



National Fuel

Nathaniel J. Ehrman
Attorney

April 8, 2019

VIA ELECTRONIC FILING

Ms. Rosemary Chiavetta
PA Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

RE: Review of Universal Service and Energy Conservation Programs
Docket No. M-2017-2596907 and M- 2017-2587711.

Dear Secretary Chiavetta:

Enclosed please find a copy of National Fuel Gas Distribution Corporation's supplemental information in response to the January 17, 2019 order and March 7, 2019 Secretarial Letter in the above-reference matter.

If you should have any questions or concerns, please contact me at (814) 871-8177.

Very truly yours,

Nathaniel J. Ehrman

Enclosure

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Review of Universal Service and Energy Conservation Programs : **Docket Number:** M-2017-2596907
M-2017-2587711

**SUPPLEMENTAL INFORMATION OF
NATIONAL FUEL GAS DISTRIBUTION CORPORATION**

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

In compliance with Ordering Paragraph #5 of the January 17, 2019 Order in Docket No. M-2017-2587711 and the subsequent Commission clarification in the March 7, 2019 Secretarial Letter, National Fuel Gas Distribution Corporation (“the Company”) submits the following supplemental information related to PUC staff’s *Report on Home Energy Affordability for Low-Income Customers in Pennsylvania*.

- a) *Review the 10% energy burden projections in the Report. If the utilities have corrected or updated data for 2012 to 2016 relative to these projections, the revised data should be provided as part of its supplemental information filing.*

NFGDC Response:

No revisions are necessary.

- b) *Provide a cost forecast based on a [6%] maximum energy burden for the years 2016 through 2021.*
1. *The first cost estimate should be based only on charging all CAP customers the lesser of an average bill or [6%] of the household’s income for the yearly periods from 2016 through 2021. This estimate should not take into consideration system change costs, additional CAP charges, CAP credit limits, minimum payment/bill requirements, or other costs not related to charging the CAP customer the lesser of an average bill or the designated percent of income.*
 2. *The second cost estimate should also be based on the average bill or the PIP CAP model from 2016 through 2021 but include all other costs/savings related to this change. This includes utility CAP charges, minimum payment restrictions, CAP credit limits, and other CAP costs/savings described in the January 2019 Order. NGDCs and EDCs should identify all costs/savings related to this estimate separately.*

NFGDC Response:

Cost Estimate #1:

The first cost estimate is summarized on Attachment A, Page 1. Additional supporting detail is shown on the subsequent pages of Attachment A. The amounts on Page 1 represent only the CAP credits associated with providing customers with the lessor of a 6% energy burden or their average bill. The 6% energy burden was calculated based on the most current income data available for the customer. For calendar years 2017 and 2018, the annual 6% energy burden was compared to each customer's actual bills (excluding CAP credits) for the twelve month period. Several basic scenarios exist within this construct:

- If the customer's actual energy burden is greater than 6%, bill discounts are provided to reduce the energy burden to 6%.
- If the customer's actual energy burden is already less than 6%, no bill discounts are provided.
- If a customer's reported income is zero, the customer would receive a 100% discount.

For calendar years 2017 and 2018, the Company sampled over 5,000 customer accounts that received a CAP bill for all twelve months of the year. This represents a significant portion of the total CAP population during these periods. The Company believes that its method of excluding accounts with fewer than twelve months of actual LIRA bills from its analysis results in a more accurate average cost per participant. The average discount for each year was then multiplied by the average number of CAP participants for that calendar year (see Attachment E) to establish the total estimated cost of providing the lessor the 6% energy burden or an average bill. For reference, the actual LIRA discounts are provided for calendar years 2016 – 2018.

The Company implemented a new billing system in April 2016. As a result, billing data for the entire calendar year was not readily available in a format equivalent to the 2017 and 2018 data. In order to estimate calendar year 2016's cost of providing CAP credits, 2017's average discount (as outlined above) was modified to account for gas costs. NFGDC's average residential natural gas supply charge was 22% lower in 2016 than 2017. Degree days, which help to quantify the weather impact on heating load, were not materially different between the two years. Given that the average *actual* LIRA discount per participant was 23% lower in 2016 than 2017, we lowered the calculated average discount by 23% (from \$164 to \$133). The average discount was then multiplied by the average number of actual CAP participants for calendar 2016.

Actual CAP credits will vary from year to year in part due to weather. Generally, colder than normal weather will result in higher bills that require greater discounts. Warmer than normal weather has the opposite impact. Calendar 2018 is an ideal base year for projecting 2019 - 2021 because weather was relatively normal (0.6% warmer

than normal). Our projections for 2019 – 2021 do not include any weather normalization of 2018's average cost per participant. However, the average discount for 2019 – 2021 was adjusted to account for forecasted changes to the Company's residential NGS rate.

Cost Estimate #2:

The second cost estimate is outlined on Attachment B, Page 1. Additional supporting detail is shown on the subsequent pages of Attachment B. The sampled data from the first cost estimate is used, but additional factors are considered.

