



December 28, 2020

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
North Office Building
Harrisburg, Pennsylvania 17105-3265

Re: National Fuel Gas Distribution Corporation
Delta Fund for Research and Development Projects Report

Dear Secretary Chiavetta;

Pursuant to R-00061493 Settlement paragraph 18 A.3 "Distribution will file with the Commission and serve upon other Parties on or before December 31 an annual report for the preceding twelve month period ended September 30, setting forth revenues for the Delta Fund for research and development projects and expenditures for such projects. In addition, Distribution will describe in the annual report projects that have been funded". The enclosed report is submitted under this settlement agreement.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Robert D. Eck".

Robert D. Eck
General Manager
Energy Services Department

Encl.

Cc: Office of Special Assistants (E-Mail)
Office of Consumer Advocate (E-Mail)
Office of Small Business Advocate (E-Mail)

The provisions of R-00061493 Settlement paragraph 18 A.3 were adopted on November 30, 2006 and effective January 1, 2007. Paragraph 18 A.3 states:

“3. The Joint Petitioners agree to \$526,466 to fund the Delta research and development program pursuant to the Statement of Scott E. Swartzfager No. 14. The deferral treatment and review process outlined in R-00049656 will continue. The company will not expend these dollars on additional customer outreach for enhanced energy efficiency.

Distribution will be permitted to record a regulatory asset or liability for differences between the annual rate allowance and annual expenditures. However, Distribution will not be permitted to retroactively recover in a future proceeding any expenditures in excess of the annual rate allowance and any deferred balance from the previous year’s Delta funding. Distribution will provide for review of research projects as described in its testimony. In order to implement this Settlement, the Joint Petitioners request that the Commission’s Final Order in this proceeding include the following language to allow Distribution to qualify for deferred accounting under SFAS 71:

“National Fuel Gas Distribution Corporation’s accounting policies conform to the Statement of Financial Accounting Standards No. 71 ‘Accounting for the Effect of Certain Type of Regulations’ which are in accordance with the accounting requirements and ratemaking practices of regulatory authorities. The application of these accounting policies allows the Company to defer expenses and income on the balance sheet as regulatory assets and liabilities when it is probable that those expenses and income will be allowed in the rate-setting process in a period different from the period in which they would have been reflected in the income statement by an unregulated Company.

“Because research and development projects often require a commitment over multiple years and because the expenditures for such projects may not match on an annual basis revenues for funding of research and development projects, deferred accounting is appropriate and is approved. The regulatory deferral treatment sought for the Research and Development expenditures and rate relief requested in the case are in accordance with SFAS No. 71.

“The Company will manage the costs of the Research and Development expenditures to match revenues deferred pursuant to this Order to eliminate any differences between deferred costs and deferred revenues at the end of a five-year period commencing on the day after the R-00049656 Order was entered.”

Distribution will file with the Commission and serve upon other Parties on or before December 31 an annual report for the preceding twelve month period ended September 30, setting forth revenues for the Delta Fund for research and development projects and expenditures for such projects. In addition, Distribution will describe in the annual report projects that have been funded.”

The provisions of R-00049656 Settlement paragraph 44 were adopted on March 23, 2005 and effective April 15, 2005. Paragraph 44 states:

"44. Distribution's proposal to fund the Delta research and development program pursuant to the Supplemental Statement of Ruth Friedrich-Alf No. 102 S2 is approved. Increased rates in this proceeding provide for recovery of \$526,466 in Delta research funds. Distribution will be permitted to record a regulatory asset or liability for differences between the annual rate allowance and annual expenditures. However, Distribution will not be permitted to retroactively recover in a future proceeding any expenditures in excess of the annual rate allowance and any deferred balance from the previous year's Delta funding. Distribution will provide for review of research projects as described in its testimony. In order to implement this agreement, the Parties request that the Commission's Final Order in this proceeding include the following language to allow Distribution to qualify for deferred accounting under SFAS 71:

'National Fuel Gas Distribution Corporation's accounting policies conform to the Statement of Financial Accounting Standards No. 71 'Accounting for the Effect of Certain Type of Regulations' which are in accordance with the accounting requirements and ratemaking practices of regulatory authorities. The application of these accounting policies allows the Company to defer expenses and income on the balance sheet as regulatory assets and liabilities when it is probable that those expenses and income will be allowed in the rate-setting process in a period different from the period in which they would have been reflected in the income statement by an unregulated Company.

