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Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
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Statute
Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

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List Key Words for this report. We use these to improve search results.

Send the completed Cover Sheet and the Report in an email addressed to PUC.FilingCenter@state.or.us

Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.

October 15, 2020

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attention: Filing Center
201 High Street SE, Suite 100
PO Box 1088
Salem, OR 97308-1088

RE: UM 1893 – NW Natural’s Energy Efficiency Avoided Costs Annual Report

Northwest Natural Gas Company, dba NW Natural, files herewith its Energy Efficiency Avoided Costs Annual Report in compliance with OAR 860-030-0011(1) using the specified forms as approved in Public Utility Commission of Oregon (Commission) Order No. 19-252.

The Annual Report is based on NW Natural’s most recently acknowledged Integrated Resource Plan, docket LC 71, approved on February 26, 2019. Alternative values have been provided in the workbook. However, NW Natural is supportive of updating the avoided compliance to reflect the social cost of carbon as indicated by the draft Commission work plans for EO-04. The alternative values were updated in the fall of 2019 in anticipation of filing an IRP in 2020. NW Natural will be seeking an extension for filing the IRP and anticipates updating these values again prior to filing the next IRP. Avoided costs are typically vetted through the IRP and incorporate stakeholder feedback through the IRP process. NW Natural is providing these alternative values for transparency on the update to avoided costs. NW Natural recognizes that the updated values have not yet been presented through the IRP process and is comfortable using either the updated values or the values from the acknowledged 2018 IRP for compliance with this filing.

Below is a summary of the notable changes in the alternative values:

1. Values were updated to be in 2019 \$.
2. Updated the real after-tax weighted average costs of capital and inflation assumption.
3. Commodity and transport costs were updated to represent the marginal cost of gas using the long-term gas price forecast provided by a third-party vendor in September of 2019.
4. Avoided environmental compliance costs now reflect the social cost of carbon starting in 2022.
5. Avoided supply capacity were updated to reflect outcomes from the 2018 IRP.
6. Distribution capacity costs were updated to include more data.
7. Risk reduction values were updated to be based on gas price simulations and risk adjustment methodology.

There was one minor correction to the workbook on the “4a) Infrastruct. Capacity(Alt1)” tab where formulas in the column headers referenced the base year in the “1) Global Inputs – IRP” tab, however; the formula should reference the “1a) Global Inputs (Alt1)” instead. NW Natural changed this in the submitted workbook to make sure the column head reflected the 2019 \$ base year.

Please address correspondence on this matter to me with copies to the following:

eFiling
Rates & Regulatory Affairs
NW Natural
250 SW Taylor Street
Portland, Oregon 97209
Telephone: 503-610-7330
eFiling@nwnatural.com

