



ATTORNEYS & COUNSELORS AT LAW EST. 1884

One Tampa City Center, Suite 2000
201 N. Franklin Street
P.O. Box 1531 (33601)
Tampa, FL 33602
813.273.4200 Fax: 813.273.4396

WWW.MFMLEGAL.COM
EMAIL: INFO@MFMLEGAL.COM

625 Court Street, Suite 200
P.O. Box 1669 (33757)
Clearwater, FL 33756
727.441.8966 Fax: 727.442.8470

In Reply Refer to:
Tampa
ab@macfar.com

February 14, 2019

VIA E-PORTAL FILING

Ms. Carlotta S. Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket No. 20180186-GU- Petition for approval of demand side management goals and residential customer assisted and commercial walk-through energy audit programs, by Peoples Gas System

Dear Ms. Stauffer:

Attached for electronic filing in the above docket on behalf of Peoples Gas System, please find its Response to Staff's Second Data Request (Nos. 1-5).

Your assistance in this matter is greatly appreciated.

Sincerely,

Andrew M. Brown

AB/plb
Attachment
cc:

Douglas Wright, Engineering Specialist, Florida Public Service Commission
Mr. Mark R. Roche
Ansley Watson, Jr., Esq.

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 1
BATES STAMPED PAGE: 1
FILED: FEBRUARY 15, 2019**

Please refer to Exhibit "A" of Peoples Gas System's (PGS) petition.

1. Please refer to Bates Stamp Page (BSP) 68. For each currently Commission-approved DSM Program, please identify the docket in which it was originally approved.
- A.** On Bates Stamp Page ("BSP") 68, Peoples Gas System is showing the detailed measures that make up the Achievable Potential from within the current Commission approved Demand Side Management ("DSM") programs the company offers. Peoples Gas System received the original approval for each of the currently Commission approved DSM programs below in the following dockets:

DSM Program	Original Docket Approving DSM Program
New Residential Construction	19900089-EG
Residential Appliance Retention	19900089-EG
Residential Appliance Replacement	19900089-EG
Commercial New Construction	20130167-EG
Commercial Retention	20130167-EG
Commercial Replacement	20130167-EG
Commercial Electric Replacement	19900089-EG
Gas Space Conditioning	19900089-EG
Oil Heat Replacement	19900089-EG
Small Package Cogeneration	19900089-EG
Monitoring and Research	19900089-EG
Conservation Demonstration and Development	19900089-EG

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 2
BATES STAMPED PAGES: 2 - 3
FILED: FEBRUARY 15, 2019**

2. Please refer to BSP 26-66 and 69-77. Please explain why the baseline efficiencies in the Technical Potential differ from those in the Achievable Potential for the measures/programs found in the table below. Also, please explain why the Commercial Boiler program does not have an associated TP measure.

Measure/Program	Baseline Efficiency	
	Technical Potential	Achievable Potential
Residential Water Heater	0.63	0.59
Residential Tankless Water Heater	0.81	0.63
Commercial Dryer	2.30	3.00
Commercial Tankless Water Heater (All Variants)	0.81	0.80
Commercial Boiler	N/A	0.80

- A. Peoples Gas System utilized appliance standards and building codes for the establishment of baseline efficiencies for the technical potential. The company utilized appliance standards, building codes and the efficiency of available measures for the achievable potential. The technical potential is a theoretical construct where assumptions are based upon the technical feasibility of the equipment being installed. The achievable potential brings into reality of what is happening and available in the marketplace to set what the company will see in the form of incremental gas savings per installation of the technology.

Residential Water Heaters: The technical potential utilized an efficiency of 0.63 which is the current minimum appliance federal standard for a standard storage tank gas fired water heater. The achievable potential utilized an average of federal efficiency requirements based upon the size of the residential gas water heaters (0.54 for a 29 gallon unit, 0.58 for a 38 gallon unit and a 0.64 for a 48 gallon unit).

Residential Tankless Water Heaters: The technical potential utilized two assumptions to obtain the efficiencies. The first assumption was that an upgrade occurred from the current standard efficiency of 0.63 which is the current minimum appliance federal standard for storage tank gas fired water heaters. The second assumption was that a replacement occurred from an older tankless water heater in which the minimum efficiency of these units is 0.81. The achievable potential assumed that the customer would have the choice of installing a standard storage tank gas fired water heater which utilized the efficiency of 0.63.