'Because research and development projects often require a commitment over multiple years and because the expenditures for such projects may not match on an annual basis revenues for funding of research and development projects, deferred accounting is appropriate and is approved. The regulatory deferral treatment sought for the Research and Development expenditures and rate relief requested in the case are in accordance with SFAS No. 71.

'The Company will manage the costs of the Research and Development expenditures to match revenues deferred pursuant to this Order to eliminate any differences between deferred costs and deferred revenues at the end of a five-year period commencing on the day after this Order is entered.'

Distribution will file with the Commission and serve upon other Parties on or before December 31 an annual report for the preceding twelve month period ended September 30, setting forth revenues for the Delta Fund for research and development projects and expenditures for such projects. In addition, Distribution will describe in the annual report projects that have been funded."

As presented in R-00049656 Statement No. 102 (page 15);

“On an annual basis coming off of September 30, a reconciliation of revenues and expenditures with a description of projects funded will be on file on or before December 31 with the Office of Trial Staff, Office of Consumer Advocate and the office of Small Business Advocate. At the fifth reconciliation, Distribution will file a five year report.”

As presented in R-00049656 Statement No. 102 S2 (page 7)

“Annual revenues will be deferred to offset the costs of the Research and Development expenditures (expenses) to both the Gas Technology Institute (“GTI”) fund and local projects.

The Company will manage the cost of the Research and Development expenditures to match revenues deferred pursuant to this Order to eliminate any differences between deferred costs and deferred revenues at the end of a five-year period commencing on the day after this Order is entered.”

It is under these guidelines and agreements that Distribution files the following report for the period ended September 30, 2020.

National Fuel Gas Distribution Corporation
Pennsylvania Division

Annual Filing of Delta Fund Revenues and Expenditures
For the period ended September 30, 2020

Year Ended	Annual		Cumulative		Balance
	Expenditures	Revenues	Expenditures	Revenues	
Sept. 2005	\$92,300	\$113,927	\$92,300	\$113,927	(\$21,627)
Sept. 2006	\$376,800	\$526,466	\$469,100	\$640,393	(\$171,293)
Sept. 2007	\$596,800	\$526,466	\$1,065,900	\$1,166,859	(\$100,959)
Sept. 2008	\$526,493	\$526,466	\$1,592,393	\$1,693,325	(\$100,932)
Sept. 2009	\$376,368	\$526,466	\$1,968,761	\$2,219,791	(\$251,030)
Sept. 2010	\$455,911	\$526,466	\$2,424,672	\$2,746,257	(\$321,585)
Sept. 2011	\$721,800	\$526,466	\$3,146,472	\$3,272,723	(\$126,251)
Sept. 2012	\$280,300	\$526,466	\$3,426,772	\$3,799,189	(\$372,417)
Sept. 2013	\$626,800	\$526,466	\$4,053,572	\$4,325,655	(\$272,083)
Sept. 2014	\$278,891	\$526,466	\$4,332,463	\$4,852,121	(\$519,658)
Sept. 2015	\$276,800	\$526,466	\$4,609,263	\$5,378,587	(\$769,325)
Sept. 2016	\$458,404	\$526,466	\$5,067,667	\$5,905,053	(\$837,386)
Sept. 2017	\$500,530	\$526,466	\$5,568,197	\$6,431,519	(\$863,322)
Sept. 2018	\$362,547	\$526,466	\$5,930,744	\$6,957,985	(\$1,027,241)
Sept. 2019	\$445,438	\$526,466	\$6,376,182	\$7,484,451	(\$1,108,269)
Sept. 2020	\$452,883	\$526,466	\$6,829,065	\$8,010,917	(\$1,181,852)

Note 1: Rates were effective April 15, 2005 therefore the report ended September 30, 2005 does not represent a 12 month period of revenue collection.

