DONOVAN WALKER
Lead Counsel
dwalker@idahopower.com

October 30, 2020

VIA ELECTRONIC FILING

Jan Noriyuki, Secretary
Idaho Public Utilities Commission
11331 W. Chinden Boulevard
Building 8, Suite 201-A
Boise, Idaho 83714

Re: Case No. IPC-E-20-02
Idaho Power Company's Petition to Establish Avoided Cost Rates and Terms for Energy Storage Qualifying Facilities under PURPA

Dear Ms. Noriyuki:

Attached for electronic filing in the above matter is Idaho Power Company's Compliance Filing To Update The Incremental Cost Integrated Resource Plan Avoided Cost Model To Pay Capacity During Peak Hours. If you have any questions about the enclosed documents, please do not hesitate to contact me.

Very truly yours,

Donovan Walker

DEW/ cld
Enclosures

DONOVAN E. WALKER (ISB No. 5921)
Idaho Power Company
1221 West Idaho Street (83702)
P.O. Box 70
Boise, Idaho 83707
Telephone: (208) 388-5317
Facsimile: (208) 388-6936
dwalker@idahopower.com

Attorney for Idaho Power Company

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF IDAHO POWER COMPANY'S PETITION TO ESTABLISH AVOIDED COST RATES APPLIACABLE TO PURPA ENERGY STORAGE QUALIFYING FACILITIES.	CASE NO. IPC-E-20-02 IDAHO POWER COMPANY'S COMPLIANCE FILING TO UPDATE THE INCREMENTAL COST INTEGRATED RESOURCE PLAN AVOIDED COST MODEL TO PAY CAPACITY DURING PEAK HOURS

Idaho Power Company ("Idaho Power") hereby respectfully submits to the Idaho Public Utilities Commission ("Commission") this filing in compliance with Order No. 34794 to update the avoided cost of capacity component of the Incremental Cost Integrated Resource Plan ("ICIRP") avoided cost methodology to pay energy storage Qualifying Facilities ("QF") for capacity only during peak hours.

I. INTRODUCTION

On October 2, 2020, the Commission issued Order No. 34794, which states, "...the avoided cost of capacity should be paid only on production during the hours identified as the Company's peak hours." Order No. 34794, p 14. In the order, the Commission references the "Duke Energy Method", to be used as a method for compensating the

avoided cost of capacity during those peak hours. Based on Idaho Power's understanding of Duke Energy's implementation of PURPA[1] specific to the avoided cost of capacity, there are a number of differences between what Duke Energy is required to offer in its PURPA energy sales agreements and what Idaho Power is required to pay as the avoided cost of capacity. However, Idaho Power's understanding of Order No. 34794 is that no changes to the avoided cost of capacity in the ICIRP Methodology are to be made, except that the capacity portion of the avoided cost rate is to be paid only during peak hours. The Commission stated in Order No. 34794, "we direct the Company to make a compliance filing within 30 days implementing this new method." *Id.*

Idaho Power has utilized the same load forecast that is currently utilized by the ICIRP Methodology and updated annually, as the basis for establishing the peak hours for this filing. Additionally, Idaho Power utilized information from: 1) load, net of solar; 2) Loss of Load Probability; and 3) Energy Imbalance Market Locational Marginal Pricing to inform a higher tier of capacity payment during a subset of critical peak hours identified as Premium Peak Hours. Idaho Power has identified the Peak Hours for inclusion in the ICIRP Methodology as occurring from 1:00 pm – 10:00 pm in July and from 3:00 pm – 8:00 pm in August, and the Premium Peak Hours occurring from 6:00 pm - 10:00 pm in July and from 4:00 pm to 8:00 pm in August. The following discussion outlines the Company's proposed implementation of its determination of Peak Hours and capacity pricing methodology as directed by the Commission. This methodology will be utilized by Idaho Power for the negotiation of its avoided cost rates for energy storage QFs upon the Commission's approval of the same.

[1] Public Utility Regulatory Policies Act of 1978

II. PEAK HOURS

The actual peak hours that will occur on Idaho Power's system are subject to change day-to-day and year-to-year due to numerous factors including, but not limited to: customer operations, load, precipitation and water conditions, temperature and weather conditions, etc. Idaho Power believes that the appropriate estimation of peak hours as it relates to the avoided cost of capacity for PURPA QFs should be based upon the IRP derived load forecast, that is part of the ICIRP Methodology and updated annually to reflect the most recent data and information available that can be used to predict future peak hours.

