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June 1, 2022

CNG/O22-06-01

Oregon Public Utility Commission
 Attn: Filing Center
 P.O. Box 1088
 Salem, OR 97308-1088

Re: Advice No. O22-06-01 – Cascade’s Arrearage Management Program and Energy Discount

Cascade Natural Gas Corporation (Cascade or Company) submits the following tariff sheets to the Oregon Public Utility Commission (Commission or OPUC) under Cascade’s Advice filing No. O22-06-01. This filing includes the following portion of the Company’s P.U.C. OR. No. 10 tariff for natural gas service stated to become effective with service on and after July 1, 2022:

Original Sheet No. 36.1	ARREARAGE MANAGEMENT PROGRAM AND ENERGY DISCOUNT
Original Sheet No. 36.2	ARREARAGE MANAGEMENT PROGRAM AND ENERGY DISCOUNT
Original Sheet No. 36.3	ARREARAGE MANAGEMENT PROGRAM AND ENERGY DISCOUNT
Original Sheet No. 37.1	LOW INCOME ASSISTANCE COST RECOVERY
Second Revision of Sheet No. ii	INDEX

However, both the program and funding will not become effective until October 1, 2022, to allow Cascade at least 90-days to set-up the back-office billing, accounting, and other administrative matters to have a successful kick-off of Cascade’s Arrearage Management Program and Energy Discount (AMPED). Also, this date aligns with the normal program year of Cascade’s Oregon Low-Income Bill Assistance (OLIBA) program, which AMPED is replacing due to its enhanced assistance, its comprehensive approach and reduce eligible and disparate energy burdens.

Background

On January 1, 2022, provisions in Oregon House Bill 2475 (HB 2475) became law. The new law expanded ORS757.230 giving the Commission additional ratemaking authority regarding programs which address the individual energy burdens of low-income customers, remedies including but not limited to, differential rates for electric and natural gas service and other conservation centered programs, such as weatherization.

In January, Cascade selected Forefront Economics Inc and H. Gil Peach and Associates to conduct a third-party study to analyze the energy burden of its current Oregon customer base and to better determine the impacts and benefits of a low-income discount program for customers in Oregon State. This analysis was used to determine what income tier categories based on Federal Poverty Level (FPL) or State Median Income (SMI) were most appropriate for the program and which discount ratios would direct the most benefit to the customers groups most in need of support. This assessment of the proposed programs is provided as an attachment to this filing.

In response to HB 2475, Cascade evaluated a new energy burden discount program proposal that would fulfill the requirements under the law. To perform the analysis and engage with the appropriate

stakeholders who have a shared interest in the efficacy of the program, Cascade proposed several interim revisions to its Big HEART program that provided increased resources available to aid customers most in need of billing assistance, reduced barriers to such customer assistance, and provided a bridge until the AMPED program was implemented.

On February 1, Cascade filed modifications to its Big HEART program that: 1) increased the customer outstanding past due balance eligible for assistance under Big HEART from \$1,500 to \$2,500; 2) allowed all outstanding balances to be eligible; 3) removed language limiting Big HEART benefits from being a one-time benefit thus allowing multiple opportunities for assistance up to the program limit; 4) removed barrier language in the tariff requiring customers to express financial hardship due to COVID-19 and allowed for declarations of such hardship without a specified reason; and 5) removed the previous sunset date for Big HEART, which was originally set for September 30, 2022, and allowed the program termination date to be open-ended until the revised spending limit was reached, or the Commission closed the program, whichever occurred first.

On February 15, Cascade provided a timeline for the AMPED program as part of the modification to Cascade's Big HEART grant assistance program. Also in February, Cascade provided Commission Staff with a preview of early energy burden study analysis to receive initial feedback and guidance to help direct the commissioned report.

On April 29, Cascade provided its third-party low-income rate analysis report to the stakeholder group for review. On May 19, the Company held a meeting to discuss the results of the study and the proposed AMPED low-income program with the stakeholder group which includes current partner Community Action Agency (CAA) representatives, Commission Staff, Oregon Citizens' Utility Board (CUB), and other stakeholders. Stakeholders submitted written comments to Cascade on May 27.

Arrearage Management Approach

Since the inception of its temporary residential bill assistance program ("Big Heart" under Schedule 35) the Company has demonstrated the effectiveness and administrative efficiency of providing significant billing assistance relief by providing direct grants for outstanding past due or arrearage balances to customer accounts. With this recent experience, the Company proposes including an arrearage management grant in addition to a low-income discount option, as described later in this filing.

Discontinuance of the current OLIBA program

As the Company moves toward a new holistic arrearage management and energy discount low-income program, the Company proposes discontinuing its current grant-based low-income billing assistance program known as the Oregon Low-Income Bill Assistance Program. The discontinuance of OLIBA means that all Company resources dedicated to it will be transferred to the AMPED program model, including resources, agreements, and training for CAA partners who help administer Cascade's low-income programs.

AMPED Program Overview

Cascade has identified the following essential goals for its proposed AMPED low-income program to help customers who are experiencing a significant energy burden:

- Reduce low-income customers' total energy burden.
- Increase the number of customers reached by Cascade's billing assistance programs.
- Keep customers connected to their energy service.

To support these essential functions, the Company proposes the following opportunities for customers to receive AMPED program assistance:

Arrearage Management

At the date of enrollment, or soon thereafter, the Company will reduce the qualifying customer's past due balance (arrearage) according to where the customer falls in the qualifying income percentage in the tiers listed below. The arrearage management instant grant is limited to once per program year per account and may not create a credit balance on the account.

Energy Discounts

Customers enrolled in AMPED, based on their qualifying household income and household size, will have their monthly natural gas bills discounted according to where the customer falls in the qualifying income percentage tiers listed below:

Tier Levels	Energy Discount	Arrearage Management
0-25% FPL, 0-15% SMI	95%	100%
26-50% FPL, 16-30% SMI	70%	100%
51-100% FPL, 31-45% SMI	45%	100%
101-150% FPL, 46-60% SMI	15%	90%

AMPED Enrollment with CAAs or the Company

Customers may apply for AMPED assistance by scheduling an appointment with their local CAA provider, at which time, the customer's household income level will be verified. Shortly after the CAAs provide the customer information to Cascade, the customer will be enrolled in the appropriate assistance tier and grants applied. Also, customers may enroll in AMPED by calling Cascade's customer service number and verbally providing income and household size information. Cascade will perform an eligibility audit on up to three percent of accounts enrolled by self-attestation in AMPED.

Community-Based Organizational Outreach

Part of AMPED will fund Community-Based Organization (CBO) engagement that includes entities that serve marginalized communities, including but not limited to rural, immigrant, tribal, or people of color. Such organizations will focus on community-based outreach to target the hardest-to-reach customers with disabilities, language barriers, and limited access to communications. Funding for the community-based outreach would be up to three percent of the annual program budget with a floor of \$35,000 annually.

In addition, Cascade will independently promote and engage in program outreach efforts and administer the AMPED program. Also, Cascade is proposing as part of the AMPED program that CAAs receive an administrative fee of \$75 per household qualified for AMPED. This means one fee per household will be paid per program year, to help assist the agencies in their mission.

Low-Income Advisory Group & Reporting

Cascade will continue to engage with interested stakeholders in an advisory capacity under the AMPED model. Cascade also plans to file with the Commission an annual report on its AMPED program performance by January 31 of each year.

Funding and Expenditures

Cascade estimates costs for the AMPED program for the first program year, which assumes 20% participation and the use of Federal Poverty Level Income percentages, will be approximately \$1,417,000. The breakdown of the AMPED program costs is as follows: 1) \$617,747 for arrearage management grants, 2) \$444,831 related to energy discounts applied to low-income customers bills, 3) \$85,006 for Cascade administration outreach, 4) \$35,000 in the first year for CBO outreach efforts, and 5) \$234,225 for payments to help assist CAA agencies. The summary table below shows cost components, amounts, and percentage of program:

AMPED Program Cost		
<i>Cost Component</i>	<i>Amount</i>	<i>Percentage</i>
Arrearage Management	\$ 617,747	43.6%
Energy Discount	\$ 444,831	31.4%
Administrative	\$ 85,006	6.0%
Community Based-Org	\$ 35,000	2.5%
Agency Fee	\$ 234,225	16.5%
Total (rounded)	\$ 1,417,000	100.0%

The AMPED program at full enrollment could reach a total program cost of \$11.4 million annually.

Cost Recovery and Bill Impacts

Cascade estimates that the average residential customer on Schedule 101 will experience a bill increase equal to \$1.09 per month based on initial program cost. An average core commercial customer on Schedule 104 will see a bill increase of approximately \$3.00 per month. Other industrial, large volume, interruptible and transport customer bill impacts are shown in the table below:

<i>OR</i>	<i>Sch. 101</i>	<i>Sch. 104</i>	<i>Sch. 105</i>	<i>Sch. 111</i>	<i>Sch. 163</i>	<i>Sch. 170</i>
AMPED Portion	\$884,171	\$368,442	\$31,146	\$19,345	\$104,538	\$9,357
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21
\$ Increase	\$1.09	\$3.00	\$17.19	\$80.61	\$235.44	\$194.94
% Increase	2.1%	1.7%	1.5%	1.0%	3.3%	0.9%
\$ per Therm	\$0.01845	\$0.01191	\$0.00974	\$0.00642	\$0.00278	\$0.00488

The AMPED program at full enrollment could cost the average residential customer an additional \$8.70 per month.

Accounting Petition for AMPED Deferral Accounting Treatment

To properly track the costs associated with AMPED benefits and administrative costs, Cascade is submitting with this filing an amended Petition to the Commission for an accounting order authorizing the Company to defer associated AMPED costs. On January 31, 2022, Cascade filed an application for authorization for deferred accounting for costs and revenues associated with HB 2475. Cascade's amended petition clarifies the accounting treatment and initial estimated costs associated with AMPED.

If you have any questions regarding this information, please feel free to contact Christopher Mickelson at (509) 734-4549 or myself at (208) 377-6015.

Sincerely,

/s/ Lori Blattner

Lori A. Blattner
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Attachments

**SCHEDULE 36
ARREARAGE MANAGEMENT PROGRAM AND ENERGY DISCOUNT**

TERMS AND CONDITIONS

The program is effective on and after October 1, 2022.

The purpose of this schedule is to define the mechanism for providing low-income billing assistance to qualifying residential customers under the Company's Arrearage Management Program and Energy Discount (AMPED).

This schedule is for qualifying residential customers served on Schedule 101 or household members of a dwelling served on Schedule 101. An applicant for service under this schedule must demonstrate their household income is less than or equal to 150% of the Federal Poverty Level (FPL) or less than or equal to 60% Oregon State Median Income (SMI). Qualifications under AMPED:

1. Customers enrolled in AMPED, based on their qualifying household income and household size, will have their monthly natural gas bill discounted by the percentage of their qualifying income percentage tier listed below.
2. At the date of enrollment, or soon thereafter, the Company will reduce the qualifying customer's past due balance (arrearage) by the percentage of their qualifying income percentage tier listed below. The arrearage management instant grant is limited to once per program year per account and may not create a credit balance on the account.
3. Customers may apply for AMPED energy assistance by scheduling an appointment with a local Community Action Agency (CAA). The Customer's household income level will then be verified and CAAs will submit the AMPED details to the Company to apply to the customer's account, at which time the customer will be enrolled in the appropriate assistance tier.
4. The CAA will execute a contract with Cascade establishing roles and responsibilities consistent with this Schedule. Failure to comply with requirements in the contract may result in termination from the role of program administrator.
5. Cascade will pay CAAs an administrative fee of \$75 per household qualified for AMPED. One fee per household will be paid per program year.
6. Customers may also enroll in AMPED by calling Cascade's customer service number at (888) 522-1130 (Monday – Friday, 7:30 A.M. – 6:30 P.M.). Monthly income and household size will be provided verbally by the customer and the Company will reduce the qualifying customer's past due balance (arrearage) by the percentage of qualifying discount and automatically enroll the customer in the AMPED energy discount within the qualifying tier. Since Cascade will not keep any financial information, Cascade will randomly choose up to 3 percent of participating customers to verify eligibility. This will only apply to self-attestation enrollment and those who have not received energy assistance in the past 12 months.
7. Customers enrolled in AMPED must reapply two years after the date of their most recent enrollment. Any annual application of LIHEAP or Winter Help will reset the enrollment application reapply deadline.
8. A customer who is enrolled in AMPED and who moves or re-establishes service within the Company's service territory within fifteen (15) business days, may have the program transferred to the new account for the service address.
9. Customers who qualify for LIHEAP or Winter Help will be auto enrolled in AMPED based on their qualifying income percentage eligibility.

(continued)

TERMS AND CONDITIONS (continued)

10. At implementation, all low-income customers who have received energy assistance in the last twelve months will be auto enrolled into the AMPED program. If the customer’s qualifying income percentage is known, then they will be placed in the appropriate energy discount tier level. If the customer’s income percentage is not known, then the customer will be placed in the lowest energy discount tier level at 101-150% FPL or 46-60% SMI.
11. Any AMPED instant grant is applied before any LIHEAP or Winter Help.

The annual program year begins October 1. Service under this schedule is subject to the rules and regulations contained in the Company’s tariff.

ENERGY DISCOUNT & ARREARAGE MANAGEMENT TIERS

Income-qualified customers under AMPED will receive the following monthly energy discounts and arrearage management assistance:

Tier Levels	Energy Discount	Arrearage Management
0-25% FPL, 0-15% SMI	95%	100%
26-50% FPL, 16-30% SMI	70%	100%
51-100% FPL, 31-45% SMI	45%	100%
101-150% FPL, 46-60% SMI	15%	90%

PROGRAM FUNDING

Program costs incurred for this program and outreach will be recovered through tariff rates presented on Schedule 37, Low-Income Assistance Cost Recovery.

LOW-INCOME ADVISORY GROUP

A low-income advisory group comprised of key stakeholders including but not limited to Company, Oregon Public Utilities Commission, Oregon Citizens' Utility Board, and CAA representatives shall discuss and advise Cascade on program related matters such as the evaluation, program specifics, performance obligations, regulatory filings, rate impacts, and program outreach efforts. This advisory group will meet at least twice annually.

