



e-FILING REPORT COVER SHEET

COMPANY NAME: PacifiCorp d/b/a Pacific Power

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: RE 181

Report is required by: OAR 860-030-011(1)

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.

OAR 860-030-0011, 2024 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.

March 1, 2024

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97301-3398

Re: RE 181—PacifiCorp's Energy Efficiency Avoid Cost Report

In accordance with Order No. 23-362 issued on October 6, 2023, PacifiCorp d/b/a Pacific Power encloses for filing its Energy Efficiency Avoided Cost Report.

If you have questions about this filing, please contact Cathie Allen, Regulatory Affairs Manager, at (503) 813-5934.

Sincerely,



Matthew McVee
Vice President, Regulatory Policy and Operations

Enclosure

Energy Efficiency Avoided Cost Submission Template - Electric	
Utility Name:	PacifiCorp
Submission Date:	3/1/2023
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 March 1, 2024</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</p> <p style="padding-left: 40px;"><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 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><> Most components of the avoided costs are input into this tab including inflation/discount rates, line losses, risk reduction values, T&D deferral values, and generation deferral values</p> <p><> Identify the winter & summer peak periods for Transmission and Distribution. The Generation LOLP Map will be utilized for generation peak definitions.</p> <p><> If necessary, Energy Trust will work with each utility about sector definitions for T&D for which values to provide for Res, Com, and Ind</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) Forward Market Prices - IRP	
<p><> Provide forward market price forecast by month for both high load hours and low load hours</p> <p><> Please provide the dollar amount of these prices that is associated with carbon costs (or %). If it is a dollar value, this is a subset of the total prices provided - The total forward market prices should be the FULL price, including carbon</p> <p><> Indicate if the forecast is in nominal or real dollars (and what dollar year if real)</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
3) Forecast of Avoided Energy Costs - IRP	
<p><> Provide an avoided energy cost forecast by month for both high load hours and low load hours. Please also use the alternative data submission tab to provide data in a native format if that is preferred by the Company</p> <p><> Please provide the dollar amount of these costs that is associated with carbon costs (or %). If it is a dollar value, this is a subset of the total prices provided - The total avoided energy cost should be the FULL costs, including carbon</p> <p><> Indicate if the forecast is in nominal or real dollars (and what dollar year if real)</p> <p><> Please provide values found in analysis for the most recently acknowledged IRP</p> <p><> If the Company would like to propose alternative data for the avoided energy cost, please do so in the alternative tab. This includes, but is not limited to, if the Company would like to model a forward market price that includes quantity- and carbon-constraints</p>	
4) LOLP - IRP	
<p><> Input a 12x24 Loss of Load Probability heat map per the example in the worksheet</p> <p><> These will be potentially utilized in future iterations of avoided cost updates pending outcome of UM1893</p> <p><> Include heat maps for all days, weekdays only, and weekends only</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
5) RPS Compliance - IRP	
<p><> Input RPS compliance costs by year</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
1a, 2a, 3a, 4a, 5a) Alternative Submissions	
<p><> Use these worksheets to provide alternative values to the most recently acknowledged IRP values</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</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	Dollar Year	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes
Inflation Rate	Percent	2.155%	N/A	PacifiCorp 2021 IRP	Vol. 1: pg. 226		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	Sep. 2020 forecast
Real Discount Rate	Percent	4.63%	N/A	PacifiCorp 2021 IRP	Vol. 1: pg. 226		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	Calculated from inflation and nominal discount rates
Regional Act Credit	Percent	10.00%	N/A					
Transmission Loss Factor	Percent	3.50%	N/A	PacifiCorp's most recent class-level line losses are from its 2018 Loss Study published in 2020.				
Distribution Loss Factor, Commercial	Percent	3.69%	N/A	2018 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.				
Distribution Loss Factor, Industrial	Percent	3.20%	N/A	2018 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.				
Distribution Loss Factor, Residential	Percent	4.46%	N/A	2018 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.				
Risk Reduction Value	\$/MWh	\$3.05	2021	PacifiCorp 2021 IRP	Vol. 1: pg. 211		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	Nominal-levelized value from 2021 IRP is converted to real-levelized input. Risk reduction value for EE selections calculated using IRP models. The difference in present-value revenue requirement (PVR) between stochastic studies and deterministic studies with and without energy efficiency, divided by the net present value of the energy efficiency savings (MWh) yields the \$/MWh assumed value of stochastic risk reduction.
Transmission Deferral Credit	\$/kw-yr	\$6.34	2020	PacifiCorp 2021 IRP	Vol. 1: pg. 211	Table 7.10	https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	
Seasonal Capacity Split - Summer	Percent	38.75%	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	2021 08 29.xlsx
Seasonal Capacity Split - Winter	Percent	61.25%	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	2021 08 29.xlsx
Summer Peak Period Definition	Month/Days	ans. 12x24 prof	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Days	ans. 12x24 prof	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	Day is intended to be weekday or weekend
Deficiency start year	Year	2021	N/A	2021 IRP Assumption: T&D EE credit applied from first year of study				
Distribution Deferral Credit	\$/kw-yr	\$13.38	2020	PacifiCorp 2021 IRP	Vol. 1: pg. 211	Table 7.10	https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	
Seasonal Capacity Split - Summer	Percent	89.55%	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	2021 08 29.xlsx
Seasonal Capacity Split - Winter	Percent	10.45%	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	2021 08 29.xlsx
Summer Peak Period Definition	Month/Days	ans. 12x24 prof	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Days	ans. 12x24 prof	N/A	PacifiCorp 2021 IRP			2021 IRP T&D 12x24 CONF	Day is intended to be weekday or weekend
Deficiency start year	Year	2021	N/A	2021 IRP Assumption: T&D EE credit applied from first year of study				
Generation Capacity Credit	\$/kw-yr	\$85.71	2020	Simple Cycle Combustion Turbine, Frame F, 1500'. 2021 IRP Supply Side Table, Table 7.2 on page 179. Includes VOM, consistent with standard QF pricing approved	Vol. 1: pg. 179		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	For the referenced value and calculation, see Source 2: OF Filing, Table 9, pg. 36 (link at right)
Seasonal Capacity Split - Summer	Percent	82.8%	N/A	2021 IRP LOLP Data, June - September events. Results are discussed in 2021 IRP Volume II, Appendix K.			https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	
Seasonal Capacity Split - Winter	Percent	17.2%	N/A	2021 IRP LOLP Data, October - May events				
Deficiency start year	Year	2026	N/A	From Standard QF AC effective 2022 07 01 (update following 2021 IRP acknowledgment), pg. 6.	6		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2021-irp/Volume%20-%20-%209.15.2021%20Final.pdf	
RPS Compliance Cost	\$/MWh	see annual table						
Avoided RPS Compliance Obligation	%	see annual table	N/A					

6.88%

Source 2: OF Filing, Table 9, pg. 36

Forward Price Inputs

Table with 2 columns: Field Name and Value. Fields include Real or Nominal?, Carbon Prices Additive?, Carbon Value Units (\$/MWh), Source and Pq #, Source Link or File Name, and Source Notes.

NOTES:

Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/ton. Please identify the units in the box to the left.

OPFC Dated 3/31/2021

From Standard QF AC effective 2022 07 01

Percent Breakdown of the Change in System Balancing Purchases and Sales

Main table with columns: Year, Date, HLH Total (\$/MWh), LLH Total (\$/MWh), HLH Carbon Cost (\$/ton), LLH Carbon Cost (\$/ton). Contains data from 2022 to 2029.

Table with columns: Sum of Hour Class, Period, COB, Mid C, PV, HLH Total, LLH Total. Contains percentage breakdown data from 2022 to 2029.

2029	6/1/2029	28.77	24.75	15.85	15.85	Jun-29	36.03	26.08	41.33	32.81	21.64	46.59	Jun-29	27.0%	73.0%	0.0%	100.0%	27.9%	72.1%	0.0%	100%
2029	7/1/2029	124.06	41.11	15.85	15.85	Jul-29	130.93	118.37	148.26	45.37	33.90	59.21	Jul-29	33.9%	61.3%	4.8%	100.0%	27.9%	56.3%	15.8%	100%
2029	8/1/2029	204.45	53.88	15.85	15.85	Aug-29	212.84	197.76	214.04	61.47	45.42	42.45	Aug-29	30.8%	56.6%	12.5%	100.0%	34.7%	41.3%	24.0%	100%
2029	9/1/2029	62.08	46.27	15.85	15.85	Sep-29	66.52	53.72	72.86	49.48	37.25	56.44	Sep-29	22.5%	48.9%	2.8%	100.0%	29.8%	42.2%	28.0%	100%
2029	10/1/2029	55.59	48.75	15.85	15.85	Oct-29	65.15	52.52	53.15	51.66	39.45	48.99	Oct-29	21.3%	19.3%	59.4%	100.0%	26.0%	9.9%	64.2%	100%
2029	11/1/2029	56.93	53.06	15.85	15.85	Nov-29	65.19	52.51	55.50	56.05	43.69	52.80	Nov-29	18.1%	10.7%	71.3%	100.0%	28.9%	7.5%	63.6%	100%
2029	12/1/2029	62.93	54.77	15.85	15.85	Dec-29	72.68	60.62	59.46	60.27	47.78	54.34	Dec-29	22.2%	39.0%	38.2%	100.0%	36.8%	28.2%	35.0%	100%
2030	1/1/2030	64.19	54.10	17.83	17.83	Jan-30	73.90	61.24	60.06	58.60	44.98	55.39	Jan-30	28.8%	19.1%	52.7%	100.0%	21.7%	19.1%	59.2%	100%
2030	2/1/2030	61.32	51.33	17.83	17.83	Feb-30	73.32	61.45	57.64	61.24	44.84	52.40	Feb-30	21.6%	34.0%	44.4%	100.0%	30.4%	54.1%	15.5%	100%
2030	3/1/2030	44.30	39.79	17.83	17.83	Mar-30	53.34	41.34	41.49	48.12	35.58	47.02	Mar-30	24.5%	56.7%	18.8%	100.0%	24.7%	65.6%	9.7%	100%
2030	4/1/2030	26.34	26.22	17.83	17.83	Apr-30	31.42	22.62	30.28	34.49	22.77	41.06	Apr-30	29.0%	55.7%	15.3%	100.0%	28.2%	71.0%	0.8%	100%
2030	5/1/2030	16.25	15.10	17.83	17.83	May-30	24.04	14.42	27.44	24.73	12.99	38.73	May-30	17.5%	81.4%	1.1%	100.0%	14.6%	83.9%	1.5%	100%
2030	6/1/2030	28.03	25.64	17.83	17.83	Jun-30	37.18	26.71	42.43	35.12	23.07	49.22	Jun-30	12.6%	87.4%	0.0%	100.0%	21.4%	78.6%	0.0%	100%
2030	7/1/2030	43.85	37.43	17.83	17.83	Jul-30	144.68	157.64	151.25	157.64	47.53	34.96	Jul-30	34.1%	55.2%	10.7%	100.0%	30.4%	54.1%	15.5%	100%
2030	8/1/2030	185.39	61.85	17.83	17.83	Aug-30	193.54	178.63	194.00	65.50	53.32	76.77	Aug-30	25.0%	55.3%	19.6%	100.0%	27.6%	51.5%	20.9%	100%
2030	9/1/2030	64.26	45.88	17.83	17.83	Sep-30	69.03	55.06	78.99	51.60	38.20	61.58	Sep-30	28.9%	49.5%	21.6%	100.0%	23.8%	60.0%	16.2%	100%
2030	10/1/2030	62.14	52.68	17.83	17.83	Oct-30	73.11	60.25	58.53	57.77	44.43	53.54	Oct-30	21.9%	24.6%	53.6%	100.0%	20.7%	19.1%	60.2%	100%
2030	11/1/2030	58.85	53.12	17.83	17.83	Nov-30	68.37	54.48	56.38	57.89	44.41	53.00	Nov-30	22.7%	13.2%	64.2%	100.0%	29.1%	15.1%	55.6%	100%
2030	12/1/2030	66.93	56.48	17.83	17.83	Dec-30	77.32	65.10	61.03	63.44	49.96	56.53	Dec-30	25.2%	44.0%	30.7%	100.0%	31.5%	33.9%	34.6%	100%
2031	1/1/2031	67.28	54.55	20.06	20.06	Jan-31	77.53	63.94	62.65	60.39	45.50	57.11	Jan-31	29.0%	25.9%	45.0%	100.0%	17.3%	27.1%	55.6%	100%
2031	2/1/2031	65.15	53.85	20.06	20.06	Feb-31	76.82	64.01	58.11	64.12	49.63	63.45	Feb-31	28.0%	30.6%	41.4%	100.0%	20.8%	47.4%	31.8%	100%
2031	3/1/2031	46.01	40.98	20.06	20.06	Mar-31	54.64	41.81	42.33	49.64	36.06	47.78	Mar-31	32.2%	53.6%	14.3%	100.0%	21.4%	61.5%	17.1%	100%
2031	4/1/2031	27.09	26.28	20.06	20.06	Apr-31	32.37	23.11	31.44	35.36	22.71	42.98	Apr-31	27.6%	55.3%	17.2%	100.0%	27.6%	72.0%	0.4%	100%
2031	5/1/2031	17.26	15.13	20.06	20.06	May-31	24.60	14.27	28.74	25.22	12.47	40.31	May-31	28.5%	71.2%	0.3%	100.0%	17.6%	80.9%	1.5%	100%
2031	6/1/2031	32.25	27.16	20.06	20.06	Jun-31	41.69	30.44	48.96	36.31	23.86	52.79	Jun-31	16.1%	83.9%	0.0%	100.0%	25.2%	74.8%	0.0%	100%
2031	7/1/2031	162.19	162.19	20.06	20.06	Jul-31	163.57	163.57	163.57	163.57	50.14	36.70	Jul-31	35.2%	50.1%	14.7%	100.0%	24.7%	67.2%	8.1%	100%
2031	8/1/2031	201.62	67.06	20.06	20.06	Aug-31	210.71	194.86	215.50	72.93	58.80	86.39	Aug-31	26.4%	59.8%	13.8%	100.0%	23.6%	58.6%	17.9%	100%
2031	9/1/2031	72.64	44.01	20.06	20.06	Sep-31	75.45	60.16	82.81	53.65	39.07	65.72	Sep-31	28.0%	35.8%	36.2%	100.0%	16.3%	74.1%	9.6%	100%
2031	10/1/2031	61.80	51.01	20.06	20.06	Oct-31	71.38	56.31	59.19	56.65	42.02	52.93	Oct-31	27.7%	26.6%	45.7%	100.0%	30.3%	28.0%	41.7%	100%
2031	11/1/2031	60.71	53.44	20.06	20.06	Nov-31	69.88	54.80	57.78	58.77	44.04	63.37	Nov-31	27.8%	14.3%	58.0%	100.0%	33.1%	18.1%	48.4%	100%
2031	12/1/2031	70.63	60.09	22.58	22.58	Dec-31	81.51	65.16	65.32	66.32	51.63	59.50	Dec-31	24.0%	43.4%	32.6%	100.0%	45.1%	31.7%	23.2%	100%
2032	1/1/2032	71.21	59.99	22.58	22.58	Jan-32	80.66	66.15	67.47	62.69	46.59	60.62	Jan-32	29.6%	13.0%	57.3%	100.0%	29.2%	8.8%	62.0%	100%
2032	2/1/2032	66.46	54.28	22.58	22.58	Feb-32	78.68	65.52	59.58	65.02	49.35	54.63	Feb-32	25.1%	35.2%	39.7%	100.0%	22.9%	51.8%	25.3%	100%
2032	3/1/2032	47.26	39.69	22.58	22.58	Mar-32	57.88	43.43	46.02	50.31	35.39	44.35	Mar-32	23.3%	58.7%	18.0%	100.0%	17.3%	73.6%	9.1%	100%
2032	4/1/2032	29.12	32.66	22.58	22.58	Apr-32	34.90	25.99	34.09	41.48	29.31	54.57	Apr-32	20.6%	63.4%	16.0%	100.0%	27.1%	72.8%	0.4%	100%
2032	5/1/2032	15.46	13.99	22.58	22.58	May-32	22.60	12.40	27.09	25.08	11.58	39.66	May-32	27.3%	70.8%	1.9%	100.0%	16.4%	82.9%	0.7%	100%
2032	6/1/2032	35.73	27.33	22.58	22.58	Jun-32	43.75	31.87	49.30	38.35	24.09	52.83	Jun-32	32.7%	67.3%	0.0%	100.0%	22.7%	77.9%	0.0%	100%
2032	7/1/2032	144.20	144.20	22.58	22.58	Jul-32	150.70	136.22	169.46	49.40	34.71	67.81	Jul-32	34.0%	56.8%	9.2%	100.0%	24.5%	74.8%	0.7%	100%
2032	8/1/2032	184.87	64.10	22.58	22.58	Aug-32	193.77	178.06	197.83	69.14	54.04	85.51	Aug-32	24.9%	60.4%	14.6%	100.0%	24.4%	55.3%	20.3%	100%
2032	9/1/2032	74.17	51.79	22.58	22.58	Sep-32	76.63	60.06	83.70	54.41	38.57	68.78	Sep-32	29.9%	31.4%	38.7%	100.0%	35.2%	39.5%	25.3%	100%
2032	10/1/2032	65.77	56.64	22.58	22.58	Oct-32	75.36	59.15	63.51	59.79	44.04	68.64	Oct-32	27.2%	22.2%	50.6%	100.0%	33.4%	16.3%	50.3%	100%
2032	11/1/2032	67.95	59.88	22.58	22.58	Nov-32	77.23	63.94	64.50	63.72	47.60	70.26	Nov-32	25.5%	12.1%	32.9%	100.0%	45.5%	15.8%	38.9%	100%
2032	12/1/2032	75.27	63.41	22.58	22.58	Dec-32	86.31	73.37	69.20	70.68	54.81	63.48	Dec-32	25.6%	40.3%	34.0%	100.0%	43.2%	36.7%	20.2%	100%
2033	1/1/2033	74.32	61.92	25.41	25.41	Jan-33	83.96	68.70	71.06	65.43	48.88	64.21	Jan-33	29.8%	24.7%	45.5%	100.0%	29.3%	17.3%	53.4%	100%
2033	2/1/2033	70.98	58.59	25.41	25.41	Feb-33	82.21	68.76	63.33	69.83	53.70	58.36	Feb-33	31.7%	30.5%	37.7%	100.0%	22.8%	51.2%	26.1%	100%
2033	3/1/2033	48.99	41.91	25.41	25.41	Mar-33	60.45	44.97	44.48	52.77	37.43	43.44	Mar-33	26.4%	59.2%	14.3%	100.0%	21.8%	71.1%	7.1%	100%
2033	4/1/2033	23.95	24.30	25.41	25.41	Apr-33	29.81	20.96	29.86	34.21	20.55	52.82	Apr-33	27.0%	63.4%	9.5%	100.0%	26.0%	73.1%	0.9%	100%
2033	5/1/2033	15.71	12.98	25.41	25.41	May-33	15.71	12.98	25.41	15.71	11.31	27.07	May-33	31.8%	68.2%	0.0%	100.0%	11.4%	84.6%	0.4%	100%
2033	6/1/2033	34.61	23.40	25.41	25.41	Jun-33	43.22	31.25	48.71	36.22	21.55	56.95	Jun-33	28.1%	71.9%	0.0%	100.0%	12.6%	87.4%	0.0%	100%
2033	7/1/2033	133.27	40.72	25.41	25.41	Jul-33	142.49	128.14	159.05	50.24	35.37	69.22	Jul-33	33.5%	65.5%	1.1%	100.0%	33.2%	65.6%	1.2%	100%
2033	8/1/2033	172.76	62.09	25.41	25.41	Aug-33	180.65	165.46	184.03	66.73	51.16	83.87	Aug-33	33.7%	54.6%	11.7%	100.0%	29.7%	51.0%	19.3%	100%
2033	9/1/2033	69.24	55.76	25.41	25.41	Sep-33	71.39	54.50	82.08	55.50	39.14	73.49	Sep-33	37.1%	32.2%	30.7%	100.0%	42.2%	29.5%	28.3%	100%
2033	10/1/2033	73.11	65.51	25.41	25.41	Oct-33	85.32	65.38	48.68	65.38	46.68	61.24	Oct-33	35.5%	16.5%	45.0%	100.0%	45.5%	35.5%	27.9%	100%
2033	11/1/2033	71.82	62.23	25.41	25.41	Nov-33	82.19	65.84	68.89	67.67	51.19	61.28	Nov-33	33.4%	17.4%	49.2%	100.0%	35.9%	13.2%	50.9%	100%
2033	12/1/2033	77.08	68.47	25.41	25.41	Dec-33	88.41	74.85	71.99	72.85	56.61	61.24	Dec-33	23.3%	44.3%	32.4%	100.0%	48.5%	25.4%	26.0%	100%
2034	1/1/2034	76.95	63.11	28.59	28.59	Jan-34	86.97	70.90	72.84	65.30	48.12	65.81	Jan-34	31.4%	17.0%	51.6%	100.0%	28.1%	14.5%	54.7%	100%
2034	2/1/2034	71.35	59.05	28.59	28.59	Feb-34	83.19	69.23	6												

2037	12/1/2037	87.30	69.70	40.66	40.66
2038	1/1/2038	84.36	60.79	45.76	45.76
2038	7/1/2038	80.47	70.20	45.76	45.76
2038	3/1/2038	49.23	50.03	45.76	45.76
2038	4/1/2038	25.23	36.34	45.76	45.76
2038	5/1/2038	14.28	15.87	45.76	45.76
2038	6/1/2038	38.21	26.76	45.76	45.76
2038	7/1/2038	147.29	47.05	45.76	45.76
2038	8/1/2038	188.54	45.76	45.76	45.76
2038	9/1/2038	81.34	51.94	45.76	45.76
2038	10/1/2038	79.12	60.45	45.76	45.76
2038	11/1/2038	77.35	67.33	45.76	45.76
2038	12/1/2038	89.04	74.63	45.76	45.76
2039	1/1/2039	87.97	81.99	51.49	51.49
2039	2/1/2039	84.68	73.62	51.49	51.49
2039	3/1/2039	53.86	53.41	51.49	51.49
2039	4/1/2039	21.23	26.47	51.49	51.49
2039	5/1/2039	14.30	15.01	51.49	51.49
2039	6/1/2039	41.23	27.38	51.49	51.49
2039	7/1/2039	137.68	44.70	51.49	51.49
2039	8/1/2039	175.68	67.04	51.49	51.49
2039	9/1/2039	74.82	52.52	51.49	51.49
2039	10/1/2039	89.71	100.03	51.49	51.49
2039	11/1/2039	86.95	117.06	51.49	51.49
2039	12/1/2039	93.30	79.26	51.49	51.49
2040	1/1/2040	91.39	84.02	57.94	57.94
2040	2/1/2040	86.32	74.82	57.94	57.94
2040	3/1/2040	52.48	54.36	57.94	57.94
2040	4/1/2040	23.54	27.30	57.94	57.94
2040	5/1/2040	16.36	14.65	57.94	57.94
2040	6/1/2040	44.36	29.51	57.94	57.94
2040	7/1/2040	165.07	52.22	57.94	57.94
2040	8/1/2040	177.37	78.19	57.94	57.94
2040	9/1/2040	77.40	61.47	57.94	57.94
2040	10/1/2040	90.59	71.77	57.94	57.94
2040	11/1/2040	91.25	75.86	57.94	57.94
2040	12/1/2040	99.36	86.51	57.94	57.94
2041	1/1/2041	93.36	65.38	59.19	59.19
2041	2/1/2041	88.18	76.43	59.19	59.19
2041	3/1/2041	55.53	53.61	59.19	59.19
2041	4/1/2041	24.05	27.89	59.19	59.19
2041	5/1/2041	16.97	14.97	59.19	59.19
2041	6/1/2041	45.32	30.14	59.19	59.19
2041	7/1/2041	168.63	53.34	59.19	59.19
2041	8/1/2041	181.19	79.87	59.19	59.19
2041	9/1/2041	79.07	62.80	59.19	59.19
2041	10/1/2041	92.54	73.31	59.19	59.19
2041	11/1/2041	93.22	77.50	59.19	59.19
2041	12/1/2041	101.50	88.38	59.19	59.19
2042	1/1/2042	95.37	66.79	60.47	60.47
2042	2/1/2042	90.08	78.08	60.47	60.47
2042	3/1/2042	54.77	56.72	60.47	60.47
2042	4/1/2042	24.56	24.49	60.47	60.47
2042	5/1/2042	17.07	15.29	60.47	60.47
2042	6/1/2042	46.30	30.79	60.47	60.47
2042	7/1/2042	172.27	54.49	60.47	60.47
2042	8/1/2042	185.10	81.60	60.47	60.47
2042	9/1/2042	80.77	64.15	60.47	60.47
2042	10/1/2042	94.89	74.89	60.47	60.47
2042	11/1/2042	95.23	79.17	60.47	60.47
2042	12/1/2042	103.69	90.28	60.47	60.47
2043	1/1/2043	97.43	68.23	61.77	61.77
2043	2/1/2043	92.02	79.76	61.77	61.77
2043	3/1/2043	57.95	55.95	61.77	61.77
2043	4/1/2043	25.09	29.11	61.77	61.77
2043	5/1/2043	17.44	15.62	61.77	61.77
2043	6/1/2043	47.29	31.46	61.77	61.77
2043	7/1/2043	175.98	55.67	61.77	61.77
2043	8/1/2043	189.08	83.35	61.77	61.77
2043	9/1/2043	65.53	65.53	61.77	61.77
2043	10/1/2043	96.57	76.51	61.77	61.77
2043	11/1/2043	97.28	80.88	61.77	61.77
2043	12/1/2043	105.92	92.23	61.77	61.77
2044	1/1/2044	99.53	69.70	63.10	63.10
2044	2/1/2044	94.00	81.48	63.10	63.10
2044	3/1/2044	57.15	59.19	63.10	63.10
2044	4/1/2044	25.64	29.73	63.10	63.10
2044	5/1/2044	17.81	15.96	63.10	63.10
2044	6/1/2044	48.31	32.14	63.10	63.10
2044	7/1/2044	179.77	56.87	63.10	63.10
2044	8/1/2044	185.15	85.15	63.10	63.10
2044	9/1/2044	84.29	66.95	63.10	63.10
2044	10/1/2044	98.65	78.16	63.10	63.10
2044	11/1/2044	99.38	82.62	63.10	63.10
2044	12/1/2044	108.22	94.22	63.10	63.10
2045	1/1/2045	101.67	71.20	64.46	64.46
2045	2/1/2045	96.03	82.24	64.46	64.46
2045	3/1/2045	58.39	60.47	64.46	64.46
2045	4/1/2045	26.19	30.38	64.46	64.46
2045	5/1/2045	18.20	16.30	64.46	64.46
2045	6/1/2045	49.36	32.83	64.46	64.46
2045	7/1/2045	183.09	58.09	64.46	64.46
2045	8/1/2045	197.32	86.99	64.46	64.46
2045	9/1/2045	86.11	68.39	64.46	64.46
2045	10/1/2045	100.78	79.84	64.46	64.46
2045	11/1/2045	101.52	84.40	64.46	64.46
2045	12/1/2045	110.54	96.25	64.46	64.46
2046	1/1/2046	127.73	103.86	65.85	65.85
2046	2/1/2046	98.09	85.03	65.85	65.85
2046	3/1/2046	59.64	61.77	65.85	65.85
2046	4/1/2046	26.75	31.03	65.85	65.85
2046	5/1/2046	18.59	16.65	65.85	65.85

