Order No. 85-010 at 18 (Jan. 8, 1985).

[14] Large QFs are defined as solar QFs over 3 MW nameplate, and all other resources larger than 10 MW nameplate.

resource for Idaho Power is a natural gas CCCT.[15] When the utility is resource sufficient, the QF receives standard prices based on the wholesale power price market forecast. When the utility is resource deficient, the QF receives standard prices based on the capacity and energy costs of the proxy resource.

Larger QFs receive non-standard, negotiated avoided cost prices based on a different methodology.[16] For Idaho Power the non-standard avoided cost price methodology compares the actual generation profile of the QF resource to Idaho Power's resource portfolio used to serve customer load. This results in an hourly avoided cost price for each particular large QF resource. The hourly avoided cost price equals the highest cost displaceable utility resource operating during the hour that the QF delivers its generation to the utility, which could be the cost of utility owned generation or purchased power for any given hour.

C. Modifications to the Avoided Cost of Capacity in Docket UM 1610.

Prior to Order No. 14-058 in Phase 1 of this docket, all small QFs received the same avoided cost price based upon the proxy resource methodology. However, the Commission determined in Order No. 14-058 that adjustments to standard avoided cost prices would be made "to account for the actual contribution to capacity made by each QF resource type."[17] The Commission noted the differing nature of this capacity adjustment to standard avoided cost prices based on whether

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[15] Portland General Electric (PGE) and PacifiCorp have an additional renewable avoided cost price that utilizes wind generation as the renewable proxy resource. Renewable avoided costs are not applicable to Idaho Power.

[16] Order No. 16-174 authorizes Idaho Power to utilize the incremental cost integrated resource plan methodology approved by the Idaho Public Utilities Commission for non-standard rates. The Order also authorized PacifiCorp to utilize its PDDRR methodology for non-standard rates, and authorized PGE to continue use of standard rates as a starting point, with adjustments for the seven factors in 18 C.F.R. § 292.30(e), for non-standard rates.

[17] *Re Investigation Into Qualifying Facility Contracting and Pricing*, Docket No. UM 1610, Order No. 14-058 at 15 (Feb. 24, 2014).

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it was applied to the "Standard Method" (non-renewable, standard avoided cost prices) or the "Standard Renewable Method" (renewable, standard avoided cost prices).[18]

Subsequent to the issuance of Order No 14-058, in February of 2014, Obsidian Renewables, LLC ("Obsidian") asked for clarification of this capacity adjustment claiming a supposed double adjustment. Initially, this claim was limited to solar QFs and the renewable standard avoided cost price calculation. Parties later sought to expand this argument to include first non-renewable standard avoided cost prices, and then to also include wind QF prices, as well as, solar. The issues raised regarding the solar capacity calculation adjustment directed by Order No. 14-058 were separately set for a hearing, to be held on December 4, 2014.[19] Parties filed both direct and response testimony as well as post-hearing briefs[20] on this issue.

Following testimony and briefing focused and limited to the solar capacity pricing issue, the Commission ultimately determined that "additional discussion on the solar capacity contribution issue previously briefed by the parties is appropriate," and added the solar capacity contribution issue to the final docket UM 1610 Phase II Issue List.[21] The Commission's determination regarding this issue was ultimately deferred and included as Issues 3 and 4 in Phase II of this docket. The related

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[18] *Id.*

[19] *Re Investigation into Qualifying Facility Contracting and Pricing*, Docket UM 1610, ALJ Errata Prehearing Conference Memorandum (Oct. 1, 2014).

[20] The December 4, 2014, hearing was stricken as no parties had cross-examination of any other witnesses. *Re Investigation into Qualifying Facility Contracting and Pricing*, Docket UM 1610, ALJ Ruling cancelling hearing (Nov. 25, 2014).

[21] *Re Investigation into Qualifying Facility Contracting and Pricing*, Docket UM 1610, ALJ Ruling (March 26, 2015).

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issues were once again addressed in the direct, response, and reply testimonies of the parties, and in both pre- and post-hearing briefs.[22]

In Order No. 16-174 the Commission approved the modification to the capacity contribution calculation recommended by Obsidian, and supported by Staff and other intervenors.[23] In doing so, the Commission stated it was correcting an "inadvertent error" in Staff's testimony in Phase I of this docket.[24] In ultimately ruling upon this issue, Order No. 16-174 simply states that, "We correct the inadvertent error in Staff's capacity contribution calculation ..."[25] The Order has little discussion of the issues raised, and no discussion or acknowledgment of the specific issues raised several times by Idaho Power that the proposed modification to Order No. 14-058's capacity calculation may result in prices to solar QFs that exceed the 100 percent contribution to peak of the proxy resource, and therefore unlawfully exceed avoided cost prices for Idaho Power, harming customers.[26] Now, with the actual prices calculated in compliance with the modified capacity contribution calculation, it shows that the avoided cost prices for solar QF resources do in fact exceed those calculated for the 100 percent proxy resource.[27]

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[22] Ultimately the issue initially raised by Obsidian in seeking clarification of the February, 2014, Order No. 14-058 with regard to the Commission's adjustment of capacity contribution calculation in standard avoided cost rates was ruled upon in Order No. 16-174. (May 13, 2016).

[23] *Re Investigation into Qualifying Facility Contracting and Pricing*, Order No. 16-174 at 8-12 (May 13, 2016).

[24] Order No. 16-174 at 2.

[25] Order No. 16-174 at 2.

[26] Idaho Power/600; Idaho Power/700; Idaho Power/800; Idaho Power/1000; Idaho Power/1200, briefs: *Idaho Power Company's Post-Hearing Brief Regarding Solar Capacity Contributions* (Dec. 18, 2014); *Idaho Power Company's Pre-Hearing Brief* (Sep. 2, 2015); *Idaho Power Company's Post-Hearing Brief* (Oct. 13, 2015).

[27] *See* Attachment A hereto.

II. DISCUSSION

A. The Commission's Modified Methodology for Determining a QF's Capacity Contribution Results in Unlawful Avoided Cost Prices.

The avoided cost prices resulting from the Commission's modifications to the capacity contribution for solar QFs illegally exceed Idaho Power's actual avoided costs. The Order erroneously deems Staff's recommendation as correcting an "inadvertent error," and incorrectly identified the capacity contribution calculation directed by Order No. 14-058 as a "Capacity Contribution ***Adder***."[28] The capacity contribution of a solar resource is much less than that of the CCCT proxy resource, which is assumed to provide 100 percent of its capacity to meet peak load. Thus, when referring to non-renewable, standard avoided cost prices—which are calculated based on a CCCT's 100 percent capacity contribution—the recognition of the specific capacity contribution of solar is a ***reduction***, not an ***adder***. By adopting Staff's modification to the adjustment directed by Order No 14-058, which inflates the solar avoided cost price above the avoided cost of the proxy resource, the Commission not only erroneously failed to recognize the ***decreased*** capacity contribution of the solar resource relative to the proxy, but also ***increased*** the price paid to the solar resource beyond that which the proxy resource receives. This fact is apparent simply by reviewing the compliance filing that accompanies this motion, attached hereto as Attachment A.

As seen in Attachments A and C[29] hereto, application of the Order's revised capacity contribution calculation results in a solar QF avoided cost price that

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[28] Order No. 16-174 at 2, 8 (emphasis added).

[29] Attachment A contains the revised price tables in Schedule 85. Attachment B is a redline version of the revised price tables in Schedule 85. Attachment C contains the workpapers showing the corresponding calculations resulting the revised price tables.

exceeds the price paid to a baseload QF resource (on a dollar per megawatt-hour basis). The revised price tables reflect the calculation of the on-peak and off-peak avoided cost prices, shown in Attachment C's workpaper, as directed by Order No. 16-174. The calculation of prices for a baseload resource assumes 100 percent of its capacity is contributed to meet peak load. The calculation of prices for a wind resource assumes 5 percent of its capacity is contributed to meet peak load, and the calculation of prices for a solar resource assumes 51.3 percent of its capacity is contributed to meet peak load.[30] Attachment A shows the comparison of the prices for a baseload, a wind, and a solar resource. As seen in this comparison, the on-peak price for a solar resource exceeds—by a sizeable margin—the corresponding price for the baseload resource in all resource deficiency years for which the calculation applies even though the baseload resource contributes 100 percent of its capacity to meet peak load.

The fact that a solar QF receives a higher avoided cost price despite a lower contribution to peak load is an unlawful impossibility with a proxy resource methodology, and is clearly not what was intended by the Commission's initial determination to have a more accurate reflection of wind and solar QF's actual contribution to peak.[31] The proxy resource has a 100 percent contribution to peak, and yet under Order No. 16-174's revised calculation solar receives a price that exceeds the 100 percent proxy resource. This is not the intended result of accurately reflecting wind and solar QF's ***lower*** contribution to peak than the proxy resource, which was the intent of Order No. 14-058. More importantly, such a situation violates the requirements of PURPA by compensating wind and solar QFs in excess of the

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[30] As indicated in the Company's acknowledged 2015 IRP.

[31] Order No. 14-058 at 15.

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utility's avoided cost, no longer holding customer's neutral to the required QF purchase.[32]

In Order No. 14-058, the Commission modified the then-current "methodology for calculating standard avoided cost prices and standard renewable avoided cost prices to account for the capacity contribution of different QF resources and wind integration costs."[33] The purpose of this modification was to produce more accurate avoided cost prices by reducing the capacity payment to reflect the fact that intermittent resources, unlike the baseload proxy resource, do not contribute their full capacity to peak load.[34] For Idaho Power, this means that rather than a solar or wind QF receiving 100 percent of the capacity contribution of a CCCT (the proxy resource), the wind or solar QF receives a lower capacity payment commensurate with its contribution to peak, which for wind is currently 5 percent and for solar is currently 51.3 percent. However, as shown in Attachment A, the modification adopted by the Commission in Order No. 16-174 to the capacity calculation—as applied to Idaho

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[32] *So. Cal. Ed. Co.*, 71 F.E.R.C. ¶ 61,269, 62,079 (F.E.R.C. 1995).

[33] Order No. 14-058 at 2.

[34] Order No. 14-058 at 15 ("Currently, no adjustments are made to Standard and Standard Renewable avoided cost prices to account for the actual contribution to capacity made by each QF resource type. To produce more accurate avoided cost estimates, parties propose adjusting the capacity component in standard and renewable avoided cost prices to capture the expected capacity contribution of each QF resource type. For the Standard Method, Staff proposes multiplying the capacity component currently embedded in the method by a 'capacity contribution factor,' equal to the expected contribution to peak load of the specific QF resource type. The assumed capacity contribution to peak load would be the contribution estimate used in the utility's acknowledged IRP for the specific type of generation (wind, solar, etc.).

For the Standard Renewable Method, Staff proposes adjusting the capacity component implicit in the renewable on-peak price by the incremental capacity contribution of the specific QF resource type relative to the avoided renewable resource . . . .

We agree on the need to adjust for capacity contribution of each resource type and adopt Staff's proposed method for calculating capacity adjustments, as set forth in Staff/102-103, using input estimates derived from the utility's acknowledged IRP. We direct the parties to address issues regarding calculation methodology in future utility IRPs.").

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Power—actually ***increases*** the avoided cost of capacity price rather than recognizing the ***decreased*** contribution to peak as directed by Order No. 14-058.

In Order No. 14-058, the Commission directed that for standard prices, the capacity component currently embedded in the method (the capacity component of the CCCT proxy resource) be multiplied by the capacity contribution factor equal to the expected contribution to peak load of the specific QF resource type. This is what Idaho Power has done in its currently approved and effective avoided costs prices in compliance with Order No. 14-058. Because the Standard Renewable prices use a wind proxy, rather than a CCCT proxy, the Commission directed that for Standard Renewable prices that the capacity component currently embedded in the Renewable method (the capacity component of a wind resource) be adjusted by the incremental capacity contribution of the specific QF resource type relative to the avoided renewable resource. However, the Commission's adoption of Staff's and the non-utility parties' proposed modification to Order No. 14-058 does not address the above-stated difference between Standard and Standard Renewable capacity calculations, nor the difference in the relevant proxy resource type, and instead addresses the capacity component as an entitlement of the QF to a lump-sum recovery of capacity, rather than recovery of capacity based upon deliveries during heavy load hours. This is how the erroneous adjustment adopted by the Order is able to calculate a price that exceeds the 100 percent proxy resource—which is not the intended result.

B. The Imposition of a Price Floor on Non-Standard Avoided Cost Prices Results in Unlawful Avoided Cost Prices.

In Order No. 16-174, the Commission approved the following change to the methodology for determining non-standard, *i.e.*, negotiated, avoided cost prices:

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> Finally, we approve one change to be applied to all three utilities. We adopt ODOE's recommendation, supported by Staff, to set the floor for non-standard avoided cost prices at the wholesale power price forecast that is used to set sufficiency period avoided cost prices in standard QF contracts. We are persuaded that the benefit of QF developers understanding the price floor outweighs the minimal risk described by PacifiCorp that avoided cost prices produced by the PDDRR method would be lower than market.[35]

Imposing a price floor on avoided cost price calculations is inherently flawed, unreasonable, and unlawful. The price floor is triggered only when the calculated avoided cost price of the utility goes below the wholesale power price forecast floor. By definition, this means that the utility's avoided cost price is less than the floor, and requiring the utility to pay more than its actual avoided cost price is illegal and harms customers by no longer holding them indifferent to QF generation.

FERC defines avoided cost as, "the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source."[36] Idaho Power's incremental cost integrated resource plan ("ICIRP") methodology, which is applicable for all non-standard avoided cost prices, precisely matches this required definition. The ICIRP uses the proposed QF's hourly generation profile compared to Idaho Power's hourly displaceable generation resources that are online and operating to serve load. For each hour that the QF supplies generation to Idaho Power, it receives the value of the highest cost displaceable resource that is operating during that hour. The highest cost displaceable resource can be a utility owned generation resource or a purchase. If

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[35] Order No. 16-174 at 23.

[36] 18 C.F.R. § 292.101(b)(6).

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a market purchase during any given hour is the highest cost displaceable resource serving load, then that value is assigned to the QF as the avoided cost. Imposition of the market price as an avoided cost price floor, by definition imposes costs that exceed avoided costs for all hours in which the Company has lower cost displaceable resources operating to serve load.

Imposing a wholesale power price forecast as an avoided cost floor for non-standard avoided cost prices not only undermines the calculation of avoided costs by the ICIRP methodology, which includes assigning market purchases as the avoided cost when they are the highest cost displaceable resource serving customer load, but it only functions to inflate the price paid to a QF in those instances when the calculated avoided cost of the utility is below the wholesale price forecast. This is directly contrary to the definition of avoided cost, and thus is erroneous, unreasonable, and contrary to law. It results in a price that is harmful to customers by requiring payment above the cost at which the utility could otherwise generate or purchase energy which no longer holds customers' neutral to the required QF purchase, and is contrary to the requirements of PURPA.

III. CONCLUSION

The Commission's modification to the capacity contribution calculation in Order No. 16-174 is harmful to customers because it ***increases*** the avoided cost of capacity price rather than recognizing the ***decreased*** contribution to peak as directed by Order No. 14-058. Prior to Order No. 14-058, a QF was compensated for capacity by receiving 100 percent of the capacity cost of the proxy resource for any deliveries that it would make during heavy load hours. The only change to that directed by the Commission in Order No. 14-058 was to compensate the QF, not at 100 percent of the proxy's capacity cost, but at a reduced value commensurate with the solar QF's contribution to peak. It certainly was not intended to compensate a

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QF with a price that ***exceeds*** the 100 percent proxy resource value, and the result for Idaho Power is that it does exceed the 100 percent resource. This is erroneous, unreasonable, unlawful, and harmful to customers.

Likewise, the direction that a wholesale power price forecast floor be put in place for non-standard avoided cost prices mandates a price that by definition exceeds the utility's avoided cost for all hours during which the Company has lower cost displaceable resources operating to serve load. This is erroneous, unreasonable, unlawful and harmful to customers.

For the reasons stated above, Idaho Power requests that the Commission issue an order on rehearing, reconsideration, and/or upon clarification that affirms the capacity contribution calculation for Idaho Power's standard, non-renewable avoided cost prices as set forth in Order No. 14-058, and removes the imposition of the wholesale power price forecast floor for Idaho Power's non-standard avoided cost prices.

Respectfully submitted this 12th day of July, 2016.

