

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

Docket No. DG 20-152

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES – KEENE DIVISION

Winter 2020-2021 Cost of Gas

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**Liberty Utilities (EnergyNorth Natural Gas) Corp. – Keene Division
("Keene")
Non-Binding Request for Indicative Pricing
February 29, 2016**

Overview

The purpose of this non-binding solicitation is to gauge interest and determine the economics for a delivered LNG and/or CNG commodity service to Liberty's Keene Division. The non-binding indicative pricing will help Liberty appropriately analyze the most cost effective solution to convert the current Propane/Air system serving the Keene Division to a natural gas system. All bids will be kept confidential.

Keene Background and Incremental Requirements

The Keene Division operates via a self-sustained Propane/Air facility in Keene, NH which serves approximately 1,250 residential and commercial customers. Keene is located in the south western region of NH. Keene would like to be able to offer a more competitive fuel option and expand our customer base and distribution system. Since Keene has a distribution system throughout a good portion of the City, we are interested in exploring CNG/LNG options to help meet the energy needs of the Community, by providing the city with a centralized natural gas distribution system.

Table 1 (below) summarizes the load for which Keene is seeking indicative bids.

Table 1. Keene Estimated Load Requirements

	Normal Year		
	<u>2016/17</u>	<u>2017/18</u>	<u>2018/19</u>
Plan Year (Nov-Oct)	49,129	51,431	53,840
Winter Load (Nov-Apr)	37,880	39,655	41,512
	Design Year		
	<u>2016/17</u>	<u>2017/18</u>	<u>2018/19</u>
Plan Year (Nov-Oct)	52,820	55,295	57,885
Winter Load (Nov-Apr)	41,122	43,049	45,066
	Design Day		
	<u>2016/17</u>	<u>2017/18</u>	<u>2018/19</u>
Plan Year (Nov-Oct)	473	495	518

The table above does not reflect the needs of the entire Keene system. The current requirements reflect the initial phase of the conversion of the existing Keene system from Propane/Air to natural gas. The Company sees the potential to grow the franchise more than tenfold over the next 5 years.

Request for Indicative Pricing

The Company invites interested parties to submit bids for a turnkey delivered LNG and/or CNG service to meet the load requirements of its Keene customers as stipulated in Table 1 above. All bids should address the following requirements:

- A delivered natural gas service commencing November 1, 2016.
- Indicative pricing is to include the cost of the natural gas commodity, transportation, decompression or vaporization and any other associated cost necessary to provide the delivered service. [assume we will be odorizing into system as needed. Any other requirements?]
- Pricing structures are at the discretion of the bidder but may include a fixed, floating or index based commodity price, demand charge and/or variable charge.
- Design Day deliveries of up to 500 Dth.
- Peak hour of approximately 40 Dth
- Annual and winter deliveries per Table 1 under Normal Year with the ability to increase deliveries to those shown under Design Year.
- Bids may be for a term of 1 to 3 years.

Response Instructions

Bidders wishing to respond to this solicitation must do so by **5:00 PM EST on Friday, March 11, 2016**. [could shorten up this date if needed] Each bidder is encouraged to provide as much detail as possible in their response. Please submit your response and any questions you may have by email to the following:

Paul Maffa
paul.maffa@libertyutilities.com

Chico DaFonte
chico.dafonte@libertyutilities.com

Keene has the right to reject any and all bids. The winning bidder, if any, will be selected based on the offer that yields the overall least cost, consistent with concerns for reliability of service and other business factors applied by Keene in its sole discretion.

Keene LNG/CNG Conversion



DANGER

**PROPANE
GAS**



RFP Process and Propane Conversion Timeline

- Issued non-binding RFP to 9 entities – Mar 2
- Received 9 bids – Mar 15
- Conducted preliminary analysis – Mar 22
- Held meeting with each bidder – Week of Mar 28
- Finalized preliminary analysis – Apr 7
- Internal Discussion on bid results – Apr 12
- Set meeting with PUC Staff to discuss results – TBD
- Request refreshed bids from “short-list” of bidders – TBD
- Conduct final analysis – TBD
- Select bidder – TBD
- Negotiate contract – TBD
- File contract for approval – TBD
- File for required permits – TBD
- Receive final permits and contract approval – TBD
- Begin propane conversion process – TBD
- Natural gas flows – Nov 1

Supply Requirements

Keene Estimated Load Requirements

	Normal Year		
	<u>2016/17</u>	<u>2017/18</u>	<u>2018/19</u>
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Wide range of bidders

- UGI Energy Services
- ENGIE (GDF- Suez)
- Kinetrex Energy
- Prometheus Energy
- Gaz Metropolitan
- Nu Blu Energy
- iNATGAS
- XNG Xpress Natural Gas
- NG Advantage LLC

REDACTED

Bid Analysis

Bidder	LNG Price	CNG Price	Notes
Xpress Natural Gas	[REDACTED]	[REDACTED]	• ME or NY trucking • 750 Dth storage CNG • 1,700 Dth storage LNG • Blended solution option
ENGIE (GDF- Suez)	[REDACTED]		• MA Trucking • 1,100 Dth storage
NG Advantage LLC	[REDACTED]	[REDACTED]	• CNG from Pembroke or Milton • 900 Dth storage • Blended solution option
Nu Blu Energy	[REDACTED]		• Liberty Commodity • No storage
Kinetrex Energy	[REDACTED]		• IN Trucking • 3,200 Dth storage
UGI Energy Services	[REDACTED]		• PA Trucking • No storage
Prometheus Energy	[REDACTED]		• PA Trucking • 2,000 Dth storage
iNATGAS		[REDACTED]	• NH or MA Trucking • No storage
Gaz Metropolitan	[REDACTED]		• Montreal Trucking • No vaporization and storage

Considerations

- Lease or own equipment?
 - Several suppliers offer lease or own options
- Minimum on-site storage requirement?
 - Discuss requirement with PUC Staff
 - What do we want?
- Blended CNG/LNG option?
 - 2 suppliers offer blended option with storage.
- Permitting and design
 - Assign internally
- Regulatory timing?
 - Work back from when we need an order
- Questions???

**Liberty Utilities (EnergyNorth Natural Gas) Corp. – Keene Division
("Keene")
Binding Request for Indicative Pricing
May 16, 2016**

Overview

The purpose of this binding solicitation is to determine the "best-cost" supply alternative for a delivered LNG and/or CNG commodity service to Liberty's Keene Division. The best-cost alternative appropriately balances price and non-price factors such as reliability, flexibility and viability. The responses to this solicitation will help Liberty appropriately analyze the most cost effective and reliable solution to convert the current Propane/Air system serving the Keene Division to a natural gas system. All bids will be kept confidential.

Keene Background and Incremental Requirements

The Keene Division operates via a self-sustained Propane/Air facility in Keene, NH which serves approximately 1,250 residential and commercial customers. Keene is located in the south western region of NH. Liberty would like to be able to offer a more competitive fuel option and expand our customer base and distribution system. Since Keene has a distribution system throughout a good portion of the City, we are interested in exploring CNG/LNG options to help meet the energy needs of the Community, by providing the city with a centralized natural gas distribution system.

Table 1 (below) summarizes the load for which Keene is seeking indicative bids.

Table 1. Keene Estimated Load Requirements

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	<u>2016/17</u>	<u>2017/18</u>	<u>2018/19</u>
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Plan Year (Nov-Oct)	473	495	518

The table above does not reflect the needs of the entire Keene system. The current requirements reflect the initial phase of the conversion of the existing Keene system from Propane/Air to natural gas. The Company sees the potential to grow the franchise more than tenfold over the next 3-5 years.

Minimum Storage Requirement

The State of New Hampshire requires that all natural gas utilities have sufficient onsite inventory to satisfy a 7-day cold snap. The determination of the requirement is based on the historically coldest 7 consecutive day period. For the purpose of this solicitation the calculated requirement for this 7-day period is approximately 2,700 Dth. This 2,700 Dth requirement can be met through a combination of physical onsite storage and up to 70% of 5 days' worth of truck deliveries. For example, if there is 1,000 Dth of onsite physical storage, the remaining 1,700 Dth would have to be delivered via dedicated trucking but only 70% of the dedicated trucking for 5 days could be used in the calculation. All proposals should address the manner in which this 7-day inventory requirement is to be satisfied.

Bid Requirements

The Company invites interested parties to submit bids for a turnkey delivered LNG and/or CNG service to meet the load requirements of its Keene customers as stipulated in Table 1 above. All bids should address the following requirements:

- A delivered natural gas service commencing November 1, 2016. If bidder cannot meet this in-service date please so indicate and also provide the earliest date that service could commence.
- Binding pricing is to include the cost of the natural gas commodity, transportation, decompression or vaporization and any other associated cost necessary to provide the delivered service.
- Clear delineation of equipment and services bidder intends to own/provide and what Keene is expected to own/provide.
- Pricing structures are at the discretion of the bidder but may include a fixed, floating or index based commodity price, demand charge and/or variable charge.
- Design Day deliveries of up to 500 Dth.
- Peak hour of approximately 40 Dth.
- Clear description on how bidder intends to satisfy the New Hampshire PUC 7-day inventory requirement as described more fully above.
- Annual and winter deliveries per Table 1 under Normal Year with the ability to increase deliveries to those shown under Design Year.

- Bids may be for a term of 1 to 3 years.

Response Instructions

Bidders wishing to respond to this solicitation must do so by **5:00 PM EST on Friday, May 27, 2016**. Each bidder is encouraged to provide as much detail as possible in their response. Please submit your response and any questions you may have by email to the following:

Paul Maffa
paul.maffa@libertyutilities.com

Chico DaFonte
chico.dafonte@libertyutilities.com

Liberty has the right to reject any and all bids. The winning bidder, if any, will be selected based on the offer that yields the overall least cost, consistent with concerns for reliability of service and other business factors applied by Liberty in its sole discretion.



NG Advantage LLC Proposal for Gas Island Service via Virtual Pipeline

**Presented to Liberty Utilities Corporation
Keene Division**



May 27, 2016

Submitted By:

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Executive Summary

Introduction

NG Advantage LLC is pleased to present this proposal to Liberty Utilities to deliver up to 57,885 Mcf per year of natural gas to supply the Keene Division's high pressure loop. NG Advantage has included two options so that Liberty can evaluate which best fits its requirements. The proposal is for three years of firm service and complies with New Hampshire Public Utilities Commission regulations for onsite storage requirements as we understand them.

Note that this proposal is for fixed pricing for items other than commodity for which it is an indicative bid. Actual commodity costs will be passed through to Liberty. However, since there has been no opportunity for a site visit, we reserve the right to revise our engineering and construction estimate during final contract negotiation should the site prove to present obstacles we could not reasonably anticipate. Such a change will affect the monthly demand charge only.

Our initial proposal was for a hybrid CNG/LNG system. With the clarifications we have received on the NH PUC onsite storage requirements and the availability of lower priced storage for CNG, an all CNG configuration is currently the least expensive way to meet these requirements. However, as the Keene system grows and especially as it adds residential and small business customers, a hybrid configuration may become desirable. We know that Liberty will need future flexibility and have addressed this in three ways: 1) this document includes an alternate proposal for a hybrid system; 2) the CNG system has been designed for simple LNG bolt-on; 3) we will be happy to write contractual language enabling a change to a hybrid system during the three-year term of the contract.

NG Advantage has a unique combination of skills and experience to deliver, operate, and maintain either an initial all CNG system or a CNG/LNG hybrid. We have experience dealing with the unique needs of an LDC to provide its customers with safe, efficient, and economical service. We also have the largest fleet in New England to assure delivery and two compressor stations on two different pipelines within range of Keene so that we can assure supply. These two stations also give us an opportunity to offer the lowest year-round commodity cost since costs are generally lower in southern New England during summer and lower at our Milton, VT location during winter.

NG Advantage's unique, proprietary SCADA system provides real-time data for monitoring and controlling every aspect of the supply chain from compressor site through trucking and all operations in Keene.

The NG Advantage balance sheet is rock solid and audited financial statements are available for inspection by Liberty. NG Advantage requires no additional financing for any part of this project.

Safety comes first with NG Advantage. We were the first CNG provider to train local first responders as well as customer personnel. Our dedicated hauling partner, J.P. Noonan, is the most experienced hauler of fuel in New England. NG Advantage and Noonan jointly perform recurring safety and operational training of drivers. Only uniformed drivers, who have passed the training and have then partnered with senior drivers, are allowed to deliver to our customers.

All CNG Option

In the all CNG option, 1,000 MMBtu of CNG will be onsite as an almost three day reserve. Liberty will initially be NG Advantage's only firm customer in New England; the others are contractually interruptible. Therefore, Keene will be the first priority for the NG Advantage Pembroke compressor station. Locally-based trailers and tractors typically deliver up to 15 trailer loads or 4,500 MMBtu/day from that site; 70% of that capacity for five days far exceeds the PUC requirement for dedicated delivery as part of meeting the seven day requirement. Moreover, the NG Advantage Milton, VT site has almost three times this capacity and is also available as backup.

Although not specified by the PUC, we think that the spirit of the firm service requirement is that there be no single point of mechanical failure in the onsite delivery equipment. We have experience with fully redundant delivery systems at much higher volumes and our proposal includes the cost of full redundancy under peak load for Keene. If we are wrong about this being an implied requirement, we will gladly back the cost out of our bid.

Hybrid LNG/CNG Option

In the hybrid CNG/LNG option, Liberty customers will have the advantage of low-priced CNG for the majority of their fuel use; more expensive LNG will only be used as required. If the relative prices of delivered LNG and CNG should change in the future, Liberty will be able to use whichever delivery method provides its customers the lowest cost. Approximately 900 MMBtu of LNG will be kept as a reserve onsite. Both CNG and LNG will be available to provide additional supply. As described above, 70% of the NG Advantage CNG fleet alone with a current capacity of 13,200 MMBtu/day far exceeds the PUC requirement since Keene will be the only contractually firm customer.

In this option redundancy is provided by keeping the mechanical and electronic components of the CNG and LNG systems separate, so that either alone can meet the full peak need of Keene.

Commodity Supply

NG Advantage will provide primary deliveries of CNG from its Pembroke, NH compressor site. NG Advantage proposes using its Milton, VT site when pricing is favorable given both the cost of hauling and the cost of gas or whenever operationally required. Given the forward price curves, all of our proposals contemplate winter CNG service from Milton December through March; however Liberty will have the option to determine which station best meets its requirements on a monthly basis.

LNG will be sourced primarily from a storage facility in Montreal, QC. Other liquefaction plants are available for backup if needed. LNG can be economically sourced from multiple supply points including Marcellus, Quebec, and Maritime Canada. In the event of a disruption in any individual region, full access is available to the diverse LNG procurement portfolio of NG Advantage's majority owner, Clean Energy Fuels.

Experience

NG Advantage brings the economic and environmental benefits of natural gas to large industrial and institutional customers beyond the reach of pipelines as well as to LDCs. The company pioneered trucking compressed natural gas to end users in the US and is the leading provider of virtual pipeline service in the country today.

NG Advantage was the first in the nation to enable an isolated natural gas distribution network. Working with NG Advantage, Vermont Gas Systems Inc. (VGS) built a gas island in Middlebury, Vermont in 2015 to serve local customers ahead of the completion of VGS' transmission pipeline. Currently, the distribution network consists of almost 6 miles of low pressure piping connecting a large dairy processing cooperative, a cider producer, a hospital, and a college – all supplied with CNG delivered to a single point by NG Advantage and then metered at the customer site by VGS.

NG Advantage's majority owner, Clean Energy Fuels (NASDAQ: CLNE), has built more than 500 CNG and LNG fueling stations in North America, owns and operates two LNG production plants, has agreements with over 25 additional LNG supply sources across North America, and will assist NG Advantage with LNG procurement for the Keene system.

Clean Energy Cryogenics, formerly known as NorthStar, is a subsidiary of Clean Energy Fuels and will provide NG Advantage with the equipment and engineering required for the LNG portion of the installation if that option is selected. Clean Energy Cryogenics has 20 years of experience in LNG storage and vaporization projects, LNG vehicle fueling, LNG trailer filling, LNG supply, operations and maintenance of LNG facilities, and LNG to CNG systems. Clean Energy Cryogenics has designed, fabricated, and installed over 140 facilities in the US, Canada, and South Korea.

Our dedicated hauling partner J.P. Noonan delivers more fuel of all kinds and more CNG than any other New England trucking company. They also haul LNG. Joint training between Noonan and NG Advantage assures safe and reliable delivery to Liberty.

Supply Chain Options

Option 1 – All CNG

In the all CNG option, 1,000 MMBtu of CNG will be onsite as an almost three day reserve. This gas will be in CNG trailers which will remain onsite for the duration of the reserve requirement season. If it is ever necessary to use the reserve gas, NG Advantage will either top off the reserve trailers from newly arriving trailers or rotate them back to the compressor station for refilling depending on which approach most quickly replenishes the reserve.