Under the ICIRP Methodology, Idaho Power submits an annual compliance filing to the Commission that updates the load and gas forecasts in the ICIRP Methodology. See Case No. IPC-E-20-35. Idaho Power believes that the load forecast that is updated annually for modeling the Company's avoided costs available to PURPA QFs should also serve as the basis for identifying the peak hours to be used in the calculation of the avoided cost of capacity. Therefore, the Company proposes to file annual updates to the peak hours in conjunction with the annual October 15 update to the ICIRP Methodology.

The following table presents the 2021 Load Forecast in a 12-month by 24-hour average load format. The month/hours representing the highest five percent of estimated average load are highlighted (boxed).

//

//

//

//

TABLE 1: 2021 Load Forecast

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	1,645	1,523	1,360	1,314	1,414	1,802	2,026	1,985	1,506	1,244	1,366	1,685
2	1,560	1,441	1,324	1,272	1,317	1,661	1,846	1,874	1,441	1,187	1,281	1,593
3	1,524	1,411	1,309	1,261	1,276	1,576	1,732	1,807	1,412	1,166	1,246	1,541
4	1,518	1,412	1,317	1,268	1,263	1,513	1,649	1,762	1,390	1,165	1,240	1,528
5	1,529	1,430	1,343	1,306	1,284	1,489	1,608	1,746	1,406	1,195	1,262	1,539
6	1,582	1,486	1,421	1,405	1,379	1,529	1,632	1,788	1,480	1,291	1,332	1,596
7	1,706	1,626	1,568	1,594	1,566	1,627	1,718	1,900	1,654	1,481	1,488	1,715
8	1,920	1,859	1,726	1,716	1,722	1,809	1,887	2,004	1,791	1,648	1,723	1,909
9	2,101	2,038	1,775	1,727	1,803	1,977	2,082	2,117	1,837	1,694	1,889	2,074
10	2,137	2,038	1,759	1,716	1,858	2,100	2,248	2,217	1,877	1,711	1,902	2,137
11	2,115	1,994	1,722	1,703	1,889	2,209	2,400	2,310	1,906	1,712	1,875	2,131
12	2,077	1,935	1,676	1,675	1,900	2,302	2,539	2,390	1,921	1,694	1,828	2,113
13	2,014	1,869	1,628	1,643	1,897	2,383	2,679	2,475	1,925	1,678	1,769	2,038
14	1,936	1,788	1,584	1,615	1,901	2,466	2,824	2,570	1,955	1,671	1,710	1,976
15	1,878	1,739	1,551	1,595	1,904	2,546	2,964	2,673	1,980	1,670	1,661	1,916
16	1,836	1,689	1,525	1,577	1,904	2,606	3,085	2,764	2,004	1,677	1,627	1,876
17	1,826	1,666	1,514	1,574	1,922	2,647	3,173	2,838	2,045	1,697	1,623	1,873
18	1,884	1,694	1,527	1,575	1,934	2,675	3,218	2,878	2,061	1,724	1,690	1,958
19	2,039	1,775	1,548	1,586	1,943	2,688	3,228	2,885	2,062	1,742	1,847	2,154
20	2,152	1,923	1,598	1,592	1,944	2,661	3,178	2,825	2,042	1,792	1,917	2,205
21	2,111	1,952	1,671	1,653	1,942	2,583	3,043	2,720	2,057	1,762	1,872	2,163
22	2,057	1,916	1,639	1,660	1,957	2,488	2,883	2,625	1,961	1,656	1,810	2,115
23	1,950	1,822	1,546	1,535	1,796	2,319	2,656	2,407	1,788	1,497	1,690	2,016
24	1,781	1,664	1,432	1,399	1,560	2,039	2,322	2,165	1,612	1,344	1,528	1,857

The Company believes these peak hours identified in the load forecast will not change dramatically from year-to-year, and that the consistent use of this data within the ICIRP Methodology is desirable. However, within the range of hours identified in the system peak data, the Company looked at additional metrics to develop a methodology to apply a premium rate to certain peak load hours with the potential to be allocated a premium capacity value.

Idaho Power appreciates Staff's recommendation and the Commission's directive of establishing payment for capacity during peak hours to provide a significant price signal for an energy storage QF to deliver its energy during periods of time that it can provide the most benefit to the Company's system. Within the peak hours identified for Idaho Power, there are a certain number of hours that are more important for output from a

battery storage unit to be deployed. The Company analyzed three different metrics to characterize these more critical hours: 1) load, net of solar, 2) Loss of Load Probability, and 3) Locational Marginal Pricing from the Energy Imbalance Market. The results of those three metrics are presented below.