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ATTACHMENT A

REVISED AVOIDED COST PRICE TABLES

SCHEDULE 85

SCHEDULE 85
COGENERATION AND SMALL POWER
PRODUCTION STANDARD
CONTRACT RATES
(Continued)

AVOIDED COST PRICE

Standard Avoided Cost Prices (D)

(N)

Deliveries During Calendar Year	Baseload QF		Wind QF		PV Solar QF	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)
2016	$18.92	$14.76	$2.42	($1.74)	$18.92	$14.76
2017	$23.88	$19.00	$6.88	$2.00	$23.88	$19.00
2018	$25.59	$20.32	$8.08	$2.81	$25.59	$20.32
2019	$27.56	$21.73	$9.53	$3.70	$27.56	$21.73
2020	$28.65	$22.68	$10.08	$4.11	$28.65	$22.68
2021	$30.14	$24.12	$11.01	$4.99	$30.14	$24.12
2022	$32.71	$25.29	$13.01	$5.59	$32.71	$25.29
2023	$33.96	$26.19	$13.67	$5.90	$33.96	$26.19
2024	$60.05	$41.14	$23.72	$20.24	$64.59	$41.14
2025	$61.83	$42.50	$24.60	$20.97	$66.46	$42.50
2026	$63.68	$43.93	$25.38	$21.75	$68.42	$43.93
2027	$66.24	$46.05	$26.92	$23.21	$71.08	$46.05
2028	$67.48	$46.85	$27.11	$23.32	$72.42	$46.85
2029	$68.80	$47.71	$27.36	$23.48	$73.85	$47.71
2030	$70.38	$48.83	$27.83	$23.87	$75.55	$48.83
2031	$71.60	$49.58	$27.92	$23.87	$76.88	$49.58
2032	$74.59	$52.08	$29.74	$25.60	$79.98	$52.08
2033	$77.42	$54.42	$31.38	$27.15	$82.94	$54.42
2034	$80.27	$56.76	$32.99	$28.67	$85.90	$56.76
2035	$83.20	$59.17	$34.66	$30.24	$88.96	$59.17
2036	$85.98	$61.42	$36.14	$31.62	$91.86	$61.42
2037	$88.93	$63.83	$37.75	$33.13	$94.94	$63.83
2038	$91.37	$65.72	$38.82	$34.10	$97.52	$65.72
2039	$94.67	$68.46	$40.71	$35.89	$100.95	$68.46
2040	$99.61	$72.82	$44.20	$39.27	$106.03	$72.82

(N)

ATTACHMENT B

REDLINE VERSION OF

REVISED AVOIDED COST RATE TABLES

SCHEULE 85

SCHEDULE 85
COGENERATION AND SMALL POWER
PRODUCTION STANDARD
CONTRACT RATES
(Continued)

AVOIDED COST PRICE

Standard Avoided Cost Prices ~~for Baseload QF~~ (D)

(N)

~~Year~~	~~Capacity Price~~	~~Capacity Cost Allocated to On-Peak Hours~~	~~Energy Only Price~~	~~On-Peak~~	~~Off-Peak~~
	~~$/kW-yr~~	~~($/MWh)~~	~~$/MWh~~	~~$/MWh~~	~~$/MWh~~
	~~(a)~~	~~(b)~~	~~(c)~~	~~(d)~~	~~(e)~~
~~2016~~				~~$18.92~~	~~$14.76~~
~~2017~~				~~$23.88~~	~~$19.00~~
~~2018~~				~~$25.59~~	~~$20.32~~
~~2019~~				~~$27.56~~	~~$21.73~~
~~2020~~	~~Market Based Prices through 2023~~			~~$28.65~~	~~$22.68~~
~~2021~~				~~$30.14~~	~~$24.12~~
~~2022~~				~~$32.71~~	~~$25.29~~
~~2023~~				~~$33.96~~	~~$26.19~~
~~2024~~	~~$92.90~~	~~$19.11~~	~~$41.14~~	~~$60.25~~	~~$41.14~~
~~2025~~	~~$94.93~~	~~$19.53~~	~~$42.50~~	~~$62.03~~	~~$42.50~~
~~2026~~	~~$97.02~~	~~$19.96~~	~~$43.93~~	~~$63.89~~	~~$43.93~~
~~2027~~	~~$99.16~~	~~$20.40~~	~~$46.05~~	~~$66.45~~	~~$46.05~~
~~2028~~	~~$101.33~~	~~$20.84~~	~~$46.85~~	~~$67.69~~	~~$46.85~~
~~2029~~	~~$103.57~~	~~$21.30~~	~~$47.71~~	~~$69.01~~	~~$47.71~~
~~2030~~	~~$105.85~~	~~$21.77~~	~~$48.83~~	~~$70.60~~	~~$48.83~~
~~2031~~	~~$108.17~~	~~$22.25~~	~~$49.58~~	~~$71.83~~	~~$49.58~~
~~2032~~	~~$110.56~~	~~$22.74~~	~~$52.08~~	~~$74.82~~	~~$52.08~~
~~2033~~	~~$112.99~~	~~$23.24~~	~~$54.42~~	~~$77.66~~	~~$54.42~~
~~2034~~	~~$115.47~~	~~$23.75~~	~~$56.76~~	~~$80.51~~	~~$56.76~~
~~2035~~	~~$118.02~~	~~$24.27~~	~~$59.17~~	~~$83.44~~	~~$59.17~~
~~2036~~	~~$120.62~~	~~$24.81~~	~~$61.42~~	~~$86.23~~	~~$61.42~~
~~2037~~	~~$123.27~~	~~$25.35~~	~~$63.83~~	~~$89.18~~	~~$63.83~~
~~2038~~	~~$125.99~~	~~$25.91~~	~~$65.72~~	~~$91.63~~	~~$65.72~~
~~2039~~	~~$128.75~~	~~$26.48~~	~~$68.46~~	~~$94.94~~	~~$68.46~~
~~2040~~	~~$131.59~~	~~$27.07~~	~~$72.82~~	~~$99.89~~	~~$72.82~~

(N)

SCHEDULE 85
COGENERATION AND SMALL POWER PRODUCTION STANDARD CONTRACT RATES
(Continued)

AVOIDED COST PRICE (CONTINUED)

Standard Avoided Cost Prices for Wind QF

Year	Capacity Price	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	Wind Capacity Contribution	Capacity Payment On-Peak Hours	Wind Integration Charge	On-Peak	Off-Peak	
	$/kW-yr	($/MWh)	$/MWh		$/MWh	$/MWh	$/MWh	$/MWh	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
2016						$16.50	$2.42	($1.74)	(C)
2017						$17.00	$6.88	$2.00	
2018						$17.51	$8.08	$2.81	
2019						$18.03	$9.53	$3.70	
2020	Market Based Prices through 2023					$18.57	$10.08	$4.11	
2021						$19.13	$11.01	$4.99	
2022						$19.70	$13.01	$5.59	
2023						$20.29	$13.67	$5.90	
2024	$92.90	$19.11	$41.14	5.0%	$0.96	$20.90	$21.20	$20.24	
2025	$94.93	$19.53	$42.50	5.0%	$0.98	$21.53	$21.95	$20.97	
2026	$97.02	$19.96	$43.93	5.0%	$1.00	$22.18	$22.75	$21.75	
2027	$99.16	$20.40	$46.05	5.0%	$1.02	$22.84	$24.23	$23.21	
2028	$101.33	$20.84	$46.85	5.0%	$1.04	$23.53	$24.36	$23.32	
2029	$103.57	$21.30	$47.71	5.0%	$1.07	$24.23	$24.55	$23.48	
2030	$105.85	$21.77	$48.83	5.0%	$1.09	$24.96	$24.96	$23.87	
2031	$108.17	$22.25	$49.58	5.0%	$1.11	$25.71	$24.98	$23.87	
2032	$110.56	$22.74	$52.08	5.0%	$1.14	$26.48	$26.74	$25.60	
2033	$112.99	$23.24	$54.42	5.0%	$1.16	$27.27	$28.31	$27.15	
2034	$115.47	$23.75	$56.76	5.0%	$1.19	$28.09	$29.86	$28.67	
2035	$118.02	$24.27	$59.17	5.0%	$1.21	$28.93	$31.45	$30.24	
2036	$120.62	$24.81	$61.42	5.0%	$1.24	$29.80	$32.86	$31.62	
2037	$123.27	$25.35	$63.83	5.0%	$1.27	$30.70	$34.40	$33.13	
2038	$125.99	$25.91	$65.72	5.0%	$1.30	$31.62	$35.40	$34.10	
2039	$128.75	$26.48	$68.46	5.0%	$1.32	$32.57	$37.21	$35.89	
2040	$131.59	$27.07	$72.82	5.0%	$1.35	$33.55	$40.63	$39.27	(C)

~~SCHEDULE 85~~
~~COGENERATION AND SMALL POWER~~
~~PRODUCTION STANDARD~~
~~CONTRACT RATES~~
~~(Continued)~~

~~AVOIDED COST PRICE (CONTINUED)~~

~~Standard Avoided Cost Prices for PV Solar QF~~

Year	Capacity Price	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	PV Solar Capacity Contribution	Capacity Payment On-Peak Hours	On-Peak	Off-Peak
	$/kW-yr	($/MWh)	$/MWh		$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
2016						$18.92	$14.76
2017						$23.88	$19.00
2018						$25.59	$20.32
2019						$27.56	$21.73
2020	Market Based Prices through 2023					$28.65	$22.68
2021						$30.14	$24.12
2022						$32.71	$25.29
2023						$33.96	$26.19
2024	$92.90	$19.11	$41.14	51.3%	$9.80	$50.94	$41.14
2025	$94.93	$19.53	$42.50	51.3%	$10.02	$52.52	$42.50
2026	$97.02	$19.96	$43.93	51.3%	$10.24	$54.17	$43.93
2027	$99.16	$20.40	$46.05	51.3%	$10.47	$56.52	$46.05
2028	$101.33	$20.84	$46.85	51.3%	$10.69	$57.54	$46.85
2029	$103.57	$21.30	$47.71	51.3%	$10.93	$58.64	$47.71
2030	$105.85	$21.77	$48.83	51.3%	$11.17	$60.00	$48.83
2031	$108.17	$22.25	$49.58	51.3%	$11.41	$60.99	$49.58
2032	$110.56	$22.74	$52.08	51.3%	$11.67	$63.75	$52.08
2033	$112.99	$23.24	$54.42	51.3%	$11.92	$66.34	$54.42
2034	$115.47	$23.75	$56.76	51.3%	$12.18	$68.94	$56.76
2035	$118.02	$24.27	$59.17	51.3%	$12.45	$71.62	$59.17
2036	$120.62	$24.81	$61.42	51.3%	$12.73	$74.15	$61.42
2037	$123.27	$25.35	$63.83	51.3%	$13.00	$76.83	$63.83
2038	$125.99	$25.91	$65.72	51.3%	$13.29	$79.01	$65.72
2039	$128.75	$26.48	$68.46	51.3%	$13.58	$82.04	$68.46
2040	$131.59	$27.07	$72.82	51.3%	$13.89	$86.71	$72.82

(C)

(C)

Deliveries During Calendar Year	Baseload QF		Wind QF		PV Solar QF	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)
2016	$18.92	$14.76	$2.42	($1.74)	$18.92	$14.76

2017	$23.88	$19.00	$6.88	$2.00	$23.88	$19.00
2018	$25.59	$20.32	$8.08	$2.81	$25.59	$20.32
2019	$27.56	$21.73	$9.53	$3.70	$27.56	$21.73
2020	$28.65	$22.68	$10.08	$4.11	$28.65	$22.68
2021	$30.14	$24.12	$11.01	$4.99	$30.14	$24.12
2022	$32.71	$25.29	$13.01	$5.59	$32.71	$25.29
2023	$33.96	$26.19	$13.67	$5.90	$33.96	$26.19
2024	$60.05	$41.14	$23.72	$20.24	$64.59	$41.14
2025	$61.83	$42.50	$24.60	$20.97	$66.46	$42.50
2026	$63.68	$43.93	$25.38	$21.75	$68.42	$43.93
2027	$66.24	$46.05	$26.92	$23.21	$71.08	$46.05
2028	$67.48	$46.85	$27.11	$23.32	$72.42	$46.85
2029	$68.80	$47.71	$27.36	$23.48	$73.85	$47.71
2030	$70.38	$48.83	$27.83	$23.87	$75.55	$48.83
2031	$71.60	$49.58	$27.92	$23.87	$76.88	$49.58
2032	$74.59	$52.08	$29.74	$25.60	$79.98	$52.08
2033	$77.42	$54.42	$31.38	$27.15	$82.94	$54.42
2034	$80.27	$56.76	$32.99	$28.67	$85.90	$56.76
2035	$83.20	$59.17	$34.66	$30.24	$88.96	$59.17
2036	$85.98	$61.42	$36.14	$31.62	$91.86	$61.42
2037	$88.93	$63.83	$37.75	$33.13	$94.94	$63.83
2038	$91.37	$65.72	$38.82	$34.10	$97.52	$65.72
2039	$94.67	$68.46	$40.71	$35.89	$100.95	$68.46
2040	$99.61	$72.82	$44.20	$39.27	$106.03	$72.82

ATTACHMENT C

WORKPAPERS

Exhibit 1
Standard Avoided Cost Prices for Baseload QF

Year	Value of Capacity Price	Contribution to Peak (CTP)	Value of 1MW of Capacity Adjusted for CTP	On-Peak Capacity Factor (Availability Factor)	Hours of On-Peak Availability	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	On-Peak	Off-Peak
	$/kW-yr	%	$/MW-yr	%	Hours	($/MWh)	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
2016								$18.92	$14.76
2017								$23.88	$19.00
2018								$25.59	$20.32
2019								$27.56	$21.73
2020	Market Based Prices through 2023							$28.65	$22.68
2021								$30.14	$24.12
2022								$32.71	$25.29
2023								$33.96	$26.19
2024	$92.90	100.0%	$92,900.00	100.0%	4,912	$18.91	$41.14	$60.05	$41.14
2025	$94.93	100.0%	$94,930.00	100.0%	4,912	$19.33	$42.50	$61.83	$42.50
2026	$97.02	100.0%	$97,020.00	100.0%	4,912	$19.75	$43.93	$63.68	$43.93
2027	$99.16	100.0%	$99,160.00	100.0%	4,912	$20.19	$46.05	$66.24	$46.05
2028	$101.33	100.0%	$101,330.00	100.0%	4,912	$20.63	$46.85	$67.48	$46.85
2029	$103.57	100.0%	$103,570.00	100.0%	4,912	$21.09	$47.71	$68.80	$47.71
2030	$105.85	100.0%	$105,850.00	100.0%	4,912	$21.55	$48.83	$70.38	$48.83
2031	$108.17	100.0%	$108,170.00	100.0%	4,912	$22.02	$49.58	$71.60	$49.58
2032	$110.56	100.0%	$110,560.00	100.0%	4,912	$22.51	$52.08	$74.59	$52.08
2033	$112.99	100.0%	$112,990.00	100.0%	4,912	$23.00	$54.42	$77.42	$54.42
2034	$115.47	100.0%	$115,470.00	100.0%	4,912	$23.51	$56.76	$80.27	$56.76
2035	$118.02	100.0%	$118,020.00	100.0%	4,912	$24.03	$59.17	$83.20	$59.17
2036	$120.62	100.0%	$120,620.00	100.0%	4,912	$24.56	$61.42	$85.98	$61.42
2037	$123.27	100.0%	$123,270.00	100.0%	4,912	$25.10	$63.83	$88.93	$63.83
2038	$125.99	100.0%	$125,990.00	100.0%	4,912	$25.65	$65.72	$91.37	$65.72
2039	$128.75	100.0%	$128,750.00	100.0%	4,912	$26.21	$68.46	$94.67	$68.46
2040	$131.59	100.0%	$131,590.00	100.0%	4,912	$26.79	$72.82	$99.61	$72.82

Columns

(a) Full Fixed Cost of a Proxy CCCT less capitalized energy
(b) 100.0% is the contribution to peak capacity factor for a Baseload resource
(c) Value of the Proxy CCCT adjusted for contribution to peak of a Baseload resource
(d) 100.0% is the on-peak capacity factor (availability factor) for a Baseload resource
(e) Hours of on-peak availability of a Baseload resource
(f) Value of on-peak capacity allocated to on-peak hours of a Baseload resource
(g) Fuel and Capitalized Energy Cost of the Proxy CCCT
(h) 2016-2023 On-Peak Market Prices
(i) 2016 -2023 Off-Peak Market Prices