These factors include:

- NFGDC's minimum bill of \$12
- A CAP credit limit of \$840 for gas heating customers
- Arrearage forgiveness

Factors not considered in this cost estimate:

- LIHEAP grants
- Administration costs
- NFG's 10% minimum discount for CAP participants (impact is assumed to be negligible)

Not including the added cost associated with arrearage forgiveness, the factors above result in an average cost savings of \$6-13 per participant depending on the calendar year. The majority of this savings is the result of the CAP credit limit. This is evident when comparing Table 1 for each year between Cost Estimate #1 and Cost Estimate #2. The number of customers receiving 90-100% discounts is dramatically reduced when the CAP credit limit is a component of the calculation.

Additionally, the Company worked with its Information Services department to come up with a cost estimate for implementing a new low income program within our billing system. Based on recent experience with implementing a state-mandated low income program in our NY division in 2018, it's estimated that a program change in PA could cost approximately \$400,000 and take twelve months to implement. This includes internal labor costs and outside consulting fees associated with requirements, design, testing, and implementation. This estimate comes with the caveat that there are significant differences between the structure of the Company's new NY program and the hypothetical change to a PIP CAP program in PA. If NFG were to make changes to its PA CAP, actual costs could be substantially different.

In both cost estimates, the scenario exists in which a customer's actual energy burden is already less than 6%. In this situation, no bill discounts are provided. Analytics are provided in Attachments A & B for calendar years 2017 and 2018 that demonstrate for the sampled population how many customers fall into this category. Tables also show the number of customers that would benefit from a PIP plan versus those who are better served under NFG's LIRA program.

- c) *Provide estimates of the impact on enrollments and to customer assistance program costs if restrictions other than “low income” are eliminated for the years [2016] through 2021. These will be separate enrollment and cost forecasts from the [6%] projections for the years [2016] through 2021 requested above.*

NFGDC Response:

See Attachment C. NFG’s LIRA program requires low income customers to be payment troubled in order to qualify for enrollment. The Company defines “payment troubled” as having a canceled payment agreement within the past twelve months. Removing the payment troubled restriction would undoubtedly result in increased CAP participation. However, in the Company’s opinion, assuming a specific increase in enrollment with no historical basis does not result in meaningful information. Our approach to this request was to identify an average cost per LIRA participant by calendar year and provide a table showing how incremental levels of enrollment would affect the total cost of the program. The arrearage forgiveness component of NFG’s LIRA program is not considered in this exercise.

The Company identified 24,400 active low income customers as of February 2019. Of this total, 4,300 non-CAP customers are currently categorized as payment troubled. This means nearly 18% of currently eligible customers are not enrolled in LIRA. The Company continues to identify outreach opportunities in order to increase participation. Another 7,600 customers are already enrolled in LIRA, meaning they were payment troubled at the time of their enrollment. The remaining 12,500 customers (51% of the total) are currently not flagged as payment troubled.

- d) *Provide monthly customer tallies for all CAP customers claiming zero income in 2016 and 2017, broken out by heating type, if possible.*

NFGDC Response:

See Attachment D.

Respectfully submitted,



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Dated: April 8, 2019

National Fuel Gas Distribution Corporation
Pennsylvania Division
M-2017-2587711 Supplemental Information

Table A1. Cost Estimate #1

	(1)	(2)	(3) = 1 x 2	(4)	(3) = 4 / 2
Calendar Year	Average PIP Discount	Average CAP Participants ¹	Estimated Cost (CAP Discounts)	Actual LIRA Discounts ²	Average LIRA Discount
2016	\$ 133	8,694	\$ 1,156,879	\$ 655,653	\$ 75
2017	\$ 164	8,081	\$ 1,322,631	\$ 791,565	\$ 98
2018	\$ 218	8,389	\$ 1,829,576	\$ 1,093,008	\$ 130
2019	\$ 222	9,000	\$ 2,002,087	\$ -	\$ -
2020	\$ 212	9,000	\$ 1,907,512	\$ -	\$ -
2021	\$ 208	9,000	\$ 1,867,583	\$ -	\$ -

¹ See Attachment E

² LIRA discounts are provided for comparison and do not impact the calculation of the PUC's hypothetical PIP program costs

Cost Estimate #1 - Calendar Year 2017**Table A2. 2017 Detail by Percentage Discount for Sampled Population**

% Discount	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	2,725	\$ 734	\$ 733	\$ 3,951	\$ 1
10%	428	\$ 825	\$ 742	\$ 35,565	\$ 83
20%	473	\$ 870	\$ 696	\$ 82,356	\$ 174
30%	445	\$ 914	\$ 640	\$ 121,946	\$ 274
40%	402	\$ 999	\$ 599	\$ 160,890	\$ 400
50%	293	\$ 1,104	\$ 556	\$ 160,464	\$ 548
60%	158	\$ 1,291	\$ 515	\$ 122,472	\$ 775
70%	76	\$ 1,174	\$ 357	\$ 62,130	\$ 817
80%	20	\$ 1,305	\$ 284	\$ 20,418	\$ 1,021
90%	13	\$ 1,139	\$ 126	\$ 13,164	\$ 1,013
100%	57	\$ 875	\$ 2	\$ 49,733	\$ 873
Grand Total	5,090	\$ 841	\$ 677	\$ 833,089	\$ 164