The following table presents the Company's actual loads, net of generation by solar PURPA projects, for January through September 2020. The table shows the highest load hours identified in the prior illustration (boxed), and within that set of hours, a four-hour block of hours that represent the highest loads net of solar generation (circled in red). These hours represent the peak load hours where solar generation was less effective in reducing the net peak loads. Idaho Power targeted a four-hour block as that is representative of a typical output duration for a battery energy storage facility.

TABLE 2: 2020 Load-Net-Solar Generation

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	1,625	1,671	1,482	1,618	2,113	2,324	2,457	2,496	1,991			
2	1,607	1,675	1,463	1,573	1,969	2,185	2,290	2,255	1,881			
3	1,616	1,682	1,476	1,507	1,870	2,092	2,171	2,163	1,808			
4	1,644	1,694	1,510	1,489	1,807	2,023	2,097	2,102	1,754			
5	1,702	1,765	1,552	1,473	1,773	1,983	2,065	2,069	1,710			
6	1,819	1,886	1,671	1,560	1,772	1,984	2,074	2,082	1,729			
7	1,990	2,084	1,866	1,677	1,918	2,040	2,122	2,142	1,810			
8	2,226	2,223	1,970	1,786	1,848	2,106	2,212	2,238	1,903			
9	2,227	2,131	1,865	1,679	1,900	2,112	2,309	2,274	1,860			
10	2,140	1,993	1,736	1,719	1,995	2,234	2,398	2,352	1,832			
11	1,995	1,936	1,641	1,689	2,094	2,326	2,468	2,454	1,908			
12	1,881	1,866	1,542	1,674	2,115	2,479	2,569	2,610	2,031			
13	1,802	1,798	1,533	1,755	2,228	2,629	2,737	2,749	2,153			
14	1,802	1,790	1,482	1,756	2,325	2,717	2,874	2,879	2,307			
15	1,866	1,806	1,488	1,791	2,465	2,720	2,944	2,983	2,477			
16	1,882	1,829	1,503	1,740	2,552	2,739	2,935	3,077	2,610			
17	1,926	1,885	1,524	1,807	2,617	2,810	2,979	3,171	2,694			
18	2,025	1,954	1,585	1,912	2,660	2,837	3,044	3,220	2,750			
19	2,080	2,038	1,729	2,006	2,684	2,834	3,086	3,235	2,826			
20	2,049	2,040	1,762	2,028	2,744	2,890	3,193	3,219	2,832			
21	2,009	2,000	1,729	2,056	2,754	2,935	3,233	3,138	2,776			
22	1,914	1,933	1,685	2,024	2,654	2,861	3,115	3,010	2,571			
23	1,790	1,814	1,584	1,889	2,507	2,713	2,895	2,785	2,364			
24	1,687	1,714	1,502	1,729	2,283	2,499	2,669	2,549	2,164			

The next source of information Idaho Power utilized was the Company's hourly loss-of load probability ("LOLP") data provided in Idaho Power's 2017 IRP (the most recently acknowledged IRP), showing the hours with the greatest potential loss of load from the solar capacity credit analysis performed for that IRP. This data suggests a moderate amount of correlation between LOLP and peak load hours.