ENGAGEMENT

Cascade will fund Community-Based Organization (CBO) engagement that includes entities that serve marginalized communities, including but not limited to rural, immigrant, tribal, or people of color. Such organizations will focus on community-based outreach to target the hardest-to-reach customers with disabilities, language barriers, and limited access to communications. Funding for the community-based outreach would be up to three percent of the annual program budget with a floor of \$35,000 annually. In addition, Cascade will independently promote and engage in program outreach efforts and administering the AMPED program; these efforts will be funded through Schedule 37.

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REPORTING

By January 31, the Company will file with the Commission an annual report on its AMPED program performance that will detail total customers enrolled, customers' average therm usage, total dollars spent, grant dollars awarded to customers, dollars spent on CAAs' administrative costs, number of households served per CAA, and program dollars spent on outreach and administration that is done by Cascade, CBOs, or CAAs. After the first year, the report will include a comparison of the program's performance to prior years.

SCHEDULE 37
LOW INCOME ASSISTANCE COST RECOVERY

PURPOSE:

Recovery is effective on and after October 1, 2022.

The purpose of this schedule is to recover costs associated with the Company's low-income Arrearage Management Program and Energy Discount (AMPED) billing assistance to qualifying residential Cascade customers.

APPLICABILITY:

This adjustment applies to the following rate schedules: 101, 104, 105, 111, 163 and 170.

ADJUSTMENT TO RATE:

The Company will file to change this adjustment schedule annually so that forecast collections under this schedule will be targeted to meet actual program expenses.

RATES:

The following adjustment rates will apply on a per therm basis for each rate schedule as listed in the table below:

Rate Schedule	Rate
101	\$0.01845
104	\$0.01191
105	\$0.00974
111	\$0.00642
163	\$0.00278
170	\$0.00488

GENERAL TERMS:

Service under this adjustment schedule is governed by the terms of this schedule, the Rules contained in this Tariff, any other schedules that by their terms or by the terms of this adjustment schedule apply to service under this schedule, and by all rules and regulations prescribed by regulatory authorities, as amended from time to time.

INDEX

RULES

<u>Rule</u>	<u>Title</u>	<u>Sheet</u>
1	General	1.1
2	Definitions	2.1
3	Establishing Service.....	3.1
4	Customer Deposits and Other Security	4.1
5	Discontinuation of Service.....	5.1
6	Billing.....	6.1
7	Meters	7.1
8	Meter Testing	8.1
9	Service Line Installations	9.1
10	Main Installations	10.1
11	House Piping.....	11.1
12	Responsibility for Maintenance of Service Connections	12.1
14	Company Responsibility	14.1
15	Customer Responsibility	15.1
16	Force Majeure.....	16.1
17	Order of Priority for Gas Service	17.1
18	Limitation of Firm Service.....	18.1
19	Conservation Alliance Plan Mechanism	19.1

SUPPLEMENTAL SCHEDULES

<u>Schedule</u>	<u>Title</u>	<u>Page</u>
31	Public Purpose Charge.....	31.1
32	Oregon Low-Income Assistance Program	32.1
33	Oregon Low-Income Energy Conservation Program	33.1
33	Conservation Achievement Tariff (CAT) Pilot Program	33.7
34	Energy Efficiency Services and Programs	34.1
35	Temporary COVID-19 Residential Bill Assistance Program.....	35.1
36	Arrearage Management Program and Energy Discount.....	36.1
37	Low Income Assistance Cost Recovery	37.1

(T)

(N)

(N)

RATE SCHEDULES

<u>Schedule</u>	<u>Title</u>	<u>Page</u>
100	Adjustment for Municipal Exactions	100.1
101	General Residential Service Rate.....	101.1
104	General Commercial Service Rate	104.1
105	General Industrial Service Rate.....	105.1

(continued)

INDEX

RULES

<u>Rule</u>	<u>Title</u>	<u>Sheet</u>
1	General	1.1
2	Definitions	2.1
3	Establishing Service.....	3.1
4	Customer Deposits and Other Security	4.1
5	Discontinuation of Service.....	5.1
6	Billing.....	6.1
7	Meters	7.1
8	Meter Testing	8.1
9	Service Line Installations	9.1
10	Main Installations	10.1
11	House Piping.....	11.1
12	Responsibility for Maintenance of Service Connections	12.1
14	Company Responsibility	14.1
15	Customer Responsibility	15.1
16	Force Majeure.....	16.1
17	Order of Priority for Gas Service	17.1
18	Limitation of Firm Service.....	18.1
19	Conservation Alliance Plan Mechanism	19.1

(D)

SUPPLEMENTAL SCHEDULES**PUBLIC PURPOSES**

(T)

<u>Schedule</u>	<u>Title</u>	<u>Page</u>
31	Public Purpose Charge.....	31.1
32	Oregon Low-Income Assistance Program	32.1
33	Oregon Low-Income Energy Conservation Program	33.1
33	Conservation Achievement Tariff (CAT) Pilot Program	33.7
34	Energy Efficiency Services and Programs	34.1
35	Temporary COVID-19 Residential Bill Assistance Program.....	35.1
36	Arrearage Management Program and Energy Discount.....	36.1
3437	Low Income Assistance Cost Recovery	37.1

(N)

(N)

RATE SCHEDULES

<u>Schedule</u>	<u>Title</u>	<u>Page</u>
100	Adjustment for Municipal Exactions	100.1
101	General Residential Service Rate.....	101.1
104	General Commercial Service Rate	104.1
105	General Industrial Service Rate.....	105.1

(continued)

TOGGLES

State	OR	Assistance Levels	Proposed
Income % Type	FPL	RD Spread	Base Rev
Arrearage Frequency	1	Agency Fee	\$75
Enrollment Level	20.0%	CBO Funding %	3.0%
Assistance Received	Avg. LIHEAP	Arrearage % Level	54.1%

ANNUAL RESULTS

Arrearage Management			
Tier	Income %	Discount	
T1	0-25%	100.0%	
T2	26-50%	100.0%	
T3	51-100%	100.0%	
T4	101-150%	90.0%	
T5	151-200%	0.0%	

Avg. Arrearage					
Count	Avg. Arrear	Grant	Post	AMP Costs	
179	\$357	\$357	\$0	\$63,846	
136	\$361	\$361	\$0	\$49,131	
656	\$330	\$330	\$0	\$216,703	
1,020	\$314	\$282	\$31	\$288,067	
1,132	\$377	\$0	\$377	\$0	
3,123				\$617,747	

Energy Discount			
Tier	Income %	Discount	
T1	0-25%	95.0%	
T2	26-50%	70.0%	
T3	51-100%	45.0%	
T4	101-150%	15.0%	
T5	151-200%	0.0%	

Avg. Bills					
Count	Avg Bill	Discount	Post	ED Costs	
179	\$661	\$628	\$33	\$112,152	
136	\$667	\$467	\$200	\$63,592	
656	\$611	\$275	\$336	\$180,312	
1,020	\$580	\$87	\$493	\$88,775	
1,132	\$697	\$0	\$697	\$0	
3,123				\$444,831	

AMPED w/ Other Assistance		
Post	Avg. LIHEAP	Acct Balance
\$33	\$302	-\$269
\$200		-\$102
\$336		\$34
\$493		\$191
\$697		\$395

AMPED Program Cost		
Cost Component	Amount	Percentage
Arrearage Management	\$ 617,747	43.6%
Energy Discount	\$ 444,831	31.4%
Administrative	\$ 85,006	6.0%
Community Based-Org	\$ 35,000	2.5%
Agency Fee	\$ 234,225	16.5%
Total (rounded)	\$ 1,417,000	100.0%

Rate Spread							
OR	Sch. 101	Sch. 104	Sch. 105	Sch. 111	Sch. 163	Sch. 170	
AMPED Portion	\$884,171	\$368,442	\$31,146	\$19,345	\$104,538	\$9,357	
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21	
% Increase	\$1.09	\$3.00	\$17.19	\$80.61	\$235.44	\$194.94	
% Increase	2.1%	1.7%	1.5%	1.0%	3.3%	0.9%	
\$ per Therm	\$0.01845	\$0.01191	\$0.00974	\$0.00642	\$0.00278	\$0.00488	

Retail % Inc	2.0%
Base % Inc	3.7%

DATA

WA			
FPL	Count	Avg Bill	
0-25%	1,229	\$616	
26-50%	1,515	\$630	
51-100%	9,710	\$602	
101-150%	12,382	\$619	
151-200%	14,114	\$614	
	38,950	\$616	

SMI		
Count	Avg Bill	
2,997	\$625	
11,468	\$603	
20,110	\$610	
9,158	\$654	
22,745	\$675	
66,478	\$633	

AMI		
Count	Avg Bill	
14,935	\$633	
24,274	\$670	
20,700	\$662	
-	\$683	
-	\$0	
59,909	\$530	

Rev Type		WA
Retail Rev	\$	259,799,143
Base Rev	\$	106,817,481

0-60%	SMI	43,733	AMI	39,209	Diff	4,524
0-80%		66,478		59,909		6,569

OR DATA

OR			
FPL	Count	Avg Bill	
0-25%	893	\$661	
26-50%	681	\$667	
51-100%	3,279	\$611	
101-150%	5,102	\$580	
151-200%	5,660	\$697	
	15,615	\$643	

SMI		
Count	Avg Bill	
1,387	\$668	
2,877	\$621	
6,637	\$613	
2,751	\$658	
7,486	\$700	
21,138	\$652	

AMI		
Count	Avg Bill	
5,236	\$621	
8,689	\$595	
7,470	\$671	
-	\$722	
-	\$0	
21,395	\$522	

Rev Type		OR
Retail Rev	\$	71,076,848
Base Rev	\$	38,119,519

WA DISCOUNT

FPL			
Bin	AMP	ED	
0-25%	100.0%	95.0%	
26-50%	100.0%	70.0%	
51-100%	100.0%	45.0%	
101-150%	90.0%	15.0%	
151-200%	0.0%	0.0%	

WEAF		Report	
AMP	ED		
89.0%	92.8%		
87.0%	72.8%		
84.0%	53.7%		
75.0%	2.4%		
50.0%	0.0%		

Proposed	
AMP	ED
100.0%	95.0%
100.0%	70.0%
100.0%	45.0%
90.0%	15.0%
0.0%	0.0%

OR DISCOUNT

FPL			
Bin	AMP	ED	
0-25%	100.0%	95.0%	
26-50%	100.0%	70.0%	
51-100%	100.0%	45.0%	
101-150%	90.0%	15.0%	
151-200%	0.0%	0.0%	

OLIBA		Report	
AMP	ED		
83.4%	95.3%		
83.4%	70.8%		
83.4%	46.3%		
83.4%	15.5%		
83.4%	0.0%		

Proposed	
AMP	ED
100.0%	95.0%
100.0%	70.0%
100.0%	45.0%
90.0%	15.0%
0.0%	0.0%

RATE SPREAD

WA							
Type	Sch. 503	Sch. 504	Sch. 505	Sch. 511	Sch. 570	Sch. 663	
RES Only	\$ -						
Equal %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Count	195,359	26,843	488	90	8	188	
Therms	131,741,687	93,296,003	13,313,377	12,658,855	2,334,011	641,617,735	
Base Rev	\$52,465,276	\$28,497,629	\$2,570,391	\$2,099,253	\$160,716	\$21,024,215	
GRC	1.00	1.00	1.00	1.00	1.00	1.00	
OPEN	1.00	1.00	1.00	1.00	1.00	1.00	

OR							
Type	Sch. 101	Sch. 104	Sch. 105	Sch. 111	Sch. 163	Sch. 170	
RES Only	\$ 1,417,000						
Equal %	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	
Count	67,704	10,228	151	20	37	4	
Therms	47,916,047	30,931,912	3,196,788	3,015,329	37,657,289	1,917,597	
Base Rev	\$23,785,592	\$9,911,673	\$837,884	\$520,424	\$2,812,224	\$251,722	
GRC	1.17	1.17	1.01	0.33	-	-	
OPEN	1.00	1.00	1.00	1.00	1.00	1.00	

WA							
Type	Sch. 503	Sch. 504	Sch. 505	Sch. 511	Sch. 570	Sch. 663	
RES Only	\$ -						
Equal %	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Count	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Therms	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Base Rev	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
GRC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
OPEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

OR							
Type	Sch. 101	Sch. 104	Sch. 105	Sch. 111	Sch. 163	Sch. 170	
RES Only	\$ 1,417,000						
Equal %	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	
Count	\$ 1,227,694	\$ 185,462	\$ 2,738	\$ 363	\$ 671	\$ 73	
Therms	\$ 544,767	\$ 351,671	\$ 36,345	\$ 34,282	\$ 428,133	\$ 21,802	
Base Rev	\$ 884,171	\$ 368,442	\$ 31,146	\$ 19,345	\$ 104,538	\$ 9,357	
GRC	\$ 275,208	\$ 276,315	\$ 238,528	\$ 77,935	\$ -	\$ -	
OPEN	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	\$ 236,167	

WA							
Type	Sch. 503	Sch. 504	Sch. 505	Sch. 511	Sch. 570	Sch. 663	
Avg. Bills	\$54.08	\$242.11	\$1,563.89	\$12,368.41	\$16,075.99	\$12,940.93	
% Increase	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
% Increase	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
\$ per Therm	\$0.00671	\$0.00395	\$0.00234	\$0.00153	\$0.00479	\$0.00001	

OR							
Type	Sch. 101	Sch. 104	Sch. 105	Sch. 111	Sch. 163	Sch. 170	
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21	
% Increase	\$1.09	\$3.00	\$17.19	\$80.61	\$235.44	\$194.94	
% Increase	2.1%	1.7%	1.5%	1.0%	3.3%	0.9%	
\$ per Therm	\$0.01845	\$0.01191	\$0.00974	\$0.00642	\$0.00278	\$0.00488	