Commercial Dryer: The technical potential utilized a commercial dryer efficiency of 2.3 lb/kWh which was taken from the June 2018 United States Energy

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 2
BATES STAMPED PAGES: 3 - 3
FILED: FEBRUARY 15, 2019**

Information Administration "Updated Building Sector Appliance Equipment Costs and Efficiencies Report", as there is no appliance efficiency standard for commercial dryers. The achievable potential utilized a baseline efficiency of a slightly weighted average between the 2015 (2.67 lb/kWh) and the 2017 (3.30 lb/kWh) consumer gas clothes dryer federal energy efficiency requirements as there are no appliance standards for commercial dryers.

Commercial Tankless Water Heater (All Variants): The technical potential utilized two assumptions to obtain the efficiencies. The first assumption was that an upgrade occurred from the current standard efficiency of 0.80 which is the current minimum 2017 Florida Building Code for all hot water boilers less than or equal to 2.5 MMBtu/hr. The second assumption was that a replacement occurred from an older tankless water heater in which the minimum efficiency of these units is 0.81. The achievable potential assumed that the customer would have the choice of installing a standard commercial hot water heater which utilized the efficiency of 0.80.

Commercial Boiler: The commercial boiler technical potential would have been overridden by the condensing water heater technical potential. If the company had a separate line item for "commercial boilers" its technical potential would have been omitted due to the efficiency of condensing water heaters overriding it. The achievable potential utilized an efficiency of 0.80 which is the current minimum appliance standard for hot water boilers based upon the 2017 Florida Building Code for all boilers less than or equal to 2.5 MMBtu/hr.

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 3
BATES STAMPED PAGES: 4 - 6
FILED: FEBRUARY 15, 2019**

Please refer to PGS' response to Staffs First Data Request.

3. Please refer to the response to Question No. 4, pages 4-6.
- a. Please identify all the "trend variables," "binary variables," and "assumptions" discussed on page 4, second paragraph, with an explanation of why they were used. Please also specify the data source of those independent variables.
 - b. Please identify all the assumptions used in the therms-per-customer model, as well as the criteria used in the reasonableness and consistency review of "each assumption and result" referred to at the top of page 5.
 - c. Please define and explain the "company's regression model tools" discussed on page 5, second paragraph, and comment on why they were used instead of the "Itron's MetrixND forecasting tool" discussed on page 4, first paragraph, for the customer and therm forecasts for large commercial and industrial customers.
 - d. Please refer to page 6, second paragraph, please describe how the "forecasted customer count" is derived and explain how it relates to the "number of customers" discussed on page 4, second paragraph.
- A. a. The primary independent variable, or assumption, used in the customer models is population growth. Customer growth for most divisions correlate well with population growth, which makes population projections a very reasonable explanatory variable. The source of this data is the University of Florida's Bureau of Economic and Business Research.

Other assumptions used are trend variables and binary variables. A trend variable is a time-trend which increments by 1 through time. It is used to capture changes or trends that are not explained by the other independent variables. For a division that does not correlate well with the population variable, a trend variable will be substituted. It can also be used in addition to the population variable.

Binary variables are used to indicate the absence or presence of some effect that may shift the outcome, they simply take on a value of 0 or 1. In the customer models, binary variables are used to get a different coefficient for each month to capture seasonality. For example, customer counts fluctuate throughout the year due to temporary residency related to vacation homes or

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 3
BATES STAMPED PAGES: 5 - 6
FILED: FEBRUARY 15, 2019**

seasonal jobs, the binary variables capture these trends. In addition, a binary variable is used to isolate one-time events such as bad billing data or hurricane outages, so the event does not impact the outcome of the other explanatory variables. Binary variables are also used when there is a structural change in the data series being forecasted. For example, if a portion of one division is redefined as part of another division, the drop in customer counts for one division and increase in customers for the other division can be captured with a binary variable ("0" before the migration and "1" after the migration). This variable captures the one-time shift without impacting the other explanatory variables.

- b. The primary independent variables, or assumption, used in the therm-per-customer models are heating and cooling degree days. These variables correlate historical therm consumption with historical weather and then apply this correlation to normal weather (20 year-average) over the forecast horizon. All divisions use the heating degree variable; however, several divisions also use the cooling degree day variable.