Dec-37	96.69	84.07	82.52	83.76	65.70	76.81
Jan-38	95.05	80.72	83.46	75.68	56.45	76.30
Feb-38	92.04	78.31	71.02	82.24	64.37	71.57
Mar-38	62.78	45.77	49.62	59.10	40.71	68.39
Apr-38	32.71	23.18	32.46	46.65	34.31	48.19
May-38	22.51	11.11	27.62	28.37	11.94	44.08
Jun-38	48.80	35.10	54.44	41.32	23.98	63.19
Jul-38	157.50	142.11	185.52	59.81	41.89	78.46
Aug-38	200.33	184.55	209.90	83.88	66.09	97.08
Sep-38	94.51	74.12	100.06	66.65	46.87	86.08
Oct-38	91.11	72.34	81.11	74.54	55.53	77.91
Nov-38	93.76	75.50	79.13	79.16	59.93	77.91
Dec-38	99.54	86.83	86.97	88.11	69.58	81.68
Jan-39	98.56	83.81	85.97	77.18	57.10	80.33
Feb-39	96.18	81.95	74.07	88.29	69.65	76.67
Mar-39	66.24	49.56	50.43	63.46	44.54	70.69
Apr-39	29.69	19.22	30.59	40.24	24.43	47.01
May-39	23.20	11.51	28.42	28.85	11.76	45.61
Jun-39	51.53	37.70	56.96	42.87	24.99	65.20
Jul-39	149.77	134.39	174.23	60.99	42.86	79.63
Aug-39	186.96	171.51	194.04	83.08	64.54	96.06
Sep-39	90.58	69.85	94.10	69.00	48.43	87.81
Oct-39	100.43	84.86	88.91	85.03	66.30	86.03
Nov-39	99.01	81.81	81.02	84.83	65.37	81.09
Dec-39	102.02	88.98	90.68	91.16	72.42	86.61
Jan-40	101.69	87.01	90.49	80.45	59.67	84.99
Feb-40	97.96	83.59	75.44	89.79	70.78	80.56
Mar-40	65.41	47.77	51.53	64.27	44.39	73.34
Apr-40	31.98	21.55	32.60	42.01	25.47	49.04
May-40	25.67	13.44	31.03	31.29	13.04	49.59
Jun-40	54.89	40.75	60.39	46.49	27.91	68.40
Jul-40	177.67	161.45	213.61	66.43	47.58	84.84
Aug-40	188.66	173.22	194.98	91.51	72.37	103.94
Sep-40	93.82	72.34	94.71	72.87	51.43	91.06
Oct-40	103.30	85.83	85.27	86.10	66.00	85.74
Nov-40	104.40	86.12	81.64	91.37	71.18	86.10
Dec-40	107.92	95.12	96.67	99.53	80.86	93.54

Dec-37	27.6%	56.2%	16.3%	100.0%	20.6%	76.8%	2.6%	100%
Jan-38	18.9%	47.1%	33.9%	100.0%	15.5%	77.6%	6.9%	100%
Feb-38	27.5%	50.3%	22.1%	100.0%	26.9%	58.8%	14.3%	100%
Mar-38	19.0%	75.0%	6.0%	100.0%	36.8%	54.0%	9.2%	100%
Apr-38	19.0%	78.4%	2.6%	100.0%	15.8%	83.6%	0.6%	100%
May-38	26.7%	72.5%	0.8%	100.0%	22.4%	76.8%	0.8%	100%
Jun-38	21.5%	77.7%	0.9%	100.0%	15.6%	84.2%	0.2%	100%
Jul-38	32.7%	67.0%	0.3%	100.0%	26.9%	72.0%	1.1%	100%
Aug-38	17.3%	77.7%	5.0%	100.0%	9.5%	88.0%	2.5%	100%
Sep-38	25.7%	66.6%	7.7%	100.0%	11.3%	81.5%	7.2%	100%
Oct-38	31.1%	58.2%	10.7%	100.0%	12.5%	60.5%	11.3%	100%
Nov-38	7.4%	79.1%	13.4%	100.0%	24.2%	60.5%	15.3%	100%
Dec-38	17.2%	67.2%	15.6%	100.0%	24.2%	71.2%	4.6%	100%
Jan-39	25.9%	57.5%	16.6%	100.0%	13.1%	77.5%	9.4%	100%
Feb-39	26.9%	59.2%	13.9%	100.0%	17.1%	71.7%	11.2%	100%
Mar-39	25.5%	68.9%	5.6%	100.0%	36.9%	55.9%	7.2%	100%
Apr-39	17.5%	81.0%	1.5%	100.0%	12.4%	87.2%	0.4%	100%
May-39	23.3%	76.3%	0.4%	100.0%	18.4%	81.3%	0.3%	100%
Jun-39	24.2%	74.8%	1.0%	100.0%	11.3%	87.8%	0.9%	100%
Jul-39	17.6%	80.9%	1.5%	100.0%	9.4%	90.2%	0.4%	100%
Aug-39	21.9%	74.6%	3.5%	100.0%	9.8%	88.1%	2.2%	100%
Sep-39	19.9%	76.6%	3.5%	100.0%	9.2%	85.2%	5.6%	100%
Oct-39	27.7%	59.0%	13.3%	100.0%	13.8%	75.2%	11.1%	100%
Nov-39	30.3%	60.6%	9.1%	100.0%	17.9%	68.1%	14.0%	100%
Dec-39	31.5%	55.4%	13.1%	100.0%	33.0%	62.4%	4.6%	100%
Jan-40	25.9%	57.5%	16.6%	100.0%	13.3%	80.5%	6.2%	100%
Feb-40	26.9%	59.2%	13.9%	100.0%	14.4%	72.3%	13.3%	100%
Mar-40	25.5%	68.9%	5.6%	100.0%	30.3%	56.1%	13.6%	100%
Apr-40	17.5%	81.0%	1.5%	100.0%	10.1%	89.2%	0.7%	100%
May-40	23.3%	76.3%	0.4%	100.0%	8.8%	91.2%	0.0%	100%
Jun-40	24.2%	74.8%	1.0%	100.0%	6.9%	92.3%	0.8%	100%
Jul-40	17.6%	80.9%	1.5%	100.0%	18.7%	78.3%	3.0%	100%
Aug-40	21.9%	74.6%						

2046	6/1/2046	50.42	33.54	65.85	65.85
2046	7/1/2046	187.60	59.34	65.85	65.85
2046	8/1/2046	201.57	88.86	65.85	65.85
2046	9/1/2046	87.96	87.96	65.85	65.85
2046	10/1/2046	102.95	81.56	65.85	65.85
2046	11/1/2046	103.71	86.22	65.85	65.85
2046	12/1/2046	112.92	98.32	65.85	65.85
2047	1/1/2047	106.10	74.30	67.27	67.27
2047	2/1/2047	100.21	85.87	67.27	67.27
2047	3/1/2047	60.93	63.10	67.27	67.27
2047	4/1/2047	27.33	31.70	67.27	67.27
2047	5/1/2047	18.99	17.01	67.27	67.27
2047	6/1/2047	51.51	34.26	67.27	67.27
2047	7/1/2047	191.64	60.62	67.27	67.27
2047	8/1/2047	205.92	90.78	67.27	67.27
2047	9/1/2047	89.86	71.37	67.27	67.27
2047	10/1/2047	105.17	83.32	67.27	67.27
2047	11/1/2047	105.94	88.08	67.27	67.27
2047	12/1/2047	115.35	100.44	67.27	67.27
2048	1/1/2048	108.39	75.90	68.72	68.72
2048	2/1/2048	102.37	88.74	68.72	68.72
2048	3/1/2048	62.24	64.46	68.72	68.72
2048	4/1/2048	27.92	32.38	68.72	68.72
2048	5/1/2048	19.40	17.38	68.72	68.72
2048	6/1/2048	52.62	35.00	68.72	68.72
2048	7/1/2048	195.77	61.93	68.72	68.72
2048	8/1/2048	210.36	92.73	68.72	68.72
2048	9/1/2048	91.79	72.91	68.72	68.72
2048	10/1/2048	107.44	85.11	68.72	68.72
2048	11/1/2048	108.23	89.97	68.72	68.72
2048	12/1/2048	117.84	102.60	68.72	68.72
2049	1/1/2049	110.72	77.54	70.20	70.20
2049	2/1/2049	104.57	90.65	70.20	70.20
2049	3/1/2049	63.58	65.85	70.20	70.20
2049	4/1/2049	28.52	33.08	70.20	70.20
2049	5/1/2049	19.82	17.75	70.20	70.20
2049	6/1/2049	53.75	35.75	70.20	70.20
2049	7/1/2049	199.99	63.26	70.20	70.20
2049	8/1/2049	214.89	94.73	70.20	70.20
2049	9/1/2049	93.77	74.48	70.20	70.20
2049	10/1/2049	109.75	86.95	70.20	70.20
2049	11/1/2049	110.56	91.91	70.20	70.20
2049	12/1/2049	120.38	104.81	70.20	70.20
2050	1/1/2050	113.11	79.21	71.71	71.71
2050	2/1/2050	106.83	92.60	71.71	71.71
2050	3/1/2050	64.95	67.27	71.71	71.71
2050	4/1/2050	29.13	33.79	71.71	71.71
2050	5/1/2050	20.25	18.14	71.71	71.71
2050	6/1/2050	54.91	36.52	71.71	71.71
2050	7/1/2050	204.30	64.63	71.71	71.71
2050	8/1/2050	219.52	96.77	71.71	71.71
2050	9/1/2050	95.79	76.08	71.71	71.71
2050	10/1/2050	112.12	88.82	71.71	71.71
2050	11/1/2050	112.94	93.89	71.71	71.71
2050	12/1/2050	122.97	107.07	71.71	71.71
2051	1/1/2051	115.55	80.92	73.26	73.26
2051	2/1/2051	109.13	94.60	73.26	73.26
2051	3/1/2051	66.35	68.72	73.26	73.26
2051	4/1/2051	29.76	34.52	73.26	73.26
2051	5/1/2051	20.68	18.53	73.26	73.26
2051	6/1/2051	56.09	37.31	73.26	73.26
2051	7/1/2051	208.71	66.02	73.26	73.26
2051	8/1/2051	224.25	98.86	73.26	73.26
2051	9/1/2051	97.86	77.72	73.26	73.26
2051	10/1/2051	114.53	90.74	73.26	73.26
2051	11/1/2051	115.37	95.92	73.26	73.26
2051	12/1/2051	125.62	109.38	73.26	73.26
2052	1/1/2052	118.04	82.66	74.84	74.84
2052	2/1/2052	111.48	96.64	74.84	74.84
2052	3/1/2052	67.78	70.20	74.84	74.84
2052	4/1/2052	30.40	35.27	74.84	74.84
2052	5/1/2052	21.13	18.93	74.84	74.84
2052	6/1/2052	57.30	38.11	74.84	74.84
2052	7/1/2052	213.20	67.44	74.84	74.84
2052	8/1/2052	229.08	100.99	74.84	74.84
2052	9/1/2052	99.96	79.40	74.84	74.84
2052	10/1/2052	117.00	92.69	74.84	74.84
2052	11/1/2052	117.86	97.98	74.84	74.84
2052	12/1/2052	128.33	111.74	74.84	74.84
2053	1/1/2053	120.58	84.44	76.45	76.45
2053	2/1/2053	113.88	98.72	76.45	76.45
2053	3/1/2053	69.24	71.72	76.45	76.45
2053	4/1/2053	31.06	36.02	76.45	76.45
2053	5/1/2053	21.58	19.33	76.45	76.45
2053	6/1/2053	58.53	38.93	76.45	76.45
2053	7/1/2053	217.80	68.90	76.45	76.45
2053	8/1/2053	234.02	103.16	76.45	76.45
2053	9/1/2053	102.12	81.11	76.45	76.45
2053	10/1/2053	119.52	94.69	76.45	76.45
2053	11/1/2053	120.40	100.10	76.45	76.45
2053	12/1/2053	131.10	114.14	76.45	76.45
2054	1/1/2054	123.18	86.26	78.10	78.10
2054	2/1/2054	116.34	100.85	78.10	78.10
2054	3/1/2054	70.74	73.26	78.10	78.10
2054	4/1/2054	31.73	36.80	78.10	78.10
2054	5/1/2054	22.05	19.75	78.10	78.10
2054	6/1/2054	59.80	39.77	78.10	78.10
2054	7/1/2054	222.49	70.38	78.10	78.10
2054	8/1/2054	239.06	105.39	78.10	78.10
2054	9/1/2054	104.32	82.85	78.10	78.10
2054	10/1/2054	122.10	96.73	78.10	78.10
2054	11/1/2054	123.00	102.25	78.10	78.10

2054	12/1/2054	133.92	116.60	78.10	78.10
2055	1/1/2055	125.83	88.12	79.78	79.78
2055	2/1/2055	118.84	103.02	79.78	79.78
2055	3/1/2055	72.26	74.84	79.78	79.78
2055	4/1/2055	32.41	37.59	79.78	79.78
2055	5/1/2055	22.52	20.18	79.78	79.78
2055	6/1/2055	61.08	40.63	79.78	79.78
2055	7/1/2055	227.29	71.90	79.78	79.78
2055	8/1/2055	244.21	107.66	79.78	79.78
2055	9/1/2055	106.57	84.64	79.78	79.78
2055	10/1/2055	124.73	98.81	79.78	79.78
2055	11/1/2055	125.65	104.46	79.78	79.78
2055	12/1/2055	136.81	119.12	79.78	79.78
2056	1/1/2056	128.54	90.02	81.50	81.50
2056	2/1/2056	121.41	105.24	81.50	81.50
2056	3/1/2056	73.82	76.45	81.50	81.50
2056	4/1/2056	33.11	38.40	81.50	81.50
2056	5/1/2056	23.01	20.61	81.50	81.50
2056	6/1/2056	62.40	41.51	81.50	81.50
2056	7/1/2056	232.18	73.45	81.50	81.50
2056	8/1/2056	249.48	109.98	81.50	81.50
2056	9/1/2056	108.86	86.46	81.50	81.50
2056	10/1/2056	127.42	100.94	81.50	81.50
2056	11/1/2056	128.35	106.71	81.50	81.50
2056	12/1/2056	139.75	121.68	81.50	81.50
2057	1/1/2057	131.81	91.96	83.25	83.25
2057	2/1/2057	124.02	107.51	83.25	83.25
2057	3/1/2057	75.41	78.10	83.25	83.25
2057	4/1/2057	33.82	39.23	83.25	83.25
2057	5/1/2057	23.50	21.05	83.25	83.25
2057	6/1/2057	63.75	42.40	83.25	83.25
2057	7/1/2057	237.19	75.03	83.25	83.25
2057	8/1/2057	254.85	112.35	83.25	83.25
2057	9/1/2057	111.21	88.33	83.25	83.25
2057	10/1/2057	130.12	103.12	83.25	83.25
2057	11/1/2057	131.12	109.01	83.25	83.25
2057	12/1/2057	142.77	124.31	83.25	83.25
2058	1/1/2058	134.14	93.94	85.05	85.05
2058	2/1/2058	126.70	109.83	85.05	85.05
2058	3/1/2058	77.03	79.78	85.05	85.05
2058	4/1/2058	34.55	40.08	85.05	85.05
2058	5/1/2058	24.61	21.51	85.05	85.05
2058	6/1/2058	65.12	43.31	85.05	85.05
2058	7/1/2058	242.30	76.65	85.05	85.05
2058	8/1/2058	260.35	114.77	85.05	85.05
2058	9/1/2058	113.61	90.23	85.05	85.05
2058	10/1/2058	132.97	105.34	85.05	85.05
2058	11/1/2058	133.95	111.36	85.05	85.05
2058	12/1/2058	145.84	126.99	85.05	85.05
2059	1/1/2059	137.03	95.96	86.88	86.88
2059	2/1/2059	129.43	112.19	86.88	86.88
2059	3/1/2059	78.69	81.50	86.88	86.88
2059	4/1/2059	35.30	40.94	86.88	86.88
2059	5/1/2059	24.53	21.97	86.88	86.88
2059	6/1/2059	66.52	44.25	86.88	86.88
2059	7/1/2059	247.52	78.30	86.88	86.88
2059	8/1/2059	265.96	117.24	86.88	86.88
2059	9/1/2059	116.06	92.18	86.88	86.88
2059	10/1/2059	135.83	107.61	86.88	86.88
2059	11/1/2059	136.83	113.76	86.88	86.88
2059	12/1/2059	148.99	129.72	86.88	86.88
2060	1/1/2060	139.99	98.03	88.75	88.75
2060	2/1/2060	132.21	114.61	88.75	88.75
2060	3/1/2060	80.39	83.26	88.75	88.75
2060	4/1/2060	36.06	41.82	88.75	88.75
2060	5/1/2060	25.06	22.45	88.75	88.75
2060	6/1/2060	67.96	45.20	88.75	88.75
2060	7/1/2060	252.85	79.99	88.75	88.75
2060	8/1/2060	271.69	119.77	88.75	88.75
2060	9/1/2060	118.56	94.16	88.75	88.75
2060	10/1/2060	138.76	109.93	88.75	88.75
2060	11/1/2060	139.78	116.21	88.75	88.75
2060	12/1/2060	152.20	132.52	88.75	88.75
2061	1/1/2061	143.00	100.14	90.67	90.67
2061	2/1/2061	135.06	117.08	90.67	90.67
2061	3/1/2061	82.12	85.05	90.67	90.67
2061	4/1/2061	36.83	42.72	90.67	90.67
2061	5/1/2061	25.60	22.93	90.67	90.67
2061	6/1/2061	69.42	46.17	90.67	90.67
2061	7/1/2061	258.30	81.71	90.67	90.67
2061	8/1/2061	277.54	122.35	90.67	90.67
2061	9/1/2061	121.11	96.19	90.67	90.67
2061	10/1/2061	141.75	112.30	90.67	90.67
2061	11/1/2061	142.79	118.71	90.67	90.67
2061	12/1/2061	155.48	135.37	90.67	90.67
2062	1/1/2062	146.09	102.30	92.62	92.62
2062	2/1/2062	137.97	119.60	92.62	92.62
2062	3/1/2062	83.89	86.89	92.62	92.62
2062	4/1/2062	37.63	43.65	92.62	92.62
2062	5/1/2062	26.15	23.42	92.62	92.62
2062	6/1/2062	70.92	47.17	92.62	92.62
2062	7/1/2062	263.87	83.47	92.62	92.62
2062	8/1/2062	283.52	124.99	92.62	92.62
2062	9/1/2062	123.72	98.26	92.62	92.62
2062	10/1/2062	144.81	114.72	92.62	92.62
2062	11/1/2062	145.87	121.27	92.62	92.62
2062	12/1/2062	158.83	138.29	92.62	92.62
2063	1/1/2063	104.51	104.51	94.62	94.62
2063	2/1/2063	140.95	122.18	94.62	94.62
2063	3/1/2063	85.70	88.76	94.62	94.62
2063	4/1/2063	38.44	44.59	94.62	94.62
2063	5/1/2063	26.71	23.93	94.62	94.62

2063	6/1/2063	72.44	48.19	94.62	94.62
2063	7/1/2063	269.56	85.27	94.62	94.62
2063	8/1/2063	289.63	127.68	94.62	94.62
2063	9/1/2063	126.39	100.38	94.62	94.62
2063	10/1/2063	147.93	117.19	94.62	94.62
2063	11/1/2063	149.01	123.88	94.62	94.62
2063	12/1/2063	162.25	141.27	94.62	94.62
2064	1/1/2064	152.45	106.76	96.66	96.66
2064	2/1/2064	143.99	124.81	96.66	96.66
2064	3/1/2064	87.55	90.67	96.66	96.66
2064	4/1/2064	39.27	45.55	96.66	96.66
2064	5/1/2064	27.29	24.44	96.66	96.66
2064	6/1/2064	74.01	49.22	96.66	96.66
2064	7/1/2064	275.37	87.11	96.66	96.66
2064	8/1/2064	295.87	130.43	96.66	96.66
2064	9/1/2064	129.11	102.54	96.66	96.66
2064	10/1/2064	151.11	119.72	96.66	96.66
2064	11/1/2064	152.23	126.55	96.66	96.66
2064	12/1/2064	165.75	144.32	96.66	96.66
2065	1/1/2065	155.74	109.06	98.74	98.74
2065	2/1/2065	147.09	127.50	98.74	98.74
2065	3/1/2065	89.43	92.63	98.74	98.74
2065	4/1/2065	40.11	46.53	98.74	98.74
2065	5/1/2065	27.88	24.97	98.74	98.74
2065	6/1/2065	75.60	50.29	98.74	98.74
2065	7/1/2065	281.30	88.98	98.74	98.74
2065	8/1/2065	302.25	133.24	98.74	98.74
2065	9/1/2065	131.89	104.75	98.74	98.74
2065	10/1/2065	154.37	122.30	98.74	98.74
2065	11/1/2065	155.51	129.28	98.74	98.74
2065	12/1/2065	169.32	147.43	98.74	98.74
2066	1/1/2066	159.09	111.41	100.87	100.87
2066	2/1/2066	150.26	130.25	100.87	100.87
2066	3/1/2066	91.36	94.62	100.87	100.87
2066	4/1/2066	40.98	47.53	100.87	100.87
2066	5/1/2066	28.48	25.51	100.87	100.87
2066	6/1/2066	77.23	51.37	100.87	100.87
2066	7/1/2066	287.36	90.90	100.87	100.87
2066	8/1/2066	308.76	136.11	100.87	100.87
2066	9/1/2066	134.74	107.01	100.87	100.87
2066	10/1/2066	157.70	124.93	100.87	100.87
2066	11/1/2066	158.86	132.07	100.87	100.87
2066	12/1/2066	172.97	150.60	100.87	100.87
2067	1/1/2067	162.52	113.81	103.04	103.04
2067	2/1/2067	153.50	133.06	103.04	103.04
2067	3/1/2067	93.33	96.66	103.04	103.04
2067	4/1/2067	41.86	48.56	103.04	103.04
2067	5/1/2067	29.09	25.03	103.04	103.04
2067	6/1/2067	78.89	52.48	103.04	103.04
2067	7/1/2067	293.55	92.86	103.04	103.04
2067	8/1/2067	315.42	139.05	103.04	103.04
2067	9/1/2067	137.64	109.32	103.04	103.04
2067	10/1/2067	151.02	127.62	103.04	103.04
2067	11/1/2067	162.28	134.91	103.04	103.04
2067	12/1/2067	176.69	153.85	103.04	103.04
2068	1/1/2068	166.02	116.26	105.26	105.26
2068	2/1/2068	156.80	135.93	105.26	105.26
2068	3/1/2068	95.34	98.74	105.26	105.26
2068	4/1/2068	42.76	49.60	105.26	105.26
2068	5/1/2068	29.72	26.62	105.26	105.26
2068	6/1/2068	80.59	53.61	105.26	105.26
2068	7/1/2068	299.88	94.86	105.26	105.26
2068	8/1/2068	322.21	142.04	105.26	105.26
2068	9/1/2068	140.61	111.67	105.26	105.26
2068	10/1/2068	164.57	130.37	105.26	105.26
2068	11/1/2068	165.78	137.82	105.26	105.26
2068	12/1/2068	180.50	157.16	105.26	105.26
2069	1/1/2069	169.60	118.77	107.53	107.53
2069	2/1/2069	160.18	138.85	107.53	107.53
2069	3/1/2069	97.39	100.87	107.53	107.53
2069	4/1/2069	43.68	50.67	107.53	107.53
2069	5/1/2069	30.36	27.19	107.53	107.53
2069	6/1/2069	82.33	54.76	107.53	107.53
2069	7/1/2069	306.34	96.91	107.53	107.53
2069	8/1/2069	329.16	145.10	107.53	107.53
2069	9/1/2069	143.64	114.08	107.53	107.53
2069	10/1/2069	168.11	133.18	107.53	107.53
2069	11/1/2069	169.35	140.79	107.53	107.53
2069	12/1/2069	184.39	160.55	107.53	107.53
2070	1/1/2070	173.26	121.33	109.85	109.85
2070	2/1/2070	163.63	141.85	109.85	109.85
2070	3/1/2070	99.49	103.05	109.85	109.85
2070	4/1/2070	44.63	51.76	109.85	109.85
2070	5/1/2070	31.01	27.78	109.85	109.85
2070	6/1/2070	84.11	55.94	109.85	109.85
2070	7/1/2070	312.94	98.99	109.85	109.85
2070	8/1/2070	336.25	148.23	109.85	109.85
2070	9/1/2070	146.73	116.54	109.85	109.85
2070	10/1/2070	171.74	136.05	109.85	109.85
2070	11/1/2070	173.00	143.82	109.85	109.85
2070	12/1/2070	188.37	164.01	109.85	109.85

Avoided Energy Cost Inputs

Real or Nominal?	
Dollar Year:	
Carbon Prices Additive?	
Carbon Value Units (\$/MWh or \$/Ton)	
Source and Pg #:	
Source Link or File Name:	
Source Notes:	See tab 3a (Alt1)

NOTES:
Please provide notes as to how this value relates to avoided energy cost. It can be expressed as a percentage of

Year	Date	Monthly	Monthly	Monthly	Monthly
		Avoided Energy Cost Total (\$/MWh)	Avoided Energy Cost LLH Total (\$/MWh)	HLH Carbon Cost (OR % of HLH Price that accounts for Carbon?)	LLH Carbon Cost (OR % of LLH Price that accounts for Carbon?)
2022	1/1/2022	See tab 3a (Alt1)			
2022	2/1/2022				
2022	3/1/2022				
2022	4/1/2022				
2022	5/1/2022				
2022	6/1/2022				
2022	7/1/2022				
2022	8/1/2022				
2022	9/1/2022				
2022	10/1/2022				
2022	11/1/2022				
2022	12/1/2022				
2023	1/1/2023				
2023	2/1/2023				
2023	3/1/2023				
2023	4/1/2023				
2023	5/1/2023				
2023	6/1/2023				
2023	7/1/2023				
2023	8/1/2023				
2023	9/1/2023				
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2023	11/1/2023				
2023	12/1/2023				
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Loss of Load Probability Heat Map Input

NOTE: This is utilized for generation deferrals only.