Table A3. 2017 Detail by Post-Discount Energy Burden for Sampled Population

Energy Burden	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	27	\$ 887	\$ -	\$ 23,941	\$ 887
1%	17	\$ 451	\$ 451	\$ -	\$ -
2%	240	\$ 588	\$ 588	\$ -	\$ -
3%	556	\$ 688	\$ 688	\$ -	\$ -
4%	706	\$ 733	\$ 733	\$ -	\$ -
5%	718	\$ 775	\$ 775	\$ -	\$ -
6%	2,826	\$ 938	\$ 652	\$ 809,148	\$ 286
Grand Total	5,090	\$ 841	\$ 677	\$ 833,089	\$ 164

Cost Estimate #1 - Calendar Year 2017**Table A4. 2017 Average PIP Discount by Household Size and Federal Poverty Level**

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	\$ 532	\$ 235	\$ 88	\$ 193
2	\$ 446	\$ 186	\$ 55	\$ 140
3	\$ 433	\$ 134	\$ 24	\$ 149
4	\$ 400	\$ 72	\$ 13	\$ 124
5	\$ 344	\$ 89	\$ 44	\$ 131
6	\$ 320	\$ 90	\$ 25	\$ 121
7	\$ 286	\$ -	\$ -	\$ 123
8	\$ 172	\$ -	\$ -	\$ 29
9	\$ -	\$ -	\$ -	\$ -
10	\$ -	\$ -	\$ -	\$ -
11	\$ 540	\$ -	\$ -	\$ 270
All Households	\$ 423	\$ 191	\$ 61	\$ 164

Table A5. 2017 Number of Customers Sampled by Household Size and Federal Poverty Level

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	94	1,478	896	2,468
2	68	505	513	1,086
3	122	239	247	608
4	103	217	156	476
5	60	124	86	270
6	26	51	37	114
7	19	12	13	44
8	2	8	2	12
9	0	2	3	5
10	1	2	2	5
11	1	1	0	2
All Households	496	2,639	1,955	5,090

Cost Estimate #1 - Calendar Year 2017

Table A6. 2017 Summary of the "Lessor Of" Calculation for the Sample Population

Lessor Of	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	PIP CAP Discount	Average PIP CAP Discount	Average LIRA Bill	LIRA Discounts	Average LIRA Discount
6% Energy Burden¹								
0.0%	27	\$ 887	\$ -	\$ 23,941	\$ 887	\$ 764	\$ 3,300	\$ 122
6.0%	2,521	\$ 954	\$ 634	\$ 809,148	\$ 321	\$ 837	\$ 297,044	\$ 118
Subtotal	2,548	\$ 954	\$ 627	\$ 833,089	\$ 327	\$ 836	\$ 300,343	\$ 118
Average Bill²								
1.0%	17	\$ 451	\$ 451	\$ -	\$ -	\$ 406	\$ 770	\$ 45
2.0%	240	\$ 588	\$ 588	\$ -	\$ -	\$ 528	\$ 14,479	\$ 60
3.0%	556	\$ 688	\$ 688	\$ -	\$ -	\$ 617	\$ 39,731	\$ 71
4.0%	706	\$ 733	\$ 733	\$ -	\$ -	\$ 655	\$ 54,933	\$ 78
5.0%	718	\$ 775	\$ 775	\$ -	\$ -	\$ 694	\$ 58,564	\$ 82
6.0%	305	\$ 803	\$ 803	\$ -	\$ -	\$ 719	\$ 25,468	\$ 84
Subtotal	2,542	\$ 728	\$ 728	\$ -	\$ -	\$ 652	\$ 193,945	\$ 76
Grand Total	5,090	\$ 841	\$ 677	\$ 833,089	\$ 164	\$ 744	\$ 494,289	\$ 97

¹ - These are customers that required discounts in order to reduce their energy burden to 6%.

² - These are customers with energy burdens already at or below 6%. They currently receive discounts under NFG's LIRA program but would not receive discounts under the PUC's hypothetical PIP plan.

Table A7. 2017 Comparison of PIP CAP Bills to LIRA Bills for Sample Population

Comparison	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	PIP CAP Discount	Average PIP CAP Discount	Average LIRA Bill	LIRA Discounts	Average LIRA Discount
PIP Bill < LIRA Bill	2,091	\$ 982	\$ 597	\$ 806,708	\$ 386	\$ 861	\$ 253,256	\$ 121
PIP Bill > LIRA Bill	2,999	\$ 742	\$ 734	\$ 26,381	\$ 9	\$ 662	\$ 241,033	\$ 80
Grand Total	5,090	\$ 841	\$ 677	\$ 833,089	\$ 164	\$ 744	\$ 494,289	\$ 97

Cost Estimate #1 - Calendar Year 2018**Table A8. 2018 Detail by Percentage Discount for Sampled Population**

% Discount	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	2,340	\$ 785	\$ 783	\$ 4,689	\$ 2
10%	395	\$ 887	\$ 796	\$ 35,861	\$ 91
20%	466	\$ 939	\$ 748	\$ 88,687	\$ 190
30%	511	\$ 977	\$ 685	\$ 149,187	\$ 292
40%	477	\$ 1,053	\$ 631	\$ 201,107	\$ 422
50%	383	\$ 1,147	\$ 576	\$ 218,650	\$ 571
60%	235	\$ 1,273	\$ 512	\$ 178,844	\$ 761
70%	130	\$ 1,404	\$ 437	\$ 125,718	\$ 967
80%	34	\$ 1,428	\$ 298	\$ 38,411	\$ 1,130
90%	13	\$ 1,376	\$ 145	\$ 15,998	\$ 1,231
100%	46	\$ 873	\$ 2	\$ 40,071	\$ 871
Grand Total	5,030	\$ 925	\$ 707	\$ 1,097,222	\$ 218