Sincerely,

/s/ Rebecca T. Brown

Rebecca T. Brown
Regulatory Compliance

Attachment

Energy Efficiency Avoided Cost Submission Template - Natural Gas	
Utility Name:	NWN
Submission Date:	10/15/2020
Instructions and Definitions	
<p><> Please fill out this workbook as completely as possible and per the instructions. <> Inputs will be reviewed and approved by the OPUC before being sent to the Energy Trust of Oregon for use in Avoided Cost development. <> Provide as much detail as possible when sourcing data inputs, including the link to the source (if available), page number and table or graph number. <i>This will increase the efficiency of this process and require less iteration during the OPUC review period.</i> For worksheets 1,2,3,4,5,6 refer to data presented in the most recently acknowledged IRP, IRP Update, or General Rate Case unless otherwise noted.</p>	
1) Global Inputs - IRP	
<p><> Standard economic assumptions of the avoided costs are input into this tab, including inflation and discount rates, as well as real dollar year and forecast start year. <> If supply or distribution capacity values were proportioned using a system peak coincident factor, please provide the system peak definition of the utility (calendar Month/Day/Hour) and the peak-day/annual load and peak-hour/Annual Load Ratios for the utility system. <> Note that in tabs 2-6, calendar start year and input table titles are calculated fields that pull from the global input tab, so these must be populated. <> Ensure that the dollar years of the data inputs match the source - Energy Trust will inflate to the proper year.</p>	
2) Commodity and Transport - IRP	
<p><> Provide Commodity and Transport price forecast by month. <> Indicate if the forecast is in nominal or real dollars (if real, dollar value will populate headers from Global Inputs tab).</p>	
3) Environmental Compliance - IRP	
<p><> Provide the \$/Metric Ton of CO2 assumed for each year of the forecast. <> Provide the metric ton of CO2/dekatherm assumed for each year of the forecast. <> Column 'F' is a calculated field, which multiplies the \$/metric ton of CO2 by the CO2/dekatherm.</p>	
4) Infrastructure Capacity - IRP	
<p><> Provide the Supply Infrastructure Capacity Cost in a \$/Dth/Day format for each year available of the forecast period. <> Provide the Distribution Infrastructure Capacity Cost in a \$/Dth/Day and \$/Dth/Hour format for each year available of the forecast period. <> If supply or distribution capacity values were proportioned using a system peak coincident factor, please provide the corresponding system peak coincident factor in "Global Inputs - IRP" tab on rows 17 and 19.</p>	
5) Risk Reduction - IRP	
<p><> Provide the Risk Reduction value in a \$/Dth format if available for each year available of the forecast period. <> The box in cell C7 calculates the levelized net present value of all years of the forecast period. This is used when negative values occur in any year of the forecast period. If the levelized risk reduction value is negative, zero will be assigned as the final value. This is due to the premise that the risk reduction value is meant to be a benefit.</p>	
6) End Use Profiles - IRP	
<p><> Provide the Monthly share of annual load for the utility's system by end use, if available. <> Provide the peak day/annual load and peak hour/annual load ratios by end use, if available. <> End-use profiles are meant to represent the timing of savings, these can be derived from either savings profiles or load profiles.</p>	
1a, 2a, 3a, 4a, 5a, 6a) Alternative Submissions	
<p><> These worksheets provide a location for the utility to present alternative values to those found in the most recently acknowledged IRP, IRP Update, or General Rate Case. <> Submissions in these tabs are not required. <> Provide a rationale for submitting the alternative values in the box provided at the top of each alternative worksheet. <> If a second set of alternative values is submitted, simply copy the alt tabs necessary and rename to 1b, alt 2 in the tab name. However, note that in tabs 2-6, calendar start year and input table titles are calculated fields that pull from the global input tab. Either update these formulas or override them.</p>	

Global Assumptions Inputs			SOURCING				
Provide as much detail as possible with sourcing including a link. Ensure that dollar years listed here are the same as the source.							
Avoided Cost Element	Units	Value	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes
Discount Rate (Company's Real after-tax weighted average cost of capital (WACC))	Percent	4.91%	LC-71 2018 IRP	Appendix B - page B.3		NW Natural 2018 IRP	
Inflation Rate	Percent	1.96%	LC-71 2018 IRP	Appendix B - page B.3		NW Natural 2018 IRP	
Regional Act Credit	Percent	10.00%	N/A				
Forecast Period Calendar Start Year	Year	2018	LC-71 2018 IRP	Appendix D - page D.1		NW Natural 2018 IRP	
Real Dollar Base Year	Year	2017	LC-71 2018 IRP	Appendix D - page D.1		NW Natural 2018 IRP	
System Peak Definition	Calendar Month/Day/Hour	Day	LC-71 2018 IRP	Chapter 3 - page 3.43		NW Natural 2018 IRP	
System Peak Coincident Day Factor (if needed)	Peak Day/Annual Load Ratio						Not needed.
System Peak Coincident Hour Factor (if needed)	Peak Hour/Annual Load Ratio						Not needed.

Commodity Price Inputs

Real or Nominal?	Real	
	LC-71 2018 IRP	Appendix D, page D.1, Table D.1
Source and Pg #:		
Source Link or File Name:	NW Natural 2018 IRP	
Source Notes:	The numbers in Appendix D, Table D.1 show an average for the year. These costs reflect the commodity cost plus fuel and variable charges associated with transporting the gas to NW Natural's system.	

