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June 21, 2018

Public Utility Commission of Oregon
Filing Center
201 High Street SE, Suite 100
P.O. Box 1088
Salem, Oregon 97301

RE: Tariff Advice No. 18-07
Modifications to Schedule 78 - Residential Energy Conservation Program

Attention Filing Center:

Idaho Power Company herewith transmits for filing its Fifth Revised Sheet No. 78-4 with a requested effective date of August 1, 2018. The purpose of this tariff advice is to update the cost-effectiveness limits (“CEL”) for residential conservation measures included in Schedule 78, pursuant to OAR 860-030-0010. As part of this update, we have also modified the inputs used in the quantification of the CELs.

This update to the CEL includes a minor change to conform with the Public Utility Commission of Oregon (“Commission”) Staff (“Staff”) recommendation as outlined in Staff’s Report dated August 16, 2016.¹ In its memo recommending approval of Advice No. 16-11, Staff recommended “using the same cost-effectiveness methodology for all of its energy efficiency measures and discontinue the use of the cost-effectiveness methodology described in Schedule 78.”² Staff noted: “The Company uses newly updated avoided cost values from its Qualified Facility filings and the calculation methodology described in OAR 860-030-0010. Idaho Power does not utilize this approach to calculate the cost-effectiveness of other measures in Oregon. For all other energy efficiency measures, the Company uses the cost-effectiveness methodology described in detail in Supplement 1 to its 2015 Demand Side Management annual report.”³

During a conference call on May 23, 2018, the Company and Staff aligned on the Company using the same alternate cost inputs it uses in the cost-effective methodology for all its other energy efficiency measures, as detailed in the Company’s Demand Side Management

¹ Docket No. ADV 339/Advice No. 16-11 Staff Report.

² Docket No. ADV 339/Advice No. 16-11 Staff Report, p. 1.

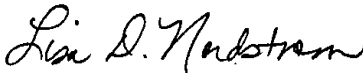
³ Docket No. ADV 339/Advice No. 16-11 Staff Report, p. 2.

Public Utility Commission of Oregon
Filing Center
June 21, 2018
Page 2

("DSM") annual report. In this advice, the Company submits its CEL computation with DSM Alternate Cost inputs from the 2017 Integrated Resource Plan, acknowledged by the Commission on May 23, 2018, in Order No. 18-176, as the determination of the CELs. Included with this filing are the workpapers detailing the updated CELs.

If you have any questions regarding this filing, please contact Regulatory Analyst Paul Goralski at (208) 388-2608.

Sincerely,



Lisa D. Nordstrom
Lead Counsel

LDN:kkt

Enclosures

SCHEDULE 78
RESIDENTIAL ENERGY CONSERVATION
PROGRAM
(Continued)

COST-EFFECTIVENESS GUIDELINE (Continued)

The following Energy Conservation Measures shall be deemed to have the following life cycles:

1. Attic, ceiling, wall and under-floor insulation: 30 years
2. Insulation of walls in heated basements: 30 years
3. Insulation of heating system supply and return air ducts: 30 years
4. Thermal doors: 30 years
5. Storm windows: 15 years
6. Replacement windows meeting the requirements of Chapter 53 of the Oregon Residential Energy Code: 25 years
7. Storm doors: 7 years

COST-EFFECTIVE COMPUTATIONS

Energy Conservation Measures having an expected life cycle of 7 years shall be considered Cost-Effective if the installed cost is less than \$0.24 per annual kWh saved. Energy Conservation Measures having an expected life cycle of 15 years, 25 years, and 30 years shall be considered Cost-Effective if the installed cost is less than \$0.46 per annual kWh saved, \$0.65 per annual kWh saved, and \$0.72 per annual kWh saved, respectively. (C)
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FINANCING

The Company will provide financing for Energy Conservation Measures at the request of a dwelling owner who occupies the dwelling as a residential space heating Customer or rents the dwelling to a tenant who is a residential space heating Customer if the dwelling has an electrical space heating system, installed and operational, which is designed to heat the living space of the dwelling. The financing program shall give the eligible dwelling owner a choice between a cash payment or a loan. As a condition of eligibility for either a cash payment or a loan, an Energy Audit of the dwelling will be required in order to determine which Energy Conservation Measures are Cost-Effective.