Table A9. 2018 Detail by Post-Discount Energy Burden for Sampled Population

Energy Burden	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	18	\$ 928	\$ -	\$ 16,710	\$ 928
1%	10	\$ 301	\$ 301	\$ -	\$ -
2%	150	\$ 571	\$ 571	\$ -	\$ -
3%	412	\$ 713	\$ 713	\$ -	\$ -
4%	590	\$ 755	\$ 755	\$ -	\$ -
5%	672	\$ 835	\$ 835	\$ -	\$ -
6%	3,178	\$ 1,022	\$ 682	\$ 1,080,512	\$ 340
Grand Total	5,030	\$ 925	\$ 707	\$ 1,097,222	\$ 218

Cost Estimate #1 - Calendar Year 2018**Table A10. 2018 Average Discount by Household Size and Federal Poverty Level**

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	\$ 543	\$ 309	\$ 122	\$ 247
2	\$ 484	\$ 257	\$ 90	\$ 190
3	\$ 459	\$ 198	\$ 62	\$ 198
4	\$ 531	\$ 133	\$ 24	\$ 179
5	\$ 441	\$ 122	\$ 40	\$ 173
6	\$ 283	\$ 173	\$ 36	\$ 152
7	\$ 435	\$ 19	\$ 99	\$ 215
8	\$ 284	\$ -	\$ -	\$ 95
9	\$ 494	\$ -	\$ -	\$ 329
10	\$ -	\$ -	\$ -	\$ -
11	\$ 917	\$ -	\$ -	\$ 917
All Households	\$ 484	\$ 264	\$ 95	\$ 218

Table A11. 2018 Number of Customers Sampled by Household Size and Federal Poverty Level

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	95	1,504	972	2,571
2	66	475	509	1,050
3	122	226	233	581
4	89	203	144	436
5	55	106	71	232
6	18	47	29	94
7	19	13	14	46
8	3	4	2	9
9	4	0	2	6
10	0	1	2	3
11	2	0	0	2
All Households	473	2,579	1,978	5,030

Cost Estimate #1 - Calendar Year 2018

Table A12. 2018 Summary of the "Lessor Of" Calculation for the Sample Population

Lessor Of	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	PIP CAP Discount	Average PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
6% Energy Burden ¹								
0.0%	18	\$ 928	\$ -	\$ 928	\$ 16,710	\$ 626	\$ 5,451	\$ 303
6.0%	2,864	\$ 1,039	\$ 662	\$ 377	\$ 1,080,512	\$ 878	\$ 461,399	\$ 161
Subtotal	2,882	\$ 1,038	\$ 658	\$ 381	\$ 1,097,222	\$ 876	\$ 466,850	\$ 162
Average Bill ²								
1.0%	10	\$ 301	\$ 301	\$ -	\$ -	\$ 271	\$ 302	\$ 30
2.0%	150	\$ 571	\$ 571	\$ -	\$ -	\$ 512	\$ 8,725	\$ 58
3.0%	412	\$ 713	\$ 713	\$ -	\$ -	\$ 639	\$ 30,221	\$ 73
4.0%	590	\$ 755	\$ 755	\$ -	\$ -	\$ 676	\$ 46,665	\$ 79
5.0%	672	\$ 835	\$ 835	\$ -	\$ -	\$ 746	\$ 59,815	\$ 89
6.0%	314	\$ 868	\$ 868	\$ -	\$ -	\$ 772	\$ 29,945	\$ 95
Subtotal	2,148	\$ 773	\$ 773	\$ -	\$ -	\$ 691	\$ 175,672	\$ 82
Grand Total	5,030	\$ 925	\$ 707	\$ 218	\$ 1,097,222	\$ 797	\$ 642,522	\$ 128

¹ - These are customers that required discounts in order to reduce their energy burden to 6%.

² - These are customers with energy burdens already at or below 6%. They currently receive discounts under NFG's LIRA program but would not receive discounts under the PUC's hypothetical PIP plan.

Table A13. 2018 Comparison of PIP CAP Bills to LIRA Bills for Sample Population

Comparison	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Average PIP CAP Discount	PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
PIP Bill < LIRA Bill	2,381	\$ 1,079	\$ 633	\$ 447	\$ 1,063,197	\$ 908	\$ 407,209	\$ 171
PIP Bill > LIRA Bill	2,649	\$ 787	\$ 774	\$ 13	\$ 34,025	\$ 698	\$ 235,314	\$ 89
Grand Total	5,030	\$ 925	\$ 707	\$ 218	\$ 1,097,222	\$ 797	\$ 642,522	\$ 128

National Fuel Gas Distribution Corporation
Pennsylvania Division
M-2017-2587711 Supplemental Information