Gas Commodity and Transportation/Storage Costs (Real 2017\$/Dth)

Year #	Calendar Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2018	\$2.96	\$2.97	\$2.75	\$2.41	\$2.36	\$2.36	\$2.37	\$2.38	\$2.39	\$2.42	\$2.88	\$3.09
2	2019	\$3.10	\$3.12	\$2.73	\$2.28	\$2.27	\$2.27	\$2.31	\$2.32	\$2.33	\$2.40	\$3.01	\$3.17
3	2020	\$3.18	\$3.19	\$2.71	\$2.14	\$2.11	\$2.11	\$2.14	\$2.15	\$2.17	\$2.21	\$3.05	\$3.08
4	2021	\$3.09	\$3.10	\$2.80	\$2.29	\$2.21	\$2.22	\$2.22	\$2.23	\$2.24	\$2.31	\$2.94	\$3.04
5	2022	\$3.06	\$3.07	\$2.87	\$2.41	\$2.37	\$2.38	\$2.39	\$2.40	\$2.41	\$2.49	\$3.05	\$3.15
6	2023	\$3.16	\$3.17	\$3.03	\$2.60	\$2.57	\$2.58	\$2.59	\$2.60	\$2.61	\$2.69	\$3.25	\$3.34
7	2024	\$3.36	\$3.37	\$3.26	\$2.99	\$2.99	\$3.01	\$3.02	\$3.04	\$3.06	\$3.11	\$3.51	\$3.55
8	2025	\$3.57	\$3.58	\$3.41	\$3.04	\$3.01	\$3.02	\$3.04	\$3.05	\$3.06	\$3.12	\$3.39	\$3.45
9	2026	\$3.46	\$3.49	\$3.31	\$3.03	\$3.02	\$3.03	\$3.04	\$3.06	\$3.08	\$3.12	\$3.32	\$3.40
10	2027	\$3.42	\$3.44	\$3.28	\$3.06	\$3.06	\$3.07	\$3.09	\$3.11	\$3.14	\$3.18	\$3.51	\$3.60
11	2028	\$3.62	\$3.64	\$3.45	\$3.16	\$3.14	\$3.15	\$3.19	\$3.20	\$3.23	\$3.26	\$3.51	\$3.65
12	2029	\$3.66	\$3.69	\$3.52	\$3.32	\$3.30	\$3.33	\$3.36	\$3.38	\$3.40	\$3.45	\$3.71	\$3.84
13	2030	\$3.86	\$3.88	\$3.72	\$3.46	\$3.43	\$3.46	\$3.50	\$3.52	\$3.54	\$3.59	\$3.84	\$3.95
14	2031	\$3.97	\$4.00	\$3.80	\$3.54	\$3.52	\$3.55	\$3.59	\$3.60	\$3.63	\$3.68	\$3.92	\$4.04
15	2032	\$4.05	\$4.08	\$3.85	\$3.56	\$3.54	\$3.59	\$3.61	\$3.63	\$3.66	\$3.71	\$3.99	\$4.15
16	2033	\$4.17	\$4.19	\$3.93	\$3.70	\$3.65	\$3.68	\$3.75	\$3.76	\$3.79	\$3.82	\$4.04	\$4.23
17	2034	\$4.23	\$4.24	\$4.01	\$3.75	\$3.71	\$3.75	\$3.80	\$3.81	\$3.84	\$3.87	\$4.10	\$4.29
18	2035	\$4.28	\$4.30	\$4.05	\$3.79	\$3.77	\$3.80	\$3.83	\$3.85	\$3.88	\$3.91	\$4.12	\$4.28
19	2036	\$4.26	\$4.27	\$4.12	\$3.97	\$3.92	\$3.98	\$4.02	\$4.05	\$4.08	\$4.12	\$4.35	\$4.55
20	2037	\$4.51	\$4.52	\$4.27	\$3.97	\$3.94	\$3.96	\$4.01	\$4.03	\$4.06	\$4.08	\$4.26	\$4.48
21	2038	\$4.46	\$4.48	\$4.26	\$4.06	\$4.02	\$4.05	\$4.11	\$4.13	\$4.15	\$4.18	\$4.44	\$4.66
22	2039												
23	2040												
24	2041												
25	2042												
26	2043												
27	2044												
28	2045												
29	2046												
30	2047												
31	2048												
32	2049												
33	2050												
34	2051												
35	2052												
36	2053												
37	2054												
38	2055												
39	2056												
40	2057												
41	2058												
42	2059												
43	2060												
44	2061												
45	2062												