DESCRIPTION OF ACTUAL EXPENDITURES - PERIOD ENDED SEPTEMBER 2020

GTI Utilization Technology Development Program

\$129,500 was submitted to Utilization Technology Development, NFP (UTD) for the April 1, 2020 through March 31, 2021 dues. \$116,781 has been allocated to specific projects as listed below.

UTD Payments, Fees, Credits, Carryover

Payments to UTD	129,500.00
Administration Fees	-12,950.00
Carryover of Unallocated Funds from Prior Year	10,053.45
Funds Available for Allocation	126,603.45

Allocations to Projects

Large Commercial and Industrial Customers

2.16.A.2 Next Generation Infrared Burner - Phase 2	-4,070.00
2.16.A.3 Next Generation Infrared Burner - Phase 3	-2,220.00
2.16.G.2 Energy Recovery Heat Exchanger - Phase 2	-277.50

2.17.C.2 High Efficiency Commercial Clothes Dryer - Phase 2	-2,802.75
2.18.C Refund	8.30
2.19.A Direct Contact Flue Gas Heat Exchange with Innovative Particle Thermal Storage	-2,035.00
2.19.B Zero CO ₂ -Emission Combustion at Commercial or Industrial Scale	-1,726.79
2.20.A Low Emission Efficient Burner for Ovens and Dryers - Field Demonstration	-2,220.00
2.20.B Sub-Dew Point Cooling Technology	-2,960.00
2.20.C High Efficiency Low Emission Commercial Baking Oven Field Demonstration	-1,110.00
2.20.D Recovering Water and Energy from Industrial Furnace Exhaust	-1,480.00
2.20.E Energy Source Options for Industrial Users	-1,295.00
Food Preparation and Service	
1.14.A.6 Next Generation of CFS Burners - Phase 6	-1,480.00
1.15.G.2 Residential Kitchen Cooking Ventilation Effectiveness - Phase 2	-162.80
1.16.B.5 CFS Codes and Standards - Phase 5	-1,850.00
1.17.H.2 Residential Cooking Pollutants and IAQ - Phase 2	-740.00
1.19.A High Efficiency Smart Convection Oven	-311.17
1.19.B Gas Fired Warewasher	-972.36
1.19.B.2 Gas Fired Warewasher - Phase 2	-1,998.00
Residential and Light Commercial Customers	
1.11.H.5 Residential Gas Absorption HPWH - Phase 5	-336.52
1.11.H.6 Residential Gas Absorption HPWH - Phase 6	-1,110.00
1.13.D.8 RCSC Codes and Standards for Advanced Gas Technologies – Phase 8	-5,550.00
1.15.C.3 Next Generation Residential Gas Clothes Dryers - Phase 3	-740.00
1.16.H.2 Refund	19.05
1.16.H.3 EnergyPlus Models and Market Analysis for Advanced Res. Heating Systems - Phase 3	-3,330.00
1.16.I.3 Commercial Gas-Fired Heat Pump Water Heater - Phase 3	-1,263.92
1.17.B.3 Thermoelectric Generator for Self-Powered Water Heater - Phase 3	-1,110.00
1.17.C.2 Gas Heat Pump Combi Space/Water Heating System Design – Phase 2	-740.00
1.17.F.2 Thermolift Combined Heating/Cooling System Technical Support – Phase 2	-1,665.00
1.18.C.2 Advanced Nozzle Burner for Commercial Water Heaters - Phase 2	-4,440.00
1.18.F Methane Emissions from Tankless Water Heaters	-144.67
1.18.F.2 Mitigating Methane Emissions from ResCom End Use Equipment – Phase 2	-1,739.00
1.18.H.2 Economical High-Efficiency Res. Gas Absorption Heat Pump with Int. Cooling – Ph. 2	-733.31
1.18.I Gas Heat Pump RTU Cold Climate Performance Assessment	-1,888.85
1.19.C Integrated, Self-Powered, High-Efficiency Burner System	-814.00
1.19.D Comparative Assessment of Heat Pump Water Heaters in Virtual Test Home	-472.12
1.19.E Sequestering Non-Condensable Gases for Enhanced Gas Abs. HP Reliability	-2,088.65
1.19.F Yanmar 3-Pipe GHP Cold Climate Case Study	-1,739.00
1.19.G.2 Enhanced Gas Space Conditioning for Greenhouse and Vertical Farming - Phase 2	-1,850.00
1.19.I Comparative Assessment of Space Heating Systems in Virtual Test Home	-1,037.48
1.19.I.2 Comparative Assessment of Space Heating Systems in Virtual Test Home - Phase 2	-1,480.00
1.20.A Robur and SMTI Low-Capacity Gas Absorption Heat Pump Laboratory Evaluation	-3,700.00
1.20.B Boostheat Thermal Compression-based Gas Heat Pump	-2,960.00

