



e-FILING REPORT COVER SHEET

COMPANY NAME:

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
 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:

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.

Energy Efficiency Avoided Cost Submission Template - Natural Gas	
Utility Name:	CNG
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.</p> <p><> Inputs will be reviewed and approved by the OPUC before being sent to the Energy Trust of Oregon for use in Avoided Cost development</p> <p><> 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></p> <p><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.</p> <p><> Ensure that the dollar years of the data inputs match the source - Energy Trust will inflate to the proper year</p> <p><> 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</p> <p><> Indicate if the forecast is in nominal or real dollars (if real, dollar value will populate headers from Global Inputs tab)</p> <p><> 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</p> <p><> Provide the metric ton of CO2/dekatherm assumed for each year of the forecast</p> <p><> Column 'F' is a calculated field, which multiplies the \$/metric ton of CO2 by the CO2/dekatherm</p> <p><> 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</p> <p><> Provide the Distribution Infrastructure Capacity Cost in a \$/Dth/Day and \$/Dth/Hour format for each year available of the forecast period</p> <p><> 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</p> <p><> 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> <p><> 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.</p> <p><> Provide the peak day/annual load and peak hour/annual load ratios by end use, if available.</p> <p><> 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.</p> <p><> Submissions in these tabs are not required.</p> <p><> Provide a rationale for submitting the alternative values in the box provided at the top of each alternative worksheet.</p> <p><> 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	6.35%	2018 OR IRP, Appendix H	Tab "System Wide" Cell E49	N/A	https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/	
Inflation Rate	Percent	3.60%	2018 OR IRP, Appendix H	Tab "CPI"	N/A	https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/	Simple average of all inflation values
Regional Act Credit	Percent	10.00%	N/A				
Forecast Period Calendar Start Year	Year	2020	N/A				
Real Dollar Base Year	Year	2017	2018 OR IRP, Appendix H	Tab "System Wide"		https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/	Real values are converted to 2017\$
System Peak Definition	Calendar Month/Day/Hour	Day	2018 OR IRP, Section 3	3-10	N/A	https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/	
System Peak Coincident Day Factor	Peak Day/Annual Load Ratio	Peak Day	2018 OR IRP, Section 3	3-10	N/A	https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/	
System Peak Coincident Hour Factor	Peak Hour/Annual Load Ratio	N/A					This was not a part of CNGC 2018 IRP

Commodity Price Inputs

Real or Nominal?	Real
Source and Pg #:	IRP LT Price Forecast 2017-08-04 Used In 2018 OR IRP CONFIDENTIAL - Forecast for Conservation Tab
Source Link or File Name:	IRP LT Price Forecast 2017-08-04 Used In 2018 OR IRP CONFIDENTIAL
Source Notes:	

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	2020	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79	\$ 2.79
2	2021	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80
3	2022	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76	\$ 2.76
4	2023	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78
5	2024	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83
6	2025	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82
7	2026	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83	\$ 2.83
8	2027	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84
9	2028	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82	\$ 2.82
10	2029	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84
11	2030	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88
12	2031	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88
13	2032	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86	\$ 2.86
14	2033	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84
15	2034	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81	\$ 2.81
16	2035	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80	\$ 2.80
17	2036	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78	\$ 2.78
18	2037	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77	\$ 2.77
19	2038												
20	2039												
21	2040												
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												