Environmental Compliance Cost Inputs

Real or Nominal?	Real	
Source and Pg #:	LC-71 2018 IRP	Appendix D, page D.1, Table D.1
Source Link or File Name:	NW Natural 2018 IRP	
Source Notes:		

Environmental Compliance Cost

Year #	Calendar Year	Environmental Compliance Cost (Real 2017\$/MTCO2e)	Carbon Intesity (MTCO2e/Dth)	Environmental Compliance Cost (Real 2017\$/Dth)
1	2018	\$0.00	0.0531	\$0.000
2	2019	\$0.00	0.0531	\$0.000
3	2020	\$0.00	0.0531	\$0.000
4	2021	\$17.64	0.0531	\$0.936
5	2022	\$18.62	0.0531	\$0.988
6	2023	\$19.65	0.0531	\$1.043
7	2024	\$20.73	0.0531	\$1.100
8	2025	\$21.88	0.0531	\$1.161
9	2026	\$23.09	0.0531	\$1.225
10	2027	\$24.37	0.0531	\$1.293
11	2028	\$25.71	0.0531	\$1.365
12	2029	\$27.14	0.0531	\$1.440
13	2030	\$28.64	0.0531	\$1.520
14	2031	\$30.22	0.0531	\$1.604
15	2032	\$31.89	0.0531	\$1.693
16	2033	\$33.66	0.0531	\$1.786
17	2034	\$35.52	0.0531	\$1.885
18	2035	\$37.48	0.0531	\$1.989
19	2036	\$39.55	0.0531	\$2.099
20	2037	\$41.74	0.0531	\$2.215
21	2038	\$44.05	0.0531	\$2.338
22	2039			\$0.000
23	2040			\$0.000
24	2041			\$0.000
25	2042			\$0.000
26	2043			\$0.000
27	2044			\$0.000
28	2045			\$0.000
29	2046			\$0.000
30	2047			\$0.000
31	2048			\$0.000
32	2049			\$0.000
33	2050			\$0.000
34	2051			\$0.000
35	2052			\$0.000
36	2053			\$0.000
37	2054			\$0.000
38	2055			\$0.000
39	2056			\$0.000
40	2057			\$0.000
41	2058			\$0.000
42	2059			\$0.000
43	2060			\$0.000
44	2061			\$0.000
45	2062			\$0.000

Infrastructure Capacity Cost Inputs

Real or Nominal?	Real	
Source and Pg #:	LC-71 2018 IRP	Appendix D, page D.1, Table D.1
Source Link or File Name:	NW Natural 2018 IRP	
Source Notes:		

Infrastructure Capacity Costs

Year #	Calendar Year	Infrastructure Capacity Costs		
		Supply (Real 2017\$/Dth/Day)	Distribution Peak DAY (Real 2017\$/Dth/Day)	Distribution Peak HOUR (Real 2017\$/Dth/Hour)
1	2018	\$0.057	N/A	\$0.254
2	2019	\$0.057	N/A	\$0.254
3	2020	\$0.057	N/A	\$0.254
4	2021	\$0.057	N/A	\$0.254
5	2022	\$0.057	N/A	\$0.254
6	2023	\$0.057	N/A	\$0.254
7	2024	\$0.057	N/A	\$0.254
8	2025	\$0.057	N/A	\$0.254
9	2026	\$0.057	N/A	\$0.254
10	2027	\$0.057	N/A	\$0.254
11	2028	\$0.057	N/A	\$0.254
12	2029	\$0.518	N/A	\$0.254
13	2030	\$0.518	N/A	\$0.254
14	2031	\$0.518	N/A	\$0.254
15	2032	\$0.518	N/A	\$0.254
16	2033	\$0.518	N/A	\$0.254
17	2034	\$0.514	N/A	\$0.254
18	2035	\$0.514	N/A	\$0.254
19	2036	\$0.514	N/A	\$0.254
20	2037	\$0.514	N/A	\$0.254
21	2038	\$0.514	N/A	\$0.254
22	2039			
23	2040			
24	2041			
25	2042			
26	2043			
27	2044			
28	2045			
29	2046			
30	2047			
31	2048			
32	2049			
33	2050			
34	2051			
35	2052			
36	2053			
37	2054			
38	2055			
39	2056			
40	2057			
41	2058			
42	2059			
43	2060			
44	2061			
45	2062			