Source and page #: 2021 IRP: Support for Appendix K - Capacity Contribution

urce Link or File Name: 2030 ENS results index 13668 CONF.xlsx

Source Notes: The LOLP data from the 2021 IRP was prepared at the end of the IRP process, based on a portfolio comparable to the 2021 IRP preferred portfolio.

WEEKDAYS & WEEKENDS

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00
7	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00
8	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
9	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.00	0.00	0.00
20	0.00	0.01	0.00	0.00	0.00	0.02	0.05	0.04	0.03	0.00	0.00	0.00
21	0.00	0.01	0.00	0.00	0.00	0.02	0.04	0.03	0.03	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00

WEEKDAYS ONLY

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00
7	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00
8	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
9	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.00	0.00	0.00
20	0.00	0.01	0.00	0.00	0.00	0.02	0.05	0.04	0.03	0.00	0.00	0.00
21	0.00	0.01	0.00	0.00	0.00	0.02	0.04	0.03	0.03	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00

EXAMPLE

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

RPS Compliance Inputs IRP

Real or Nominal?	Nominal
Dollar Year:	
Source and Pg #:	PacifiCorp 2021 IRP, Vol I, p.301
Source Link or File Name:	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrat
Source Notes:	Oregon RPS compliance is achieved through 2040 with the addition of new renewable resources and transmission in the 2021 IRP preferred portfolio. The IRP Preferred Portfolio does not include any renewable resources added for the purpose of RPS compliance. The cost-effective renewables in the portfolio are lower cost than non-RPS alternatives.

	RPS Compliance Cost (\$/MWh)	Avoided RPS Compliance Obligation (%)
2022	0	20%
2023	0	20%
2024	0	20%
2025	0	27%
2026	0	27%
2027	0	27%
2028	0	27%
2029	0	27%
2030	0	35%
2031	0	35%
2032	0	35%
2033	0	35%
2034	0	35%
2035	0	45%
2036	0	45%
2037	0	45%
2038	0	45%
2039	0	45%
2040	0	50%
2041		50%
2042		50%
2043		50%
2044		50%
2045		50%
2046		50%
2047		50%
2048		50%
2049		50%
2050		50%

Alternative Submissions				Rationale for alternative submission: PacifiCorp's final 2023 IRP was filed in May 2023. It contains more recent information and is being considered for acknowledgment in docket LC 82.				
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	Dollar Year	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes
Inflation Rate	Percent	2.270%	N/A	PacifiCorp 2023 IRP	Vol. 1: pg. 228		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	Sep. 2022 forecast
Real Discount Rate	Percent	4.40%	N/A	PacifiCorp 2023 IRP	Vol. 1: pg. 228		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	Calculated from inflation and nominal discount rates
Regional Act Credit	Percent	10.00%	N/A					
Transmission Loss Factor	Percent		N/A					
Distribution Loss Factor, Commercial	Percent		N/A					
Distribution Loss Factor, Industrial	Percent		N/A					
Distribution Loss Factor, Residential	Percent		N/A					
Risk Reduction Value	\$/MWh	\$1.92	2023	PacifiCorp 2023 IRP	Vol. 1: pg. 212		https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	Nominal-levelized value from 2023 IRP is converted to real-levelized input. Risk reduction value for EE selections calculated using IRP models. The difference in present-value revenue requirement (PVRR) between stochastic studies and deterministic studies with and without energy efficiency, divided by the net present value of the energy efficiency savings (MWh) yields the \$/MWh assumed value of stochastic risk reduction.
Transmission Deferral Credit	\$/kW-yr	\$6.34	2020	PacifiCorp 2023 IRP	Vol. 1: pg. 212	Table 7.9	https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	
Seasonal Capacity Split - Summer	Percent		N/A					
Seasonal Capacity Split - Winter	Percent		N/A					
Summer Peak Period Definition	Month/Day/Hour		N/A					Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Day/Hour		N/A					Day is intended to be weekday or weekend
Deficiency start year	Year	2023	N/A					2023 IRP Assumption: T&D EE credit applied from first year of study
Distribution Deferral Credit	\$/kW-yr	\$10.46	2023	PacifiCorp 2023 IRP	Vol. 1: pg. 212	Table 7.9	https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	
Seasonal Capacity Split - Summer	Percent		N/A					
Seasonal Capacity Split - Winter	Percent		N/A					
Summer Peak Period Definition	Month/Day/Hour		N/A					Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Day/Hour		N/A					Day is intended to be weekday or weekend
Deficiency start year	Year	2023	N/A					2023 IRP Assumption: T&D EE credit applied from first year of study
Generation Capacity Credit	\$/kW-yr	\$105.36	2023	Simple Cycle Combustion Turbine, Frame J, 1500', 2023 IRP Supply Side Table	Vol. 1: pg. 183	Table 7.2	https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/enrwp/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_File_5-31-23.pdf	
Seasonal Capacity Split - Summer	Percent		N/A					
Seasonal Capacity Split - Winter	Percent		N/A					
Deficiency start year	Year	2025	N/A					The first major resource additions in the 2023 IRP are in 2025, and include wind, solar, and solar with battery storage. Wind resources in Table 9.31 in 2024 reflect committed resources that have not yet come online.
RPS Compliance Cost	\$/MWh	see annual table						
Avoided RPS Compliance Obligation	%	see annual table	N/A					

6.77%

Alternative Submissions

Rationale for alternative submission:
 The prices in PacifiCorp's acknowledged 2021 IRP are from March 2021 and are now roughly 36 months out of date. These alternative prices reflect the medium gas, medium CO2 pricing from PacifiCorp's 2023 IRP, dated September 2022.

Forward Price Inputs

Real or Nominal?	Nominal
Dollar Year:	n/a
Carbon Prices Additive?	Embedded in Market Prices
Carbon Value Units (\$/MWh)	\$/Ton
Source and Pg #:	September 2022 Medium Gas/Medium CO2 electricity market
Source Link or File Name:	2023 IRP public data disk: \2023 IRP May 31 Data Disk
Source Notes:	Data for 2041+ escalated at inflation

NOTES:
 Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/ton. Please identify the units in the box to the left

OPFC Dated 9/30/2022

From Standard QF AC effective 2023 09 22

Year	Date	HLH Total (\$/MWh)	LLH Total (\$/MWh)	HLH Carbon Cost (\$/ton)	LLH Carbon Cost (\$/ton)
2022	1/1/2022				
2022	2/1/2022				
2022	3/1/2022				
2022	4/1/2022				
2022	5/1/2022				
2022	6/1/2022				
2022	7/1/2022				
2022	8/1/2022				
2022	9/1/2022				
2022	10/1/2022				
2022	11/1/2022				
2022	12/1/2022				
2023	1/1/2023	155.47	85.45	-	-
2023	2/1/2023	123.54	90.59	-	-
2023	3/1/2023	75.91	58.05	-	-
2023	4/1/2023	71.80	47.34	-	-
2023	5/1/2023	53.05	33.45	-	-
2023	6/1/2023	61.89	32.89	-	-
2023	7/1/2023	175.16	72.87	-	-
2023	8/1/2023	204.81	82.36	-	-
2023	9/1/2023	186.65	78.93	-	-
2023	10/1/2023	86.16	65.37	-	-
2023	11/1/2023	92.52	66.75	-	-
2023	12/1/2023	107.58	74.86	-	-
2024	1/1/2024	103.45	71.52	-	-
2024	2/1/2024	90.75	64.81	-	-
2024	3/1/2024	72.20	52.91	-	-
2024	4/1/2024	44.42	36.67	-	-
2024	5/1/2024	43.01	30.08	-	-
2024	6/1/2024	45.22	29.34	-	-
2024	7/1/2024	151.21	75.62	-	-
2024	8/1/2024	169.74	86.41	-	-
2024	9/1/2024	143.96	73.64	-	-
2024	10/1/2024	70.28	51.50	-	-
2024	11/1/2024	76.17	55.95	-	-
2024	12/1/2024	93.46	66.35	-	-
2025	1/1/2025	71.96	64.02	12.10	12.10
2025	2/1/2025	88.65	73.06	12.10	12.10
2025	3/1/2025	57.39	56.93	12.10	12.10
2025	4/1/2025	48.68	48.68	12.10	12.10
2025	5/1/2025	34.35	32.93	12.10	12.10
2025	6/1/2025	79.05	53.81	12.10	12.10
2025	7/1/2025	97.43	69.93	12.10	12.10
2025	8/1/2025	156.50	85.83	12.10	12.10
2025	9/1/2025	123.08	86.92	12.10	12.10
2025	10/1/2025	71.94	65.73	12.10	12.10
2025	11/1/2025	74.07	66.12	12.10	12.10
2025	12/1/2025	73.45	66.44	12.10	12.10
2026	1/1/2026	70.85	60.55	13.06	13.06
2026	2/1/2026	81.19	70.13	13.06	13.06
2026	3/1/2026	52.63	54.53	13.06	13.06
2026	4/1/2026	46.47	46.93	13.06	13.06
2026	5/1/2026	35.77	33.03	13.06	13.06
2026	6/1/2026	42.49	46.84	13.06	13.06
2026	7/1/2026	91.02	75.50	13.06	13.06
2026	8/1/2026	141.57	89.47	13.06	13.06
2026	9/1/2026	113.23	89.00	13.06	13.06
2026	10/1/2026	67.63	70.45	13.06	13.06
2026	11/1/2026	75.77	68.77	13.06	13.06
2026	12/1/2026	72.94	69.99	13.06	13.06
2027	1/1/2027	69.29	65.04	14.13	14.13
2027	2/1/2027	80.02	74.04	14.13	14.13
2027	3/1/2027	52.78	55.53	14.13	14.13
2027	4/1/2027	44.69	47.44	14.13	14.13
2027	5/1/2027	32.80	32.84	14.13	14.13
2027	6/1/2027	41.26	48.58	14.13	14.13
2027	7/1/2027	91.30	77.39	14.13	14.13
2027	8/1/2027	148.90	95.77	14.13	14.13
2027	9/1/2027	112.79	91.74	14.13	14.13
2027	10/1/2027	68.66	71.12	14.13	14.13
2027	11/1/2027	77.30	70.82	14.13	14.13
2027	12/1/2027	75.79	71.40	14.13	14.13

Start	HLH			LLH		
	COB	Mid C	PV	COB	Mid C	PV
Jan-22						
Feb-22						
Mar-22						
Apr-22						
May-22						
Jun-22						
Jul-22						
Aug-22						
Sep-22						
Oct-22						
Nov-22						
Dec-22						
Jan-23	162.52	125.82	86.36	122.82	86.33	82.27
Feb-23	141.59	107.86	81.66	111.25	76.83	75.77
Mar-23	97.13	72.47	55.98	74.69	50.28	61.02
Apr-23	94.60	65.18	51.14	73.44	41.91	55.05
May-23	80.67	53.32	50.51	55.95	30.39	53.92
Jun-23	90.61	61.65	101.06	66.80	32.89	64.41
Jul-23	226.58	172.02	222.77	111.66	72.58	95.14
Aug-23	249.19	193.01	225.25	118.34	82.20	102.94
Sep-23	220.14	167.76	192.57	105.74	73.67	96.82
Oct-23	120.55	87.37	76.24	94.72	63.39	67.26
Nov-23	127.01	93.51	64.99	99.79	67.47	62.75
Dec-23	141.35	108.38	70.21	107.77	76.24	65.75
Jan-24	138.26	103.97	70.69	102.25	71.36	71.92
Feb-24	121.87	90.61	64.17	92.77	63.68	64.46
Mar-24	103.73	73.82	57.57	81.83	52.43	57.83
Apr-24	65.35	45.64	39.74	61.15	35.13	40.64
May-24	64.82	43.56	40.96	54.26	29.79	47.42
Jun-24	63.15	43.71	73.07	56.95	28.30	64.48
Jul-24	182.68	142.37	175.20	114.17	74.77	81.12
Aug-24	203.03	161.40	174.92	124.31	86.97	83.22
Sep-24	173.15	135.38	143.19	103.48	72.68	76.85
Oct-24	96.05	70.90	55.99	76.07	51.39	58.71
Nov-24	100.88	76.55	54.08	81.50	55.85	56.91
Dec-24	118.54	93.14	64.36	93.16	66.65	62.65
Jan-25	71.65	71.95	73.16	63.61	64.01	71.88
Feb-25	88.74	88.64	84.92	72.35	73.01	76.77
Mar-25	56.96	57.48	54.75	56.40	56.98	59.28
Apr-25	47.81	48.58	49.53	47.69	48.35	50.67
May-25	33.09	34.38	49.31	31.51	32.78	49.07
Jun-25	79.67	76.58	108.13	58.00	52.47	93.86
Jul-25	91.06	93.23	131.85	68.33	68.48	96.61
Aug-25	153.62	156.17	164.51	85.73	85.76	110.52
Sep-25	122.70	123.15	125.67	86.84	86.88	98.18
Oct-25	71.76	71.92	73.83	65.15	65.48	74.76
Nov-25	73.78	74.07	75.68	65.39	66.09	71.81
Dec-25	73.18	73.45	72.90	65.83	66.16	70.86
Jan-26	70.92	71.28	69.51	59.89	60.54	66.48
Feb-26	81.62	82.02	78.83	69.04	69.38	73.07
Mar-26	52.86	53.36	51.61	53.58	54.15	56.58
Apr-26	44.76	45.29	46.67	45.29	45.93	50.50
May-26	27.49	29.03	49.04	30.48	31.74	51.53
Jun-26	40.01	41.26	57.01	44.45	46.20	59.71
Jul-26	89.97	90.01	95.95	73.47	73.64	88.28
Aug-26	137.90	140.82	146.96	87.93	87.67	104.79
Sep-26	109.80	113.50	114.52	88.02	88.02	98.86
Oct-26	65.98	66.43	69.21	66.98	67.31	74.39
Nov-26	75.32	75.68	76.02	67.75	68.09	72.30
Dec-26	72.71	73.10	72.21	69.09	69.47	73.27
Jan-27	68.87	69.27	69.40	63.73	64.28	69.01
Feb-27	80.44	80.80	77.15	73.44	73.77	77.38
Mar-27	52.68	53.21	51.52	54.15	54.69	58.30
Apr-27	43.51	44.02	46.88	46.39	46.97	51.55
May-27	25.61	27.09	46.85	31.46	32.67	50.54
Jun-27	39.72	40.96	57.19	47.31	48.30	61.26
Jul-27	91.02	91.08	96.39	76.87	77.06	90.80
Aug-27	147.57	148.21	155.89	95.40	94.93	110.21
Sep-27	109.07	113.07	116.18	90.87	91.00	102.24
Oct-27	67.76	68.20	69.74	69.42	69.67	76.12
Nov-27	77.24	77.48	77.18	69.83	70.17	73.70
Dec-27	75.86	76.28	73.69	70.92	71.38	74.43

Sum of De	Hour Class						
	COB	Mid C	PV	HLH Total	COB	Mid C	LLH Total
Jan-22							
Feb-22							
Mar-22							
Apr-22							
May-22							
Jun-22							
Jul-22							
Aug-22							
Sep-22							
Oct-22							
Nov-22							
Dec-22							
1/1/2023	81.9%	17.1%	1.0%	100.0%	0.0%	78.3%	21.7%
2/1/2023	58.4%	26.3%	15.3%	100.0%	40.7%	37.4%	21.9%
3/1/2023	36.0%	31.1%	32.9%	100.0%	18.8%	51.6%	29.8%
4/1/2023	34.5%	40.3%	25.2%	100.0%	0.0%	58.7%	41.3%
5/1/2023	0.2%	88.7%	11.1%	100.0%	0.0%	87.0%	13.0%
6/1/2023	0.4%	99.3%	0.4%	100.0%	0.0%	100.0%	0.0%
7/1/2023	4.8%	94.2%	1.0%	100.0%	0.7%	99.3%	0.0%
8/1/2023	20.7%	78.8%	0.5%	100.0%	0.0%	99.2%	0.8%
9/1/2023	33.8%	61.5%	4.7%	100.0%	0.0%	77.3%	22.7%
10/1/2023	0.0%	89.2%	10.8%	100.0%	0.0%	48.9%	51.1%
11/1/2023	0.0%	96.5%	3.5%	100.0%	0.0%	84.7%	15.3%
12/1/2023	0.0%	97.9%	2.1%	100.0%	0.0%	86.8%	13.2%
1/1/2024	0.0%	98.4%	1.6%	100.0%	0.0%	71.2%	28.8%
2/1/2024	3.9%	92.0%	4.1%	100.0%	3.5%	80.2%	16.4%
3/1/2024	0.0%	90.1%	9.9%	100.0%	0.3%	92.3%	7.4%
4/1/2024	0.8%	76.1%	23.2%	100.0%	0.0%	72.1%	27.9%
5/1/2024	0.2%	76.5%	23.2%	100.0%	0.5%	98.6%	0.9%
6/1/2024	7.3%	92.4%	0.3%	100.0%	1.2%	96.9%	1.9%
7/1/2024	15.1%	76.5%	8.3%	100.0%	1.5%	9	

2028	1/1/2028	69.13	64.72	15.36	15.36
2028	2/1/2028	74.56	70.71	15.36	15.36
2028	3/1/2028	49.44	45.32	15.36	15.36
2028	4/1/2028	43.05	45.60	15.36	15.36
2028	5/1/2028	27.40	33.31	15.36	15.36
2028	6/1/2028	39.45	48.60	15.36	15.36
2028	7/1/2028	89.93	79.60	15.36	15.36
2028	8/1/2028	111.62	88.92	15.36	15.36
2028	9/1/2028	91.91	88.83	15.36	15.36
2028	10/1/2028	69.16	71.79	15.36	15.36
2028	11/1/2028	73.77	70.70	15.36	15.36
2028	12/1/2028	74.54	72.55	15.36	15.36
2029	1/1/2029	68.26	64.55	16.92	16.92
2029	2/1/2029	77.90	73.64	16.92	16.92
2029	3/1/2029	43.76	51.75	16.92	16.92
2029	4/1/2029	40.02	44.44	16.92	16.92
2029	5/1/2029	22.42	31.90	16.92	16.92
2029	6/1/2029	32.78	42.61	16.92	16.92
2029	7/1/2029	81.80	75.84	16.92	16.92
2029	8/1/2029	107.85	88.41	16.92	16.92
2029	9/1/2029	88.23	83.41	16.92	16.92
2029	10/1/2029	66.66	67.56	16.92	16.92
2029	11/1/2029	71.43	68.57	16.92	16.92
2029	12/1/2029	73.04	72.07	16.92	16.92
2030	1/1/2030	64.51	62.15	18.58	18.58
2030	2/1/2030	73.06	69.60	18.58	18.58
2030	3/1/2030	39.37	48.11	18.58	18.58
2030	4/1/2030	33.07	42.68	18.58	18.58
2030	5/1/2030	19.30	30.51	18.58	18.58
2030	6/1/2030	25.46	37.95	18.58	18.58
2030	7/1/2030	76.73	73.14	18.58	18.58
2030	8/1/2030	97.63	83.26	18.58	18.58
2030	9/1/2030	82.65	79.11	18.58	18.58
2030	10/1/2030	54.43	65.61	18.58	18.58
2030	11/1/2030	63.36	65.26	18.58	18.58
2030	12/1/2030	71.90	69.63	18.58	18.58
2031	1/1/2031	59.70	58.36	20.57	20.57
2031	2/1/2031	71.33	67.55	20.57	20.57
2031	3/1/2031	36.33	45.52	20.57	20.57
2031	4/1/2031	29.16	40.12	20.57	20.57
2031	5/1/2031	16.42	28.34	20.57	20.57
2031	6/1/2031	22.56	35.89	20.57	20.57
2031	7/1/2031	75.17	70.55	20.57	20.57
2031	8/1/2031	93.02	81.19	20.57	20.57
2031	9/1/2031	80.24	79.09	20.57	20.57
2031	10/1/2031	51.48	63.83	20.57	20.57
2031	11/1/2031	62.60	63.79	20.57	20.57
2031	12/1/2031	71.17	71.62	20.57	20.57
2032	1/1/2032	58.61	55.27	22.77	22.77
2032	2/1/2032	68.08	64.24	22.77	22.77
2032	3/1/2032	35.28	45.11	22.77	22.77
2032	4/1/2032	29.12	39.24	22.77	22.77
2032	5/1/2032	15.48	25.92	22.77	22.77
2032	6/1/2032	21.75	34.47	22.77	22.77
2032	7/1/2032	75.83	69.67	22.77	22.77
2032	8/1/2032	98.43	81.26	22.77	22.77
2032	9/1/2032	78.13	79.72	22.77	22.77
2032	10/1/2032	48.28	60.80	22.77	22.77
2032	11/1/2032	60.69	60.86	22.77	22.77
2032	12/1/2032	72.51	71.02	22.77	22.77
2033	1/1/2033	57.84	53.98	25.21	25.21
2033	2/1/2033	68.87	65.33	25.21	25.21
2033	3/1/2033	31.51	42.44	25.21	25.21
2033	4/1/2033	25.43	35.79	25.21	25.21
2033	5/1/2033	15.27	22.99	25.21	25.21
2033	6/1/2033	21.38	32.98	25.21	25.21
2033	7/1/2033	73.43	67.58	25.21	25.21
2033	8/1/2033	97.95	77.58	25.21	25.21
2033	9/1/2033	72.02	77.32	25.21	25.21
2033	10/1/2033	46.47	57.71	25.21	25.21
2033	11/1/2033	59.60	55.53	25.21	25.21
2033	12/1/2033	70.50	70.58	25.21	25.21
2034	1/1/2034	54.79	50.86	27.91	27.91
2034	2/1/2034	66.31	62.96	27.91	27.91
2034	3/1/2034	28.02	38.32	27.91	27.91
2034	4/1/2034	22.76	31.23	27.91	27.91
2034	5/1/2034	13.36	21.68	27.91	27.91
2034	6/1/2034	19.81	31.61	27.91	27.91
2034	7/1/2034	69.93	64.23	27.91	27.91
2034	8/1/2034	92.03	74.40	27.91	27.91
2034	9/1/2034	68.88	74.04	27.91	27.91
2034	10/1/2034	43.58	54.54	27.91	27.91
2034	11/1/2034	56.59	52.96	27.91	27.91
2034	12/1/2034	67.55	67.26	27.91	27.91
2035	1/1/2035	57.52	54.09	30.90	30.90
2035	2/1/2035	68.36	67.86	30.90	30.90
2035	3/1/2035	30.78	41.50	30.90	30.90

Jan-28	68.94	69.39	68.97	63.59	64.26	69.25
Feb-28	75.11	75.52	70.32	70.25	70.60	73.15
Mar-28	49.63	50.16	48.23	54.34	54.96	57.89
Apr-28	42.38	42.90	45.69	44.90	45.52	50.53
May-28	24.47	25.46	44.86	31.88	33.11	51.49
Jun-28	38.03	39.13	57.50	46.71	47.34	61.80
Jul-28	89.49	89.78	95.02	78.79	78.97	93.21
Aug-28	111.80	111.44	112.35	88.37	88.25	101.89
Sep-28	91.91	91.88	91.99	88.65	88.49	99.21
Oct-28	68.56	68.89	69.95	71.02	71.42	78.26
Nov-28	73.80	74.01	73.36	70.19	70.47	74.26
Dec-28	74.72	74.96	72.72	72.24	72.59	75.56
Jan-29	68.19	68.73	67.14	63.01	63.51	71.81
Feb-29	78.17	78.75	73.97	72.96	73.26	77.67
Mar-29	43.32	43.91	44.09	51.02	51.71	58.44
Apr-29	38.62	39.14	44.24	43.53	44.36	49.74
May-29	20.25	21.00	44.61	29.31	31.07	52.37
Jun-29	31.26	32.40	54.14	37.24	40.69	61.10
Jul-29	81.08	81.69	89.07	74.63	75.28	94.48
Aug-29	105.76	105.54	132.04	85.69	85.67	127.57
Sep-29	88.17	88.19	88.47	83.21	83.18	96.12
Oct-29	59.89	60.25	64.64	66.73	67.08	75.42
Nov-29	71.19	71.54	72.26	67.75	68.10	74.63
Dec-29	72.96	73.30	71.49	71.67	72.06	75.86
Jan-30	64.23	64.98	64.03	60.72	61.32	70.49
Feb-30	73.40	73.78	70.48	68.97	69.48	75.24
Mar-30	38.98	39.60	39.75	47.06	47.98	55.08
Apr-30	31.31	32.13	37.77	41.28	42.44	49.56
May-30	16.04	17.19	41.17	27.63	29.41	50.99
Jun-30	24.39	25.65	50.34	32.76	36.91	60.55
Jul-30	75.75	76.42	87.60	71.02	72.44	95.52
Aug-30	97.44	97.42	100.65	82.26	82.32	103.15
Sep-30	82.01	82.28	84.96	78.92	78.97	94.31
Oct-30	51.90	52.46	59.45	64.13	64.74	74.72
Nov-30	62.51	63.33	65.51	64.40	64.84	73.19
Dec-30	71.84	72.20	70.28	69.25	69.56	74.58
Jan-31	59.24	60.12	60.20	58.52	57.83	70.28
Feb-31	71.21	71.75	70.37	66.82	67.27	74.67
Mar-31	35.56	36.43	39.87	44.13	45.32	53.86
Apr-31	28.08	28.93	33.44	38.69	40.05	48.51
May-31	14.33	15.38	38.54	24.10	26.22	50.50
Jun-31	20.70	23.09	49.38	29.09	34.40	60.70
Jul-31	73.34	74.72	90.79	65.43	68.94	98.29
Aug-31	92.66	92.71	97.73	78.41	79.86	107.05
Sep-31	79.05	79.35	84.76	77.41	79.06	97.86
Oct-31	48.90	49.44	57.52	61.90	63.43	76.34
Nov-31	61.70	62.20	66.78	61.90	63.69	74.32
Dec-31	71.01	71.34	70.63	71.31	71.62	79.55
Jan-32	57.69	59.13	61.89	55.84	55.32	71.82
Feb-32	67.79	68.25	68.18	63.17	63.79	73.06
Mar-32	34.23	35.48	38.30	41.51	44.00	54.36
Apr-32	27.58	28.62	33.33	37.03	38.84	48.52
May-32	12.11	13.71	36.05	22.14	24.72	50.26
Jun-32	17.76	21.42	47.85	27.44	34.49	61.86
Jul-32	73.42	74.77	94.21	66.17	69.49	101.10
Aug-32	97.05	98.14	104.80	77.55	80.24	107.78
Sep-32	76.12	77.80	83.74	75.84	79.60	102.76
Oct-32	45.60	46.19	54.34	59.07	60.49	76.65
Nov-32	59.42	60.06	66.36	57.10	60.45	75.84
Dec-32	72.25	72.49	73.68	70.66	70.90	79.46
Jan-33	56.47	57.44	62.74	57.17	51.63	71.94
Feb-33	67.95	68.79	71.44	64.20	64.79	77.04
Mar-33	29.90	31.36	36.78	40.18	42.42	55.42
Apr-33	23.75	24.80	30.50	34.29	35.68	46.61
May-33	10.70	12.61	35.40	19.49	22.75	51.90
Jun-33	16.16	19.64	46.27	25.57	32.48	63.98
Jul-33	70.54	72.21	93.18	64.06	67.25	103.14
Aug-33	96.68	97.21	107.30	75.18	76.65	110.89
Sep-33	68.92	71.53	82.64	71.10	77.13	104.84
Oct-33	42.76	43.87	53.86	54.70	57.57	77.74
Nov-33	57.40	59.03	66.16	52.15	55.54	76.58
Dec-33	69.97	69.92	74.22	70.85	70.02	82.05
Jan-34	53.55	53.33	62.08	54.79	48.65	72.21
Feb-34	63.62	64.56	68.94	63.45	62.07	76.76
Mar-34	26.24	28.12	34.25	36.47	37.73	53.10
Apr-34	21.10	22.15	28.13	28.70	31.34	42.78
May-34	9.06	11.62	30.60	17.10	21.02	50.86
Jun-34	15.56	17.91	45.03	25.68	30.41	63.68
Jul-34	67.68	69.54	92.94	61.36	64.35	104.82
Aug-34	90.20	91.49	104.43	70.87	72.86	113.55
Sep-34	64.76	67.93	82.63	67.05	74.20	106.65
Oct-34	38.10	40.83	53.96	50.14	54.80	77.66
Nov-34	54.25	54.24	65.89	48.08	53.05	77.32
Dec-34	66.41	67.00	72.97	69.00	67.01	81.70
Jan-35	57.08	56.94	65.85	58.38	51.99	77.47
Feb-35	67.57	68.43	72.20	65.98	66.17	80.67
Mar-35	28.92	30.51	36.15	39.48	41.07	57.59