TABLE 3: 2017 IRP LOLP Data

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	0.68%	0.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
8	1.25%	2.60%	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%
9	2.41%	3.47%	0.00%	0.19%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	1.45%	2.51%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%
11	0.87%	0.00%	0.00%	0.39%	0.19%	0.00%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%
12	0.77%	0.00%	0.00%	0.39%	0.00%	0.00%	0.39%	0.00%	0.10%	0.00%	0.00%	0.10%
13	0.29%	0.00%	0.00%	0.39%	0.39%	0.19%	0.68%	0.00%	0.00%	0.00%	0.00%	0.00%
14	0.10%	0.00%	0.00%	0.10%	0.19%	0.10%	1.64%	0.00%	0.10%	0.00%	0.00%	0.00%
15	0.10%	0.00%	0.00%	0.19%	0.39%	0.48%	2.80%	0.19%	0.00%	0.00%	0.00%	0.00%
16	0.00%	0.00%	0.00%	0.29%	0.19%	0.96%	5.30%	0.68%	0.58%	0.00%	0.00%	0.00%
17	0.10%	0.00%	0.00%	0.48%	0.19%	1.06%	5.79%	1.35%	0.77%	0.00%	0.00%	0.00%
18	0.58%	0.10%	0.00%	0.29%	0.48%	2.51%	8.68%	1.16%	1.35%	0.00%	0.00%	0.10%
19	2.03%	2.22%	0.00%	0.48%	0.48%	1.06%	7.52%	0.96%	0.96%	0.00%	0.00%	0.10%
20	1.64%	3.18%	0.00%	0.39%	0.29%	1.54%	3.28%	0.48%	0.96%	0.00%	0.00%	0.10%
21	0.87%	1.25%	0.00%	0.10%	0.19%	0.87%	2.22%	0.19%	0.77%	0.00%	0.00%	0.19%
22	0.39%	1.35%	0.10%	0.19%	0.29%	0.48%	0.77%	0.19%	0.19%	0.00%	0.00%	0.00%
23	0.00%	0.58%	0.00%	0.19%	0.00%	0.19%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
24	0.00%	0.00%	0.00%	0.00%	0.10%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

The following table presents actual 2020 western Energy Imbalance Market ("EIM") average locational marginal prices ("LMP") for Idaho Power. This data is derived from the weighted average hourly price comprised of all pricing nodes in the Idaho Power Balancing Area Authority from four fifteen-minute market price intervals and twelve real-

time five-minute price intervals. This data suggests a stronger correlation between LMP prices and peak load hours.

TABLE 4: 2020 LMP EIM

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	$21.16	$19.60	$20.70	$19.17	$17.87	$17.58	$18.02	$24.78	$21.07			
2	$20.81	$19.34	$18.76	$18.11	$16.91	$17.07	$17.29	$22.33	$20.28			
3	$20.46	$19.38	$19.19	$17.48	$15.67	$17.06	$17.37	$20.76	$19.62			
4	$21.06	$19.91	$20.16	$18.11	$15.29	$17.25	$17.18	$20.12	$18.84			
5	$22.82	$22.92	$22.24	$18.76	$16.34	$18.30	$17.60	$20.20	$19.63			
6	$26.65	$27.78	$22.50	$18.22	$16.16	$19.15	$18.15	$21.19	$20.51			
7	$29.70	$27.41	$22.91	$18.54	$15.77	$18.79	$17.42	$18.68	$21.30			
8	$27.96	$27.43	$22.47	$16.09	$9.41	$12.52	$14.49	$16.99	$20.51			
9	$24.33	$17.74	$24.33	$14.72	$9.23	$11.20	$13.81	$17.97	$20.38			
10	$22.15	$15.94	$18.83	$15.05	$6.42	$11.27	$15.87	$20.20	$20.47			
11	$21.83	$15.20	$17.44	$15.18	$14.27	$12.27	$18.71	$22.48	$20.27			
12	$19.19	$12.79	$16.82	$15.52	$11.73	$16.20	$20.34	$26.85	$23.41			
13	$14.44	$11.67	$16.20	$15.46	$14.26	$15.91	$20.59	$31.22	$23.86			
14	$16.94	$10.16	$15.00	$15.22	$17.47	$18.46	$22.36	$38.75	$26.17			
15	$19.70	$6.03	$13.83	$14.34	$14.46	$18.27	$24.34	$72.40	$35.29			
16	$25.72	$16.37	$15.38	$14.23	$17.04	$22.04	$23.88	$70.43	$34.84			
17	$32.13	$26.10	$17.06	$15.73	$23.34	$45.61	$22.31	$70.49	$35.80			
18	$28.19	$40.63	$23.26	$20.68	$24.43	$37.00	$23.42	$80.36	$37.97			
19	$27.04	$23.88	$25.08	$21.89	$28.88	$30.06	$59.38	$115.42	$34.71			
20	$25.81	$22.90	$24.46	$20.65	$20.79	$29.04	$77.01	$62.28	$27.98			
21	$25.67	$36.47	$27.72	$20.53	$19.34	$32.11	$28.84	$29.66	$25.16			
22	$25.72	$23.54	$22.75	$21.51	$20.06	$20.46	$19.84	$28.98	$26.90			
23	$24.38	$21.73	$22.57	$20.70	$21.16	$22.36	$20.19	$32.22	$26.11			
24	$22.05	$19.53	$20.77	$18.53	$18.24	$17.38	$18.09	$25.70	$21.79			

Based on the preceding information, Idaho Power believes that applying a premium price to certain hours will further incent a battery energy storage QF to provide its stored energy when it is of most value to the Company and its customers. These higher value hours occur during peak hours but when generation output from solar generation resources begins to decline later in the day, while load continues to persist at a high level. Providing a price signal to a battery energy storage QF to dispatch its output during these hours is likely to provide more of the benefits that a battery storage facility can deliver.