COUNTY	STATE	CUSTOMER_COUNT	WEAF_COUNT	WEAF_TOTAL_BILL	WEAF_TOTAL_ASSIST	LIHEAP_COUNT	LIHEAP_TOTAL_BILL	LIHEAP_TOTAL_ASSIST	BIGHRT_COUNT	BIGHRT_TOTAL_BILL	BIGHRT_ASSIST	OLIBA_COUNT	OLIBA_TOTAL_ASSIST	Count	Bill	Assistance	% Avg. Bill	Avg. Assistance	Avg. Remaining	% Reduced	BHG Bill	BHG Arrear Grant	Arrear Level Forgiven	LIHEAP Avg. Assistance		
ADAMS	WA	1,418	74	\$34,776	\$29,239	1	\$674	\$685	116	\$59,152	\$30,971	-	-	50	191	\$94,603	\$60,894	13.47%	\$495	\$319	\$176	64.37%	\$510	\$267	40%	\$685
BAKER	OR	4,092	-	\$0	\$0	176	\$96,101	\$78,128	135	\$83,308	\$50,090	-	-	50	311	\$179,409	\$128,219	7.60%	\$577	\$412	\$165	71.47%	\$617	\$371	40%	\$444
BENTON	WA	21,668	81	\$46,682	\$22,889	3	\$1,570	\$2,168	309	\$180,684	\$118,802	-	-	50	393	\$228,935	\$143,859	1.81%	\$583	\$366	\$216	62.84%	\$585	\$384	34%	\$723
CHELAN	WA	1,601	5	\$2,036	\$1,457	6	\$1,809	\$2,603	19	\$8,753	\$4,521	-	-	50	30	\$12,598	\$8,581	1.87%	\$420	\$286	\$134	68.12%	\$461	\$238	48%	\$434
COMALITZ	WA	4,414	5	\$2,899	\$958	4	\$3,159	\$2,397	54	\$29,981	\$19,702	-	-	50	63	\$36,039	\$23,057	1.43%	\$572	\$386	\$206	63.98%	\$555	\$365	34%	\$599
CROOK	OR	3,716	-	\$0	\$0	9	\$3,668	\$2,647	117	\$59,436	\$31,345	-	-	50	126	\$63,005	\$34,183	3.39%	\$500	\$271	\$229	54.27%	\$508	\$279	47%	\$294
DESCHUTES	OR	52,283	-	\$0	\$0	38	\$21,941	\$11,051	902	\$543,903	\$265,351	220	\$89,653	1,160	\$565,843	\$366,055	2.22%	\$488	\$316	\$172	64.69%	\$603	\$294	51%	\$291	
DOUGLAS	WA	464	2	\$764	\$842	2	\$764	\$591	6	\$3,074	\$1,361	-	-	50	10	\$4,602	\$2,794	2.16%	\$460	\$279	\$181	60.71%	\$512	\$227	56%	\$296
FRANKLIN	WA	13,504	128	\$78,014	\$40,989	3	\$4,853	\$1,971	521	\$384,997	\$188,271	-	-	50	652	\$384,865	\$230,632	4.83%	\$589	\$254	\$237	59.93%	\$585	\$361	38%	\$457
GRANT	WA	1,255	8	\$4,739	\$2,673	-	\$0	\$0	27	\$15,324	\$8,471	-	-	50	35	\$20,063	\$11,144	2.79%	\$573	\$318	\$255	55.55%	\$568	\$314	45%	\$0
GRAYS HARBOR	WA	4,380	48	\$40,701	\$15,238	49	\$38,657	\$17,378	181	\$138,394	\$83,946	-	-	50	278	\$217,752	\$116,562	6.35%	\$783	\$419	\$364	53.53%	\$765	\$464	39%	\$355
ISLAND	WA	7,520	41	\$34,688	\$15,857	50	\$38,122	\$19,682	105	\$81,174	\$45,073	-	-	50	196	\$153,984	\$80,612	2.61%	\$786	\$411	\$374	52.35%	\$773	\$429	44%	\$394
JEFFERSON	OR	1,807	-	\$0	\$0	1	\$968	\$121	92	\$45,973	\$18,833	-	-	50	93	\$46,340	\$18,963	5.15%	\$496	\$208	\$294	40.92%	\$500	\$205	59%	\$131
KITAP	WA	35,507	148	\$92,322	\$34,212	144	\$77,771	\$41,430	854	\$552,594	\$399,247	-	-	50	1,146	\$722,686	\$474,889	3.23%	\$631	\$414	\$216	65.71%	\$647	\$468	28%	\$288
KLAMATH	OR	284	-	\$0	\$0	-	\$0	\$0	10	\$7,286	\$2,111	-	-	50	10	\$7,286	\$2,111	5.21%	\$729	\$211	\$517	28.98%	\$729	\$211	71%	\$0
KLAMATH	OR	4,848	-	\$0	\$0	248	\$11,668	\$78,223	277	\$135,702	\$68,500	39	\$18,421	564	\$247,371	\$165,144	11.63%	\$439	\$293	\$146	66.76%	\$490	\$247	50%	\$315	
MASON	WA	2,419	16	\$11,114	\$5,525	33	\$22,975	\$24,055	87	\$51,473	\$28,300	-	-	50	136	\$85,562	\$40,480	5.62%	\$629	\$445	\$184	70.69%	\$593	\$348	41%	\$347
MORROW	OR	52	-	\$0	\$0	22	\$6,412	\$10,480	20	\$6,926	\$2,292	-	-	50	42	\$13,338	\$12,772	7.61%	\$318	\$304	\$13	95.76%	\$346	\$115	67%	\$476
SKAGIT	WA	30,097	298	\$190,991	\$88,678	264	\$172,648	\$110,475	745	\$515,079	\$314,808	-	-	50	1,307	\$878,718	\$513,962	4.34%	\$672	\$393	\$279	58.49%	\$691	\$423	39%	\$418
SNOHOMISH	WA	7,754	51	\$4,370	\$16,183	44	\$35,144	\$19,647	239	\$162,748	\$99,248	-	-	50	334	\$32,281	\$15,074	4.31%	\$695	\$404	\$291	58.15%	\$661	\$415	39%	\$447
UNMATTILA	OR	13,378	-	\$0	\$0	360	\$150,995	\$167,418	977	\$276,679	\$142,908	1	\$463	938	\$426,673	\$310,769	7.01%	\$455	\$311	\$124	72.84%	\$478	\$248	48%	\$465	
WALLA WALLA	WA	13,324	146	\$79,263	\$49,246	138	\$77,050	\$59,263	404	\$228,995	\$152,499	-	-	50	688	\$385,307	\$261,008	5.16%	\$560	\$379	\$181	67.74%	\$567	\$377	33%	\$429
WHATCOM	WA	51,957	515	\$323,796	\$190,452	510	\$319,271	\$208,308	1,005	\$718,002	\$446,360	-	-	50	2,030	\$1,361,069	\$845,120	3.91%	\$670	\$416	\$254	62.09%	\$714	\$444	38%	\$408
YAKIMA	WA	31,147	662	\$358,908	\$243,166	226	\$124,770	\$153,980	1,549	\$953,186	\$600,955	-	-	50	2,417	\$1,436,864	\$997,800	7.76%	\$594	\$413	\$183	69.44%	\$615	\$388	37%	\$680
		309,389	2,208	\$1,336,062	\$757,703	2,331	\$1,307,291	\$1,012,312	8,351	\$5,161,841	\$3,126,163	260	\$108,536				4.99%	\$572	\$347	\$225	62.06%			46%	\$407	
	WA																	\$607	\$374				40%	\$460		
	OR								5417									\$500	\$293				54%	\$302		

Cascade Natural Gas Corporation: Low-Income Rate Analysis for Oregon

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TABLE OF CONTENTS

Table of Contents.....	i
List of Tables.....	ii
List of Figures	ii
I. Executive Summary.....	1
Objectives.....	1
Summary of Approach and Findings.....	1
II. Background and Approach	4
Considerations	5
Approach	7
Data Sources.....	7
Assumptions and Calculations	8
III. Low-Income Customers and Energy Burden	9
Number and Location of Low-Income Customers	9
Description of Current Energy Burden.....	11
Bill Assistance Programs.....	14
Elements Related to Bill Assistance Programs	16
IV. Rate Design Impacts.....	19
Objectives, Assumptions and Constraints	19
Impacts on Energy Burden	19
V. Appendix A.....	23
VI. Appendix B.....	27
VII. Appendix C.....	29

List of Tables

Table 1. Income Distribution by Main Heating Fuel in Cascade Counties 9

Table 2. Percentage Distribution of Cascade Residential Customers by Income Category and County 10

Table 3. Cascade Natural Gas Residential Customers by Income Category and County 11

Table 4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties 11

Table 5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 12

Table 6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 13

Table 7. Income Eligibility by Household Size (2017-2021) 14

Table 8. Refined Energy Burden Calculations, Cascade Customers 20

Table 9. Tiered Discounted Rates by Income Group 21

Table 10. Cost of Low-Income Discounted Natural Gas Rates 21

Table 11. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation 22

Table A-1. Income Distribution by Main Heating Fuel in Cascade Counties 23

Table A-2. Percentage Distribution of Cascade Residential Customers by Income Category and County 23

Table A-3. Cascade Natural Gas Residential Customers by Income Category and County 24

Table A-4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties 24

Table A-5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 24

Table A-6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 25

Table A-7. Refined Energy Burden Calculations, Cascade Customers 25

Table A-8. Tiered Discounted Rates by Income Group 25

Table A-9. Cost of Low-Income Discounted Natural Gas Rates 26

Table A-10. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation 26

Table B-1. Oregon FPL and SMI Crossover Tables 2021 Program Year 28

Table C-1. Income Distribution by Main Heating Fuel in Cascade Counties 29

Table C-2. Percentage Distribution of Cascade Residential Customers by Income Category and County 30

Table C-3. Cascade Natural Gas Residential Customers by Income Category and County 30

Table C-4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties 30

Table C-5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 31

Table C-6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties 31

Table C-7. Energy Burden Calculations, Cascade Customers 31

Table C-8. Tiered Discounted Rates by Income Group 32

Table C-9. Cost of Low-Income Discounted Natural Gas Rates 32

Table C-10. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation 32

List of Figures

Figure 1. Energy Burden by FPL Group, Cascade Oregon Residential Customers 3

I. EXECUTIVE SUMMARY

With the transition toward a low carbon energy future comes a requirement for substantial investments in the energy supply infrastructure. Concern over energy affordability, especially for low-income households, is evidenced by recent legislation, including House Bill 2475 passed by the Oregon Legislature in 2021. Provisions of HB 2475 allow regulated utilities to consider ability to pay when designing rates.

Cascade Natural Gas Corporation (Cascade) selected Forefront Economics Inc and H. Gil Peach and Associates to conduct a study to better understand the current energy burden of their customer base and the likely impacts of a discounted rate program designed to lower the energy burden of low-income customers. This paper presents the approach and findings of our study.

Objectives

The overall objective is to describe the energy burden facing Cascade customers in sufficient detail that allows an understanding of the differences in energy burden by location, using refined measures of household income. More specifically, objectives include:

1. Develop county level estimates of the number of low-income customers and the energy burden facing these groups of customers.
2. Describe energy burden in sufficient detail to illuminate possible affordability issues in subgroups of the low-income customer base. For example, a discounted rate program that works to lower energy burden on income qualified customers as a whole may fail to achieve energy burden goals for the households with very low income.
3. Propose and analyze the impacts on low-income, and other customers, of a discounted rate program for low-income customers that:
 - a. Lowers total energy burden consistent with HB 2475.
 - b. Provides rate discounts in proportion to need.
 - c. Is proportional by fuel (same percentage bill discount for natural gas and electric bills).
 - d. Is not overly onerous to administer.

These objectives guided the analysis presented in this paper.

Summary of Approach and Findings

Unless otherwise stated, all of the results in this report pertain to the counties served by Cascade in the state of Oregon. These counties are listed in Table 2 and are collectively referred to as the Cascade Oregon service territory. Our analysis is based on data from Cascade, the Low-Income Energy Affordability Data (LEAD) tool, and Low-Income Home Energy Assistance Program (LIHEAP) applicant data. These sources are described in more detail in the Background and Approach section. All references to energy costs and energy burden are before reductions from bill assistance programs unless otherwise stated. A summary of major findings is listed below:

- Taken together, homes heated with natural gas and homes heated with electricity make up over eight of every ten homes in the service territory. Electricity is the predominant heating fuel in the

Cascade service territory, accounting for 47% of all households. Natural gas heated homes make up 34% of all households in the Cascade service territory.

- For households with less than 100% of Federal Poverty Level (FPL), electric heated homes outnumber gas homes by nearly a 2 to 1 margin. Income distribution for gas heated homes is skewed more toward higher incomes and less toward lower incomes, compared to electrically heated homes.
- There are nearly 10,000 Cascade residential customers with incomes below 150% of FPL. About half of these customers have incomes below 100% of FPL.
- Using LEAD data, the total energy burden for Cascade customers below 100% FPL is 15.5%, meaning annual household electric and natural gas bills are 15.5% of annual household income. About 38% of the annual energy costs in this income group are for natural gas bills and 62% for electricity. The fuel specific energy burdens are 5.8% for natural gas and 9.1% for electric.
- When LIHEAP data is used to refine the analysis of the 100% of FPL income group, wide variation in the energy burden is observed within sub-groups of low-income customers (see Figure 1). For example, the total energy burden for Cascade customers in the 0-25% of FPL income group is estimated at 128% (meaning that to pay the cost-of-service billing, the household would have to pay all of its income plus 28% more), the 25-50 FPL group at 21% and the 50-100 FPL group at 11%. In all of these groups natural gas costs contribute about 40% of the total energy costs with electric costs accounting for nearly 60%.
- Using energy bill discounts ranging from 95% for the 0-25% FPL group to 15% for the 100-150% FPL group and assuming 20% of the 10,000 eligible customers sign-up for a discounted bill program, the total cost of the program comes to 0.7% of retail revenue requirements. If all 10,000 customers below 150% of FPL enrolled in the discounted bill program, the total cost of the program would come to 3.4% of retail revenue requirements.
- At the 20% participation level, when program costs are spread across rate groups using the proportion of base revenue as the spreading criteria, average monthly customer bills increase no more than 1.3% in any customer class. The average monthly residential bills would increase \$0.37 (0.7%).
- Nearly 1,600 of the 10,000 customers below 150% FPL are in the less than 50% FPL income groups. Although bill discounts are largest for these customers, the relatively low number of customers in the lower than 50% FPL groups help to keep the total cost of a discounted bill program low.