Liberty will initially be NG Advantage's only firm customer in New England; others are contractually interruptible. Therefore, Keene will be the first priority for the entire fleet of 56 company-owned trailers, more than 30 tractors dedicated to NG Advantage service by Noonan, and two compressor stations. NGA typically delivers up to 40 trailer loads or 13,200 MMBtu/day; and 70% of that capacity for five days far exceeds the PUC requirement for dedicated delivery as part of meeting the seven day requirement. Like a utility, NG Advantage will not sign firm contracts beyond its ability to serve during the most adverse conditions.

Although not specified by the PUC, we think that the spirit of the firm service requirement is that there be no single point of mechanical failure in the onsite delivery equipment. Redundancy is provided not only on the skid itself, but also included in SCADA, hose posts, and CNG trailers. Onsite redundancy also eliminates the need for planned service outages for routine maintenance. All NG Advantage compressor stations have at least N+1 redundancy to assure delivery of their design load even during outages and maintenance.

NG Advantage has experience with fully redundant delivery systems at much higher volumes and our proposal includes the cost of full redundancy under peak load for Keene. If we are wrong about this being an implied requirement, we will gladly back the cost out of our bid.

Our bid is based on the RFP specification that the winter seven day supply requirement is 2,700 MMBtu. In our all- CNG bid we will be providing 1,000 MMBtu of onsite storage from November 1st through February 28th (the peak months). This is a 2.6 day supply. From March 1st through March 31st (the shoulder months), we will provide 750 MMBtu of onsite storage. This leaves 1,700 MMBtu of additional supply to be met in the peak months and 1,375 in the shoulder months.

The PUC regulation allows a utility to count as storage up to 70% of the amount which can be delivered by dedicated trucks from an assured supply over a five day period. The NG Advantage Pembroke, NH site is located near Keene on the Kinder-Morgan pipeline where "uninterruptible" supply is available. Since Liberty will be the only firm customer of this site, Keene is the priority for all of this capacity. NG Advantage has a dedicated compressor, trailer, and tractor equipment in Pembroke with a capacity of 4,500 MMBtu/day. 70% of that capacity for five days provides 15,750 MMBtu, far more than is needed to supplement the onsite storage during either peak or shoulder periods.

NG Advantage has almost three times this capacity at its Milton, VT site. We have not counted that capacity towards the reserve requirements since NG Advantage has an interruptible contract there with Vermont Gas. In practice, however, this capacity will almost always be available, so even a *force majeure* on the Kinder-Morgan line is unlikely to cause a disruption.

Since supplying a gas island with natural gas is new in New Hampshire and has little precedent elsewhere in the United States, we want to provide Liberty as many options as possible. In our pricing section below we have shown how the monthly demand charge would be affected if either there were no dedicated storage (all of the seven day requirement met with trucking) or if there were 500 MMBtu of onsite during the low season in conjunction with 750 MMBtu during the shoulder season and 1,000 MMBtu in the peak season. In the section immediately below we describe a hybrid CNG/LNG solution.

Option 2 – Hybrid CNG/LNG

This option proposes supplying natural gas to Liberty Utilities' Keene Division through a hybrid CNG/LNG system. As CNG is currently less expensive than LNG delivered to Keene, NG Advantage recommends CNG as the primary energy supply with redundancy provided by onsite LNG storage. Liberty customers will have the advantage of low-priced CNG for the majority of their fuel use, while LNG use will be optimized for backup consumption. If the relative prices of delivered LNG and CNG should change in the future, Liberty can use whichever delivery method provides its customers with the lowest cost.

This option includes one LNG tank installed onsite with a capacity of approximately 900 MMBtu or 2.33 peak days. Should further storage be desired, additional tanks can be accommodated in the design. Moreover, there is no single point of mechanical failure in this design; CNG can substitute for LNG and vice versa. Service will be highly reliable.

Through Clean Energy and J.P. Noonan, NG Advantage will have dedicated capacity to deliver up to 600 MMBtu/day of LNG within 24 hours of an outage. 70% of this for five days provides 2,100 MMBtu and by, itself, more than meets the requirement of 1,800 MMBtu in addition to the 900 MMBtu of onsite storage.

However, backup CNG from Pembroke is also available. As described immediately above, there is 15,700 MMBtu available from there over a five day period using the 70% rule. Moreover, the NG Advantage Milton, VT compressor station and fleet are also available for backup.

Onsite LNG storage not only assures delivery of gas service to customers on the high pressure loop but also provides a hedge against the daily volatility in the price of pipeline gas. By substituting LNG on days when CNG commodity prices spike, LNG can act as a price ceiling. This combination of sourcing allows Liberty to limit commodity risks. However, we have not attributed any value to this hedge in our proposal.

Sourcing

NG Advantage will compress gas into high capacity tube trailers at our existing compressor stations in Pembroke, NH, and Milton, VT. The Pembroke station, which draws natural gas directly from the Tennessee Gas Pipeline, became operational in 2014 and is located 57 miles from Production Avenue in Keene. The NG Advantage Milton station draws gas from Vermont Gas Systems' transmission line, which is connected to the TransCanada Mainline at Philipsburg, QC. Together, the Milton and Pembroke stations provide robust service to our customers throughout the northeast and each is available as backup to the other.

For all options cited in the proposal, CNG service is priced from Pembroke April through October and from Milton December through March. In practice, Liberty will have the option to select the desired pricing location on a monthly basis. By leveraging both supply points, NG Advantage offers the lowest year-round commodity rates in the region.

If the hybrid CNG/LNG system is selected, NG Advantage will source LNG from one of Clean Energy Fuels' contracted suppliers in Montreal with backup available from other locations. Replenishment of the LNG supply will be available within 24 hours. Deliveries are scheduled based on actual usage and occur before onsite supplies are exhausted.

Onsite in Keene

Option 1 – All CNG

NG Advantage will install redundant decompression equipment with a minimum capacity of 40 Mcf per hour. The decompression equipment, which includes gas-fired burners, will provide temperature-controlled gas at the constant 55psig pressure of the Keene system. Compressed gas is drawn directly from the CNG trailer onsite. Each trailer holds approximately 364 MMBtu of gas. Onsite reserve storage is provided as needed from reserve trailers which hold an additional 1,000 MMBtu and automatically supply gas if the primary supply is exhausted.



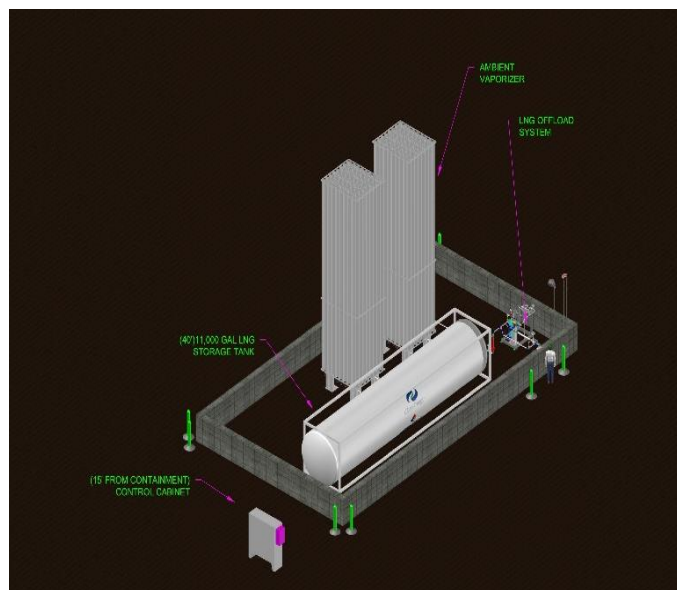
Customer Offloading Station

Option 2 – Hybrid CNG/LNG

NG Advantage will install both decompression equipment for CNG and a vaporization facility for LNG on the Liberty site in Keene.

The LNG facility includes one insulated ISO container with a nominal capacity of 900 MMBtu, ambient vaporizers, and an electric trim heater. Additional ISO storage containers are available for an additional cost as the facility expands.

The hybrid CNG/LNG system is designed to assure a continuous supply of gas. If the CNG system pressure drops below a predefined amount, then the system will switch to LNG automatically.



LNG System Configuration

Since there is no single point of mechanical failure in this hybrid system, either the LNG or CNG can be taken offline for maintenance without disrupting service.

LNG in the ISO container will warm slowly over time and the pressure must be relieved. Rather than venting to the atmosphere, boil-off will be used to optimize the CNG supply chain. When the minimum pressure of the onsite CNG supply trailer is reached, supply will switch to LNG briefly until the new CNG trailer arrives. When the new trailer is hooked up, the supply will switch back to CNG. This configuration eliminates the need for two CNG trailers to be onsite except during switchover.

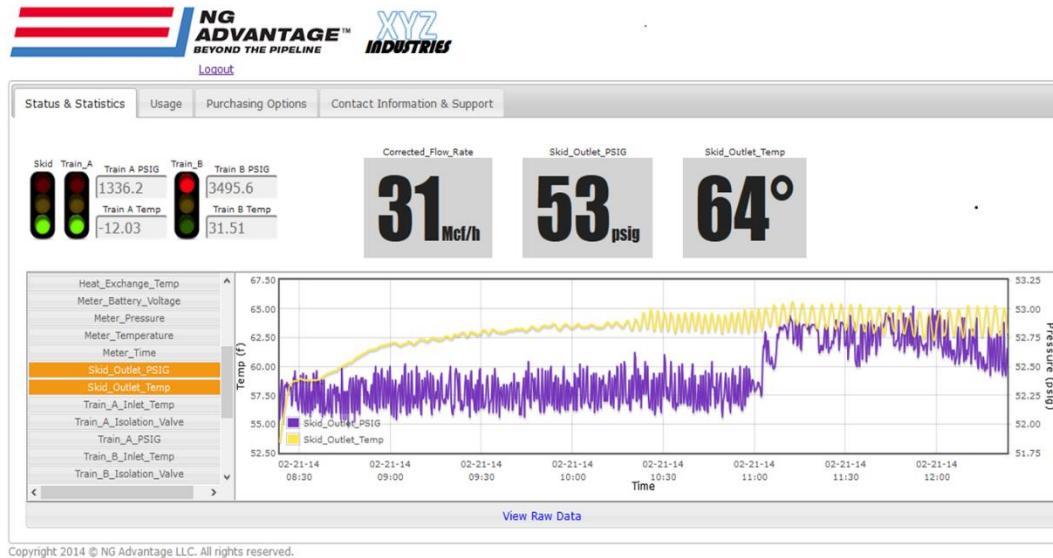
Offsite Monitoring

NG Advantage's unique, proprietary SCADA system provides real-time data for monitoring and controlling every aspect of the supply chain from compressor site through trucking and all operations at the customer site. NG Advantage will arrange for resupply of both CNG and LNG as needed.

All servers are cloud-hosted at two separate locations in the Amazon cloud for security and reliability. In the event that the NG Advantage Network Operations Center is not operational for any reason, monitoring of the data is available to authorized NG Advantage personnel from virtually anywhere in the world. No company in the "virtual pipeline" industry has the real-time visibility into its operations that NG Advantage has and no one can provide customers with the visibility into their gas usage that NG Advantage provides.

NG Advantage monitoring data is available for display at Liberty Utilities control centers and/or for integration as a data feed to the Liberty Utilities SCADA.

Customer Dashboard



Safety

Sustaining a healthy and safe environment for employees, customers, partners, and the communities in which we do business is of paramount importance to NG Advantage. Since its inception, the NG Advantage health and safety program has been the strongest in the industry. Our fully integrated health and safety program is led by a dedicated Safety Officer and supporting team with, collectively, more than 50 years of industry experience. The Safety Team is responsible for training employees, drivers, customers, first responders, and local officials in the communities where our customers are situated. NG Advantage trains all customers on the properties of compressed natural gas and LNG and the basic operation of the delivery trailer and offloading station to enhance safety. NG Advantage also works closely with the customer's staff who are responsible for their facility's emergency evacuation plan and documentation. The NG Advantage Safety Officer will assist in writing the sections that cover CNG and LNG.

The NG Advantage Operations Team remotely monitors customer site equipment 24/7 with both human and algorithmic evaluation of telemetry data including temperature, pressure, and gas flow. If any reading exceeds the normal operating parameters, an alarm notifies the NG Advantage technicians; they correct the situation remotely, notify the proper individuals, shut down the operation of the offloading station and/or call first responders, as appropriate. When appropriate, shutdown is automatic.

Schedule

Time is of the essence. NG Advantage already has compression and liquefaction capacity available for this project. It also has capital for all equipment which must be purchased, several components of which are already in inventory. The critical path item will be permitting; the offloading equipment and LNG storage and vaporization may take four months to arrive from receipt of order. It will not be able to assure an in-service date of November 1, 2106 without a full go-ahead by June 1, 2016. We are assuming that PUC approval will be obtained by Liberty Utilities on a timely basis. We are confident in our ability to aid in local permitting due to our successful experience with Cheshire Medical Center.

June 1, 2016	Contract signed
	Long lead-time equipment ordered
June 15, 2016	Mechanical drawings complete
	Application for fire safety permit submitted
	Applications for any other local permits submitted
September 15, 2016	All local permits obtained
	Civil work by Liberty Utilities begins
September 22, 2016	Equipment onsite
	Assembly and commissioning by NG Advantage and contractors
October 15, 2016	Start of full system testing
November 1, 2016	Project live

<u>Element</u>	<u>Description</u>	<u>Responsible Party</u>
Equipment	Compressor station, CNG decompression skid, CNG heating skid, LNG ISO tank, LNG vaporizer, hose posts, SCADA system, security cameras, metering equipment, CNG trailers, and LNG transport trailers	NG Advantage
Site Preparation	Civil work, site improvements, security fencing, barriers, bollards, containment, security lighting, and any required low pressure piping from the low-pressure side of the unloading station to the Liberty distribution system	Liberty Utilities
Site Permitting and Engineering	Expenses associated with permitting from third party engineering, legal, and other permitting activities.	Liberty Utilities
Electrical and Communication	100 amp 3-phase 480 volt power and telephone/internet connectivity at the offloading site	Liberty Utilities

Liberty Utilities will be responsible for expenses associated with permitting; however NG Advantage will work closely with Liberty and local authorities. Because NG Advantage already has a CNG customer in Keene, we have gone through the permitting process with local officials and first responders. Third party permitting expenses associated with legal and engineering services are not included in this proposal, but it does include costs associated with NG Advantage staff dedicated to permitting and safety training.

To begin service by the requested start date of November 1, 2016, NG Advantage will need a signed agreement from Liberty Utilities by June 1, 2016. This timeline will allow for permits to be obtained, and equipment to be ordered, installed, and tested.

Why NG Advantage

Fully redundant all CNG and unique hybrid LNG/CNG designs

Low commodity cost

Ultra-high reliability

Experience

More trucked CNG experience than any other company in the US

Highest volumes and largest customers for trucked CNG in US

Gas Island experience

LNG sourcing and operational experience (with Clean Energy)

LNG construction experience (with Clean Energy Cryogenics)

Local experience

Compressor station, 5 customers in New Hampshire

More than 25 customers in New England and New York

Safety

Unique, secure cloud-based SCADA watching every aspect of supply chain

Leads in first responder training

Excellent track record

Full-time Safety Officer

Visibility

Real-time monitoring for reliability as well as safety

Integration with Liberty monitoring and SCADA available

Sourcing

Vermont and New Hampshire compression allows unparalleled access to favorable markets

No expansion required at either site for this project

Clean Energy sources LNG nationwide

Rock solid balance sheet

Cash on hand for all components of the Keene project including trailers

Pricing

This proposal contains firm pricing good until June 1, 2016 for the monthly demand charge and variable CNG adders; the price shown for commodity is indicative only and based on year-ahead strips for the supply in Pembroke and Milton. Since it was not possible to do a site visit prior to submitting the proposal, NG Advantage reserves the right to increase the monthly demand charge during final contract negotiation if the site requires expense which could not reasonably have been foreseen. The below pricing contains the following components: Monthly Demand Charge, Milton Variable CNG Adder, Pembroke Variable CNG Adder, and Estimated CNG Commodity Charge.

Monthly Demand Charge covers the fixed costs of providing service to Liberty Utilities at the Keene location.

Milton Variable CNG Adder includes the variable costs associated with compression, hauling, and decompression of natural gas from the Milton, VT compressor station. The adder adjusts with the cost of diesel fuel using the EIA-published index for New England (PADD 1A) (See Attachment A). The Variable Adder is applied to volumes as delivered through the onsite meter in Keene when Liberty has elected pricing from Milton.

Pembroke Variable CNG Adder includes the variable costs associated with compression, hauling, and decompression of natural gas from the Pembroke, NH compressor station. The adder adjusts with the cost of diesel fuel using the EIA-published index for New England (PADD 1A) (See Attachment B). The Variable Adder is applied to volumes as delivered through the onsite meter in Keene when Liberty has elected pricing from Pembroke.

Estimated CNG Commodity Charge is the underlying cost of natural gas for CNG. It includes the average cost of natural gas delivered in Milton for the period December through March and in Pembroke April through November, including the cost of the commodity, pipeline and/or LDC charges, and basis and/or marketer fees. A variety of commodity purchasing arrangements are possible in both locations and we would be happy to work with Liberty to identify the optimal solution, which could include gas supplied directly by Liberty. The Commodity Charge is applied to metered volumes consumed in Keene on each gas day based on the compressor location selected by Liberty.