Exhibit 2
Standard Avoided Cost Prices for Wind QF

Year	Value of Capacity Price	Contribution to Peak (CTP)	Value of 1MW of Capacity Adjusted for CTP	On-Peak Capacity Factor (Availability Factor)	Hours of On-Peak Availability	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	Wind Integration Charge	On-Peak	Off-Peak
	$/kW-yr	%	$/MW-yr	%	Hours	($/MWh)	$/MWh	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2016								$16.50	$2.42	($1.74)
2017								$17.00	$6.88	$2.00
2018								$17.51	$8.08	$2.81
2019								$18.03	$9.53	$3.70
2020	Market Based Prices through 2023							$18.57	$10.08	$4.11
2021								$19.13	$11.01	$4.99
2022								$19.70	$13.01	$5.59
2023								$20.29	$13.67	$5.90
2024	$92.90	5.0%	$4,645.00	27.2%	1,335	$3.48	$41.14	$20.90	$23.72	$20.24
2025	$94.93	5.0%	$4,851.00	27.2%	1,335	$3.63	$42.50	$21.53	$24.60	$20.97
2026	$97.02	5.0%	$4,851.00	27.2%	1,335	$3.63	$43.93	$22.18	$25.38	$21.75
2027	$99.16	5.0%	$4,958.00	27.2%	1,335	$3.71	$46.05	$22.84	$26.92	$23.21
2028	$101.33	5.0%	$5,066.50	27.2%	1,335	$3.79	$46.85	$23.53	$27.11	$23.32
2029	$103.57	5.0%	$5,178.50	27.2%	1,335	$3.88	$47.71	$24.23	$27.36	$23.48
2030	$105.85	5.0%	$5,292.50	27.2%	1,335	$3.96	$48.83	$24.96	$27.83	$23.87
2031	$108.17	5.0%	$5,408.50	27.2%	1,335	$4.05	$49.58	$25.71	$27.92	$23.87
2032	$110.56	5.0%	$5,528.00	27.2%	1,335	$4.14	$52.08	$26.48	$29.74	$25.60
2033	$112.99	5.0%	$5,649.50	27.2%	1,335	$4.23	$54.42	$27.27	$31.38	$27.15
2034	$115.47	5.0%	$5,773.50	27.2%	1,335	$4.32	$56.76	$28.09	$32.99	$28.67
2035	$118.02	5.0%	$5,901.00	27.2%	1,335	$4.42	$59.17	$28.93	$34.66	$30.24
2036	$120.62	5.0%	$6,031.00	27.2%	1,335	$4.52	$61.42	$29.80	$36.14	$31.62
2037	$123.27	5.0%	$6,163.50	27.2%	1,335	$4.62	$63.83	$30.70	$37.75	$33.13
2038	$125.99	5.0%	$6,299.50	27.2%	1,335	$4.72	$65.72	$31.62	$38.82	$34.10
2039	$128.75	5.0%	$6,437.50	27.2%	1,335	$4.82	$68.46	$32.57	$40.71	$35.89
2040	$131.59	5.0%	$6,579.50	27.2%	1,335	$4.93	$72.82	$33.55	$44.20	$39.27

Columns

(a) Full Fixed Cost of a Proxy CCCT less capitalized energy
(b) 5.0% is the contribution to peak capacity factor for a Wind resource
(c) Value of the Proxy CCCT adjusted for contribution to peak of a Wind resource
(d) 27.2% is the on-peak capacity factor (availability factor) for a Wind resource
(e) Hours of on-peak availability of a Wind resource
(f) Value of on-peak capacity allocated to on-peak hours of a Wind resource
(g) Fuel and Capitalized Energy Cost of the Proxy CCCT
(h) Wind Integration Charges
(i) 2016 -2023 Off-Peak Market Prices
(j) 2016 -2023 Off-Peak Market Prices

Exhibit 3
Standard Avoided Cost Prices for PV Solar QF

Year	Value of Capacity Price	Contribution to Peak (CTP)	Value of 1MW of Capacity Adjusted for CTP	On-Peak Capacity Factor (Availability Factor)	Hours of On-Peak Availability	Capacity Cost Allocated to On-Peak Hours	Energy Only Price	On-Peak	Off-Peak
	$/kW-yr	%	$/MW-yr	%	Hours	($/MWh)	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
2016								$18.92	$14.76
2017								$23.88	$19.00
2018								$25.59	$20.32
2019								$27.56	$21.73
2020	Market Based Prices through 2023							$28.65	$22.68
2021								$30.14	$24.12
2022								$32.71	$25.29
2023								$33.96	$26.19
2024	$92.90	51.3%	$47,657.70	41.4%	2,033	$23.45	$41.14	$64.59	$41.14
2025	$94.93	51.3%	$48,699.09	41.4%	2,033	$23.96	$42.50	$66.46	$42.50
2026	$97.02	51.3%	$49,771.26	41.4%	2,033	$24.49	$43.93	$68.42	$43.93
2027	$99.16	51.3%	$50,869.08	41.4%	2,033	$25.03	$46.05	$71.08	$46.05
2028	$101.33	51.3%	$51,982.29	41.4%	2,033	$25.57	$46.85	$72.42	$46.85
2029	$103.57	51.3%	$53,131.41	41.4%	2,033	$26.14	$47.71	$73.85	$47.71
2030	$105.85	51.3%	$54,301.05	41.4%	2,033	$26.72	$48.83	$75.55	$48.83
2031	$108.17	51.3%	$55,491.21	41.4%	2,033	$27.30	$49.58	$76.88	$49.58
2032	$110.56	51.3%	$56,717.28	41.4%	2,033	$27.90	$52.08	$79.98	$52.08
2033	$112.99	51.3%	$57,963.87	41.4%	2,033	$28.52	$54.42	$82.94	$54.42
2034	$115.47	51.3%	$59,236.11	41.4%	2,033	$29.14	$56.76	$85.90	$56.76
2035	$118.02	51.3%	$60,544.26	41.4%	2,033	$29.79	$59.17	$88.96	$59.17
2036	$120.62	51.3%	$61,878.06	41.4%	2,033	$30.44	$61.42	$91.86	$61.42
2037	$123.27	51.3%	$63,237.51	41.4%	2,033	$31.11	$63.83	$94.94	$63.83
2038	$125.99	51.3%	$64,632.87	41.4%	2,033	$31.80	$65.72	$97.52	$65.72
2039	$128.75	51.3%	$66,048.75	41.4%	2,033	$32.49	$68.46	$100.95	$68.46
2040	$131.59	51.3%	$67,505.67	41.4%	2,033	$33.21	$72.82	$106.03	$72.82

Columns

(a) Full Fixed Cost of a Proxy CCCT less capitalized energy
(b) 51.3% is the contribution to peak capacity factor for a Fixed PV Utility Solar resource
(c) Value of the Proxy CCCT adjusted for contribution to peak of a Fixed PV Utility Solar resource
(d) 41.4% is the on-peak capacity factor (availability factor) for a Fixed PV Utility Solar resource
(e) Hours of on-peak availability of a Fixed PV Utility Solar resource
(f) Value of on-peak capacity allocated to on-peak hours of a Fixed PV Utility Solar resource
(g) Fuel and Capitalized Energy Cost of the Proxy CCCT
(h) 2016-2023 On-Peak Market Prices
(i) 2016 -2023 Off-Peak Market Prices

TO BE CUT AND PASTED DIRECTLY INTO
)GENERATION AND SMALL POWER PRODUCTION STANDARD C

Standard Avoided Cost Prices

Deliveries During Calendar Year	Baseload QF		Wind QF		PV Solar QF	
	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price	On-Peak Energy Price	Off-Peak Energy Price
	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)
2016	$18.92	$14.76	$2.42	($1.74)	$18.92	$14.76
2017	$23.88	$19.00	$6.88	$2.00	$23.88	$19.00
2018	$25.59	$20.32	$8.08	$2.81	$25.59	$20.32
2019	$27.56	$21.73	$9.53	$3.70	$27.56	$21.73
2020	$28.65	$22.68	$10.08	$4.11	$28.65	$22.68
2021	$30.14	$24.12	$11.01	$4.99	$30.14	$24.12
2022	$32.71	$25.29	$13.01	$5.59	$32.71	$25.29
2023	$33.96	$26.19	$13.67	$5.90	$33.96	$26.19
2024	$60.05	$41.14	$23.72	$20.24	$64.59	$41.14
2025	$61.83	$42.50	$24.60	$20.97	$66.46	$42.50
2026	$63.68	$43.93	$25.38	$21.75	$68.42	$43.93
2027	$66.24	$46.05	$26.92	$23.21	$71.08	$46.05
2028	$67.48	$46.85	$27.11	$23.32	$72.42	$46.85
2029	$68.80	$47.71	$27.36	$23.48	$73.85	$47.71
2030	$70.38	$48.83	$27.83	$23.87	$75.55	$48.83
2031	$71.60	$49.58	$27.92	$23.87	$76.88	$49.58
2032	$74.59	$52.08	$29.74	$25.60	$79.98	$52.08
2033	$77.42	$54.42	$31.38	$27.15	$82.94	$54.42
2034	$80.27	$56.76	$32.99	$28.67	$85.90	$56.76
2035	$83.20	$59.17	$34.66	$30.24	$88.96	$59.17
2036	$85.98	$61.42	$36.14	$31.62	$91.86	$61.42
2037	$88.93	$63.83	$37.75	$33.13	$94.94	$63.83
2038	$91.37	$65.72	$38.82	$34.10	$97.52	$65.72
2039	$94.67	$68.46	$40.71	$35.89	$100.95	$68.46
2040	$99.61	$72.82	$44.20	$39.27	$106.03	$72.82

Table 1
2015 IRP Load & Resource Balance
First Deficit Year - 2024

Peak-hour Load and Resource Balance

	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
Load Forecast (95th% w/ no DSM)	(2,343)	(2,412)	(2,137)	(2,039)	(2,697)	(2,791)	(3,207)	(2,707)	(2,918)
Existing DSM (Energy Efficiency)	12	12	10	12	15	18	21	15	17
Peak-Hour Forecast w/ demand response	(2,330)	(2,400)	(2,128)	(2,027)	(2,682)	(3,163)	(3,576)	(3,029)	(2,901)
Non-forecasted Trended EE	0	0	0	0	0	0	0	0	0
Existing DSM (DR)	0	0	0	0	0	390	390	337	0
Peak-Hour Forecast w/DR	**(2,330)**	**(2,400)**	**(2,128)**	**(2,027)**	**(2,682)**	**(2,773)**	**(3,186)**	**(2,692)**	**(2,901)**
Existing Resources									
Coal	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021
Gas (Langley Gulch)	300	300	300	300	300	300	300	300	300
Hydro (90th%)—HCC	1,087	1,078	1,003	1,072	1,119	995	1,000	724	789
Hydro (90th%)—Other	207	209	187	204	303	313	281	208	215
Sho-Ban Water Lease	0	0	0	0	0	0	0	0	0
Total Hydro (90th%)	1,294	1,287	1,190	1,276	1,422	1,307	1,281	932	1,004
CSPP (PURPA)	72	74	77	109	150	157	156	147	135
Power Purchase Agreements									
Elkhorn Valley Wind	5	5	5	5	5	5	5	5	5
Raft River Geothermal	9	9	9	8	7	7	8	8	8
Neal Hot Springs Geothermal	25	24	22	19	14	15	11	13	16
Clatskanie Exchange - Take	5	6	7	9	10	11	10	7	4
Clatskanie Exchange - Return	0	0	(20)	(20)	0	0	0	0	0
Total Power Purchase Agreements	44	44	23	21	37	38	33	33	33
Firm Pacific NW Import Capability	0	0	0	0	0	0	243	251	248
Gas Peakers	416	416	416	416	416	416	416	416	416
Existing Resource Subtotal	3,147	3,141	3,027	3,143	3,345	3,240	3,450	3,100	3,157
Monthly Surplus / Deficit before Transmission	817	742	899	1,116	663	467	21	157	8
No Transmission needed	0	0	0	0	0	0	0	0	0
All Transmission needed	0	0	0	0	0	0	0	0	0
Some Transmission needed	0	0	0	0	0	0	0	0	0
Total Transmission	0	0	0	0	0	0	0	0	0
Surplus / Deficit after Transmission	817	742	899	1,116	663	467	21	157	8
Remaining Monthly Surplus/Deficit	0	0	0	0	0	0	0	0	0

Source: 2015 IRP, Appendix C, Page 50

*Note the table on Page 50 of Appendix C in the 2015 IRP displays a first capacity deficit occuring in July 2025. However, the July 2025 deficiency is based on 461 MW of installed PV solar capacity under contract at the time of portfolio design, and does not reflect the April 2015 cancellation of 141 MW of PV solar PURPA contracs. With removal of the 141 MW of PV solar PURPA contracts, the first deficit for capacity occurs in July 2024, as presented on the table above.

Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16
(2,141)	(2,245)	(2,637)	(2,412)	(2,450)	(2,193)	(2,095)	(2,762)	(2,893)	(3,295)	(2,800)	(3,008)	(2,195)	(2,290)
8	12	12	19	21	20	20	24	28	26	25	25	20	14
(2,133)	(2,233)	(2,625)	(2,400)	(2,437)	(2,181)	(2,082)	(2,748)	(3,266)	(3,669)	(3,122)	(2,992)	(2,183)	(2,281)
0	0	0	7	8	8	8	9	11	10	10	10	8	5
0	0	0	0	0	0	0	0	390	390	337	0	0	0
(2,133)	**(2,233)**	**(2,625)**	**(2,393)**	**(2,429)**	**(2,173)**	**(2,075)**	**(2,738)**	**(2,865)**	**(3,270)**	**(2,775)**	**(2,982)**	**(2,175)**	**(2,276)**
1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021
300	300	300	300	300	300	300	300	300	300	300	300	300	300
878	709	802	1,086	1,094	1,003	1,073	1,133	993	1,000	722	785	880	710
214	200	207	207	210	187	204	303	312	281	208	215	215	200
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,092	909	1,009	1,292	1,304	1,189	1,277	1,437	1,305	1,281	930	1,000	1,095	910
107	79	75	72	74	88	120	170	221	220	211	192	139	111
5	5	5	5	5	5	5	5	5	5	5	5	5	5
10	9	9	9	9	9	8	7	7	8	8	8	10	9
15	20	26	25	24	22	19	14	15	11	13	16	15	20
1	3	4	0	0	0	0	0	0	0	0	0	0	0
(20)	(20)	0	0	0	0	0	0	0	0	0	0	0	0
11	18	44	39	38	36	32	27	27	23	26	29	30	35
0	0	185	0	0	0	0	0	22	243	251	248	0	0
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,947	2,743	3,050	3,140	3,153	3,051	3,167	3,370	3,313	3,504	3,155	3,206	3,000	2,792
814	510	239	748	724	877	1,092	632	426	(8)	129	(25)	825	516
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	8	0	25	0	0
0	0	0	0	0	0	0	0	0	8	0	25	0	0
814	510	239	748	724	877	1,092	632	426	0	129	0	825	516
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18
(2,674)	(2,432)	(2,478)	(2,209)	(2,109)	(2,795)	(2,938)	(3,354)	(2,842)	(3,048)	(2,215)	(2,310)	(2,692)	(2,436)
18	27	26	23	27	31	36	36	33	30	27	24	28	35
(2,663)	(2,426)	(2,472)	(2,204)	(2,103)	(2,788)	(3,320)	(3,736)	(3,172)	(3,042)	(2,209)	(2,305)	(2,686)	(2,433)
7	21	20	18	21	25	28	28	26	23	21	19	22	32
0	0	0	0	0	0	390	390	337	0	0	0	0	0
(2,656)	**(2,405)**	**(2,452)**	**(2,185)**	**(2,083)**	**(2,763)**	**(2,902)**	**(3,318)**	**(2,809)**	**(3,018)**	**(2,189)**	**(2,286)**	**(2,665)**	**(2,401)**
1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021
300	300	300	300	300	300	300	300	300	300	300	300	300	300
801	1,083	1,098	995	1,089	1,143	994	1,000	722	780	880	712	794	1,077
207	204	209	186	205	305	313	282	208	216	215	196	202	204
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,008	1,286	1,307	1,181	1,295	1,448	1,306	1,282	930	996	1,095	907	997	1,281
77	74	76	166	198	308	331	331	321	292	195	167	77	74
5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	9	9	9	8	7	7	8	8	8	10	9	9	9
26	25	24	22	19	14	15	11	13	16	15	20	26	25
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	39	38	36	32	27	27	23	26	29	30	35	40	39
215	0	0	0	0	0	0	239	184	248	0	0	238	0
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,076	3,137	3,159	3,119	3,262	3,520	3,402	3,611	3,198	3,302	3,057	2,846	3,088	3,131
206	732	706	934	1,179	756	501	54	206	35	869	560	186	731
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	732	706	934	1,179	756	501	54	206	35	869	560	186	731
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
(2,486)	(2,216)	(2,112)	(2,823)	(2,970)	(3,407)	(2,872)	(3,079)	(2,231)	(2,316)	(2,706)	(2,453)	(2,497)	(2,228)
35	33	34	42	47	54	50	41	35	34	36	38	33	42
(2,483)	(2,213)	(2,109)	(2,820)	(3,356)	(3,793)	(3,205)	(3,076)	(2,228)	(2,313)	(2,703)	(2,456)	(2,500)	(2,231)
32	31	31	38	44	50	46	38	32	31	33	41	36	45
0	0	0	0	390	390	337	0	0	0	0	0	0	0
(2,451)	**(2,182)**	**(2,078)**	**(2,781)**	**(2,922)**	**(3,353)**	**(2,822)**	**(3,038)**	**(2,196)**	**(2,282)**	**(2,670)**	**(2,415)**	**(2,464)**	**(2,186)**
1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021
300	300	300	300	300	300	300	300	300	300	300	300	300	300
1,108	991	1,090	1,147	992	1,000	720	774	878	711	791	1,077	1,123	977
208	186	205	305	313	281	208	216	216	195	200	203	208	195
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,316	1,177	1,295	1,453	1,305	1,281	928	990	1,094	906	991	1,280	1,331	1,172
76	166	198	308	331	331	321	292	195	167	77	74	76	166
5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	9	8	7	7	8	8	8	10	9	9	9	9	9
24	22	19	14	15	11	13	16	15	20	26	25	24	22
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	36	32	27	27	23	26	29	30	35	40	39	38	36
0	0	0	0	0	234	198	248	0	0	248	0	0	0
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,168	3,116	3,262	3,524	3,401	3,606	3,210	3,295	3,057	2,845	3,093	3,131	3,183	3,110
716	933	1,184	743	479	18	191	10	860	563	175	716	718	924
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
716	933	1,184	743	479	18	191	10	860	563	175	716	718	924
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
(2,124)	(2,846)	(2,993)	(3,452)	(2,893)	(3,103)	(2,243)	(2,328)	(2,720)	(2,481)	(2,517)	(2,250)	(2,147)	(2,884)
34	51	60	61	53	55	38	41	40	42	47	40	50	63
(2,127)	(2,849)	(3,387)	(3,847)	(3,234)	(3,108)	(2,246)	(2,332)	(2,723)	(2,479)	(2,515)	(2,249)	(2,145)	(2,882)
36	54	65	65	57	59	41	44	43	40	46	38	48	61
0	0	390	390	337	0	0	0	0	0	0	0	0	0
(2,090)	**(2,795)**	**(2,932)**	**(3,391)**	**(2,841)**	**(3,049)**	**(2,205)**	**(2,288)**	**(2,681)**	**(2,439)**	**(2,470)**	**(2,210)**	**(2,097)**	**(2,821)**
1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	1,021	55	55	1,021
300	300	300	300	300	300	300	300	300	300	300	300	0	300
1,088	1,155	996	1,000	720	769	880	712	772	1,073	1,098	977	1,084	1,152
204	306	314	281	208	216	217	189	190	203	207	194	204	305
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,293	1,462	1,309	1,281	928	985	1,098	902	961	1,276	1,305	1,171	1,288	1,457
198	308	331	331	321	292	195	167	77	74	76	166	198	308
5	5	5	5	5	5	5	5	5	5	5	5	5	5
8	7	7	8	8	8	10	9	9	9	9	9	8	7
19	14	15	11	13	16	15	20	26	25	24	22	19	14
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	27	27	23	26	29	30	35	40	39	38	36	32	27
0	0	0	230	211	248	0	0	261	268	303	399	394	338
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,260	3,533	3,405	3,602	3,223	3,290	3,060	2,840	3,076	3,395	3,460	2,543	2,383	3,867
1,169	738	473	(19)	172	(7)	855	553	134	688	687	(67)	(108)	707
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	19	0	7	0	0	0	0	0	67	108	0
0	0	0	19	0	7	0	0	0	0	0	67	108	0
1,169	738	473	0	172	0	855	553	134	688	687	0	0	707
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21
(3,039)	(3,518)	(2,935)	(3,146)	(2,265)	(2,353)	(2,749)	(2,495)	(2,532)	(2,264)	(2,159)	(2,917)	(3,080)	(3,577)
78	86	61	75	34	50	50	57	63	53	55	67	79	85
(3,426)	(3,905)	(3,270)	(3,143)	(2,264)	(2,351)	(2,747)	(2,495)	(2,531)	(2,263)	(2,158)	(2,916)	(3,469)	(3,965)
76	83	59	73	33	48	48	56	62	52	54	66	78	84
390	390	337	0	0	0	0	0	0	0	0	0	390	390
(2,961)	**(3,432)**	**(2,874)**	**(3,071)**	**(2,231)**	**(2,303)**	**(2,699)**	**(2,439)**	**(2,469)**	**(2,211)**	**(2,104)**	**(2,850)**	**(3,001)**	**(3,491)**
1,021	1,021	1,021	1,021	758	758	1,021	966	966	0	0	966	966	966
300	300	300	300	0	300	300	300	300	300	0	300	300	300
992	1,000	716	760	880	710	771	1,070	1,072	968	1,083	1,149	988	1,000
312	281	207	214	216	189	190	201	205	194	203	304	311	280
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,304	1,281	924	974	1,097	899	961	1,271	1,277	1,162	1,286	1,454	1,300	1,280
331	331	321	292	195	167	77	74	76	166	198	308	331	331
5	5	5	5	5	5	5	5	5	5	5	5	5	5
7	8	8	8	10	9	9	9	9	9	8	7	7	8
15	11	13	16	15	20	26	25	24	22	19	14	15	11
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	23	26	29	30	35	40	39	38	36	32	27	27	23
320	227	251	248	364	296	260	267	302	397	394	338	318	224
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,720	3,598	3,259	3,279	2,860	2,870	3,075	3,334	3,376	2,476	2,326	3,808	3,658	3,539
440	(61)	134	(39)	265	272	116	628	605	(131)	(172)	620	339	(176)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	61	0	39	0	0	0	0	0	131	172	0	0	176
0	61	0	39	0	0	0	0	0	131	172	0	0	176
440	0	134	0	265	272	116	628	605	0	0	620	339	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
(2,974)	(3,183)	(2,285)	(2,366)	(2,767)	(2,511)	(2,547)	(2,278)	(2,170)	(2,949)	(3,117)	(3,632)	(3,008)	(3,218)
76	78	46	52	57	65	70	67	64	77	100	91	83	87
(3,310)	(3,182)	(2,284)	(2,365)	(2,766)	(2,513)	(2,550)	(2,281)	(2,173)	(2,952)	(3,510)	(4,026)	(3,348)	(3,221)
75	77	46	51	56	67	73	70	66	81	103	94	86	91
337	0	0	0	0	0	0	0	0	0	390	390	337	0
(2,897)	**(3,105)**	**(2,238)**	**(2,314)**	**(2,710)**	**(2,446)**	**(2,477)**	**(2,211)**	**(2,107)**	**(2,871)**	**(3,017)**	**(3,541)**	**(2,925)**	**(3,130)**
966	966	703	703	966	966	966	0	0	966	966	966	966	966
300	300	0	300	300	300	300	300	0	300	300	300	300	300
713	748	879	710	770	1,067	1,061	964	1,081	1,147	986	1,000	709	736
206	213	215	188	189	200	204	192	203	304	310	279	205	211
0	0	0	0	0	0	0	0	0	0	0	0	0	0
919	961	1,094	898	959	1,267	1,265	1,156	1,283	1,450	1,296	1,279	914	947
321	292	195	167	77	74	76	166	198	308	331	331	321	292
5	5	5	5	5	5	5	5	5	5	5	5	5	5
8	8	10	9	9	9	9	9	8	7	7	8	8	8
13	16	15	20	26	25	24	22	19	14	15	11	13	16
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	29	30	35	40	39	38	36	32	27	27	23	26	29
251	248	362	294	258	317	352	449	445	391	367	273	304	301
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,199	3,211	2,801	2,813	3,015	3,380	3,414	2,522	2,374	3,858	3,704	3,587	3,247	3,251
51	(142)	200	205	47	616	585	(137)	(177)	596	320	(227)	18	(180)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	142	0	0	0	0	0	137	177	0	0	227	0	180
0	142	0	0	0	0	0	137	177	0	0	227	0	180
51	0	200	205	47	616	585	0	0	596	320	0	18	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23
(2,304)	(2,381)	(2,790)	(2,534)	(2,565)	(2,296)	(2,186)	(2,979)	(3,151)	(3,686)	(3,040)	(3,253)	(2,323)	(2,400)
64	48	60	76	74	71	77	92	112	114	99	85	75	70
(2,307)	(2,383)	(2,792)	(2,541)	(2,572)	(2,303)	(2,194)	(2,987)	(3,552)	(4,086)	(3,387)	(3,261)	(2,330)	(2,406)
67	50	62	83	82	78	85	101	123	125	108	93	82	77
0	0	0	0	0	0	0	0	390	390	337	0	0	0
(2,240)	**(2,333)**	**(2,729)**	**(2,457)**	**(2,491)**	**(2,225)**	**(2,109)**	**(2,886)**	**(3,039)**	**(3,571)**	**(2,941)**	**(3,167)**	**(2,248)**	**(2,329)**
703	703	966	966	966	0	0	966	966	966	966	966	703	703
0	300	300	300	300	300	0	300	300	300	300	300	0	300
879	711	768	1,063	1,058	961	1,079	1,144	984	1,000	706	724	877	712
214	187	188	199	202	191	202	303	309	278	204	210	211	186
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,093	898	956	1,262	1,260	1,152	1,281	1,447	1,293	1,278	910	934	1,088	898
195	167	77	74	76	166	198	308	331	331	321	292	195	167
5	5	5	5	5	5	5	5	5	5	5	5	5	5
10	9	9	9	9	9	8	7	7	8	8	8	10	9
15	20	26	25	24	22	19	14	15	11	13	16	15	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	35	40	39	38	36	32	27	27	23	26	29	30	35
414	344	309	316	350	448	445	392	363	270	305	302	412	343
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,851	2,862	3,064	3,374	3,407	2,517	2,372	3,856	3,696	3,584	3,244	3,239	2,844	2,861
197	185	25	601	566	(156)	(182)	578	295	(257)	(2)	(230)	184	189
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	156	182	0	0	257	2	230	0	0
0	0	0	0	0	156	182	0	0	257	2	230	0	0
197	185	25	601	566	0	0	578	295	0	0	0	184	189
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
(2,814)	(2,560)	(2,583)	(2,316)	(2,209)	(3,012)	(3,192)	(3,744)	(3,079)	(3,289)	(2,343)	(2,421)	(2,841)	(2,586)
82	85	83	85	65	95	121	117	103	107	74	81	79	72
(2,822)	(2,573)	(2,596)	(2,328)	(2,218)	(3,025)	(3,600)	(4,151)	(3,431)	(3,305)	(2,354)	(2,433)	(2,853)	(2,601)
90	98	95	97	75	109	139	134	118	122	85	93	90	86
0	0	0	0	0	0	390	390	337	0	0	0	0	0
(2,732)	**(2,475)**	**(2,500)**	**(2,231)**	**(2,143)**	**(2,917)**	**(3,071)**	**(3,626)**	**(2,976)**	**(3,183)**	**(2,269)**	**(2,340)**	**(2,762)**	**(2,515)**
966	966	966	0	0	966	966	966	966	966	703	703	966	966
300	300	300	300	0	300	300	300	300	300	0	300	300	300
766	1,060	1,054	958	1,077	1,141	982	1,000	703	716	877	711	767	1,052
187	198	202	191	202	302	308	277	203	208	209	185	186	197
0	0	0	0	0	0	0	0	0	0	0	0	0	0
952	1,258	1,256	1,149	1,279	1,443	1,290	1,277	905	924	1,086	896	953	1,250
77	74	76	166	198	308	331	331	321	292	195	167	77	74
5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	9	9	9	8	7	7	8	8	8	10	9	9	9
26	25	24	22	19	14	15	11	13	16	15	20	26	25
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	39	38	36	32	27	27	23	26	29	30	35	40	39
306	314	348	447	443	392	359	266	305	302	411	341	304	310
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,057	3,368	3,401	2,513	2,368	3,852	3,690	3,579	3,240	3,229	2,841	2,857	3,056	3,356
19	579	552	(165)	(219)	543	260	(313)	(41)	(256)	161	177	(11)	531
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	266	0	0	0	0	0	0
0	0	0	165	219	0	0	0	41	256	0	0	11	0
0	0	0	165	219	0	0	266	41	256	0	0	11	0
19	579	552	0	0	543	260	(47)	0	0	161	177	0	531
0	0	0	0	0	0	0	(47)	0	0	0	0	0	0

Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26
(2,601)	(2,332)	(2,227)	(3,042)	(3,233)	(3,797)	(3,120)	(3,328)	(2,362)	(2,441)	(2,862)	(2,602)	(2,611)	(2,352)
81	89	67	101	124	136	94	105	76	76	90	96	97	73
(2,617)	(2,350)	(2,240)	(3,062)	(3,648)	(4,215)	(3,476)	(3,349)	(2,377)	(2,456)	(2,880)	(2,627)	(2,637)	(2,370)
97	106	81	121	149	163	113	126	92	92	108	121	122	92
0	0	0	0	390	390	337	0	0	0	0	0	0	0
(2,520)	**(2,243)**	**(2,159)**	**(2,941)**	**(3,109)**	**(3,661)**	**(3,026)**	**(3,224)**	**(2,285)**	**(2,365)**	**(2,772)**	**(2,506)**	**(2,515)**	**(2,278)**
966	0	0	966	966	966	966	966	703	703	966	703	703	0
300	300	0	300	300	300	300	300	0	300	300	300	300	300
1,050	956	1,075	1,133	981	1,000	699	708	874	713	765	1,047	1,047	954
202	190	201	296	302	277	202	207	209	184	185	197	201	190
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,252	1,146	1,276	1,430	1,283	1,277	901	914	1,082	897	950	1,244	1,247	1,143
76	166	198	308	331	331	321	292	195	167	76	74	76	165
5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	9	8	7	7	8	8	8	10	9	9	9	9	9
24	22	19	14	15	11	13	16	15	20	26	25	24	22
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	36	32	27	27	23	26	29	30	35	40	39	38	36
345	445	442	392	356	261	305	302	409	338	302	308	342	443
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,394	2,509	2,364	3,838	3,680	3,573	3,236	3,219	2,835	2,855	3,050	3,085	3,123	2,503
528	(179)	(237)	505	215	(349)	(95)	(307)	141	153	(24)	270	266	(218)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	261	0	302	0	0	0	0	0	0
0	179	237	0	0	0	95	0	0	0	24	0	0	218
0	179	237	0	0	261	95	302	0	0	24	0	0	218
528	0	0	505	215	(88)	0	(5)	141	153	0	270	266	0
0	0	0	0	0	(88)	0	(5)	0	0	0	0	0	0

Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27
(2,239)	(3,072)	(3,272)	(3,850)	(3,157)	(3,360)	(2,384)	(2,455)	(2,883)	(2,623)	(2,622)	(2,362)	(2,254)	(3,103)
87	103	133	147	103	129	61	93	89	95	106	89	86	103
(2,261)	(3,099)	(3,697)	(4,278)	(3,521)	(3,393)	(2,399)	(2,479)	(2,906)	(2,653)	(2,656)	(2,391)	(2,281)	(3,136)
109	130	168	185	129	162	77	117	112	125	139	118	114	136
0	0	390	390	337	0	0	0	0	0	0	0	0	0
(2,152)	**(2,969)**	**(3,139)**	**(3,703)**	**(3,054)**	**(3,231)**	**(2,322)**	**(2,362)**	**(2,794)**	**(2,528)**	**(2,517)**	**(2,273)**	**(2,167)**	**(2,999)**
0	703	703	703	703	703	703	703	703	703	703	0	0	703
0	300	300	300	300	300	0	300	300	300	300	300	0	300
1,073	1,131	979	1,000	696	697	874	713	762	1,044	1,039	949	1,071	1,128
200	293	299	276	201	205	208	183	184	196	198	190	200	292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,274	1,424	1,278	1,276	897	902	1,082	896	947	1,240	1,237	1,139	1,271	1,421
197	307	331	330	320	291	194	166	76	73	75	165	197	307
5	5	5	5	5	5	5	5	5	5	5	5	5	5
8	7	7	8	8	8	10	9	9	9	9	9	8	7
19	14	15	11	13	16	15	20	26	25	24	22	19	14
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	27	27	23	26	29	30	35	40	39	38	36	32	27
442	392	353	257	305	302	408	336	301	306	340	442	440	392
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,361	3,568	3,407	3,305	2,967	2,943	2,833	2,851	2,782	3,078	3,110	2,497	2,356	3,566
(233)	207	(84)	(655)	(392)	(590)	102	154	(313)	244	253	(218)	(251)	174
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	257	305	302	0	0	301	0	0	0	0	0
233	0	84	0	0	0	0	0	0	0	0	218	251	0
233	0	84	257	305	302	0	0	301	0	0	218	251	0
0	207	0	(398)	(87)	(288)	102	154	(12)	244	253	0	0	174
0	0	0	(398)	(87)	(288)	0	0	(12)	0	0	0	0	0

Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28
(3,316)	(3,909)	(3,190)	(3,398)	(2,397)	(2,472)	(2,903)	(2,642)	(2,632)	(2,375)	(2,263)	(3,131)	(3,348)	(3,955)
119	134	117	121	77	88	94	100	111	95	103	106	138	153
(3,744)	(4,341)	(3,565)	(3,437)	(2,422)	(2,500)	(2,932)	(2,680)	(2,675)	(2,412)	(2,303)	(3,172)	(3,792)	(4,404)
157	177	154	160	101	116	124	139	154	132	142	148	192	212
390	390	337	0	0	0	0	0	0	0	0	0	390	390
(3,197)	**(3,774)**	**(3,074)**	**(3,277)**	**(2,321)**	**(2,384)**	**(2,809)**	**(2,541)**	**(2,521)**	**(2,281)**	**(2,161)**	**(3,025)**	**(3,210)**	**(3,802)**
703	703	703	703	703	703	703	703	703	0	0	703	703	703
300	300	300	300	0	300	300	300	300	300	0	300	300	300
978	1,000	692	687	874	711	761	1,040	1,041	945	1,070	1,126	976	1,000
298	275	200	204	207	183	183	195	197	189	199	292	297	275
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,276	1,275	892	890	1,080	894	944	1,236	1,238	1,134	1,269	1,418	1,274	1,275
331	330	320	291	194	166	76	73	75	165	197	307	331	330
5	5	5	5	5	5	5	0	0	0	0	0	0	0
7	8	8	8	10	9	9	9	9	9	8	7	7	8
15	11	13	16	15	20	26	25	24	22	19	14	15	11
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	23	26	29	30	35	40	34	33	31	27	22	22	18
350	254	305	302	406	334	298	303	337	441	440	392	346	249
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,402	3,301	2,962	2,931	2,830	2,847	2,777	3,066	3,104	2,486	2,349	3,558	3,391	3,290
(144)	(727)	(417)	(648)	103	130	(330)	221	245	(235)	(252)	141	(165)	(761)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	254	305	302	0	0	298	0	0	0	0	0	0	249
144	0	0	0	0	0	0	0	0	235	252	0	165	0
144	254	305	302	0	0	298	0	0	235	252	0	165	249
0	(474)	(112)	(346)	103	130	(32)	221	245	0	0	141	0	(512)
0	(474)	(112)	(346)	0	0	(32)	0	0	0	0	0	0	(512)

Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	Apr-29	May-29	Jun-29	Jul-29	Aug-29	Sep-29
(3,228)	(3,436)	(2,406)	(2,482)	(2,921)	(2,656)	(2,647)	(2,384)	(2,279)	(3,157)	(3,386)	(4,006)	(3,247)	(3,474)
112	116	98	106	100	115	111	110	102	118	146	162	159	117
(3,609)	(3,481)	(2,444)	(2,523)	(2,960)	(2,708)	(2,697)	(2,434)	(2,325)	(3,210)	(3,842)	(4,469)	(3,655)	(3,527)
155	161	136	147	138	167	161	160	148	171	212	235	230	169
337	0	0	0	0	0	0	0	0	0	390	390	337	0
(3,117)	**(3,320)**	**(2,308)**	**(2,377)**	**(2,821)**	**(2,541)**	**(2,535)**	**(2,274)**	**(2,177)**	**(3,039)**	**(3,240)**	**(3,844)**	**(3,088)**	**(3,357)**
703	703	703	703	703	703	703	0	0	703	703	703	703	703
300	300	0	300	300	300	300	300	0	300	300	300	300	300
689	673	872	713	756	1,037.5	1,037.5	941.1	1,068.2	1,123.6	974.7	1,000.0	685.9	662.7
199	202	206	181	182	194.7	195.8	188.6	198.6	287.7	292.1	273.9	198.1	199.9
0	0	0	0	0	0	0	0	0	0	0	0	0	0
888	875	1,078	895	938	1,232	1,233	1,130	1,267	1,411	1,267	1,274	884	863
320	291	194	166	76	71	73	163	194	304	328	327	318	288
0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	10	9	9	9	9	9	8	7	7	8	8	8
13	16	15	20	26	25	24	22	19	14	15	11	13	16
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	24	25	30	35	34	33	31	27	22	22	18	21	24
305	302	405	331	295	301	335	440	439	392	343	245	305	302
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,954	2,910	2,821	2,840	2,762	3,058	3,094	2,479	2,343	3,548	3,379	3,283	2,947	2,895
(468)	(712)	108	133	(354)	216	224	(234)	(273)	117	(204)	(806)	(446)	(764)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	302	0	0	295	0	0	0	0	0	0	245	305	302
0	0	0	0	0	0	0	234	273	0	204	0	0	0
305	302	0	0	295	0	0	234	273	0	204	245	305	302
(163)	(410)	108	133	(59)	216	224	0	0	117	0	(562)	(141)	(462)
(163)	(410)	0	0	(59)	0	0	0	0	0	0	(562)	(141)	(462)

Oct-29	Nov-29	Dec-29	Jan-30	Feb-30	Mar-30	Apr-30	May-30	Jun-30	Jul-30	Aug-30	Sep-30	Oct-30	Nov-30
(2,421)	(2,497)	(2,931)	(2,684)	(2,673)	(2,398)	(2,304)	(3,192)	(3,427)	(4,076)	(3,302)	(3,505)	(2,445)	(2,515)
104	111	120	106	94	122	88	120	157	146	131	142	99	115
(2,468)	(2,546)	(2,985)	(2,732)	(2,715)	(2,453)	(2,344)	(3,246)	(3,888)	(4,531)	(3,698)	(3,569)	(2,489)	(2,567)
151	160	174	154	136	177	128	174	228	211	190	206	144	167
0	0	0	0	0	0	0	0	390	390	337	0	0	0
(2,316)	**(2,386)**	**(2,811)**	**(2,578)**	**(2,579)**	**(2,276)**	**(2,216)**	**(3,071)**	**(3,270)**	**(3,930)**	**(3,171)**	**(3,363)**	**(2,346)**	**(2,400)**
703	703	703	703	703	0	0	703	703	703	703	703	703	703
0	300	300	300	300	300	0	300	300	300	300	300	0	0
872.2	712.0	752.3	1035.4	1033.8	938.0	1066.1	1121.1	973.4	1000.0	682.0	652.1	872.6	711.8
204.9	180.5	180.3	193.9	194.1	187.9	197.8	287.8	292.0	273.0	197.2	198.6	204.1	179.9
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,077	892	933	1,229	1,228	1,126	1,264	1,409	1,265	1,273	879	851	1,077	892
192	163	73	71	73	162	194	304	326	325	316	286	190	162
0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9	9	9	9	9	8	7	7	8	8	8	10	9
15	20	26	25	24	22	19	14	15	11	13	16	15	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	30	35	34	33	31	27	22	22	18	21	24	25	30
403	329	293	300	333	438	437	392	338	242	305	302	402	327
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,816	2,833	2,753	3,054	3,087	2,473	2,338	3,546	3,371	3,277	2,940	2,882	2,813	2,528
96	118	(351)	175	174	(241)	(314)	82	(237)	(895)	(535)	(783)	65	(198)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	293	0	0	0	0	0	0	242	305	302	0	0
0	0	0	0	0	241	314	0	237	0	0	0	0	198
0	0	293	0	0	241	314	0	237	242	305	302	0	198
96	118	(58)	175	174	0	0	82	0	(653)	(230)	(481)	65	0
0	0	(58)	0	0	0	0	0	0	(653)	(230)	(481)	0	0

Dec-30	Jan-31	Feb-31	Mar-31	Apr-31	May-31	Jun-31	Jul-31	Aug-31	Sep-31	Oct-31	Nov-31	Dec-31	Jan-32
(2,959)	(2,706)	(2,680)	(2,414)	(2,319)	(3,223)	(3,469)	(4,125)	(3,348)	(3,548)	(2,463)	(2,535)	(2,978)	(2,714)
112	101	112	123	89	127	160	172	118	135	104	108	119	130
(3,009)	(2,751)	(2,730)	(2,469)	(2,359)	(3,280)	(3,931)	(4,592)	(3,737)	(3,608)	(2,509)	(2,584)	(3,031)	(2,772)
162	145	162	178	129	184	232	250	170	196	151	156	172	188
0	0	0	0	0	0	390	390	337	0	0	0	0	0
(2,847)	**(2,606)**	**(2,569)**	**(2,292)**	**(2,230)**	**(3,095)**	**(3,309)**	**(3,952)**	**(3,230)**	**(3,412)**	**(2,358)**	**(2,428)**	**(2,859)**	**(2,584)**
703	703	703	0	0	703	703	703	703	703	703	703	703	703
300	300	300	300	0	300	300	300	300	300	0	0	300	300
751.5	1,033.8	1,028.7	934.8	1,064.4	1,119.5	971.9	1,000.0	679.5	641.3	869.5	713.6	748.9	1,032
179.8	192.6	193.1	187.4	197.1	286.8	290.6	272.3	196.4	197.2	201.8	179.0	177.6	192
0	0	0	0	0	0	0	0	0	0	0	0	0	0
931	1,226	1,222	1,122	1,262	1,406	1,262	1,272	876	839	1,071	893	926	1,224
72	66	63	152	184	293	317	316	307	277	180	151	61	59
0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	9	9	9	8	7	7	8	8	8	10	9	9	9
26	25	24	22	19	14	15	11	13	16	15	20	26	25
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	34	33	31	27	22	22	18	21	24	25	30	35	34
291	297	330	436	437	392	335	238	303	302	400	324	289	295
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,748	3,043	3,067	2,457	2,326	3,532	3,355	3,263	2,926	2,860	2,796	2,516	2,730	3,031
(390)	140	168	(270)	(341)	45	(288)	(927)	(607)	(854)	38	(235)	(418)	152
0	0	0	0	0	0	0	0	0	0	0	0	0	0
291	0	0	0	0	0	0	238	303	302	0	0	289	0
0	0	0	270	341	0	288	0	0	0	0	235	0	0
291	0	0	270	341	0	288	238	303	302	0	235	289	0
(99)	140	168	0	0	45	0	(689)	(304)	(552)	38	0	(129)	152
(99)	0	0	0	0	0	0	(689)	(304)	(552)	0	0	(129)	0

Feb-32	Mar-32	Apr-32	May-32	Jun-32	Jul-32	Aug-32	Sep-32	Oct-32	Nov-32	Dec-32	Jan-33	Feb-33	Mar-33
(2,686)	(2,435)	(2,328)	(3,257)	(3,519)	(4,187)	(3,376)	(3,580)	(2,485)	(2,550)	(3,001)	(2,737)	(2,700)	(2,451)
132	113	106	125	141	167	140	151	97	114	119	126	141	118
(2,745)	(2,486)	(2,375)	(3,313)	(3,972)	(4,651)	(3,776)	(3,647)	(2,529)	(2,601)	(3,054)	(2,794)	(2,763)	(2,504)
191	164	153	181	205	241	203	218	140	165	171	183	204	171
0	0	0	0	390	390	337	0	0	0	0	0	0	0
(2,554)	**(2,322)**	**(2,223)**	**(3,132)**	**(3,377)**	**(4,020)**	**(3,236)**	**(3,429)**	**(2,389)**	**(2,437)**	**(2,882)**	**(2,611)**	**(2,559)**	**(2,332)**
703	0	0	703	703	703	703	703	703	703	703	703	703	0
300	300	0	300	300	300	300	300	0	0	300	300	300	300
1,025	932	1,063	1,118	971	1,000	676	630	869	714	746	1,030	1,004	929
192	187	196	285	289	272	195	196	201	178	176	191	191	186
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,218	1,119	1,259	1,403	1,259	1,272	871	826	1,070	892	922	1,221	1,195	1,115
60	150	182	292	316	315	305	276	179	151	61	50	52	141
0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	9	8	7	7	8	8	8	10	9	9	9	9	9
24	22	19	14	15	11	13	16	15	20	26	25	24	22
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	31	27	22	22	18	21	24	25	30	35	34	33	31
328	434	435	392	332	234	299	302	399	322	287	293	325	433
416	416	416	416	416	416	416	416	416	416	416	416	416	416
3,059	2,449	2,319	3,528	3,348	3,257	2,916	2,847	2,793	2,513	2,724	3,018	3,024	2,436
177	(306)	(339)	3	(361)	(997)	(619)	(884)	5	(246)	(445)	113	140	(329)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	332	234	299	302	0	0	287	0	0	0
0	306	339	0	0	0	0	0	0	246	0	0	0	329
0	306	339	0	332	234	299	302	0	246	287	0	0	329
177	0	0	3	(29)	(763)	(320)	(582)	5	0	(158)	113	140	0
0	0	0	0	(29)	(763)	(320)	(582)	0	0	(158)	0	0	0

Apr-33	May-33	Jun-33	Jul-33	Aug-33	Sep-33	Oct-33	Nov-33	Dec-33	Jan-34	Feb-34	Mar-34	Apr-34	May-34
(2,344)	(3,290)	(3,561)	(4,245)	(3,415)	(3,618)	(2,504)	(2,567)	(3,022)	(2,751)	(2,715)	(2,460)	(2,350)	(3,315)
109	129	146	173	145	157	101	119	123	141	139	132	130	149
(2,393)	(3,348)	(4,017)	(4,713)	(3,817)	(3,688)	(2,549)	(2,620)	(3,077)	(2,815)	(2,778)	(2,520)	(2,409)	(3,382)
158	187	212	251	210	228	146	172	179	204	202	192	189	217
0	0	390	390	337	0	0	0	0	0	0	0	0	0
(2,235)	**(3,161)**	**(3,415)**	**(4,071)**	**(3,270)**	**(3,461)**	**(2,404)**	**(2,448)**	**(2,899)**	**(2,610)**	**(2,576)**	**(2,328)**	**(2,220)**	**(3,166)**
0	703	703	703	703	703	703	703	703	703	703	0	0	703
0	300	300	300	300	300	0	0	300	300	300	300	0	300
1,061	1,116	969	1,000	673	620	870	712	745	1,028	992	926	1,059	1,114
196	282	285	271	194	195	200	177	175	190	190	186	195	278
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,257	1,398	1,254	1,271	867	814	1,070	889	921	1,219	1,181	1,112	1,254	1,392
173	283	307	306	297	267	170	142	52	50	52	141	173	283
0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	7	7	8	8	8	10	9	9	9	9	9	8	7
19	14	15	11	13	16	15	20	26	25	24	22	19	14
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	22	22	18	21	24	25	30	35	34	33	31	27	22
433	392	328	230	296	302	396	319	285	293	325	433	433	392
416	416	416	416	416	416	416	416	416	416	416	416	416	416
2,306	3,514	3,330	3,243	2,900	2,826	2,781	2,498	2,712	3,015	3,011	2,432	2,303	3,508
(362)	(39)	(413)	(1,058)	(666)	(937)	(19)	(268)	(472)	111	109	(328)	(350)	(50)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	328	230	296	302	0	0	285	0	0	0	0	0
362	39	0	0	0	0	19	268	0	0	0	328	350	50
362	39	328	230	296	302	19	268	285	0	0	328	350	50
0	0	(85)	(828)	(370)	(635)	0	0	(187)	111	109	0	0	0
0	0	(85)	(828)	(370)	(635)	0	0	(187)	0	0	0	0	0