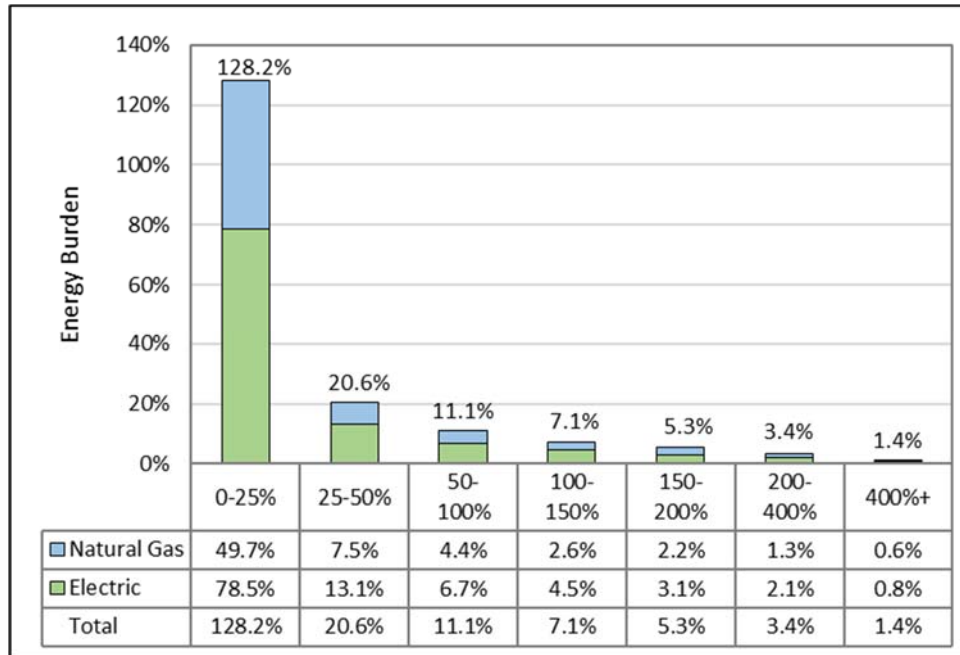


Figure 1. Energy Burden by FPL Group, Cascade Oregon Residential Customers

In the next section our approach is discussed in greater detail. Subsequent sections discuss the income status and energy burden of Cascade’s residential customer base and a tiered rate discount program for achieving energy burden targets.

II. BACKGROUND AND APPROACH

In 2021, the Oregon Legislature passed House Bill 2475 to address the inclusion of energy burden in rate design for natural gas and electric utilities regulated by the Oregon Public Utilities Commission (OPUC). Classification of service for each public utility, in addition to several other factors, is required to take into account “differential energy burdens on low-income customers and other economic, social equity or environmental justice factors that affect affordability for certain classes of utility customers, and any other reasonable consideration.” (Oregon HB 2475) This means that rate design must take ability to pay into account. Prior to this legislation, OPUC did not have clear direction from the legislature to require rates to be based, in part, on ability to pay. The new legislation provides direction to the OPUC and to the public utilities regulated by OPUC.

Beyond this direction to take into account “differential energy burden”, the legislation is not specific. However, the provision of direction in terms of energy burden suggests that energy burden would best serve as an explicit indicator of ability to pay. The legislation does not define energy burden. We can offer the definition that a customer’s “energy burden” is the percentage of household income that is required to pay for the household’s home energy usage. LEAD defines energy burden as “the average annual housing energy costs divided by the average annual household income.” These definitions are mathematically equivalent. Setting a maximum energy burden for customers at various poverty levels helps to ensure that energy costs are affordable and do not consume an outsized percentage of a low-income household’s income or cause permanent loss of heat/energy (and thus homelessness).

A residence heated with natural gas will have three kinds of energy burden. The “overall” energy burden is the percentage of household income required to pay for both electricity and natural gas. The electricity energy burden for electricity is considered separately. The gas energy burden for natural gas is considered separately. Generally, the higher the household income, the lower the energy burden. Conversely, the lower the household income, the larger the percent of household income required to pay energy bills. For example, energy burden is exceptionally low for upper-income households (often 1% or less), average for households in the middle of the income distribution, and quite high for households in the lower poverty ranges. Consider this as a mathematical problem of moving from the center to the bottom of a distribution. Here, as the bottom of the poverty range is approached, the energy burden accelerates dramatically and becomes quite extreme. Below about 25% of the federal poverty level (FPL) there is a “bottom effect.” Below this level, households are in extreme difficulty and energy burdens become exceptionally large.

Payment assistance programs likely compatible with the Oregon legislation take two forms: direct payment assistance (similar to Cascade’s Oregon Low-Income Bill Assistance program (OLIBA) and the federal/state Low-Income Home Energy Assistance Program (LIHEAP) or lowering bills through rate design. Although two different approaches, these can be made equal in effects.

- (1) **Standard Billing with Structured Payment Assistance** - First, following the model used by the State of Nevada, cost-of-service rates would not be modified. In this approach, customers receive cost-of-service bills. However, subsequently, on a case-by-case basis, payment assistance equivalent to a rate reduction is provided. This support, combined with OLIBA and LIHEAP, brings the portion of the bill that remains the responsibility of the low-income household to the planned energy burden target. The energy burden target in Nevada is the median household energy burden for the state in the prior year (calculated each year).¹ From 2003 through 2022, the energy burden target has been approximately 2% overall energy burden. In Nevada, this single target is used for all program households from 0-150% of the federal poverty level (FPL). The part of the annual energy bill above the approximately 2% overall energy burden is paid from the state Universal Service fund. The fund is sustained by a small per therm adder and a small per kWh adder,² and collection is managed by the Public Utility Commission of Nevada (PUCN). After deducting its costs, PUCN sends the funds to be administered by the Nevada Division of Welfare and Supportive Services (DWSS). DWSS uses 75% of funds for payment assistance and transfers 25% of funds to be administered by the Nevada Housing Division (NHD) for low-income weatherization through its subgrantees.
- (2) **Tiered Rates** - A second approach, likely the approach envisioned in the Oregon legislation, is to lower the energy bills for low-income households using a rate design, subject to approval by the Oregon Public Utility Commission (OPUC). In this approach LIHEAP and OLIBA would continue to function as they do currently. The rate design, however, would lower the size of individual low-income household energy bills to be paid. Within this rate design approach there are two ways to proceed:
 - a. **Individualized PIPP** - The rate design can be structured as a full Percentage of Income Payment Plan (PIPP) in which the energy bill for each household is tailored to the individual household income.
 - b. **Grouped Tiers** - Alternatively, the rate design can be structured in the form of rate tiers (for example, 0-25%, 25-100%, 100-150%, and 151-200% of poverty), with each tier of households assigned a common energy burden target (for example the median of the range or the first quartile of the range).

Considerations

There are several considerations to take into account.

Bottom Effect in Lowest Rate Tier Limitation – The lowest poverty tier has a bottom effect where normal relations that can be expected for higher income poverty groups or non-poverty groups do not apply. In the lowest poverty category, for example, from 0-25% of poverty, all mathematically based logical rate structures break down. These are households with so little income that they simply cannot pay their bills, and a logically structured rate that works for the higher ranges of poverty incomes does not work in the bottom range. Some utilities have tried a

¹ There are some additional details in calculation, but this is the essence of the method.

² The Universal Service fund adder applies to all customers, except for certain large industrial customers. Nevada also has a variation within this program that provides for arrearage forgiveness. Complete arrearage forgiveness is only provided to a household once every five years. There are also emergency service provisions and a way for non-low-income households to temporarily qualify due to a sudden drop in income, for example, as happened due to COVID and COVID control rules that affected jobs, or due to sudden extensive medical bills, or similar major life events.

kind of “time out” and “hands off” for this group of households, with a time limited token payment coupled with referral to state social services and waiving of minimum payment rules and forgiveness of any penalties and fees.³

Moving from Cost-of-Service Rates – A problem in moving off cost-of-service rates is that the apparent energy bills (the actual “please pay” amounts for energy charged to low-income households) are lower than actual costs to the system. A side effect of using a rate subsidy is that from a LIHEAP perspective, initial bills (pre-LIHEAP) will be lower than actual costs. LIHEAP will not “see” true costs. This means that a portion of the subsidy derived from other customers will be offsetting an equivalent decrease in federal funding applied per individual household. This is a cost shift from the federal government to the state (utility customers within the state). It is likely that this cost shift will be negligible since LIHEAP funds cover a relatively small fraction of eligible households each year, while the rate change is likely to provide a subsidy to many more customers than the LIHEAP portion of eligible households. The intent of the rate reduction, of course, is to better serve customers and to serve more eligible households overall. To the extent more eligible households are served, LIHEAP dollars will be lower per household but will likely be distributed to many more households. If so, the potential loss of federal dollars can be made up by bringing LIHEAP dollars to more qualified households. To the extent this occurs, the loss of federal dollars will be negligible.⁴ To make this work, a vigorous effort is required to recruit qualified households to the new low-income rate.

Data Warehouse Limitation – Implementation of a full PIPP with individual bill tied directly to individual household income would require a database storing household incomes, number of persons in household, and related information. Currently, Cascade does not collect this type of information (though the CAP agencies operating under the Department of Commerce do collect and retain this information). Cascade would prefer not to collect and maintain this information on customers. If a full PIPP is desired, it is likely best structured using a non-profit agency to maintain the data necessary to operate a PIPP.

Billing System Limitation – Cascade’s current billing system is equipped to provide for five tiers using one standard residential rate plus up to four special rates. Beyond this (more tiers or a full PIPP) it would be very expensive to develop a more targeted approach. Costs of changing billing system software are high; a certain amount of flexibility is built-in to the software package; beyond that programming costs can be high. The best time to move from tiers to a PIPP is when billing software is being replaced for other reasons.

PIPP Advantage - A mathematical proof that the PIPP rate design yields the most efficient aggregate billing consistent with an affordable rate is as follows. Billings for any tier of a tiered rate design with a single rate per tier will include a portion of households within the tier that are over-billed and a portion within the tier comprised of

³ Gaz de France (now Gaz Réseau Distribution France) has used this approach. It requires careful structuring of the hand off to state social services, and adequate funding on the state social services side. PECO Energy in Philadelphia used a similar approach for a number of years for households without income due to a number of major life changing conditions such as loss of an income earner, severe accident or illness, and other forms of incapacitation. Another possible approach would be an inverted rate design for all residential customers with only a token charge for the first block.

⁴ Amount of federal funding and percent of federal funding within total assistance are reasonable performance metrics.

households that are under-billed. However, for rate designs that fully comply with the affordability criteria, the number of over-billed households is zero and the number of under-billed households is zero. This most efficient rate design, with no over-billing and no under-billing, is the rate tailored to each household, the PIPP. Best efficiency is reached by increasing the number of tiers until each tier is a single household, which is the PIPP.

Approach

Our approach to modeling the impact of special rates designed to lower the energy burden of low-income customers is basically a simulation exercise using algorithms that reflect empirical measurements and assumptions.

Measurements are the result of summary data that inform the simulation about key customer metrics such as customer counts, energy bills and household income and the distributions of these variables. Program design elements are reflected in assumptions used by the algorithms to estimate customer impacts.

Because we are interested in simulating impacts geographically and with enough detail to gain insights to small subsets of customers within the overall low-income population, multiple data sources are brought together in the analysis. The data sources used in this report are presented in this section followed by a discussion of the assumptions used to define the rate designs presented in this report.

Data Sources

Internal (Cascade) data and external data sources were used in our analysis of low-income rates. Each source is listed and discussed below.

Cascade Natural Gas (Internal): Cascade data forming the basis of our analysis includes county level data on number of customers, dollars billed, LIHEAP customers, LIHEAP benefits applied and the benefits from bill assistance programs other than LIHEAP.

Low-Income Energy Affordability Data (LEAD) (External): The LEAD Tool was designed by the United States Department of Energy and U.S. Census to "... help states, communities and other stakeholders create better energy strategies and programs by improving their understanding of low-income housing and energy characteristics." ([LEAD Tool website](#)). LEAD provides three different household income models for viewing and accessing results: Area Median Income (AMI), Federal Poverty Level (FPL) and State Median Income (SMI).⁵ We used data from LEAD to determine the customer distribution between each level represented in the FPL and SMI income models and as the source for energy burden estimates within each income category.

Low-Income Home Energy Assistance Program (LIHEAP) (External): LIHEAP data for Cascade customers was obtained from the state. These household specific data included the county of residence, household income,

⁵ Documentation of LEAD can be found at: Ma, Ookie, Krystal Laymon, Megan Day, Ricardo Oliveira, Jon Weers, and Aaron Vimont. 2019. *Low-Income Energy Affordability Data (LEAD) Tool Methodology*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-74249. <https://www.nrel.gov/docs/fy19osti/74249.pdf>. We will refer to this document as the LEAD Tool Methodology hereafter in this report.

household size and electric and natural gas fuel cost. We used this information to develop greater detail in the income categories of low-income customers than is available from the LEAD Tool.

Assumptions and Calculations

The concept of energy burden is straightforward and measures the percentage of annual income a household spends for energy used within the dwelling. Because our focus is Cascade's customer base, we assume we are essentially dealing with households whose primary heating fuel is natural gas. While a small number of Cascade customers may actually heat with some fuel other than utility delivered natural gas, we assume that number is small and insignificant to our analysis. Accordingly, our formula for energy burden considers the annual energy costs for two fuels as follows:

$$\textit{Total Energy Burden} = (\textit{Annual Natural Gas Cost} + \textit{Annual Electricity Cost}) / \textit{Annual Household Income}$$

$$\textit{Natural Gas Energy Burden} = \textit{Annual Natural Gas Cost} / \textit{Annual Household Income}$$

$$\textit{Electric Energy Burden} = \textit{Annual Electricity Cost} / \textit{Annual Household Income}$$

Empirical analysis shows that the cost of fuels other than natural gas and electricity in homes that heat with natural gas to be low.⁶ Home charging of electric vehicles has the potential to overstate the level of electricity usage in the home. However, given the current low level of EV penetration, especially in low-income households, we do not expect home charging for transportation usage to be a factor in our analysis of low-income energy burden and discount rates.

⁶ LEAD data show other fuels account for less than one half of one percent of total energy costs in homes heated with natural gas in the Cascade service area.

III. LOW-INCOME CUSTOMERS AND ENERGY BURDEN

Cascade’s low-income customer base is described in this section of the report. Energy burden is also presented and discussed.

Number and Location of Low-Income Customers

It is useful to begin our analysis of the distribution of Cascade customers across income groups with a higher-level look at the distribution of all households within the Cascade Oregon service territory by primary heating fuel and income group. This distribution calculated from the LEAD data is presented in Table 1 and represents all customer and non-customer households within the Cascade Oregon service area.