1.20.E Gas-Fired Binary Fluid Ejector Heat Pump Water Heater	-2,220.00
1.20.F Emerging Rescom Fuel Cells - Laboratory Evaluations	-1,850.00
1.20.G High-Efficiency Combi System Integrating PV and Self-Power	-8,325.00
1.20.H High Hydrogen-Content Fuel in Residential/Commercial Combustion Equipment	-2,590.00
1.20.I Membrane Based Ionic Liquid Absorption Heat Pump for Commercial HVAC	-1,850.00
1.20.J Integrated CHP System for Multi-Family Buildings	-3,700.00
2.16.H.2 Test and Demonstrate M-Trigen Micro-CHP System – Phase 2	-3,145.00
2.19.F CYSORE 24kW mCHP and Chiller System - Lab Test	-697.82

Transportation

2.16.N Refund	10.16
2.16.N.5 NGV Codes and Standards Monitoring, Develop. and Support - Phase 5	-2,405.00
2.16.O.5 NGV America Technical Comm Participation and Rep - Phase 5	-2,590.00
2.17.H.2 CNG Station Methane Release and Measurement Investigations - Phase 2	-3,700.00
2.18.I.2 Cost Effective CNG Pre-Cooling Technologies - Phase 2	-2,442.00
2.19.G CNG Dispenser-Tank Communication	-5,365.00
2.19.H.2 Distributed Generation for EV Charging - Phase 2	-925.00
2.20.F Next Generation NGV Driver Information System	-3,330.00
2.20.G Smart CNG Station - Field Demonstration	-5,550.00

Memberships/Other	0.00
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Adjustments and Miscellaneous Refunds

Board Designated Net Assets 2020	2,881.99
G&A Refund	1,628.25

Funds Allocated to Projects	116,780.97
Unallocated Funds	9,822.48

GTI Operations Technology Development Program

\$184,500 was submitted to Operations Technology Development, NFP (OTD) for the 2020 membership fee. \$141,727 has been allocated to specific projects as listed below.

Payments to OTD, Fees, Carryover

Payments to OTD	185,000.00
Administration Fees	-13,875.00
Carryover of Unallocated Funds from Prior Year	47,038.84
Funds Available for Allocation	218,163.84

Allocations to Projects

(1) Pipe and Leak Location

1.14.d.2 Field Measurement of Leak Flow Rate Ph2 - Refund	283.92
1.15.e Triple Plus Shut Off Valve Pilot Program - Refund	10135.96

(4) Inspection and Verification

4.14.c.2 - Validating Non-Destructive Tools for Surface to Bulk Correlations of Yield Strength, Toughness, and Chemistry, Phase 2	-2327.30
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(5) Construction/ Infrastructure Techniques