The Company will offer to all qualifying owners a choice between the following levels of assistance:

COST EFFECTIVE MEASURES

1. A loan by the Company not to exceed \$5,000, upon approved credit, to be used to pay for the Energy Conservation Measures over a period of time not to exceed 10 years. Minimum monthly payment will be \$15. Interest will be paid at a 6½ percent annual rate for the cost of those measures, or a portion of the cost thereof, which are in accordance with the Cost-Effectiveness criteria of this schedule; or
2. A cash payment to the dwelling owner for 25 percent of the Cost-Effective portion of the Energy Conservation Measures recommended, including installation (but not including the dwelling owner's own labor), not to exceed the cost of the measure, up to a maximum cash payment of \$1,000.

Inputs:	Nominal Discount Rate	6.74%
	Escalation Rate	2.10%
	Real Discount Rate	4.54%
	Avoided Losses	9.60%
	Conservation Credit	10.00%

Measure Life (Years)	PV Alternate Costs Mid-Year Conv. (\$/kWh)	Avoided Losses (\$/kWh)	10% Conservation Credit (\$/kWh)	Oregon Cost-effective Limit (CEL) (\$/kWh)
7	0.19	0.02	0.02	0.24
15	0.38	0.04	0.04	0.46
25	0.54	0.05	0.06	0.65
30	0.59	0.06	0.07	0.72

Notes: Oregon acknowledged 2017 IRP May 23, 2018
 OPUC Order No. 18-176

Alternate Cost Worksheet 2018 for OR CEL.xlsx
 6/21/2018

Inputs for CEL Calculation	
Nominal Discount Rate ¹	6.74%
Escalation Rate ²	2.10%

How to Use: All inputs are in blue.

Date Created: 6/13/2018
 Modified by: Paul GoralSKI
 Department: Regulatory Affairs
 Last Modified: 6/15/2018

Description: Provides the values used in the cost-effectiveness computations for Oregon residential conservation measures (Schedule 78) to reflect the Company's updated DSM Alternative Costs. 2017 IRP acknowledged in Oregon by Order No. 18-176 in Docket LC 68 on May 23, 2018.