Table 1. Income Distribution by Main Heating Fuel in Cascade Counties

Primary Heating Fuel	Federal Poverty Level					Total	Percent of All Households
	0-100%	100-150%	150-200%	200-400%	400%+		
Bottled Gas	8%	10%	8%	32%	42%	100%	4%
Electricity	15%	11%	11%	32%	31%	100%	47%
Fuel Oil	6%	13%	16%	34%	30%	100%	2%
Other	9%	11%	16%	27%	37%	100%	1%
Utility Gas	8%	8%	8%	32%	43%	100%	34%
Wood	11%	9%	11%	37%	32%	100%	12%
Total	12%	10%	10%	33%	35%	100%	100%

The last column of Table 1 shows the distribution of households across primary heating fuel. Most households within the Cascade service territory heat with electricity (47%) followed by natural gas (34%). Together, electricity and natural gas heating account for over 80% of all households. Bottled gas (propane) and wood each make up most of the remaining households along with a small number of fuel oil and other heating fuels.

Comparing electricity and natural gas heated households, it is clear from Table 1 that income is distributed differently between the two primary heating fuels. There are almost twice the percentage of electric heated homes in the lowest income group (0-100% FPL) compared to the percentage of gas heated homes in that income group. Likewise, at the top end of the income distribution, we see the same pattern with over 400% FPL accounting for 43% of natural gas heated households compared to only 31% of electrically heated households.

When it comes to income, natural gas heated households are more affluent than electrically heated households. There are likely many reasons for this discrepancy in household incomes including the cost of construction in smaller, low-cost units and the historically low cost of electricity in the Pacific Northwest. Dwellings that tend to be the most affordable for low-income families are often less expensive construction where the first-cost of building a housing unit is more important than the annual cost of heating. For smaller units, construction costs are typically minimized by providing zonal electric heating as the primary heat source.

Natural gas service is also an optional addition to the utility services available to a dwelling which may help explain why natural gas heated households tend to be more affluent than electrically heated households. Because overall there are roughly 40% more households that heat with electricity than there are households heating with natural gas and electrically heated homes are skewed more heavily toward low-income groups than natural gas heated households, a relatively small portion of the energy burden challenge can be addressed through discounted natural gas prices.

We now focus on the 34% of households in the Cascade service area that heat with natural gas. The percentage distribution of natural gas heated households by income category and county from LEAD was multiplied by the actual county level residential customers counts to arrive at the distribution of Cascade customers by income group. The resulting percentage distribution by income group for each county in the Cascade Oregon service territory is shown in Table 2.

Table 2. Percentage Distribution of Cascade Residential Customers by Income Category and County

County	Federal Poverty Level					Total
	0-100%	100-150%	150-200%	200-400%	400%+	
Baker	9%	12%	11%	36%	32%	100%
Crook	10%	9%	11%	37%	34%	100%
Deschutes	5%	6%	7%	31%	52%	100%
Jefferson	14%	9%	11%	35%	32%	100%
Klamath	14%	11%	10%	32%	33%	100%
Malheur	16%	11%	10%	32%	30%	100%
Morrow	9%	7%	8%	42%	34%	100%
Umatilla	10%	9%	9%	34%	38%	100%
Total	7%	7%	8%	32%	46%	100%

The total percentage distribution of Cascade customers by income group shown in Table 2 differs slightly from the percentages for utility gas heated homes shown in Table 1. This is because the actual Cascade residential customer counts by county differs slightly from the distribution of utility gas heated households by county in LEAD data.⁷

The number of Cascade customers by income group is shown in Table 3.

⁷ LEAD data reflect all households, including households served by natural gas utilities other than Cascade. Utility gas service is provided by both Cascade and Avista Utilities in Jefferson and Klamath counties.

Table 3. Cascade Natural Gas Residential Customers by Income Category and County

County	Federal Poverty Level					Total	Percent of All Residential
	0-100%	100-150%	150-200%	200-400%	400%+		
Baker	322	427	392	1,266	1,146	3,553	5%
Crook	302	274	348	1,141	1,060	3,125	4%
Deschutes	2,181	2,706	3,297	14,176	23,864	46,224	66%
Jefferson	196	122	153	487	441	1,399	2%
Klamath	30	24	21	70	71	216	0%
Malheur	629	432	407	1,250	1,163	3,881	6%
Morrow	43	34	38	193	157	465	1%
Umatilla	1,150	1,083	1,004	3,915	4,335	11,487	16%
Total	4,853	5,102	5,660	22,498	32,237	70,350	100%

Nearly 10,000 of Cascade’s residential customers are under 150% of FPL guidelines. Reducing the energy burden of these customers is the objective of discount rates of low-income customers. In the next section, the energy burden of Cascade residential customers across income groups is examined.

Description of Current Energy Burden

LEAD provides estimates of energy burden based on household income and the annual cost of energy used in the dwelling. LEAD defines energy burden as “the average annual housing energy costs divided by the average annual household income”.⁸ We use the same definition of energy burden throughout this report.

Before presenting energy burden estimates we first provide statistics on the components of energy burden. Average household income and energy cost by fuel are shown in Table 4.

Table 4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties

County	Number of ACS Responses	Average Annual			Energy Burden		
		Household Income	Electric Bill	Natural Gas Bill	Electric	Natural Gas	Total Energy
Baker	399	\$60,128	\$1,385	\$728	2.3%	1.2%	3.6%
Crook	164	\$69,444	\$831	\$704	1.2%	1.0%	2.3%
Deschutes	562	\$95,647	\$964	\$684	1.0%	0.7%	1.8%
Jefferson	160	\$64,917	\$964	\$639	1.5%	1.0%	2.8%
Klamath	474	\$59,821	\$1,124	\$788	1.9%	1.3%	3.3%
Malheur	383	\$57,807	\$1,189	\$634	2.1%	1.1%	3.2%
Morrow	93	\$80,212	\$1,082	\$852	1.3%	1.1%	2.5%
Umatilla	486	\$70,981	\$1,072	\$728	1.5%	1.0%	2.6%
Total	2,721	\$79,659	\$1,040	\$712	1.3%	0.9%	2.3%

⁸ LEAD Tool Methodology (Page 1, footnote 3).

The number of American Community Survey (ACS) responses show the number of responses to the household income and energy cost questions from the ACS for each county. When questions have different number of responses, the lowest number is shown in the table. Dollar values are based in the same time period that the 2018 ACS 5-year data were collected (2014-2018). Total energy burden shown in Table 4 may not equal the sum of electric and natural gas burden due to the cost of other household fuel (not shown) and rounding.

The overall energy burden for gas heated homes in Cascade served Oregon counties is 2.3%. Electric and Gas costs contribute roughly 60% and 40%, respectively, to household total energy burden. The total energy burden across income groups for households heating with natural gas is shown for each county in the Cascade service area in Table 5.

Table 5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	Federal Poverty Level				
	0-100%	100-150%	150-200%	200-400%	400%+
Baker	16.9%	10.6%	7.1%	4.3%	2.2%
Crook	12.2%	6.0%	5.7%	3.4%	1.3%
Deschutes	14.3%	6.5%	4.8%	3.2%	1.2%
Jefferson	11.1%	6.7%	6.1%	4.0%	1.5%
Klamath	18.4%	7.8%	5.9%	3.6%	1.9%
Malheur	15.5%	6.5%	5.6%	3.3%	1.9%
Morrow	12.8%	8.4%	5.4%	3.3%	1.5%
Umatilla	12.6%	7.5%	5.7%	3.4%	1.6%
Overall	15.5%	7.3%	5.4%	3.4%	1.4%

The total energy burden over all counties in the Cascade service area ranges from over 15% for the lowest income group to just over 1% for households in the highest income group. For households at or below the FPL, total energy burden ranges from a high of over 18% in Klamath County to a low of just over 11% in Jefferson County.

The natural gas energy burden across income groups for households heating with natural gas is shown for each county in the Cascade service area in Table 6.

Table 6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	Federal Poverty Level				
	0-100%	100-150%	150-200%	200-400%	400%+
Baker	5.7%	3.2%	2.4%	1.5%	0.7%
Crook	4.3%	2.5%	2.6%	1.4%	0.6%
Deschutes	6.1%	2.5%	2.0%	1.3%	0.5%
Jefferson	4.2%	2.2%	2.2%	1.3%	0.6%
Klamath	6.9%	2.9%	2.4%	1.5%	0.8%
Malheur	4.2%	1.9%	2.0%	1.2%	0.7%
Morrow	3.6%	3.6%	2.4%	1.4%	0.7%
Umatilla	4.9%	2.7%	2.3%	1.4%	0.6%
Overall	5.8%	2.6%	2.2%	1.3%	0.6%

The natural gas energy burden over all counties in the Cascade service area ranges from 5.8% for the lowest income group to 0.6% for households in the highest income group. For households below the FPL, natural gas burden ranges from a high of 6.9% in Klamath County to a low of 3.6% in Morrow County.

Because LEAD data trues up ACS data on energy costs to actual amounts reported to FERC, the energy burden results presented in this section of the report can best be thought of as reflecting the cost of energy before bill assistance programs.⁹ Bill assistance programs available to Cascade customers are briefly discussed below. Further discussion of the impact of these programs on energy burden is presented in the section of the report dealing with rate design impacts.

⁹ Email communications with U.S. Department of Energy staff responsible for LEAD development support this interpretation of the data.

Bill Assistance Programs

There are three regular bill assistance programs for Cascade customers in Oregon, and in response to the COVID pandemic (and Commission direction), Cascade provided a major one-time program to help with loss of income due to the pandemic. The three regular programs are the federal/state Low-Income Home Energy Assistance Program (LIHEAP), Cascade’s Oregon Low Income Bill Assistance (OLIBA) program, and Cascade’s Oregon Winter Help program. The special program during the pandemic is Big Heart.

LIHEAP - The federal/state Low-Income Home Energy Assistance Program is the major source of utility payment assistance funding in Oregon. Federal guidelines permit states to set LIHEAP eligibility from 110% to 150% of the federal poverty level (FPL) or 60% of state median income (SMI). Income eligibility for LIHEAP in Oregon is at 60% SMI. The dollar values corresponding to 60% SMI, by household size, are shown in Table 7.

Table 7. Income Eligibility by Household Size (2017-2021)

Program Year	Household Size (Number of Persons)						
	1	2	3	4	5	6	Each Additional
2017	22,626	29,587	36,549	43,511	50,473	57,435	1,306
2018	23,095	30,201	37,308	44,414	51,520	58,626	1,332
2019	24,550	32,103	39,657	47,210	54,764	62,317	1,416
2020	25,983	33,978	41,973	49,967	57,962	65,957	1,499
2021	27,806	36,361	44,917	53,472	62,028	70,584	1,604
2022	29,344	38,373	47,402	56,430	65,459	74,488	1,692

Oregon customers must apply for LIHEAP to receive it, and Cascade encourages customers to apply. LIHEAP cannot be used for customers who do not apply, but the Community Action Agencies (CAAs) that administer LIHEAP can make customers aware of the program and assist with applications. LIHEAP grant amounts go to the individual customers who apply and are approved, following federal/state guidelines.¹⁰ The CAAs can meld other payment assistance dollars with LIHEAP grants to try to develop affordable bills for payment-troubled customers who meet program income eligibility requirements.¹¹

OLIBA – Cascade Natural Gas’s Oregon Low Income Bill Assistance program was implemented in May 2006 and is funded by a Public Purpose Charge on customer bills. The OLIBA program was designed to supplement LIHEAP by providing additional dollars of financial assistance to income-eligible households in Cascade’s Oregon

¹⁰ Cascade does not have access to LIHEAP funding independent of amounts approved to be credited to individual customers and does not process LIHEAP applications to determine if customers qualify. Cascade signs an annual vendor agreement with Community Action Agencies in Cascade territory. The agreement states that Cascade will comply with the LIHEAP program rules, which are administered by the agencies.

¹¹ Note that LIHEAP participation is limited to household members who are U.S. citizens or who are approved non-U.S. citizens. Cascade does not require U.S. citizenship for service. A mixed U.S. citizen/non-U.S. citizen household may still receive LIHEAP but excluded household members affect the household size calculation and result in a lower LIHEAP benefit amount for the household.

service territory. OLIBA provides payment assistance following verification of low-income status. OLIBA is administered by the Community Action Agencies. Agencies may choose eligibility based on categorical eligibility for public assistance or other state or federal programs. There is no cap for OLIBA grants. Grants must be appropriate to individual account activity and history or will be adjusted.

Winter Help – Winter Help is a customer contribution fund which is made available each year by Cascade for payment assistance. Though called Winter Help, the program is available throughout the year. It is funded by customer donations, plus an annual company contribution. Any unused funds roll over into the next program year. Eligibility for Winter Help is at 200% FPL. Winter Help grants by the CAA are subject to adjustment by the company, based on account history and current activity. Winter Help Crisis was also implemented as a pandemic response.

LIHEAP, OLIBA, and Winter Help are administered by Community Action Agencies that serve as subgrantees of the Oregon Housing and Community Services Department, in accord with a program implementation manual. Payment assistance to a household can be provided separately or together from these programs, depending on CAA analysis of need and program guidelines

Big Heart – Big Heart (Schedule 35, Temporary COVID-19 Residential Bill Assistance Program) implements a temporary residential bill assistance program to help with financial hardship due to the COVID pandemic, in accordance with Commission Order No. 20-401. Funding comes from 1.5% of revenue from Cascade's Oregon core customers.¹² Eligible customers are households receiving natural gas service for domestic purposes (general residential service) that earn no more than 300% of the Federal Poverty Level. Individual customers can receive multiple grants up to \$2,500 in additional bill assistance, with bill assistance from the three standard programs (LIHEAP, OLIBA and Winter Help). Big Heart is first applied to debt, then other grants are applied. Customers who received energy assistance within the previous 24 months automatically receive a grant to forgive account balances due, up to the \$2,500 limit. The Big Heart Grant Program is in addition to all other grants, and does not disqualify customers from receiving further assistance, or assistance from other organizations. In Oregon, Big Heart is administered through Cascade Customer Services and through CAAs. Big Heart is intended to prevent bad debt accumulation on customer accounts by identifying, waiving, and managing customer arrearages.