5.07.p (GTI) GNSS (GPS) Consortium	-5550.00
5.11.m.2 Mobile GIS with Tracking and Traceability Pilot Projects	-1850.00
5.12.a.3 Development of an Integrated Intelligent Safety System (IISS) for Commercial and Industrial Customers, Phase 3	-2106.15
5.12.b Development of a Portable Flash Fire Suppression System (PFFSS) - Refund	2165.76
5.13.b.3 GPS-based GIS Conflation System, Phase 3 - Pilot Project	-435.77
5.13.f Low Cost Collision Avoidance System Refund	412.72
5.14.a RFID Testing Program Refund	259.57
5.15.a.2 Cybersecurity Collaborative - Phase 2	-3700.00
5.15.d Development of a Tee Helmet for Fitting Protection Refund	452.63
5.15.f No Stub Service Lateral Retirement Refund	596.66
5.16.k.2 ORFEUS Obstacle Detection Technology for Horizontal Directional Drilling, Ph. 2	-1934.36
5.17.n Survey of Plastic Pipe Locating Technology and Locating Practices Refund	45.11
5.18.a.2 Leak Seal for Meter Set Joints Under Pressure, Commercialization Phase	-1850.00
5.18.k Improved Tools to Locate Buried Pipelines in a Congested Underground	-1863.69
5.18.s Thermally Activated Gas Shut-Off Devices - Refund	13.54
5.18.t.2 Virtual Reality (VR) Training Library Development	-1850.00
5.19.a PE Squeeze Tool Gap Stop Validation	-1156.25
5.19.f Purging Gas Pipes into Service without Venting Gas to Atmosphere	-451.03

5.19.f.2 Purging Gas Pipes into Service without Venting Gas to Atmosphere - PHASE 2 of OTD 5.19.f	-1729.01
5.19.g Design Day/Gas Modeling Workshop	-370.00
5.19.h Single Path Meter Testing (Sensus and Itron)	-293.04
5.19.k Evaluation and Demonstrations of the Utonomy Smart Regulator	-1176.23
5.20.a Subsurface Multi-Utility Asset Location Detection	-3700.00
5.20.c 2020 Training Technologies Consortium	-1850.00
5.20.e Single-Path Ultrasonic Meter Long-Term Performance Testing and Monitoring	-1850.00
5.20.k Smart Shutoff Technology for Commercial and Residential Buildings	-1850.00

(6) Memberships/Other

6.08.a (GTI) Carbon Management Information Center	-11100.00
6.11.a PRCI Membership	-1850.00
6.14.a Quality Audit Program	-7400.00
6.16.a Center for Methane Research	-9250.00
6.a (GTI) SMP	-37000.00

(7) Methane Emissions/Detection and Gas Quality

7.15.b.4 Remote Gas Sending for First Responders, Phase 4: Commercialization	-3700.00
7.16.a.2 Leak Repair Prioritization - Phase 2	-1323.86
7.18.c Robot for Remote Methane Detection, Phase 1 - Refund	40.28
7.19.c OptoMole Leak Detection System	-492.84
7.20.a Develop Remote Sensing and Leak Detection Platform with Multiple Sensors	-1850.00
7.20.b Validation of Remote Sensing Leak Detection Technologies under Realistic Conditions	-1850.00
7.20.e Gas Dispersion Modeling for Venting Natural Gas from Structures	-1850.00
7.20.h Laboratory Evaluation of Personal Flammable Gas Monitors	-2910.79
7.20.m RMDs - Test Response to Natural Gas/Hydrogen Blends	-3700.00