Jun-34	Jul-34	Aug-34	Sep-34	Oct-34	Nov-34	Dec-34
(3,587)	(4,296)	(3,447)	(3,664)	(2,511)	(2,579)	(3,029)
181	193	160	142	129	131	156
(4,060)	(4,773)	(3,857)	(3,728)	(2,569)	(2,638)	(3,100)
264	280	232	206	188	190	226
390	390	337	0	0	0	0
(3,406)	**(4,103)**	**(3,287)**	**(3,522)**	**(2,381)**	**(2,448)**	**(2,873)**
703	703	703	703	703	703	703
300	300	300	300	0	0	300
968	1,000	669	612	868	712	743
283	270	193	194	200	176	174
0	0	0	0	0	0	0
1,251	1,270	862	806	1,068	888	917
307	306	297	267	170	142	52
0	0	0	0	0	0	0
7	8	8	8	10	9	9
15	11	13	16	15	20	26
0	0	0	0	0	0	0
0	0	0	0	0	0	0
22	18	21	24	25	30	35
328	230	296	302	396	319	285
416	416	416	416	416	416	416
3,326	3,243	2,895	2,817	2,779	2,497	2,708
(407)	(1,090)	(688)	(1,007)	1	(269)	(450)
0	0	0	0	0	0	0
328	230	296	302	0	0	285
0	0	0	0	0	269	0
328	230	296	302	0	269	285
(80)	(860)	(392)	(705)	1	0	(165)
(80)	(860)	(392)	(705)	0	0	(165)

Table 2
Avoided Costs ($/MWh)
Energy Forward Price Curves 2016 through 2024

Year	Winter Season					Summer Season				Winter Season		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
On-Peak (HLH Market Purchase)												
2016	22.76	16.70	12.60	12.30	10.30	12.60	19.90	23.85	21.95	20.85	24.45	28.80
2017	26.45	25.65	21.70	18.35	17.35	17.90	25.00	28.10	25.60	23.70	26.60	30.10
2018	28.65	26.50	23.40	20.30	19.50	19.50	26.25	29.65	26.85	25.65	28.60	32.25
2019	30.55	28.10	25.20	22.45	21.55	21.55	29.80	33.70	30.30	25.95	28.90	32.70
2020	31.55	29.35	26.25	24.00	22.50	22.50	30.85	34.70	31.55	26.90	29.90	33.80
2021	33.10	30.40	27.00	25.30	23.85	24.00	32.60	36.65	33.15	28.40	31.55	35.65
2022	35.70	32.60	28.50	27.60	26.20	26.40	35.50	39.85	35.95	31.00	34.40	38.85
2023	37.95	36.70	31.75	29.00	24.75	22.50	33.05	40.35	36.95	33.90	37.15	43.50
2024	39.45	38.05	33.10	30.15	25.60	23.40	34.40	42.05	38.30	35.20	38.55	45.20
Off-Peak (LLH Market Purchase)												
2016	21.88	15.72	9.07	7.60	4.35	6.25	12.20	17.40	18.15	18.45	21.15	24.90
2017	22.55	22.75	19.25	15.10	10.20	8.65	15.70	22.45	22.40	20.60	23.05	25.25
2018	26.25	24.80	22.15	16.70	12.20	10.20	14.05	20.05	21.20	23.60	25.10	27.55
2019	28.15	26.65	23.95	18.05	13.40	11.15	15.10	21.80	21.45	24.15	26.95	29.95
2020	30.80	29.10	26.15	17.85	12.50	10.15	16.50	23.65	23.65	24.35	27.30	30.10
2021	28.70	27.15	24.20	18.95	13.35	10.75	19.85	28.60	28.35	26.70	29.95	32.90
2022	26.10	24.90	21.80	19.80	14.30	11.50	23.35	33.45	32.90	28.50	31.90	34.95
2023	32.20	31.60	25.55	24.00	15.40	11.80	19.05	28.30	30.20	28.25	31.00	36.90
2024	33.40	32.80	26.55	24.95	15.90	12.20	19.80	29.40	31.35	29.35	32.20	38.30
Combined (56.1% On-Peak 43.9% Off-Peak)												
2016	22.37	16.27	11.05	10.24	7.69	9.81	16.52	21.02	20.28	19.80	23.00	27.09
2017	24.74	24.38	20.62	16.92	14.21	13.84	20.91	25.62	24.19	22.34	25.04	27.97
2018	27.60	25.75	22.85	18.72	16.29	15.41	20.89	25.43	24.37	24.75	27.06	30.19
2019	29.50	27.46	24.65	20.52	17.97	16.98	23.34	28.47	26.41	25.16	28.04	31.49
2020	31.22	29.24	26.21	21.30	18.11	17.08	24.55	29.85	28.08	25.78	28.76	32.17
2021	31.17	28.97	25.77	22.51	19.24	18.18	27.00	33.11	31.04	27.65	30.85	34.44
2022	31.48	29.22	25.56	24.17	20.97	19.85	30.16	37.04	34.61	29.90	33.30	37.14
2023	35.42	34.46	29.03	26.80	20.64	17.80	26.90	35.06	33.98	31.42	34.45	40.60
2024	36.79	35.74	30.22	27.87	21.34	18.48	27.99	36.49	35.25	32.63	35.76	42.17

Annual Average

	On-Peak	Off-Peak	Combined
2016	$18.92	$14.76	$17.09
2017	$23.88	$19.00	$21.73
2018	$25.59	$20.32	$23.28
2019	$27.56	$21.73	$25.00
2020	$28.65	$22.68	$26.03
2021	$30.14	$24.12	$27.49
2022	$32.71	$25.29	$29.45
2023	$33.96	$26.19	$30.55
2024	$35.29	$27.18	$31.73

NOTES:
Jan - Feb 2016 are settled monthly market prices at mid-Columbia (March 22, 2016) from Inter-Continental Exchange (ICE)
Mar 2016 -Dec 2024 are forward monthly market quotes at mid-Columbia (March 22, 2016) from Inter-Continental Exchange (ICE)

Table 3
Capitalized Energy Costs

Year	Combined Cycle CT Fixed Costs ($/kW-yr) (a)	Simple Cycle CT Fixed Costs ($/kW-yr) (b)	Capitalized Energy Costs ($/kW-yr) (c) ((a) - (b))	Capitalized Energy Costs 70.0% CF ($/MWh) (d) (c)/(8.760 x 70.0%)
2017	$110.30	$79.77	$30.53	$4.98
2018	$112.75	$81.52	$31.23	$5.09
2019	$115.26	$83.31	$31.95	$5.21
2020	$117.80	$85.15	$32.65	$5.32
2021	$120.40	$87.01	$33.39	$5.45
2022	$123.05	$88.94	$34.11	$5.56
2023	$125.75	$90.90	$34.85	$5.68
2024	$128.51	$92.90	$35.61	$5.81
2025	$131.32	$94.93	$36.39	$5.93
2026	$134.18	$97.02	$37.16	$6.06
2027	$137.16	$99.16	$38.00	$6.20
2028	$140.20	$101.33	$38.87	$6.34
2029	$143.29	$103.57	$39.72	$6.48
2030	$146.45	$105.85	$40.60	$6.62
2031	$149.65	$108.17	$41.48	$6.76
2032	$152.93	$110.56	$42.37	$6.91
2033	$156.27	$112.99	$43.28	$7.06
2034	$159.68	$115.47	$44.21	$7.21
2035	$163.22	$118.02	$45.20	$7.37
2036	$166.82	$120.62	$46.20	$7.53
2037	$170.50	$123.27	$47.23	$7.70
2038	$174.23	$125.99	$48.24	$7.87
2039	$178.05	$128.75	$49.30	$8.04
2040	$181.95	$131.59	$50.36	$8.21

Columns

(a) Table 8 Column (f)

(b) Table 8 Column (f)

(d) 70.0% CCCT Energy Weighted Capacity Factor - Table 8 page 3

Table 4
Total Avoided Energy Cost

Year	Combined Cycle		Capitalized Energy Costs 70.0% CF	Total Avoided Energy Cost
	Gas Price	Energy Cost		
	($/MMBtu)	($/MWh)	($/MWh)	($/MWh)
	(a)	(b)	(c)	(d)
		(a) x 6.714		(b) + (c)
2017	$3.21	$21.58	$4.98	$26.56
2018	$3.40	$22.84	$5.09	$27.93
2019	$3.92	$26.29	$5.21	$31.50
2020	$4.36	$29.29	$5.32	$34.61
2021	$4.78	$32.07	$5.45	$37.52
2022	$4.99	$33.51	$5.56	$39.07
2023	$5.04	$33.83	$5.68	$39.51
2024	$5.26	$35.33	$5.81	$41.14
2025	$5.45	$36.57	$5.93	$42.50
2026	$5.64	$37.87	$6.06	$43.93
2027	$5.94	$39.85	$6.20	$46.05
2028	$6.03	$40.51	$6.34	$46.85
2029	$6.14	$41.23	$6.48	$47.71
2030	$6.29	$42.21	$6.62	$48.83
2031	$6.38	$42.82	$6.76	$49.58
2032	$6.73	$45.17	$6.91	$52.08
2033	$7.05	$47.36	$7.06	$54.42
2034	$7.38	$49.55	$7.21	$56.76
2035	$7.72	$51.80	$7.37	$59.17
2036	$8.03	$53.89	$7.53	$61.42
2037	$8.36	$56.13	$7.70	$63.83
2038	$8.62	$57.85	$7.87	$65.72
2039	$9.00	$60.42	$8.04	$68.46
2040	$9.62	$64.61	$8.21	$72.82

Columns

(a) Table 9 Column (d)

(b) 6.714 MWh/MMBtu Heat Rate - Table 8

(c) Table 3 Column (d)

Table 5
Total Avoided Cost

Year	Avoided Firm Capacity Costs	Total Avoided Energy Cost	Total Avoided Costs At Stated Capacity Factor		
			75%	85%	90%
	($/kW-yr)	($/MWh)	($/MWh)	($/MWh)	($/MWh)
	(a)	(b)	(c)	(d)	(e)
			(b)+(a)/(8.76 x 0.75)	(b)+(a)/(8.76 x 0.85)	(b)+(a)/(8.76 x 0.9)
2017	$79.77	$26.56	$38.70	$37.27	$36.68
2018	$81.52	$27.93	$40.34	$38.88	$38.27
2019	$83.31	$31.50	$44.18	$42.69	$42.07
2020	$85.15	$34.61	$47.57	$46.05	$45.41
2021	$87.01	$37.52	$50.76	$49.21	$48.56
2022	$88.94	$39.07	$52.61	$51.01	$50.35
2023	$90.90	$39.51	$53.35	$51.72	$51.04
2024	$92.90	$41.14	$55.28	$53.62	$52.92
2025	$94.93	$42.50	$56.95	$55.25	$54.54
2026	$97.02	$43.93	$58.70	$56.96	$56.24
2027	$99.16	$46.05	$61.14	$59.37	$58.63
2028	$101.33	$46.85	$62.27	$60.46	$59.70
2029	$103.57	$47.71	$63.47	$61.62	$60.85
2030	$105.85	$48.83	$64.94	$63.05	$62.26
2031	$108.17	$49.58	$66.04	$64.11	$63.30
2032	$110.56	$52.08	$68.91	$66.93	$66.10
2033	$112.99	$54.42	$71.62	$69.59	$68.75
2034	$115.47	$56.76	$74.34	$72.27	$71.41
2035	$118.02	$59.17	$77.13	$75.02	$74.14
2036	$120.62	$61.42	$79.78	$77.62	$76.72
2037	$123.27	$63.83	$82.59	$80.39	$79.47
2038	$125.99	$65.72	$84.90	$82.64	$81.70
2039	$128.75	$68.46	$88.06	$85.75	$84.79
2040	$131.59	$72.82	$92.85	$90.49	$89.51

Columns

(a) Table 3 Column (b)

(b) Table 4 Column (d)

Table 6
On- & Off- Peak Energy Prices

Year	Avoided Firm Capacity Costs	Capacity Cost Allocated to On-Peak Hours	Total Avoided Energy Cost	On-Peak 4,912 Hours	Off-Peak 3,848 Hours
	($/kW-yr)	($/MWh)	($/MWh)	($/MWh)	($/MWh)
	(a)	(b)	(c)	(d)	(e)
		(a) /(8.76 x 100.0% x 56.1%)		(b) + (c)	= (c)
2017	$79.77	$16.24	$26.56	$42.80	$26.56
2018	$81.52	$16.60	$27.93	$44.53	$27.93
2019	$83.31	$16.96	$31.50	$48.46	$31.50
2020	$85.15	$17.34	$34.61	$51.95	$34.61
2021	$87.01	$17.71	$37.52	$55.23	$37.52
2022	$88.94	$18.11	$39.07	$57.18	$39.07
2023	$90.90	$18.51	$39.51	$58.02	$39.51
2024	$92.90	$18.91	$41.14	$60.05	$41.14
2025	$94.93	$19.33	$42.50	$61.83	$42.50
2026	$97.02	$19.75	$43.93	$63.68	$43.93
2027	$99.16	$20.19	$46.05	$66.24	$46.05
2028	$101.33	$20.63	$46.85	$67.48	$46.85
2029	$103.57	$21.09	$47.71	$68.80	$47.71
2030	$105.85	$21.55	$48.83	$70.38	$48.83
2031	$108.17	$22.02	$49.58	$71.60	$49.58
2032	$110.56	$22.51	$52.08	$74.59	$52.08
2033	$112.99	$23.00	$54.42	$77.42	$54.42
2034	$115.47	$23.51	$56.76	$80.27	$56.76
2035	$118.02	$24.03	$59.17	$83.20	$59.17
2036	$120.62	$24.56	$61.42	$85.98	$61.42
2037	$123.27	$25.10	$63.83	$88.93	$63.83
2038	$125.99	$25.65	$65.72	$91.37	$65.72
2039	$128.75	$26.21	$68.46	$94.67	$68.46
2040	$131.59	$26.79	$72.82	$99.61	$72.82

Columns

(a) Table 3 Column (b)

(b) Table 8 100.0% is the on-peak capacity factor of the Proxy Resource

(c) Table 4 Column (d)

Table 7
Comparison between July 2016 Update and Current Avoided Costs (2024 Deficit)
$/MWh

Year	Standard Baseload (Current)	Standard Baseload (July Update)	Standard Baseload Difference
2016	$17.09	$17.09	$0.00
2017	$21.74	$21.74	$0.00
2018	$23.28	$23.28	$0.00
2019	$25.00	$25.00	$0.00
2020	$26.03	$26.03	$0.00
2021	$27.50	$27.50	$0.00
2022	$29.45	$29.45	$0.00
2023	$30.55	$30.55	$0.00
2024	$51.86	$51.74	($0.11)
2025	$53.45	$53.34	($0.11)
2026	$55.12	$55.00	($0.12)
2027	$57.49	$57.37	($0.12)
2028	$58.54	$58.42	($0.12)
2029	$59.65	$59.54	($0.12)
2030	$61.04	$60.91	($0.12)
2031	$62.06	$61.93	($0.13)
2032	$64.83	$64.70	($0.13)
2033	$67.45	$67.32	($0.13)
2034	$70.08	$69.94	($0.13)
2035	$72.78	$72.64	($0.13)
2036	$75.33	$75.19	($0.14)
2037	$78.04	$77.90	($0.14)
2038	$80.25	$80.10	($0.15)
2039	$83.31	$83.16	($0.15)
2040	$88.00	$87.84	($0.16)

20 Year Levelized Prices			
Beginning Year	**Standard Baseload (Current) $/MWh**	**Standard Baseload (July Update) $/MWh**	**Standard Baseload Difference**
2016	**$40.10**	**$40.05**	($0.05)
2017	**$43.12**	**$43.06**	($0.06)
2018	**$45.97**	**$45.90**	($0.07)
2019	**$48.93**	**$48.85**	($0.08)
2020	**$52.01**	**$51.92**	($0.09)
2021	**$55.31**	**$55.22**	($0.10)