Year #	Year	Peak Allocation of Capacity			DSM Alternate costs by Pricing Period ⁵						Discounted DSM Alternate Costs Combined Capacity and Energy \$/kWh (mid-year PV costs)					Cumulative Discounted DSM Alternate Costs Variable Alternative Energy \$/kWh and Fixed Plant Costs (NPV)					
		Summer On-Peak (SONP) ³	Simple Cycle Combustion Turbine ⁴	Summer On-Peak \$ per Hour	Summer On-Peak SONP	Summer Mid-Peak SMP	Summer Peak SOFP	Off-Peak NSMP	Non-Summer Mid-Peak NSMP	Non-Summer Peak NSOFP	Summer On-Peak SONP	Summer Mid-Peak SMP	Summer Peak SOFP	Non-Summer Mid-Peak NSMP	Non-Summer Peak NSOFP	Summer On-Peak SONP	Summer Mid-Peak SMP	Summer Peak SOFP	Off-Peak NSMP	Non-Summer Mid-Peak NSMP	Non-Summer Peak NSOFP
		Hours / Year	\$/kW/year	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW	Electricity \$ /kW
1	2018	520	122	\$0.235	\$0.054	\$0.031	\$0.028	\$0.030	\$0.028	\$0.279	\$0.030	\$0.027	\$0.029	\$0.027	\$0.279	\$0.030	\$0.027	\$0.027	\$0.029	\$0.029	\$0.027
2	2019	520	122	\$0.235	\$0.054	\$0.032	\$0.029	\$0.031	\$0.029	\$0.262	\$0.029	\$0.027	\$0.028	\$0.026	\$0.541	\$0.060	\$0.054	\$0.054	\$0.057	\$0.057	\$0.053
3	2020	512	122	\$0.238	\$0.056	\$0.033	\$0.031	\$0.031	\$0.029	\$0.250	\$0.028	\$0.026	\$0.026	\$0.025	\$0.791	\$0.087	\$0.080	\$0.080	\$0.083	\$0.078	\$0.078
4	2021	528	122	\$0.231	\$0.057	\$0.033	\$0.031	\$0.031	\$0.029	\$0.229	\$0.026	\$0.025	\$0.025	\$0.023	\$1.020	\$0.114	\$0.105	\$0.105	\$0.107	\$0.101	\$0.101
5	2022	528	122	\$0.231	\$0.058	\$0.033	\$0.032	\$0.031	\$0.028	\$0.215	\$0.025	\$0.024	\$0.023	\$0.021	\$1.236	\$0.138	\$0.128	\$0.128	\$0.130	\$0.122	\$0.122
6	2023	520	122	\$0.235	\$0.059	\$0.034	\$0.034	\$0.033	\$0.032	\$0.205	\$0.024	\$0.024	\$0.023	\$0.022	\$1.441	\$0.162	\$0.152	\$0.152	\$0.153	\$0.144	\$0.144
7	2024	520	122	\$0.235	\$0.061	\$0.036	\$0.036	\$0.035	\$0.034	\$0.194	\$0.023	\$0.023	\$0.023	\$0.022	\$1.634	\$0.186	\$0.175	\$0.175	\$0.176	\$0.166	\$0.166
8	2025	512	122	\$0.238	\$0.064	\$0.037	\$0.036	\$0.036	\$0.034	\$0.185	\$0.022	\$0.022	\$0.022	\$0.021	\$1.819	\$0.208	\$0.197	\$0.197	\$0.198	\$0.187	\$0.187
9	2026	512	122	\$0.238	\$0.066	\$0.039	\$0.038	\$0.038	\$0.036	\$0.175	\$0.022	\$0.022	\$0.022	\$0.021	\$1.994	\$0.230	\$0.220	\$0.220	\$0.220	\$0.208	\$0.208
10	2027	528	122	\$0.231	\$0.068	\$0.042	\$0.041	\$0.041	\$0.039	\$0.161	\$0.023	\$0.022	\$0.022	\$0.021	\$2.155	\$0.253	\$0.242	\$0.242	\$0.242	\$0.229	\$0.229
11	2028	528	122	\$0.231	\$0.071	\$0.045	\$0.044	\$0.044	\$0.042	\$0.152	\$0.023	\$0.022	\$0.022	\$0.021	\$2.308	\$0.276	\$0.264	\$0.264	\$0.264	\$0.251	\$0.251
12	2029	520	122	\$0.235	\$0.074	\$0.046	\$0.045	\$0.047	\$0.044	\$0.146	\$0.022	\$0.021	\$0.022	\$0.021	\$2.453	\$0.298	\$0.285	\$0.285	\$0.286	\$0.272	\$0.272