(8) Intelligent Utilities

8.16.b.2 Remote QA/QC Fusions, Phase 2	-1850.00
8.17.b.2 Transmission Tracking and Traceability Marking Standard, Phase 2	-6706.25
8.17.b.3 Transmission Tracking and Traceability Marking Standard Pilot Projects	-3700.00
8.17.c.2 GNSS Smart Automations for Field Data Collection, Phase 2	-1711.99
8.17.c.3 GNSS Smart Automations (GSA) Phase 3	-1850.00
8.17.e Integrity Management Module and GIS Platform for Mobile Data Collection	-273.43
8.18.a.2 Component Marking & Laser Etching, Phase 2	-1982.14
8.19.c Wearable Computing Technology	-1850.00
8.19.k Augmented Reality (AR) O&M Procedures, Checklists and SME Contact	-1088.54
8.20.a B31Q Training Documentation Portal	-1850.00
8.20.j Above Ground Service Tee Identification and 3D Mapping	-3700.00
8.20.l Enhanced Locating Technologies for Underground Pipelines with Better Accuracy	-3700.00

8.20.m 3D Visualization Software for Mapping Underground Pipelines and Improving Pipeline Asset Management -3700.00

Adjustments and Miscellaneous Refunds

Board Designated Net Assets 2020 6126.92
G&A Refund 2770.57

Funds Allocated to Projects -141,726.52

Unallocated Funds 76,437.32

Local Opportunity Projects

\$5,013 was expended for Local Opportunity Projects in 2020.

SUMMARY OF EXPENDITURES - 2020

Utilization Technology Development Program - GTI	\$ 129,500
Operations Technology Development Program - GTI	\$ 184,500
Emerging Technology Program - GTI	\$ 9,230
Low-Carbon Resources Initiative – GTI	\$ 116,500
North American Gas Heat Pump Collaborative – RI LLC	\$ 8,140
Local Opportunity Projects	<u>\$ 5,013</u>
Total Pennsylvania Delta Funds Program Expenditures	\$ 452,883

PROJECTED EXPENDITURES - PERIOD ENDING SEPTEMBER 2021

Expenditures for National Fuel Gas Distribution Corporation's Pennsylvania Delta Funds RD&D Program are projected to be \$526,500 in 2021 consisting of the following planned charges:

1. **Utilization Technology Development (UTD)** membership fees of approximately \$129,500. Specific projects to be determined.
2. **Operations Technology Development (OTD)** membership fees of approximately \$184,500. Specific projects to be determined.
3. **Emerging Technology Program (ETP)** membership fees of approximately \$9,230.
4. **Low-Carbon Resources Initiative (LCRI)** membership fees of approximately \$116,500.
5. **North American Gas Heat Collaborative** membership fees of approximately \$50,000
6. **Local Opportunity Projects** spending estimate of \$273,236 (see below). Funds not used for the development of qualified local technology projects in National Fuel territory may be allocated to the national Gas Technology Institute programs described above.
 - 1) \$50,000 – Small Scale LNG Project
 - 2) \$23,236 – Prospective CHP Incentive Program award
 - 3) \$100,000 – Hybrid Heating System Study
 - 4) \$100,000 - Natural Gas Heat Pump Demonstration Project

STATUS UPDATE OF LOCAL OPPORTUNITY PROJECTS - 2020

Funding of gas industry research through the Gas Technology Institute (GTI), as an example, returns many benefits, including insuring continued improvement and availability of energy-efficient, low emissions and cost-effective gas technologies; while leveraging the funding resources of gas utilities across North America. The Local Opportunity Projects portion of this program intends to identify projects for direct local support offering equal, or better, benefits than GTI. This is challenging but National Fuel endeavors to identify and develop these opportunities. Funds available through this portion of the program, beyond the minimum commitments to GTI, may be used for qualified local projects. Funds not used locally are sent to GTI to be allocated to suitable projects, as shown in the previous supported project listings.

Summaries for Local Opportunity Projects active or completed in 2020 are provided below.