Environmental Compliance Cost Inputs

Real or Nominal?	Real
Source and Pg #:	Revised 2017 IEPR Carbon Price Projections, Real Carbon Mid Price
Source Link or File Name:	Revised 2017 IEPR Carbon Price Projections
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	2020	\$0.00	0.0583	\$0.000
2	2021	\$19.23	0.0583	\$1.122
3	2022	\$21.54	0.0583	\$1.256
4	2023	\$24.12	0.0583	\$1.407
5	2024	\$27.00	0.0583	\$1.575
6	2025	\$30.23	0.0583	\$1.763
7	2026	\$33.85	0.0583	\$1.974
8	2027	\$37.89	0.0583	\$2.210
9	2028	\$42.41	0.0583	\$2.474
10	2029	\$47.47	0.0583	\$2.769
11	2030	\$53.16	0.0583	\$3.100
12	2031	\$55.13	0.0583	\$3.215
13	2032	\$57.20	0.0583	\$3.336
14	2033	\$59.37	0.0583	\$3.463
15	2034	\$61.63	0.0583	\$3.594
16	2035	\$63.98	0.0583	\$3.732
17	2036	\$66.43	0.0583	\$3.875
18	2037	\$68.98	0.0583	\$4.023
19	2038	\$71.63	0.0583	\$4.178
20	2039	\$74.38	0.0583	\$4.338
21	2040	\$77.23	0.0583	\$4.505
22	2041	\$80.20	0.0583	\$4.677
23	2042	\$83.28	0.0583	\$4.857
24	2043	\$86.47	0.0583	\$5.043
25	2044	\$89.79	0.0583	\$5.237
26	2045	\$93.24	0.0583	\$5.438
27	2046	\$96.82	0.0583	\$5.647
28	2047	\$100.53	0.0583	\$5.863
29	2048	\$104.39	0.0583	\$6.089
30	2049	\$108.40	0.0583	\$6.322
31	2050	\$112.56	0.0583	\$6.565
32	2051	\$116.88	0.0583	\$6.817
33	2052	\$121.37	0.0583	\$7.078
34	2053	\$126.02	0.0583	\$7.350
35	2054	\$130.86	0.0583	\$7.632
36	2055	\$135.88	0.0583	\$7.925
37	2056	\$141.10	0.0583	\$8.229
38	2057	\$146.52	0.0583	\$8.545
39	2058	\$152.14	0.0583	\$8.873
40	2059	\$157.98	0.0583	\$9.214
41	2060	\$164.04	0.0583	\$9.567
42	2061	\$170.34	0.0583	\$9.935
43	2062	\$176.88	0.0583	\$10.316
44	2063	\$183.67	0.0583	\$10.712
45	2064	\$190.71	0.0583	\$11.123

Infrastructure Capacity Cost Inputs

Real or Nominal?	Real
Source and Pg #:	2018 OR IRP, Appendix H, "System Wide" Tab
Source Link or File Name:	https://www.cngc.com/rates-services/rates-tariffs/oregon-integrated-resource-plan/
Source Notes:	CNGC Defines supply is defined as the incremental fixed and variable transportation costs from

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	2020	\$1.072	\$0.000	\$0.000
2	2021	\$1.072	\$0.000	\$0.000
3	2022	\$1.072	\$0.000	\$0.000
4	2023	\$1.072	\$0.000	\$0.000
5	2024	\$1.072	\$0.000	\$0.000
6	2025	\$1.072	\$0.000	\$0.000
7	2026	\$1.072	\$0.000	\$0.000
8	2027	\$1.072	\$0.000	\$0.000
9	2028	\$1.072	\$0.000	\$0.000
10	2029	\$1.072	\$0.000	\$0.000
11	2030	\$1.072	\$0.000	\$0.000
12	2031	\$1.072	\$0.000	\$0.000
13	2032	\$1.072	\$0.000	\$0.000
14	2033	\$1.072	\$0.000	\$0.000
15	2034	\$1.072	\$0.000	\$0.000
16	2035	\$1.072	\$0.000	\$0.000
17	2036	\$1.072	\$0.000	\$0.000
18	2037	\$1.072	\$0.000	\$0.000
19	2038	\$1.072	\$0.000	\$0.000
20	2039	\$1.072	\$0.000	\$0.000
21	2040	\$1.072	\$0.000	\$0.000
22	2041	\$1.072	\$0.000	\$0.000
23	2042	\$1.072	\$0.000	\$0.000
24	2043	\$1.072	\$0.000	\$0.000
25	2044	\$1.072	\$0.000	\$0.000
26	2045	\$1.072	\$0.000	\$0.000
27	2046	\$1.072	\$0.000	\$0.000
28	2047	\$1.072	\$0.000	\$0.000
29	2048	\$1.072	\$0.000	\$0.000
30	2049	\$1.072	\$0.000	\$0.000
31	2050	\$1.072	\$0.000	\$0.000
32	2051	\$1.072	\$0.000	\$0.000
33	2052	\$1.072	\$0.000	\$0.000
34	2053	\$1.072	\$0.000	\$0.000
35	2054	\$1.072	\$0.000	\$0.000
36	2055	\$1.072	\$0.000	\$0.000
37	2056	\$1.072	\$0.000	\$0.000
38	2057	\$1.072	\$0.000	\$0.000
39	2058	\$1.072	\$0.000	\$0.000
40	2059	\$1.072	\$0.000	\$0.000
41	2060	\$1.072	\$0.000	\$0.000
42	2061	\$1.072	\$0.000	\$0.000
43	2062	\$1.072	\$0.000	\$0.000
44	2063	\$1.072	\$0.000	\$0.000
45	2064	\$1.072	\$0.000	\$0.000