III. AVOIDED COST OF CAPACITY

The following discussion describes how Idaho Power will include Peak Hours in the calculation of the avoided cost of capacity to be included in PURPA Energy Sales Agreements ("ESA") for energy storage QFs under the ICIRP Methodology. The starting point for establishing ICIRP-based pricing is an hourly generation profile provided by the QF. The following table presents an assumed load profile of a hypothetical 20-megawatt ("MW") battery storage facility charged by solar generation and designed to maximize production at peak load hours. Total estimated annual generation of the facility is 53,230 megawatt-hours ("MWh"). Under the Company's version of the Duke method, capacity value will be paid during a subset of these generation hours corresponding with the Company's greatest need for capacity. The hours with capacity payments and premium capacity payments are indicated in the table. As stated in the table, estimated generation during Peak Hours is 8,339 MWh. Generation during other hours would receive no compensation for capacity.

//

//

//

//

//

//

//

//

//

TABLE 5: Sample 20 MW Battery Storage+Solar QF

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	12	14	10	3	7	0	0	0	0	0	0	10
9	7	11	11	11	14	5	3	1	0	0	0	5
10	0	1	3	4	3	11	11	6	3	1	1	0
11	0	1	3	4	4	13	15	11	4	2	1	0
12	0	1	2	4	4	16	17	15	5	2	0	0
13	1	1	3	5	5	18	18	18	12	5	1	0
14	1	6	11	14	14	19	19	18	15	9	5	1
15	3	8	14	16	16	19	19	18	16	11	8	3
16	5	10	14	16	17	20	18	18	16	13	7	5
17	4	10	14	15	17	20	18	20	17	13	3	2
18	1	3	10	14	16	20	17	20	17	11	15	0
19	15	16	4	13	14	20	20	20	20	18	14	15
20	15	15	16	19	20	18	20	20	17	15	13	12
21	0	0	15	16	17	14	20	13	15	15	6	0
22	0	0	15	15	15	0	20	0	14	8	0	0
23	0	0	0	9	13	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
MWh per Day	64	97	145	178	196	213	235	198	171	123	74	53
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
MWh per Month	1,984	2,716	4,495	5,340	6,076	6,390	7,285	6,138	5,130	3,813	2,220	1,643
MWh for year:	53,230											
Peak MWh per Day							171	98				
Peak MWh per Month							5,301	3,038				
Peak MWh per Year	8,339											

The currently approved calculation of the avoided cost of capacity using the ICIRP Methodology is based on a combination of inputs from the IRP and the generation profile provided by the QF. Again, Idaho Power has made no changes to the underlying methodology that calculated the avoided cost of capacity, and only changed the payment of that capacity amount to being paid only during peak hours rather than being paid upon every kwh of QF generation. One of the key inputs of the ICIRP Methodology is the Peak Hour Capacity Factor. This value is determined by dividing the average MW hourly generation amounts from the QF's generation profile by the QF's Nameplate Capacity. The Peak Hour Capacity Factor in the ICIRP Methodology is the average of the hourly

capacity factors from 3:00 PM to 6:59:59 PM. These hours have been identified in the IRP process as the time period that Idaho Power has historically experienced peak loads. The avoided cost of capacity used to determine the capacity component of the price to the QF is then calculated using assumptions from the IRP. Idaho Power does not propose making any changes to the assumptions as currently applied in the ICIRP Methodology in this filing. Table 6 below demonstrates the Peak Hour Capacity Factor from the generation profile depicted in Table 5.