13	2030	520	122	\$0.235	\$0.076	\$0.049	\$0.047	\$0.049	\$0.046	\$0.137	\$0.021	\$0.021	\$0.022	\$0.020	\$2.591	\$0.319	\$0.306	\$0.306	\$0.308	\$0.292	\$0.292
14	2031	512	122	\$0.238	\$0.077	\$0.051	\$0.048	\$0.051	\$0.048	\$0.131	\$0.021	\$0.020	\$0.021	\$0.020	\$2.721	\$0.340	\$0.326	\$0.326	\$0.329	\$0.312	\$0.312
15	2032	512	122	\$0.238	\$0.078	\$0.052	\$0.049	\$0.052	\$0.050	\$0.123	\$0.020	\$0.019	\$0.020	\$0.019	\$2.844	\$0.360	\$0.345	\$0.345	\$0.350	\$0.331	\$0.331
16	2033	528	122	\$0.231	\$0.079	\$0.052	\$0.048	\$0.053	\$0.050	\$0.113	\$0.019	\$0.018	\$0.019	\$0.018	\$2.957	\$0.379	\$0.362	\$0.362	\$0.369	\$0.350	\$0.350
17	2034	520	122	\$0.235	\$0.079	\$0.053	\$0.048	\$0.054	\$0.051	\$0.107	\$0.018	\$0.016	\$0.018	\$0.017	\$3.064	\$0.397	\$0.379	\$0.379	\$0.387	\$0.367	\$0.367
18	2035	520	122	\$0.235	\$0.077	\$0.052	\$0.047	\$0.053	\$0.050	\$0.100	\$0.017	\$0.015	\$0.017	\$0.016	\$3.164	\$0.414	\$0.394	\$0.394	\$0.404	\$0.383	\$0.383
19	2036	520	122	\$0.235	\$0.076	\$0.051	\$0.046	\$0.052	\$0.050	\$0.093	\$0.015	\$0.014	\$0.016	\$0.015	\$3.256	\$0.429	\$0.407	\$0.407	\$0.420	\$0.398	\$0.398
20	2037	512	122	\$0.238	\$0.077	\$0.052	\$0.047	\$0.053	\$0.051	\$0.088	\$0.015	\$0.013	\$0.015	\$0.014	\$3.345	\$0.444	\$0.420	\$0.420	\$0.435	\$0.412	\$0.412
21	2038	528	122	\$0.231	\$0.079	\$0.053	\$0.048	\$0.054	\$0.052	\$0.081	\$0.014	\$0.013	\$0.014	\$0.014	\$3.426	\$0.458	\$0.433	\$0.433	\$0.449	\$0.426	\$0.426
22	2039	528	122	\$0.231	\$0.081	\$0.054	\$0.049	\$0.055	\$0.053	\$0.077	\$0.013	\$0.012	\$0.014	\$0.013	\$3.503	\$0.471	\$0.445	\$0.445	\$0.462	\$0.439	\$0.439
23	2040	520	122	\$0.235	\$0.082	\$0.056	\$0.050	\$0.056	\$0.054	\$0.073	\$0.013	\$0.011	\$0.013	\$0.012	\$3.576	\$0.484	\$0.456	\$0.456	\$0.475	\$0.451	\$0.451
24	2041	520	122	\$0.235	\$0.084	\$0.057	\$0.051	\$0.058	\$0.055	\$0.069	\$0.012	\$0.011	\$0.012	\$0.012	\$3.645	\$0.496	\$0.467	\$0.467	\$0.488	\$0.463	\$0.463
25	2042	512	122	\$0.238	\$0.086	\$0.058	\$0.052	\$0.059	\$0.056	\$0.066	\$0.012	\$0.010	\$0.012	\$0.011	\$3.710	\$0.508	\$0.478	\$0.478	\$0.500	\$0.475	\$0.475
26	2043	512	122	\$0.238	\$0.088	\$0.059	\$0.053	\$0.060	\$0.057	\$0.062	\$0.011	\$0.010	\$0.011	\$0.011	\$3.772	\$0.519	\$0.488	\$0.488	\$0.511	\$0.485	\$0.485
27	2044	528	122	\$0.231	\$0.090	\$0.060	\$0.054	\$0.061	\$0.059	\$0.057	\$0.011	\$0.010	\$0.011	\$0.010	\$3.829	\$0.530	\$0.497	\$0.497	\$0.522	\$0.496	\$0.496
28	2045	520	122	\$0.235	\$0.091	\$0.062	\$0.055	\$0.062	\$0.060	\$0.054	\$0.010	\$0.009	\$0.010	\$0.010	\$3.883	\$0.540	\$0.507	\$0.507	\$0.532	\$0.506	\$0.506
29	2046	520	122	\$0.235	\$0.093	\$0.063	\$0.056	\$0.064	\$0.061	\$0.051	\$0.010	\$0.009	\$0.010	\$0.010	\$3.935	\$0.550	\$0.515	\$0.515	\$0.542	\$0.515	\$0.515
30	2047	520	122	\$0.235	\$0.095	\$0.064	\$0.057	\$0.065	\$0.062	\$0.048	\$0.009	\$0.008	\$0.010	\$0.009	\$3.983	\$0.559	\$0.524	\$0.524	\$0.552	\$0.524	\$0.524