Risk Reduction Value Inputs

Real or Nominal?	
Source and Pg #:	N/A
Source Link or File Name:	
Source Notes:	CNGC did not include risk reduction costs in its 2018 IRP. Alternative values are provided in 5a)

\$0.00

= 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 2017\$/Dth)
1	2020	\$0.000
2	2021	\$0.000
3	2022	\$0.000
4	2023	\$0.000
5	2024	\$0.000
6	2025	\$0.000
7	2026	\$0.000
8	2027	\$0.000
9	2028	\$0.000
10	2029	\$0.000
11	2030	\$0.000
12	2031	\$0.000
13	2032	\$0.000
14	2033	\$0.000
15	2034	\$0.000
16	2035	\$0.000
17	2036	\$0.000
18	2037	\$0.000
19	2038	\$0.000
20	2039	\$0.000

End Use Load Profiles & Peak Day/Hour Ratios

Source and Pg # and/or Table #:	Load Shape Support Document, "Load Shape" Tag
Source Link or File Name:	Load Shape Support Document
Source Notes:	Cascade did not calculate Peak Hour in its 2018 IRP. A calculation for peak hour will be included in 6a)

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
All	0.154178	0.126423	0.107155	0.072351	0.04992	0.035601	0.030266	0.031202	0.041425	0.070827	0.119081	0.16157	0.0097	N/A

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: Updated WACC and Inflation rates from 2018 IRP <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	7.33%	CNGC Spring Earnings Review	13	Interest Coordination Adjustment	https://edocs.puc.state.or.us/efdocs/HAQ/rg36haq91248.pdf	
Inflation Rate	Percent	3.68%	Woods & Poole 2019 Projections	36	4		CNGC would have to submit a request to Woods & Poole to release the source document if requested
Regional Act Credit	Percent	10.00%	N/A				
Forecast Period Calendar Start Year	Year	2020					
Real Dollar Base Year	Year						

Alternative Submissions	<p>Rationale for alternative submission: Updated Commodity Pricing to reflect current market conditions, provided actual monthly data instead of a blended annual figure</p> <p><i>Provide an overall rationale for providing alternative values using this box</i></p>
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Commodity Price Inputs

Real or Nominal?	Real
Source and Pg #:	IRP LT Price Forecast 2019-09-30 USED IN AVOIDED COST, OPUC FORMAT TAB
Source Link or File Name:	IRP LT Price Forecast 2019-09-30 USED IN AVOIDED COST
Source Notes:	Only commodity was updated, transportation/storage will be updated upon next acknowledged IRP