Trend and binary variables are used in the therm-per-customer models for the same reasons described in the response to 3a above. They capture trends and one-time events that the heating and cooling variables do not capture.

A variety of measures and/or criteria are used to ensure the reasonableness of the assumptions/explanatory variables. Measures of statistical fit are reviewed for reasonableness and significance. Some of these measures are listed below. These statistics help identify issues such as multicollinearity (variables interfering with each other), serial correlation and/or heteroscedasticity (patterns in the error which may indicate a missing explanatory variable). Models and/or variables such as trend and binary are used as needed to correct for these issues so that explanatory power is maximized.

Model Statistics:

- R-squared
- T-Statistic
- Mean Absolute Percent Errors (MAPE)
- Durbin-Watson Statistic

In addition to the checks above, the reasonableness and consistency of the forecast results for customers and therms-per-customers are determined by a reviewing the projected monthly seasonality for consistency with historical monthly seasonality. In addition, projected growth trends are compared to historical growth trends to make sure they align and look reasonable.

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 3
BATES STAMPED PAGES: 6 - 6
FILED: FEBRUARY 15, 2019**

- c. The “company’s regression model tools” is referring to Itron’s MetrixND forecasting tool. The statement on page 5 states “The customer and their forecasts for large commercial and industrial customers are conducted exogenously from the company’s regression model tools”. The forecasts for large commercial and industrial customers are done individually based on historical usage patterns and therefore do not require regression methods.
- d. The “forecasted customer count” is derived as described in the answer to Staff’s First Data Request No. 4a, in paragraph 2.

The “forecasted customer count” and the “number of customers” represent the same thing. The only difference is the number of customers discussed on page 4, second paragraph, is referring to the actual (historical) number of customers versus a forecast of number of customers.

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 4
BATES STAMPED PAGE: 7
FILED: FEBRUARY 15, 2019**

4. Please refer to the response to Question No. 6, page 8.
 - a. Please explain if the count of 62 industrial customers includes any commercial customers under special contracts.
 - b. Please explain if commercial customers under special contracts are included in the count of total commercial customers.
- A.
 - a. Yes, the count of 62 industrial customers includes a rate GS2 special contract commercial customer.
 - b. No special contract commercial customers are included in the commercial customer count of 38,225.

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 8 - 35
FILED: FEBRUARY 15, 2019**

5. Please refer to the response to Question No. 9, page 67. Please verify that the savings attributed to measures in the Technical Potential were calculated appropriately. Please provide the calculations supporting any corrected savings in Microsoft Excel format with formulas intact and, if necessary, a revised petition reflecting the changes.
- A. Peoples Gas System is correcting the measures listed below by utilizing an absolute savings value rather than the percentage of savings value, to derive the technical potential for those measures and the achievable potential for the applicable individual measures. The company does not view this change as necessitating a revised petition to correct these calculations. The total impact to the technical potential was an increase of 3.90 percent. The total impact to the achievable potential is an increase of 31.8 percent due to the heavy projected participation in the company's residential programs that include water heating. Peoples Gas System is resubmitting the revised Excel workbook, now titled "(BS_35) Revised PGS Goals Tables updated February 2019.xlsx," that was provided in response to the Staff's First Data Request No. 9. In addition to the revision of the assumptions made for the measures, Peoples Gas System is providing below revisions to Staff's First Data Request Nos. 8b, 13 and 14 that were filed on January 14, 2019 in this proceeding.
- Residential condensing water heater
 - Residential tankless water heater
 - Residential ENERGY STAR water heater
 - Commercial boiler
 - Commercial condensing water heater
 - Commercial tankless water heater
 - Commercial ENERGY STAR water heater
 - Industrial condensing water heater
 - Industrial tankless water heater
 - Industrial ENERGY STAR water heater
 - Industrial boiler advanced controls
 - Industrial boiler combustion air preheat

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 9 - 35
FILED: FEBRUARY 15, 2019

Measure assumption revisions for the Achievable Potential.