TABLE 6: Sample 20 MW Battery Storage+Solar QF Peak Hour Capacity Factor

Annual Capacity Factor:	30.3%
Peak Hour Capacity Factor:	91.3%

Hour Start	Hour End	Hour	January	February	March	April	May	June	July	August	September	October	November	December
12:00 AM	1:00 AM	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1:00 AM	2:00 AM	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2:00 AM	3:00 AM	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:00 AM	4:00 AM	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:00 AM	5:00 AM	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:00 AM	6:00 AM	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6:00 AM	7:00 AM	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7:00 AM	8:00 AM	8	0.60	0.70	0.50	0.15	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.50
8:00 AM	9:00 AM	9	0.35	0.55	0.55	0.55	0.70	0.25	0.15	0.05	0.00	0.00	0.00	0.25
9:00 AM	10:00 AM	10	0.00	0.05	0.15	0.20	0.15	0.55	0.55	0.30	0.15	0.05	0.05	0.00
10:00 AM	11:00 AM	11	0.00	0.05	0.15	0.20	0.20	0.65	0.75	0.55	0.20	0.10	0.05	0.00
11:00 AM	12:00 PM	12	0.00	0.05	0.10	0.20	0.20	0.80	0.85	0.75	0.25	0.10	0.00	0.00
12:00 PM	1:00 PM	13	0.05	0.05	0.15	0.25	0.25	0.90	0.90	0.90	0.60	0.25	0.05	0.00
1:00 PM	2:00 PM	14	0.05	0.30	0.55	0.70	0.70	0.95	0.95	0.90	0.75	0.45	0.25	0.05
2:00 PM	3:00 PM	15	0.15	0.40	0.70	0.80	0.80	0.95	0.95	0.90	0.80	0.55	0.40	0.15
3:00 PM	4:00 PM	16	0.25	0.50	0.70	0.80	0.85	1.00	0.90	0.90	0.80	0.65	0.35	0.25
4:00 PM	5:00 PM	17	0.20	0.50	0.70	0.75	0.85	1.00	0.90	1.00	0.85	0.65	0.15	0.10
5:00 PM	6:00 PM	18	0.05	0.15	0.50	0.70	0.80	1.00	0.85	1.00	0.85	0.55	0.75	0.00
6:00 PM	7:00 PM	19	0.75	0.80	0.20	0.65	0.70	1.00	1.00	1.00	1.00	0.90	0.70	0.75
7:00 PM	8:00 PM	20	0.75	0.75	0.80	0.95	1.00	0.90	1.00	1.00	0.85	0.75	0.65	0.60
8:00 PM	9:00 PM	21	0.00	0.00	0.75	0.80	0.85	0.70	1.00	0.65	0.75	0.75	0.30	0.00
9:00 PM	10:00 PM	22	0.00	0.00	0.75	0.75	0.75	0.00	1.00	0.00	0.70	0.40	0.00	0.00
10:00 PM	11:00 PM	23	0.00	0.00	0.00	0.45	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11:00 PM	12:00 AM	24	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7 below lists the IRP assumptions used in the determination of capacity value for a battery energy storage QF and Table 8 demonstrates the QF's Peak Hour Capacity Credit that is applied to the pricing calculations.

TABLE 7: Assumptions used in ICIRP Avoided Cost of Capacity

ICIRP Assumptions		
General O&M escalation rate:	2.10%	2017 IRP - Technical Appendix, page 71
SCCT-Industrial Frame 170 MW (Capital Cost kW/Month):	$8.64	2017 IRP - Technical Appendix, page 76
SCCT-Industrial Frame 170 MW (Non-Fuel O&M):	$1.59	2017 IRP - Technical Appendix, page 76
Benchmark Type:	Landfill Gas or Digester	
Benchmark July 3 - 7 PM Average:	100.0%	
Benchmark Peak Hour Capacity Factor (90th Percentile):	92.0%	

An important component used to calculate the capacity value of a proposed QF project under the ICIRP Methodology is the proposed QF's Contribution to Peak ("CTP"). CTP is the unique QF project's expected contribution of capacity (MWs) to Idaho Power during Idaho Power's peak customer load period. The CTP value is initially calculated as a percentage and then this percentage is applied to the Nameplate Capacity of the proposed QF project to establish the project's MW CTP value.

In the Idaho Power IRP process, as applied to the ICIRP Methodology, a 90th percentile exceedance factor is used to determine each resource's CTP percentage. The 90th percentile means that a QF's generation is expected to exceed the planning criteria 90 percent of the time. For proposed QF's , the only information Idaho Power has is an hourly generation profile of estimated generation provided by the project for a one-year period. Therefore, the following benchmarking process, inputs, and formula were developed for the ICIRP Methodology to calculate the CTP values for each proposed QF. This process provides CTP values for the proposed PURPA QF that is consistent with

similar values assigned to Idaho Power owned and operated generation resources in the IRP process.