¹ Nominal Discount Rate is Weighted average cost of capital (2016 year ending after tax) from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix

² Escalation Rate is Financial escalation factor from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix

³ Summer On-Peak hours based on Table DSM-3. DSM alternate cost summer pricing periods (June 1-August 31) on Page 65 of 2017 Idaho Power IRP Technical Appendix

⁴ Simply Cycle Combustion Turbine dollars per kW per year is SCCT from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix

⁵ DSM Alternate Cost by Pricing Period from Table DSM-2. DSM alternate costs by pricing period on page 64 of 2017 Idaho Power IRP Technical Appendix

⁶ DSM Alternate costs by Pricing Period are not published beyond 2036, values for 2037 to 2047 were escalated using Escalation rate above.

Inputs for CEL Calculation	
Nominal Discount Rate ¹	6.74%
Escalation Rate ²	2.10%
Line Losses ³	9.60%
Real Discount Rate	4.54%

Energy Conservation Measure Life	
Storm doors	7
Storm windows	15
Chapter 53 windows	25
Attic/Ceiling/Wall/Floor/doors/windows	30

Typical Hours in Period	DSM Alternate Cost Combined Capacity and Energy \$/kWh					Total
	Summer			Non-Summer		
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak	
	512	960	736	3,616	2,936	8,760

	Load Shapes - Percent of Hours					Total
	Summer			Non-Summer		
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak	
Storm doors - 7 Years	1.575%	3.500%	1.682%	48.794%	44.450%	100.000%
Storm windows - 15 Years	1.575%	3.500%	1.682%	48.794%	44.450%	100.000%
Chapter 53 windows - 25 Years	1.575%	3.500%	1.682%	48.794%	44.450%	100.000%
Attic/Ceiling/Wall/Floor/doors/windows - 30 Years	1.575%	3.500%	1.682%	48.794%	44.450%	100.000%

	Mid-Year PV of Combined Energy and Capacity \$/kWh				
	Summer			Non-Summer	
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak
Storm doors - 7 Years	\$1.634	\$0.186	\$0.175	\$0.176	\$0.166
Storm windows - 15 Years	\$2.844	\$0.360	\$0.345	\$0.350	\$0.331
Chapter 53 windows - 25 Years	\$3.710	\$0.508	\$0.478	\$0.500	\$0.475
Attic/Ceiling/Wall/Floor/doors/windows - 30 Years	\$3.983	\$0.559	\$0.524	\$0.552	\$0.524

	Mid-Year PV of Combined Energy and Capacity \$/kWh x Load Shapes Percentage of Hours					Total
	Summer			Non-Summer		
	On-Peak	Mid-Peak	Off-Peak	Mid-Peak	Off-Peak	
Storm doors - 7 Years	\$0.026	\$0.006	\$0.003	\$0.086	\$0.074	\$0.195
Storm windows - 15 Years	\$0.045	\$0.013	\$0.006	\$0.171	\$0.147	\$0.381
Chapter 53 windows - 25 Years	\$0.058	\$0.018	\$0.008	\$0.244	\$0.211	\$0.539
Attic/Ceiling/Wall/Floor/doors/windows - 30 Years	\$0.063	\$0.020	\$0.009	\$0.269	\$0.233	\$0.593

	PV of Combined Energy and Capacity \$/kWh by load distribution Shape					CEL Cost-Effective Avoided Cost (\$/kWh)
	PV Alternate Costs Mid-Year Conv. (cents/kWh)	Line Losses	10% Conservation Credit	CEL Cost-Effective Avoided Cost (cents/kWh)	CEL Cost-Effective Avoided Cost (\$/kWh)	
Storm doors - 7 Years	19.493	1.096	1.100	23.501	\$0.24	
Storm windows - 15 Years	38.109	1.096	1.100	45.944	\$0.46	
Chapter 53 windows - 25 Years	53.895	1.096	1.100	64.976	\$0.65	
Attic/Ceiling/Wall/Floor/doors/windows - 30 Years	59.337	1.096	1.100	71.537	\$0.72	

¹ Nominal Discount Rate is Weighted average cost of capital (2016 year ending after tax) from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix

² Escalation Rate is Financial escalation factor from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix

³ Lines losses is Non-summer secondary losses from Table DSM-1. IRP Financial Assumptions on page 63 of 2017 Idaho Power IRP Technical Appendix