Estimated Delivered LNG Charge includes the costs associated with commodity, liquefaction, and hauling of natural gas including pipeline transport charges. The charge will reflect the actual costs for each delivery of LNG. In this proposal costs are included for supply sourced from the Gaz Metro terminal in

Montreal, QC; however, we would be happy to work with Liberty to source from alternative locations if desired.

	Option 1 100% CNG	Option 2 CNG/LNG Hybrid
Option		
Montly Demand Charge (\$/mo.)		
Milton Variable CNG Adder (\$/MMBtu)		
Pembroke Variable CNG Adder (\$/MMBtu)		
Estimated CNG Commodity Charge (\$/MMBtu)		
Delivered LNG Charge (\$/MMBtu)		
Anticipated CNG Volumes Milton (MMBtu)*		
Anticipated CNG Volumes Pembroke (MMBtu)*		
Anticipated LNG Volumes (MMBtu)*		
Average Non-Commodity (\$/MMBtu)		
Average Cost (\$/MMBtu)		
*Average Volumes per Annum; assumes four months Milton, eight months Pembroke		

If Liberty Utilities desires to increase the amount of onsite storage, additional CNG trailers, with a storage capacity of 360 MMBtu, may be added to this proposal at a cost of [REDACTED] per trailer per month, and/or additional LNG ISO containers, with a storage capacity of 900 MMBtu, may be added at a cost of [REDACTED] per tank per month, plus the cost of any additional civil work.

If no reserve trailers are required because NG Advantage truck replenishment capacity is deemed adequate to meet the PUC requirement, the monthly demand charge in Option 1 will be reduced to [REDACTED]

If a 50% reserve capacity must be maintained during the low season, the monthly demand charge in Option 1 will be increased to [REDACTED]

Pricing Assumptions

The estimated commodity charges for CNG are based on forward curve pricing for commodity sourced at the NG Advantage Pembroke, NH compressor station December through March, and at the NG

Advantage Milton, VT compressor station April through November. For LNG, estimated commodity charges are based on forward curve pricing at the Gaz Metro LNG terminal in Montreal, QC.

Option 1 All CNG System Pricing Assumptions

We assumed the following consumption shape for CNG deliveries:

Month	% of Annual
January	17.5%
February	16.5%
March	12.6%
April	8.7%
May	3.9%
June	2.9%
July	1.9%
August	1.9%
September	2.9%
October	3.9%
November	10.7%
December	16.6%

This results in approximately 63.1% of consumption served from the Milton, VT compressor station, and 36.9% served from the Pembroke, NH compressor station. Prices are weighted average based on the forward curve from November 2016 through October 2017 for each station.

Option 2 – Hybrid CNG/LNG System Pricing Assumptions

We assumed LNG use averages 2,700 MMBtu per year. This amount includes the consumption of boil-off during maintenance on the CNG decompression equipment and during changeover between CNG trailers. An average consumption of 48,800 MMBtu of CNG is assumed per annum, using the same monthly breakdown as above.

LNG pricing has been converted from CDN\$ to US\$ at an exchange rate of 76%. The actual pricing of deliveries from Canada will be calculated using the actual price of LNG multiplied by the actual exchange rate in effect on the date of delivery.

The system installed will be capable of higher volume; and as consumption rises, average cost per MMBtu will fall.

References

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*Additional references available upon request.

Onfiden

Attachment A

Diesel Surcharge Rates from Milton

Fuel Surcharge Rate Schedule						
Fuel Index - On-highway Diesel Fuel Prices for New England PADD District 1A as reported from U.S. Energy Information Administration available at www.eia.gov/petroleum/gasdiesel/ .						
Fuel Index			Fixed Adder Change	Fuel Index		
\$ 1.53	\$ 1.609	\$	(0.10)	\$ 3.53	\$ 3.609	\$ 0.41
\$ 1.61	\$ 1.689	\$	(0.08)	\$ 3.61	\$ 3.689	\$ 0.43
\$ 1.69	\$ 1.769	\$	(0.06)	\$ 3.69	\$ 3.769	\$ 0.45
\$ 1.77	\$ 1.849	\$	(0.04)	\$ 3.77	\$ 3.849	\$ 0.47
\$ 1.85	\$ 1.929	\$	(0.02)	\$ 3.85	\$ 3.929	\$ 0.49
\$ 1.93	\$ 2.009	\$	-	\$ 3.93	\$ 4.009	\$ 0.51
\$ 2.01	\$ 2.089	\$	0.02	\$ 4.01	\$ 4.089	\$ 0.53
\$ 2.09	\$ 2.169	\$	0.04	\$ 4.09	\$ 4.169	\$ 0.55
\$ 2.17	\$ 2.249	\$	0.06	\$ 4.17	\$ 4.249	\$ 0.57
\$ 2.25	\$ 2.329	\$	0.08	\$ 4.25	\$ 4.329	\$ 0.59
\$ 2.33	\$ 2.409	\$	0.10	\$ 4.33	\$ 4.409	\$ 0.61
\$ 2.41	\$ 2.489	\$	0.12	\$ 4.41	\$ 4.489	\$ 0.63
\$ 2.49	\$ 2.569	\$	0.14	\$ 4.49	\$ 4.569	\$ 0.65
\$ 2.57	\$ 2.649	\$	0.16	\$ 4.57	\$ 4.649	\$ 0.67
\$ 2.65	\$ 2.729	\$	0.18	\$ 4.65	\$ 4.729	\$ 0.69
\$ 2.73	\$ 2.809	\$	0.20	\$ 4.73	\$ 4.809	\$ 0.71
\$ 2.81	\$ 2.889	\$	0.22	\$ 4.81	\$ 4.889	\$ 0.73
\$ 2.89	\$ 2.969	\$	0.24	\$ 4.89	\$ 4.969	\$ 0.75
\$ 2.97	\$ 3.049	\$	0.27	\$ 4.97	\$ 5.049	\$ 0.78
\$ 3.05	\$ 3.129	\$	0.29	\$ 5.05	\$ 5.129	\$ 0.80
\$ 3.13	\$ 3.209	\$	0.31	\$ 5.13	\$ 5.209	\$ 0.82
\$ 3.21	\$ 3.289	\$	0.33	\$ 5.21	\$ 5.289	\$ 0.84
\$ 3.29	\$ 3.369	\$	0.35	\$ 5.29	\$ 5.369	\$ 0.86
\$ 3.37	\$ 3.449	\$	0.37	\$ 5.37	\$ 5.449	\$ 0.88
\$ 3.45	\$ 3.529	\$	0.39			

Attachment B

Diesel Surcharge Rates from Pembroke

Fuel Surcharge Rate Schedule						
Fuel Index - On-highway Diesel Fuel Prices for New England PADD District 1A as reported from U.S. Energy Information Administration available at www.eia.gov/petroleum/gasdiesel/ .						
Fuel Index			Fixed Adder Change	Fuel Index		
\$ 1.53	\$ 1.609	\$	(0.04)	\$ 3.53	\$ 3.609	\$ 0.14
\$ 1.61	\$ 1.689	\$	(0.03)	\$ 3.61	\$ 3.689	\$ 0.15
\$ 1.69	\$ 1.769	\$	(0.02)	\$ 3.69	\$ 3.769	\$ 0.16
\$ 1.77	\$ 1.849	\$	(0.01)	\$ 3.77	\$ 3.849	\$ 0.16
\$ 1.85	\$ 1.929	\$	(0.01)	\$ 3.85	\$ 3.929	\$ 0.17
\$ 1.93	\$ 2.009	\$	-	\$ 3.93	\$ 4.009	\$ 0.18
\$ 2.01	\$ 2.089	\$	0.01	\$ 4.01	\$ 4.089	\$ 0.18
\$ 2.09	\$ 2.169	\$	0.01	\$ 4.09	\$ 4.169	\$ 0.19
\$ 2.17	\$ 2.249	\$	0.02	\$ 4.17	\$ 4.249	\$ 0.20
\$ 2.25	\$ 2.329	\$	0.03	\$ 4.25	\$ 4.329	\$ 0.21
\$ 2.33	\$ 2.409	\$	0.04	\$ 4.33	\$ 4.409	\$ 0.21
\$ 2.41	\$ 2.489	\$	0.04	\$ 4.41	\$ 4.489	\$ 0.22
\$ 2.49	\$ 2.569	\$	0.05	\$ 4.49	\$ 4.569	\$ 0.23
\$ 2.57	\$ 2.649	\$	0.06	\$ 4.57	\$ 4.649	\$ 0.23
\$ 2.65	\$ 2.729	\$	0.06	\$ 4.65	\$ 4.729	\$ 0.24
\$ 2.73	\$ 2.809	\$	0.07	\$ 4.73	\$ 4.809	\$ 0.25
\$ 2.81	\$ 2.889	\$	0.08	\$ 4.81	\$ 4.889	\$ 0.26
\$ 2.89	\$ 2.969	\$	0.09	\$ 4.89	\$ 4.969	\$ 0.26
\$ 2.97	\$ 3.049	\$	0.09	\$ 4.97	\$ 5.049	\$ 0.27
\$ 3.05	\$ 3.129	\$	0.10	\$ 5.05	\$ 5.129	\$ 0.28
\$ 3.13	\$ 3.209	\$	0.11	\$ 5.13	\$ 5.209	\$ 0.28
\$ 3.21	\$ 3.289	\$	0.11	\$ 5.21	\$ 5.289	\$ 0.29
\$ 3.29	\$ 3.369	\$	0.12	\$ 5.29	\$ 5.369	\$ 0.30
\$ 3.37	\$ 3.449	\$	0.13	\$ 5.37	\$ 5.449	\$ 0.30
\$ 3.45	\$ 3.529	\$	0.13			

Request for Binding Pricing

Construction and Service Cost to Develop a Trucked Natural Gas Solution for Keene, New Hampshire



Liberty Utilities®

Submitted as of May 27, 2016

Prepared by Xpress Natural Gas LLC



160 State Street, 8th Floor
Boston, MA 02109

Please note that this estimate is considered confidential information, contains trade secrets of Xpress Natural Gas LLC and has been prepared for Liberty Utilities only in connection with its consideration of CNG services.



May 27, 2016

Mr. Chico DaFonte
Mr. Paul Maffa

Dear Mr. DaFonte and Mr. Maffa,

Thank you for inviting XNG to respond to your request for binding pricing for trucked gas service to your franchise system in Keene, New Hampshire.

With extensive CNG and LNG experience with LDC customers, and our strong focus on service reliability, we are in a position to continue to commit to gas delivery commencing November 1, 2016 with an executed contract.

- Utility experience: XNG injection stations are approved by the New York Public Service Commission for permanent LDC installation, and we encourage you to visit our site with NYSEG in Mechanicsville, NY, or our system with Con-Edison in New York City for Roosevelt Island.
- New Hampshire experience: We provide gas for the biggest public institutions in the state, including the Plymouth State University and Dartmouth-Hitchcock Medical Center in Lebanon, which is the only Level 1 trauma center in northern New England.

CNG offers a lower cost of fuel on average, while LNG enables the system to most easily meet and exceed NH PUC requirements for on-site storage. Both systems are completely scalable as the system grows. All of our utility solutions are built with 100% redundancy, above and beyond our proprietary CNG skid with fully redundant flow paths. We are confident that you will see that our equipment and fully-integrated fleet, logistics, and maintenance organization offers the most reliable solution for municipal baseload service.

We recommend a two-system approach in situations where reliability and on-site storage are both critical. Keene fits that profile, and using both CNG and LNG may be an important means to cost-effectively meet the requirements of the NH PUC for redundancy and days of peak storage.

Our company is delighted at the chance to revisit this project. We have the resources to move quickly to meet your November 1 deadline – but we do need to get started as soon as possible. Converting 1,250 customers from propane-air to natural gas takes coordination. We provide dedicated project management to make that happen.

Please contact us at any time with questions. We look forward to developing this project together.

Sincerely,

A handwritten signature in blue ink that reads "Matthew F. Smith".

Matthew F. Smith
EVP, Sales and Marketing
Xpress Natural Gas LLC

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1. XNG Advantages

We are excited to offer our services to Liberty Utilities, and would like to highlight what we think are the most important aspect of our CNG and LNG supply capabilities:

1. **Firm gas.** XNG's terminals are connected directly to high pressure interstate pipelines. We are not subject to any form of utility curtailment or interruption. We design our terminals so that our capacity to take gas off of the pipeline exceeds the contractual needs of our customers.
2. **Multiple compression terminals on independent interstate pipelines.** Our Northeast terminals are located on the Maritimes and Northeast, PNGTS, and Iroquois pipelines. Liberty will be able to source from the most price competitive supply point.
3. **PUC approval for utility service.** XNG has experience servicing utility customers on both LNG and CNG. Our CNG systems are installed and operating in New York after meeting rigorous testing standards for both reliability and redundancy in a utility application.
4. **State of New Hampshire approval.** We service Dartmouth-Hitchcock Medical Center (Level 1 Trauma Center) and Plymouth State University. Our equipment set the precedent standard for CNG in New Hampshire, and has been comprehensively reviewed by the State Fire Marshall.
5. **Proven CNG and LNG solutions.** We are a full-service solutions partner, with the technical expertise and equipment to offer both CNG and LNG service.
6. **Integrated supplier.** We are the only 100% integrated CNG supplier in North America. We design, build and maintain our own equipment, and we operate our own trucking fleet for CNG. This gives us the ability to tailor our solutions to meet your needs, with the highest commitment to service responsiveness and reliability. Our fleet drivers are employees, not contractors.

Finally, we are partnered with Dead River Company to offer propane for back up, and with Direct Energy Business to offer multi-year supply agreements or hedging options to support a multi-fuel solution.

We would like to request a meeting to discuss this proposal and our service offering with your team. We will make ourselves available at your request. Thank you for the opportunity to earn your business.

The XNG Team

2. Solutions Overview

a. Service Options

We are prepared to offer three service options to meet the needs of this proposal:

- 1. CNG only.** A dedicated CNG system provides the lowest cost of service. The system is managed 24x7 by XNG, and service includes all maintenance, remote monitoring and diagnostics. We provide full operational capability to manage the skid to Liberty Utilities. The CNG system is sized to support 100% of the current and 3-year projected growth of the Keene system, and is detailed in Section 4.
- 2. LNG only.** We will provide a complete LNG vaporization system to be operated by Liberty Utilities. That system enables Liberty to maintain 100% of the mandated 7-day storage requirement on site at all times. However, the cost of commodity is higher than CNG. LNG equipment is detailed in Section 5.
- 3. CNG with LNG backup.** A combined CNG/LNG system provides the low cost of CNG fuel with the storage density of LNG. Typically, CNG is the primary fuel used by the customer and the LNG system is maintained as a backup system that is fully integrated in the event of a CNG supply disruption. Liberty Utilities always has the option to use either fuel. We would install both systems on the same site, feeding the same injection station. This approach offers maximum reliability, sufficient on-site storage, peak demand requirements, and expandable to support future growth of the municipal load.

Key benefits:

- **100% redundant systems:** Both the CNG and LNG systems can support the full load of the system on a standalone basis. Furthermore, both our CNG and LNG vaporizers offer redundant flow paths in each system for maximum reliability by eliminating any single point of failure.
- **On-Site Storage:**
 - **CNG:** We will station three (3) CNG trailers on site, which hold up to 1,000 Dth of on-site gas storage at full capacity. To meet the requirements of the NH PUC, we will contract for 100% firm supply at our terminal for at least 2,500 Dth per week, sufficient to meet 1,700 Dth if credited at 70% toward the 5-day balance.
 - **LNG:** We will provide the option for three (3) 10,000-gallon cryogenic LNG storage tanks representing 3,000 Dth of on-site available storage at all times. This is the most robust solution to satisfy the NH PUC requirement for 7 days of on-site storage.
- **Peak Demand:** Independently, both CNG and LNG systems have a standalone capacity of 50 Dth per hour or greater.
- **Future Growth:** With this system, capacity can always be increased simply by adding additional trailers – both CNG and LNG – as needed.

- **Multiple Commodity Indices:** Our CNG terminal network gives access to multiple interstate pipeline suppliers on both Algonquin and Iroquois. Our LNG suppliers include UGI (Texas Eastern), Gaz Metro (regulated), or GDF Suez (Tennessee Zone 6) as competitive supply alternatives.

The following pictures show an integrated CNG/LNG system owned and operated by XNG.



b. Service Pricing

The delivered price of trucked natural gas is comprised of a fixed Demand Charge for XNG's equipment, and a variable charge based on the cost of sourcing / compression and transportation. For CNG, XNG's Eliot, ME and Manheim, NY terminals are both available to serve Liberty's load. The variable charge below is based on delivery from Eliot.

The following table outlines our proposed cost of service for each option on a three-year agreement.