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

Year #	Calendar Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2020	\$2.99	\$2.65	\$2.09	\$1.86	\$1.46	\$1.48	\$2.05	\$2.35	\$2.56	\$2.16	\$2.18	\$2.51
2	2021	\$2.66	\$2.47	\$2.05	\$1.71	\$1.57	\$1.57	\$1.86	\$1.90	\$1.92	\$1.91	\$2.12	\$2.41
3	2022	\$2.53	\$2.44	\$2.05	\$1.77	\$1.66	\$1.68	\$1.93	\$1.96	\$1.97	\$2.02	\$2.21	\$2.47
4	2023	\$2.54	\$2.48	\$2.11	\$1.86	\$1.74	\$1.71	\$2.02	\$2.06	\$2.08	\$2.13	\$2.28	\$2.50
5	2024	\$2.57	\$2.48	\$2.17	\$1.93	\$1.79	\$1.89	\$2.10	\$2.14	\$2.13	\$2.27	\$2.43	\$2.76
6	2025	\$2.76	\$2.68	\$2.37	\$2.17	\$2.08	\$2.12	\$2.41	\$2.49	\$2.45	\$2.41	\$2.59	\$2.95
7	2026	\$2.92	\$2.85	\$2.51	\$2.30	\$2.19	\$2.22	\$2.52	\$2.60	\$2.58	\$2.53	\$2.69	\$3.07
8	2027	\$3.00	\$2.92	\$2.57	\$2.36	\$2.26	\$2.28	\$2.58	\$2.67	\$2.65	\$2.58	\$2.73	\$3.09
9	2028	\$3.01	\$2.92	\$2.62	\$2.40	\$2.29	\$2.31	\$2.61	\$2.73	\$2.69	\$2.60	\$2.77	\$3.13
10	2029	\$3.07	\$3.00	\$2.71	\$2.46	\$2.37	\$2.41	\$2.76	\$2.88	\$2.82	\$2.75	\$2.95	\$3.28
11	2030	\$3.28	\$3.19	\$2.89	\$2.60	\$2.50	\$2.60	\$2.90	\$3.02	\$2.96	\$2.89	\$3.13	\$3.39
12	2031	\$3.47	\$3.31	\$2.98	\$2.70	\$2.61	\$2.68	\$2.97	\$3.08	\$3.03	\$2.95	\$3.17	\$3.42
13	2032	\$3.50	\$3.31	\$2.99	\$2.71	\$2.62	\$2.70	\$3.00	\$3.10	\$3.05	\$2.97	\$3.21	\$3.46
14	2033	\$3.54	\$3.38	\$3.05	\$2.75	\$2.67	\$2.76	\$3.06	\$3.16	\$3.10	\$3.03	\$3.28	\$3.55
15	2034	\$3.61	\$3.44	\$3.09	\$2.80	\$2.71	\$2.79	\$3.11	\$3.21	\$3.15	\$3.07	\$3.34	\$3.62
16	2035	\$3.65	\$3.48	\$3.13	\$2.84	\$2.75	\$2.84	\$3.14	\$3.25	\$3.19	\$3.11	\$3.38	\$3.65
17	2036	\$3.70	\$3.52	\$3.15	\$2.87	\$2.78	\$2.87	\$3.18	\$3.28	\$3.23	\$3.14	\$3.43	\$3.70
18	2037	\$3.77	\$3.59	\$3.23	\$2.95	\$2.83	\$2.91	\$3.27	\$3.36	\$3.30	\$3.26	\$3.55	\$3.84
19	2038	\$4.18	\$3.88	\$3.44	\$3.03	\$3.03	\$3.14	\$3.68	\$3.80	\$3.70	\$3.50	\$3.87	\$4.31
20	2039	\$4.27	\$3.96	\$3.50	\$3.15	\$3.18	\$3.24	\$3.75	\$3.86	\$3.80	\$3.59	\$3.96	\$4.35
21	2040	\$4.34	\$4.01	\$3.55	\$3.50	\$3.26	\$3.27	\$3.95	\$4.21	\$4.44	\$3.92	\$3.89	\$4.26
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: Update to the 2017 CEC document <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 #:	2019 CEC Carbon Pricing - Carbon Price Mid Price
Source Link or File Name:	2019 CEC Carbon Pricing
Source Notes:	Prices updated to Real \$2019 using inflation in 1a. Inputs provided to update 2017 values in 3. Prices capped at 2030 as per notes in the c

Environmental Compliance Cost

Year #	Calendar Year	Environmental Compliance Cost (Real \$/MTCO2e)	Carbon Intesity (MTCO2e/Dth)	Environmental Compliance Cost (Real \$/Dth)
1	2020	\$0.00	0.0583	\$0.000
2	2021	\$21.13	0.0583	\$1.233
3	2022	\$26.16	0.0583	\$1.526
4	2023	\$26.77	0.0583	\$1.562
5	2024	\$30.14	0.0583	\$1.758
6	2025	\$33.95	0.0583	\$1.980
7	2026	\$38.24	0.0583	\$2.230
8	2027	\$43.06	0.0583	\$2.512
9	2028	\$48.50	0.0583	\$2.829
10	2029	\$54.61	0.0583	\$3.185
11	2030	\$61.50	0.0583	\$3.587
12	2031	\$61.50	0.0583	\$3.587
13	2032	\$61.50	0.0583	\$3.587
14	2033	\$61.50	0.0583	\$3.587
15	2034	\$61.50	0.0583	\$3.587
16	2035	\$61.50	0.0583	\$3.587
17	2036	\$61.50	0.0583	\$3.587
18	2037	\$61.50	0.0583	\$3.587
19	2038	\$61.50	0.0583	\$3.587
20	2039	\$61.50	0.0583	\$3.587
21	2040	\$61.50	0.0583	\$3.587
22	2041	\$61.50	0.0583	\$3.587
23	2042	\$61.50	0.0583	\$3.587
24	2043	\$61.50	0.0583	\$3.587
25	2044	\$61.50	0.0583	\$3.587
26	2045	\$61.50	0.0583	\$3.587
27	2046	\$61.50	0.0583	\$3.587
28	2047	\$61.50	0.0583	\$3.587
29	2048	\$61.50	0.0583	\$3.587
30	2049	\$61.50	0.0583	\$3.587
31	2050	\$61.50	0.0583	\$3.587
32	2051	\$61.50	0.0583	\$3.587
33	2052	\$61.50	0.0583	\$3.587
34	2053	\$61.50	0.0583	\$3.587
35	2054	\$61.50	0.0583	\$3.587
36	2055	\$61.50	0.0583	\$3.587
37	2056	\$61.50	0.0583	\$3.587
38	2057	\$61.50	0.0583	\$3.587
39	2058	\$61.50	0.0583	\$3.587
40	2059	\$61.50	0.0583	\$3.587
41	2060	\$61.50	0.0583	\$3.587
42	2061	\$61.50	0.0583	\$3.587
43	2062	\$61.50	0.0583	\$3.587
44	2063	\$61.50	0.0583	\$3.587
45	2064	\$61.50	0.0583	\$3.587