Risk Reduction Value Inputs

Real or Nominal?	Real	
Source and Pg #:	LC-71 2018 IRP	Appendix D, page D.1, Table D.1
Source Link or File Name:	NW Natural 2018 IRP	
Source Notes:		

Risk Reduction Value

-\$0.97

= Levelized Risk Reduction Value (for use when negative values occur in any years of the forecast period). If this value is negative, then zero will be assigned as the final value.

Year #	Calendar Year	Risk Reduction Value (Real 2017\$/Dth)
1	2018	-\$0.005
2	2019	-\$0.310
3	2020	-\$0.245
4	2021	-\$0.260
5	2022	-\$0.338
6	2023	-\$0.553
7	2024	-\$0.935
8	2025	-\$1.001
9	2026	-\$0.967
10	2027	-\$1.047
11	2028	-\$1.164
12	2029	-\$1.388
13	2030	-\$1.544
14	2031	-\$1.659
15	2032	-\$1.679
16	2033	-\$1.798
17	2034	-\$1.880
18	2035	-\$1.926
19	2036	-\$2.084
20	2037	-\$2.131

End Use Profiles & Peak Day/Hour Ratios

Source and Pg # and/or Table #:	LC-71 2018 IRP, Chapter 4
Source Link or File Name:	NW Natural 2018 IRP
Source Notes:	The numbers for the month

End Use Profiles	Monthly Share of Normal Weather Annual Load												Peak to Annual Normal Weather Usage Ratios	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak Day	Peak Hour
Residential Space Heating	0.204	0.145	0.123	0.070	0.033	0.006	0.000	0.001	0.008	0.062	0.129	0.218	0.0176	0.00102
Residential Hearths and Fireplaces	0.204	0.145	0.123	0.070	0.033	0.006	0.000	0.001	0.008	0.062	0.129	0.218	0.0176	0.00051
Commercial Space Heating	0.204	0.145	0.123	0.070	0.033	0.006	0.000	0.001	0.008	0.062	0.129	0.218	0.0157	0.00123
Water Heating	0.101	0.096	0.092	0.088	0.083	0.079	0.073	0.068	0.069	0.073	0.081	0.095	0.0033	0.00026
Cooking	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.0036	0.00071
Process Load	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.0027	0.00011

Notes:
Energy Trust will work with Utility and OPUC Staff to determine the most appropriate load or savings profiles and peak factors to use, whether that is utility specific values or Northwest Power and Conservation Council proxies. In order for utility-specific values to be used, utility staff must review the methodology they used to develop the values with OPUC Staff.

Alternative Submissions	<p>Rationale for alternative submission: NW Natural updated its avoided costs in the fall of 2019 in anticipation of filing an IRP in 2020. The values in the alternative tab reflect this update and are included here for staff's reference. NW Natural is now seeking an extension to file an IRP in the summer of 2022 due to potential implications from Governor Brown's executive order. NW Natural anticipates that we will update these values again prior to filing the next IRP.</p>
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Global Assumptions Inputs			SOURCING				
<i>Provide as much detail as possible with sourcing including a link. Ensure that dollar years listed here are the same as the source.</i>							
Avoided Cost Element	Units	Value	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes
Discount Rate (Company's Real after-tax weighted average cost of capital (WACC))	Percent	4.70%	Updated Fall 2019				
Inflation Rate	Percent	1.40%	Updated Fall 2019				
Regional Act Credit	Percent	10.00%	N/A				
Forecast Period Calendar Start Year	Year	2020					
Real Dollar Base Year	Year	2019					