2035	4/1/2035	26.36	32.87	30.90	30.90	Apr-35	24.78	25.93	32.03	29.96	32.72	45.94	4/1/2035	33.2%	53.5%	13.3%	100.0%	17.2%	78.0%	4.7%	100%
2035	5/1/2035	13.55	24.81	30.90	30.90	May-35	10.20	12.68	33.55	21.07	24.47	52.64	5/1/2035	18.8%	74.8%	6.4%	100.0%	15.7%	81.2%	3.1%	100%
2035	6/1/2035	21.53	32.21	30.90	30.90	Jun-35	16.83	19.93	47.82	24.74	30.80	67.28	6/1/2035	37.6%	52.5%	9.9%	100.0%	18.8%	74.2%	7.0%	100%
2035	7/1/2035	72.77	69.31	30.90	30.90	Jul-35	70.27	72.35	94.68	65.02	69.11	110.18	7/1/2035	25.6%	70.1%	4.3%	100.0%	17.0%	80.8%	2.2%	100%
2035	8/1/2035	94.91	80.39	30.90	30.90	Aug-35	90.50	91.75	136.58	77.16	78.18	146.48	8/1/2035	30.0%	62.2%	7.9%	100.0%	22.2%	74.3%	3.6%	100%
2035	9/1/2035	76.22	74.31	30.90	30.90	Sep-35	71.92	75.19	89.61	66.88	74.50	106.27	9/1/2035	38.4%	45.7%	15.8%	100.0%	12.9%	84.6%	2.5%	100%
2035	10/1/2035	45.66	58.48	30.90	30.90	Oct-35	40.24	43.44	56.67	54.38	57.38	80.42	10/1/2035	30.4%	45.5%	24.1%	100.0%	12.0%	81.7%	6.3%	100%
2035	11/1/2035	56.73	55.19	30.90	30.90	Nov-35	55.40	55.49	68.12	51.79	54.69	79.20	11/1/2035	46.6%	43.2%	10.2%	100.0%	14.2%	82.1%	3.7%	100%
2035	12/1/2035	71.12	68.50	30.90	30.90	Dec-35	70.62	70.46	77.16	69.07	68.20	83.08	12/1/2035	38.9%	52.2%	8.9%	100.0%	10.1%	88.4%	1.4%	100%
2036	1/1/2036	58.66	55.02	34.21	34.21	Jan-36	57.94	58.54	65.04	59.09	52.81	77.56	1/1/2036	49.0%	44.7%	6.3%	100.0%	17.3%	78.2%	4.5%	100%
2036	2/1/2036	69.11	65.26	34.21	34.21	Feb-36	67.99	68.98	72.69	64.22	64.21	78.43	2/1/2036	32.0%	55.8%	12.2%	100.0%	14.7%	78.0%	7.4%	100%
2036	3/1/2036	31.91	38.45	34.21	34.21	Mar-36	30.54	32.17	36.95	34.76	39.10	53.34	3/1/2036	37.2%	55.7%	7.1%	100.0%	50.5%	38.5%	10.9%	100%
2036	4/1/2036	24.08	27.37	34.21	34.21	Apr-36	22.16	23.87	29.03	34.58	37.20	49.79	4/1/2036	23.6%	64.6%	7.1%	100.0%	15.8%	79.8%	4.8%	100%
2036	5/1/2036	14.59	25.97	34.21	34.21	May-36	11.21	13.68	33.65	20.70	24.67	54.60	5/1/2036	18.3%	74.9%	6.8%	100.0%	13.9%	79.9%	6.2%	100%
2036	6/1/2036	19.69	34.39	34.21	34.21	Jun-36	15.98	19.07	44.75	28.22	34.53	68.47	6/1/2036	27.3%	67.0%	5.7%	100.0%	21.9%	74.4%	3.7%	100%
2036	7/1/2036	72.11	72.83	34.21	34.21	Jul-36	76.22	77.77	103.33	69.38	72.11	118.01	7/1/2036	26.9%	69.9%	3.2%	100.0%	14.0%	83.6%	2.4%	100%
2036	8/1/2036	96.46	85.79	34.21	34.21	Aug-36	93.54	96.62	108.74	82.23	84.92	132.73	8/1/2036	23.4%	72.0%	4.7%	100.0%	24.1%	72.7%	3.2%	100%
2036	9/1/2036	80.17	78.86	34.21	34.21	Sep-36	74.86	80.13	90.86	72.92	78.93	112.85	9/1/2036	35.6%	46.6%	17.8%	100.0%	15.8%	81.6%	2.6%	100%
2036	10/1/2036	45.34	63.54	34.21	34.21	Oct-36	41.29	44.44	55.98	56.67	60.19	82.84	10/1/2036	34.1%	48.8%	17.1%	100.0%	20.9%	61.0%	18.0%	100%
2036	11/1/2036	57.61	57.24	34.21	34.21	Nov-36	54.82	56.36	67.95	49.90	56.79	80.24	11/1/2036	38.8%	45.2%	16.0%	100.0%	18.2%	74.6%	7.2%	100%
2036	12/1/2036	74.93	72.34	34.21	34.21	Dec-36	74.84	74.36	80.06	73.44	71.94	86.49	12/1/2036	31.3%	61.3%	7.3%	100.0%	11.7%	86.8%	1.5%	100%
2037	1/1/2037	63.27	57.35	37.88	37.88	Jan-37	64.05	62.39	71.52	59.00	54.46	79.86	1/1/2037	30.4%	64.5%	5.1%	100.0%	23.9%	69.0%	7.1%	100%
2037	2/1/2037	73.50	69.05	37.88	37.88	Feb-37	73.87	72.98	77.33	67.44	67.69	80.76	2/1/2037	18.8%	73.1%	8.1%	100.0%	12.9%	76.5%	10.6%	100%
2037	3/1/2037	33.42	38.97	37.88	37.88	Mar-37	31.46	33.63	37.49	36.30	38.90	52.81	3/1/2037	24.7%	66.9%	8.4%	100.0%	37.1%	55.5%	7.4%	100%
2037	4/1/2037	26.50	38.84	37.88	37.88	Apr-37	24.30	26.48	33.45	35.43	38.95	50.73	4/1/2037	20.7%	72.6%	6.7%	100.0%	14.9%	81.6%	3.5%	100%
2037	5/1/2037	14.10	25.22	37.88	37.88	May-37	10.90	13.23	35.21	21.29	24.95	58.43	5/1/2037	17.9%	76.2%	5.9%	100.0%	19.9%	77.1%	3.0%	100%
2037	6/1/2037	20.42	36.53	37.88	37.88	Jun-37	17.68	19.87	46.55	30.84	36.14	71.51	6/1/2037	25.4%	70.5%	4.1%	100.0%	25.3%	69.9%	4.9%	100%
2037	7/1/2037	81.38	75.07	37.88	37.88	Jul-37	78.24	80.63	106.19	71.69	74.43	124.48	7/1/2037	20.9%	74.2%	4.9%	100.0%	14.8%	83.1%	2.1%	100%
2037	8/1/2037	109.60	93.07	37.88	37.88	Aug-37	104.77	106.33	156.50	90.10	92.68	160.35	8/1/2037	25.1%	67.6%	7.3%	100.0%	17.2%	81.6%	1.2%	100%
2037	9/1/2037	83.81	82.98	37.88	37.88	Sep-37	80.24	84.09	95.52	79.71	83.21	118.66	9/1/2037	35.0%	55.7%	9.3%	100.0%	21.3%	77.3%	1.5%	100%
2037	10/1/2037	44.33	65.59	37.88	37.88	Oct-37	42.24	43.97	55.53	58.09	61.37	85.94	10/1/2037	35.9%	55.6%	8.5%	100.0%	24.3%	56.3%	20.4%	100%
2037	11/1/2037	60.72	61.28	37.88	37.88	Nov-37	58.65	59.35	70.91	52.86	58.76	82.54	11/1/2037	24.7%	61.9%	13.3%	100.0%	12.4%	73.9%	13.7%	100%
2037	12/1/2037	79.91	75.54	37.88	37.88	Dec-37	79.56	79.58	85.25	77.28	75.03	90.77	12/1/2037	23.3%	70.7%	6.0%	100.0%	19.5%	80.0%	0.5%	100%
2038	1/1/2038	59.35	59.35	41.94	41.94	Jan-38	57.50	64.37	71.34	51.52	58.35	78.75	1/1/2038	18.3%	66.0%	15.7%	100.0%	25.5%	61.1%	13.4%	100%
2038	2/1/2038	74.67	72.57	41.94	41.94	Feb-38	70.87	75.19	78.76	68.68	71.47	83.62	2/1/2038	20.4%	69.2%	10.3%	100.0%	17.7%	69.2%	13.1%	100%
2038	3/1/2038	35.27	43.16	41.94	41.94	Mar-38	33.09	35.85	37.75	39.98	42.70	55.37	3/1/2038	26.1%	66.6%	7.3%	100.0%	41.1%	46.4%	12.5%	100%
2038	4/1/2038	28.17	39.76	41.94	41.94	Apr-38	26.39	28.43	31.98	37.57	39.30	48.78	4/1/2038	27.3%	64.2%	6.4%	100.0%	20.5%	70.9%	8.6%	100%
2038	5/1/2038	14.03	25.87	41.94	41.94	May-38	10.45	13.13	36.38	21.81	24.05	60.18	5/1/2038	22.4%	71.1%	6.5%	100.0%	13.8%	80.2%	5.3%	100%
2038	6/1/2038	20.90	38.04	41.94	41.94	Jun-38	17.59	19.94	48.14	33.57	35.55	72.61	6/1/2038	35.4%	58.2%	6.3%	100.0%	19.9%	72.3%	7.8%	100%
2038	7/1/2038	80.18	77.22	41.94	41.94	Jul-38	77.93	79.39	108.07	74.30	76.46	127.81	7/1/2038	24.0%	72.0%	4.0%	100.0%	19.4%	78.3%	2.3%	100%
2038	8/1/2038	109.92	92.17	41.94	41.94	Aug-38	108.00	109.24	132.07	90.92	91.39	138.17	8/1/2038	30.2%	65.2%	4.6%	100.0%	15.7%	82.5%	1.8%	100%
2038	9/1/2038	83.16	86.52	41.94	41.94	Sep-38	80.98	82.79	97.43	84.52	85.48	122.07	9/1/2038	35.3%	57.9%	6.9%	100.0%	16.9%	79.8%	3.3%	100%
2038	10/1/2038	47.66	67.43	41.94	41.94	Oct-38	45.61	47.49	57.47	60.91	62.64	87.89	10/1/2038	38.7%	52.3%	9.0%	100.0%	22.0%	57.6%	20.5%	100%
2038	11/1/2038	64.23	62.37	41.94	41.94	Nov-38	60.59	64.28	76.04	57.81	61.72	86.37	11/1/2038	30.7%	60.1%	9.2%	100.0%	13.2%	82.0%	4.7%	100%
2038	12/1/2038	83.53	80.14	41.94	41.94	Dec-38	81.59	84.09	87.24	76.93	80.07	92.20	12/1/2038	26.7%	69.6%	3.6%	100.0%	17.7%	77.2%	5.2%	100%
2039	1/1/2039	64.25	57.84	46.43	46.43	Jan-39	56.24	65.81	74.40	48.98	57.64	80.62	1/1/2039	19.6%	76.7%	3.7%	100.0%	25.0%	64.7%	10.3%	100%
2039	2/1/2039	75.25	71.66	46.43	46.43	Feb-39	72.18	75.42	79.37	67.68	70.50	83.48	2/1/2039	21.7%	64.9%	13.4%	100.0%	15.3%	72.4%	12.3%	100%
2039	3/1/2039	33.25	43.77	46.43	46.43	Mar-39	30.85	33.81	36.98	41.30	43.95	54.39	3/1/2039	26.5%	66.3%	7.2%	100.0%	47.6%	42.0%	10.4%	100%
2039	4/1/2039	27.35	38.29	46.43	46.43	Apr-39	25.58	27.56	31.43	36.10	38.36	47.90	4/1/2039	24.4%	68.7%	6.9%	100.0%	16.6%	80.3%	3.2%	100%
2039	5/1/2039	14.79	26.10	46.43	46.43	May-39	11.31	13.92	36.50	21.04	23.45	59.18	5/1/2039	20.0%	73.8%	6.2%	100.0%	10.8%	81.1%	8.2%	100%
2039	6/1/2039	20.64	37.16	46.43	46.43	Jun-39	17.56	19.85	50.07	32.65	34.88	73.66	6/1/2039	32.8%	62.1%	5.1%	100.0%	18.6%	74.4%	7.0%	100%
2039	7/1/2039	79.20	81.15	46.43	46.43	Jul-39	75.60	77.46	110.50	78.34	79.93	126.95	7/1/2039	21.5%	72.0%	6.5%	100.0%	14.7%	82.2%	3.1%	100%
2039	8/1/2039	110.42	89.02	46.43	46.43	Aug-39	108.47	109.55	124.82	87.13	87.08	131.74	8/1/2039	27.7%	64.6%	7.6%	100.0%	12.3%	83.4%	4.3%	100%
2039	9/1/2039	77.19	88.99	46.43	46.43	Sep-39	74.98	76.62	93.53	86.78	87.73	124.05	9/1/2039	34.4%	58.9%	6.7%	100.0%	19.5%	76.5%	4.0%	100%
2039	10/1/2039	48.40	68.83	46.43	46.43	Oct-39	45.35	48.07	59.62	60.68	61.82	89.19	10/1/2039	29.9%	60.2%	9.9%	100.0%	12.8%	61.1%	26.1%	100%
2039	11/1/2039	66.92	60.35	46.43	46.43	Nov-39	63.30	66.46	77.91	56.99	58.90	86.57	11/1/2039	23.8%	65.5%	10.7%	100.0%	13.6%	80.2%	6.2%	100

2042	7/1/2042	76.68	80.31	63.00	63.00
2042	8/1/2042	89.16	95.71	63.00	63.00
2042	9/1/2042	84.15	84.60	63.00	63.00
2042	10/1/2042	49.75	71.42	63.00	63.00
2042	11/1/2042	58.22	61.30	63.00	63.00
2042	12/1/2042	88.42	80.25	63.00	63.00
2043	1/1/2043	67.99	60.64	64.36	64.36
2043	2/1/2043	88.40	77.01	64.36	64.36
2043	3/1/2043	42.92	46.67	64.36	64.36
2043	4/1/2043	25.88	40.51	64.36	64.36
2043	5/1/2043	15.96	26.03	64.36	64.36
2043	6/1/2043	20.52	38.69	64.36	64.36
2043	7/1/2043	76.68	80.31	64.36	64.36
2043	8/1/2043	89.16	95.71	64.36	64.36
2043	9/1/2043	84.15	84.60	64.36	64.36
2043	10/1/2043	49.75	71.42	64.36	64.36
2043	11/1/2043	58.22	61.30	64.36	64.36
2043	12/1/2043	88.42	80.25	64.36	64.36
2044	1/1/2044	67.99	60.64	65.74	65.74
2044	2/1/2044	88.40	77.01	65.74	65.74
2044	3/1/2044	42.92	46.67	65.74	65.74
2044	4/1/2044	25.88	40.51	65.74	65.74
2044	5/1/2044	15.96	26.03	65.74	65.74
2044	6/1/2044	20.52	38.69	65.74	65.74
2044	7/1/2044	76.68	80.31	65.74	65.74
2044	8/1/2044	89.16	95.71	65.74	65.74
2044	9/1/2044	84.15	84.60	65.74	65.74
2044	10/1/2044	49.75	71.42	65.74	65.74
2044	11/1/2044	58.22	61.30	65.74	65.74
2044	12/1/2044	88.42	80.25	65.74	65.74
2045	1/1/2045	67.99	60.64	67.16	67.16
2045	2/1/2045	88.40	77.01	67.16	67.16
2045	3/1/2045	42.92	46.67	67.16	67.16
2045	4/1/2045	25.88	40.51	67.16	67.16
2045	5/1/2045	15.96	26.03	67.16	67.16
2045	6/1/2045	20.52	38.69	67.16	67.16
2045	7/1/2045	76.68	80.31	67.16	67.16
2045	8/1/2045	89.16	95.71	67.16	67.16
2045	9/1/2045	84.15	84.60	67.16	67.16
2045	10/1/2045	49.75	71.42	67.16	67.16
2045	11/1/2045	58.22	61.30	67.16	67.16
2045	12/1/2045	88.42	80.25	67.16	67.16
2046	1/1/2046	67.99	60.64	68.61	68.61
2046	2/1/2046	88.40	77.01	68.61	68.61
2046	3/1/2046	42.92	46.67	68.61	68.61
2046	4/1/2046	25.88	40.51	68.61	68.61
2046	5/1/2046	15.96	26.03	68.61	68.61
2046	6/1/2046	20.52	38.69	68.61	68.61
2046	7/1/2046	76.68	80.31	68.61	68.61
2046	8/1/2046	89.16	95.71	68.61	68.61
2046	9/1/2046	84.15	84.60	68.61	68.61
2046	10/1/2046	49.75	71.42	68.61	68.61
2046	11/1/2046	58.22	61.30	68.61	68.61
2046	12/1/2046	88.42	80.25	68.61	68.61
2047	1/1/2047	67.99	60.64	70.09	70.09
2047	2/1/2047	88.40	77.01	70.09	70.09
2047	3/1/2047	42.92	46.67	70.09	70.09
2047	4/1/2047	25.88	40.51	70.09	70.09
2047	5/1/2047	15.96	26.03	70.09	70.09
2047	6/1/2047	20.52	38.69	70.09	70.09
2047	7/1/2047	76.68	80.31	70.09	70.09
2047	8/1/2047	89.16	95.71	70.09	70.09
2047	9/1/2047	84.15	84.60	70.09	70.09
2047	10/1/2047	49.75	71.42	70.09	70.09
2047	11/1/2047	58.22	61.30	70.09	70.09
2047	12/1/2047	88.42	80.25	70.09	70.09
2048	1/1/2048	67.99	60.64	71.60	71.60
2048	2/1/2048	88.40	77.01	71.60	71.60
2048	3/1/2048	42.92	46.67	71.60	71.60
2048	4/1/2048	25.88	40.51	71.60	71.60
2048	5/1/2048	15.96	26.03	71.60	71.60
2048	6/1/2048	20.52	38.69	71.60	71.60
2048	7/1/2048	76.68	80.31	71.60	71.60
2048	8/1/2048	89.16	95.71	71.60	71.60
2048	9/1/2048	84.15	84.60	71.60	71.60
2048	10/1/2048	49.75	71.42	71.60	71.60
2048	11/1/2048	58.22	61.30	71.60	71.60
2048	12/1/2048	88.42	80.25	71.60	71.60
2049	1/1/2049	67.99	60.64	73.14	73.14
2049	2/1/2049	88.40	77.01	73.14	73.14
2049	3/1/2049	42.92	46.67	73.14	73.14
2049	4/1/2049	25.88	40.51	73.14	73.14
2049	5/1/2049	15.96	26.03	73.14	73.14
2049	6/1/2049	20.52	38.69	73.14	73.14
2049	7/1/2049	76.68	80.31	73.14	73.14
2049	8/1/2049	89.16	95.71	73.14	73.14
2049	9/1/2049	84.15	84.60	73.14	73.14

Jul-42	73.62	75.94	123.15	76.32	78.10	140.96
Aug-42	85.09	87.38	130.10	89.10	90.14	151.40
Sep-42	79.86	82.64	116.52	82.76	82.99	127.93
Oct-42	46.75	49.04	69.31	61.52	63.28	92.34
Nov-42	52.62	58.54	78.29	53.26	58.36	87.30
Dec-42	86.52	88.98	98.23	76.20	82.17	96.15

7/1/2042	27.4%	69.7%	2.9%	100.0%	32.5%	63.1%	4.4%	100.0%
8/1/2042	30.8%	63.4%	5.8%	100.0%	38.5%	51.8%	9.7%	100.0%
9/1/2042	33.7%	59.0%	7.2%	100.0%	41.9%	54.3%	3.8%	100.0%
10/1/2042	36.4%	56.0%	7.6%	100.0%	30.9%	39.2%	29.9%	100.0%
11/1/2042	28.8%	64.2%	7.0%	100.0%	21.6%	64.4%	14.0%	100.0%
12/1/2042	31.8%	65.9%	2.3%	100.0%	33.4%	66.0%	0.5%	100.0%

2049	10/1/2049	49.75	71.42	73.14	73.14
2049	11/1/2049	58.22	61.30	73.14	73.14
2049	12/1/2049	88.42	80.25	73.14	73.14
2050	1/1/2050	67.99	60.64	74.72	74.72
2050	2/1/2050	88.40	77.01	74.72	74.72
2050	3/1/2050	42.92	46.67	74.72	74.72
2050	4/1/2050	25.88	40.51	74.72	74.72
2050	5/1/2050	15.96	26.03	74.72	74.72
2050	6/1/2050	20.52	38.69	74.72	74.72
2050	7/1/2050	76.68	80.31	74.72	74.72
2050	8/1/2050	89.16	95.71	74.72	74.72
2050	9/1/2050	84.15	84.60	74.72	74.72
2050	10/1/2050	49.75	71.42	74.72	74.72
2050	11/1/2050	58.22	61.30	74.72	74.72
2050	12/1/2050	88.42	80.25	74.72	74.72
2051	1/1/2051	67.99	60.64	76.33	76.33
2051	2/1/2051	88.40	77.01	76.33	76.33
2051	3/1/2051	42.92	46.67	76.33	76.33
2051	4/1/2051	25.88	40.51	76.33	76.33
2051	5/1/2051	15.96	26.03	76.33	76.33
2051	6/1/2051	20.52	38.69	76.33	76.33
2051	7/1/2051	76.68	80.31	76.33	76.33
2051	8/1/2051	89.16	95.71	76.33	76.33
2051	9/1/2051	84.15	84.60	76.33	76.33
2051	10/1/2051	49.75	71.42	76.33	76.33
2051	11/1/2051	58.22	61.30	76.33	76.33
2051	12/1/2051	88.42	80.25	76.33	76.33
2052	1/1/2052	67.99	60.64	77.97	77.97
2052	2/1/2052	88.40	77.01	77.97	77.97
2052	3/1/2052	42.92	46.67	77.97	77.97
2052	4/1/2052	25.88	40.51	77.97	77.97
2052	5/1/2052	15.96	26.03	77.97	77.97
2052	6/1/2052	20.52	38.69	77.97	77.97
2052	7/1/2052	76.68	80.31	77.97	77.97
2052	8/1/2052	89.16	95.71	77.97	77.97
2052	9/1/2052	84.15	84.60	77.97	77.97
2052	10/1/2052	49.75	71.42	77.97	77.97
2052	11/1/2052	58.22	61.30	77.97	77.97
2052	12/1/2052	88.42	80.25	77.97	77.97
2053	1/1/2053	67.99	60.64	79.65	79.65
2053	2/1/2053	88.40	77.01	79.65	79.65
2053	3/1/2053	42.92	46.67	79.65	79.65
2053	4/1/2053	25.88	40.51	79.65	79.65
2053	5/1/2053	15.96	26.03	79.65	79.65
2053	6/1/2053	20.52	38.69	79.65	79.65
2053	7/1/2053	76.68	80.31	79.65	79.65
2053	8/1/2053	89.16	95.71	79.65	79.65
2053	9/1/2053	84.15	84.60	79.65	79.65
2053	10/1/2053	49.75	71.42	79.65	79.65
2053	11/1/2053	58.22	61.30	79.65	79.65
2053	12/1/2053	88.42	80.25	79.65	79.65
2054	1/1/2054	67.99	60.64	81.37	81.37
2054	2/1/2054	88.40	77.01	81.37	81.37
2054	3/1/2054	42.92	46.67	81.37	81.37
2054	4/1/2054	25.88	40.51	81.37	81.37
2054	5/1/2054	15.96	26.03	81.37	81.37
2054	6/1/2054	20.52	38.69	81.37	81.37
2054	7/1/2054	76.68	80.31	81.37	81.37
2054	8/1/2054	89.16	95.71	81.37	81.37
2054	9/1/2054	84.15	84.60	81.37	81.37
2054	10/1/2054	49.75	71.42	81.37	81.37
2054	11/1/2054	58.22	61.30	81.37	81.37
2054	12/1/2054	88.42	80.25	81.37	81.37
2055	1/1/2055	67.99	60.64	83.12	83.12
2055	2/1/2055	88.40	77.01	83.12	83.12
2055	3/1/2055	42.92	46.67	83.12	83.12
2055	4/1/2055	25.88	40.51	83.12	83.12
2055	5/1/2055	15.96	26.03	83.12	83.12
2055	6/1/2055	20.52	38.69	83.12	83.12
2055	7/1/2055	76.68	80.31	83.12	83.12
2055	8/1/2055	89.16	95.71	83.12	83.12
2055	9/1/2055	84.15	84.60	83.12	83.12
2055	10/1/2055	49.75	71.42	83.12	83.12
2055	11/1/2055	58.22	61.30	83.12	83.12
2055	12/1/2055	88.42	80.25	83.12	83.12
2056	1/1/2056	67.99	60.64	84.91	84.91
2056	2/1/2056	88.40	77.01	84.91	84.91
2056	3/1/2056	42.92	46.67	84.91	84.91
2056	4/1/2056	25.88	40.51	84.91	84.91
2056	5/1/2056	15.96	26.03	84.91	84.91
2056	6/1/2056	20.52	38.69	84.91	84.91
2056	7/1/2056	76.68	80.31	84.91	84.91
2056	8/1/2056	89.16	95.71	84.91	84.91
2056	9/1/2056	84.15	84.60	84.91	84.91
2056	10/1/2056	49.75	71.42	84.91	84.91
2056	11/1/2056	58.22	61.30	84.91	84.91
2056	12/1/2056	88.42	80.25	84.91	84.91