Table B1. Cost Estimate #2

	(1)	(2) = 8 / 4	(3) = 1 + 2	(4)	(5) = 3 x 4	(6)	(7) = 6 / 4	(8)	(9) = 6 + 8
Calendar Year	Average PIP Discount	Average Arrearage Forgiveness	Total Average Cost Per Participant	Average CAP Participants ¹	Estimated Cost	Actual LIRA Discounts ²	Average LIRA Discount	Actual LIRA Arrearage Forgiveness	Total LIRA Costs ³
2016	\$ 127	\$ 56	\$ 183	8,694	\$ 1,589,916	\$ 655,653	\$ 75	\$ 486,227	\$ 1,141,880
2017	\$ 156	\$ 44	\$ 200	8,081	\$ 1,617,540	\$ 791,565	\$ 98	\$ 355,720	\$ 1,147,285
2018	\$ 205	\$ 54	\$ 260	8,389	\$ 2,177,113	\$ 1,093,008	\$ 130	\$ 453,805	\$ 1,546,813
2019	\$ 210	\$ 54	\$ 264	9,000	\$ 2,372,656	\$ -	\$ -	\$ -	\$ -
2020	\$ 200	\$ 54	\$ 254	9,000	\$ 2,283,575	\$ -	\$ -	\$ -	\$ -
2021	\$ 195	\$ 54	\$ 250	9,000	\$ 2,245,965	\$ -	\$ -	\$ -	\$ -

The above does not reflect the cost of billing system changes, which are identified separately in the Company's filing letter.

¹ See Attachment E

² LIRA discounts are provided for comparison and do not impact the calculation of the PUC's hypothetical PIP program costs

³ Excludes administration costs

Cost Estimate #2 - Calendar Year 2017**Table B2. 2017 Detail by Percentage Discount for Sampled Population**

% Discount	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	2,725	\$ 734	\$ 733	\$ 3,951	\$ 1
10%	428	\$ 825	\$ 742	\$ 35,565	\$ 83
20%	474	\$ 878	\$ 702	\$ 83,196	\$ 176
30%	450	\$ 934	\$ 654	\$ 126,146	\$ 280
40%	416	\$ 1,034	\$ 619	\$ 172,650	\$ 415
50%	319	\$ 1,145	\$ 577	\$ 181,358	\$ 569
60%	151	\$ 1,201	\$ 491	\$ 107,307	\$ 711
70%	69	\$ 952	\$ 289	\$ 45,736	\$ 663
80%	53	\$ 812	\$ 158	\$ 34,710	\$ 655
90%	5	\$ 978	\$ 144	\$ 4,169	\$ 834
Grand Total	5,090	\$ 841	\$ 685	\$ 794,786	\$ 156

Table B3. 2017 Detail by Post-Discount Energy Burden for Sampled Population

Energy Burden	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
1%	17	\$ 451	\$ 451	\$ -	\$ -
2%	240	\$ 588	\$ 588	\$ -	\$ -
3%	556	\$ 688	\$ 688	\$ -	\$ -
4%	706	\$ 733	\$ 733	\$ -	\$ -
5%	718	\$ 775	\$ 775	\$ -	\$ -
6%	2,711	\$ 917	\$ 663	\$ 687,223	\$ 253
> 6%	142	\$ 1,332	\$ 575	\$ 107,563	\$ 757
Grand Total	5,090	\$ 841	\$ 685	\$ 794,786	\$ 156

Cost Estimate #2 - Calendar Year 2017**Table B4. 2017 Average Discount by Household Size and Federal Poverty Level**

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	\$ 465	\$ 228	\$ 84	\$ 185
2	\$ 426	\$ 183	\$ 53	\$ 137
3	\$ 403	\$ 125	\$ 23	\$ 139
4	\$ 374	\$ 68	\$ 12	\$ 116
5	\$ 315	\$ 83	\$ 19	\$ 114
6	\$ 300	\$ 70	\$ 25	\$ 108
7	\$ 279	\$ -	\$ -	\$ 121
8	\$ 172	\$ -	\$ -	\$ 29
9	\$ -	\$ -	\$ -	\$ -
10	\$ -	\$ -	\$ -	\$ -
11	\$ 540	\$ -	\$ -	\$ 270
All Households	\$ 390	\$ 185	\$ 58	\$ 156

Table B5. 2017 Number of Customers Sampled by Household Size and Federal Poverty Level

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	94	1,478	896	2,468
2	68	505	513	1,086
3	122	239	247	608
4	103	217	156	476
5	60	124	86	270
6	26	51	37	114
7	19	12	13	44
8	2	8	2	12
9	0	2	3	5
10	1	2	2	5
11	1	1	0	2
All Households	496	2,639	1,955	5,090