1. **Multi-Family Gas Retrofits – Phases 1 & 2.** Continuing on the work done in prior years, collection of data and information will continue for both Phase I and Phase II facilities. Data and information collected will be analyzed, both technical and financial, with the intent of providing comparative information that will inform other potential multi-family conversion opportunities throughout the service territory. Upon completion of the data analysis, the resulting analysis will be utilized to educate customers and home builders with regard to the impact of differing equipment selection alternatives.
2. **Hotel Energy Technology Assessment.** Historically, the hotel/motel market has typically specified natural gas systems for common area within facilities and for process loads. However, space heating for individual rooms has generally been electric, despite the significant cost differential per equivalent unit of energy. Lack of knowledge related to natural gas equipment options and performance capabilities in comparison to alternatives is believed to be contributing to the historical under-representation. This project is proposed to develop a hotel building model with which varying alternative systems will be evaluated in multiple system simulations. Conclusions will be utilized to proactively educate and inform project developers and key specifiers regarding the impacts of differing system choices.
3. **CHP Feasibility Assessments.** In accordance with the PUC CHP Policy Statement and as an extension of previous initiatives in support of market development for CHP, National Fuel will continue to implement an active prospecting program to identify prospective candidates for siting of CHP technology. Following initial pre-screening activities, it is strongly anticipated that Delta funds will support formal technical and economic feasibility assessment studies for those projects that demonstrate initial attractive deployment opportunities. One of the projects receiving a preliminary assessment has engaged with an engineering company for a more detailed feasibility study, to which the Delta Fund will support with a modest financial contribution.
4. **Small-Scale LNG Production.** The goal of this project is to develop, test, and demonstrate a small-scale LNG liquefaction plant. If successful, the plant design would allow for cost-effective production of liquefied natural gas using distribution pipelines as the source. Once plant construction and testing is completed, the plant will be relocated and sited permanently at an existing CNG fueling station. The plant design itself is novel in that it would be coupled with existing CNG station equipment. This allows for cost reduction as existing CNG compressor capacity can augment that which would be required for LNG production. Also, existing compressors would see less idle time, as they would be used during off-peak hours for LNG production. The plant, as designed, is estimated to produce 6,000-20,000 LNG gallons per week. To this point, the initial prototype project location was identified and site preparation completed. All necessary permits have been acquired. Construction of the CNG trailer that will feed the LNG system is underway.

PROSPECTIVE LOCAL OPPORTUNITY PROJECTS – 2021

1. **Small-Scale LNG Production.** Continuing to build on the prior work toward the development, testing, and demonstration of a small-scale LNG liquefaction plant. Expected progress in FY2021 includes the fabrication of the prototype LNG production equipment with testing and assessment of the operating performance at a remote location. Final step in future years will be the placement of the equipment into commercial operation at a market location.
2. **CHP Incentive Program.** In accordance with the PUC CHP Policy Statement, National Fuel intends to institute an incentive program to promote the implementation of CHP projects in its service territory. Proposed at \$100/KW (with project caps), an initial industrial laundry operation has been identified and is expected to pursue the necessary public and private funding for a

potential 875 KW CHP project in FY2020. One additional prospect, a health care facility, is currently evaluating potential implementation of a 4 MW CHP facility in FY2021.

3. **Hybrid Heating System Study.** National Fuel intends to conduct a study to determine the monthly energy cost and usage changes, as well as the associated GHG emissions, associated with utilizing an electric Air Source Heat Pump (ASHP) in combination with a high efficiency natural gas furnace for heating (and cooling), as compared to a traditional furnace only and central A/C. We plan to utilize several demo sites throughout our PA service territory for the study.
4. **Natural Gas Heat Pump Demonstration Project.** National Fuel is interested in participating in the installation of a natural gas-fired heat pump (GHP) project to study the benefits of using a GHP to provide space heating and cooling at a lower cost and lower peak electric demand as compared to traditional electric and/or fossil fueled equipment.

National Fuel intends to continue efforts to identify other beneficial Local Opportunity Projects for development which may provide direct benefit to our Pennsylvania consumers, businesses, and industries.