2057	1/1/2057	67.99	60.64	86.74	86.74
2057	2/1/2057	88.40	77.01	86.74	86.74
2057	3/1/2057	42.92	46.67	86.74	86.74
2057	4/1/2057	25.88	40.51	86.74	86.74
2057	5/1/2057	15.96	26.03	86.74	86.74
2057	6/1/2057	20.52	38.69	86.74	86.74
2057	7/1/2057	76.68	80.31	86.74	86.74
2057	8/1/2057	89.16	95.71	86.74	86.74
2057	9/1/2057	84.15	84.60	86.74	86.74
2057	10/1/2057	49.75	71.42	86.74	86.74
2057	11/1/2057	58.22	61.30	86.74	86.74
2057	12/1/2057	88.42	80.25	86.74	86.74
2058	1/1/2058	67.99	60.64	88.61	88.61
2058	2/1/2058	88.40	77.01	88.61	88.61
2058	3/1/2058	42.92	46.67	88.61	88.61
2058	4/1/2058	25.88	40.51	88.61	88.61
2058	5/1/2058	15.96	26.03	88.61	88.61
2058	6/1/2058	20.52	38.69	88.61	88.61
2058	7/1/2058	76.68	80.31	88.61	88.61
2058	8/1/2058	89.16	95.71	88.61	88.61
2058	9/1/2058	84.15	84.60	88.61	88.61
2058	10/1/2058	49.75	71.42	88.61	88.61
2058	11/1/2058	58.22	61.30	88.61	88.61
2058	12/1/2058	88.42	80.25	88.61	88.61
2059	1/1/2059	67.99	60.64	90.52	90.52
2059	2/1/2059	88.40	77.01	90.52	90.52
2059	3/1/2059	42.92	46.67	90.52	90.52
2059	4/1/2059	25.88	40.51	90.52	90.52
2059	5/1/2059	15.96	26.03	90.52	90.52
2059	6/1/2059	20.52	38.69	90.52	90.52
2059	7/1/2059	76.68	80.31	90.52	90.52
2059	8/1/2059	89.16	95.71	90.52	90.52
2059	9/1/2059	84.15	84.60	90.52	90.52
2059	10/1/2059	49.75	71.42	90.52	90.52
2059	11/1/2059	58.22	61.30	90.52	90.52
2059	12/1/2059	88.42	80.25	90.52	90.52
2060	1/1/2060	67.99	60.64	92.47	92.47
2060	2/1/2060	88.40	77.01	92.47	92.47
2060	3/1/2060	42.92	46.67	92.47	92.47
2060	4/1/2060	25.88	40.51	92.47	92.47
2060	5/1/2060	15.96	26.03	92.47	92.47
2060	6/1/2060	20.52	38.69	92.47	92.47
2060	7/1/2060	76.68	80.31	92.47	92.47
2060	8/1/2060	89.16	95.71	92.47	92.47
2060	9/1/2060	84.15	84.60	92.47	92.47
2060	10/1/2060	49.75	71.42	92.47	92.47
2060	11/1/2060	58.22	61.30	92.47	92.47
2060	12/1/2060	88.42	80.25	92.47	92.47
2061	1/1/2061	67.99	60.64	94.46	94.46
2061	2/1/2061	88.40	77.01	94.46	94.46
2061	3/1/2061	42.92	46.67	94.46	94.46
2061	4/1/2061	25.88	40.51	94.46	94.46
2061	5/1/2061	15.96	26.03	94.46	94.46
2061	6/1/2061	20.52	38.69	94.46	94.46
2061	7/1/2061	76.68	80.31	94.46	94.46
2061	8/1/2061	89.16	95.71	94.46	94.46
2061	9/1/2061	84.15	84.60	94.46	94.46
2061	10/1/2061	49.75	71.42	94.46	94.46
2061	11/1/2061	58.22	61.30	94.46	94.46
2061	12/1/2061	88.42	80.25	94.46	94.46
2062	1/1/2062	67.99	60.64	96.50	96.50
2062	2/1/2062	88.40	77.01	96.50	96.50
2062	3/1/2062	42.92	46.67	96.50	96.50
2062	4/1/2062	25.88	40.51	96.50	96.50
2062	5/1/2062	15.96	26.03	96.50	96.50
2062	6/1/2062	20.52	38.69	96.50	96.50
2062	7/1/2062	76.68	80.31	96.50	96.50
2062	8/1/2062	89.16	95.71	96.50	96.50
2062	9/1/2062	84.15	84.60	96.50	96.50
2062	10/1/2062	49.75	71.42	96.50	96.50
2062	11/1/2062	58.22	61.30	96.50	96.50
2062	12/1/2062	88.42	80.25	96.50	96.50
2063	1/1/2063	67.99	60.64	98.58	98.58
2063	2/1/2063	88.40	77.01	98.58	98.58
2063	3/1/2063	42.92	46.67	98.58	98.58
2063	4/1/2063	25.88	40.51	98.58	98.58
2063	5/1/2063	15.96	26.03	98.58	98.58
2063	6/1/2063	20.52	38.69	98.58	98.58
2063	7/1/2063	76.68	80.31	98.58	98.58
2063	8/1/2063	89.16	95.71	98.58	98.58
2063	9/1/2063	84.15	84.60	98.58	98.58
2063	10/1/2063	49.75	71.42	98.58	98.58
2063	11/1/2063	58.22	61.30	98.58	98.58
2063	12/1/2063	88.42	80.25	98.58	98.58
2064	1/1/2064	67.99	60.64	100.70	100.70
2064	2/1/2064	88.40	77.01	100.70	100.70
2064	3/1/2064	42.92	46.67	100.70	100.70

2064	4/1/2064	25.88	40.51	100.70	100.70
2064	5/1/2064	15.96	26.03	100.70	100.70
2064	6/1/2064	20.52	38.69	100.70	100.70
2064	7/1/2064	76.68	80.31	100.70	100.70
2064	8/1/2064	89.16	95.71	100.70	100.70
2064	9/1/2064	84.15	84.60	100.70	100.70
2064	10/1/2064	49.75	71.42	100.70	100.70
2064	11/1/2064	58.22	61.30	100.70	100.70
2064	12/1/2064	88.42	80.25	100.70	100.70
2065	1/1/2065	67.99	60.64	102.87	102.87
2065	2/1/2065	88.40	77.01	102.87	102.87
2065	3/1/2065	42.92	46.67	102.87	102.87
2065	4/1/2065	25.88	40.51	102.87	102.87
2065	5/1/2065	15.96	26.03	102.87	102.87
2065	6/1/2065	20.52	38.69	102.87	102.87
2065	7/1/2065	76.68	80.31	102.87	102.87
2065	8/1/2065	89.16	95.71	102.87	102.87
2065	9/1/2065	84.15	84.60	102.87	102.87
2065	10/1/2065	49.75	71.42	102.87	102.87
2065	11/1/2065	58.22	61.30	102.87	102.87
2065	12/1/2065	88.42	80.25	102.87	102.87
2066	1/1/2066	67.99	60.64	105.09	105.09
2066	2/1/2066	88.40	77.01	105.09	105.09
2066	3/1/2066	42.92	46.67	105.09	105.09
2066	4/1/2066	25.88	40.51	105.09	105.09
2066	5/1/2066	15.96	26.03	105.09	105.09
2066	6/1/2066	20.52	38.69	105.09	105.09
2066	7/1/2066	76.68	80.31	105.09	105.09
2066	8/1/2066	89.16	95.71	105.09	105.09
2066	9/1/2066	84.15	84.60	105.09	105.09
2066	10/1/2066	49.75	71.42	105.09	105.09
2066	11/1/2066	58.22	61.30	105.09	105.09
2066	12/1/2066	88.42	80.25	105.09	105.09
2067	1/1/2067	67.99	60.64	107.35	107.35
2067	2/1/2067	88.40	77.01	107.35	107.35
2067	3/1/2067	42.92	46.67	107.35	107.35
2067	4/1/2067	25.88	40.51	107.35	107.35
2067	5/1/2067	15.96	26.03	107.35	107.35
2067	6/1/2067	20.52	38.69	107.35	107.35
2067	7/1/2067	76.68	80.31	107.35	107.35
2067	8/1/2067	89.16	95.71	107.35	107.35
2067	9/1/2067	84.15	84.60	107.35	107.35
2067	10/1/2067	49.75	71.42	107.35	107.35
2067	11/1/2067	58.22	61.30	107.35	107.35
2067	12/1/2067	88.42	80.25	107.35	107.35
2068	1/1/2068	67.99	60.64	109.67	109.67
2068	2/1/2068	88.40	77.01	109.67	109.67
2068	3/1/2068	42.92	46.67	109.67	109.67
2068	4/1/2068	25.88	40.51	109.67	109.67
2068	5/1/2068	15.96	26.03	109.67	109.67
2068	6/1/2068	20.52	38.69	109.67	109.67
2068	7/1/2068	76.68	80.31	109.67	109.67
2068	8/1/2068	89.16	95.71	109.67	109.67
2068	9/1/2068	84.15	84.60	109.67	109.67
2068	10/1/2068	49.75	71.42	109.67	109.67
2068	11/1/2068	58.22	61.30	109.67	109.67
2068	12/1/2068	88.42	80.25	109.67	109.67
2069	1/1/2069	67.99	60.64	112.03	112.03
2069	2/1/2069	88.40	77.01	112.03	112.03
2069	3/1/2069	42.92	46.67	112.03	112.03
2069	4/1/2069	25.88	40.51	112.03	112.03
2069	5/1/2069	15.96	26.03	112.03	112.03
2069	6/1/2069	20.52	38.69	112.03	112.03
2069	7/1/2069	76.68	80.31	112.03	112.03
2069	8/1/2069	89.16	95.71	112.03	112.03
2069	9/1/2069	84.15	84.60	112.03	112.03
2069	10/1/2069	49.75	71.42	112.03	112.03
2069	11/1/2069	58.22	61.30	112.03	112.03
2069	12/1/2069	88.42	80.25	112.03	112.03
2070	1/1/2070	67.99	60.64	114.45	114.45
2070	2/1/2070	88.40	77.01	114.45	114.45
2070	3/1/2070	42.92	46.67	114.45	114.45
2070	4/1/2070	25.88	40.51	114.45	114.45
2070	5/1/2070	15.96	26.03	114.45	114.45
2070	6/1/2070	20.52	38.69	114.45	114.45
2070	7/1/2070	76.68	80.31	114.45	114.45
2070	8/1/2070	89.16	95.71	114.45	114.45
2070	9/1/2070	84.15	84.60	114.45	114.45
2070	10/1/2070	49.75	71.42	114.45	114.45
2070	11/1/2070	58.22	61.30	114.45	114.45
2070	12/1/2070	88.42	80.25	114.45	114.45

Alternative Submissions

Rationale for alternative submission:
 The prices in PacifiCorp's acknowledged 2021 IRP are from March 2021 and are now roughly 36 months out of date. The alternative prices reflect the medium gas, zero CO2 pricing from PacifiCorp's approved Standard QF Pricing, which reflect March 2023 inputs.

Forward Price Inputs

Real or Nominal?	Nominal
Dollar Year:	n/a
Carbon Prices Additive?	Additive
Carbon Value Units (\$/MWh or \$/Ton)	
Source and Pg #:	S/Ton
Source Link or File Name:	March 2023 Medium Gas/Zero CO2 electricity market prices used Data for 2043+ escalated at inflation
Source Notes:	

NOTES:

Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/Ton. Please identify the units in the box to the left

OPPC Dated 3/31/2023

From Standard QF AC effective 2023 09 22

Year	Date	HLH Total (\$/MWh)	LLH Total (\$/MWh)	HLH Carbon Cost (\$/ton)	LLH Carbon Cost (\$/ton)
2022	1/1/2022				
2022	2/1/2022				
2022	3/1/2022				
2022	4/1/2022				
2022	5/1/2022				
2022	6/1/2022				
2022	7/1/2022				
2022	8/1/2022				
2022	9/1/2022				
2022	10/1/2022				
2022	11/1/2022				
2022	12/1/2022				
2023	1/1/2023	137.38	141.52		
2023	2/1/2023	81.90	71.81		
2023	3/1/2023	77.05	80.75		
2023	4/1/2023	85.79	71.50		
2023	5/1/2023	66.62	55.44		
2023	6/1/2023	73.12	41.62		
2023	7/1/2023	165.74	71.57		
2023	8/1/2023	266.05	100.40		
2023	9/1/2023	224.94	94.03		
2023	10/1/2023	82.55	63.44		
2023	11/1/2023	94.62	79.13		
2023	12/1/2023	133.81	101.48		
2024	1/1/2024	130.30	103.46		
2024	2/1/2024	108.98	90.67		
2024	3/1/2024	68.08	55.14		
2024	4/1/2024	55.75	51.26		
2024	5/1/2024	49.04	41.94		
2024	6/1/2024	57.79	43.50		
2024	7/1/2024	191.98	84.12		
2024	8/1/2024	236.99	114.13		
2024	9/1/2024	182.85	83.06		
2024	10/1/2024	78.19	56.17		
2024	11/1/2024	93.44	69.91		
2024	12/1/2024	131.60	101.63		
2025	1/1/2025	117.07	96.44		
2025	2/1/2025	101.74	84.26		
2025	3/1/2025	84.08	70.37		
2025	4/1/2025	54.68	50.68		
2025	5/1/2025	54.83	45.25		
2025	6/1/2025	58.16	46.10		
2025	7/1/2025	199.09	89.44		
2025	8/1/2025	217.66	101.05		
2025	9/1/2025	181.97	84.93		
2025	10/1/2025	87.97	74.52		
2025	11/1/2025	97.83	82.25		
2025	12/1/2025	114.13	96.03		
2026	1/1/2026	112.36	88.63		
2026	2/1/2026	94.72	77.50		
2026	3/1/2026	74.64	63.97		
2026	4/1/2026	63.71	51.98		
2026	5/1/2026	35.99	36.89		
2026	6/1/2026	48.02	41.75		
2026	7/1/2026	129.78	74.31		
2026	8/1/2026	148.42	82.67		
2026	9/1/2026	124.95	72.10		
2026	10/1/2026	69.82	66.42		
2026	11/1/2026	76.14	69.64		
2026	12/1/2026	90.49	78.89		
2027	1/1/2027	87.14	71.74		
2027	2/1/2027	83.41	69.43		
2027	3/1/2027	60.14	57.27		
2027	4/1/2027	53.18	48.49		
2027	5/1/2027	27.90	27.90		
2027	6/1/2027	32.00	34.77		
2027	7/1/2027	65.44	54.82		
2027	8/1/2027	82.36	62.74		
2027	9/1/2027	75.17	56.67		
2027	10/1/2027	59.38	57.97		
2027	11/1/2027	62.41	57.79		
2027	12/1/2027	64.96	58.77		

Start	HLH			LLH		
	COB	Mid C	PV	COB	Mid C	PV
Jan-23	135.52	146.06	141.44	152.94	145.07	128.70
Feb-23	80.84	91.57	69.32	75.39	72.67	63.75
Mar-23	82.50	87.31	61.37	95.57	83.67	66.22
Apr-23	107.50	92.03	46.02	102.50	83.50	54.46
May-23	91.04	69.49	43.40	82.12	57.01	44.98
Jun-23	97.79	72.97	91.36	66.61	41.62	63.81
Jul-23	203.02	163.42	203.97	92.15	71.42	88.00
Aug-23	308.99	254.76	264.96	130.59	100.30	111.94
Sep-23	255.30	210.60	194.19	120.67	93.92	94.42
Oct-23	103.67	84.85	63.65	90.07	73.04	54.26
Nov-23	114.95	95.66	65.72	99.32	81.30	67.12
Dec-23	158.37	134.52	100.67	122.27	102.98	91.60
Jan-24	154.42	130.75	102.23	127.17	105.35	98.78
Feb-24	130.45	109.21	83.26	109.82	90.21	88.86
Mar-24	85.45	69.18	58.08	70.16	54.98	56.60
Apr-24	85.78	59.03	43.97	85.44	52.43	48.22
May-24	79.79	51.58	40.35	71.02	41.72	48.86
Jun-24	83.55	55.64	93.36	80.21	42.59	66.33
Jul-24	236.56	179.70	223.81	120.56	83.41	87.24
Aug-24	291.75	224.19	237.21	157.81	116.61	99.95
Sep-24	225.44	169.45	189.81	111.40	82.51	84.02
Oct-24	109.83	78.82	63.66	78.14	56.06	63.65
Nov-24	126.58	93.86	69.71	95.80	69.92	69.82
Dec-24	170.79	131.10	107.10	133.30	101.40	104.50
Jan-25	156.81	117.13	100.27	129.54	96.42	104.83
Feb-25	137.35	101.24	77.30	115.20	84.28	82.44
Mar-25	118.01	84.25	64.99	102.96	70.26	69.87
Apr-25	82.61	56.75	35.84	83.26	51.12	47.01
May-25	84.09	54.18	30.48	77.15	45.28	41.96
Jun-25	84.02	55.79	72.40	84.35	44.84	71.86
Jul-25	234.98	177.65	211.25	127.16	87.80	102.65
Aug-25	263.71	201.25	212.62	136.02	100.40	102.63
Sep-25	221.80	166.03	174.96	114.64	84.88	99.43
Oct-25	123.11	88.30	66.26	104.13	74.63	70.62
Nov-25	131.89	97.46	65.65	113.12	82.31	69.40
Dec-25	149.02	113.58	102.80	125.44	95.37	104.68
Jan-26	157.33	117.11	97.68	119.79	88.61	97.30
Feb-26	137.06	100.84	70.23	106.03	77.19	71.56
Mar-26	116.34	83.00	60.98	94.13	63.99	61.33
Apr-26	101.98	70.70	38.06	89.19	54.48	40.55
May-26	50.90	37.65	30.56	51.49	36.58	41.26
Jun-26	56.91	44.11	59.15	58.66	39.75	59.42
Jul-26	149.75	121.53	141.17	90.41	71.20	86.01
Aug-26	172.42	141.99	148.08	98.21	81.46	89.56
Sep-26	147.34	120.55	126.36	84.81	70.50	82.71
Oct-26	89.88	74.52	63.03	79.71	66.00	66.82
Nov-26	96.30	81.05	63.89	83.78	70.41	64.59
Dec-26	105.85	90.13	83.49	90.52	77.56	82.94
Jan-27	107.15	89.18	77.26	85.16	70.53	77.16
Feb-27	102.25	86.23	67.89	82.38	68.98	67.71
Mar-27	77.34	62.80	49.77	69.30	56.12	55.14
Apr-27	67.60	53.84	37.25	62.53	46.96	40.63
May-27	17.70	21.11	30.64	25.83	27.88	40.57
Jun-27	29.80	32.42	45.90	32.98	34.67	46.99
Jul-27	64.52	65.42	71.09	53.66	54.61	69.37
Aug-27	81.14	82.73	83.54	60.39	62.52	76.49
Sep-27	72.89	75.08	77.75	54.98	56.11	65.99
Oct-27	56.65	60.73	59.80	55.29	57.36	63.02
Nov-27	60.71	64.64	62.13	54.44	58.52	59.77
Dec-27	62.68	66.68	64.17	55.60	59.74	61.20

Percent Breakdown of the Change in System Balancing Purchases and Sales

Sum of De	Hour Class			HLH Total	LLH			LLH Total
	COB	Mid C	PV		COB	Mid C	PV	
Jan-22								
Feb-22								
Mar-22								
Apr-22								
May-22								
Jun-22								
Jul-22								
Aug-22								
Sep-22								
Oct-22								
Nov-22								
Dec-22								
1/1/2023	81.9%	17.1%	1.0%	100.0%	0.0%	78.3%	21.7%	100%
2/1/2023	58.4%	26.3%	15.3%	100.0%	40.7%	37.4%	21.9%	100%
3/1/2023	36.0%	31.1%	32.9%	100.0%	18.8%	51.6%	29.6%	100%
4/1/2023	34.5%	40.3%	25.2%	100.0%	0.0%	58.7%	41.3%	100%
5/1/2023	0.2%	88.7%	11.1%	100.0%	0.0%	87.0%	13.0%	100%
6/1/2023	0.4%	99.3%	0.4%	100.0%	0.0%	100.0%	0.0%	100%
7/1/2023	4.8%	94.2%	1.0%	100.0%	0.7%	99.3%	0.0%	100%
8/1/2023	20.7%	78.8%	0.5%	100.0%	0.0%	99.2%	0.8%	100%
9/1/2023	33.8%	61.5%	4.7%	100.0%	0.0%	77.3%	22.7%	100%
10/1/2023	0.0%	89.2%	10.8%	100.0%	0.0%	48.9%	51.1%	100%
11/1/2023	0.0%	96.5%	3.5%	100.0%	0.0%	84.7%	15.3%	100%
12/1/2023	0.0%	97.9%	2.1%	100.0%	0.0%	86.8%	13.2%	100%
1/1/2024	0.0%	98.4%	1.6%	100.0%	0.0%	71.2%	28.8%	100%
2/1/2024	3.9%	92.0%	4.1%	100.0%	3.5%	80.2%	16.4%	100%
3/1/2024	0.0%	90.1%	9.9%	100.0%	0.3%	92.3%	7.4%	100%
4/1/2024	0.8%	76.1%	23.2%	100.0%	0.0%	72.1%	27.9%	100%
5/1/2024	0.2%	76.5%	23.2%	100.0%	0.5%	98.6%	0.9%	100%
6/1/2024	7.3%	92.4%	0.3%	100.0%	1.2%	96.9%	1.9%	100%
7/1/2024	15.1%	76.5%	8.3%	100.0%	1.5%	94.3%	4.2%	100%
8/1/2024	17.4%	74.4%	8.2%	100.0%	0.0%	85.1%	14.9%	100%
9/1/2024	21.2%	71.2%	7.6%	100.0%	1.1%	84.2%	14.7%	100%
10/1/2024	0.0%	95.8%	4.2%	100.0%	0.0%	98.6%	1.4%	100%
11/1/2024	0.0%	98.3%	1.7%	100.0%	0.0%	90.1%	9.9%	100%
12/1/2024	1.3%	98.7%	0.0%	100.0%	0.0%	92.6%	7.4%	100%
1/1/2025	0.0%	99.6%	0.4%	100.0%	0.0%	99.9%	0.1%	100%
2/1/2025	1.4%	98.6%	0.0%	100.0%	0.0%			

2028	1/1/2028	58.73	52.51	
2028	2/1/2028	69.05	60.49	
2028	3/1/2028	40.07	47.38	
2028	4/1/2028	35.97	38.40	
2028	5/1/2028	20.89	26.27	
2028	6/1/2028	31.99	34.97	
2028	7/1/2028	56.37	56.37	
2028	8/1/2028	81.50	64.17	
2028	9/1/2028	75.25	59.33	
2028	10/1/2028	62.35	57.29	
2028	11/1/2028	63.99	58.77	
2028	12/1/2028	65.02	60.08	
2029	1/1/2029	59.26	57.75	
2029	2/1/2029	72.48	65.53	
2029	3/1/2029	43.94	50.53	
2029	4/1/2029	35.11	38.97	
2029	5/1/2029	20.63	26.58	
2029	6/1/2029	26.77	35.92	
2029	7/1/2029	64.00	54.85	
2029	8/1/2029	83.69	63.84	
2029	9/1/2029	73.29	59.68	
2029	10/1/2029	56.79	56.08	
2029	11/1/2029	66.44	59.66	
2029	12/1/2029	64.87	64.44	
2030	1/1/2030	60.60	58.10	
2030	2/1/2030	73.95	66.54	
2030	3/1/2030	44.29	50.02	
2030	4/1/2030	32.40	39.45	
2030	5/1/2030	21.20	26.38	
2030	6/1/2030	28.24	34.91	
2030	7/1/2030	66.11	57.19	
2030	8/1/2030	83.47	66.90	
2030	9/1/2030	74.90	63.37	
2030	10/1/2030	55.89	59.31	
2030	11/1/2030	66.09	61.67	
2030	12/1/2030	69.03	72.07	
2031	1/1/2031	60.68	56.99	
2031	2/1/2031	75.68	65.19	
2031	3/1/2031	43.23	46.96	
2031	4/1/2031	31.10	38.92	
2031	5/1/2031	17.57	27.45	
2031	6/1/2031	27.78	37.58	
2031	7/1/2031	70.15	58.89	
2031	8/1/2031	86.40	69.14	
2031	9/1/2031	78.37	65.81	
2031	10/1/2031	53.72	59.96	
2031	11/1/2031	71.35	65.73	
2031	12/1/2031	73.56	68.76	
2032	1/1/2032	59.09	56.09	
2032	2/1/2032	68.76	63.60	
2032	3/1/2032	45.03	53.05	
2032	4/1/2032	29.14	39.95	
2032	5/1/2032	15.01	25.15	
2032	6/1/2032	26.35	37.00	
2032	7/1/2032	61.85	60.59	
2032	8/1/2032	84.61	66.68	
2032	9/1/2032	76.87	65.26	
2032	10/1/2032	53.35	58.16	
2032	11/1/2032	64.92	66.09	
2032	12/1/2032	75.22	69.60	
2033	1/1/2033	54.69	48.87	
2033	2/1/2033	65.28	55.26	
2033	3/1/2033	33.69	45.80	
2033	4/1/2033	20.62	33.24	
2033	5/1/2033	12.90	20.32	
2033	6/1/2033	24.14	37.25	
2033	7/1/2033	46.86	51.05	
2033	8/1/2033	72.56	59.49	
2033	9/1/2033	58.92	58.21	
2033	10/1/2033	40.61	51.06	
2033	11/1/2033	60.78	52.92	
2033	12/1/2033	67.04	65.67	
2034	1/1/2034	46.87	45.98	
2034	2/1/2034	66.63	62.97	
2034	3/1/2034	39.44	44.15	
2034	4/1/2034	25.97	34.06	
2034	5/1/2034	11.96	16.59	
2034	6/1/2034	22.82	37.43	
2034	7/1/2034	54.07	57.93	
2034	8/1/2034	70.05	59.15	
2034	9/1/2034	63.67	61.95	
2034	10/1/2034	43.82	52.55	
2034	11/1/2034	57.15	54.71	
2034	12/1/2034	72.62	70.41	
2035	1/1/2035	50.27	57.38	
2035	2/1/2035	68.33	65.91	
2035	3/1/2035	38.83	44.87	