Battery Storage facilities are an emerging technology. There are currently very few actual projects that are operating and delivering energy to utilities and there is limited information available to determine a battery storage QF's CTP. Therefore, in the sample calculations contained herein, Idaho Power has utilized a landfill gas or anaerobic digester baseload benchmark resource from the ICIRP Methodology. As more battery storage data becomes available, Idaho Power will continually evaluate the appropriate battery storage CTP and will update the benchmark resource accordingly.

Once the hourly estimated generation provided by the project is used to calculate the average Peak Hour Capacity Factor for the proposed QF, the proposed QF's average Peak Hour Capacity Factor is compared to a Benchmark Resource Average Peak Hour Capacity Factor. A ratio is calculated by dividing the QF average Peak Hour Capacity Factor by the benchmark resource capacity factor. This ratio is then multiplied by the Benchmark Peak Hour Capacity Factor used in the 90th percentile planning criteria resulting in the Peak Hour Capacity Factor Credit used in the determination of the Capacity Prices applicable to the QF, as shown in Table 8 below.

Table 8 – Sample 20 MW Battery Storage+Solar QF Peak Hour Capacity Credit

Peak Hour Capacity Factor Credit			
	July 3 - 7 PM Average	Ratio with Benchmark	Peak Hour Capacity Factor (90th percentile)
Landfill Gas or Digester	100.0%	N/A	92.0%
Peak Hour Capacity Factor Credit	91.3%	0.91	**84.0%**

Using the assumptions described above, the Capacity Price is calculated. Table 9 demonstrates how the avoided cost of capacity results in a Capacity Price allocated across generation to be delivered by the QF during Peak Hours.

TABLE 9: Sample 20 MW Battery Storage+Solar QF Capacity Price Calculation

Year	Capital (Levelized)	Fixed O&M	Total	QF Nameplate Capacity (kW)	SCCT Annual Total	QF Generation Delivered during Peak Hours (kWh)	Capacity Price ($/kWh)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
			(a + b)		(c x 12) x (d)		(e x PHCFC*) / (f)
2017	$8.64	$1.59	$10.23	20,000			
2018	$8.64	$1.62	$10.26	20,000			
2019	$8.64	$1.66	$10.30	20,000			
2020	$8.64	$1.69	$10.33	20,000			
2021	$8.64	$1.73	$10.37	20,000			
2022	$8.64	$1.76	$10.40	20,000			
2023	$8.64	$1.80	$10.44	20,000			
2024	$8.64	$1.84	$10.48	20,000			
2025	$8.64	$1.88	$10.52	20,000			
2026	$8.64	$1.92	$10.56	20,000			
2027	$8.64	$1.96	$10.60	20,000			
2028	$8.64	$2.00	$10.64	20,000			
2029	$8.64	$2.04	$10.68	20,000	$2,563,285.53	8,339,000	$0.2582
2030	$8.64	$2.08	$10.72	20,000	$2,573,568.93	8,339,000	$0.2592
2031	$8.64	$2.13	$10.77	20,000	$2,584,068.27	8,339,000	$0.2603
2032	$8.64	$2.17	$10.81	20,000	$2,594,788.11	8,436,000	$0.2584
2033	$8.64	$2.22	$10.86	20,000	$2,605,733.06	8,339,000	$0.2625
2034	$8.64	$2.26	$10.90	20,000	$2,616,907.85	8,339,000	$0.2636
2035	$8.64	$2.31	$10.95	20,000	$2,628,317.32	8,339,000	$0.2648
2036	$8.64	$2.36	$11.00	20,000	$2,639,966.38	8,436,000	$0.2629

*Peak Hour Capacity Factor Credit (PHCFC)

IV. ENERGY SALES AGREEMENT PROVISIONS

In order to include designated Peak Hours and base the Capacity Price for a QF on these hours, certain provisions will need to be included in a PURPA Energy Sales Agreement. Updating the Peak Hours on an annual basis, or when a new IRP is acknowledged, will require the Company to allow the QF under contract to submit a

revised generation profile. Allowing the QF to update its generation profile on an annual basis will further increase the QF's ability to dispatch the battery during Peak Hours. The IRP inputs applicable to the fixed capital costs from the IRP would not change during the term of the ESA but the Capacity Price would be updated annually to coincide with any changes to the Company's designated Peak Hours and the generation expected to be supplied during Peak Hours.