Residential Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	10

Baseline Efficiency	0.59
New Efficiency	0.62
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	4.148

Residential Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	10

Baseline Efficiency	0.59
New Efficiency	0.62
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	7.030

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 10 - 35
FILED: FEBRUARY 15, 2019

Residential Tankless Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.63
New Efficiency	0.81
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	19.412

Residential Tankless Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.63
New Efficiency	0.81
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	30.813

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 11 - 35
FILED: FEBRUARY 15, 2019

Residential High Energy Efficiency Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	13

Baseline Efficiency	0.63
New Efficiency	0.66
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	3.897

Residential High Energy Efficiency Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	13

Baseline Efficiency	0.63
New Efficiency	0.66
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	6.185

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 12 - 35
FILED: FEBRUARY 15, 2019

Commercial Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	15

Baseline Efficiency	0.80
New Efficiency	0.82
Base Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	107.978

Commercial Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	15

Baseline Efficiency	0.80
New Efficiency	0.82
Base Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	131.680

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 13 - 35
FILED: FEBRUARY 15, 2019

Commercial Tankless Water Heater – Small Non-Food (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	95
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	20.500

Commercial Tankless Water Heater – Small Non-Food (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	95
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	22.795

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 14 - 35
FILED: FEBRUARY 15, 2019

Commercial Tankless Water Heater – Large Non-Food (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	501
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	108.240

Commercial Tankless Water Heater – Large Non-Food (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	501
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	120.215

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 15 - 35
FILED: FEBRUARY 15, 2019

Commercial Tankless Water Heater – Food (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	2,216
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	478.470

Commercial Tankless Water Heater – Food (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	2,216
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	531.730

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 16 - 35
FILED: FEBRUARY 15, 2019

Commercial Tankless Water Heater – Hospitality (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	3,319
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	716.680

Commercial Tankless Water Heater – Hospitality (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	3,319
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	796.395

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 17 - 35
FILED: FEBRUARY 15, 2019

Commercial Tankless Water Heater – Cleaning (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	1,609
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	347.475

Commercial Tankless Water Heater – Cleaning (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20

Baseline Efficiency	0.80
New Efficiency	0.90
Base Gallons per Day (Gallons)	1,609
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	386.080

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 18 - 35
FILED: FEBRUARY 15, 2019

Commercial Boiler (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	10

Baseline Efficiency	0.80
New Efficiency	0.85
Base Gallons per Day (Gallons)	2,500
Delta T (Degrees)	68
Savings per Premise (Therms)	254.065

Commercial Boiler (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	10

Baseline Efficiency	0.80
New Efficiency	0.85
Base Gallons per Day (Gallons)	2,500
Delta T (Degrees)	68
Savings per Premise (Therms)	317.581

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 19 - 35
FILED: FEBRUARY 15, 2019**

**Measure assumption Revisions to Staff's First Data Request No. 8b
(Technical Potential).**

Residential Condensing Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	13
Applicable Population	120,801

Baseline Efficiency of Tank	0.63
New Efficiency of Tank	0.95
Baseline Efficiency of Tankless	0.81
New Efficiency of Tankless	0.95
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise from Tank (Therms)	28.875
Savings per Premise from Tankless (Therms)	4.512

Residential Condensing Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	13
Applicable Population	120,801

Baseline Efficiency of Tank	0.63
New Efficiency of Tank	0.95
Baseline Efficiency of Tankless	0.81
New Efficiency of Tankless	0.95
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise from Tank (Therms)	45.834
Savings per Premise from Tankless (Therms)	5.013

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 20 - 35
FILED: FEBRUARY 15, 2019**

Residential Tankless Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20
Applicable Population	44,290

Baseline Efficiency of Tank	0.63
New Efficiency of Tank	0.90
Baseline Efficiency of Tankless	0.81
New Efficiency of Tankless	0.90
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise from Tank (Therms)	25.717
Savings per Premise from Tankless (Therms)	8.572

Residential Tankless Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20
Applicable Population	44,290

Baseline Efficiency of Tank	0.63
New Efficiency of Tank	0.90
Baseline Efficiency of Tankless	0.81
New Efficiency of Tankless	0.90
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise from Tank (Therms)	40.821
Savings per Premise from Tankless (Therms)	10.583

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 21 - 35
FILED: FEBRUARY 15, 2019

Residential Energy Star Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	13
Applicable Population	132,616

Baseline Efficiency	0.63
New Efficiency	0.66
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	3.897

Residential Energy Star Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	13
Applicable Population	132,616

Baseline Efficiency	0.63
New Efficiency	0.66
Base Gallons per Day (Gallons)	34.15
Average Number of People	2.58
Delta T (Degrees)	32
Savings per Premise (Therms)	6.185