2015 IRP Discount Rate
6.74%
Source: 2015 IRP, Appendix C, Page 83

Table 7
Comparison between July 2016 Update and Current Avoided Costs (2024 Deficit)
$/MWh

Year	Standard Wind (Current)	Standard Wind (July Update)	Standard Wind Difference
2016	$0.59	$0.59	$0.00
2017	$4.74	$4.74	$0.00
2018	$5.77	$5.77	$0.00
2019	$6.97	$6.97	$0.00
2020	$7.46	$7.46	$0.00
2021	$8.37	$8.37	$0.00
2022	$9.75	$9.75	$0.00
2023	$10.26	$10.26	$0.00
2024	$20.78	$22.19	$1.41
2025	$21.52	$23.01	$1.49
2026	$22.31	$23.79	$1.47
2027	$23.78	$25.29	$1.51
2028	$23.90	$25.45	$1.54
2029	$24.08	$25.66	$1.58
2030	$24.48	$26.09	$1.61
2031	$24.49	$26.14	$1.65
2032	$26.24	$27.92	$1.68
2033	$27.80	$29.52	$1.72
2034	$29.34	$31.09	$1.76
2035	$30.92	$32.72	$1.80
2036	$32.32	$34.15	$1.84
2037	$33.84	$35.72	$1.88
2038	$34.83	$36.75	$1.92
2039	$36.63	$38.59	$1.96
2040	$40.03	$42.04	$2.00

20 Year Levelized Prices			
Beginning Year	Standard Wind (Current) $/MWh	Standard Wind (July Update) $/MWh	Standard Wind Difference
2016	**$14.29**	**$14.99**	**$0.70**
2017	**$16.01**	**$16.80**	**$0.79**
2018	**$17.50**	**$18.39**	**$0.89**
2019	**$19.02**	**$20.02**	**$1.00**
2020	**$20.58**	**$21.69**	**$1.11**
2021	**$22.28**	**$23.52**	**$1.24**

2015 IRP Discount Rate
6.74%
Source: 2015 IRP, Appendix C, Page 83

Table 7
Comparison between July 2016 Update and Current Avoided Costs (2024 Deficit)
$/MWh

Year	Standard PV Solar (Current)	Standard PV Solar (July Update)	Standard PV Solar Difference
2016	$17.09	$17.09	$0.00
2017	$21.74	$21.74	$0.00
2018	$23.28	$23.28	$0.00
2019	$25.00	$25.00	$0.00
2020	$26.03	$26.03	$0.00
2021	$27.50	$27.50	$0.00
2022	$29.45	$29.45	$0.00
2023	$30.55	$30.55	$0.00
2024	$46.64	$54.29	$7.65
2025	$48.12	$55.94	$7.82
2026	$49.67	$57.66	$7.99
2027	$51.92	$60.09	$8.16
2028	$52.84	$61.19	$8.34
2029	$53.84	$62.37	$8.53
2030	$55.09	$63.81	$8.72
2031	$55.98	$64.89	$8.91
2032	$58.62	$67.72	$9.10
2033	$61.10	$70.41	$9.31
2034	$63.59	$73.10	$9.51
2035	$66.15	$75.87	$9.72
2036	$68.56	$78.49	$9.93
2037	$71.12	$81.27	$10.15
2038	$73.17	$83.55	$10.38
2039	$76.07	$86.68	$10.60
2040	$80.61	$91.44	$10.83

20 Year Levelized Prices			
Beginning Year	**Standard PV Solar (Current) $/MWh**	**Standard PV Solar (July Update) $/MWh**	**Standard PV Solar Difference**
2016	**$37.54**	**$41.30**	**$3.76**
2017	**$40.21**	**$44.47**	**$4.26**
2018	**$42.69**	**$47.50**	**$4.80**
2019	**$45.26**	**$50.64**	**$5.39**
2020	**$47.90**	**$53.92**	**$6.02**
2021	**$50.75**	**$57.44**	**$6.69**

2015 IRP Discount Rate
6.74%
Source: 2015 IRP, Appendix C, Page 83

Table 8
Total Cost of Displaceable Resources

Year	Estimated Capital Cost $/kW	Fixed Capital Cost at Real Levelized Rate $/kW	Fixed O&M $/kW	Variable O&M $kW	Total O&M at Expected CF $/kW	Total Resource Fixed Costs $/kW
	(a)	(b)	(c)	(d)	(e)	(f)
Simple Cycle CT - Industrial Frame 501 F (170 MW)						
2015	$994	$67.00	$5.00	$ 5.00	$9.38	$76.38
2016		$68.47	$5.11	$5.11	$9.59	$78.06
2017		$69.98	$5.22	$5.22	$9.79	$79.77
2018		$71.52	$5.33	$5.33	$10.00	$81.52
2019		$73.09	$5.45	$5.45	$10.22	$83.31
2020		$74.70	$5.57	$5.57	$10.45	$85.15
2021		$76.34	$5.69	$5.69	$10.67	$87.01
2022		$78.02	$5.82	$5.82	$10.92	$88.94
2023		$79.74	$5.95	$5.95	$11.16	$90.90
2024		$81.49	$6.08	$6.08	$11.41	$92.90
2025		$83.28	$6.21	$6.21	$11.65	$94.93
2026		$85.11	$6.35	$6.35	$11.91	$97.02
2027		$86.98	$6.49	$6.49	$12.18	$99.16
2028		$88.89	$6.63	$6.63	$12.44	$101.33
2029		$90.85	$6.78	$6.78	$12.72	$103.57
2030		$92.85	$6.93	$6.93	$13.00	$105.85
2031		$94.89	$7.08	$7.08	$13.28	$108.17
2032		$96.98	$7.24	$7.24	$13.58	$110.56
2033		$99.11	$7.40	$7.40	$13.88	$112.99
2034		$101.29	$7.56	$7.56	$14.18	$115.47
2035		$103.52	$7.73	$7.73	$14.50	$118.02
2036		$105.80	$7.90	$7.90	$14.82	$120.62
2037		$108.13	$8.07	$8.07	$15.14	$123.27
2038		$110.51	$8.25	$8.25	$15.48	$125.99
2039		$112.94	$8.43	$8.43	$15.81	$128.75
2040		$115.42	$8.62	$8.62	$16.17	$131.59

Source: (a)(c)(d) 2015 IRP, Appendix C, Page 85 (2015 Dollars)
(b) = (a) xDiscount Factor
(e) = (d) x (8.76 x Capacity Factor) + (c)
(f) = (b) + (e)

Simple Cycle CT - Industrial Frame 501 F (170 MW)		
170	MW Plant capacity	MW
$994.00	Plant Capital plus Transmission Capital Cost	2015 $/kW
$5.00	Fixed O&M plus on-going capital cost	2015 $/kW
$5.00	Variable O&M and Other Costs	2015 $/kW
$5.00	Variable O&M	2015 $/kW
$0.00	Other Costs	2015 $/MWh
6.74%	Discount Factor	%
10%	Capacity Factor	%

Table 8
Total Cost of Displaceable Resources

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized Rate	Fixed O&M	Variable O&M	Total O&M at Expected CF	Total Resource Fixed Costs
	$/kW	$/kW	$/kW	$kW	$/kW	$/kW
	(a)	(b)	(c)	(d)	(e)	(f)
Combined Cycle CT - (1x1) F Class with Duct Firing (270 MW)						
2015	$1,267	$85.40	$8.00	$2.00	$20.26	$105.66
2016		$87.27	$8.18	$2.04	$20.69	$107.96
2017		$89.19	$8.36	$2.08	$21.11	$110.30
2018		$91.15	$8.54	$2.13	$21.60	$112.75
2019		$93.16	$8.73	$2.18	$22.10	$115.26
2020		$95.21	$8.92	$2.23	$22.59	$117.80
2021		$97.30	$9.12	$2.28	$23.10	$120.40
2022		$99.44	$9.32	$2.33	$23.61	$123.05
2023		$101.63	$9.53	$2.38	$24.12	$125.75
2024		$103.87	$9.74	$2.43	$24.64	$128.51
2025		$106.16	$9.95	$2.48	$25.16	$131.32
2026		$108.50	$10.17	$2.53	$25.68	$134.18
2027		$110.89	$10.39	$2.59	$26.27	$137.16
2028		$113.33	$10.62	$2.65	$26.87	$140.20
2029		$115.82	$10.85	$2.71	$27.47	$143.29
2030		$118.37	$11.09	$2.77	$28.08	$146.45
2031		$120.97	$11.33	$2.83	$28.68	$149.65
2032		$123.63	$11.58	$2.89	$29.30	$152.93
2033		$126.35	$11.83	$2.95	$29.92	$156.27
2034		$129.13	$12.09	$3.01	$30.55	$159.68
2035		$131.97	$12.36	$3.08	$31.25	$163.22
2036		$134.87	$12.63	$3.15	$31.95	$166.82
2037		$137.84	$12.91	$3.22	$32.66	$170.50
2038		$140.87	$13.19	$3.29	$33.36	$174.23
2039		$143.97	$13.48	$3.36	$34.08	$178.05
2040		$147.14	$13.78	$3.43	$34.81	$181.95

Table 8
Total Cost of Displaceable Resources

Sources, Inputs and Assumptions

Source: (a)(c)(d) 2015 IRP, Appendix C, Page 85 (2015 Dollars)
(b) = (a) x Discount Factor
(e) = (d) x (8.76 x Capacity Factor) + (c)
(f) = (b) + (e)

Combined Cycle CT - (1x1) F Class with Duct Firing (270 MW)		
270	MW Plant capacity	MW
$1,267	Plant Capital plus Transmission Capital Cost	2015 $/kW
$8.00	Fixed O&M plus on-going capital cost	2015 $/kW
$2.00	Variable O&M and Other Costs	2015 $/kW
$2.00	Variable O&M	2015 $/kW
$0.00	Other Costs	2015 $/MWh
6,714	Heat Rate in btu/kWh	btu/kWh
6.740%	Discount Factor	%
70%	Capacity Factor	%

100% Capacity Factor - On-peak 70.0% / 56.1% (percent of hours on-peak)

Inflation Forecast									
2015	2.20%	**2021**	2.20%	**2027**	2.20%	**2033**	2.20%	**2039**	2.20%
2016	2.20%	**2022**	2.20%	**2028**	2.20%	**2034**	2.20%	**2040**	2.20%
2017	2.20%	**2023**	2.20%	**2029**	2.20%	**2035**	2.20%		
2018	2.20%	**2024**	2.20%	**2030**	2.20%	**2036**	2.20%		
2019	2.20%	**2025**	2.20%	**2031**	2.20%	**2037**	2.20%		
2020	2.20%	**2026**	2.20%	**2032**	2.20%	**2038**	2.20%		

Source: 2015 IRP, Appendix C, Page 83

Table 9
Gas Price Forecast
$/MMBtu

Year	EIA West Coast Forecast Short-Term Energy Outlook 2016 (nominal $/MMBtu)	2016 Sumas Adder (nominal $/MMBtu)	2016 Transport Cost (nominal $/MMBtu)	Delivered NG Cost (Idaho City Gate Price) (nominal $/MMBtu)
	(a)	(b)	(c)	(d) (a) + (b) + (c)
2017	$3.02	($0.29)	$0.48	$3.21
2018	$3.17	($0.25)	$0.49	$3.40
2019	$3.57	($0.15)	$0.50	$3.92
2020	$3.93	($0.07)	$0.51	$4.36
2021	$4.29	($0.03)	$0.52	$4.78
2022	$4.48	($0.02)	$0.52	$4.99
2023	$4.62	($0.11)	$0.53	$5.04
2024	$4.84	($0.11)	$0.54	$5.26
2025	$5.02	($0.11)	$0.54	$5.45
2026	$5.20	($0.11)	$0.55	$5.64
2027	$5.49	($0.11)	$0.56	$5.94
2028	$5.58	($0.11)	$0.56	$6.03
2029	$5.68	($0.11)	$0.57	$6.14
2030	$5.82	($0.11)	$0.58	$6.29
2031	$5.91	($0.11)	$0.58	$6.38
2032	$6.25	($0.11)	$0.59	$6.73
2033	$6.57	($0.11)	$0.60	$7.05
2034	$6.88	($0.11)	$0.61	$7.38
2035	$7.21	($0.11)	$0.62	$7.72
2036	$7.51	($0.11)	$0.63	$8.03
2037	$7.84	($0.11)	$0.64	$8.36
2038	$8.08	($0.11)	$0.65	$8.62
2039	$8.46	($0.11)	$0.66	$9.00
2040	$9.07	($0.11)	$0.67	$9.62

Notes:

*Henry Hub Forecast is from EIA STEO Published Mar 6, 2016 for years 2016 and 2017, then escalated at the same growth rate used and stated in the EIA AEO 2015 published Apr 15, 2015.

*Sumas Basis is Market Quoted Basis through 2023 per the ICE exchange and held static from 2023 thru 2040.

*Transportation Costs include Pipeline Fuel Rate at 1.36% multiplied by the commodity price, Pipeline commodity charge of $.0314, and Pipeline reservation charges of $.410 through 2018 per current Tarriff then escalated at 1% per year 2019 thru 2040.

Table 10
Contribution to Peak and On-Peak Capacity Factors

Contribution to Peak
(90% Exceedance)

Benchmark Type	Contribution to Peak
Baseload	100.0%
Wind	5.0%
Fixed PV Utility Solar	51.3%

Source: 2015 IRP, Page 90

On-Peak Capacity (Availability) Factors

Benchmark Type	Peak Hour Capacity Factor
Baseload	100.0%
Wind	27.2%
Fixed PV Utility Solar	41.4%

See Tables 11 and 12 for calcuation of on-peak capacity (availability) factors for wind and solar.

Table 11
On-Peak Capacity (Availability) Factors for Wind

Month	Days in Month	Average Number of Sundays	NERC Holidays	Average Heavy Load Capacity Factor	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total Hours of Heavy-Load Generation	Less Sunday Heavy-Load Hours	Less NERC Holiday Hours	Total Available Hours of Heavy Load
Jan	31	4.4	1.0	25.6%	8.7	8.3	8.0	7.6	7.1	7.0	6.9	7.0	7.4	8.0	8.3	8.5	8.8	8.6	8.4	8.4	127	18.05	4.10	105.00
Feb	28	4.0		30.9%	9.3	9.1	8.7	8.0	7.7	7.7	8.1	8.4	8.6	8.6	8.6	8.9	9.2	9.3	9.3	9.1	139	19.81	-	118.84
Mar	31	4.4		33.6%	10.4	10.5	10.3	10.0	9.9	10.1	10.3	10.3	10.4	10.6	10.8	10.8	10.6	10.4	10.7	10.4	166	23.63	-	142.86
Apr	30	4.3		37.7%	10.7	10.7	10.1	9.6	10.4	10.8	11.1	11.4	11.7	12.1	12.9	12.6	12.2	12.1	11.3	11.2	181	25.91	-	154.87
May	31	4.4	1.0	33.4%	10.2	9.3	8.6	8.6	8.9	9.1	9.1	9.3	9.8	10.4	11.0	12.0	12.8	12.5	11.9	11.9	165	23.48	5.34	136.60
Jun	30	4.3		29.6%	8.2	7.4	7.0	7.3	7.6	7.5	7.6	7.9	8.6	9.3	10.1	10.5	10.7	10.8	10.7	10.5	142	20.33	-	121.52
Jul	31	4.4	1.0	20.0%	7.6	6.6	5.6	5.1	4.8	4.6	4.6	4.6	4.7	5.1	6.1	7.1	8.3	8.5	8.1	7.8	99	14.09	3.20	81.97
Aug	31	4.4		16.2%	5.7	5.6	4.6	4.0	3.6	3.5	3.3	3.3	3.5	4.2	5.1	5.8	6.5	6.9	7.4	7.1	80	11.37	-	68.75
Sep	30	4.3	1.0	20.5%	6.3	6.5	6.4	5.4	4.9	5.2	5.2	5.4	5.6	5.9	6.4	6.8	7.1	6.9	7.2	7.2	99	14.12	3.28	81.13
Oct	31	4.4		23.3%	6.8	7.0	7.0	6.2	5.7	5.7	6.2	6.3	6.9	7.3	7.7	8.2	8.0	8.8	9.1	8.9	116	16.42	-	99.28
Nov	30	4.3	1.0	30.2%	9.2	9.6	9.5	9.0	8.5	8.5	8.5	8.7	9.2	9.2	9.5	9.7	9.7	9.0	8.7	8.7	145	20.81	4.84	119.55
Dec	31	4.4	1.0	25.7%	9.0	9.0	8.8	8.3	7.7	7.2	7.1	7.4	7.5	7.5	7.4	7.6	7.8	8.1	8.2	8.5	127	18.06	4.10	105.08
Annual	**365**	**52**	**6**	**27.2%**	**102.2**	**99.6**	**94.6**	**89.3**	**86.8**	**87.0**	**88.1**	**90.1**	**93.8**	**98.4**	**103.8**	**108.4**	**111.8**	**111.8**	**110.9**	**109.9**	**1,586.40**	**226.10**	**24.90**	**1,335.40**