Cost Estimate #2 - Calendar Year 2017

Table B6. 2017 Summary of the "Lessor Of" Calculation for the Sample Population

Lessor Of	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	PIP CAP Discount	Average PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
6% Energy Burden¹								
6.0%	2,406	\$ 931	\$ 646	\$ 687,223	\$ 286	\$ 818	\$ 273,868	\$ 114
> 6.0%	142	\$ 1,332	\$ 575	\$ 107,563	\$ 757	\$ 1,146	\$ 26,476	\$ 186
Subtotal	2,548	\$ 954	\$ 642	\$ 794,786	\$ 312	\$ 836	\$ 300,343	\$ 118
Average Bill²								
1.0%	17	\$ 451	\$ 451	\$ -	\$ -	\$ 406	\$ 770	\$ 45
2.0%	240	\$ 588	\$ 588	\$ -	\$ -	\$ 528	\$ 14,479	\$ 60
3.0%	556	\$ 688	\$ 688	\$ -	\$ -	\$ 617	\$ 39,731	\$ 71
4.0%	706	\$ 733	\$ 733	\$ -	\$ -	\$ 655	\$ 54,933	\$ 78
5.0%	718	\$ 775	\$ 775	\$ -	\$ -	\$ 694	\$ 58,564	\$ 82
6.0%	305	\$ 803	\$ 803	\$ -	\$ -	\$ 719	\$ 25,468	\$ 84
Subtotal	2,542	\$ 728	\$ 728	\$ -	\$ -	\$ 652	\$ 193,945	\$ 76
Grand Total	5,090	\$ 841	\$ 685	\$ 794,786	\$ 156	\$ 744	\$ 494,289	\$ 97

¹ - These are customers that required discounts in order to reduce their energy burden to 6%.

² - These are customers with energy burdens already at or below 6%. They currently receive discounts under NFG's LIRA program but would not receive discounts under the PUC's hypothetical PIP plan.

Table B7. 2017 Comparison of PIP CAP Bills to LIRA Bills for Sample Population

Comparison	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Average PIP CAP Discount	PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
PIP Bill < LIRA Bill	2,091	\$ 982	\$ 615	\$ 768,405	\$ 367	\$ 861	\$ 253,256	\$ 121
PIP Bill > LIRA Bill	2,999	\$ 742	\$ 734	\$ 26,381	\$ 9	\$ 662	\$ 241,033	\$ 80
Grand Total	5,090	\$ 841	\$ 685	\$ 794,786	\$ 156	\$ 744	\$ 494,289	\$ 97

Cost Estimate #2 - Calendar Year 2018**Table B8. 2018 Detail by Percentage Discount for Sampled Population**

% Discount	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
0%	2,340	\$ 785	\$ 783	\$ 4,689	\$ 2
10%	395	\$ 887	\$ 796	\$ 35,861	\$ 91
20%	466	\$ 939	\$ 748	\$ 88,687	\$ 190
30%	520	\$ 1,007	\$ 706	\$ 156,747	\$ 301
40%	504	\$ 1,103	\$ 660	\$ 223,234	\$ 443
50%	456	\$ 1,219	\$ 612	\$ 277,178	\$ 608
60%	229	\$ 1,207	\$ 497	\$ 162,544	\$ 710
70%	78	\$ 1,018	\$ 312	\$ 55,064	\$ 706
80%	41	\$ 870	\$ 176	\$ 28,452	\$ 694
90%	1	\$ 975	\$ 144	\$ 831	\$ 831
Grand Total	5,030	\$ 925	\$ 720	\$ 1,033,286	\$ 205

Table B9. 2018 Detail by Post-Discount Energy Burden for Sampled Population

Energy Burden	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Discounts Provided	Average PIP Discount
1%	10	\$ 301	\$ 301	\$ -	\$ -
2%	150	\$ 571	\$ 571	\$ -	\$ -
3%	412	\$ 713	\$ 713	\$ -	\$ -
4%	590	\$ 755	\$ 755	\$ -	\$ -
5%	672	\$ 835	\$ 835	\$ -	\$ -
6%	2,965	\$ 984	\$ 698	\$ 847,827	\$ 286
> 6%	231	\$ 1,507	\$ 704	\$ 185,459	\$ 803
Grand Total	5,030	\$ 925	\$ 720	\$ 1,033,286	\$ 205

Cost Estimate #2 - Calendar Year 2018**Table B10. 2018 Average Discount by Household Size and Federal Poverty Level**

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	\$ 483	\$ 296	\$ 117	\$ 235
2	\$ 461	\$ 248	\$ 84	\$ 182
3	\$ 425	\$ 184	\$ 59	\$ 185
4	\$ 454	\$ 123	\$ 22	\$ 157
5	\$ 403	\$ 106	\$ 40	\$ 156
6	\$ 274	\$ 149	\$ 36	\$ 138
7	\$ 373	\$ 19	\$ 78	\$ 183
8	\$ 284	\$ -	\$ -	\$ 95
9	\$ 285	\$ -	\$ -	\$ 190
10	\$ -	\$ -	\$ -	\$ -
11	\$ 520	\$ -	\$ -	\$ 520
All Households	\$ 435	\$ 252	\$ 90	\$ 205

Table B11. 2018 Number of Customers Sampled by Household Size and Federal Poverty Level

Household Size	Federal Poverty Level			
	0-50%	51-100%	101-150%	All Tiers
1	95	1,504	972	2,571
2	66	475	509	1,050
3	122	226	233	581
4	89	203	144	436
5	55	106	71	232
6	18	47	29	94
7	19	13	14	46
8	3	4	2	9
9	4	0	2	6
10	0	1	2	3
11	2	0	0	2
All Households	473	2,579	1,978	5,030