Alternative Submissions	Rationale for alternative submission: Distribution Costs for peak day and peak hour are inputs that have been requested from Cascade <i>Provide an overall rationale for providing alternative values using this box</i>
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Infrastructure Capacity Cost Inputs

Real or Nominal?	Real
Source and Pg #:	Dist Cost Workbook - Dist Costs TAB
Source Link or File Name:	Dist Cost Workbook
Source Notes:	<p>Adding Peak Day and Hour Distribution Costs. Peak Day costs are calculated by pulling CNGC Margin numbers from its Tariffs, then calculating what % of total load each rate class accounts for on peak day. This number is then multiplied by the % of projects related to growth specifically, and then multiplied by the ratio of peak day demand to average daily demand. Peak hour demand is calculated by looking at a recent historical cold week on Cascade's system (1/10/17-1/16-17) and pulling actual hourly demand data, indentifying the highest demand hour on the system from a representative sample of citygates, and calculating what % of the day's demand that hour accounted for. This hourly impact is then multiplied by the Peak Day figure. This process will be used in Cascade's 2020 OR IRP</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	2020		0.119074795	0.006111994
2	2021		0.126706289	0.006503712
3	2022		0.130333411	0.006689888
4	2023		0.120879733	0.00620464
5	2024		0.141110722	0.007243077
6	2025		0.125530915	0.006443381
7	2026		0.126177293	0.006476559
8	2027		0.128460553	\$0.007
9	2028		0.128407063	0.006591011
10	2029		0.128586156	0.006600203
11	2030		0.129495532	0.006646881
12	2031		0.127790463	0.006559361
13	2032		0.127551897	0.006547116
14	2033		0.129633465	0.006653961
15	2034		0.130421647	0.006694417
16	2035		0.130672431	0.00670729
17	2036		0.130696606	0.006708531
18	2037		0.128648532	0.006603405
19	2038		0.131369551	0.006743072
20	2039		0.13159763	0.00675478
21	2040		0.131351719	0.006742157
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: Risk Reduction Analysis has been requested from Cascade <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 #: IRP LT Price Forecast 2019-09-30 USED IN AVOIDED COST, Risk Premium TAB

Source Link or File Name: IRP LT Price Forecast 2019-09-30 USED IN AVOIDED COST

Source Notes: Risk Premium is defined as the premium in price for a given theoretical 20 year fixed price quote versus Cascade's price forecast over the same period. Fixed price quote given as a non binding hypothetical number from Cascade's AMA partner

-\$0.13

= 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	2020	-\$0.159
2	2021	-\$0.139
3	2022	-\$0.108
4	2023	-\$0.067
5	2024	-\$0.104
6	2025	-\$0.245
7	2026	-\$0.301
8	2027	-\$0.221
9	2028	-\$0.109
10	2029	-\$0.078
11	2030	-\$0.105
12	2031	-\$0.069
13	2032	\$0.000
14	2033	-\$0.001
15	2034	-\$0.016
16	2035	-\$0.030
17	2036	-\$0.057
18	2037	-\$0.141
19	2038	-\$0.459
20	2039	-\$0.304

Alternative Submissions

Rationale for alternative submission: Peak Hour Ratio has been requested from Cascade
Provide an overall rationale for providing

End Use Load Profiles & Peak Day/Hour Ratios

Source and Pg # and/or Table #:	Dist Cost Workbook - Peak Calculations TAB
Source Link or File Name:	Dist Cost Workbook
Source Notes:	Calculation is explained in Tab 5a) of this workbook

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
	End Use													

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.