In Oregon, funds are directed to pay the oldest debt first. Payment assistance can cover arrearage and current charges, and, in some cases, can create a credit for future bills.

¹² This is at the budget level. Program expenses are currently being deferred. Cascade is currently requesting the increase from 1% to 1.5% of revenue in a revision to Schedule 35.

Elements Related to Bill Assistance Programs

For understanding context, certain other programs and program considerations can be relevant to bill assistance:

Arrearage Management Program – Cascade does not currently have an arrearage management program (AMP program); however, an AMP program is in development. AMP programs often include both a customer responsibility element to encourage customer payment of arrearage and a provision to enable arrearage forgiveness when payment is not possible given the economic situation of a household.

Payment Agreement – If a customer is having trouble making payments, Cascade will assist by setting up payment arrangements up to eighteen months, with no up-front payment required. Two broken/renegeated payment agreements are allowed. These provisions are sensible in providing options for households experiencing payment problems.

CARES Program – Cascade does not have a CARES-type program, a social work/referral approach for customers who are unable to pay due to major life events, such as severe injury, life-threatening sickness, and approach of death. CARES programs provide referral service for customers experiencing temporary hardships, such as family emergencies, divorce, unemployment, and medical emergencies. CARES may provide support, direction, and resources to help customers address their hardship situations and make it easier to pay their utility bills. CARES programs are not common, and those we are aware of were created by commission order. A regular CARES program would require some additional staffing. Though Cascade does not have a CARES-type program with dedicated social workers or community liaison workers, in practice there are some referrals.

Waiver of Terminations – During COVID, Cascade waived terminations to help payment troubled households during the pandemic. There is a current docket in Oregon on fees, deposits, notices, and consumer protection rules. Waiver of termination policies are especially important for households at or below 50% FPL.

Waiver of Fees and Penalties – During COVID, Cascade has waived fees and penalties. There is a new open docket in Oregon on fees, deposits, notices, and consumer protection rules.

Program Control Tools – Bill payment assistance programs are typically designed to provide a program logic, such as a target energy burden (as in this report). However, certain program control tools are typical for bill assistance programs, such as a minimum payment rule and a maximum subsidy rule. Such program control tools are useful. However, care must be taken to ensure that they apply in workable ways. For example, suppose there is a minimum payment of \$40 per month, and failure to pay leads to either termination from the bill assistance program or entry into a process for termination of service. This rule might work well for the upper parts of the program eligible income tiers. But it cannot work for the 0-25% tier, where constant economic crisis and fear exist and there is no prospect of coming up with the \$40 payment, much less the larger amounts currently due and the even larger amount in arrears. In structuring low-income rates, program control tools should carefully consider the impacts on the lowest income customers, particularly customers in the range of 0-50% of federal poverty level.

Performance Metrics – Bill assistance programs should have accompanying performance metrics. For example, LIHEAP internally has a set of measures for assessing program outcomes. One of these is energy burden. For example, for LIHEAP a household with a \$10,000 income and a \$1,000 annual overall energy cost (natural gas plus electricity) has a pre-LIHEAP energy burden of 10%. If LIHEAP pays \$250 for this household, the energy burden after LIHEAP is 7.5%. From a utility perspective, continuity of service (and payment) is the prime objective and performance metrics should indicate how well bill assistance programs are meeting this objective, and the other objectives of the program (such as attaining the energy burden target). Because of the multifaceted nature of low-income rates, performance metrics should cover performance of the arrearage management system, the performance of the low-income rates, and the capture of federal dollars for assistance to customers.

Gap Jumping – There is typically a notable gap between customers served by bill assistance programs, and people who design, manage, and carry out the programs. It is not unusual for this gap, which may (but not always) include income, education, opportunity, degree of freedom and of freedom from fear, lifespan, and racial and ethnic identification to make it difficult for programs to be effective, particularly so for the 0-25% of poverty group. A useful test that program designers, managers, and staff can use is to always ask if any aspect of a program makes practical sense from the perspective of the program participant. The point is to maintain continuity of service by providing actual “please pay” bill amounts customers in different difficult situations can actually feel able to pay. Programs have to be able to work from within the life worlds of customers. So, it is important to listen and incorporate participant perspective in program design and in operations.

Qualifying Customers not in the Bill Assistance Problem – Initiation of a new utility bill assistance program generally creates five customer categories: (1) Customers who are in the program, (2) customers who qualify for the program but are not in the program, (3) customers who do not qualify for the program but whose income is insufficient and who are in many cases in essentially the same income and payment situation as the top tier of customers who qualify for the program, (4) all other residential customers, and (5) all other core revenue customers. Households in Categories 2-5 are assessed an additional charge to provide subsidy amounts for households in the bill assistance program. Customers who qualify but are not in the program are assessed the additional charge to provide subsidy amounts for customers in the program. Assessing this additional charge to customers who qualify but are not in the program is counter-productive to the goal of maintaining continuity of service (and of affordable payment). This means there should be a substantial effort to identify and bring these customers (Category 2) into the program. We know from aggregate census data the approximate number of qualifying households and will know the number of households in the program, which can be used to construct a performance metric.

The ALICE Problem – Category 3 customers are characterized by insufficient income but have income over the eligibility range for the program. These are customers above the poverty line, and above the eligibility limit for the program but who are also income insufficient. These households are in the top ranges of the “ALICE” group – households that are Asset Limited, Income Constrained, Employed (ALICE), though, of course, some members of this group are not employed but are receiving income from social services or social insurance (such as Social

Security). Assessing a subsidy charge to customers who do not qualify for the program but are also income insufficient is counter-productive to the goal of maintaining overall continuity of service (and of affordable payment). This means ALICE customers should not be assessed the subsidy cost for the program. We know from aggregate census data and the ALICE studies the approximate number of ALICE households at the state level. Households that do not earn enough to afford basic necessities are almost 45% of Oregon households.¹³ This ALICE problem exists for all low-income programs, and it is substantial.

The Middle-Income Exclusion Problem – Generally, income eligibility for low-income bill assistance programs is rigorously observed using twelve-months of income data. However, during COVID, because middle-income and even some upper-income households could suffer sudden drop of income to within program eligibility level within a month, income limits were interpreted as actual income or income limits were temporarily suspended for many utility payment assistance programs. From experience in other states, it can be reasonable to create program rules to accommodate households above the general income limits for the program to qualify households due to an immediate emergency situation (for example, accident, death, unusual medical expense, inability to continue working, COVID business shutdown). This provision for special cases and temporary adjustment makes programs more equitable, providing assurance regardless of income. In the design of social welfare programs there are two initial directions: means testing and universal benefit. Means testing makes sense because otherwise households that do not need the program benefit receive it. Universal benefit makes sense because it simplifies the program and makes the benefit available to all households (similar to funding fire and police services). Low-income rates in the U.S. are means tested. However, all other customers pay the subsidies that enable low-income rates. It would seem equitable to permit customers who pay for the subsidies to temporarily qualify for low-income rates when they experience an immediate emergency that reduces their current income for the previous month to a level that qualifies as low-income. These customers are non-low-income when measured by income in the past twelve months, but are low-income as measured in the current month.

¹³ United Ways of the Pacific Northwest, ALICE in Oregon: A Financial Hardship Study (ALICE 2020).
<https://unitedforalice.org/state-overview/Oregon>

IV. RATE DESIGN IMPACTS

In this section we present a low-income rate design to achieve specific objectives. Features of the proposed rate design not only reflect objectives, but also various assumptions and constraints. Objectives, assumptions, and constraints are presented and discussed below. A low-income rate design is then presented along with an estimate of the impact on energy burden. While LEAD data provide a good basis for estimating the size of the low-income customer population, they do not provide sufficient income detail to understand the energy burden facing the lowest income households. In this section, we show a more detailed income breakdown of low-income customers and the associated energy burden.

Objectives, Assumptions and Constraints

While there are seemingly countless variations on a discount rate for low-income customers, the possibilities are narrowed by specific objectives, assumptions, and constraints.

Objectives

- Lower total energy burden to 6%.
- Refine analysis to shed light on very low levels of income where household energy burden may be obfuscated when averaged in with a larger group of low-income customers.

Assumptions

- Bill discounts are shared between natural gas and electric in proportion to each fuel's share of total energy burden. Or, more simply, the same percentage discount is applied to the total natural gas bill and electric bill.

Constraints

- Avoid designs that require Cascade to collect and store household income.
- Avoid rate designs that are overly complex and a burden to administer. For tiered rate discounts, attempt to limit the number of rate discount tiers to no more than four to limit system setup and implementation costs.

Impacts on Energy Burden

To meet the objective of examining very low levels of household income, it was necessary to refine the analysis by breaking the lowest FPL bin in the LEAD data into subgroups. As shown in prior tables, the lowest level of household income broken out in the LEAD data is 100% FPL and under. Forefront Economics obtained detailed data from Oregon Housing and Community Services on all LIHEAP applications from Cascade customers for the 2018 through 2021 program years. These data included size of household, household income, annual electric bill, and annual natural gas bill and provided the empirical basis for breaking the 0-100% FPL from LEAD into smaller subgroups. The results of the refined analysis are shown in Table 8.

Table 8. Refined Energy Burden Calculations, Cascade Customers

FPL %					Energy Burden		
	Customers	Household Income	Electric Bill	Natural Gas Bill	Electric	Natural Gas	Total
0-25%	893	\$1,329	\$1,044	\$661	78.5%	49.7%	128.2%
25-50%	681	\$8,907	\$1,165	\$667	13.1%	7.5%	20.6%
50-100%	3,279	\$13,747	\$924	\$611	6.7%	4.4%	11.2%
100-150%	5,102	\$21,981	\$981	\$580	4.5%	2.6%	7.1%
150-200%	5,660	\$32,082	\$1,006	\$697	3.1%	2.2%	5.3%
200%+	54,735	\$99,174	\$1,057	\$737	1.1%	0.7%	1.8%
Total	70,350	\$79,659	\$1,040	\$712	1.3%	0.9%	2.2%

The FPL bins in Table 8 are the LEAD bins with the lowest LEAD bin (0-100% FPL) broken out to show detail for 0-25%, 25-50% and 50-100% FPL bins. Table 8 also groups the two highest income bins from LEAD into a single 200%+ group. The customer counts for the three lowest income bins were derived by spreading the customer count from the LEAD 0-100% group (4,853 from Table 3) by the distribution of customers between the lowest FPL bins found in the LIHEAP data. Likewise, household income, annual electric bill, and annual gas bill for the lowest three FPL bins in Table 8 represent LEAD data spread to the more detailed income bins based on the distributions of these variables found in the LIHEAP data.

A few relationships from the data in Table 8 are listed below:

- There are a relatively small number of total customers in the smallest income bins. Part of the reason is that we are dealing with households who use natural gas as their primary heating fuel. LEAD data presented in Table 1 shows that the income distribution of homes heated with natural gas is skewed more heavily toward the higher income bins than are homes heated with electricity. Part of the reason for this is that smaller, low-construction-cost dwellings are typically heated with electricity to keep initial construction cost low.
- Although these are homes that heat with natural gas, annual natural gas costs make up less than half (41%) of the total annual cost of natural gas and electric service. For households below 100% of the FPL the natural gas portion of total energy bills is 38%.

The lowest income group of 0-25% FPL is showing an energy burden well in excess of 100%, meaning household energy costs exceed annual income. This bin has relatively few customers but their total energy burden is extreme. This compares to an energy burden of 21% in the next highest income group, 25-50% of FPL. A tiered discounted rate design with discounts set at each income bin to bring the income group to the targeted energy burden is presented in Table 9.

Table 9. Tiered Discounted Rates by Income Group

FPL %	Energy Burden Targets			Bill Multiplier to Achieve Goal	
	Electric	Natural Gas	Total	Electric	Natural Gas
0-25%	3.7%	2.3%	6.0%	0.047	0.047
25-50%	3.8%	2.2%	6.0%	0.292	0.292
50-100%	3.6%	2.4%	6.0%	0.537	0.537
100-150%	3.8%	2.2%	6.0%	0.845	0.845

The energy burden for each fuel in Table 9 reflects the proportion that each fuel makes up of the total energy cost for that income group. A bill multiplier to achieve the energy burden target is also shown in Table 9 and is the same for each fuel. The multiplier of 0.047 for the lowest income group means that if customers are asked to pay 4.7% of their natural gas bill and 4.7% of their electric bill, their natural gas, electric and total energy burden would be reduced to the targets of 2.3%, 3.7% and 6.0%, respectively. For the highest income group shown in Table 9, a discount of 15.5% (0.845 bill multiplier) is sufficient to achieve energy burden targets.

The cost of providing discounts at the levels shown in Table 9 is shown in Table 10 for two levels of low-income customer participation.

Table 10. Cost of Low-Income Discounted Natural Gas Rates

FPL %	Annual Gas Revenue @ Full Participation			Annual Gas Revenue @ 20% Participation	
	Current	Discounted	Impact	Discounted	Impact
0-25%	\$589,755	\$27,595	-\$562,160	\$477,323	-\$112,432
25-50%	\$453,934	\$132,411	-\$321,524	\$389,630	-\$64,305
50-100%	\$2,004,729	\$1,077,329	-\$927,400	\$1,819,249	-\$185,480
100-150%	\$2,957,816	\$2,498,725	-\$459,091	\$2,865,998	-\$91,818
	Total Rate Subsidy		-\$2,270,175		-\$454,035
	Administration		-\$136,211		-\$27,242
	Total Cost		-\$2,406,386		-\$481,277
	Retail Percent Increase		3.4%		0.7%
	Base Percent Increase		6.3%		1.3%

The “Current” column shows the full amount of the bill for each income group. Discounted and Impact columns show the amount of revenue after the low-income tiered discount and the difference from current revenue, respectively. Discounted and Impact columns are shown for two levels of participation, all low-income customers and 20% of low-income customers. Although unrealistic, the full participation scenario shows the upper limit of the revenue impact from the discounted low-income rate program specified in Table 9. Likewise, 20% participation may be a stretch considering LIHEAP participation has been somewhat less than 10% of our estimate of Cascade

customers under 150% of FPL. At full and partial (20%) levels of participation, the cost of the discounts including 6% administration expenses amount to 3.4% and 0.7% of retail revenue requirements, respectively.¹⁴

The bill impacts of partial participation (20%) of low-income customers are shown in Table 11 by customer class.