Alternative Submissions	Rationale for alternative submission: <i>Provide an overall rationale for providing alternative values using this box</i>
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Commodity Price Inputs

Real or Nominal?	Real
Source and Pg #:	
Source Link or File Name:	
Source Notes:	

Gas Commodity and Transportation/Storage Costs (Real 2019\$/Dth)

Year #	Calendar Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2020	\$1.84	\$1.84	\$1.74	\$1.19	\$1.06	\$1.07	\$1.07	\$1.08	\$1.08	\$1.43	\$1.66	\$1.73
2	2021	\$1.74	\$1.74	\$1.52	\$1.34	\$1.18	\$1.18	\$1.18	\$1.19	\$1.19	\$1.25	\$1.94	\$1.97
3	2022	\$1.97	\$1.99	\$1.95	\$1.79	\$1.70	\$1.71	\$1.71	\$1.72	\$1.73	\$1.76	\$2.24	\$2.26
4	2023	\$2.27	\$2.28	\$2.22	\$1.98	\$1.86	\$1.87	\$1.88	\$1.89	\$1.89	\$1.92	\$2.43	\$2.46
5	2024	\$2.48	\$2.47	\$2.41	\$2.20	\$2.14	\$2.15	\$2.16	\$2.16	\$2.17	\$2.22	\$2.73	\$2.77
6	2025	\$2.78	\$2.79	\$2.76	\$2.35	\$2.34	\$2.35	\$2.36	\$2.37	\$2.38	\$2.39	\$2.81	\$2.85
7	2026	\$2.86	\$2.87	\$2.70	\$2.41	\$2.32	\$2.33	\$2.34	\$2.35	\$2.36	\$2.43	\$2.86	\$2.98
8	2027	\$2.99	\$3.00	\$2.83	\$2.52	\$2.47	\$2.48	\$2.49	\$2.50	\$2.51	\$2.57	\$3.02	\$3.10
9	2028	\$3.11	\$3.13	\$3.04	\$2.76	\$2.66	\$2.67	\$2.68	\$2.69	\$2.70	\$2.75	\$3.31	\$3.44
10	2029	\$3.45	\$3.47	\$3.30	\$2.99	\$2.81	\$2.82	\$2.83	\$2.84	\$2.85	\$2.89	\$3.34	\$3.46
11	2030	\$3.48	\$3.49	\$3.36	\$3.07	\$3.00	\$3.02	\$3.03	\$3.04	\$3.05	\$3.09	\$3.52	\$3.57
12	2031	\$3.59	\$3.61	\$3.53	\$3.17	\$3.05	\$3.06	\$3.07	\$3.08	\$3.09	\$3.14	\$3.70	\$3.75
13	2032	\$3.77	\$3.78	\$3.69	\$3.33	\$3.08	\$3.09	\$3.10	\$3.12	\$3.13	\$3.19	\$3.81	\$3.84
14	2033	\$3.86	\$3.87	\$3.54	\$3.27	\$3.05	\$3.06	\$3.07	\$3.09	\$3.10	\$3.15	\$3.86	\$4.09
15	2034	\$4.11	\$4.12	\$3.64	\$3.34	\$3.15	\$3.17	\$3.18	\$3.19	\$3.20	\$3.25	\$4.09	\$4.20
16	2035	\$4.21	\$4.23	\$3.79	\$3.41	\$3.07	\$3.08	\$3.10	\$3.11	\$3.12	\$3.18	\$3.92	\$4.05
17	2036	\$4.07	\$4.08	\$3.72	\$3.38	\$3.00	\$3.01	\$3.02	\$3.03	\$3.05	\$3.11	\$3.89	\$4.18
18	2037	\$4.20	\$4.21	\$3.84	\$3.54	\$3.25	\$3.27	\$3.28	\$3.29	\$3.31	\$3.36	\$4.08	\$4.32
19	2038	\$4.34	\$4.36	\$3.99	\$3.66	\$3.45	\$3.46	\$3.48	\$3.49	\$3.50	\$3.55	\$4.05	\$4.36
20	2039	\$4.38	\$4.40	\$3.99	\$3.54	\$3.37	\$3.38	\$3.40	\$3.41	\$3.42	\$3.48	\$4.12	\$4.42
21	2040	\$4.44	\$4.45	\$4.05	\$3.71	\$3.36	\$3.38	\$3.41	\$3.43	\$3.18	\$3.28	\$3.92	\$4.22
22	2041												
23	2042												
24	2043												
25	2044												
26	2045												
27	2046												
28	2047												
29	2048												
30	2049												
31	2050												
32	2051												
33	2052												
34	2053												
35	2054												
36	2055												
37	2056												
38	2057												
39	2058												
40	2059												
41	2060												
42	2061												
43	2062												
44	2063												
45	2064												