Jan-28	56.97	61.24	56.84	50.52	52.45	57.01
Feb-28	67.44	71.62	65.54	58.73	60.77	63.87
Mar-28	38.35	42.19	38.56	44.46	48.25	48.96
Apr-28	33.21	36.99	36.43	35.87	39.24	40.72
May-28	17.63	20.94	27.62	24.33	26.30	38.04
Jun-28	29.89	32.33	45.61	32.38	34.14	46.22
Jul-28	65.91	66.83	70.29	54.93	55.90	69.56
Aug-28	80.34	82.04	81.54	62.38	63.82	75.96
Sep-28	73.88	76.18	74.71	57.97	59.16	67.33
Oct-28	58.96	62.94	63.98	55.26	57.97	62.21
Nov-28	62.11	66.29	65.58	55.43	59.59	61.53
Dec-28	62.48	66.78	63.95	56.20	61.01	62.83
Jan-29	57.48	61.81	57.92	55.84	57.41	62.03
Feb-29	71.30	75.65	65.76	63.63	65.39	68.82
Mar-29	42.14	46.47	40.78	47.93	51.67	51.12
Apr-29	32.94	36.78	34.91	36.01	39.49	40.72
May-29	17.32	20.73	28.07	24.23	26.34	38.28
Jun-29	24.60	27.06	40.06	32.91	34.69	47.14
Jul-29	62.82	64.12	69.94	53.36	54.57	68.42
Aug-29	82.06	84.13	86.15	61.95	63.22	76.15
Sep-29	71.18	73.64	76.63	58.50	59.65	70.26
Oct-29	53.23	57.43	58.76	53.76	56.38	63.95
Nov-29	64.84	68.97	66.95	56.20	60.43	63.70
Dec-29	62.30	66.45	64.59	60.10	65.27	67.36
Jan-30	59.13	63.75	56.18	55.76	58.12	62.76
Feb-30	72.32	76.63	70.27	63.72	66.81	69.96
Mar-30	43.15	47.34	41.72	47.03	51.57	51.48
Apr-30	29.81	34.02	31.35	36.12	39.96	42.83
May-30	17.09	21.19	27.27	23.51	26.01	38.08
Jun-30	25.71	28.88	41.57	32.22	34.24	48.06
Jul-30	64.72	66.19	73.46	55.63	56.70	73.38
Aug-30	81.54	83.89	86.68	65.15	66.57	79.69
Sep-30	72.58	74.86	78.57	62.34	63.43	73.52
Oct-30	52.14	56.27	58.56	56.67	59.16	65.99
Nov-30	63.75	68.07	68.54	58.01	62.34	66.54
Dec-30	66.01	70.81	68.32	68.24	72.67	75.21
Jan-31	58.77	62.85	60.52	55.38	57.24	63.53
Feb-31	73.73	78.13	73.26	63.29	65.29	68.65
Mar-31	41.27	45.49	43.13	44.83	48.12	50.75
Apr-31	28.58	32.63	32.80	35.85	39.18	45.28
May-31	14.14	18.24	24.48	23.60	26.45	40.83
Jun-31	25.63	28.44	39.56	34.43	36.57	51.32
Jul-31	68.64	70.12	79.30	56.61	57.70	77.05
Aug-31	84.26	86.47	94.18	67.17	68.50	83.71
Sep-31	75.35	77.55	85.65	64.75	65.75	79.83
Oct-31	50.26	53.94	56.92	58.07	59.72	69.40
Nov-31	69.06	73.53	73.86	62.24	66.36	72.98
Dec-31	71.00	75.49	72.36	65.15	69.63	74.82
Jan-32	57.32	61.84	61.54	54.41	55.94	65.28
Feb-32	66.39	70.52	68.31	61.04	63.64	68.30
Mar-32	42.35	46.82	47.14	49.93	52.44	60.41
Apr-32	25.97	29.78	32.39	37.19	39.72	48.35
May-32	10.60	14.83	25.06	21.91	24.69	38.75
Jun-32	23.50	26.74	38.71	34.54	36.76	50.26
Jul-32	59.45	61.38	75.41	59.15	60.23	84.15
Aug-32	82.73	84.15	93.81	64.36	65.89	85.23
Sep-32	74.00	76.77	83.85	63.95	65.12	78.30
Oct-32	49.51	52.98	58.24	56.56	58.03	68.78
Nov-32	61.92	66.58	70.46	63.34	66.08	72.49
Dec-32	72.74	76.97	76.70	65.27	70.12	75.84
Jan-33	52.41	55.71	58.87	48.57	48.05	59.16
Feb-33	62.91	66.48	67.66	53.59	54.90	66.29
Mar-33	30.75	35.00	37.38	43.93	46.11	53.65
Apr-33	16.55	20.91	26.19	31.09	33.46	41.04
May-33	7.90	12.21	23.03	17.16	20.41	36.85
Jun-33	20.67	24.18	34.69	34.27	36.67	53.41
Jul-33	43.79	46.50	59.76	49.27	50.71	76.06
Aug-33	70.49	72.31	81.30	57.50	58.98	81.39
Sep-33	56.04	58.23	69.61	56.19	57.86	76.53
Oct-33	34.83	38.29	49.94	49.46	50.91	63.50
Nov-33	57.40	61.55	66.95	50.94	52.84	67.34
Dec-33	64.23	68.83	68.32	62.36	66.16	74.21
Jan-34	44.67	48.32	53.41	45.08	45.40	59.75
Feb-34	64.68	67.67	69.12	60.88	62.64	73.32
Mar-34	37.18	41.74	40.12	41.53	44.69	53.37
Apr-34	22.41	26.24	31.32	31.59	34.53	40.19
May-34	7.31	11.74	20.59	13.45	16.28	34.00
Jun-34	19.09	22.98	34.81	34.44	36.87	53.05
Jul-34	51.79	54.30	66.36	56.60	57.89	86.46
Aug-34	67.73	69.41	85.37	56.58	58.37	81.75
Sep-34	59.97	63.12	74.77	60.46	61.81	81.28
Oct-34	38.81	42.24	51.63	50.82	52.53	65.72
Nov-34	53.19	57.05	66.37	52.54	54.67	67.07
Dec-34	70.47	74.42	72.93	67.69	70.75	79.47
Jan-35	48.30	52.33	58.46	57.89	56.52	72.08
Feb-35	65.83	70.07	68.86	63.27	65.24	72.70
Mar-35	35.99	39.85	42.04	42.58	45.39	53.28

1/1/2028	45.0%	41.6%	13.4%	100.0%	27.9%	59.1%	13.0%	100%
2/1/2028	39.4%	45.4%	15.3%	100.0%	25.8%	66.3%	7.9%	100%
3/1/2028	26.5%	43.1%	30.4%	100.0%	26.2%	56.1%	17.7%	100%
4/1/2028	23.8%	54.0%	22.2%	100.0%	27.1%	67.9%	5.0%	100%
5/1/2028	19.9%	70.9%	9.2%	100.0%	13.3%	84.7%	1.9%	100%
6/1/2028	34.8%	61.4%	3.8%	100.0%	18.5%	71.9%	9.5%	100%
7/1/2028	27.6%	68.1%	4.3%	100.0%	15.2%	80.2%	4.6%	100%
8/1/2028	29.3%	62.9%	7.9%	100.0%	16.4%	78.8%	4.8%	100%
9/1/2028	29.1%	53.0%	17.9%	100.0%	6.5%	90.5%	3.0%	100%
10/1/2028	23.4%	43.9%	32.8%	100.0%	37.2%	55.2%	7.7%	100%
11/1/2028	51.7%	28.6%	19.7%	100.0%	23.1%	69.3%	7.6%	100%
12/1/2028	30.6%	53.6%	15.7%	100.0%	19.6%	79.4%	1.0%	100%
1/1/2029	46.3%	39.8%	13.9%	100.0%	17.8%	68.7%	13.5%	100%
2/1/2029	45.0%	42.7%	12.3%	100.0%	9.8%	80.9%	9.3%	100%
3/1/2029	30.8%	48.1%	21.0%	100.0%	29.6%	65.2%	5.2%	100%
4/1/2029	33.4%</							

2035	4/1/2035	24.16	24.18
2035	5/1/2035	11.72	16.42
2035	6/1/2035	25.45	37.97
2035	7/1/2035	50.98	49.32
2035	8/1/2035	70.56	58.26
2035	9/1/2035	69.46	61.31
2035	10/1/2035	45.90	53.80
2035	11/1/2035	66.64	60.39
2035	12/1/2035	72.53	68.27
2036	1/1/2036	57.65	50.42
2036	2/1/2036	69.77	58.69
2036	3/1/2036	41.13	38.25
2036	4/1/2036	22.98	25.43
2036	5/1/2036	8.12	13.28
2036	6/1/2036	26.25	39.32
2036	7/1/2036	65.51	52.33
2036	8/1/2036	76.25	63.20
2036	9/1/2036	73.40	62.24
2036	10/1/2036	44.89	56.32
2036	11/1/2036	69.55	58.95
2036	12/1/2036	77.13	68.70
2037	1/1/2037	61.63	51.84
2037	2/1/2037	70.80	59.13
2037	3/1/2037	50.43	49.31
2037	4/1/2037	24.27	33.42
2037	5/1/2037	11.98	20.07
2037	6/1/2037	30.21	45.39
2037	7/1/2037	57.64	55.56
2037	8/1/2037	85.40	73.45
2037	9/1/2037	73.93	68.71
2037	10/1/2037	44.90	60.43
2037	11/1/2037	65.96	60.83
2037	12/1/2037	80.82	70.38
2038	1/1/2038	57.54	51.10
2038	2/1/2038	78.84	72.94
2038	3/1/2038	44.64	48.17
2038	4/1/2038	24.66	35.52
2038	5/1/2038	12.73	20.13
2038	6/1/2038	30.45	44.52
2038	7/1/2038	64.52	67.63
2038	8/1/2038	89.90	70.48
2038	9/1/2038	79.78	68.46
2038	10/1/2038	49.51	64.92
2038	11/1/2038	74.37	74.01
2038	12/1/2038	82.60	74.31
2039	1/1/2039	72.84	55.67
2039	2/1/2039	76.03	62.56
2039	3/1/2039	43.17	56.08
2039	4/1/2039	26.19	39.38
2039	5/1/2039	15.40	22.94
2039	6/1/2039	33.71	47.59
2039	7/1/2039	57.45	67.91
2039	8/1/2039	82.94	68.59
2039	9/1/2039	74.92	69.53
2039	10/1/2039	53.48	66.50
2039	11/1/2039	82.41	68.22
2039	12/1/2039	84.73	82.43
2040	1/1/2040	64.01	50.53
2040	2/1/2040	81.15	75.74
2040	3/1/2040	47.65	52.46
2040	4/1/2040	30.49	28.43
2040	5/1/2040	16.01	20.43
2040	6/1/2040	36.67	47.86
2040	7/1/2040	62.49	63.24
2040	8/1/2040	88.15	76.24
2040	9/1/2040	84.08	76.47
2040	10/1/2040	61.22	65.01
2040	11/1/2040	92.71	81.06
2040	12/1/2040	94.72	85.60
2041	1/1/2041	75.77	61.19
2041	2/1/2041	88.53	66.48
2041	3/1/2041	59.11	55.80
2041	4/1/2041	24.49	36.18
2041	5/1/2041	17.97	15.16
2041	6/1/2041	33.03	46.04
2041	7/1/2041	62.46	74.92
2041	8/1/2041	92.80	80.49
2041	9/1/2041	85.98	80.49
2041	10/1/2041	52.31	61.93
2041	11/1/2041	72.67	71.44
2041	12/1/2041	95.82	97.32
2042	1/1/2042	65.92	54.68
2042	2/1/2042	96.10	60.55
2042	3/1/2042	56.74	45.18
2042	4/1/2042	27.53	30.56
2042	5/1/2042	12.66	13.01
2042	6/1/2042	39.27	58.47

Apr-35	20.32	25.06	30.09	21.01	24.33	33.26
May-35	7.80	11.68	23.63	13.21	16.39	33.41
Jun-35	22.41	25.68	35.78	34.80	37.34	53.18
Jul-35	48.64	50.88	66.55	47.42	49.04	74.34
Aug-35	68.21	69.53	87.60	55.75	57.72	85.14
Sep-35	64.00	66.31	91.81	59.31	60.90	85.43
Oct-35	40.91	45.07	53.78	51.13	52.99	69.19
Nov-35	63.57	68.26	73.81	58.19	60.15	74.01
Dec-35	69.36	74.13	76.98	65.08	68.48	77.51
Jan-36	55.46	59.49	61.60	49.13	50.05	61.56
Feb-36	67.68	71.30	68.29	56.33	58.43	66.17
Mar-36	37.93	42.62	46.11	35.84	38.93	47.00
Apr-36	19.51	23.43	27.46	25.14	28.68	35.18
May-36	3.70	8.04	20.87	9.54	12.46	32.07
Jun-36	23.10	26.52	38.26	37.00	39.24	54.79
Jul-36	63.79	65.55	79.34	50.36	51.96	76.78
Aug-36	74.56	75.76	92.30	60.96	62.81	89.01
Sep-36	69.47	71.63	85.86	60.05	61.90	86.43
Oct-36	41.28	45.02	51.69	52.13	53.85	69.55
Nov-36	66.22	71.29	72.75	56.23	58.23	73.13
Dec-36	73.39	78.80	79.18	65.01	69.04	78.12
Jan-37	59.31	62.45	65.12	50.42	51.26	62.31
Feb-37	67.69	71.39	72.73	56.18	59.21	62.16
Mar-37	47.07	51.50	51.76	46.62	50.46	54.11
Apr-37	20.45	24.81	30.33	30.49	33.55	42.88
May-37	7.72	12.18	22.34	16.83	20.18	38.65
Jun-37	27.16	30.68	41.03	43.10	45.34	58.02
Jul-37	55.04	57.18	75.78	53.66	55.23	82.34
Aug-37	83.73	84.92	95.55	72.24	73.39	93.90
Sep-37	70.95	73.16	89.67	67.40	68.73	87.06
Oct-37	41.64	45.31	56.03	55.86	57.42	74.01
Nov-37	61.39	65.65	75.86	56.68	58.94	74.81
Dec-37	76.77	81.79	85.22	67.88	70.93	80.12
Jan-38	53.42	57.59	62.13	47.83	50.47	60.22
Feb-38	75.89	80.07	76.42	70.51	72.29	79.65
Mar-38	40.60	46.23	44.70	45.36	48.85	54.94
Apr-38	21.51	25.37	29.54	32.69	35.67	40.98
May-38	8.40	12.99	24.82	15.96	19.58	37.36
Jun-38	27.95	30.84	40.02	41.63	43.88	57.78
Jul-38	62.25	64.34	81.54	65.99	67.25	94.75
Aug-38	88.13	89.84	102.35	88.84	70.23	96.00
Sep-38	77.51	79.80	91.28	66.54	68.01	89.06
Oct-38	46.18	50.61	57.47	60.75	62.57	76.02
Nov-38	70.55	75.97	76.72	70.50	74.14	81.50
Dec-38	78.89	83.88	85.49	70.18	75.00	78.20
Jan-39	69.86	73.54	74.13	52.69	55.25	65.60
Feb-39	72.98	77.56	73.55	59.08	61.86	71.05
Mar-39	39.32	44.66	43.55	53.73	57.27	62.06
Apr-39	22.28	27.04	31.12	36.35	39.83	43.81
May-39	10.76	15.72	26.63	18.65	22.25	35.39
Jun-39	30.94	34.13	46.50	44.53	47.10	60.94
Jul-39	54.55	56.75	74.73	65.93	67.27	94.33
Aug-39	80.83	82.15	97.32	65.55	67.65	95.40
Sep-39	72.56	74.24	92.96	67.00	68.98	92.29
Oct-39	49.51	53.45	65.72	61.54	63.78	75.26
Nov-39	78.37	83.35	85.71	64.59	68.10	77.81
Dec-39	81.35	85.72	85.26	79.42	82.69	88.17
Jan-40	59.83	64.72	65.66	47.13	50.39	59.06
Feb-40	79.18	82.18	79.74	73.22	76.27	81.16
Mar-40	44.10	48.78	49.50	49.52	54.39	60.67
Apr-40	26.62	31.52	36.21	25.37	29.38	35.10
May-40	11.88	16.41	27.50	15.89	20.00	39.25
Jun-40	34.03	37.03	47.35	45.12	47.85	60.09
Jul-40	60.60	62.52	79.68	60.87	62.42	92.29
Aug-40	86.05	87.21	109.52	72.57	73.81	103.67
Sep-40	82.18	83.43	98.30	74.62	76.09	102.21
Oct-40	58.37	61.78	70.60	59.20	61.56	75.55
Nov-40	88.52	94.27	95.61	77.08	79.94	92.41
Dec-40	90.97	96.42	98.00	82.60	87.06	92.96
Jan-41	73.08	76.42	74.49	58.28	60.89	69.97
Feb-41	86.20	90.03	84.55	63.82	66.79	72.87
Mar-41	55.51	60.35	59.94	53.74	57.31	60.72
Apr-41	20.36	25.55	30.89	33.31	37.06	42.39
May-41	13.26	18.44	30.72	10.64	14.93	31.98
Jun-41	30.06	33.31	46.85	43.00	45.54	61.86
Jul-41	59.78	62.11	95.87	72.44	73.71	110.35
Aug-41	90.92	92.01	111.40	76.54	77.70	110.99
Sep-41	83.04	85.29	105.31	78.54	80.31	104.57
Oct-41	49.00	53.30	60.87	56.07	59.36	71.34
Nov-41	68.14	73.65	82.38	67.10	69.93	85.12
Dec-41	91.87	97.61	99.35	93.97	98.99	101.29
Jan-42	61.72	66.48	69.44	51.48	53.86	68.48
Feb-42	93.65	97.02	97.17	57.99	61.15	65.87
Mar-42	52.88	58.10	57.42	42.78	46.57	53.09
Apr-42	22.69	29.23	31.93	27.37	31.54	37.47
May-42	8.08	13.04	26.11	8.57	12.06	36.72
Jun-42	36.15	39.73	51.45	36.14	38.30	68.73

4/1/2035	33.2%	53.5%	13.3%	100.0%	17.2%	78.0%	4.7%	100%
5/1/2035	18.8%	74.8%	6.4%	100.0%	15.7%	81.2%	3.1%	100%
6/1/2035	37.6%	52.5%	9.9%	100.0%	18.8%	74.2%	7.0%	100%
7/1/2035	25.6%	70.1%	4.3%	100.0%	17.0%	80.8%	2.2%	100%
8/1/2035	30.0%	62.2%	7.9%	100.0%	22.2%	74.3%	3.6%	100%
9/1/2035	38.4%	45.7%	15.8%	100.0%	12.9%	84.6%	2.5%	100%
10/1/2035	30.4%	45.5%	24.1%	100.0%	12.0%	81.7%	6.3%	100%
11/1/2035	46.6%	43.2%	10.2%	100.0%	14.2%	82.1%	3.7%	100%
12/1/2035	38.9%	52.2%	8.9%	100.0%	10.1%	88.4%	1.4%	100%
1/1/2036	49.0%	44.7%	6.3%	100.0%	17.3%	78.2%	4.5%	100%
2/1/2036	32.0%	55.8%	12.2%	100.0%	14.7%	78.0%	7.4%	100%
3/1/2036	37.2%	55.7%	7.1%	100.0%	50.5%	38.5%	10.9%	100%
4/1/2036	23.6%	64.6%	11.8%	100.0%	15.8%	79.8%	4.6%	100%
5/1/2036	18.3%	74.9%	6.8%	100.0%	13.9%	79.9%	6.2%	100%
6/1/2036	27.3%	67.0%	5.7%	100.0%	21.9%	74.4%	3.7%	100%
7/1/2036	26.9%	69.9%	3.2%	100.0%	14.0%	83.6%	2.4%	100%
8/1/2036	23.4%	72.0%	4.7%	100.0%	24.1%	72.7%	3.2%	100%
9/1/2036	35.6%	46.6%	17.8%	100.0%	15.8%	81.6%	2.6%	100%
10/1/2036	34.1%	48.8%	17.1%	100.0%	20.9%	61.0%	18.0%	100%
11/1/2036								

2042	7/1/2042	84.26	64.78
2042	8/1/2042	95.34	79.13
2042	9/1/2042	95.75	77.82
2042	10/1/2042	58.81	66.30
2042	11/1/2042	97.82	74.66
2042	12/1/2042	100.00	81.55
2043	1/1/2043	65.92	54.68
2043	2/1/2043	96.10	60.55
2043	3/1/2043	56.74	45.18
2043	4/1/2043	27.53	30.56
2043	5/1/2043	12.66	13.01
2043	6/1/2043	39.27	58.47
2043	7/1/2043	84.26	64.78
2043	8/1/2043	95.34	79.13
2043	9/1/2043	95.75	77.82
2043	10/1/2043	58.81	66.30
2043	11/1/2043	97.82	74.66
2043	12/1/2043	100.00	81.55
2044	1/1/2044	65.92	54.68
2044	2/1/2044	96.10	60.55
2044	3/1/2044	56.74	45.18
2044	4/1/2044	27.53	30.56
2044	5/1/2044	12.66	13.01
2044	6/1/2044	39.27	58.47
2044	7/1/2044	84.26	64.78
2044	8/1/2044	95.34	79.13
2044	9/1/2044	95.75	77.82
2044	10/1/2044	58.81	66.30
2044	11/1/2044	97.82	74.66
2044	12/1/2044	100.00	81.55
2045	1/1/2045	65.92	54.68
2045	2/1/2045	96.10	60.55
2045	3/1/2045	56.74	45.18
2045	4/1/2045	27.53	30.56
2045	5/1/2045	12.66	13.01
2045	6/1/2045	39.27	58.47
2045	7/1/2045	84.26	64.78
2045	8/1/2045	95.34	79.13
2045	9/1/2045	95.75	77.82
2045	10/1/2045	58.81	66.30
2045	11/1/2045	97.82	74.66
2045	12/1/2045	100.00	81.55
2046	1/1/2046	65.92	54.68
2046	2/1/2046	96.10	60.55
2046	3/1/2046	56.74	45.18
2046	4/1/2046	27.53	30.56
2046	5/1/2046	12.66	13.01
2046	6/1/2046	39.27	58.47
2046	7/1/2046	84.26	64.78
2046	8/1/2046	95.34	79.13
2046	9/1/2046	95.75	77.82
2046	10/1/2046	58.81	66.30
2046	11/1/2046	97.82	74.66
2046	12/1/2046	100.00	81.55
2047	1/1/2047	65.92	54.68
2047	2/1/2047	96.10	60.55
2047	3/1/2047	56.74	45.18
2047	4/1/2047	27.53	30.56
2047	5/1/2047	12.66	13.01
2047	6/1/2047	39.27	58.47
2047	7/1/2047	84.26	64.78
2047	8/1/2047	95.34	79.13
2047	9/1/2047	95.75	77.82
2047	10/1/2047	58.81	66.30
2047	11/1/2047	97.82	74.66
2047	12/1/2047	100.00	81.55
2048	1/1/2048	65.92	54.68
2048	2/1/2048	96.10	60.55
2048	3/1/2048	56.74	45.18
2048	4/1/2048	27.53	30.56
2048	5/1/2048	12.66	13.01
2048	6/1/2048	39.27	58.47
2048	7/1/2048	84.26	64.78
2048	8/1/2048	95.34	79.13
2048	9/1/2048	95.75	77.82
2048	10/1/2048	58.81	66.30
2048	11/1/2048	97.82	74.66
2048	12/1/2048	100.00	81.55
2049	1/1/2049	65.92	54.68
2049	2/1/2049	96.10	60.55
2049	3/1/2049	56.74	45.18
2049	4/1/2049	27.53	30.56
2049	5/1/2049	12.66	13.01
2049	6/1/2049	39.27	58.47
2049	7/1/2049	84.26	64.78
2049	8/1/2049	95.34	79.13
2049	9/1/2049	95.75	77.82

Jul-42	82.48	83.87	110.39	61.75	63.41	106.50
Aug-42	92.83	94.13	121.82	74.20	76.09	114.81
Sep-42	93.19	95.21	112.06	75.48	77.43	109.20
Oct-42	55.22	60.57	63.09	60.49	62.76	76.96
Nov-42	93.73	99.28	101.30	70.10	73.53	86.90
Dec-42	96.14	101.86	99.97	78.15	83.23	87.48

7/1/2042	27.4%	69.7%	2.9%	100.0%	32.5%	63.1%	4.4%	100.0%
8/1/2042	30.8%	63.4%	5.8%	100.0%	38.5%	51.8%	9.7%	100.0%
9/1/2042	33.7%	59.0%	7.2%	100.0%	41.9%	54.3%	3.8%	100.0%
10/1/2042	36.4%	56.0%	7.6%	100.0%	30.9%	39.2%	29.9%	100.0%
11/1/2042	28.8%	64.2%	7.0%	100.0%	21.6%	64.4%	14.0%	100.0%
12/1/2042	31.8%	65.9%	2.3%	100.0%	33.4%	66.0%	0.5%	100.0%