Cost Estimate #2 - Calendar Year 2018

Table B12. 2018 Summary of the "Lessor Of" Calculation for the Sample Population

Lessor Of	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	PIP CAP Discount	Average PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
6% Energy Burden¹								
6.0%	2,651	\$ 998	\$ 678	\$ 847,827	\$ 320	\$ 850	\$ 390,428	\$ 147
> 6.0%	231	\$ 1,507	\$ 704	\$ 185,459	\$ 803	\$ 1,176	\$ 76,423	\$ 331
Subtotal	2,882	\$ 1,038	\$ 680	\$ 1,033,286	\$ 359	\$ 876	\$ 466,850	\$ 162
Average Bill²								
1.0%	10	\$ 301	\$ 301	\$ -	\$ -	\$ 271	\$ 302	\$ 30
2.0%	150	\$ 571	\$ 571	\$ -	\$ -	\$ 512	\$ 8,725	\$ 58
3.0%	412	\$ 713	\$ 713	\$ -	\$ -	\$ 639	\$ 30,221	\$ 73
4.0%	590	\$ 755	\$ 755	\$ -	\$ -	\$ 676	\$ 46,665	\$ 79
5.0%	672	\$ 835	\$ 835	\$ -	\$ -	\$ 746	\$ 59,815	\$ 89
6.0%	314	\$ 868	\$ 868	\$ -	\$ -	\$ 772	\$ 29,945	\$ 95
Subtotal	2,148	\$ 773	\$ 773	\$ -	\$ -	\$ 691	\$ 175,672	\$ 82
Grand Total	5,030	\$ 925	\$ 720	\$ 1,033,286	\$ 205	\$ 797	\$ 642,522	\$ 128

¹ - These are customers that required discounts in order to reduce their energy burden to 6%. In this scenario, the minimum charge and CAP credit limit requirements cause energy burdens to ultimately exceed 6%.

² - These are customers with energy burdens already at or below 6%. They currently receive discounts under NFG's LIRA program but would not receive discounts under the PUC's hypothetical PIP plan.

Table B13. 2018 Comparison of PIP CAP Bills to LIRA Bills for Sample Population

Comparison	Number of Customers	Average Bill at Tariff Rates	Average PIP CAP Bill	Average PIP CAP Discount	PIP CAP Discount	Average NFG LIRA Bill	LIRA Discounts	Average LIRA Discount
PIP Bill < LIRA Bill	2,378	\$ 1,078	\$ 659	\$ 996,741	\$ 419	\$ 908	\$ 404,419	\$ 170
PIP Bill > LIRA Bill	2,652	\$ 788	\$ 774	\$ 36,545	\$ 14	\$ 698	\$ 238,104	\$ 90
Grand Total	5,030	\$ 925	\$ 720	\$ 1,033,286	\$ 205	\$ 797	\$ 642,522	\$ 128

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Estimated Impact of Enrollments