Option 1	Fixed Demand ¹	Variable Charge ² Per mmBtu	Commodity Gas ³ Index	Annual Service Cost
CNG Baseload <i>48,000 Dth per year</i>			<i>Algonquin</i>	

Option 2.

LNG Baseload <i>48,000 Dth per year</i>			<i>Texas Eastern M3 + Liquefaction</i>	
---	--	--	--	--

Option 3.

CNG Baseload <i>45,000 Dth per year</i>			<i>Algonquin</i>	
LNG as Backup ⁴ <i>3,000 Dth per year</i>			<i>Texas Eastern M3 + Liquefaction</i>	
Total				

Notes:

1. Fixed Demand: We anticipate that the NH PUC may require Liberty Utilities to own some or all of the equipment that is attached on a permanent basis to its pipeline distribution system. We will provide purchase options for all installed equipment. Please note that capacity on each system is determined by the sizing of the equipment as installed, and by the contractual commitment to the number of trailers.

2. Variable Charges: Variable charges represent a fixed per mmBtu charge for the term of the contract, and includes compression, transportation, storage, operations, 24/7 monitoring and maintenance. CNG variable charge based on XNG Eliot terminal. LNG variable charge based on UGI Energy Services liquefier in Temple, PA and transportation per TransGas. All charges are based on a 3-year term of service.

3. Commodity Gas:

- CNG represents firm supply from our terminal on the PNGTS and Maritimes Joint Facilities. Gas is not subject to curtailment or interruptions for any reason other than *force majeure* on the pipeline.
- LNG from UGI Energy Services liquefier supply terminal in Temple, PA would include estimated \$5.50 liquefaction charge. Other LNG suppliers include Gaz Metro and GDF Suez.

4. LNG as Backup: Pricing assumes equipment is deployed only from November to March each year.

c. Commodity Gas

We own multiple CNG terminals on different interstate pipelines in the northeast. This gives Liberty Utilities options to bid service from multiple suppliers based on its needs. Our Eliot, ME terminal is closest to Keene and will result in the lowest transportation cost to Liberty. The Eliot terminal is directly connected to the Joint Facilities system owned by Maritimes & Northeast and PNGTS and is able to source gas from either pipeline. Our Manheim, NY terminal is directly connected to Iroquois and provides incremental reliability in the event of any physical disruption of supply to Eliot. Both of XNG's terminals are sized to take delivery of up to 18,000 Dth per day off of the interstate pipeline. There are no capacity constraints affecting either terminal and we are not subject to utility curtailments or any other limitation on the availability of supply.

XNG has contractual relationships with all of the major suppliers on both Maritimes and PNGTS and is capable of supplying Liberty's commodity needs at a fixed price, fixed basis, monthly index, daily index, or any commercially reasonable combination of the above. If Liberty would prefer to contract for its own supply on either pipeline serving Eliot (or both), simply arrange for delivery to our pipeline meter(s) and XNG will take care of the rest.

In addition, XNG has developed relationships with key northeastern LNG suppliers (UGI, Gaz Metro and GDF Suez) and can facilitate bids for liquid supply from any and all of those suppliers.

We assume CNG will provide the baseload for this system. Absent any other arrangement, commodity gas for this project will default to an index-based price for delivery from our Eliot, Maine terminal on the PNGTS/Maritimes Joint Facilities. Based on our current supplier relationships, that index could be Algonquin, Tennessee Zone 6 or Dawn. As back-up, we offer supply from the Iroquois Gas Transmission System. As with Eliot, commodity on Iroquois can be provided based on any pricing mechanism listed above.

We will work closely with you to achieve the lowest commodity price available for your customers.



XNG Supply Terminal

Our terminals see pipeline pressure greater than 1000psi. This allows us to fill trailers in less than two hours and multiple trailers at the same time - up to 45 per day. We do not contract for more than 50% capacity at any terminal so we can guarantee utility customers supply availability for peak days.

3. NH PUC Minimum Storage Requirement

Per Liberty Utilities:

“The State of New Hampshire requires that all natural gas utilities have sufficient onsite inventory to satisfy a 7-day cold snap. The determination of the requirement is based on the historically coldest 7 consecutive day period. For the purpose of this solicitation the calculated requirement for this 7-day period is approximately 2,700 Dth. This 2,700 Dth requirement can be met through a combination of physical onsite storage and up to 70% of 5 days’ worth of truck deliveries. For example, if there is 1,000 Dth of onsite physical storage, the remaining 1,700 Dth would have to be delivered via dedicated trucking but only 70% of the dedicated trucking for 5 days could be used in the calculation. All proposals should address the manner in which this 7-day inventory requirement is to be satisfied. ”

Minimum Storage Requirement using LNG

We will provide three (3) 10,000-gallon cryogenic LNG storage tanks representing 3,000 Dth of on-site available storage at all times. This is the most robust solution to satisfy the NH PUC requirement for 7 days of on-site storage.

LNG can be positioned on site for November to March, or year-round as needed. LNG used for back-up storage can be injected into the distribution pipe at the end of winter. An installed LNG vaporization system can be used on a continuous basis to supply the franchise area distribution as baseload, or to provide full redundancy as back-up to CNG.

Minimum Storage Requirement using CNG

We will station three (3) CNG trailers on site, which hold in excess of 1,000 Dth of on-site gas storage at full capacity. To meet the requirements of the NH PUC, we would contract for 100% firm supply at our terminal for at least 2,500 Dth per week, sufficient to meet 1,700 Dth if credited at 70% toward the 5-day balance. We believe this solution is sufficient to meet the requirements of the NH PUC by using firm pipeline supply, and our regional fleet of more than 50 high-capacity CNG trailers.

This approach relies on two critical abilities: firm supply (preferably interstate pipeline) and owned fleet transportation.

- Our regional terminals are located on interstate pipelines, so we can contract with Liberty for firm supply. Liberty has the option to arrange gas delivery direct to our meter.
- We own and operate our own fleet of CNG trailers, and all drivers are XNG employees. This provides full control over our equipment and dispatch. Delivery of 1,700 Dth over five days averages 1 trailer per day, and it is our policy to have at least one trailer available and full at each terminal for rapid dispatch.

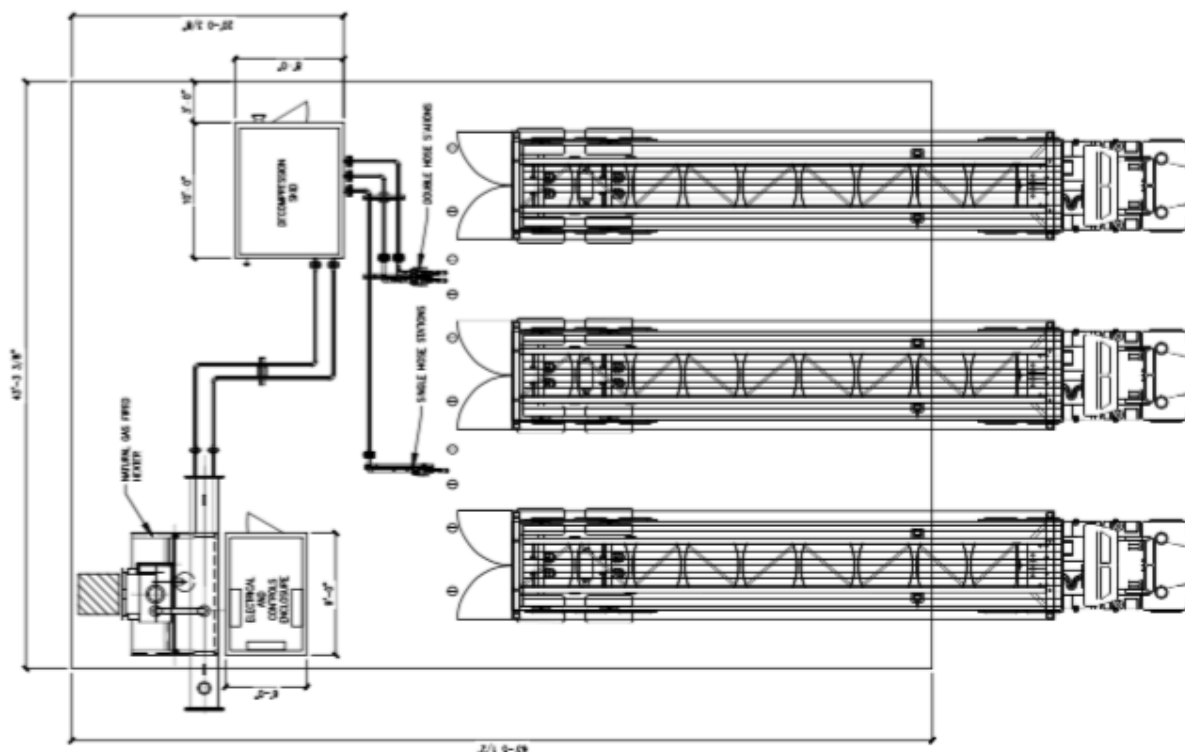
We are confident in our ability to provide the NH PUC full assurance that trailers are available for dispatch to Keene at all times to satisfy requirements for off-site storage.

4. CNG Decompression Equipment

XNG will install a decompression system with a minimum rated capacity of 40 Dth per hour based on the peak hour requirement. We will supply all of the necessary natural gas compression, transportation, storage, discharge and decompression equipment at the interconnection and metering locations.

We expect a three-trailer site layout as a starting point for planning purposes. We can adjust the number of trailers required on-site as needed.

The layout below shows a typical three-trailer CNG decompression station layout, which would support the flow rates and trailer assumptions reflected in this proposal. The actual location selected by Liberty Utilities and approved by the NH PUC will determine the actual configuration.



CNG Equipment Overview

We design and fabricate all of our equipment based on our proven, proprietary designs to best control cost, quality and delivery schedule. Our main fabrication shop is located in Stratham, New Hampshire. We also maintain a complete inventory of maintenance and spare parts to provide immediate response in the unlikely event of a repair.

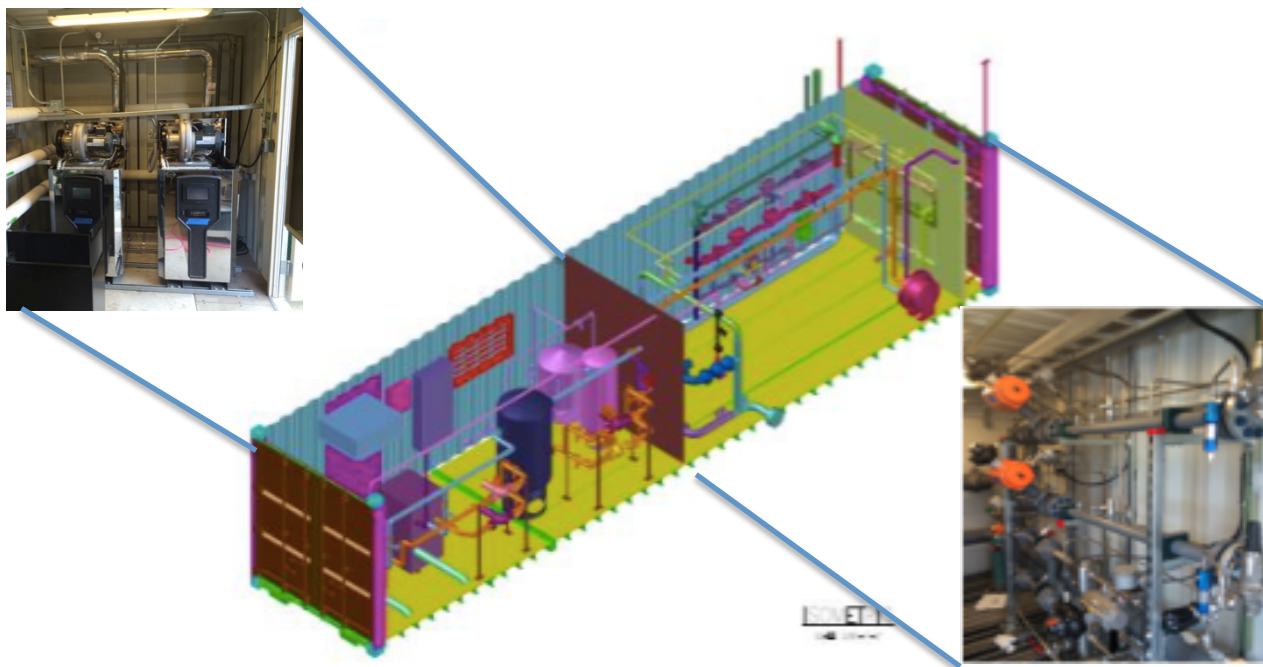
- Every decompression skid is built to meet and exceed all applicable federal standards.
- Manufactured to ASME specification for high-pressure gas applications.
- Testing, including x-ray analysis of every weld.

Once assembled, the skid-mounted equipment will be delivered and connected to the pipeline. The meter at the flange serves as custody transfer point for all deliveries of natural gas.



NYSEG Facility, Mechanicville NY - XNG Injection Station

Design Flow Rate:	40 MSCFH
Turndown:	10:1 Min
Design Pressure:	4250 psig
Discharge Pressure:	50-100 psig
Discharge Temperature	35-75° F
Minimum Ambient Temp.	-20° F
Minimum Process Temp.	-40° F
Expected Code Compliance:	NFPA 52, NFPA 70 (NEC), ASME B31.3



NOTE: Gas Heaters pictured on left, Regulators pictured on right.



CNG Project Scope of Responsibility

CNG Decompression Equipment. XNG is responsible for all aspects of the engineering, design, installation and operational permitting of the decompression system up to the flange connection at the point of metering and injection.

CNG Procurement, Transportation and Logistics. XNG is responsible for CNG compression and transportation. All aspects of logistics and transportation are managed by XNG through its own 24-hour logistics and dispatch center, and network of supply terminals in the region. Commodity gas is available on a floating or fixed index based on Liberty requirements, and all contracts can be competitively bid to the marketers with capacity that the elected terminal location.

CNG Site Permitting and Construction. Liberty Utilities is responsible for site permitting, as well as construction of the site to a site plan developed in collaboration and approved by XNG. Liberty will provide all electrical and data utility drops, any PLC interface with its own remote systems, and all interconnects including the pipeline tap to its system.

NOTE: *XNG can provide full construction services for site construction, and will provide pricing on request work once a site is selected and approved.*

The New York State Public Service Commission requires utility customers to own any decompression equipment that is permanent attached to a pipeline distribution system. Using that same approved configuration, we estimate a utility-grade decompression system to cost [REDACTED] plus installation. We will make all equipment available to Liberty for purchase or lease as required, and can offer a buy-back option at end of term.

** Note: We expect that one-time mobilization and demobilization for a typical site is [REDACTED]. That cost covers delivery and installation of all decompression equipment at designated site, commissioning of all equipment, and breakdown and removal of all equipment at end of project. Additional equipment may incur additional expense for installation. A mobilization / demobilization surcharge applies for any site that does not have paved road access or approved over-the-road weight capacity for delivery.*

5. Liquefied Natural Gas (LNG) Service

We will provide all equipment necessary to engineer, install and operate an LNG re-vaporization facility for the duration of the project. This includes a manual truck unload station, storage tank manifold, pressure-build skid, ambient LNG vaporizer system (50 MSCFH rated for 24-hour duty cycle), and a send-out skid equipped for metering, pressure regulation, and odorizer connection.

For this estimate, we assume three ISO storage tanks on-site representing 30,000 gallons of LNG storage, equivalent to approximately 3,000 mmBtu. We can offer additional on-site storage in any quantity.

Each delivery tanker dispenses fuel into a cryogenic storage tanker in the containment area via a distribution manifold. A control system automatically manages the flow of fuel from the storage tanks back through a skid-mounted vaporizer and heater to deliver a constant pressure, reliable stream of natural gas.

Our ambient system is a proprietary, proven design with features that are important to point out.

- **Designed with N+1 reliability.** Each skid has three vaporizer banks, each rated at 50,000 scfh capacity. The rated capacity is based on switching between only two units for deriming on a continuous operating basis. This provides for maximum reliability, and the ability to handle increased hourly peaks by including the third bank for added capacity.
- **Supplemental deriming using forced hot gas recirculation.** Our ambient vaporizers derime faster, which significantly increases the turnaround time and enables us to 1) provide more consistent temperature output gas, and 2) higher through-put for peaking.
- **Lower emissions and noise.** Ambient vaporizer systems do not have a combustion element or blower fan. Ambient systems are ideal in situations where even very low levels of noise or carbon emissions are of concern.

LNG Project Scope of Responsibility

LNG Vaporization Equipment. XNG is responsible for all aspects of the engineering, design, and installation of the vaporization system up to the flange connection at the point of metering and injection – including odorization and metering equipment, and safety systems.

LNG Site Permitting and Construction. Liberty Utilities is responsible for site permitting, as well as construction of the site to a site plan developed in collaboration and approved by XNG. Liberty will provide all electrical and data utility drops, any PLC interface with its own remote systems, and all interconnects including the pipeline tap to its system.