2049	10/1/2049	58.81	66.30
2049	11/1/2049	97.82	74.66
2049	12/1/2049	100.00	81.55
2050	1/1/2050	65.92	54.68
2050	2/1/2050	96.10	60.55
2050	3/1/2050	56.74	45.18
2050	4/1/2050	27.53	30.56
2050	5/1/2050	12.66	13.01
2050	6/1/2050	39.27	58.47
2050	7/1/2050	84.26	64.78
2050	8/1/2050	95.34	79.13
2050	9/1/2050	95.75	77.82
2050	10/1/2050	58.81	66.30
2050	11/1/2050	97.82	74.66
2050	12/1/2050	100.00	81.55
2051	1/1/2051	65.92	54.68
2051	2/1/2051	96.10	60.55
2051	3/1/2051	56.74	45.18
2051	4/1/2051	27.53	30.56
2051	5/1/2051	12.66	13.01
2051	6/1/2051	39.27	58.47
2051	7/1/2051	84.26	64.78
2051	8/1/2051	95.34	79.13
2051	9/1/2051	95.75	77.82
2051	10/1/2051	58.81	66.30
2051	11/1/2051	97.82	74.66
2051	12/1/2051	100.00	81.55
2052	1/1/2052	65.92	54.68
2052	2/1/2052	96.10	60.55
2052	3/1/2052	56.74	45.18
2052	4/1/2052	27.53	30.56
2052	5/1/2052	12.66	13.01
2052	6/1/2052	39.27	58.47
2052	7/1/2052	84.26	64.78
2052	8/1/2052	95.34	79.13
2052	9/1/2052	95.75	77.82
2052	10/1/2052	58.81	66.30
2052	11/1/2052	97.82	74.66
2052	12/1/2052	100.00	81.55
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2053	2/1/2053	96.10	60.55
2053	3/1/2053	56.74	45.18
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2053	6/1/2053	39.27	58.47
2053	7/1/2053	84.26	64.78
2053	8/1/2053	95.34	79.13
2053	9/1/2053	95.75	77.82
2053	10/1/2053	58.81	66.30
2053	11/1/2053	97.82	74.66
2053	12/1/2053	100.00	81.55
2054	1/1/2054	65.92	54.68
2054	2/1/2054	96.10	60.55
2054	3/1/2054	56.74	45.18
2054	4/1/2054	27.53	30.56
2054	5/1/2054	12.66	13.01
2054	6/1/2054	39.27	58.47
2054	7/1/2054	84.26	64.78
2054	8/1/2054	95.34	79.13
2054	9/1/2054	95.75	77.82
2054	10/1/2054	58.81	66.30
2054	11/1/2054	97.82	74.66
2054	12/1/2054	100.00	81.55
2055	1/1/2055	65.92	54.68
2055	2/1/2055	96.10	60.55
2055	3/1/2055	56.74	45.18
2055	4/1/2055	27.53	30.56
2055	5/1/2055	12.66	13.01
2055	6/1/2055	39.27	58.47
2055	7/1/2055	84.26	64.78
2055	8/1/2055	95.34	79.13
2055	9/1/2055	95.75	77.82
2055	10/1/2055	58.81	66.30
2055	11/1/2055	97.82	74.66
2055	12/1/2055	100.00	81.55
2056	1/1/2056	65.92	54.68
2056	2/1/2056	96.10	60.55
2056	3/1/2056	56.74	45.18
2056	4/1/2056	27.53	30.56
2056	5/1/2056	12.66	13.01
2056	6/1/2056	39.27	58.47
2056	7/1/2056	84.26	64.78
2056	8/1/2056	95.34	79.13
2056	9/1/2056	95.75	77.82
2056	10/1/2056	58.81	66.30
2056	11/1/2056	97.82	74.66
2056	12/1/2056	100.00	81.55

2057	1/1/2057	65.92	54.68
2057	2/1/2057	96.10	60.55
2057	3/1/2057	56.74	45.18
2057	4/1/2057	27.53	30.56
2057	5/1/2057	12.66	13.01
2057	6/1/2057	39.27	58.47
2057	7/1/2057	84.26	64.78
2057	8/1/2057	95.34	79.13
2057	9/1/2057	95.75	77.82
2057	10/1/2057	58.81	66.30
2057	11/1/2057	97.82	74.66
2057	12/1/2057	100.00	81.55
2058	1/1/2058	65.92	54.68
2058	2/1/2058	96.10	60.55
2058	3/1/2058	56.74	45.18
2058	4/1/2058	27.53	30.56
2058	5/1/2058	12.66	13.01
2058	6/1/2058	39.27	58.47
2058	7/1/2058	84.26	64.78
2058	8/1/2058	95.34	79.13
2058	9/1/2058	95.75	77.82
2058	10/1/2058	58.81	66.30
2058	11/1/2058	97.82	74.66
2058	12/1/2058	100.00	81.55
2059	1/1/2059	65.92	54.68
2059	2/1/2059	96.10	60.55
2059	3/1/2059	56.74	45.18
2059	4/1/2059	27.53	30.56
2059	5/1/2059	12.66	13.01
2059	6/1/2059	39.27	58.47
2059	7/1/2059	84.26	64.78
2059	8/1/2059	95.34	79.13
2059	9/1/2059	95.75	77.82
2059	10/1/2059	58.81	66.30
2059	11/1/2059	97.82	74.66
2059	12/1/2059	100.00	81.55
2060	1/1/2060	65.92	54.68
2060	2/1/2060	96.10	60.55
2060	3/1/2060	56.74	45.18
2060	4/1/2060	27.53	30.56
2060	5/1/2060	12.66	13.01
2060	6/1/2060	39.27	58.47
2060	7/1/2060	84.26	64.78
2060	8/1/2060	95.34	79.13
2060	9/1/2060	95.75	77.82
2060	10/1/2060	58.81	66.30
2060	11/1/2060	97.82	74.66
2060	12/1/2060	100.00	81.55
2061	1/1/2061	65.92	54.68
2061	2/1/2061	96.10	60.55
2061	3/1/2061	56.74	45.18
2061	4/1/2061	27.53	30.56
2061	5/1/2061	12.66	13.01
2061	6/1/2061	39.27	58.47
2061	7/1/2061	84.26	64.78
2061	8/1/2061	95.34	79.13
2061	9/1/2061	95.75	77.82
2061	10/1/2061	58.81	66.30
2061	11/1/2061	97.82	74.66
2061	12/1/2061	100.00	81.55
2062	1/1/2062	65.92	54.68
2062	2/1/2062	96.10	60.55
2062	3/1/2062	56.74	45.18
2062	4/1/2062	27.53	30.56
2062	5/1/2062	12.66	13.01
2062	6/1/2062	39.27	58.47
2062	7/1/2062	84.26	64.78
2062	8/1/2062	95.34	79.13
2062	9/1/2062	95.75	77.82
2062	10/1/2062	58.81	66.30
2062	11/1/2062	97.82	74.66
2062	12/1/2062	100.00	81.55
2063	1/1/2063	65.92	54.68
2063	2/1/2063	96.10	60.55
2063	3/1/2063	56.74	45.18
2063	4/1/2063	27.53	30.56
2063	5/1/2063	12.66	13.01
2063	6/1/2063	39.27	58.47
2063	7/1/2063	84.26	64.78
2063	8/1/2063	95.34	79.13
2063	9/1/2063	95.75	77.82
2063	10/1/2063	58.81	66.30
2063	11/1/2063	97.82	74.66
2063	12/1/2063	100.00	81.55
2064	1/1/2064	65.92	54.68
2064	2/1/2064	96.10	60.55
2064	3/1/2064	56.74	45.18

2064	4/1/2064	27.53	30.56
2064	5/1/2064	12.66	13.01
2064	6/1/2064	39.27	58.47
2064	7/1/2064	84.26	64.78
2064	8/1/2064	95.34	79.13
2064	9/1/2064	95.75	77.82
2064	10/1/2064	58.81	66.30
2064	11/1/2064	97.82	74.66
2064	12/1/2064	100.00	81.55
2065	1/1/2065	65.92	54.68
2065	2/1/2065	96.10	60.55
2065	3/1/2065	56.74	45.18
2065	4/1/2065	27.53	30.56
2065	5/1/2065	12.66	13.01
2065	6/1/2065	39.27	58.47
2065	7/1/2065	84.26	64.78
2065	8/1/2065	95.34	79.13
2065	9/1/2065	95.75	77.82
2065	10/1/2065	58.81	66.30
2065	11/1/2065	97.82	74.66
2065	12/1/2065	100.00	81.55
2066	1/1/2066	65.92	54.68
2066	2/1/2066	96.10	60.55
2066	3/1/2066	56.74	45.18
2066	4/1/2066	27.53	30.56
2066	5/1/2066	12.66	13.01
2066	6/1/2066	39.27	58.47
2066	7/1/2066	84.26	64.78
2066	8/1/2066	95.34	79.13
2066	9/1/2066	95.75	77.82
2066	10/1/2066	58.81	66.30
2066	11/1/2066	97.82	74.66
2066	12/1/2066	100.00	81.55
2067	1/1/2067	65.92	54.68
2067	2/1/2067	96.10	60.55
2067	3/1/2067	56.74	45.18
2067	4/1/2067	27.53	30.56
2067	5/1/2067	12.66	13.01
2067	6/1/2067	39.27	58.47
2067	7/1/2067	84.26	64.78
2067	8/1/2067	95.34	79.13
2067	9/1/2067	95.75	77.82
2067	10/1/2067	58.81	66.30
2067	11/1/2067	97.82	74.66
2067	12/1/2067	100.00	81.55
2068	1/1/2068	65.92	54.68
2068	2/1/2068	96.10	60.55
2068	3/1/2068	56.74	45.18
2068	4/1/2068	27.53	30.56
2068	5/1/2068	12.66	13.01
2068	6/1/2068	39.27	58.47
2068	7/1/2068	84.26	64.78
2068	8/1/2068	95.34	79.13
2068	9/1/2068	95.75	77.82
2068	10/1/2068	58.81	66.30
2068	11/1/2068	97.82	74.66
2068	12/1/2068	100.00	81.55
2069	1/1/2069	65.92	54.68
2069	2/1/2069	96.10	60.55
2069	3/1/2069	56.74	45.18
2069	4/1/2069	27.53	30.56
2069	5/1/2069	12.66	13.01
2069	6/1/2069	39.27	58.47
2069	7/1/2069	84.26	64.78
2069	8/1/2069	95.34	79.13
2069	9/1/2069	95.75	77.82
2069	10/1/2069	58.81	66.30
2069	11/1/2069	97.82	74.66
2069	12/1/2069	100.00	81.55
2070	1/1/2070	65.92	54.68
2070	2/1/2070	96.10	60.55
2070	3/1/2070	56.74	45.18
2070	4/1/2070	27.53	30.56
2070	5/1/2070	12.66	13.01
2070	6/1/2070	39.27	58.47
2070	7/1/2070	84.26	64.78
2070	8/1/2070	95.34	79.13
2070	9/1/2070	95.75	77.82
2070	10/1/2070	58.81	66.30
2070	11/1/2070	97.82	74.66
2070	12/1/2070	100.00	81.55

Alternative Submissions	Rationale for alternative submission: Provide an overall rationale for providing alternative values in this box
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Avoided Energy Cost Inputs

Real or Nominal?	Nominal
Dollar Year:	/a
Carbon Prices Additive?	Embedded in Market Prices
Carbon Value Units (\$/MWh or \$/Ton)	
Source and Pg #:	
Source Link or File Name:	2023 IRP, model result details
Source Notes:	Hourly LMP values for Oregon from 2023 IRP (ST19562). Starting in 2030, LMPs have been adjusted to reflect clean hydrogen peaker resource costs, whenever marginal prices exceed the cost of a new, relatively efficient natural gas-fired resource. The adjustment is proportionate with the reduction target under HB2021, 80% in 2030 rising to 100% in 2040.

NOTES: Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/ton. <u>Please identify the units in the box to the left.</u>
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Year	Date	Monthly		Monthly	Monthly
		Avoided Energy Cost HLH Total (\$/MWh)	Avoided Energy Cost LLH Total (\$/MWh)	HLH Carbon Cost (OR % of HLH Price that accounts for Carbon?)	LLH Carbon Cost (OR % of LLH Price that accounts for Carbon?)
2022	1/1/2022	146.21	82.76		
2022	2/1/2022	107.96	69.34		
2022	3/1/2022	68.42	47.50		
2022	4/1/2022	57.87	42.81		
2022	5/1/2022	50.85	40.70		
2022	6/1/2022	72.02	44.71		
2022	7/1/2022	204.59	78.61		
2022	8/1/2022	211.90	85.22		
2022	9/1/2022	168.62	75.11		
2022	10/1/2022	85.93	61.22		
2022	11/1/2022	131.10	80.28		
2022	12/1/2022	204.00	153.82		
2023	1/1/2023	149.53	84.64		
2023	2/1/2023	110.42	70.91		(5.94) (0.81)
2023	3/1/2023	69.97	48.58		(13.13) (19.68)
2023	4/1/2023	59.18	43.78		(5.94) (9.47)
2023	5/1/2023	52.00	41.62		(12.62) (3.56)
2023	6/1/2023	73.66	45.73		(1.05) 8.18
2023	7/1/2023	209.23	80.39		11.77 12.84
2023	8/1/2023	216.71	87.15		34.07 7.52
2023	9/1/2023	172.44	76.81		11.91 4.79
2023	10/1/2023	87.88	62.61		(14.20) (2.12)
2023	11/1/2023	134.08	82.10		1.72 (2.78)
2023	12/1/2023	208.63	157.31		41.56 15.35
2024	1/1/2024	221.48	116.29		101.06 82.45
2024	2/1/2024	169.74	78.84		118.02 44.77
2024	3/1/2024	108.79	67.25		79.00 14.03
2024	4/1/2024	54.01	41.69		36.58 14.34
2024	5/1/2024	49.50	43.73		9.59 5.02
2024	6/1/2024	88.71	53.27		6.49 13.65
2024	7/1/2024	293.06	100.32		43.49 23.93
2024	8/1/2024	247.93	116.56		141.85 24.70
2024	9/1/2024	173.40	91.22		78.18 30.15
2024	10/1/2024	147.13	103.55		29.43 17.58
2024	11/1/2024	201.84	212.34		76.86 52.06
2024	12/1/2024	227.03	223.29		125.68 156.38
2025	1/1/2025	72.87	64.88		133.57 156.94
2025	2/1/2025	89.49	73.00		0.91 0.86
2025	3/1/2025	58.28	51.01		0.84 (0.06)
2025	4/1/2025	49.01	48.04		0.89 (5.91)
2025	5/1/2025	40.48	37.44		0.33 (0.64)
2025	6/1/2025	77.58	54.53		6.13 4.51
2025	7/1/2025	97.75	69.45		(1.47) 0.71
2025	8/1/2025	157.06	86.69		0.32 (0.49)
2025	9/1/2025	123.74	87.69		0.56 0.85
2025	10/1/2025	72.49	66.17		0.66 0.77
2025	11/1/2025	74.86	66.87		0.55 0.45
2025	12/1/2025	74.20	66.37		0.79 0.76
2026	1/1/2026	67.35	61.24		0.76 (0.07)
2026	2/1/2026	68.40	67.42		(3.50) 0.69
2026	3/1/2026	51.10	49.05		(12.79) (2.71)
2026	4/1/2026	43.69	45.76		(1.53) (5.47)
2026	5/1/2026	31.74	38.05		(2.78) (1.17)
2026	6/1/2026	45.44	50.20		(4.03) 5.02
2026	7/1/2026	92.53	86.18		2.96 3.36
2026	8/1/2026	135.52	106.29		1.51 10.68
2026	9/1/2026	106.92	92.30		(6.05) 16.82
2026	10/1/2026	63.07	65.55		(6.31) 3.30
2026	11/1/2026	69.52	66.80		(4.56) (4.91)
2026	12/1/2026	69.41	67.32		(6.25) (1.97)
2027	1/1/2027	67.32	64.53		(3.53) (2.67)
2027	2/1/2027	67.25	70.84		(1.97) (0.53)
2027	3/1/2027	46.77	47.57		(2.76) (3.23)
2027	4/1/2027	40.12	45.41		(6.01) (7.96)
2027	5/1/2027	30.44	43.28		(4.57) (2.03)
2027	6/1/2027	45.54	56.35		(4.28) 7.77
2027	7/1/2027	90.14	88.92		(1.16) 11.53
2027	8/1/2027	126.97	104.02		(21.93) 8.25
2027	9/1/2027	95.11	95.37		(17.68) 3.63

NOTE: Dates continue through 2070. Truncated for review purposes.

2027	10/1/2027	60.97	64.62			(7.69)	(6.50)
2027	11/1/2027	66.84	67.23			(10.47)	(3.59)
2027	12/1/2027	68.54	67.40			(7.26)	(4.00)
2028	1/1/2028	71.73	68.52			2.61	3.79
2028	2/1/2028	61.74	67.14			(12.82)	(3.57)
2028	3/1/2028	42.22	45.77			(7.22)	(9.55)
2028	4/1/2028	37.67	42.19			(5.72)	(3.41)
2028	5/1/2028	29.40	43.95			2.35	10.64
2028	6/1/2028	48.19	70.76			8.74	22.16
2028	7/1/2028	85.26	95.57			(4.67)	15.98
2028	8/1/2028	95.05	98.51			(16.57)	9.59
2028	9/1/2028	81.23	93.31			(10.68)	4.48
2028	10/1/2028	64.17	68.16			(4.99)	(3.64)
2028	11/1/2028	65.24	67.76			(8.53)	(2.93)
2028	12/1/2028	70.85	69.96			(3.68)	(2.59)
2029	1/1/2029	72.52	68.33			4.26	3.78
2029	2/1/2029	64.97	67.91			(12.93)	(5.74)
2029	3/1/2029	40.19	43.63			(3.58)	(8.12)
2029	4/1/2029	37.22	43.13			(2.80)	(1.30)
2029	5/1/2029	24.25	36.83			1.83	4.93
2029	6/1/2029	50.56	81.74			17.78	39.13
2029	7/1/2029	89.21	110.62			7.41	34.77
2029	8/1/2029	105.65	118.02			(2.20)	29.60
2029	9/1/2029	85.62	100.61			(2.61)	17.21
2029	10/1/2029	57.92	63.57			(3.74)	(3.99)
2029	11/1/2029	65.59	66.18			(5.84)	(2.40)
2029	12/1/2029	75.64	73.55			2.60	1.48
2030	1/1/2030	70.44	67.07			5.93	4.92
2030	2/1/2030	67.79	66.65			(5.27)	(2.95)
2030	3/1/2030	55.06	55.89			15.69	7.78
2030	4/1/2030	49.95	56.40			16.87	13.72
2030	5/1/2030	28.15	50.85			8.85	20.34
2030	6/1/2030	55.70	63.75			30.24	25.80
2030	7/1/2030	81.17	100.47			4.43	27.33
2030	8/1/2030	97.22	109.22			(0.42)	25.96
2030	9/1/2030	81.72	96.82			(0.93)	17.71
2030	10/1/2030	61.46	63.15			7.04	(2.46)
2030	11/1/2030	64.89	64.90			1.53	(0.36)
2030	12/1/2030	76.16	73.05			4.25	3.42
2031	1/1/2031	66.47	64.03			6.78	5.67
2031	2/1/2031	66.31	66.47			(5.03)	(1.08)
2031	3/1/2031	52.56	54.19			16.23	8.67
2031	4/1/2031	46.85	53.36			17.69	13.24
2031	5/1/2031	26.84	50.13			10.42	21.79
2031	6/1/2031	58.04	63.32			35.48	27.43
2031	7/1/2031	79.79	99.69			4.65	29.14
2031	8/1/2031	93.72	106.42			0.70	25.23
2031	9/1/2031	79.93	97.21			(0.32)	18.12
2031	10/1/2031	59.52	61.52			8.04	(2.31)
2031	11/1/2031	64.06	64.63			1.47	0.83
2031	12/1/2031	77.71	75.19			6.54	3.56
2032	1/1/2032	64.61	63.83			5.99	7.69
2032	2/1/2032	61.62	62.17			(6.46)	(2.06)
2032	3/1/2032	45.21	54.22			9.93	9.11
2032	4/1/2032	38.17	53.99			9.05	14.69
2032	5/1/2032	24.62	47.28			9.14	21.36
2032	6/1/2032	41.42	58.24			19.67	23.78
2032	7/1/2032	73.11	85.27			(2.73)	15.59
2032	8/1/2032	86.83	90.77			(11.60)	9.52
2032	9/1/2032	72.39	83.23			(5.74)	3.52
2032	10/1/2032	61.04	62.89			12.75	2.09
2032	11/1/2032	63.11	63.42			2.41	2.55
2032	12/1/2032	73.83	71.64			1.32	0.62
2033	1/1/2033	66.37	64.94			8.54	10.96
2033	2/1/2033	59.96	64.12			(8.91)	(1.22)
2033	3/1/2033	37.14	50.97			5.63	8.52
2033	4/1/2033	30.56	48.84			5.14	13.04
2033	5/1/2033	14.05	23.59			(1.23)	0.59
2033	6/1/2033	32.35	54.54			10.98	21.56
2033	7/1/2033	63.41	70.97			(10.03)	3.39
2033	8/1/2033	73.46	77.53			(24.48)	(0.05)
2033	9/1/2033	67.70	71.37			(4.32)	(5.95)
2033	10/1/2033	60.89	63.80			14.41	6.09
2033	11/1/2033	65.14	65.36			5.54	9.82
2033	12/1/2033	69.66	68.67			(0.84)	(1.91)
2034	1/1/2034	67.21	67.01			12.42	16.15
2034	2/1/2034	61.35	62.71			(3.25)	(0.25)
2034	3/1/2034	35.58	51.30			7.56	12.98
2034	4/1/2034	28.82	45.25			6.06	14.02
2034	5/1/2034	12.87	23.95			(0.49)	2.27
2034	6/1/2034	34.43	53.51			14.62	21.90
2034	7/1/2034	69.15	71.40			(0.78)	7.17
2034	8/1/2034	75.67	81.74			(16.36)	7.34
2034	9/1/2034	70.61	73.74			1.72	(0.29)
2034	10/1/2034	61.38	63.83			17.80	9.29
2034	11/1/2034	65.88	66.11			9.29	13.15
2034	12/1/2034	70.42	70.31			2.87	3.05
2035	1/1/2035	71.73	70.82			14.21	16.74
2035	2/1/2035	64.56	66.01			(3.80)	(1.86)
2035	3/1/2035	33.86	49.20			3.07	7.70
2035	4/1/2035	29.70	49.49			3.34	16.62
2035	5/1/2035	13.88	28.78			0.32	3.97
2035	6/1/2035	33.58	57.31			12.05	25.10

2035	7/1/2035	67.28	76.21			(5.49)	6.90
2035	8/1/2035	77.55	82.89			(17.36)	2.51
2035	9/1/2035	73.83	76.09			(2.39)	1.78
2035	10/1/2035	66.32	67.33			0.66	8.85
2035	11/1/2035	70.71	68.39			13.97	13.19
2035	12/1/2035	73.93	73.30			2.81	4.81
2036	1/1/2036	73.16	71.92			14.50	16.90
2036	2/1/2036	66.21	68.18			(2.90)	2.92
2036	3/1/2036	35.91	43.27			4.01	4.81
2036	4/1/2036	30.23	54.25			6.15	16.88
2036	5/1/2036	16.64	27.85			2.05	1.88
2036	6/1/2036	36.95	58.76			17.26	24.37
2036	7/1/2036	71.88	74.18			(6.28)	1.35
2036	8/1/2036	79.30	84.01			(17.16)	(1.78)
2036	9/1/2036	73.32	76.61			(6.85)	(2.25)
2036	10/1/2036	68.87	72.43			23.54	8.89
2036	11/1/2036	71.78	70.59			14.17	13.35
2036	12/1/2036	75.97	75.21			1.04	2.87
2037	1/1/2037	77.44	77.46			14.08	20.11
2037	2/1/2037	70.72	74.48			(2.78)	5.43
2037	3/1/2037	31.28	40.16			(2.14)	1.19
2037	4/1/2037	34.59	53.28			8.10	14.44
2037	5/1/2037	15.15	25.50			1.05	0.28
2037	6/1/2037	38.60	63.83			18.18	27.30
2037	7/1/2037	74.38	81.79			(7.00)	6.72
2037	8/1/2037	88.74	93.43			(20.86)	0.35
2037	9/1/2037	79.27	79.60			(4.54)	(3.38)
2037	10/1/2037	63.07	76.40			18.74	10.81
2037	11/1/2037	75.13	71.82			14.41	10.54
2037	12/1/2037	81.64	80.52			1.72	4.98
2038	1/1/2038	81.99	81.44			17.78	22.09
2038	2/1/2038	76.30	75.85			1.63	3.28
2038	3/1/2038	37.98	46.13			2.71	2.97
2038	4/1/2038	36.55	58.03			8.37	18.27
2038	5/1/2038	15.23	26.12			1.20	0.25
2038	6/1/2038	41.38	70.68			20.49	32.64
2038	7/1/2038	81.83	117.84			1.65	40.62
2038	8/1/2038	94.64	98.46			(15.28)	6.28
2038	9/1/2038	83.22	102.24			0.06	15.72
2038	10/1/2038	72.37	80.92			24.71	13.48
2038	11/1/2038	80.99	79.80			16.76	17.43
2038	12/1/2038	85.39	84.97			1.85	4.84
2039	1/1/2039	87.37	85.81			23.13	27.97
2039	2/1/2039	77.01	84.51			1.76	12.84
2039	3/1/2039	38.21	49.48			4.96	5.71
2039	4/1/2039	33.96	59.69			6.61	21.41
2039	5/1/2039	16.40	26.36			1.61	0.26
2039	6/1/2039	38.66	67.67			18.02	30.51
2039	7/1/2039	84.30	107.72			5.10	26.57
2039	8/1/2039	92.88	99.59			(17.54)	10.57
2039	9/1/2039	86.71	90.11			9.52	1.13
2039	10/1/2039	64.51	84.70			16.12	15.87
2039	11/1/2039	83.30	82.62			16.38	22.27
2039	12/1/2039	89.26	89.06			7.44	6.66
2040	1/1/2040	102.67	102.98			36.82	43.34
2040	2/1/2040	89.64	94.88			17.43	24.17
2040	3/1/2040	41.45	59.22			8.20	16.72
2040	4/1/2040	37.28	64.56			7.49	28.29
2040	5/1/2040	17.88	31.90			1.70	5.26
2040	6/1/2040	46.53	82.72			24.76	45.57
2040	7/1/2040	101.09	110.47			15.59	29.14
2040	8/1/2040	108.71	115.84			12.36	22.50
2040	9/1/2040	103.88	107.43			21.58	25.59
2040	10/1/2040	75.97	99.87			24.53	29.22
2040	11/1/2040	98.80	99.29			34.80	35.14
2040	12/1/2040	103.56	103.52			21.38	22.98
2041	1/1/2041	139.74	137.81			73.53	77.39
2041	2/1/2041	116.95	127.32			38.14	54.20
2041	3/1/2041	53.02	75.13			15.45	31.52
2041	4/1/2041	42.03	78.97			13.34	37.54
2041	5/1/2041	21.27	42.00			4.84	13.72
2041	6/1/2041	61.69	106.42			41.28	65.07
2041	7/1/2041	131.25	155.19			53.04	70.40
2041	8/1/2041	161.33	203.87			67.03	108.55
2041	9/1/2041	140.24	140.99			57.42	55.83
2041	10/1/2041	89.08	138.13			40.32	66.75
2041	11/1/2041	120.83	128.86			60.20	64.97
2041	12/1/2041	139.81	139.87			55.64	60.70
2042	1/1/2042	176.24	173.46			108.26	112.82
2042	2/1/2042	146.46	165.49			58.06	88.48
2042	3/1/2042	65.79	89.55			22.87	42.88
2042	4/1/2042	42.34	88.01			16.46	47.51
2042	5/1/2042	21.70	36.33			5.74	10.29
2042	6/1/2042	67.98	132.10			47.45	93.40
2042	7/1/2042	168.32	178.83			91.64	98.53
2042	8/1/2042	177.20	173.04			88.03	77.33
2042	9/1/2042	173.07	178.17			88.91	93.57
2042	10/1/2042	93.49	162.89			43.74	91.46
2042	11/1/2042	129.23	160.53			71.01	99.23
2042	12/1/2042	176.53	176.66			88.12	96.41
2043	1/1/2043	180.24	177.39			112.26	116.76
2043	2/1/2043	149.79	169.25			61.39	92.24
2043	3/1/2043	67.28	91.58			24.36	44.91