	2016		2017		2018		2019		2020		2021	
Average LIRA Discount	\$75		\$98		\$130		\$133		\$127		\$124	
Avg. Arrearage Forgiveness	\$56		\$44		\$54		\$54		\$54		\$54	
Total Average Cost/Participant	\$131		\$142		\$184		\$187		\$181		\$178	
Incremental Enrollment	8,694	\$ 1,141,880	8,081	\$ 1,147,285	8,389	\$ 1,546,813	9,000	\$ 1,682,925	9,000	\$ 1,626,425	9,000	\$ 1,602,571
100	8,794	\$ 1,155,014	8,181	\$ 1,161,482	8,489	\$ 1,565,252	9,100	\$ 1,701,624	9,100	\$ 1,644,497	9,100	\$ 1,620,378
200	8,894	\$ 1,168,148	8,281	\$ 1,175,679	8,589	\$ 1,583,690	9,200	\$ 1,720,324	9,200	\$ 1,662,568	9,200	\$ 1,638,184
300	8,994	\$ 1,181,282	8,381	\$ 1,189,877	8,689	\$ 1,602,129	9,300	\$ 1,739,023	9,300	\$ 1,680,640	9,300	\$ 1,655,990
400	9,094	\$ 1,194,416	8,481	\$ 1,204,074	8,789	\$ 1,620,567	9,400	\$ 1,757,722	9,400	\$ 1,698,711	9,400	\$ 1,673,797
500	9,194	\$ 1,207,550	8,581	\$ 1,218,271	8,889	\$ 1,639,006	9,500	\$ 1,776,421	9,500	\$ 1,716,782	9,500	\$ 1,691,603
600	9,294	\$ 1,220,684	8,681	\$ 1,232,469	8,989	\$ 1,657,445	9,600	\$ 1,795,120	9,600	\$ 1,734,854	9,600	\$ 1,709,410
700	9,394	\$ 1,233,818	8,781	\$ 1,246,666	9,089	\$ 1,675,883	9,700	\$ 1,813,819	9,700	\$ 1,752,925	9,700	\$ 1,727,216
800	9,494	\$ 1,246,953	8,881	\$ 1,260,863	9,189	\$ 1,694,322	9,800	\$ 1,832,519	9,800	\$ 1,770,997	9,800	\$ 1,745,022
900	9,594	\$ 1,260,087	8,981	\$ 1,275,060	9,289	\$ 1,712,760	9,900	\$ 1,851,218	9,900	\$ 1,789,068	9,900	\$ 1,762,829
1,000	9,694	\$ 1,273,221	9,081	\$ 1,289,258	9,389	\$ 1,731,199	10,000	\$ 1,869,917	10,000	\$ 1,807,139	10,000	\$ 1,780,635
1,100	9,794	\$ 1,286,355	9,181	\$ 1,303,455	9,489	\$ 1,749,638	10,100	\$ 1,888,616	10,100	\$ 1,825,211	10,100	\$ 1,798,441
1,200	9,894	\$ 1,299,489	9,281	\$ 1,317,652	9,589	\$ 1,768,076	10,200	\$ 1,907,315	10,200	\$ 1,843,282	10,200	\$ 1,816,248
1,300	9,994	\$ 1,312,623	9,381	\$ 1,331,850	9,689	\$ 1,786,515	10,300	\$ 1,926,014	10,300	\$ 1,861,353	10,300	\$ 1,834,054
1,400	10,094	\$ 1,325,757	9,481	\$ 1,346,047	9,789	\$ 1,804,953	10,400	\$ 1,944,714	10,400	\$ 1,879,425	10,400	\$ 1,851,860
1,500	10,194	\$ 1,338,891	9,581	\$ 1,360,244	9,889	\$ 1,823,392	10,500	\$ 1,963,413	10,500	\$ 1,897,496	10,500	\$ 1,869,667
1,600	10,294	\$ 1,352,025	9,681	\$ 1,374,442	9,989	\$ 1,841,830	10,600	\$ 1,982,112	10,600	\$ 1,915,568	10,600	\$ 1,887,473
1,700	10,394	\$ 1,365,160	9,781	\$ 1,388,639	10,089	\$ 1,860,269	10,700	\$ 2,000,811	10,700	\$ 1,933,639	10,700	\$ 1,905,279
1,800	10,494	\$ 1,378,294	9,881	\$ 1,402,836	10,189	\$ 1,878,708	10,800	\$ 2,019,510	10,800	\$ 1,951,710	10,800	\$ 1,923,086
1,900	10,594	\$ 1,391,428	9,981	\$ 1,417,034	10,289	\$ 1,897,146	10,900	\$ 2,038,209	10,900	\$ 1,969,782	10,900	\$ 1,940,892
2,000	10,694	\$ 1,404,562	10,081	\$ 1,431,231	10,389	\$ 1,915,585	11,000	\$ 2,056,909	11,000	\$ 1,987,853	11,000	\$ 1,958,698
2,100	10,794	\$ 1,417,696	10,181	\$ 1,445,428	10,489	\$ 1,934,023	11,100	\$ 2,075,608	11,100	\$ 2,005,925	11,100	\$ 1,976,505
2,200	10,894	\$ 1,430,830	10,281	\$ 1,459,625	10,589	\$ 1,952,462	11,200	\$ 2,094,307	11,200	\$ 2,023,996	11,200	\$ 1,994,311
2,300	10,994	\$ 1,443,964	10,381	\$ 1,473,823	10,689	\$ 1,970,901	11,300	\$ 2,113,006	11,300	\$ 2,042,067	11,300	\$ 2,012,117
2,400	11,094	\$ 1,457,098	10,481	\$ 1,488,020	10,789	\$ 1,989,339	11,400	\$ 2,131,705	11,400	\$ 2,060,139	11,400	\$ 2,029,924
2,500	11,194	\$ 1,470,232	10,581	\$ 1,502,217	10,889	\$ 2,007,778	11,500	\$ 2,150,404	11,500	\$ 2,078,210	11,500	\$ 2,047,730
3,000	11,694	\$ 1,535,903	11,081	\$ 1,573,204	11,389	\$ 2,099,971	12,000	\$ 2,243,900	12,000	\$ 2,168,567	12,000	\$ 2,136,762
5,000	13,694	\$ 1,798,585	13,081	\$ 1,857,150	13,389	\$ 2,468,742	14,000	\$ 2,617,884	14,000	\$ 2,529,995	14,000	\$ 2,492,889
10,000	18,694	\$ 2,455,291	18,081	\$ 2,567,016	18,389	\$ 3,390,672	19,000	\$ 3,552,842	19,000	\$ 3,433,565	19,000	\$ 3,383,206

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CAP Customers Claiming Zero Income

	2016	2017	2018
January	100	181	261
February	117	151	275
March	134	147	248
April	115	165	229
May	142	159	220
June	160	180	249
July	163	194	262
August	143	249	293
September	128	261	312
October	128	244	307
November	155	228	211
December	172	238	192
Average	138	200	255

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CAP Bills Rendered By Month

	<u>2016</u>	<u>2017</u>	<u>2018</u>
January	9,271	8,254	8,373
February	9,194	8,212	8,487
March	9,133	8,098	8,583
April	9,098	8,088	8,652
May	8,812	8,023	8,653
June	8,663	8,084	8,682
July	8,611	8,062	8,549
August	8,579	8,131	8,486
September	8,446	7,880	8,130
October	8,296	7,948	8,106
November	8,135	8,089	8,030
December	8,087	8,103	7,937
Average	<u>8,694</u>	<u>8,081</u>	<u>8,389</u>