NOTE: *XNG can provide full construction services for site construction, and will provide pricing on request work once a site is selected and approved.*

LNG Procurement and Transportation. We assume Liberty Utilities will be responsible for LNG procurement and transportation. In the event that Liberty does not currently have a provider, bids for transportation for this project will be solicited from at least two approved vendors, and customer will have option to select vendor.

- LNG would be priced as of date of purchase based on the terminal source for any gas provided, and will include all supplier liquefaction and/or other service charges applicable to the purchase of the LNG, and any wheeling or pipeline charges
- If supplied by XNG, LNG purchasing and transportation charges would be invoiced at cost plus a fixed mark-up of 10%.

LNG Operational Staffing. NFPA 59a would dictate limited on-site staffing for a permanent installation. We assume that Liberty will lease the equipment for the entire contract term, and the equipment would be installed as to be considered a permanent installation under NFPA 59a.

- As such, we assume that Liberty Utilities will oversee and operate the installation. Our staff has direct experience operating this LNG equipment, and will provide on a cost-plus basis comprehensive training and operational documentation to enable your employees to manage the installation. All XNG employees have attended fire safety and emergency response training to be familiar with all applicable LNG codes and regulations.

Any revisions to the basis of design or system performance requirements can impact the equipment provided, and can be dealt with on a change order basis.

The capital cost for the proposed vaporization equipment suite is approximately [REDACTED]. We are willing to discuss both lease-to-own and purchase contract options for this project, and can offer a buy-back option at end of term.

** Note: We expect that one-time mobilization and demobilization for a typical site is [REDACTED]. That cost covers delivery and installation of all vaporization equipment at designated site, commissioning of all vaporization equipment, and breakdown and removal of all equipment at end of project. Additional equipment may incur additional expense for installation. A mobilization / demobilization surcharge applies for any site that does not have paved road access or approved over-the-road weight capacity for delivery.*

The primary equipment list for this project includes:

1. **Ambient LNG vaporizer.** Each ambient suite uses three vaporizers. The rated capacity is based on switching between only two units for deriming on a continuous operating basis. This provides for 3 ambient vaporizers (in parallel) with 2 electric trim heaters (in parallel) with the following primary components:
 - a. Thermax Supergap™ Ambient Vaporizer, Model: TDF9608A-HF-SGE-C
 - b. (2) Thermax Thermacast Trim Heaters, Model TT30-LPD, 30 kW, 480V/3PH/60Hz
 - c. Ladish cryogenic and non-cryogenic stainless steel valving
 - d. Integrated into site control system that provides for temperature control and downstream protection.



Ambient Finned Vaporizer with Electric Trim Heaters

IMPORTANT: Our ambient systems have a proprietary supplemental deriming capability using forced hot gas recirculation. Our vaporizers derime faster, delivering a better consistent temperature output gas with higher peak throughput.

2. Fuel storage

Each tank has a capacity of 10,000 gallons of LNG storage (12,000 gallon rated water capacity) with individual send-out, filling, and vapor lines. All tanks conform to DOT requirements for over-the-road LNG transports. Our manifold design is modular so more storage can always be added at a later date.



3. Storage Tank Manifolds.

Skid mounted hard-piped distribution manifolds for liquid send out, storage filling, and high/low vapor pressure control.

4. **Manual truck unloading station (back-up to pump skid).** Simple manual valve station with hose drain for a backup to the mechanical LNG pump unloading skid.

5. **Automated pressure-build coil.** Vertical ambient vaporizers with automated valve that automatically maintains storage tank pressure, thereby maintaining customer pressure.
6. **Send-out and Odorization Skid.** Includes high-flow metering at point of discharge to flange, which supports inventory management as well as odorant discharge.
7. **Atmospheric vent ambient heater.** Heats any gas that must be vented direct to atmosphere so that gas will rise away from site.



In addition, XNG will provide all piping for gas distribution (stainless steel braided hosing and hard-piped steel) from unloading to vaporizer to metering and discharge to boundary flange.

Power would be the responsibility of Liberty Utilities. XNG will provide all the necessary submittals for the equipment provided.

Typical site layout, containment, and area classification drawings are all available upon request.

6. Safety and Regulatory Compliance

a. Safety

Safety is our number one priority. We are committed to ensuring the safety of our employees, your employees, and the public who might be affected by the location of any of our natural gas facilities.

To that end, we develop a comprehensive Emergency Response Plan (ERP) for each installation. We believe our safety standards, procedures and documentation are the best in our industry, and we can provide a copy of a complete ERP document on request.

We also provide comprehensive first-responder training, as well as coordinated training and educational sessions for employees relating to health, safety and emergency response plans. We have worked extensively with Chris Christopolous, the NH fire chief and consultant, and would recommend Chris as a resource for this project.

b. Regulatory Compliance

With the assistance of external counsel, XNG has conducted an extensive review of federal and state regulations as they apply to natural gas delivery, and specifically compressed natural gas trucking and dispensing. Every customer site and all equipment at both our terminals and our customer locations are built and operated in full compliance with all Federal, State, and local laws, rules, and regulations, including:

- 49CFR192 and/ or 49CFR193 of the Code of Federal Regulations
- NFPA 52 (CNG) and/ or NFPA 59a (LNG)
- OSHA Safety regulations with regards to construction and operations
- MDOT and Federal regulations regarding transport, delivery, and unloading of fuel products
- Any other New Hampshire state code, regulation or local ordinance that may be reasonably applied to the equipment as supplied for this project.

We will work closely with your team to ensure that any and all permits are secured for construction and operation of the gas injection station. That includes approval from the New Hampshire State Fire Marshall (with input from Keene regional first responders) and the New Hampshire Department of Environmental Services regarding air permitting.

XNG is responsible for:

- Code compliance and local construction permitting for the equipment installed on site
 - State Public Utility Commission permit for operation
 - Local Building Authority code compliance
- State Department of Transportation and Federal regulations regarding transport, delivery, and unloading of heating fuel products.
- XNG is responsible for ensuring all activities under its direct responsibility are in compliance with all regulatory oversight, including:
 - State Uniform Building and Energy Code
 - OSHA Safety regulations with regards to construction and operations.

Liberty Utilities would be responsible for permits and/or regulatory approval from:

- New Hampshire Public Utility Commission
- New Hampshire State Fire Marshall (with input from the Keene Fire Department)
- New Hampshire Department of Environmental Services
- Any local authority regulating construction activity, including building permits as required of the land owner.

c. Odorization

Every facility is required to make provision for the addition of odorant, and to conduct regular inspections to demonstrate that its product meets state PUC requirements for odorization. We will comply with all New Hampshire PUC requirements for odorization, including on-site testing for compliance if required. All necessary odorization of CNG will take place at our supply terminal prior to delivery, and full reporting logs are maintained for PUC compliance and reporting.

d. Controls

Each installation is automated and controlled by an Allen Bradley Compact Logic PLC system that will be integrated into your corporate control systems as well as wired to provide for remote monitoring and shutdown. We have developed a proprietary interface to connect a level and pressure transmitter system to the PLC so that we maintain real-time and historical record of trailer tank conditions.

We will support the necessary controls integration required for Liberty Utilities to have its own access to set the system pressure and volume controls.

We provide the following system data to monitor the process and to determine proper functioning and amount of remaining supply: inlet pressure, outlet pressure, heater temperature, gas outlet temperature, and flow rate.

e. Warranty and Maintenance

All equipment is warrantied for repair and maintenance of the installed components for the term of any contract. The NH PUC may, at its discretion, request that Liberty Utilities perform other regular testing or maintenance services on the systems related to its operation as a gas distribution utility in the State of New Hampshire, and XNG is willing to support any of that work as a sub-contractor or third-party supplier under a separate agreement.

We can provide copies of all routine maintenance on request. We also include a monthly site inspection report, and a visual check of the system on each delivery.

If there are additional site support services that Liberty Utilities or the NH PUC require, such as odorometer testing, XNG is willing to evaluate and provide such services. We can also provide for ongoing maintenance beyond the warranty period.

7. Project Delivery

a. Preliminary Schedule

XNG has the available equipment, in-house engineering and fabrication capability to guarantee delivery of a complete CNG decompression and/or LNG vaporization solution sufficient to meet the NH PUC requirement for the equivalent of 7-days storage representing the peak week of projected use for the period from December 1 to April 1. This equipment would be put in place by November 1, 2016 to support the 2016/2017 heating season.

With contract, XNG will immediately dedicate its engineering resources to this project, with the firm goal of converting the system to natural gas ahead of the next winter heating season.

To do so, three critical activities must begin as soon as possible:

- 1. Permitting.** We will work closely with Liberty Utilities to permit this project. While we don't anticipate any issues with local use or building codes, we do expect to need to demonstrate to the NH PUC and NH Fire Marshall that we have met and exceeded all relevant regulatory requirements. We believe this is the greatest risk to schedule delay, and we strongly recommend starting this as soon as possible – no later than June 15, 2016 to support a November 1, 2016 commissioning.
- 2. Design and Procurement.** XNG would immediately start design work at our fabrication shop and place critical long-lead time equipment orders with vendors to ensure we have all necessary equipment for the project.

This process starts by reviewing historical use to establish a load profile, maximum hourly flow data, seasonality fluctuation and volumes – and projected volumes for growth. This data will become the basis of design for the equipment, and establish a baseline transportation schedule using the projected volumes of natural gas needed throughout the year.

Because of our past experience building the equipment that would be necessary for similar load applications, the engineering work suitable for designing the systems has already been completed. This significantly reduces the time and cost necessary to get equipment constructed and installed. CNG equipment is built to spec, but we have a full LNG suite ready to deploy to start service this calendar year.

- 3. Site/Civil Engineering.** Our engineers will work with your personnel to develop a site plan that would ensure compliance with all applicable federal and state regulations, and that will minimize the impact to the surrounding community.

Suggested sites should offer highway road access to a level site that will support trucking activity, in reasonable proximity to feed gas into the existing pipeline. We can work with Liberty Utilities to validate any sites that may be in discussion to locate the equipment needed for this project.

b. Project Management

XNG assigns a dedicated Project Manager to oversee and be responsible for the project from design to commissioning and startup. The Project Manager works closely with the customer to support any related work being done by the client and is the technical resource for the customer during the execution of the project. The PM will attend any and all meetings with the customer and will keep them updated on the status of design, fabrication and delivery of the XNG supplied equipment.

XNG will provide a full time project supervision that will be on-site during regular working hours for the entire duration of the construction phase of the contract. We will additionally provide our own temporary office facilities and Project and Program Management oversight.

PLEASE SEE SEPARATE PROJECT SCHEDULE FOR DESIGN, INSTALLATION AND COMMISSIONING BY NOVEMBER 1, 2016.

c. Site Construction Services

XNG is able to offer full construction services to build and commission a trailer-unloading site at the designated location. The scope of work will include civil engineering, permitting support, clearing and site stabilization to support fully loaded (80,000lb+ GVW) trailers maneuvering and parking.

We will provide a complete set of equipment drawings to support site construction.

- Process Mechanical Drawings
 - Mechanical General Notes
 - Mechanical Piping Plan
 - Mechanical Site Elevations
 - Mechanical Piping Support Details
- Process, Instrumentation & Control Drawings
 - Process & Instrument Cover
 - Mechanical Flow Diagram
- Electrical Drawings
 - Electrical Grounding Plan
 - Electrical Power, Lighting & Controls Plan
 - Electrical Legend, Schedules & Single Line Riser Diagram
 - Electrical Details
- Piping Isometrics
 - Hose Station Piping
- Specialty Drawings
 - Classification Hazard Plan
 - Classification Hazard Elevations
 - Classification Hazard Notes
 - Fire Extinguisher & Signage Location Plan
- Equipment Installation
 - Connect power from customer supplied drop within 50 feet of skid
 - Connect gas outlet piping to customer service line within 5 feet of outlet piping on skid

Liberty Utilities is responsible for providing all utility drops, land and environmental permits (unless otherwise negotiated) and for providing the interconnect and M&R station for the actual gas transfer into the pipeline.

d. Commissioning and Startup

Once the on-site installation is complete, we deploy our Startup and Commissioning Team which includes the Project Manager, Chief Engineer, QAQC Manager and the same third party engineering firm that did the peer review during the design process. The Chief Engineer will develop the commissioning plan for the site that will detail the onsite testing and the equipment signoffs required prior to startup.

The QAQC Manager will witness the testing and upon successful completion will sign off that the system is materially complete and ready for service. The third party engineering firm is the redundant check and is responsible for reviewing the constructed system, as well as submitting an affidavit that the system has been constructed in accordance to the approved stamped design and is ready for service.

The Project Manager will oversee the XNG work being done by the Chief Engineer, QAQC Manager and the third party engineering firm. The Project Manager will train the customer and local first responders on the system and will be the customer contact for the interface and testing as the system comes online. The PM will also handle the transition of the site to XNG Operations and will develop the communication protocol between XNG and the customer.

Final note:

It is possible that the existing propane air system in use in Keene would also serve as a cost-effective solution (pending relocation from its current location) to meet that back-up requirement. If propane is being considered to play a role in meeting this requirement, we do not yet have enough information to compare the cost or to evaluate whether the current propane plant can be reused in this way.



Liberty UtilitiesSM
WATER | GAS | ELECTRIC

B U S I N E S S
C A S E

PROJECT TITLE	Keene HP System Conversion
PROJECT SPONSOR:	Chris Brouillard
PROJECT LEAD:	Brian Frost
DATE:	6/21/2016
PROJECT ID	8843-REL113
BUSINESS PLAN NUMBER:	(Assigned by Corporate Finance)

Business Case

RECOMMENDATION:

- This project recommends installing approximately 2,500 feet of gas main and converting the appliances of 110 existing propane air customers to work with natural gas.
- This business case is for approval of a new project not in the current year budget. It will be funded as an emergent project.
- The total spending amount under this business case is projected to be \$450,000.
- Construction of the project is expected to occur in two phases:
 - Spending for the 2,500 foot gas main extension will occur between July 2016 and December 2016.
 - Spending for conversion of customers will occur in calendar year 2017. Exact month(s) of costs are dependent on another project to build the proposed CNG/LNG plant.

OBJECTIVE(S)

The purpose of this project is to extend the existing end of the high pressure Keene propane air system to the site of new proposed CNG/LNG plant and convert the appliances of 110 customers on the Keene 3.5 psi system to natural gas service.

BACKGROUND

- The Keene gas system is a propane-air distribution system that distributes propane air gas at 740 BTUs to 1,232 customers. This system is a completely different system than the natural gas distribution at 1,000 BTUs in all the other Liberty Utilities service areas.
- Over the years numerous investigations have been made into converting Keene to conventional natural gas service.
- During the winter of 2015-2016 there were two cases where electrical supply issues shut down the air blowers at the Keene plant resulting in high BTU gas being distributed.
- The blower system is only required if the Keene “high” pressure (3.5 psi) piping system is active.
- When high BTU is distributed it causes high flame height, incomplete combustion, and carbon monoxide creation at customer appliances.
- To maintain the safety of the Keene gas distribution system and mitigate the potential public safety and unfavorable image of Liberty Utilities, a permanent solution to the operational deficiencies of the Keene Gas Plant needs to be implemented.

ALTERNATIVES/OPTIONS

- **Option 1:** Convert to natural gas. This will modernize part of the Keene distribution system to natural gas and remove the failure risk path associated with

Business Case

the blower system.

- **Option 2:** Keep the plant in its current configuration. This is a marginally viable option as the Keene plant would need to be continually staffed. There would be most likely concerns from the NHPUC due to failure to address causes of past incidents. As equipment for the propane air plant wears out there will be issues with sustaining operations.
- **Option 3:** Discontinue gas service in Keene. This would reduce Liberty's customer count.

Options 2 and 3 were eliminated as both are incompatible with Liberty's commitment to operating a safe and reliable gas delivery system as well as maintaining Liberty's reputation with the public and regulatory bodies.

FINANCIAL ASSESSMENT

Non-Recurring Costs	
Stock Materials	\$30,000
Non-Stock Materials	\$0
Liberty Labor	\$0
Contractor Labor	\$320,000
Overhead Costs	\$100,000
Total	\$450,000

RISK ASSESSMENT AND QUALITATIVE EVALUATION

- Converting part of the Keene propane air system to natural gas will create a viable path forward for continued operation of the Keene gas system.
- The timeline for making this conversion is aggressive and will be a tight schedule.

IMPLEMENTATION/ACTION PLAN

The immediate implementation plan for converting Keene to natural gas is to install the gas main along Production Ave, then install the road crossing across NH Route 9. In 2016 existing customer appliances will be surveyed, and then in 2017 they will be converted to natural gas service.

