



e-FILING REPORT COVER SHEET

COMPANY NAME: NW Natural

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number:

Report is required by: OAR 860-030-0011

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)

Other

(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number: UM 1893

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

2019 Energy Efficiency Avoided Cost Report,

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.

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Regulatory Compliance
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October 15, 2019

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attention: Filing Center
201 High Street SE, Suite 100
Post Office Box 1088
Salem, Oregon 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 OPUC Order No. 19-252.

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

eFiling
Rates & Regulatory Affairs
NW Natural
220 NW Second Avenue
Portland, Oregon 97209
Telephone: (503) 226-4211, x3589
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:	10/15/2019
Instructions and Definitions	
<p><> Please fill out this workbook completely and per the instructions and submit via electronic filing to docket UM 1893. Submissions are due October 15 of each year. <> 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> <i>Required pages 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.</i></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. <> In addition to the standard economic assumptions, 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 <> Please provide the values in the most recently acknowledged IRP</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) <> Please provide the values in the most recently acknowledged IRP</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 <> Please provide the values in the most recently acknowledged IRP</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 <> Please provide the values in the most recently acknowledged IRP</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. <> Please provide the values in the most recently acknowledged IRP</p>	
6) End Use Load 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. <> Please provide the values in the most recently acknowledged IRP</p>	
1a, 2a, 3a, 4a, 5a, 6a) Alternative Submissions	
<p><> These worksheets provide a location for the utility to present alternative values to the most recently acknowledged IRP values for OPUC review. <> 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			NW Natural 2018 IRP	
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	Pipeline capacity contracts with interstate pipelines are specified in Dth/day. Therefore we measure our system peak in Dth/day.
System Peak Coincident Day Factor	Peak Day/Annual Load Ratio						We do not have a single number for this ratio as it changes over time. This ratio is not necessary to calculate NW Natural's avoided costs. Please refer to the end use load profiles tab for the peak to annual usage ratios for peak savings by end use.
System Peak Coincident Hour Factor	Peak Hour/Annual Load Ratio						Same as the notes above.

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:	<p>NW Natural Plans its distribution system to meet peak demand within the day for any given instant. System-wide this typically happens around 7 AM on a winter morning. Due to data constraints and feasibility NW Natural measures this peak at an hourly level. Since new distribution system projects are designed to meet peak hour demand, the avoided distribution cost applied to energy efficiency is only positive if load reduction occurs during this peak hour. The value below (column E) is the average distribution cost savings to the system of reducing peak hour demand by one Dth. If trying to look at a daily value, a reduction of 1 Dth over the course of the day would have 1/24 the value of the Distribution Peak HOUR value if you assumed the 1 Dth reduction occurred equally on the peak hour as every other hour of the day (which is not the case for EE measures). However, column D is NOT be additive to the value in column E. To avoid confusion and double counting, NW Natural has entered 0 for column D.</p>	

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	\$0.00	\$0.254
2	2019	\$0.057	\$0.000	\$0.254
3	2020	\$0.057	\$0.000	\$0.254
4	2021	\$0.057	\$0.000	\$0.254
5	2022	\$0.057	\$0.000	\$0.254
6	2023	\$0.057	\$0.000	\$0.254
7	2024	\$0.057	\$0.000	\$0.254
8	2025	\$0.057	\$0.000	\$0.254
9	2026	\$0.057	\$0.000	\$0.254
10	2027	\$0.057	\$0.000	\$0.254
11	2028	\$0.057	\$0.000	\$0.254
12	2029	\$0.518	\$0.000	\$0.254
13	2030	\$0.518	\$0.000	\$0.254
14	2031	\$0.518	\$0.000	\$0.254
15	2032	\$0.518	\$0.000	\$0.254
16	2033	\$0.518	\$0.000	\$0.254
17	2034	\$0.514	\$0.000	\$0.254
18	2035	\$0.514	\$0.000	\$0.254
19	2036	\$0.514	\$0.000	\$0.254
20	2037	\$0.514	\$0.000	\$0.254
21	2038	\$0.514	\$0.000	\$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 Load Profiles & Peak Day/Hour Ratios

Source and Pg # and/or Table #:	LC-71 2018 IRP, Chapter 4, table 4.2 & 4.3
Source Link or File Name:	NW Natural 2018 IRP

Source Notes:	The numbers for the monthly share of normal weather annual load were never published in the 2018 IRP, but were used in the calculations of the avoided costs by end use, which is discussed in the IRP on page 4.3.
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End Use Load 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 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	Rationale for alternative submission: <i>Provide an overall rationale for providing alternative values - use the 'Source Notes/Rationale' column to provide more detailed rationale for individual inputs.</i>
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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						
Inflation Rate	Percent						
Regional Act Credit	Percent	10.00%	N/A				
Forecast Period Calendar Start Year	Year						
Real Dollar Base Year	Year						

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

Environmental Compliance Cost

Year #	Calendar Year	Environmental Compliance Cost (Real \$/MTCO2e)	Carbon Intesity (MTCO2e/Dth)	Environmental Compliance Cost (Real \$/Dth)
1	0			\$0.000
2	1			\$0.000
3	2			\$0.000
4	3			\$0.000
5	4			\$0.000
6	5			\$0.000
7	6			\$0.000
8	7			\$0.000
9	8			\$0.000
10	9			\$0.000
11	10			\$0.000
12	11			\$0.000
13	12			\$0.000
14	13			\$0.000
15	14			\$0.000
16	15			\$0.000
17	16			\$0.000
18	17			\$0.000
19	18			\$0.000
20	19			\$0.000
21	20			\$0.000
22	21			\$0.000
23	22			\$0.000
24	23			\$0.000
25	24			\$0.000
26	25			\$0.000
27	26			\$0.000
28	27			\$0.000
29	28			\$0.000
30	29			\$0.000
31	30			\$0.000
32	31			\$0.000
33	32			\$0.000
34	33			\$0.000
35	34			\$0.000
36	35			\$0.000
37	36			\$0.000
38	37			\$0.000
39	38			\$0.000
40	39			\$0.000
41	40			\$0.000
42	41			\$0.000
43	42			\$0.000
44	43			\$0.000
45	44			\$0.000

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

Real or Nominal?	
Source and Pg #:	
Source Link or File Name:	
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	0			
2	1			
3	2			
4	3			
5	4			
6	5			
7	6			
8	7			
9	8			
10	9			
11	10			
12	11			
13	12			
14	13			
15	14			
16	15			
17	16			
18	17			
19	18			
20	19			
21	20			
22	21			
23	22			
24	23			
25	24			
26	25			
27	26			
28	27			
29	28			
30	29			
31	30			
32	31			
33	32			
34	33			
35	34			
36	35			
37	36			
38	37			
39	38			
40	39			
41	40			
42	41			
43	42			
44	43			
45	44			

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

No Data Entered

= 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 \$/Dth)
1	0	
2	1	
3	2	
4	3	
5	4	
6	5	
7	6	
8	7	
9	8	
10	9	
11	10	
12	11	
13	12	
14	13	
15	14	
16	15	
17	16	
18	17	
19	18	
20	19	