Total On-Peak Hours ---> **4912** **27.2%** ⟸ This is the average capacity factor during the heavy load hours, defined as:
Mon-Sat - Hour Ending 0700-2200 PST
Less 6 NERC Holidays

Average of Capacity Factor for 2011-2013 - 2015 IRP, Appendix C, Page 89

Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Grand Total
Jan	27.9%	27.9%	28.1%	28.3%	28.4%	28.2%	28.1%	26.7%	25.9%	24.5%	23.0%	22.4%	22.4%	22.7%	23.9%	25.8%	26.6%	27.5%	28.5%	27.7%	27.2%	27.2%	27.1%	27.9%	26.4%
Feb	34.2%	35.0%	34.8%	34.3%	35.3%	34.5%	33.3%	32.5%	31.2%	28.7%	27.5%	27.5%	28.9%	30.1%	30.7%	30.7%	30.8%	31.6%	32.8%	33.0%	33.3%	32.6%	32.6%	33.0%	32.0%
Mar	32.6%	32.1%	31.8%	31.9%	31.4%	32.5%	33.7%	34.0%	33.3%	32.2%	31.9%	32.6%	33.1%	33.2%	33.4%	34.3%	34.8%	34.9%	34.2%	33.5%	34.4%	33.6%	33.2%	33.7%	33.2%
Apr	35.8%	34.7%	34.4%	34.9%	36.4%	36.1%	35.5%	35.8%	33.5%	32.1%	34.6%	36.1%	37.0%	37.9%	39.0%	40.4%	42.9%	41.9%	40.6%	40.3%	37.8%	37.2%	34.9%	34.8%	36.9%
May	34.9%	34.5%	34.1%	32.8%	32.8%	32.8%	32.8%	30.0%	27.6%	27.8%	28.8%	29.4%	29.5%	30.0%	31.5%	33.7%	35.5%	38.7%	41.3%	40.3%	38.3%	38.5%	36.6%	34.9%	33.6%
Jun	34.5%	33.7%	32.1%	30.5%	28.7%	26.9%	27.3%	24.6%	23.2%	24.3%	25.4%	25.1%	25.4%	26.4%	28.8%	31.1%	33.7%	35.0%	35.8%	35.9%	35.5%	35.2%	33.6%	32.7%	30.2%
Jul	23.0%	24.2%	24.4%	24.9%	24.8%	25.3%	24.4%	21.3%	18.1%	16.4%	15.5%	15.0%	14.9%	14.9%	15.1%	16.5%	19.6%	22.9%	26.9%	27.4%	26.0%	25.3%	24.2%	22.9%	21.4%
Aug	21.9%	21.1%	20.6%	20.4%	20.0%	19.8%	18.5%	18.2%	15.0%	12.9%	11.6%	11.3%	10.6%	10.6%	11.3%	13.7%	16.4%	18.7%	20.9%	22.2%	23.8%	22.9%	21.2%	22.1%	17.7%
Sep	20.8%	20.0%	19.0%	18.4%	19.4%	20.4%	21.0%	21.7%	21.2%	18.0%	16.4%	17.3%	17.5%	18.2%	18.5%	19.5%	21.5%	22.7%	23.7%	23.1%	24.1%	24.2%	24.3%	23.0%	20.6%
Oct	25.3%	23.7%	22.4%	22.8%	22.6%	22.5%	22.0%	22.4%	22.6%	20.1%	18.3%	18.4%	19.9%	20.4%	22.2%	23.6%	25.0%	26.3%	25.9%	28.2%	29.2%	28.8%	28.5%	27.8%	23.7%
Nov	27.9%	28.1%	27.8%	27.4%	27.9%	29.8%	30.7%	32.1%	31.7%	30.1%	28.4%	28.3%	28.2%	29.0%	30.5%	30.7%	31.5%	32.4%	32.2%	30.1%	29.0%	28.9%	28.1%	27.0%	29.5%
Dec	28.5%	28.0%	27.2%	26.9%	27.1%	28.1%	29.2%	29.0%	28.5%	26.9%	24.7%	23.3%	22.9%	23.7%	24.3%	24.2%	23.9%	24.5%	25.3%	26.1%	26.4%	27.6%	28.4%	29.0%	26.4%
Grand Total	**28.9%**	**28.5%**	**28.0%**	**27.7%**	**27.8%**	**28.0%**	**28.0%**	**27.3%**	**25.9%**	**24.5%**	**23.8%**	**23.8%**	**24.1%**	**24.7%**	**25.7%**	**27.0%**	**28.4%**	**29.7%**	**30.6%**	**30.6%**	**30.4%**	**30.1%**	**29.4%**	**29.0%**	**27.6%**

Table 12
On-Peak Capacity (Availability) Factors for Solar

Month	Days in Month	Average Number of Sundays	NERC Holidays	Average Heavy Load Capacity Factor	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total Hours of Heavy-Load Generation	Less Sunday Heavy-Load Hours	Less NERC Holiday Hours	Total Available Hours of Heavy Load
Jan	31	4.4	1.0	17.8%	0.0	0.0	1.6	7.3	10.6	11.6	11.7	12.7	12.2	11.3	7.7	1.4	0.0	0.0	0.0	0.0	88.2	12.52	2.84	72.82
Feb	28	4.0		27.9%	0.0	0.1	4.7	11.2	14.6	15.3	15.5	15.4	15.3	14.6	12.2	5.5	0.4	0.0	0.0	0.0	124.9	17.85	-	107.08
Mar	31	4.4		38.7%	0.1	2.8	8.1	15.3	19.5	20.9	20.8	20.7	21.2	20.0	18.8	14.6	7.1	1.7	0.1	0.0	191.7	27.21	-	164.50
Apr	30	4.3		47.8%	0.0	2.8	10.3	17.0	21.1	22.7	23.5	23.0	22.9	23.4	21.0	19.2	15.3	6.1	0.9	0.0	229.3	32.86	-	196.40
May	31	4.4	1.0	55.1%	1.3	7.7	15.8	21.3	23.8	24.9	25.1	25.6	24.9	24.8	23.1	21.6	18.5	11.0	3.8	0.1	273.2	38.78	8.81	225.62
Jun	30	4.3		60.9%	2.3	10.3	18.4	22.8	25.6	25.7	26.3	26.4	25.8	24.5	23.2	21.2	19.2	13.4	6.6	0.4	292.2	41.89	-	250.36
Jul	31	4.4	1.0	63.0%	1.5	9.4	18.5	23.9	26.1	27.5	27.3	27.1	28.3	27.7	26.9	24.5	21.6	15.1	6.9	0.4	312.6	44.37	10.08	258.14
Aug	31	4.4		58.5%	0.1	5.5	15.6	22.5	26.0	27.0	27.4	26.6	26.7	26.8	26.5	25.0	21.5	10.5	2.8	0.0	290.4	41.21	-	249.16
Sep	30	4.3	1.0	49.1%	0.0	1.4	9.6	18.7	23.7	23.9	23.8	23.6	24.1	23.6	23.2	21.1	15.2	3.5	0.1	0.0	235.5	33.76	7.85	193.91
Oct	31	4.4		37.7%	0.0	0.1	4.9	14.3	20.3	21.7	21.7	21.6	20.7	21.3	19.2	15.7	5.5	0.2	0.0	0.0	187.1	26.55	-	160.51
Nov	30	4.3	1.0	21.6%	0.0	0.4	5.1	10.4	13.6	14.1	14.3	13.8	13.4	11.3	6.0	1.1	0.2	0.0	0.0	0.0	103.8	14.88	3.46	85.48
Dec	31	4.4	1.0	16.8%	0.0	0.0	1.5	7.3	10.9	12.0	12.4	12.5	12.1	10.0	4.4	0.1	0.0	0.0	0.0	0.0	83.1	11.80	2.68	68.65
Annual	**365**	**52**	**6**	**41.2%**	**5.3**	**40.5**	**114.1**	**192.1**	**235.7**	**247.4**	**249.7**	**249.2**	**247.4**	**239.3**	**212.3**	**171.0**	**124.4**	**61.4**	**21.2**	**0.9**	**2,412.05**	**343.70**	**35.70**	**2,032.60**

Total On-Peak Hours ---> **4912** **41.4%** ⟸

This is the average capacity factor during the heavy load hours, defined as:
Mon-Sat - Hour Ending 0700-2200 PST
Less 6 NERC Holidays

Solar Data:

Utility Scale Solar PV - 2015 IRP (Single Axis Tracker)

*taken from the AURORA input tables. These values were based off of the 2014 solar integration cost study.

ID	Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Monthly Average Capacity Factor	Days in Month
JAN_Sol	JAN_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.24	0.34	0.37	0.38	0.41	0.39	0.37	0.25	0.05	0.00	0.00	0.00	0.00	0.00	0.00	11.9%	**31**
FEB_Sol	FEB_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.40	0.52	0.55	0.55	0.55	0.55	0.52	0.44	0.20	0.01	0.00	0.00	0.00	0.00	0.00	18.6%	**28**
MAR_So	MAR_Solar_P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.26	0.49	0.63	0.67	0.67	0.67	0.68	0.65	0.61	0.47	0.23	0.06	0.00	0.00	0.00	0.00	25.8%	**31**
APR_Sol	APR_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.34	0.57	0.70	0.76	0.78	0.77	0.76	0.78	0.70	0.64	0.51	0.20	0.03	0.00	0.00	0.00	31.8%	**30**
MAY_So	MAY_Solar_P	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.25	0.51	0.69	0.77	0.80	0.81	0.83	0.80	0.80	0.74	0.70	0.60	0.36	0.12	0.00	0.00	0.00	36.7%	**31**
JUN_Sol	JUN_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.34	0.61	0.76	0.85	0.86	0.88	0.88	0.86	0.82	0.77	0.71	0.64	0.45	0.22	0.01	0.00	0.00	40.6%	**30**
JUL_Sola	JUL_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.30	0.60	0.77	0.84	0.89	0.88	0.88	0.91	0.89	0.87	0.79	0.70	0.49	0.22	0.01	0.00	0.00	42.0%	**31**
AUG_So	AUG_Solar_P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.50	0.73	0.84	0.87	0.88	0.86	0.86	0.86	0.85	0.81	0.69	0.34	0.09	0.00	0.00	0.00	39.0%	**31**
SEP_Sol	SEP_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	0.62	0.79	0.80	0.79	0.79	0.80	0.79	0.77	0.70	0.51	0.12	0.00	0.00	0.00	0.00	32.7%	**30**
OCT_Sol	OCT_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.46	0.65	0.70	0.70	0.70	0.67	0.69	0.62	0.51	0.18	0.01	0.00	0.00	0.00	0.00	25.1%	**31**
NOV_So	NOV_Solar_P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.17	0.35	0.45	0.47	0.48	0.46	0.45	0.38	0.20	0.04	0.01	0.00	0.00	0.00	0.00	0.00	14.4%	**30**
DEC_Sol	DEC_Solar_PV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	0.35	0.39	0.40	0.40	0.39	0.32	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.2%	**31**

365

Annual Capacity Factor - 2015 IRP - Appendix C, Page 91: **27.5%**

Table 13
Wind Integration Charges

Year	Wind Integration Charge
	$/MWh
	(f)
2016	$16.50
2017	$17.00
2018	$17.51
2019	$18.03
2020	$18.57
2021	$19.13
2022	$19.70
2023	$20.29
2024	$20.90
2025	$21.53
2026	$22.18
2027	$22.84
2028	$23.53
2029	$24.23
2030	$24.96
2031	$25.71
2032	$26.48
2033	$27.27
2034	$28.09
2035	$28.93
2036	$29.80
2037	$30.70
2038	$31.62
2039	$32.57
2040	$33.55

* Wind Integration charges are based on wind capactiy penetrati
  levels of 727 MW as of 04/14/2016
* Numbers in red are extrapolated

Source: 2015 Integrated Resource Plan, Appendix C, Page 114

Table 14
Determination of On-Peak and Off-Peak Hours

	Number of Days	Hours	Total Hours	Percentage
Total Annual Hours	**365**	**24**	**8,760**	**100.0%**
Calculation of Off-Peak Hours				
All Sundays	52	24	1,248	
6 NERC Holidays	6	24	144	
Remaining Light-Load Hours	307	8	2,456	
Total Off-Peak Hours			**3,848**	**43.9%**
Total On-Peak Hours			**4,912**	**56.1%**

Table 15
Oregon Approved Avoided Costs (Current)

Deliveries During Calendar Year	Baseload QF			Wind QF			PV Solar QF		
	On-Peak Energy Price	Off-Peak Energy Price	Combined Energy Price (56.1% On-Peak 43.9% Off-Peak)	On-Peak Energy Price	Off-Peak Energy Price	Combined Energy Price (56.1% On-Peak 43.9% Off-Peak)	On-Peak Energy Price	Off-Peak Energy Price	Combined Energy Price (56.1% On-Peak 43.9% Off-Peak)
	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh
	(a)	(b)	(c)	(c)	(d)	(c)	(e)	(f)	(c)
2016	$18.92	$14.76	$17.09	$2.42	-$1.74	$0.59	$18.92	$14.76	$17.09
2017	$23.88	$19.00	$21.74	$6.88	$2.00	$4.74	$23.88	$19.00	$21.74
2018	$25.59	$20.32	$23.28	$8.08	$2.81	$5.77	$25.59	$20.32	$23.28
2019	$27.56	$21.73	$25.00	$9.53	$3.70	$6.97	$27.56	$21.73	$25.00
2020	$28.65	$22.68	$26.03	$10.08	$4.11	$7.46	$28.65	$22.68	$26.03
2021	$30.14	$24.12	$27.50	$11.01	$4.99	$8.37	$30.14	$24.12	$27.50
2022	$32.71	$25.29	$29.45	$13.01	$5.59	$9.75	$32.71	$25.29	$29.45
2023	$33.96	$26.19	$30.55	$13.67	$5.90	$10.26	$33.96	$26.19	$30.55
2024	$60.25	$41.14	$51.86	$21.20	$20.24	$20.78	$50.94	$41.14	$46.64
2025	$62.03	$42.50	$53.45	$21.95	$20.97	$21.52	$52.52	$42.50	$48.12
2026	$63.89	$43.93	$55.12	$22.75	$21.75	$22.31	$54.17	$43.93	$49.67
2027	$66.45	$46.05	$57.49	$24.23	$23.21	$23.78	$56.52	$46.05	$51.92
2028	$67.69	$46.85	$58.54	$24.36	$23.32	$23.90	$57.54	$46.85	$52.84
2029	$69.01	$47.71	$59.65	$24.55	$23.48	$24.08	$58.64	$47.71	$53.84
2030	$70.60	$48.83	$61.04	$24.96	$23.87	$24.48	$60.00	$48.83	$55.09
2031	$71.83	$49.58	$62.06	$24.98	$23.87	$24.49	$60.99	$49.58	$55.98
2032	$74.82	$52.08	$64.83	$26.74	$25.60	$26.24	$63.75	$52.08	$58.62
2033	$77.66	$54.42	$67.45	$28.31	$27.15	$27.80	$66.34	$54.42	$61.10
2034	$80.51	$56.76	$70.08	$29.86	$28.67	$29.34	$68.94	$56.76	$63.59
2035	$83.44	$59.17	$72.78	$31.45	$30.24	$30.92	$71.62	$59.17	$66.15
2036	$86.23	$61.42	$75.33	$32.86	$31.62	$32.32	$74.15	$61.42	$68.56
2037	$89.18	$63.83	$78.04	$34.40	$33.13	$33.84	$76.83	$63.83	$71.12
2038	$91.63	$65.72	$80.25	$35.40	$34.10	$34.83	$79.01	$65.72	$73.17
2039	$94.94	$68.46	$83.31	$37.21	$35.89	$36.63	$82.04	$68.46	$76.07
2040	$99.89	$72.82	$88.00	$40.63	$39.27	$40.03	$86.71	$72.82	$80.61