REVIEWED BY:

PROJECT LEADER: Brian Frost
DIRECTOR/VP: Chris Brouillard
FINANCE: Tisha Sanderson

Business Case



Liberty UtilitiesSM
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LIBERTY UTILITIES - CAPITAL PROJECT EXPENDITURE APPLICATION

DIVISION/COMPANY:	Capital / Keene	HOME OFFICE REF #:	8843-
PROJECT TITLE:	Keene HP System Conversion	EXPECTED PROJECT TOTAL:	\$450,000
PROJECT TYPE (circle one):	System Maint / <u>System Project</u> / Growth / LXA		
PROJECT START DATE:	7/1/2016	PROJECT END DATE:	11/31/2016
CURRENT UTILITY EARNINGS STATUS:	JOB COST/FWO #:		
Type of Capital Project: ☐ Growth ☒ Improvement Upgrades ☐ Infrastructure Replacement			
PROJECT DESCRIPTION & LOCATION: This project will take place in Keene, NH and involves converting the high pressure propane air gas distribution system to conventional natural gas. To accomplish this approximately 2,500 feet of new 8 inch plastic gas main will be installed on Production Avenue. Customer appliances and Liberty meter sets will also be reconfigured in order to work with conventional natural gas. The reconfiguration costs will be charged to expense and are estimated to be \$200,000			
IS THIS PROJECT GROWTH RELATED? IF "YES", DESCRIBE THE SPECIFIC LOCATION (MAP) AND LIST APPLICABLE DEVELOPERS WHERE GROWTH WILL OCCUR (CONSULT WITH DEVELOPMENT SERVICES REGARDING FUNDING). No			
PERMITTING REQUIREMENTS, INCLUDING POTENTIAL IMPACT ON EXISTING PERMITS, AND TIMING OF AND RISKS ASSOCIATED WITH OBTAINING APPROPRIATE PERMITS FOR PROJECT. A NHDOT licensing and use agreement will need to be obtained. Work on this is expected to take approximately 3 months.			
COST ESTIMATE FOR TOTAL PROJECT, NATURE OF ESTIMATE (FIRM FIXED PRICE, INTERNALLY OR EXTERNALLY GENERATED), TIMING OF SPENDING BY QUARTER, AND RISKS ASSOCIATED WITH COST ESTIMATES. \$250,000 to be spent in third and fourth quarter 2016. \$200,000 to be spent in 2017.			
WILL THERE BE ASSETS GREATER THAN \$5,000 THAT ARE CURRENTLY IN SERVICE REMOVED AS A RESULT OF THIS PROJECT? IF YES, PLEASE DETAIL THE SPECIFIC ASSETS THAT WILL BE REMOVED: Original Cost of Plant to be removed (if known):			

Business Case

2. What is the replacement cost of the plant being removed (if original cost not known)?
3. Original Work Order of Plant to be removed (if known):
4. Is the Plant being removed reusable?
5. What is the year of original installation of the plant being removed?

No.

PROPOSED SOURCE OF FUNDS (COMPANY, DEVELOPER LXA, HUF, ETC.)

Funding for this project will come from the company's 2016 capital budget.

CATEGORY & STATUS OF PROJECT

(tick as appropriate)

FINANCIAL SUMMARY

NEXT ANTICIPATED TEST YEAR

Rate Recovery (over 18 months)

X

Safety

X

Will this, and other approved projects, cause a rate shock

If yes, is customer affordability an issue?

Mandated

Impending Regulatory Obligation

Rate Recovery-Immediate Return

Rate Recovery (3 to 6 months)

Rate Recovery (6 to 12 months)

Rate Recovery (12 to 18 months)

Have Health & Safety implications been considered?

Yes

Has Environmental Compliance review been done?

No

Has Tech Services review been done?

Yes

Was this Capital Expenditure included in the Annual Budget?

No

What amount was budgeted? No.

ANALYSIS OF PROJECT VALUE

Design/Engineering

Material

External contractor costs

Internal costs

Other costs (contingency)

Working capital requirements

Project Total Cost

\$30,000

\$320,000

\$100,000

\$450,000

CAPITAL EXPENDITURE BUDGET UTILIZATION

Authorized Amount

To be spent in:

Current Year

Future Years

(A) Capital budget

(B) Over (under) run vs. Budget

(C) (A+B) Total Estimated Project Cost

(D) Less Approved Spend to Date

(E) Less Future Approval Requests

(F) (C-D-E) Approval Amount Requested (current application)

\$250,000

\$200,000

\$250,000

\$200,000

	Name	Signature	Date		
Requesting Party	Brian Frost	<i>Brian R. Frost</i>	6/27/2016		
Director	Chris Brouillard				
Director, Capital Budget	Tisha Sanderson	<i>Tisha Sanderson</i>	6/27/16		
Vice President Finance	Kevin McCarthy	<i>Kevin McCarthy</i>	6/27/16		
President - LU East	David Swain	<i>David Swain</i>	6/27/16		
Vice President of Op & M	Vaig Lennings	<i>Vaig Lennings</i>	6/27/16		

From: [Michael Sheehan](#)
To: [Michael Sheehan](#)
Subject: FW: Keene Status Update
Date: Tuesday, November 24, 2020 6:01:17 PM

-----Original Appointment-----

From: Chris Brouillard

Sent: Thursday, October 13, 2016 2:06 PM

To: Chris Brouillard; Steven Mullen; Stephen Hall; Michael Sheehan; Brian Frost; Ryan Burns; William Clark; David Swain; Craig Jennings; Richard MacDonald; Robert Mostone; Leo Cody; Norman Gallagher; Steve Rokes

Subject: FW: Keene Status Update

When: Friday, October 14, 2016 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Teleconference

Christian Brouillard | Liberty Utilities (New Hampshire) | Director, Engineering

P: 603-216-3636 | C: 603-475-7965 | E: Christian.Brouillard@libertyutilities.com

-----Original Appointment-----

From: Chris Brouillard

Sent: Wednesday, October 12, 2016 12:55 PM

To: Chris Brouillard; Brian Frost; Ryan Burns; William Clark; David Swain; Craig Jennings; Richard MacDonald; Robert Mostone; Leo Cody; Norman Gallagher; Steve Rokes

Subject: Keene Status Update

When: Friday, October 14, 2016 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Teleconference

Teleconf. 1-844-448-0193 Guest Passcode: 678 712 31

Host Passcode: 424 665 24

Below is an update of the Keene Propane/Air plant status and directions forward:

- The problem with the system is within the new drives and the associated controllers. Our view is that there is some key control element missing/incorrectly programmed;

otherwise the controller/dives should work properly.

Operating and Installation Options

- Troubleshoot and Complete repair of existing setup (drives and control system) with the parts that we received.

o The Yaskawa factory rep will be on site tomorrow (Thursday) to troubleshoot the

system

- Run the large blowers in manual mode
- o At present, this is not possible to due to the control issues experienced.
- Run the small blowers in manual mode
- o As a backup scheme, we are able to run the two small blowers to a max. of about 400 CFM, taking us to about Step 12
- o At 28 degrees F, we are at about Step 8 or 9
- o This option would seem to give us limited back up for another 2-3 weeks.
- Order and install completely new blower/drive/control units
- o Not discussed – we will await the results of the on-site visit from Yaskawa rep
- Obtain an emergency compressor and run it in manual mode
- o We can install the piping and regulators (2-4”) for minimal cost
- o We can utilize our existing spare compressors in Nashua and Manchester until December
- o We can reserve rental compressors from our vendor (Blue Line Rental) to cover our contingencies post-December
- Convert Merrimack Marketplace and potentially Key Rd., to CNG
- o Bill Clark will get pricing from XNG for a temporary CNG set up at Merrimack Marketplace
- o Expect to get pricing by end of week
- o XNG indicated that they could have a temp CNG up and running by Dec. 1, given that we obtain necessary approvals
- o We would need to convert Price Chopper, other Marketplace Customers, and Key Rd. over to CNG
- o Conversion do-able but very involved – need to complete customer surveys
- Convert Price Chopper to straight propane
- o We focused on the CNG option at this juncture.

Predicted weather:

- We expect HDD to be about 20 through the weekend and no greater for the rest of the week of 10/16.

Conclusions/Actions:

- Ryan will run the model to verify whether or not we can run on atmospheric after Dec. 1 given that the Marketplace and Key Rd. are converted to CNG
- Bill Clark will get pricing from XNG; we will hold off contacting Fire Chief and Customers for approvals/siting agreements
- Bob Mostone will continue with customer surveys for Merrimack Marketplace and Key Rd customers.
- Steve/Norm will work with the Yaskawa rep to trouble shoot and correct the drive control systems.
- Norm will arrange for the installation of piping and regulators to a compressor pad that could accommodate the two spare compressors at Nashua and Manchester
- We can wait until Thursday to reserve the rental compressors for post-December
- Post-Meeting, engineering discussed feeding the atmospheric air supply manifold from two or more air sources to reduce the pressure drop in the manifold.

Ryan will follow up with Steve on this with Andy's assistance.
- We will meet again on Friday to discuss progress and new developments. Chris will set up the meeting.
- We can determine what/when to update the PUC on Friday.

Christian Brouillard | Liberty Utilities (New Hampshire) | Director, Engineering

P: 603-216-3636 | C: 603-475-7965 | E: Christian.Brouillard@libertyutilities.com

15 Buttrick Road , Londonderry, NH 03053

**CNG Services for
Local Distribution Companies (LDCs)
Baseload and Supplemental Gas Supply
Indicative Pricing
for**



Liberty Utilities®

Prepared by Xpress Natural Gas LLC



160 State Street, 8th Floor
Boston, MA 02109

Please note that this estimate is considered confidential information, contains trade secrets of Xpress Natural Gas LLC and has been prepared for Liberty Utilities only in connection with its consideration of CNG services.



October 14, 2016

Mr. Chico DaFonte
Vice President, Energy Procurement
Liberty Utilities
15 Buttrick Road
Londonderry, NH 03053

Dear Chico,

Thank you for inviting XNG to provide an indication of pricing for delivered CNG to support your baseload and peaking gas requirements in New Hampshire.

XNG works with each LDC partner to provide a fully-assembled skid-mounted injection system that is hard-piped to an approved tap on your system. Our offering is backed by our multiple terminal locations on different supply pipelines, with pricing enabled by our newest terminal in the Marcellus.

The following table outlines current pricing on a 12-month basis to each location based on the daily volume shown.

Daily Volume in Dth (Nov – March)							
Delivered to:	1,000		2,000		3,000		4,000
Concord							
Manchester							
Tilton							
Algonquin Index							

Using CNG, we can offer savings of 10% - 25% versus regional pipeline indices for the same period. We are able to discuss any volume that might be of interest to you both year-round baseload and winter only supply.

Please contact us at any time with questions. I look forward to speaking further.

Sincerely,

Matthew F. Smith
EVP, Sales and Marketing
Xpress Natural Gas LLC

From: [Michael Sheehan](#)
To: [Michael Sheehan](#)
Subject: FW: Follow-up from XNG: Liberty contract
Date: Tuesday, November 24, 2020 5:56:21 PM

From: Matthew Smith [msmith@xng.com]
Sent: Wednesday, October 19, 2016 11:04 AM
To: William Clark
Cc: Matt Campano
Subject: Follow-up from XNG: Liberty contract

Bill,

Please see the attached revised contract for our winter emergency service to the Monadnock Marketplace plaza in Keene, NH.

I'd like to review with you the changes that I made – in brief:

1. Clarified load and term
2. Added mobilization fee
3. Added ability to execute a fixed price commodity gas agreement (Transaction Confirmation) if desired
4. Eliminated any inflation adjustment (standard on a multi-year agreement only)
5. Added indemnification, insurance, and measurement (sections 12, 13, 14)
6. Added Exhibit B (page 4) to confirm scope of construction support to enable the project

Would you have time to review this later today? I'd plan to use this same contract form for our three-year agreement. I can draft that to get started – and keeping in mind that the construction support we provide for the original project will be a separate agreement.

Call anytime today -
Matt

Matt Smith
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Xpress Natural Gas
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e: msmith@xng.com
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Sent from my iPhone

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P: 603-216-3637 | C: 603-475-8107 | E: William.Clark@libertyutilities.com

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Date: October 18, 2016 at 8:11:09 AM EDT
To: Matt Campano <mcampano@xng.com>
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<101316 Plaza Usage.xlsx>

From: [Michael Sheehan](#)
To: [Michael Sheehan](#)
Subject: FW: Follow-up from XNG: Liberty contract
Date: Tuesday, November 24, 2020 6:27:21 PM
Attachments: [101916 XNG Monadnock Marketplace Service Agreement \(final\).pdf](#)

From: Matthew Smith [<mailto:msmith@xng.com>]
Sent: Monday, October 24, 2016 3:25 PM
To: William Clark <William.Clark@libertyutilities.com>
Cc: Matt Campano <mcampano@xng.com>
Subject: Re: Follow-up from XNG: Liberty contract

Bill -

I've accepted changes and executed the agreement.

I made two edits prior to executing:

1. Added 3-4 words to same box you edited to fix the fragment sentence
2. I added today's date on P. 2 in the highlighted section.

Let me know if that works -

Matt

Matt Smith
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e: msmith@xng.com
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Cc: Matt Campano <mcampano@xng.com>
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Matt,

We are still working on lease with the Marketplace. I don't see that as an issue. Our legal was comfortable with executing this agreement with the addition of the clause about securing a sight lease. Attached is the contract with that change. If this is acceptable I will get signatures.

Bill

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<101316 Plaza Usage.xlsx>

CNG SERVICE TERM SHEET

Buyer	Liberty Utilities Co.																
Seller	Xpress Natural Gas LLC																
Service Location	Monadnock Market Place, Keene, New Hampshire																
Delivery Point	Meter installed immediately prior to Buyer's site based piped connection.																
Contract Term	December 1, 2016 to May 31, 2016																
Contract Extension	Term may be extended at Buyer request for up to 90 days provided Buyer notifies Seller at least 60 days notice prior to end of the initial Term. Buyer agrees to pay Seller [REDACTED] per month to lease the CNG Equipment for every 30 days or portion thereof that the Buyer requests Seller to continue service beyond the initial Term.																
Provided Equipment	Seller shall provide a regulator skid, manifold, delivery trailers and attachments required to meet Buyer's projected demand (see Exhibit B, the "CNG Equipment").																
Mobilization Fee	[REDACTED] payable to Seller by November 15, 2016 to support mobilization.																
Contract Quantity	Contract Quantity serves as the minimum basis for invoicing each month. Buyer and Seller agree that the Contract Quantity shall be as set forth below: <table> <tr> <th>Month</th><th>MMBTU</th></tr> <tr> <td>December 2016</td><td>1,500</td></tr> <tr> <td>January 2017</td><td>2,000</td></tr> <tr> <td>February 2017</td><td>4,000</td></tr> <tr> <td>March 2017</td><td>4,000</td></tr> <tr> <td>April 2017</td><td>2,500</td></tr> <tr> <td>May 2017</td><td>1,000</td></tr> <tr> <td>Total</td><td>15,000</td></tr> </table>	Month	MMBTU	December 2016	1,500	January 2017	2,000	February 2017	4,000	March 2017	4,000	April 2017	2,500	May 2017	1,000	Total	15,000
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Total	15,000																
Nomination	Not less than 7 days prior to the beginning of each month the Buyer shall send to Seller a notice in writing indicating its expected daily usage for the subsequent month.																
Purchase Price	Price per MMBtu for natural gas shall be the sum of: (i) Commodity Gas; plus (ii) marketer's basis charges applicable to purchase of the Commodity Gas; plus (iii) Service Adder, if any; plus (iv) any other applicable fees and expenses set forth in Exhibit A.																
Commodity Gas	Unless otherwise agreed, nominated volumes of natural gas will be priced at the index price (per MMBtu) [REDACTED] as published in the monthly first issue of Platts Inside FERC's Gas Market Report under the Northeast section of the Market Center Spot Gas Prices for each month in which gas is purchased, or as otherwise contracted. Gas in excess of nominated amounts, when and if available will be sold on a Spot Price basis.																
Service Adder	[REDACTED] per MMBTU																
Title & Risk of Loss	Title and risk of loss shall pass from Seller to Buyer at the Delivery Point.																
General Terms & Conditions Governance	This contract is conditioned on EnergyNorth signing an appropriate lease with Summit Realty Partners, the owner of the Monadnock Marketplace, which lease allows the siting and operation of the proposed CNG facility at the Monadnock Marketplace. Terms and Conditions are included in the Compressed Natural Gas Master Agreement attached hereto as Exhibit A.																

ALL TERMS AND CONDITIONS INCLUDED IN THIS CONTRACT SHALL APPLY TO EACH SALE AND DELIVERY OF PRODUCT BY SELLER TO BUYER (1) UNDER THIS CONTRACT AND HEREAFTER (2) WHETHER OR NOT UNDER A WRITTEN CONTRACT.

EXHIBIT A – COMPRESSED NATURAL GAS MASTER AGREEMENT

This Compressed Natural Gas Master Agreement ("CMA") between **Xpress Natural Gas LLC**, a Delaware limited liability company (together with its subsidiaries and affiliates "Seller") located at 22 Marin Way, Stratham, NH 03885 and **Liberty Utilities Co.** (together with its subsidiaries and affiliates "Buyer") located at 15 Buttrick Road, Londonderry, NH 03053 (each a "Party" and collectively, the "Parties") is entered into and effective as of October 24 2016 ("Effective Date").