Alternative Submissions	Rationale for alternative submission: <i>Provide an overall rationale for providing alternative values using this box</i>
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Environmental Compliance Cost Inputs

Real or Nominal?	Real
Source and Pg #:	
Source Link or File Name:	
Source Notes:	

Environmental Compliance Cost

Year #	Calendar Year	Environmental Compliance Cost (Real 2019\$/MTCO2e)	Carbon Intesity (MTCO2e/Dth)	Environmental Compliance Cost (Real 2019\$/Dth)
1	2020	\$0.00	0.0531	\$0.000
2	2021	\$0.00	0.0531	\$0.000
3	2022	\$78.63	0.0531	\$4.175
4	2023	\$80.10	0.0531	\$4.253
5	2024	\$81.56	0.0531	\$4.331
6	2025	\$83.03	0.0531	\$4.409
7	2026	\$84.25	0.0531	\$4.474
8	2027	\$85.47	0.0531	\$4.538
9	2028	\$86.69	0.0531	\$4.603
10	2029	\$87.91	0.0531	\$4.668
11	2030	\$89.13	0.0531	\$4.733
12	2031	\$90.35	0.0531	\$4.798
13	2032	\$91.57	0.0531	\$4.863
14	2033	\$92.79	0.0531	\$4.927
15	2034	\$94.02	0.0531	\$4.992
16	2035	\$95.24	0.0531	\$5.057
17	2036	\$96.70	0.0531	\$5.135
18	2037	\$98.17	0.0531	\$5.213
19	2038	\$99.63	0.0531	\$5.290
20	2039	\$101.10	0.0531	\$5.368
21	2040	\$102.56	0.0531	\$5.446
22	2041			\$0.000
23	2042			\$0.000
24	2043			\$0.000
25	2044			\$0.000
26	2045			\$0.000
27	2046			\$0.000
28	2047			\$0.000
29	2048			\$0.000
30	2049			\$0.000
31	2050			\$0.000
32	2051			\$0.000
33	2052			\$0.000
34	2053			\$0.000
35	2054			\$0.000
36	2055			\$0.000
37	2056			\$0.000
38	2057			\$0.000
39	2058			\$0.000
40	2059			\$0.000
41	2060			\$0.000
42	2061			\$0.000
43	2062			\$0.000
44	2063			\$0.000
45	2064			\$0.000

Alternative Submissions	<p align="center">Rationale for alternative submission: Provide an overall rationale for providing alternative values using this box</p>
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Infrastructure Capacity Cost Inputs

Real or Nominal?	Real
Source and Pg #:	
Source Link or File Name:	
Source Notes:	