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 22 - 35
FILED: FEBRUARY 15, 2019**

Commercial Condensing Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	15
Applicable Segments	All Commercial Segments
Applicable Population	37,330

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.95
Baseline Efficiency (Tankless)	0.90
New Efficiency (Tankless)	0.90
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Tank) (Therms)	681.964
Savings per Premise (Tankless) (Therms)	227.321

Commercial Condensing Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	15
Applicable Segments	All Commercial Segments
Applicable Population	37,330

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.95
Baseline Efficiency (Tankless)	0.90
New Efficiency (Tankless)	0.90
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Tank) (Therms)	852.455
Savings per Premise (Tankless) (Therms)	252.579

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 23 - 35
FILED: FEBRUARY 15, 2019**

Commercial Tankless Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20
Applicable Segments	All Commercial Segments
Applicable Population (Tankless)	37,330

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.95
Baseline Efficiency (Tankless)	0.81
New Efficiency (Tankless)	0.90
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Tank) (Therms)	479.901
Savings per Premise (Tankless) (Therms)	431.911

Commercial Tankless Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20
Applicable Segments	All Commercial Segments
Applicable Population (Tankless)	37,330

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.95
Baseline Efficiency (Tankless)	0.81
New Efficiency (Tankless)	0.90
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Tank) (Therms)	599.876
Savings per Premise (Tankless) (Therms)	533.223

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 24 - 35
FILED: FEBRUARY 15, 2019**

Commercial Energy Star Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	15
Applicable Segments	All Commercial Segments
Applicable Population	37,031

Baseline Efficiency	0.80
New Efficiency	0.93
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	603.746

Commercial Energy Star Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	15
Applicable Segments	All Commercial Segments
Applicable Population	37,031

Baseline Efficiency	0.80
New Efficiency	0.93
Baseline Gallons per Day (Gallons)	2,500
Days in Year	305
Delta T (Degrees)	68
Savings per Premise (Therms)	754.862

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 25 - 35
FILED: FEBRUARY 15, 2019**

Industrial Condensing Boiler/Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	10
Applicable Population	29

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.90
Baseline Efficiency (Tankless)	0.90
New Efficiency (Tankless)	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	140
Savings per Premise with Tank (Therms)	49,735
Savings per Premise with Tankless (Therms)	16,578

Industrial Condensing Boiler/Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	10
Applicable Population	29

Baseline Efficiency (Tank)	0.80
New Efficiency (Tank)	0.90
Baseline Efficiency (Tankless)	0.90
New Efficiency (Tankless)	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	140
Savings per Premise with Tank (Therms)	62,169
Savings per Premise with Tankless (Therms)	18,421

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 26 - 35
FILED: FEBRUARY 15, 2019

Industrial Tankless Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	20
Applicable Population	28

Baseline Efficiency	0.80
New Efficiency	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	68
Savings per Premise (Therms)	16,999

Industrial Tankless Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	20
Applicable Population	28

Baseline Efficiency	0.80
New Efficiency	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	68
Savings per Premise (Therms)	21,249

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 27 - 35
FILED: FEBRUARY 15, 2019

Industrial Energy Star Water Heater (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	15
Applicable Population	28

Baseline Efficiency	0.80
New Efficiency	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	68
Savings per Premise (Therms)	24,157

Industrial Energy Star Water Heater (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	15
Applicable Population	28

Baseline Efficiency	0.80
New Efficiency	0.95
Baseline Gallons per Day (Gallons)	74,000
Delta T (Degrees)	68
Savings per Premise (Therms)	30,196

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 28 - 35
FILED: FEBRUARY 15, 2019

Industrial Boiler Advanced Controls (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	11
Applicable Population	28

Baseline Combined Efficiency	0.78
New Combined Efficiency	0.81
Baseline Gallons per Day (Gallons)	74,000
Baseline Stack Temperature Rise (Degrees)	500
Savings per Premise (Therms)	14,777

Industrial Boiler Advanced Controls (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	11
Applicable Population	28

Baseline Combined Efficiency	0.78
New Combined Efficiency	0.81
Baseline Gallons per Day (Gallons)	74,000
Baseline Stack Temperature Rise (Degrees)	500
Savings per Premise (Therms)	19,142

PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 29 - 35
FILED: FEBRUARY 15, 2019