A. Compressed Natural Gas Master Agreement

1. Delivery Requirement: Seller will provide Natural Gas to the Buyer in compressed form (~3,600 psi) and decompressed prior to the Delivery Point. Seller acknowledges that Buyer has firm needs for an uninterrupted supply of natural gas, and that any failure of Seller to supply any nominated volumes, in accordance with the applicable Contract Quantity, without interruption exposes Buyer to significant costs. It is therefore a material condition of Seller's performance under this Agreement to supply all nominated volumes without interruption.

2. Commodity Gas Purchasing: If the Buyer elects to enter a separate agreement to purchase Commodity Gas on a fixed volume commitment (a "Transaction Confirmation"), Buyer will pay the price stated in each Transaction Confirmation. This CMA, any amendments to this CMA and any associated commodity gas Transaction Confirmation ("Transaction") that may be entered into (together, a single integrated, "Agreement") are the entire understanding between Parties and supersedes all other communication and prior writings with respect thereto; no oral statements are effective.

3. Billing and Payment: Not more than 5 days after the conclusion of any month the Seller will invoice Buyer for all delivered gas pursuant to this Agreement. Payment shall be due and payable within 20 days after the date of such invoice. If the Actual Quantity cannot be verified by the time the invoice is issued, the invoice will be based on Seller's good faith estimate of the Actual Quantity derived using internal calculations of the net gas delivered and adjusted for the Actual Quantity by a credit or charge, as applicable, in the next invoice for which the Actual Quantity is available. Seller will adjust Buyer's account following (i) confirmation of the Actual Quantity or (ii) any adjustment to, or re-calculation of, Taxes. Buyer will pay interest on late payments at 1.5% per month or, if lower, the maximum rate permitted by law ("Interest Rate"). Buyer is also responsible for all costs and fees, including reasonable attorney's fees, incurred in collecting payment. "Actual Quantity" means the actual quantity of Commodity that is either delivered or metered, as applicable, to Buyer's account. If the Purchase Price incorporates an index and the index is not announced or published on any day for any reason or if the Seller reasonably determines that a material change in the formula for or the method of determining the Purchase Price has occurred, then the Parties will use a commercially reasonable replacement price that is calculated by the Seller. If Seller concludes that a change in any Law(s) increases Seller's costs, the Purchase Price may be adjusted by Seller to reflect such costs. "Law(s)" mean all tariffs, laws, orders, rules, taxes and regulations.

4. Taxes: Buyer is responsible for paying any Taxes associated with the Actual Quantity of Commodity sold under this Agreement that may become due at and after the Delivery Point. The Purchase Price does not include Taxes that are or may be the responsibility of the Buyer, unless such inclusion is required by Law. Buyer will reimburse Seller for any Taxes that Seller is required to collect and pay on Buyer's behalf and will indemnify, defend and hold Seller harmless from any liability against all Buyer's Taxes. Buyer will furnish Seller with any necessary documentation showing its exemption from Taxes, if applicable, and Buyer will be liable for any Taxes assessed against Seller because of Buyer's failure to timely provide or properly complete any such documentation. "Taxes" means all applicable federal, state and local taxes, including any associated penalties and interest and any new taxes imposed in the future during the term of this Agreement. Liabilities imposed in this Section will survive the termination of this Agreement.

5. Disputes: If either Party in good faith disputes amounts owed under Sections 2, 3, 4, or 7 the disputing Party will contact the non-disputing Party promptly and pay the undisputed amount by the payment due date. The Parties will negotiate in good faith regarding such dispute for a period of not more than fifteen (15) Business Days. In the event the Parties are unable to resolve such dispute, the disputing Party will pay the balance of the original invoice and either Party may exercise any remedy available to it in law or equity pursuant to this Agreement. In the event of a dispute other than for an invoiced amount, the Parties will use their best efforts to resolve the dispute promptly. Actions taken by a Party exercising its contractual rights will not be construed as a dispute for purposes of this Section. "Business Day" means any day on which banks are open for commercial business in New York, New York.

6. Title and Risk of Loss: Title to, possession of and risk of loss to the Commodity will pass to Buyer at the Delivery Point.

7. Force Majeure: A Party claiming Force Majeure will be excused from its obligations under Section 1 as long as it provides prompt notice of the Force Majeure and uses due diligence to remove its cause and resume performance as promptly as reasonably possible. During a Force Majeure, Buyer will not be excused from its responsibility to pay for Commodity received. "Force Majeure" means a material, unavoidable occurrence beyond a Party's control, and does not include inability to pay, an increase or decrease in Taxes or the cost of Commodity, the economic hardships of a Party, or the full or partial closure of Buyer's facilities, unless such closure itself is due to Force Majeure.

8. Financial Responsibility: Seller's entry into this Agreement and each Transaction is conditioned on Buyer, its parent, any guarantor or any successor maintaining its creditworthiness during the Contract Term and any Contract Extension. When Seller has reasonable grounds for insecurity regarding Buyer's ability or willingness to perform all of its outstanding obligations under any agreement between the Parties, Seller may require Buyer to provide adequate assurance, which may include, in the Seller's discretion, security in the form of cash deposits, prepayments, letters of credit or other guaranty of payment or performance ("Credit Assurance").

9. Default: "Default" means: (i) failure of either Party to make payment by the applicable due date and the payment is not made within three (3) Business Days of a written demand; (ii) failure of Buyer to provide Credit Assurance within two (2) Business Days of Seller's demand; (iii) either Party, its parent or guarantor, becomes Bankrupt or fails to pay its debts generally as they become due; or (iv) failure of either Party to satisfy any representations and warranties applicable to it contained in Section 12A or 12B and the failure is not cured within fifteen (15) Business Days of a written demand, provided that no cure period or demand for cure applies to a breach of Section 12A(c). "Bankrupt" means an entity (a) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such petition filed or commenced against it, (b) makes an assignment or any general arrangement for the benefit of creditors, (c) otherwise becomes bankrupt or insolvent, however evidenced, (d) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, (e) has a secured party take possession of all or any substantial portion of its assets or (f) is dissolved or has a resolution passed for its winding-up, official management or liquidation (other than pursuant to a consolidation, amalgamation or merger).

10. Remedies: In the event of a Default, the non-defaulting Party may: (i) withhold any payments or suspend performance; (ii) upon written notice, provided that no notice is required with respect to Section 9(iii) or a breach of Section 11A(c), accelerate any or all amounts owing between the Parties and terminate any or all Transactions and/or this Agreement; (iii) calculate a settlement amount by calculating all amounts due to Seller for Actual Quantity and the Close-out Value for each Transaction being terminated; and/or (iv) net or aggregate, as appropriate, all settlement amounts and all other amounts owing between the Parties and their affiliates under this Agreement and other energy-related agreements between them and their affiliates, whether or not then due and whether or not subject to any contingencies, plus costs incurred, into one single amount ("Net Settlement Amount"). Any Net Settlement Amount due from the defaulting Party to the non-defaulting Party will be paid within three (3) Business Days of written notice from the non-defaulting Party. Interest on any unpaid portion of the Net Settlement Amount will accrue daily at the Interest Rate. "Close-out Value" is the sum of (a) the amount due to the non-defaulting Party regarding the Contract Quantities (or, as applicable, estimated Contract Quantities) remaining to be delivered during the Contract Term or, if applicable, the current Contract Extension, calculated by multiplying the Service Adder for such untaken quantities; and (b) without duplication, any net losses or costs incurred by the non-defaulting Party for terminating the Transaction(s), including costs of obtaining, maintaining and/or liquidating commercially reasonable hedges and/or transaction costs. For purposes of determining Close-out Value, (i) Commodity Price will be determined by the non-defaulting Party in good faith as of a date and time as close as reasonably practical to the date and time of

termination or liquidation of the applicable Transaction(s), and (ii) Commodity Price may be ascertained through reference to quotations provided by recognized energy brokers or dealers, market indices, bona-fide offers from third-parties, or by reference to commercially reasonable forward pricing valuations. The Parties agree that the Close-out Value constitutes a reasonable approximation of damages, and is not a penalty or punitive in any respect. Seller may, but need not, physically liquidate a Transaction or enter into a replacement transaction to determine Close-out Value or Net Settlement Amount. The defaulting Party is responsible for all costs and fees incurred for collection of Net Settlement Amount, including, reasonable attorney's fees and expert witness fees.

11. Representations and Warranties:

A. Each Party represents that: (a) it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation and is qualified to conduct its business in those jurisdictions necessary to perform to this Agreement; (b) the execution of this Agreement is within its powers, has been duly authorized and does not violate any of the terms or conditions in its governing documents or any contract to which it is a party or any law applicable to it; and (c) it is not Bankrupt.

B. Buyer represents and warrants that: (a) it is not a residential customer; (b) it will immediately notify Seller of any change in its ownership; (c) execution of this Agreement initiates service for the Contract Term and any Contract Extension; (d) no communication, written or oral, received from the Seller will be deemed to be an assurance or guarantee as to any results expected from this Agreement; (e) if it is executing this Agreement in its capacity as an agent, such Party represents and warrants that it has the authority to bind the principal to all the provisions contained herein and agrees to provide documentation of such agency relationship, and (f) (i) it will provide, to Seller, information reasonably required to substantiate its usage requirements, including information regarding its business, locations, historical/projected usage, time of use, hours of operation, agreements, schedules, which in substantial part form the basis for the calculation of charges for the transactions hereunder; (ii) acceptance of this Agreement constitutes an authorization for release of such usage information; (iii) it will assist Seller in taking all actions necessary to effectuate Transactions, including, if requested, executing an authorization form permitting Seller to obtain its usage information from third parties; and (iv) the usage information provided is true and accurate as of the date furnished and as of the effective date of the Agreement.

C. Each Party acknowledges that: (a) this Agreement is a forward contract and a master netting agreement as defined in the United States Bankruptcy Code ("Code"); (b) this Agreement shall not be construed as creating an association, trust, partnership, or joint venture in any way between the Parties, nor as creating any relationship between the Parties other than that of independent contractors for the sale and purchase of Commodity; and (c) Seller is not a "utility" as defined in the Code.

12. Indemnification: Both parties shall release, indemnify, and hold the other, its affiliates, and their officers and employees harmless from any and all claims, losses, liabilities, and expenses (including reasonable attorney's fees and costs of defense) in any way arising out of or relating to (1) any act or omission by Indemnifying Party which results in personal injuries (including death) or property damage, This indemnification obligation shall survive the termination of this Agreement. NEITHER PARTY WILL BE LIABLE TO THE OTHER UNDER THE AGREEMENT FOR CONSEQUENTIAL, INDIRECT OR PUNITIVE DAMAGES OR SPECIFIC PERFORMANCE, EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT.

13. Insurance: Both parties agree at all times during the term of this Agreement to carry adequate insurance, but in no event less than five million dollars (\$5,000,000) general liability insurance, covering all such liability and contractual obligations, and upon request shall furnish the requesting party evidence satisfactory to it of such insurance.

14. Measurement: The quantity of Gas delivered to the Delivery Point shall be measured by means of a revenue grade meter consistent with industry practice. Buyer shall be invoiced for the actual number of dekatherms of Gas recorded by the meter at the Delivery Point. If the Buyer elects to install sub-metering downstream of the Seller's meter, and in the event of a discrepancy between Buyer and Seller meter results for the same period of time that leads to a billing question, either party may request the other to verify its meter. In the event a meter is found to be inaccurate by recording results in excess of 2% of actual volume, the owner of the inaccurate meter will pay for the calibration and invoicing will be adjusted to correct any inaccuracy. If the recalibrated meter is within 2% of actual volume, the party

requesting the calibration pays for the calibration and invoicing for any previous period in question shall not be changed. If the period of such error is not known definitely or agreed upon, the Parties agree that Seller truck delivery logs for the period in question provide an audit record acceptable for invoicing. Buyer may witness all testing and gauging; provided however, if no representative for Buyer is present, Seller's measurement and/or determination of quantity shall be final.

15. Other:

(a) This Agreement is governed by the law of the State of New Hampshire without regard to any conflict of rules doctrine. The Parties submit to the non-exclusive jurisdiction of the courts of the State of New Hampshire and any United States District Court located in New Hampshire. (c) Each Party waives its right to a jury trial regarding any litigation arising from this Agreement. (d) No delay or failure by a Party to exercise any right or remedy to which it may become entitled under this Agreement will constitute a waiver of that right or remedy. (e) Seller warrants that (i) it has good title to Commodity delivered, (ii) it has the right to sell the Commodity, and (iii) the Commodity will be free from all royalties, liens, encumbrances, and claims. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE DISCLAIMED. (f) All notices and waivers will be made in writing and may be delivered by hand delivery, first class mail (postage prepaid), overnight courier service or by facsimile and will be effective upon receipt; provided, however, that any termination notice may only be sent by hand or by overnight courier service, and, if sent to Seller, a copy delivered to: Seth Berry, 22 Marin Way, Stratham, NH 03885. (g) If the Parties entered into Gas transactions prior to the execution of this Agreement ("Existing Transactions"), the Parties agree that these Existing Transactions shall be Transactions governed under the terms of this Agreement. This Agreement supersedes and replaces any other agreement that may have applied to the Existing Transactions. (h) No amendment to this Agreement will be enforceable unless reduced to writing and executed by both Parties. (i) Either Party may assign this Agreement with consent from the other Party, which consent shall not be unreasonably withheld. In addition, Seller may pledge, encumber, or assign this Agreement or the accounts, revenues, or proceeds of this Agreement in connection with any financing or other financial arrangements without Buyer's consent; in which case Seller shall not be discharged from its obligations to Buyer under this Agreement. (j) This Agreement may be executed in separate counterparts by the Parties, including by facsimile, each of which when executed and delivered shall be an original, but all of which shall constitute one and the same instrument. (k) Any capitalized terms not defined in this CMA are defined in the Transaction Confirmation or shall have the meaning set forth in any applicable rules, tariffs or other governmental regulations, or if such term is not defined therein then it shall have the well-known and generally accepted technical or trade meanings customarily attributed to it in the natural gas or electricity generation industries, as applicable. (l) The headings used in this Agreement are for convenience of reference only and are not to affect the construction of or to be taken into consideration in interpreting this Agreement. (m) Any executed copy of this Agreement and other related documents may be digitally copied, photocopied, or stored on computer tapes and disks ("Imaged Agreement"). The Imaged Agreement will be admissible in any judicial, arbitration, mediation or administrative proceedings between the Parties in accordance with the applicable rules of evidence; provided that neither Party will object to the admissibility of the Imaged Agreement on the basis that such were not originated or maintained in documentary form. (n) Where multiple parties are Party to this Agreement with Seller and are represented by the same agent, it is agreed that this Agreement will constitute a separate agreement with each such Party, as if each such Party had executed a separate Agreement, and that no such Party shall have any liability under this document for the obligations of any other Parties. (o) The Buyer will not disclose the terms of this Agreement, without prior written consent of the Seller, to any third party, other than the Party's employees, affiliates, agents, auditors and counsel who are bound by substantially similar confidentiality obligations, trading exchanges, governmental authorities, courts, adjudicatory proceedings, pricing indices, and credit ratings agencies; provided that a Party that receives a demand for disclosure pursuant to court order or other proceeding will first notify the other Party, to the extent practicable, before making the disclosure.

EXHIBIT B – CONSTRUCTION, COMMISSIONING and MAINTENANCE

As conditions to the delivery of CNG to the Buyer under this contract,

1. SITE PREPARATION & PERMITTING:

- a. Buyer will be responsible for design, engineering and construction work to construct an unloading site (the "Site") for the installation of Seller's equipment and delivery of CNG to the Buyer.
- b. Buyer shall be required to reasonably prepare the Site, including ensuring that the Site is cleared, level, secured by fencing, and provided with utilities including electric, data, and an interconnect with any controls systems Buyer requires the CNG delivery system to interface with, as well as an access point equipped with a piping flange interconnect capable of coupling with Seller's skid. All costs of preparing and maintaining the Site shall be borne by the Buyer.
- c. Seller shall provide reasonable engineering support and site layout recommendations to the Buyer. Seller shall review and approve the Site design prior to construction, consistent with minimum setbacks and other requirements per NFPA 52.
- d. Seller shall be responsible for all permits required for the installation and operation of the XNG equipment provided however that Buyer shall be responsible for all permits related to land use, air, and environmental.

2. CNG EQUIPMENT:

- a. Seller shall provide a package of skid-mounted equipment capable of delivering CNG to the Buyer Facility at a maximum rate of 20 SCFH. Such equipment shall be provided at the Buyer site to serve as a delivery trailer connection and unloading point for the Seller. The equipment shall be connected via piping to the flange as provided by the Buyer at the site as the point of delivery for natural gas.
- b. The CNG Equipment is expected to conform to the following general specifications:
 - i. Manifold connections allowing for up to 3 CNG delivery trailer with hose connections compatible with delivery trailers.
 - ii. Heater(s) sized to support proper intermediate temperatures as well as final delivery temperature of the gas stream. Heating must be sufficient to prevent cold temperatures and possible hydrate formation downstream of regulator.
 - iii. 2-stage primary pressure step-down regulation with over-pressure protection. Custody transfer metering to be provided on outlet of skid. Meter shall be a custody grade meter with capability to interface with control system.
 - iv. Safety systems to include gas and flame detection. Methane detection system to be included with process skid. Flame detector located along truck loading area. Flame detectors coverage area shall include the connection end of the transports and the process skid. Detectors will input alarms and faults into the control system.
 - v. Control system required to monitor key process conditions, switch trucks when empty, provide emergency shutdown, and remotely communicate system condition. System shall have a method to transmit data or screen control to remote site for customer monitoring.
- c. During the Delivery Period the Seller shall be responsible for all maintenance and support for the CNG Equipment.