Table 11. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation

	Customer Class / Rate Schedule					
	Residential Sch. 101	Commercial Sch. 104	Industrial Sch. 105	Large Industrial Sch. 111	Transportation Sch. 163	Interruptible Sch. 170
Total Cost	\$300,304	\$125,140	\$10,579	\$6,571	\$35,506	\$3,178
Base % Inc	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21
Avg. Therms	58	250	1,764	13,845	100,305	39,950
Avg Bill Impact	\$0.37	\$1.01	\$5.84	\$30.17	\$94.57	\$66.21
Pct Impact	0.7%	0.6%	0.5%	0.4%	1.3%	0.3%

Costs are spread across customer classes proportional to base revenue, the amount of revenue from the fixed and volumetric charge associated with the rate schedule, excluding any additional tariffs or riders. For example, fuel cost adjustments are not included in base revenue. For residential customers, bills would increase an average of 37 cents a month (0.7%) in order to fund the discounted rate program. Schedule 170 customers would experience a 0.3% increase in their natural gas bill.

¹⁴ The assumption of 6% administrative expenses is judgmental in nature and not based on empirical program expenses. This planning value should be replaced as experience is gained with actual program costs.

V. APPENDIX A

Tables in this section are the same tables in the body of the report that deal with service territory and residential customer characteristics by income group except that Appendix tables are expressed in terms of State Median Income (SMI) groups whereas the tables in the body of the report are expressed in terms of Federal Poverty Level (FPL). Table A-1 through Table A-6 are based on LEAD and Cascade data while Table A-7 through Table A-10 add additional detail derived from LIHEAP Data.

Table A-1. Income Distribution by Main Heating Fuel in Cascade Counties

Primary Heating Fuel	State Median Income						Percent of All Households
	0-30%	30-60%	60-80%	80-100%	100%+	Total	
Bottled Gas	7%	17%	10%	11%	55%	100%	4%
Electricity	13%	20%	12%	11%	44%	100%	47%
Fuel Oil	5%	25%	15%	12%	43%	100%	2%
Other	8%	23%	15%	7%	48%	100%	1%
Utility Gas	7%	15%	11%	10%	56%	100%	34%
Wood	10%	17%	13%	12%	48%	100%	12%
Total	10%	18%	12%	11%	49%	100%	100%

Table A-2. Percentage Distribution of Cascade Residential Customers by Income Category and County

County	State Median Income					
	0-30%	30-60%	60-80%	80-100%	100%+	Total
Baker	8%	21%	13%	12%	46%	100%
Crook	9%	17%	14%	13%	47%	100%
Deschutes	4%	11%	10%	10%	65%	100%
Jefferson	14%	17%	13%	11%	46%	100%
Klamath	12%	20%	11%	10%	47%	100%
Malheur	14%	20%	12%	10%	44%	100%
Morrow	8%	14%	13%	15%	51%	100%
Umatilla	8%	17%	11%	11%	53%	100%
Total	6%	13%	11%	10%	60%	100%

Table A-3. Cascade Natural Gas Residential Customers by Income Category and County

County	State Median Income						Percent of All Residential
	0-30%	30-60%	60-80%	80-100%	100%+	Total	
Baker	272	754	460	433	1,633	3,552	0%
Crook	279	528	441	398	1,479	3,125	4%
Deschutes	1,954	5,065	4,628	4,611	29,965	46,223	66%
Jefferson	190	232	178	155	645	1,400	2%
Klamath	26	43	24	22	101	216	0%
Malheur	545	777	455	384	1,720	3,881	6%
Morrow	36	63	59	68	238	464	1%
Umatilla	962	1,926	1,241	1,270	6,087	11,486	16%
Total	4,264	9,388	7,486	7,341	41,868	70,347	100%

Table A-4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties

County	Number of ACS Responses	Average Annual			Energy Burden		
		Household Income	Electric Bill	Natural Gas Bill	Electric	Natural Gas	Total Energy
Baker	399	\$60,453	\$1,383	\$730	2.3%	1.2%	3.6%
Crook	164	\$69,377	\$827	\$701	1.2%	1.0%	2.3%
Deschutes	562	\$95,760	\$965	\$685	1.0%	0.7%	1.8%
Jefferson	160	\$65,377	\$971	\$642	1.5%	1.0%	2.8%
Klamath	474	\$59,899	\$1,129	\$790	1.9%	1.3%	3.3%
Malheur	383	\$57,774	\$1,190	\$634	2.1%	1.1%	3.2%
Morrow	93	\$80,523	\$1,092	\$859	1.4%	1.1%	2.6%
Umatilla	486	\$71,093	\$1,074	\$730	1.5%	1.0%	2.6%
Total	2,721	\$79,767	\$1,041	\$713	1.3%	0.9%	2.3%

Table A-5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	State Median Income				
	0-30%	30-60%	60-80%	80-100%	100%+
Baker	19.2%	9.0%	5.5%	4.6%	2.4%
Crook	14.1%	6.1%	4.0%	3.3%	1.7%
Deschutes	15.4%	5.8%	4.3%	3.6%	1.4%
Jefferson	11.9%	6.7%	4.6%	3.6%	2.0%
Klamath	22.0%	7.4%	4.8%	3.9%	2.2%
Malheur	18.3%	6.5%	4.6%	3.4%	2.1%
Morrow	15.3%	7.3%	4.0%	3.5%	1.8%
Umatilla	14.7%	6.8%	4.8%	3.7%	1.8%
Overall	17.9%	6.7%	4.6%	3.7%	1.6%

Table A-6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	State Median Income				
	0-30%	30-60%	60-80%	80-100%	100%+
Baker	6.7%	2.8%	1.9%	1.6%	0.8%
Crook	5.2%	2.6%	1.6%	1.4%	0.7%
Deschutes	6.7%	2.3%	1.8%	1.5%	0.5%
Jefferson	4.7%	2.3%	1.5%	1.2%	0.7%
Klamath	8.3%	2.8%	1.9%	1.5%	0.9%
Malheur	5.1%	2.0%	1.6%	1.2%	0.8%
Morrow	4.5%	3.0%	1.6%	1.4%	0.8%
Umatilla	5.9%	2.5%	2.0%	1.6%	0.7%
Overall	6.8%	2.5%	1.8%	1.5%	0.6%

Table A-7. Refined Energy Burden Calculations, Cascade Customers

SMI %	Customers	Household Income	Electric Bill	Natural Gas Bill	Energy Burden		
					Electric	Natural Gas	Total
0-15%	1,387	\$3,833	\$1,070	\$668	27.9%	17.4%	45.4%
15-30%	2,877	\$11,939	\$906	\$621	7.6%	5.2%	12.8%
30-45%	6,637	\$22,102	\$996	\$613	4.5%	2.8%	7.3%
45-60%	2,751	\$31,741	\$1,003	\$658	3.2%	2.1%	5.2%
60-80%	7,486	\$38,455	\$998	\$700	2.6%	1.8%	4.4%
80% +	49,209	\$106,399	\$1,066	\$743	1.0%	0.7%	1.7%
Total	70,347	\$79,767	\$1,041	\$713	1.3%	0.9%	2.2%

Table A-8. Tiered Discounted Rates by Income Group

SMI %	Energy Burden Targets			Bill Multiplier to Achieve Goal	
	Electric	Natural Gas	Total	Electric	Natural Gas
0-15%	3.7%	2.3%	6.0%	0.132	0.132
15-30%	3.6%	2.4%	6.0%	0.469	0.469
30-45%	3.7%	2.3%	6.0%	0.824	0.824
45-60%	3.6%	2.4%	6.0%	N/A	N/A

Table A-9. Cost of Low-Income Discounted Natural Gas Rates

SMI %	Annual Gas Revenue @ Full Participation			Annual Gas Revenue @ 20% Participation	
	Current	Discounted	Impact	Discounted	Impact
0-15%	\$927,281	\$122,661	-\$804,620	\$766,357	-\$160,924
15-30%	\$1,785,198	\$837,822	-\$947,376	\$1,595,723	-\$189,475
30-45%	\$4,069,170	\$3,353,933	-\$715,237	\$3,926,122	-\$143,047
45-60%	\$1,808,782	\$1,808,782	\$0	\$1,808,782	\$0
	Total Rate Subsidy		-\$2,467,233		-\$493,447
	Administration		-\$148,034		-\$29,607
	Total Cost		-\$2,615,267		-\$523,054
	Retail Percent Increase		3.7%		0.7%
	Base Percent Increase		6.9%		1.4%

Table A-10. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation

	Customer Class / Rate Schedule					
	Residential Sch. 101	Commercial Sch. 104	Industrial Sch. 105	Large Industrial Sch. 111	Transportation Sch. 163	Interruptible Sch. 170
Total Cost	\$326,372	\$136,002	\$11,497	\$7,141	\$38,588	\$3,454
Base % Inc	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21
Avg. Therms	58	250	1,764	13,845	100,305	39,950
Avg Bill Impact	\$0.40	\$1.10	\$6.34	\$32.79	\$102.78	\$71.96
Pct Impact	0.8%	0.6%	0.6%	0.4%	1.5%	0.3%

VI. APPENDIX B

This appendix contains a four-part crossover table for comparing federal poverty level (FPL) and state median income (SMI). Part A shows annual household incomes at various FPL cutoffs and household size. FPL cutoffs are expressed as percentages of federal poverty guidelines. An FPL of 50%, for example, means the income level that equates to 50% of the federal poverty guidelines and varies by household size. Part B shows annual household incomes at various SMI cutoffs and household size. SMI cutoffs are expressed as decimal values of state median income. An SMI of 0.6, means the income level that equates to 0.6 of the state median income and varies by household size.

Part C shows the corresponding SMI decimal value at various FPL cutoffs. Likewise, Part D shows the corresponding FPL percentage value at various SMI cutoffs. Values from Part C and Part D can be calculated directly from values in Part A and Part B. For example, as shown in Part D an SMI of 0.30 for a family of four corresponds to an FPL of 67%. This result is calculated from dividing the annual incomes for a family of four at 0.6 SMI by the FPL (at 100%) for a family of four ($\$26,736/\$39,750=67\%$ FPL).

Table B-1. Oregon FPL and SMI Crossover Tables 2021 Program Year

Household Size	Part A. Household Income at Various FPL Cutoffs and Household Size					
	25%	50%	75%	100%	125%	150%
1	\$4,830	\$9,660	\$14,490	\$19,320	\$24,150	\$28,980
2	\$6,533	\$13,065	\$19,598	\$26,130	\$32,663	\$39,195
3	\$8,235	\$16,470	\$24,705	\$32,940	\$41,175	\$49,410
4	\$9,938	\$19,875	\$29,813	\$39,750	\$49,688	\$59,625
5	\$11,640	\$23,280	\$34,920	\$46,560	\$58,200	\$69,840
6	\$13,343	\$26,685	\$40,028	\$53,370	\$66,713	\$80,055
7	\$15,045	\$30,090	\$45,135	\$60,180	\$75,225	\$90,270
8	\$16,748	\$33,495	\$50,243	\$66,990	\$83,738	\$100,485
Household Size	Part B. Household Income at Various SMI Cutoffs and Household Size					
	0.15	0.30	0.45	0.60	0.80	1.00
1	\$6,952	\$13,903	\$20,855	\$27,806	\$37,075	\$46,343
2	\$9,090	\$18,181	\$27,271	\$36,361	\$48,481	\$60,602
3	\$11,229	\$22,459	\$33,688	\$44,917	\$59,889	\$74,862
4	\$13,368	\$26,736	\$40,104	\$53,472	\$71,296	\$89,120
5	\$15,507	\$31,014	\$46,521	\$62,028	\$82,704	\$103,380
6	\$17,646	\$35,292	\$52,938	\$70,584	\$94,112	\$117,640
7	\$18,047	\$36,094	\$54,141	\$72,188	\$96,251	\$120,313
8	\$18,448	\$36,896	\$55,344	\$73,792	\$98,389	\$122,987
Household Size	Part C. Equivalent SMI Cutoff by FPL Cutoff and Household Size					
	25%	50%	75%	100%	125%	150%
1	0.104	0.208	0.313	0.417	0.521	0.625
2	0.108	0.216	0.323	0.431	0.539	0.647
3	0.110	0.220	0.330	0.440	0.550	0.660
4	0.112	0.223	0.335	0.446	0.558	0.669
5	0.113	0.225	0.338	0.450	0.563	0.676
6	0.113	0.227	0.340	0.454	0.567	0.681
7	0.125	0.250	0.375	0.500	0.625	0.750
8	0.136	0.272	0.409	0.545	0.681	0.817
Household Size	Part D. Equivalent FPL Cutoff by SMI Cutoff and Household Size					
	0.15	0.30	0.45	0.60	0.80	1.00
1	36%	72%	108%	144%	192%	240%
2	35%	70%	104%	139%	186%	232%
3	34%	68%	102%	136%	182%	227%
4	34%	67%	101%	135%	179%	224%
5	33%	67%	100%	133%	178%	222%
6	33%	66%	99%	132%	176%	220%
7	30%	60%	90%	120%	160%	200%
8	28%	55%	83%	110%	147%	184%

VII. APPENDIX C

Tables in this section are the same tables in the body of the report that deal with service territory and residential customer characteristics by income group except that Appendix tables are expressed in terms of Area Median Income (AMI) groups whereas the tables in the body of the report are expressed in terms of Federal Poverty Level (FPL). AMI based data in these tables are from the LEAD Tool data.

Area median income is similar to State Median Income (SMI), and in the USDOE Low-Income Energy Affordability Data (LEAD) tool, they have the same verbal definition:¹⁵

- **Area Median Income (AMI)**

The Area Median Income is the midpoint of a region’s income distribution – half of families in a region earn more than the median and half earn less than the median.

- **State Median Income (SMI)**

The State Median Income is the midpoint of a region’s income distribution – half of families in a region earn more than the median and half earn less than the median.

The practical difference between these two definitions is the specification of the “region.” For SMI, it is the state and for AMI the definition of region can vary from County to smaller geographic areas such as Census Tracts. The US Department of Health and Human Services (HHS) publishes official SMI and FPL income estimates by household size for each program year for optional use with LIHEAP administration. There is no similar publication of AMI data for LIHEAP administration. An official source for annual AMI estimates is needed if AMI is to be used by implementers of energy bill assistance programs.