2043	4/1/2043	43.31	90.01
2043	5/1/2043	22.20	37.15
2043	6/1/2043	69.52	135.09
2043	7/1/2043	172.14	182.89
2043	8/1/2043	181.22	176.97
2043	9/1/2043	177.00	182.22
2043	10/1/2043	95.62	166.58
2043	11/1/2043	132.16	164.17
2043	12/1/2043	180.54	180.67
2044	1/1/2044	184.34	181.42
2044	2/1/2044	153.19	173.09
2044	3/1/2044	68.81	93.66
2044	4/1/2044	44.29	92.05
2044	5/1/2044	22.70	37.99
2044	6/1/2044	71.10	138.15
2044	7/1/2044	176.05	187.05
2044	8/1/2044	185.33	180.99
2044	9/1/2044	181.01	186.35
2044	10/1/2044	97.79	170.36
2044	11/1/2044	135.16	167.90
2044	12/1/2044	184.64	184.77
2045	1/1/2045	188.52	185.54
2045	2/1/2045	156.66	177.02
2045	3/1/2045	70.37	95.79
2045	4/1/2045	45.29	94.14
2045	5/1/2045	23.21	38.86
2045	6/1/2045	72.71	141.30
2045	7/1/2045	180.04	191.29
2045	8/1/2045	189.54	185.09
2045	9/1/2045	185.12	190.58
2045	10/1/2045	100.01	174.23
2045	11/1/2045	138.23	171.71
2045	12/1/2045	188.83	188.96
2046	1/1/2046	192.80	189.75
2046	2/1/2046	160.22	181.04
2046	3/1/2046	71.97	97.96
2046	4/1/2046	46.32	96.28
2046	5/1/2046	23.74	39.74
2046	6/1/2046	74.36	144.51
2046	7/1/2046	184.13	195.63
2046	8/1/2046	193.84	189.30
2046	9/1/2046	189.32	194.91
2046	10/1/2046	102.28	178.19
2046	11/1/2046	141.36	175.61
2046	12/1/2046	193.12	193.25
2047	1/1/2047	197.18	194.06
2047	2/1/2047	163.86	185.15
2047	3/1/2047	73.60	100.18
2047	4/1/2047	47.37	98.47
2047	5/1/2047	24.28	40.64
2047	6/1/2047	76.05	147.79
2047	7/1/2047	188.31	200.07
2047	8/1/2047	198.24	193.59
2047	9/1/2047	193.62	199.34
2047	10/1/2047	104.60	182.23
2047	11/1/2047	144.57	179.59
2047	12/1/2047	197.50	197.64
2048	1/1/2048	201.65	198.46
2048	2/1/2048	167.58	189.35
2048	3/1/2048	75.27	102.46
2048	4/1/2048	48.45	100.70
2048	5/1/2048	24.83	41.56
2048	6/1/2048	77.78	151.14
2048	7/1/2048	192.59	204.62
2048	8/1/2048	202.74	197.99
2048	9/1/2048	198.02	203.86
2048	10/1/2048	106.97	186.37
2048	11/1/2048	147.86	183.67
2048	12/1/2048	201.99	202.13
2049	1/1/2049	206.23	202.97
2049	2/1/2049	171.38	193.65
2049	3/1/2049	76.98	104.78
2049	4/1/2049	49.55	102.99
2049	5/1/2049	25.40	42.51
2049	6/1/2049	79.54	154.57
2049	7/1/2049	196.96	209.26
2049	8/1/2049	207.35	202.48
2049	9/1/2049	202.51	208.49
2049	10/1/2049	109.40	190.60
2049	11/1/2049	151.21	187.84
2049	12/1/2049	206.57	206.71
2050	1/1/2050	210.91	207.58
2050	2/1/2050	175.27	198.05
2050	3/1/2050	78.73	107.16
2050	4/1/2050	50.67	105.33
2050	5/1/2050	25.97	43.47
2050	6/1/2050	81.35	158.08
2050	7/1/2050	201.43	214.01
2050	8/1/2050	212.05	207.08
2050	9/1/2050	207.11	213.22
2050	10/1/2050	111.89	194.93
2050	11/1/2050	154.64	192.10
2050	12/1/2050	211.26	211.41

		17.42	49.51
		6.23	11.12
		48.99	96.40
		95.46	102.59
		92.06	81.26
		92.84	97.61
		45.87	95.16
		73.94	102.87
		92.13	100.42
		116.35	120.78
		64.79	96.08
		25.89	46.99
		18.41	51.55
		6.74	11.96
		50.57	99.47
		99.37	106.74
		96.17	85.28
		96.86	101.75
		48.04	98.94
		76.94	106.60
		96.22	104.52
		120.53	124.90
		68.27	100.01
		27.45	49.12
		19.41	53.64
		7.25	13.82
		52.19	102.60
		103.37	110.98
		100.38	89.39
		100.97	105.98
		50.26	102.81
		80.01	110.41
		100.41	108.72
		124.81	129.11
		71.82	104.03
		29.05	51.29
		20.44	55.77
		7.78	13.70
		53.84	105.81
		107.45	115.33
		104.68	93.59
		105.17	110.31
		52.53	106.76
		83.15	114.31
		104.70	113.01
		129.19	133.42
		75.46	108.14
		30.69	53.52
		21.49	57.96
		8.32	14.61
		55.52	109.09
		111.63	119.77
		109.08	97.88
		109.47	114.73
		54.85	110.81
		86.35	118.29
		109.09	117.39
		133.67	137.83
		79.18	112.34
		32.36	55.79
		22.57	60.20
		8.87	15.53
		57.25	112.45
		115.91	124.31
		113.58	102.28
		113.86	119.26
		57.22	114.94
		89.64	122.37
		113.57	121.88
		138.24	142.33
		82.98	116.64
		34.06	58.12
		23.67	62.48
		9.43	16.47
		59.02	115.88
		120.28	128.95
		118.18	106.77
		118.36	123.88
		59.65	119.17
		92.99	126.54
		118.15	126.47
		142.92	146.94
		86.87	121.03
		35.81	60.50
		24.79	64.82
		10.01	17.44
		60.82	119.39
		124.75	133.70
		122.89	111.37
		122.96	128.62
		62.13	123.50
		96.43	130.80
		122.84	131.16

2051	1/1/2051	215.70	212.29
2051	2/1/2051	179.25	202.54
2051	3/1/2051	80.52	109.59
2051	4/1/2051	51.82	107.72
2051	5/1/2051	26.56	44.46
2051	6/1/2051	83.19	161.67
2051	7/1/2051	206.00	218.87
2051	8/1/2051	216.87	211.78
2051	9/1/2051	211.81	218.06
2051	10/1/2051	114.42	199.35
2051	11/1/2051	158.16	196.46
2051	12/1/2051	216.06	216.21
2052	1/1/2052	220.59	217.11
2052	2/1/2052	183.32	207.14
2052	3/1/2052	81.35	112.08
2052	4/1/2052	53.00	110.16
2052	5/1/2052	27.16	45.47
2052	6/1/2052	85.08	165.34
2052	7/1/2052	210.68	223.84
2052	8/1/2052	221.79	216.59
2052	9/1/2052	216.62	223.01
2052	10/1/2052	117.02	203.88
2052	11/1/2052	161.75	200.92
2052	12/1/2052	220.96	221.11
2053	1/1/2053	225.60	222.04
2053	2/1/2053	187.48	211.84
2053	3/1/2053	84.21	114.63
2053	4/1/2053	54.20	112.66
2053	5/1/2053	27.78	46.50
2053	6/1/2053	87.01	169.09
2053	7/1/2053	215.46	228.92
2053	8/1/2053	226.82	221.50
2053	9/1/2053	221.54	228.07
2053	10/1/2053	119.68	208.50
2053	11/1/2053	165.42	205.49
2053	12/1/2053	225.98	226.13
2054	1/1/2054	230.72	227.08
2054	2/1/2054	191.74	216.65
2054	3/1/2054	86.13	117.23
2054	4/1/2054	55.43	115.22
2054	5/1/2054	28.41	47.56
2054	6/1/2054	88.99	172.93
2054	7/1/2054	220.35	234.12
2054	8/1/2054	231.97	226.53
2054	9/1/2054	226.56	233.25
2054	10/1/2054	122.40	213.24
2054	11/1/2054	169.17	210.15
2054	12/1/2054	231.10	231.27
2055	1/1/2055	235.96	232.23
2055	2/1/2055	196.09	221.57
2055	3/1/2055	88.08	119.89
2055	4/1/2055	56.69	117.84
2055	5/1/2055	29.06	48.64
2055	6/1/2055	91.01	176.86
2055	7/1/2055	225.35	239.43
2055	8/1/2055	237.24	231.67
2055	9/1/2055	231.71	238.54
2055	10/1/2055	125.17	218.08
2055	11/1/2055	173.01	214.92
2055	12/1/2055	236.35	236.52
2056	1/1/2056	241.32	237.50
2056	2/1/2056	200.54	226.60
2056	3/1/2056	90.08	122.61
2056	4/1/2056	57.98	120.51
2056	5/1/2056	29.72	49.74
2056	6/1/2056	93.07	180.87
2056	7/1/2056	230.47	244.86
2056	8/1/2056	242.62	236.93
2056	9/1/2056	236.97	243.96
2056	10/1/2056	128.02	223.03
2056	11/1/2056	176.94	219.80
2056	12/1/2056	241.72	241.89
2057	1/1/2057	246.79	242.89
2057	2/1/2057	205.09	231.74
2057	3/1/2057	92.13	125.39
2057	4/1/2057	59.30	123.25
2057	5/1/2057	30.39	50.87
2057	6/1/2057	95.19	184.98
2057	7/1/2057	235.70	250.42
2057	8/1/2057	248.13	242.31
2057	9/1/2057	242.35	249.50
2057	10/1/2057	130.92	228.09
2057	11/1/2057	180.96	224.79
2057	12/1/2057	247.20	247.38
2058	1/1/2058	252.40	248.41
2058	2/1/2058	209.75	237.00
2058	3/1/2058	94.22	128.24
2058	4/1/2058	60.64	126.04
2058	5/1/2058	31.08	52.02
2058	6/1/2058	97.35	189.17
2058	7/1/2058	241.05	256.11
2058	8/1/2058	253.76	247.81
2058	9/1/2058	247.85	255.16

	147.71	151.65
	90.85	125.53
	37.60	62.93
	25.94	67.21
	10.60	18.42
	62.67	122.97
	129.32	138.56
	127.70	116.07
	127.66	133.46
	64.67	127.93
	99.94	135.17
	127.64	135.96
	152.61	156.47
	94.92	130.13
	39.43	65.42
	27.12	69.66
	11.20	19.43
	64.56	126.64
	134.00	143.53
	132.63	120.88
	132.47	138.41
	67.27	132.45
	103.53	139.62
	132.54	140.87
	157.62	161.40
	99.08	134.83
	41.30	67.96
	28.32	72.16
	11.82	20.47
	66.49	130.40
	138.78	148.61
	137.66	125.79
	137.38	143.47
	69.93	137.08
	107.20	144.19
	137.56	145.89
	162.74	166.44
	103.34	139.64
	43.21	70.56
	29.55	74.71
	12.45	21.52
	68.46	134.24
	143.67	153.81
	142.81	130.82
	142.41	146.65
	72.54	143.81
	110.95	148.85
	142.69	151.02
	167.97	171.59
	107.69	144.55
	45.16	73.22
	30.81	77.33
	13.10	22.60
	70.48	138.16
	148.68	159.12
	148.07	135.97
	147.55	153.94
	75.42	146.65
	114.79	153.62
	147.93	156.27
	173.33	176.87
	112.14	149.58
	47.16	75.95
	32.10	80.00
	13.75	23.71
	72.55	142.18
	153.79	164.56
	153.46	141.22
	152.81	159.36
	78.26	151.60
	118.72	158.50
	153.30	161.64
	178.81	182.26
	116.69	154.73
	49.21	78.73
	32.41	82.74
	14.43	24.83
	74.66	146.28
	159.02	170.12
	158.97	146.60
	158.19	164.89
	81.17	156.67
	122.74	163.49
	158.79	167.13
	184.41	187.77
	121.35	159.99
	51.30	81.58
	34.76	85.54
	15.12	25.99
	76.82	150.48
	164.37	175.80
	164.60	152.10
	163.69	170.56

2058	10/1/2058	133.89	233.27
2058	11/1/2058	185.06	229.89
2058	12/1/2058	252.81	252.99
2059	1/1/2059	258.13	254.05
2059	2/1/2059	214.51	242.38
2059	3/1/2059	96.36	131.15
2059	4/1/2059	62.02	128.90
2059	5/1/2059	31.79	53.20
2059	6/1/2059	99.56	193.47
2059	7/1/2059	246.52	261.92
2059	8/1/2059	259.52	253.44
2059	9/1/2059	253.47	260.95
2059	10/1/2059	136.93	238.56
2059	11/1/2059	189.26	235.11
2059	12/1/2059	258.55	258.73
2060	1/1/2060	263.99	259.81
2060	2/1/2060	219.38	247.89
2060	3/1/2060	98.54	134.13
2060	4/1/2060	63.43	131.83
2060	5/1/2060	32.51	54.41
2060	6/1/2060	101.82	197.86
2060	7/1/2060	252.12	267.87
2060	8/1/2060	265.42	259.19
2060	9/1/2060	259.23	266.88
2060	10/1/2060	140.04	243.98
2060	11/1/2060	193.56	240.45
2060	12/1/2060	264.42	264.61
2061	1/1/2061	269.98	265.71
2061	2/1/2061	224.36	253.51
2061	3/1/2061	100.78	137.17
2061	4/1/2061	64.87	134.82
2061	5/1/2061	33.25	55.65
2061	6/1/2061	104.13	202.35
2061	7/1/2061	257.84	273.95
2061	8/1/2061	271.44	265.07
2061	9/1/2061	265.11	272.94
2061	10/1/2061	143.22	249.52
2061	11/1/2061	197.95	245.91
2061	12/1/2061	270.43	270.61
2062	1/1/2062	276.11	271.74
2062	2/1/2062	229.45	259.27
2062	3/1/2062	103.07	140.29
2062	4/1/2062	66.34	137.88
2062	5/1/2062	34.00	56.91
2062	6/1/2062	106.49	206.95
2062	7/1/2062	263.69	280.17
2062	8/1/2062	277.60	271.09
2062	9/1/2062	271.13	279.13
2062	10/1/2062	146.47	255.18
2062	11/1/2062	202.45	251.49
2062	12/1/2062	276.56	276.76
2063	1/1/2063	282.37	277.91
2063	2/1/2063	234.66	265.15
2063	3/1/2063	105.41	143.47
2063	4/1/2063	67.84	141.01
2063	5/1/2063	34.77	58.20
2063	6/1/2063	108.91	211.64

				84.14	161.84
				126.84	168.59
				164.40	172.75
				190.14	193.41
				126.11	165.37
				53.44	84.49
				36.14	88.40
				15.82	27.17
				79.03	154.77
				169.85	181.61
				170.36	157.73
				169.32	176.35
				87.18	167.14
				131.05	173.81
				170.14	178.49
				196.00	199.18
				130.98	170.87
				55.62	87.46
				37.54	91.32
				16.55	28.38
				81.29	159.17
				175.44	187.56
				176.25	163.48
				175.07	182.27
				90.29	172.55
				135.34	179.15
				176.01	184.36
				201.99	205.07
				135.96	176.50
				57.86	90.51
				38.98	94.32
				17.28	29.61
				83.60	163.66
				181.16	193.64
				182.28	169.36
				180.96	188.33
				93.47	178.09
				139.74	184.61
				182.01	190.37
				208.12	211.11
				141.05	182.25
				60.15	93.62
				40.46	97.38
				18.04	30.88
				85.97	168.25
				187.02	199.86
				188.44	175.38
				186.98	194.53
				96.72	183.76
				144.23	190.19
				188.15	196.51
				214.39	217.27
				146.26	188.14
				62.49	96.81
				41.96	100.53
				18.81	32.17
				88.39	172.95

2063	7/1/2063	269.68	286.53
2063	8/1/2063	283.90	277.24
2063	9/1/2063	277.29	285.47
2063	10/1/2063	149.80	260.97
2063	11/1/2063	207.04	257.20
2063	12/1/2063	283.84	283.04
2064	1/1/2064	288.78	284.22
2064	2/1/2064	239.99	271.17
2064	3/1/2064	107.80	146.73
2064	4/1/2064	69.38	144.22
2064	5/1/2064	35.56	59.52
2064	6/1/2064	111.38	216.45
2064	7/1/2064	275.80	293.03
2064	8/1/2064	290.35	283.54
2064	9/1/2064	283.58	291.95
2064	10/1/2064	153.20	266.90
2064	11/1/2064	211.74	263.03
2064	12/1/2064	289.26	289.46
2065	1/1/2065	295.34	290.67
2065	2/1/2065	245.43	277.33
2065	3/1/2065	110.25	150.06
2065	4/1/2065	70.96	147.49
2065	5/1/2065	36.37	60.87
2065	6/1/2065	113.91	221.36
2065	7/1/2065	281.06	299.68
2065	8/1/2065	296.94	289.97
2065	9/1/2065	290.02	298.57
2065	10/1/2065	156.67	272.96
2065	11/1/2065	216.55	269.01
2065	12/1/2065	295.83	296.04
2066	1/1/2066	302.04	297.27
2066	2/1/2066	251.01	283.62
2066	3/1/2066	112.75	153.47
2066	4/1/2066	72.57	150.84
2066	5/1/2066	37.19	62.26
2066	6/1/2066	116.50	216.39
2066	7/1/2066	288.46	306.48
2066	8/1/2066	303.68	296.56
2066	9/1/2066	296.60	305.35
2066	10/1/2066	160.23	279.15
2066	11/1/2066	221.47	275.11
2066	12/1/2066	302.54	302.76
2067	1/1/2067	308.90	304.02
2067	2/1/2067	256.70	290.06
2067	3/1/2067	115.31	156.95
2067	4/1/2067	74.22	154.26
2067	5/1/2067	38.04	63.67
2067	6/1/2067	119.14	231.52
2067	7/1/2067	295.01	313.44
2067	8/1/2067	310.57	303.29
2067	9/1/2067	303.33	312.28
2067	10/1/2067	163.87	285.49
2067	11/1/2067	226.49	281.36
2067	12/1/2067	309.41	309.63
2068	1/1/2068	315.91	310.92
2068	2/1/2068	262.53	296.65
2068	3/1/2068	117.93	160.51
2068	4/1/2068	75.90	157.76
2068	5/1/2068	38.90	65.11
2068	6/1/2068	121.84	236.78
2068	7/1/2068	301.71	320.56
2068	8/1/2068	317.62	310.17
2068	9/1/2068	310.22	319.37
2068	10/1/2068	167.59	291.97
2068	11/1/2068	231.63	287.74
2068	12/1/2068	316.44	316.66
2069	1/1/2069	323.08	317.98
2069	2/1/2069	268.49	303.38
2069	3/1/2069	120.60	164.16
2069	4/1/2069	77.62	161.34
2069	5/1/2069	39.79	66.59
2069	6/1/2069	124.61	242.16
2069	7/1/2069	308.56	327.83
2069	8/1/2069	324.83	317.21
2069	9/1/2069	317.26	326.62
2069	10/1/2069	171.39	298.60
2069	11/1/2069	236.89	294.28
2069	12/1/2069	323.62	323.84
2070	1/1/2070	330.42	325.19
2070	2/1/2070	274.58	310.27
2070	3/1/2070	123.34	167.88
2070	4/1/2070	79.39	165.01
2070	5/1/2070	40.69	68.10
2070	6/1/2070	127.44	247.65
2070	7/1/2070	315.56	335.28
2070	8/1/2070	332.21	334.41
2070	9/1/2070	324.46	334.04
2070	10/1/2070	175.28	305.38
2070	11/1/2070	242.27	300.96
2070	12/1/2070	330.96	331.20

		193.00	206.22
		194.74	181.54
		193.13	200.86
		100.04	189.55
		148.82	195.90
		194.42	202.79
		220.80	223.58
		151.59	194.16
		64.88	100.06
		43.50	103.71
		19.60	33.49
		90.86	177.75
		199.12	212.72
		201.18	187.83
		199.43	207.34
		103.44	195.47
		153.52	201.73
		200.85	209.22
		227.35	230.03
		157.04	200.31
		67.33	103.39
		45.08	106.98
		20.41	34.84
		93.39	182.67
		205.39	219.37
		207.78	194.27
		205.86	213.97
		106.92	201.53
		158.33	207.71
		207.41	215.79
		234.06	236.63
		162.61	206.61
		69.83	106.80
		46.69	110.33
		21.23	36.22
		95.97	187.69
		211.79	226.18
		214.52	200.85
		212.45	220.75
		110.48	207.73
		163.25	213.81
		214.13	222.51
		240.91	243.38
		168.30	213.05
		72.39	110.28
		48.34	113.76
		22.08	37.64
		98.62	192.83
		218.34	233.13
		221.41	207.58
		219.18	227.68
		114.12	214.06
		168.27	220.06
		220.99	229.38
		247.93	260.28
		174.13	219.63
		75.01	113.85
		50.02	117.26
		22.94	39.08
		101.32	198.09
		225.03	240.25
		228.46	214.46
		226.07	234.77
		117.84	220.54
		173.42	226.44
		228.02	236.41
		255.10	257.34
		180.09	226.36
		77.69	117.49
		51.74	120.84
		23.82	40.56
		104.09	203.46
		231.88	247.53
		235.67	221.51
		233.11	242.02
		121.64	227.17
		178.67	232.98
		235.20	243.60
		262.43	264.56
		186.19	233.25
		80.42	121.22
		53.51	124.50
		24.73	42.07
		106.91	208.96
		238.89	254.97
		243.04	228.71
		240.31	249.43
		125.53	233.95
		184.05	239.66
		242.55	250.95

Alternative Submissions	Rationale for alternative submission: <i>PacifiCorp's final 2023 IRP was filed in May 2023. It contains more recent information and is being considered for acknowledgment in docket LC 82.</i>
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RPS Compliance Inputs IRP

Real or Nominal?	
Dollar Year:	
Source and Pg #:	2023 IRP Vol. 1: pg. 320-321, Figure 9.59
Source Link or File Name:	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2023-irp/2023_IRP_Volume_1_Final_5-31-23.pdf
Source Notes:	Oregon RPS compliance is achieved through 2042 with the addition of new renewable resources and transmission in the 2023 IRP preferred portfolio. The IRP Preferred Portfolio does not include any renewable resources added for the purpose of RPS compliance. The cost-effective renewables in the portfolio are lower cost than non-RPS alternatives.

	RPS Compliance Cost (\$/MWh)	Avoided RPS Compliance Obligation (%)
2022		20%
2023	0	20%
2024	0	20%
2025	0	27%
2026	0	27%
2027	0	27%
2028	0	27%
2029	0	27%
2030	0	35%
2031	0	35%
2032	0	35%
2033	0	35%
2034	0	35%
2035	0	45%
2036	0	45%
2037	0	45%
2038	0	45%
2039	0	45%
2040	0	50%
2041	0	50%
2042	0	50%
2043		50%
2044		50%
2045		50%
2046		50%
2047		50%
2048		50%
2049		50%
2050		50%

	2021 IRP Med CO2	2021 IRP EE Risk Reduction Credit	
		Calculated by IRP models	Levelized values by year
\$/ST	PAC Nom		
	21IRP: Figure 8.4		
2018			
2019			
2020			
2021		\$3.59	\$3.05
2022		\$3.59	\$3.11
2023		\$3.59	\$3.18
2024		\$3.59	\$3.25
2025	9.93	\$3.59	\$3.32
2026	11.15	\$3.59	\$3.39
2027	12.54	\$3.59	\$3.46
2028	14.09	\$3.59	\$3.54
2029	15.85	\$3.59	\$3.61
2030	17.83	\$3.59	\$3.69
2031	20.06	\$3.59	\$3.77
2032	22.58	\$3.59	\$3.85
2033	25.41	\$3.59	\$3.94
2034	28.59	\$3.59	\$4.02
2035	32.14	\$3.59	\$4.11
2036	36.13	\$3.59	\$4.20
2037	40.66	\$3.59	\$4.29
2038	45.76	\$3.59	\$4.38
2039	51.49	\$3.59	\$4.47
2040	57.94	\$3.59	\$4.57
2041			
2042			
Nominal levelized 2021-2040		\$3.59	\$3.59
Real-levelized Adjustment		118%	

set so that nominal and real streams are equal