As discussed earlier, Idaho Power believes that a premium adjustment should be included for energy delivered during the designated Premium Peak Hours. This is similar to the seasonality adjustment that has been included in ESAs based on published avoided cost rates. The Company has established two pricing tiers during the peak hours as defined below: Peak Hours and Premium Peak Hours. The total amount of annual capacity as established by the existing avoided cost methodology is first spread across the Peak Hours, resulting the base Capacity Price as shown in Table 10 below. Then for the Premium Peak Hours, the rate is set at 120% of that base price. For all other Peak Hours, the rate is adjusted to the remaining annual capacity amount minus the amount paid during the Premium Peak Hours. This is reflected in the representative definitions below which are potential definitions based on the sample solar plus storage QF used throughout this Application.

> Peak Hours: Hours that occur in July starting at 1:00 PM and ending at 9:59:59 PM, and hours that occur in August starting at 3:00 PM and ending at 7:59:59. Peak Hours are subject to change annually and when a new IRP is acknowledged.
>
> Premium Peak Hours: Hours that occur in July, starting at 6:00 PM and ending at 9:59:59 PM, and hours in that occur in August, starting at 4:00 PM and ending at 7:59:59 PM.

Premium Peak Hours are subject to change annually and when a new IRP is acknowledged.

Capacity Price: For all generation received during Premium Peak Hours, Idaho Power shall pay 120% of the calendar year price specified in Appendix __ multiplied by all kWh delivered to Idaho Power during Premium Peak Hours for the applicable month. For all other generation delivered to Idaho Power during Peak Hours, Idaho Power shall pay the calendar year price specified in Appendix __ multiplied by all kWh delivered during Peak Hours for the applicable month, less the total amount paid for generation delivered during Premium Peak Hours for the applicable month.

A new Appendix that identifies the applicable Capacity Price will be added to an ICIRP-based ESA that includes pricing derived from the QF's initial generation profile. A sample new Appendix is included in Table 10.

TABLE 10: Sample Appendix – Capacity Price

Year	Capacity Price (mills/kWh)
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	
2025	
2026	
2027	
2028	
2029	258.20
2030	259.20
2031	260.30
2032	258.40
2033	262.50
2034	263.60
2035	264.80
2036	262.90

The following table demonstrates how the preceding contractual provisions would be applied to determine capacity the component of the sample QF's monthly payment. In the example for this Application the resulting Peak Hour rate is $212.80/MWh, and $309.84/MWh for the Premium Peak Hour rate.

TABLE 11: Sample Capacity Payment Calculation

July 2029 Capacity Price	Premium Factor	kWh Delivered during Peak Hours	kWh Delivered during Premium Peak Hours	Premium Peak Hour Payment	Non-Premium Peak Hour Payment	Total Payment
(a)	(b)	(c)	(d)	(e)	(f)	(g)
				(a x b) x (d)	(a x c) - (e)	(e + f)
$0.2582	120%	5,301,000	2,480,000	$768,403.20	$600,315.00	**$1,368,718.20**

V. CONCLUSION

Idaho Power hereby respectfully submits this Application and avoided cost capacity calculations in compliance with the Commission's directives in Order Nos. 34794 and asks the Commission to approve the same for use in the mandatory purchases of battery storage PURPA generation as directed in that Order.

Respectfully submitted this 30th day October 2020.

Donovan E. Walker

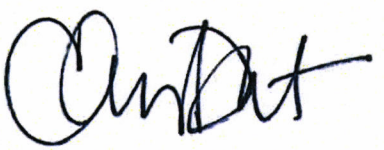
DONOVAN E. WALKER
Attorney for Idaho Power Company

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 30th day of October, 2020, I served a true and correct copy of the within and foregoing IDAHO POWER COMPANY'S COMPLIANCE FILING TO UPDATE THE INCREMENTAL COST INTEGRATED RESOURCE PLAN AVOIDED COST MODEL TO PAY CAPACITY DURING PEAK HOURS upon the following named parties by the method indicated below, and addressed to the following:

Edward Jewell
Deputy Attorney General
Idaho Public Utilities Commission
11331 W. Chinden Blvd., Bldg. No. 8
Suite 201-A (83714
PO Box 83720
Boise, ID 83720-0074

____Hand Delivered
____ U.S. Mail
____Overnight Mail
____FAX
__X__ Email
edward.jewell@puc.idaho.gov



Christy Davenport, Legal Assistant