Industrial Boiler Combustion Air Preheat (Original)

Measure Data:

Date Performed	August, September 2018
Equipment Life (Years)	25
Applicable Population	28

Baseline Combustion Efficiency	0.77
New Combined Efficiency	0.84
Baseline Gallons per Day (Gallons)	74,000
Baseline Stack Temperature Rise (Degrees)	500
Savings per Premise (Therms)	12,385

Industrial Boiler Combustion Air Preheat (New)

Measure Data:

Date Performed	February 2019
Equipment Life (Years)	25
Applicable Population	28

Baseline Combustion Efficiency	0.77
New Combined Efficiency	0.84
Baseline Gallons per Day (Gallons)	74,000
Baseline Stack Temperature Rise (Degrees)	500
Savings per Premise (Therms)	16,043

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 30 - 35
FILED: FEBRUARY 15, 2019**

Revisions to Staff's First Data Request No. 13a.

Original Peoples Gas System 2019 Base Year Technical Potential in Therms	
Residential	58,560,018
Commercial	142,744,289
Total	201,304,306

Modified Peoples Gas System 2019 Base Year Technical Potential in Therms	
Residential	60,134,211
Commercial	149,021,432
Total	209,155,644

Original Peoples Gas System Technical Potential (Residential)	
Cooking	1,207,594
HVAC	16,868,459
Laundry	606,440
Pool Heating	7,456,278
Water Heating	32,42,247
Total	58,560,018

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 31 - 35
FILED: FEBRUARY 15, 2019**

Modified Peoples Gas System Technical Potential (Residential)	
Cooking	1,207,594
HVAC	16,868,459
Laundry	606,440
Pool Heating	7,456,278
Water Heating	33,995,441
Total	60,134,211

Original Peoples Gas System Technical Potential (Commercial)	
Cooking	11,941,119
HVAC	8,858,540
Laundry	482,178
Water Heating	121,462,452
Total	142,744,289

Modified Peoples Gas System Technical Potential (Commercial)	
Cooking	11,941,119
HVAC	8,858,540
Laundry	482,178
Water Heating	127,739,595
Total	149,021,432

Revisions to Staff's First Data Request No. 13b.

The composition of these natural gas fired cogeneration and interruptible customers which were removed from the applicable population toward the Achievable Potential is included in Response No 7. D this set. The projected energy usage this group of customers separated by rate class is included in the Microsoft Excel sheet with formulas intact on the accompanying CD under the tab titled "2019 Load and Cust forecast". The Technical Potential performed does not

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 32 - 35
FILED: FEBRUARY 15, 2019**

look at each customer as a separate customer, it looks at the customer segment as a collective group of customers. The Technical Potential for that portion of energy savings that was removed, due to their ineligibility to participate in the company's DSM programs could be divided by the total customers that are in that segment to obtain an average Technical Potential savings. Performing this calculation yields a result of 3,980,789 Therms per customer.

The composition of these natural gas fired cogeneration and interruptible customers which were removed from the applicable population toward the Achievable Potential is included in Response No 7. D this set. The projected energy usage this group of customers separated by rate class is included in the Microsoft Excel sheet with formulas intact on the accompanying CD under the tab titled "2019 Load and Cust forecast". The Technical Potential performed does not look at each customer as a separate customer, it looks at the customer segment as a collective group of customers. The Technical Potential for that portion of energy savings that was removed, due to their ineligibility to participate in the company's DSM programs could be divided by the total customers that are in that segment to obtain an average Technical Potential savings. Performing this calculation yields a result of 3,988,888 Therms per customer.

Revisions to Staff's First Data Request No. 14.

Original Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Residential	2,479,682

Modified Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Residential	3,749,583

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 33 - 35
FILED: FEBRUARY 15, 2019**

Original Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Commercial	2,205,988

Modified Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Commercial	2,426,634

Original Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Industrial	0

Modified Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Industrial	0

Original Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Combined	4,685,670

**PEOPLES GAS SYSTEM
DOCKET NO. 20180186-GU
STAFF'S SECOND DATA REQUEST
REQUEST NO. 5
BATES STAMPED PAGES: 34 - 35
FILED: FEBRUARY 15, 2019**

Modified Peoples Gas System 2019-2028 Achievable Potential	
	Energy (Therms)
Combined	6,176,217