Table C-1. Income Distribution by Main Heating Fuel in Cascade Counties

Primary Heating Fuel	Area Median Income						Percent of All Households
	0-30%	30-60%	60-80%	80-100%	100%+	Total	
Bottled Gas	8%	14%	9%	9%	60%	100%	4%
Electricity	16%	16%	12%	10%	47%	100%	47%
Fuel Oil	7%	19%	14%	12%	48%	100%	2%
Other	10%	16%	17%	7%	51%	100%	1%
Utility Gas	9%	12%	10%	9%	59%	100%	34%
Wood	11%	12%	12%	11%	53%	100%	12%
Total	12%	14%	11%	10%	52%	100%	100%

¹⁵ The LEAD tool is structured to provide energy burden analysis in terms of Federal Poverty Level (FPL), State Median Income (SMI), and Area Median Income (AMI). For AMI, analysis can be at the county level or lower. (<https://www.energy.gov/eere/slsc/maps/lead-tool>)

Table C-2. Percentage Distribution of Cascade Residential Customers by Income Category and County

County	Area Median Income					Total
	0-30%	30-60%	60-80%	80-100%	100%+	
Baker	9%	15%	11%	12%	53%	100%
Crook	10%	12%	13%	10%	56%	100%
Deschutes	6%	13%	11%	9%	61%	100%
Jefferson	14%	12%	11%	8%	55%	100%
Klamath	14%	13%	10%	9%	55%	100%
Malheur	16%	12%	10%	9%	53%	100%
Morrow	9%	9%	8%	9%	65%	100%
Umatilla	10%	11%	9%	10%	61%	100%
Total	7%	12%	11%	10%	60%	100%

Table C-3. Cascade Natural Gas Residential Customers by Income Category and County

County	Area Median Income					Total	Percent of All Residential
	0-30%	30-60%	60-80%	80-100%	100%+		
Baker	317	532	395	414	1,894	3,552	5%
Crook	298	362	392	324	1,749	3,125	4%
Deschutes	2,610	5,876	5,082	4,389	28,268	46,225	66%
Jefferson	196	168	150	113	772	1,399	2%
Klamath	30	28	21	20	119	218	0%
Malheur	622	458	402	331	2,067	3,880	6%
Morrow	43	41	39	41	302	466	1%
Umatilla	1,120	1,224	989	1,099	7,053	11,485	16%
Total	5,236	8,689	7,470	6,731	42,224	70,350	100%

Table C-4. Components of Energy Burden, Households Heating with Natural Gas, Cascade Counties

County	Number of ACS Responses	Average Annual			Energy Burden		
		Household Income	Electric Bill	Natural Gas Bill	Electric	Natural Gas	Total Energy
Baker	399	\$60,462	\$1,386	\$730	2.3%	1.2%	3.6%
Crook	164	\$69,501	\$821	\$700	1.2%	1.0%	2.3%
Deschutes	562	\$95,838	\$966	\$686	1.0%	0.7%	1.8%
Jefferson	160	\$66,522	\$983	\$649	1.5%	1.0%	2.8%
Klamath	474	\$59,968	\$1,124	\$789	1.9%	1.3%	3.3%
Malheur	383	\$57,934	\$1,189	\$634	2.1%	1.1%	3.2%
Morrow	93	\$81,602	\$1,087	\$859	1.3%	1.1%	2.5%
Umatilla	486	\$71,138	\$1,073	\$731	1.5%	1.0%	2.6%
Total	2,721	\$79,861	\$1,040	\$713	1.3%	0.9%	2.3%

Table C-5. Total Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	Area Median Income				
	0-30%	30-60%	60-80%	80-100%	100%+
Baker	17.3%	10.1%	6.7%	5.2%	2.6%
Crook	12.4%	6.3%	5.3%	3.7%	1.8%
Deschutes	13.3%	5.5%	4.2%	3.2%	1.3%
Jefferson	11.1%	6.9%	6.1%	4.5%	2.1%
Klamath	18.7%	8.3%	5.8%	4.3%	2.3%
Malheur	15.7%	7.3%	5.6%	4.2%	2.3%
Morrow	12.8%	7.5%	6.4%	4.0%	2.0%
Umatilla	13.1%	8.1%	5.5%	4.6%	2.0%
Overall	15.4%	6.6%	4.8%	3.8%	1.7%

Table C-6. Natural Gas Energy Burden by Income Group, Households Heating with Natural Gas, Cascade Counties

County	Area Median Income				
	0-30%	30-60%	60-80%	80-100%	100%+
Baker	5.8%	3.1%	2.2%	1.8%	0.9%
Crook	4.6%	2.7%	2.0%	1.6%	0.8%
Deschutes	5.7%	2.2%	1.7%	1.3%	0.5%
Jefferson	4.3%	2.3%	1.9%	1.6%	0.8%
Klamath	7.0%	3.3%	2.2%	1.8%	0.9%
Malheur	4.3%	2.3%	1.9%	1.5%	0.8%
Morrow	3.6%	3.1%	2.8%	1.6%	0.9%
Umatilla	5.1%	2.9%	2.2%	2.0%	0.8%
Overall	5.8%	2.6%	1.9%	1.5%	0.7%

Table C-7. Energy Burden Calculations, Cascade Customers

AMI %	Customers	Household Income	Electric Bill	Natural Gas Bill	Energy Burden		
					Electric	Natural Gas	Total
0-30%	5,236	\$10,657	\$953	\$621	8.9%	5.8%	14.8%
30-60%	8,689	\$23,210	\$900	\$595	3.9%	2.6%	6.4%
60-80%	7,470	\$35,297	\$986	\$671	2.8%	1.9%	4.7%
80-100%	6,731	\$46,953	\$1,005	\$722	2.1%	1.5%	3.7%
100%+	42,224	\$115,404	\$1,098	\$758	1.0%	0.7%	1.6%
Total	70,350	\$79,861	\$1,040	\$713	1.3%	0.9%	2.2%

Table C-8. Tiered Discounted Rates by Income Group

AMI %	Energy Burden Targets			Bill Multiplier to Achieve Goal	
	Electric	Natural Gas	Total	Electric	Natural Gas
0-30%	3.6%	2.4%	6.0%	0.406	0.406
30-60%	3.6%	2.4%	6.0%	0.931	0.931
60-80%	3.6%	2.4%	6.0%	N/A	N/A

Table C-9. Cost of Low-Income Discounted Natural Gas Rates

AMI %	Annual Gas Revenue @ Full Participation			Annual Gas Revenue @ 20% Participation	
	Current	Discounted	Impact	Discounted	Impact
0-30%	\$3,252,387	\$1,321,414	-\$1,930,973	\$2,866,192	-\$386,195
30-60%	\$5,170,881	\$4,815,399	-\$355,481	\$5,099,784	-\$71,096
60-80%	\$5,010,983	\$5,010,983	\$0	\$5,010,983	\$0
	Total Rate Subsidy		-\$2,286,454		-\$457,291
	Administration		-\$137,187		-\$27,437
	Total Cost		-\$2,423,641		-\$484,728
	Retail Percent Increase		3.4%		0.7%
	Base Percent Increase		6.4%		1.3%

Table C-10. Annual Impact of Low-Income Rates by Cascade Customer Class, Partial Participation

	Customer Class / Rate Schedule					
	Residential Sch. 101	Commercial Sch. 104	Industrial Sch. 105	Large Industrial Sch. 111	Transportation Sch. 163	Interruptible Sch. 170
Total Cost	\$302,458	\$126,037	\$10,655	\$6,618	\$35,760	\$3,201
Base % Inc	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Avg. Bills	\$50.77	\$174.06	\$1,141.60	\$7,717.41	\$7,041.09	\$20,689.21
Avg. Therms	58	250	1,764	13,845	100,305	39,950
Avg Bill Impact	\$0.37	\$1.02	\$5.88	\$30.38	\$95.25	\$66.69
Pct Impact	0.7%	0.6%	0.5%	0.4%	1.4%	0.3%

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM _____

In the Matter of

CASCADE NATURAL GAS CORPORATION

Amended Application for Approval of
Deferred Accounting for Costs and Revenues
Associated with House Bill 2475 Energy
Affordability Act

**AMENDED APPLICATION FOR
DEFERRED
ACCOUNTING**

I. INTRODUCTION

In accordance with Oregon Revised Statutes (ORS) 757.259(2)(e) and Oregon Administrative Rule (OAR) 860-027-0300(3), Cascade Natural Gas Corporation (Cascade or Company) files to amend its prior application (Application) to the Public Utility Commission of Oregon (Commission) for an order authorizing deferred accounting treatment for all costs and revenues associated with Oregon House Bill (HB) 2475, The Energy Affordability Act.

Cascade had previously filed an application to recover such costs on January 31, 2022, however at that time, many program specifics were unknown. On June 1, 2022, Cascade filed its proposed program offering in accordance with HB 2475, known as the Arrearage Management Program and Energy Discount (AMPED). This amended Application includes program specifics that match the Company's expectations of the AMPED proposal at the time of its initial filing.

Cascade requests authorization to defer the incremental costs and revenues associated with implementation and administration of its initial AMPED proposal for the 12-month period commencing October 1, 2022.

II. APPLICATION FOR AUTHORIZATION TO DEFER

In compliance with the requirements established in OAR 860-027-0300(3), and Commission Order No 09-263, Cascade submits the following:

A. Description of Utility Expense or Revenue - OAR 860-027-0300(3)(a)

Cascade requests authorization to defer the incremental costs and revenues associated with the implementation of its AMPED proposal that it intends to make available to eligible residential customers by October 1, 2022. Cascade requests authorization to defer the costs associated with the program in a deferral account along with the revenue received to fund the program.

B. Reasons for Deferral - OAR 1 860-027-0300(3)(b)

As discussed above, Cascade requests authorization to defer the costs and revenues to administer its AMPED proposal. The deferral may be authorized under ORS 759.259(2)(e) to minimize the frequency of rate changes or the fluctuation of rate levels or to match the costs borne by and benefits received by ratepayers.

Cascade's application is consistent with the Commission's previous approval of deferred accounting applications.

C. Proposed Accounting - OAR 860-027-0300(3)(c)

If this application is approved, Cascade proposes to record the deferral amount as a regulatory asset in FERC Account 182.3 (Other Regulatory Assets), crediting various applicable FERC accounts. In the absence of a deferred accounting order, Cascade would record the costs to a variety of accounts. The deferred balance will accrue interest at the Company's effective authorized rate of return (ROR). All amortized balances will accrue interest at the effective Modified Blended Treasury (MBT) rate.

D. Estimate of Amounts - OAR 860-027-0300(3)(d)

Cascade estimates the deferred expense amount for the first year of AMPED program will be approximately \$1,417,000 based on a 20 percent enrollment level. The AMPED program at full enrollment could reach a total program cost of \$11.4 million annually.

E. Notice - OAR 860-27-0300(3)(e)

A copy of the Notice of Application and a list of persons served with the notice are attached as Exhibit A to this application.

III. COMMUNICATIONS

Communications regarding this application should be addressed to:

Lori Blattner	Department of Regulatory Affairs
Cascade Natural Gas Corporation	Cascade Natural Gas Corporation
8113 W. Grandridge Blvd	8113 W. Grandridge Blvd
Kennewick, WA 99336	Kennewick, WA 99336
Lori.Blattner@intgas.com	CNGCregulatory@cngc.com

For the reasons set forth above, in accordance with ORS 757.259(2)(e) and OAR 860-027-0300(3), Cascade respectfully requests authorization for a deferred account beginning on October 1, 2022, to track the incremental costs and revenues associated with its AMPED proposal.

Respectfully submitted this 1st day of June 2022.

Sincerely,

/s/ Lori Blattner

Lori Blattner
Director, Cascade Natural Gas Corporation
8113 W. Grandridge Blvd
Kennewick, WA 99336
Lori.Blattner@intgas.com

Cascade Natural Gas Corporation

June 1, 2022

NOTICE OF AMENDED APPLICATION FOR AUTHORIZATION TO DEFER COSTS AND REVENUES ASSOCIATED WITH HOUSE BILL 2475

To All Parties Who Participated in UG-390:

Please be advised that today, Cascade Natural Gas Corporation ("Company") filed an amended application for Authorization to Defer Costs and Revenues Associated with House Bill 2475 Energy Affordability Act. Copies of the Company's amended application are available for inspection at the Company's main office.

Parties who would like additional information or would like a copy of the filing, or notice of the time and place of any hearing, if scheduled, should contact the Company or the Public Utility Commission of Oregon as follows:

Cascade Natural Gas Corporation
Attn: Lori Blattner
8113 W Grandridge Blvd
Kennewick, WA 99336
(208) 377-6015

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97308-1088
503-378-6678

Any person may submit to the Commission written comments on the application no sooner than 25 days from the date of this notice.

The Company's application will not authorize a change in rates, but will permit the Commission to consider allowing such deferred amounts in rates in a subsequent proceeding.

Cascade Natural Gas Corporation

CERTIFICATE OF SERVICE

I hereby certify that I have this day served by electronic mail the foregoing NOTICE OF AMENDED APPLICATION FOR AUTHORIZATION TO DEFER COSTS AND REVENUES ASSOCIATED WITH HOUSE BILL 2475 upon all parties of record in UG-390, which is the Company's most recent general rate case.

Oregon Citizens' Utility Board dockets@oregoncub.org	Michael Goetz Oregon Citizens' Utility Board mike@oregoncub.org
William Gehrke Oregon Citizens' Utility Board will@oregoncub.org	Chad M Stokes Cable Huston LLP cstokes@cablehuston.com
Tommy A Brooks Cable Huston LLP tbrooks@cablehuston.com	Edward Finklea Alliance of Western Energy Consumers efinklea@awec.solutions
Stephanie S Andrus PUC Staff – Dept of Justice Stephanie.andrus@state.or.us	Marianne Gardner Public Utility Commission of Oregon marianne.gardner@state.or.us
Jocelyn C Pease McDowell, Rackner & Gibson PC jocelyn@mrg-law.com	Lisa F Rackner McDowell, Rackner & Gibson PC dockets@mrg-law.com

Dated this 1ST day of June 2022.

/s/ Isaac Myhrum

Isaac Myhrum
Rates and Regulatory Affairs
Cascade Natural Gas Corporation
8113 W Grandridge Blvd
Kennewick, WA 99336
Isaac.myhrum@cngc.com