Infrastructure Capacity Costs



Year #	Calendar Year	Infrastructure Capacity Costs		
		Supply (Real 2019\$/Dth/Day)	Distribution Peak DAY (Real 2019\$/Dth/Day)	Distribution Peak HOUR (Real 2019\$/Dth/Hour)
1	2020	\$0.057	N/A	\$0.442
2	2021	\$0.057	N/A	\$0.442
3	2022	\$0.057	N/A	\$0.442
4	2023	\$0.057	N/A	\$0.442
5	2024	\$0.057	N/A	\$0.442
6	2025	\$0.057	N/A	\$0.442
7	2026	\$0.057	N/A	\$0.442
8	2027	\$0.057	N/A	\$0.442
9	2028	\$0.057	N/A	\$0.442
10	2029	\$0.057	N/A	\$0.442
11	2030	\$0.057	N/A	\$0.442
12	2031	\$0.057	N/A	\$0.442
13	2032	\$0.057	N/A	\$0.442
14	2033	\$0.057	N/A	\$0.442
15	2034	\$0.057	N/A	\$0.442
16	2035	\$0.057	N/A	\$0.442
17	2036	\$0.080	N/A	\$0.442
18	2037	\$0.080	N/A	\$0.442
19	2038	\$1.100	N/A	\$0.442
20	2039	\$1.100	N/A	\$0.442
21	2040	\$1.100	N/A	\$0.442
22	2041			
23	2042			
24	2043			
25	2044			
26	2045			
27	2046			
28	2047			
29	2048			
30	2049			
31	2050			
32	2051			
33	2052			
34	2053			
35	2054			
36	2055			
37	2056			
38	2057			
39	2058			
40	2059			
41	2060			
42	2061			
43	2062			
44	2063			
45	2064			

Alternative Submissions	Rationale for alternative submission: <i>Provide an overall rationale for providing alternative values using this box</i>
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Risk Reduction Value Inputs

Real or Nominal?	Real
Source and Pg #:	
Source Link or File Name:	
Source Notes:	

\$0.37

= Levelized Risk Reduction Value (for use when negative values occur in any years of the forecast period). If this value is negative, then zero will be assigned as the final value.

Risk Reduction Value

Year #	Calendar Year	Risk Reduction Value (Real 2019\$/Dth)
1	2020	\$0.370
2	2021	\$0.370
3	2022	\$0.370
4	2023	\$0.370
5	2024	\$0.370
6	2025	\$0.370
7	2026	\$0.370
8	2027	\$0.370
9	2028	\$0.370
10	2029	\$0.370
11	2030	\$0.370
12	2031	\$0.370
13	2032	\$0.370
14	2033	\$0.370
15	2034	\$0.370
16	2035	\$0.370
17	2036	\$0.370
18	2037	\$0.370
19	2038	\$0.370
20	2039	\$0.370
21	2040	\$0.370

Alternative Submissions

Rationale for alternative submission:
Provide an overall rationale for providing alternative values using this box

End Use Profiles & Peak Day/Hour Ratios

Source and Pg # and/or Table #:	
Source Link or File Name:	
Source Notes:	

End Use Profiles	Monthly Share of Normal Weather Annual Load												Peak to Annual Normal Weather Usage Ratios	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak Day	Peak Hour
Residential Space Heating	0.203576	0.145479	0.122796	0.07039	0.0334	0.005992	0.000241	0.001316	0.00816	0.062407	0.128537	0.217707	0.0176	0.00102
Hearths and Fireplaces	0.203576	0.145479	0.122796	0.07039	0.0334	0.005992	0.000241	0.001316	0.00816	0.062407	0.128537	0.217707	0.0176	0.00051
Commercial Space Heating	0.203576	0.145479	0.122796	0.07039	0.0334	0.005992	0.000241	0.001316	0.00816	0.062407	0.128537	0.217707	0.0157	0.00123
Water Heating	0.100508	0.096447	0.092386	0.088325	0.083249	0.079188	0.073096	0.06802	0.069036	0.073096	0.081218	0.095431	0.0033	0.00026
Cooking	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.0036	0.00071
Process Load	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.083333	0.0027	0.00011

Notes:
Energy Trust will work with Utility and OPUC Staff to determine the most appropriate load or savings profiles and peak factors to use, whether that is utility specific values or Northwest Power and Conservation Council proxies. In order for utility-specific values to be used, utility staff must review the methodology they used to develop the values with OPUC Staff.