3. INSTALLATION & COMMISSIONING:

- a. Seller shall review the completed Site prior to installation to evaluate and confirm that the Site was built to the approved design and specifications. Determination of whether the Site is suitable for installation shall be on mutual agreement. Upon acceptance of the Site, Seller shall install the CNG Equipment.
- b. Seller shall deliver and unload its equipment to the Service Location prior to the Start Date. Buyer will provide and allow for storage of that equipment as needed at no charge.
- c. Seller will be responsible for connecting its equipment to existing utilities. Once the CNG Equipment is connected, Seller and Buyer will initiate gas flow. Controls and safety systems will be tested during commissioning period prior to commencing operation.

4. SITE MAINTENANCE:

- a. For the duration of the Agreement, all site maintenance, including but not limited to snow removal, and all costs related to the upkeep of the site and its ingress and egress shall be borne by the Buyer. Failure to maintain the site in a manner sufficient to permit delivery shall be a Buyer act of default.

IN WITNESS WHEREOF, this CMA is entered into and effective as of the date written above.

BUYER:

SELLER:

By: _____

By: Matthew F. Smith

Name: _____

Name: Matthew F. Smith

Title: _____

Title: EVP, Sales and Marketing

From: [Matthew Smith](#)
To: [William Clark](#); [Chris Thompson](#); [Michael Sheehan](#)
Cc: [Daniel Smith \(dsmith@xng.com\)](#); [Matt Campano](#)
Subject: Next steps: Liberty-XNG Keene projects
Date: Wednesday, October 26, 2016 11:41:13 AM

Bill and team,

Thank you. We are excited to move forward, and I understand about the cost – small volumes always put a premium on physical supply bids.

To confirm, next steps for Keene:

1. Execute the 3-year agreement for Keene – it is very similar in structure to this contract – Nov 1?
2. Follow-up with Norm on construction support / scope of work – Oct 27
3. Provide construction agreement to support the December installation – Oct 28
4. Confirm Marketplace lease / easement – Oct 28
5. Execute construction contract for December installation – Nov 1
6. Execute construction contract for May conversion – Dec 1?

Also, we discussed a Master Service Agreement that might support other business development activity. Have we exchanged a draft on that yet?

Again, thank you, and speak soon,
Matt

Matt Smith
EVP Sales and Marketing
Xpress Natural Gas
160 State Street, 8th floor
Boston, MA 02109

e: msmith@xng.com
m: [617-513-3192](tel:617-513-3192)

From: William Clark <William.Clark@libertyutilities.com>
Date: Wednesday, October 26, 2016 at 11:01 AM
To: Matthew Smith <msmith@xng.com>, Matt Campano <mcampano@xng.com>, "Daniel Smith (dsmith@xng.com)" <dsmith@xng.com>
Cc: Michael Sheehan <Michael.Sheehan@libertyutilities.com>, Chris Thompson <Chris.Thompson@libertyutilities.com>
Subject: Liberty-XNG contract executed

Matt,

We feel the lock-in pricing is high and decided to float with the [REDACTED] as presented in

the contract. Attached is the fully executed version. The last item to tie up is the Marketplace lease which is in progress. I will let you know when that is executed.

Bill

William Clark | Liberty Utilities (New Hampshire) | Director
P: 603-216-3637 | C: 603-475-8107 | E: William.Clark@libertyutilities.com
15 Buttrick Road , Londonderry, NH 03053

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-1

Date of Response: 12/12/16
Respondent: Christian Brouillard

REQUEST:

Please describe in detail Liberty's plans to provide compressed natural gas service in Keene. Description should include siting, service lines (note on map), valves, conversion of customer appliances (schedule), metering (table or list), CNG requirements (flow rate and deliveries), CNG providers and delivery schedule. Please provide updated maps of the Keene distribution that delineates CNG and air propane facilities, mains and services (provide full map of Keene also). Please provide actual or estimated cost for each capital investment necessary to provide CNG service, for CNG operations and maintenance and for CNG supply and transportation. Please identify and quantify cost savings that will be realized as a result of the conversion from propane air to CNG for this winter (October 2016 thru April 2017) and long term.

RESPONSE:

Liberty Utilities closed on the purchase of New Hampshire Gas in January 2015, which became the Keene Division of EnergyNorth. The Keene Division utilizes a mixture of propane and air to serve approximately 1,250 customers within the city of Keene. The distribution system utilizes an atmospheric method of distributing fuel at low pressure to approximately 1,100 of those customers. In addition, there is a dedicated line with a mechanical blower system which supplies fuel at an elevated pressure, up to 5 psig, to 110 customers.

Liberty purchased New Hampshire Gas with the objective of eventually converting the entire system to natural gas. The Company began this process by evaluating a nine mile lateral from the proposed Kinder Morgan NED pipeline project through southwestern New Hampshire. After Kinder Morgan withdrew that project from development, Liberty began evaluating alternatives utilizing compressed natural gas (CNG) and liquefied natural gas (LNG) as the primary fuel sources. Phase 1 of the conversion was to convert the 110 "high" (5 psig) pressure system customers to natural gas, which would allow for the retirement of the existing blower system. This retirement will result in increased safety and reliability while reducing plant staffing requirements. Phase 2 will be the conversion of the remaining customers over multiple years by sectioning the distribution system. However, a combination of reliability, technical, and operating issues have affected the performance of the blower system which has required staffing the existing plant on a 24/7 basis during the winter and spring/fall demand periods. Therefore, in order to accelerate the retirement of the blower system, Liberty plans to convert 16 commercial

REDACTED

Docket No. DG 16-812 Request No. Staff 4-1

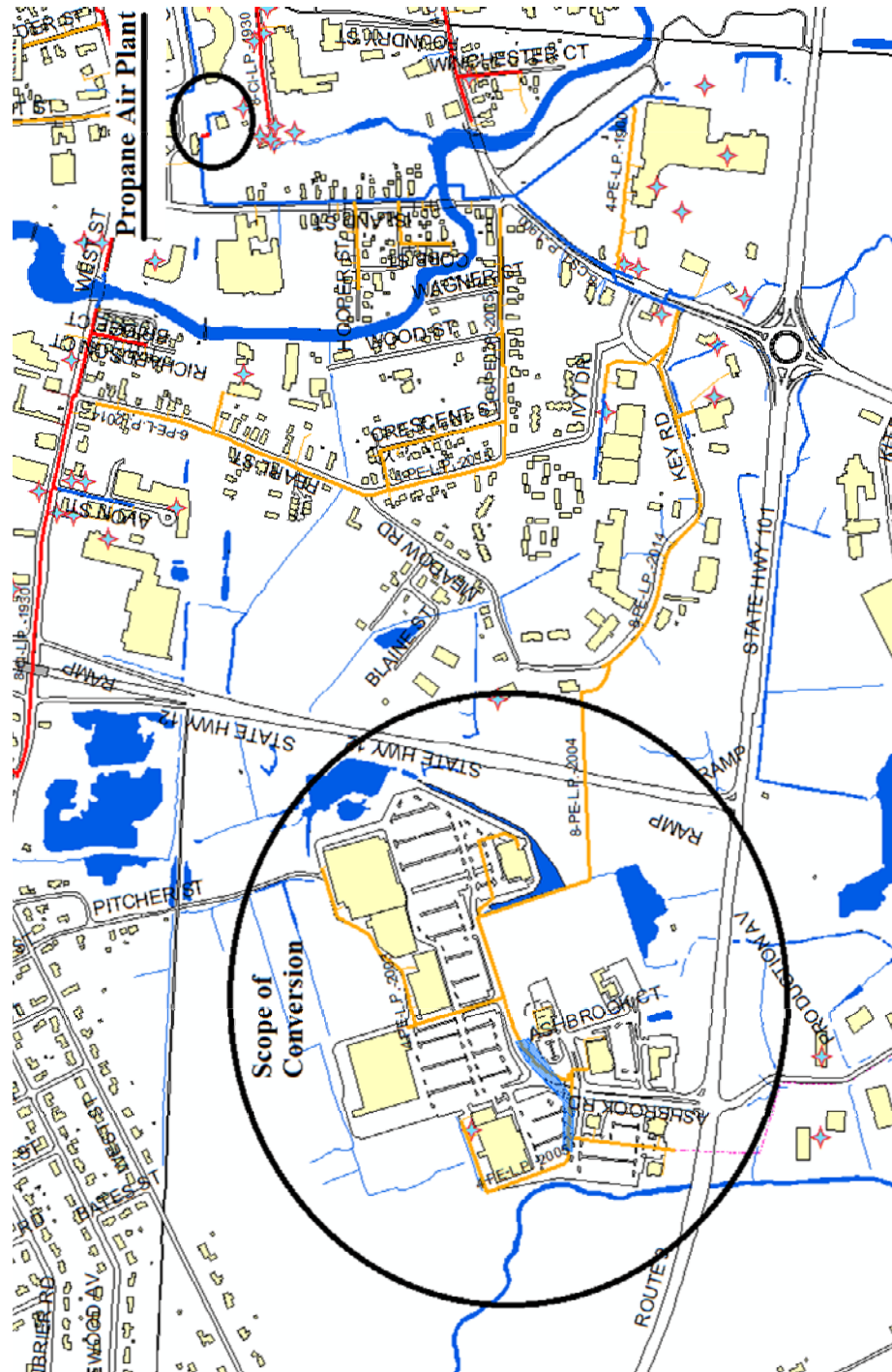
customers in the Keene Monadnock Market Place from high pressure propane/air to natural gas utilizing CNG as a temporary supply point for the winter of 2017 through the fall of 2017. The customers shown below have been identified for conversion.

	Number	Address/Business Name	Location
1	155	[REDACTED]	MONADNOCK MARKET PLACE
2	157	[REDACTED]	MONADNOCK MARKET PLACE
3	158	[REDACTED]	MONADNOCK MARKET PLACE
4	159	[REDACTED]	MONADNOCK MARKET PLACE
5	160	[REDACTED]	MONADNOCK MARKET PLACE
6	161	[REDACTED]	MONADNOCK MARKET PLACE
7	162	[REDACTED]	MONADNOCK MARKET PLACE
8	163	[REDACTED]	MONADNOCK MARKET PLACE
9	164	[REDACTED]	MONADNOCK MARKET PLACE
10	165	[REDACTED]	MONADNOCK MARKET PLACE
11	165.1	[REDACTED]	MONADNOCK MARKET PLACE
12	166	[REDACTED]	MONADNOCK MARKET PLACE
13	167	[REDACTED]	MONADNOCK MARKET PLACE
14	168	[REDACTED]	MONADNOCK MARKET PLACE
15	169	[REDACTED]	MONADNOCK MARKET PLACE
16	170	[REDACTED]	MONADNOCK MARKET PLACE

This conversion is expected to take place during January 2017. The temporary supply point will consist of an onsite decompression skid, which will receive and regulate CNG via trailer deliveries. The outlet of the skid will be connected to a riser which will feed the existing distribution system of the Marketplace, once isolated. Converting the Marketplace will shed ~30 MCFH of gas peak hour and will allow the high pressure propane/air system to operate year round on atmospheric pressure (eliminating the blower system) during normal operating conditions. Developing system mapping for Keene was an immediate initiative for engineering to evaluate the system and develop integrity management. Mapping of the 5 psig Highline was prioritized and is now complete, however the remainder of the Keene delivery system is being developed with an anticipated completion in the first quarter of 2017. Attachment Staff 4-1.1 illustrates the current GIS Mapping of the Keene Distribution system which includes land base, mains and services.

Docket No. DG 16-812 Request No. Staff 4-1

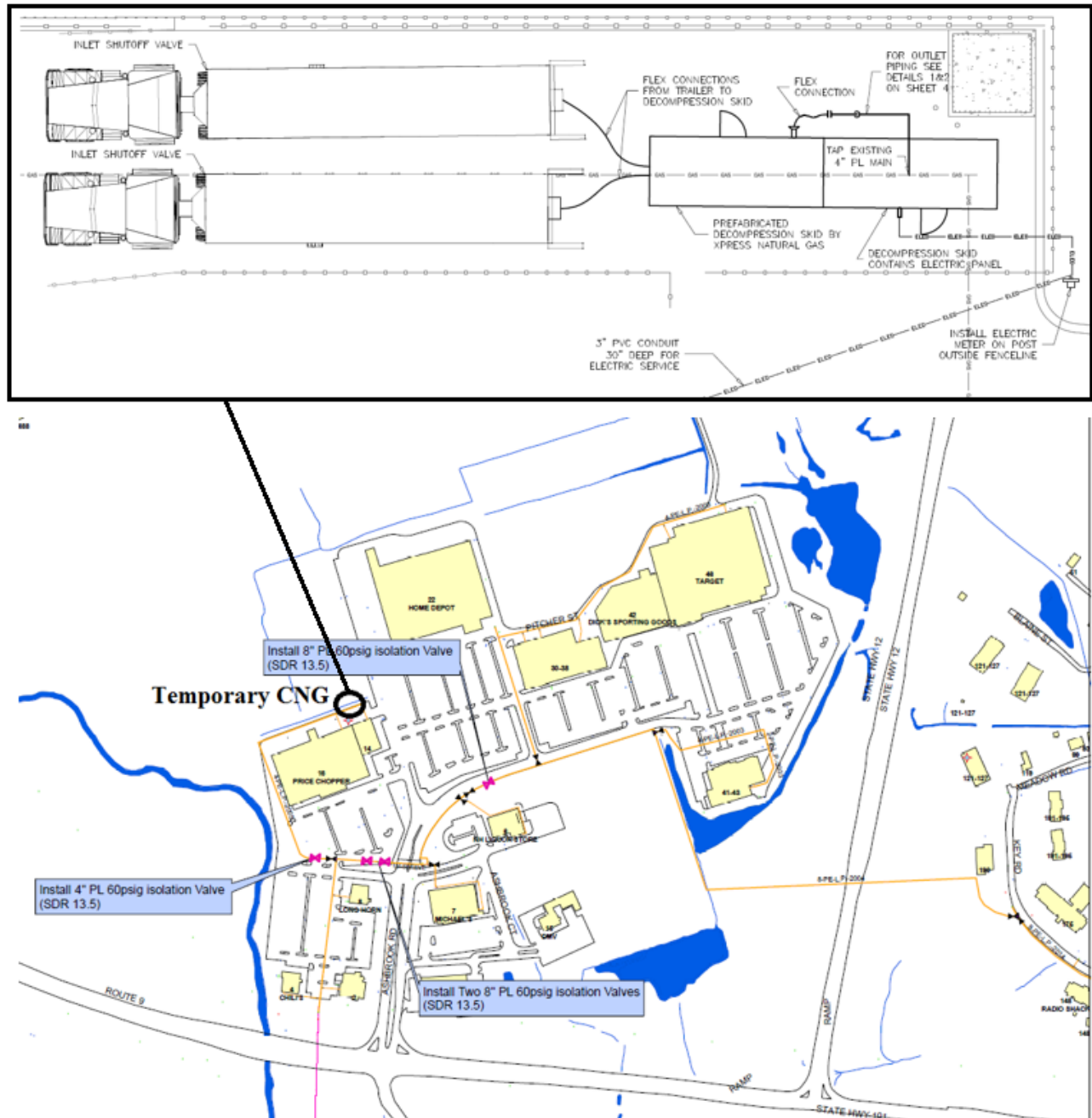
The map below denotes the area to be served (Monadnock Market Place) with temporary CNG equipment.



The decompression skid will be sited behind Price Chopper (16 Ashbrook Rd, Keene). The system will be isolated and converted in phases utilizing dual valves. Propane/Air will be purged out and natural gas will be purged in. Xpress Natural Gas (XNG) has been awarded the contract to supply these 16 customers on a temporary basis as well as a three-year contract to supply the

Docket No. DG 16-812 Request No. Staff 4-1

entire customer base connected to the high pressure system. XNG will provide the decompression equipment as well as monitor and provide CNG deliveries. O&M, Supply and Transportation costs are covered by XNG in the contract. Liberty has conducted a detailed inventory of customer equipment and will effectively coordinate conversions during each phase. Customer metering and billing will be developed to account for pressure, temperature, and BTU content of the gas. The Company is still finalizing the specifics of the metering at each Phase I location and is in the process of ordering conversion equipment for each customer based upon an inventory taken of existing customer equipment. The working list of customer information is attached as Attachment Staff 4-1.2. The map below denotes the trailer layout as well as the location of the equipment in relation to the Marketplace.



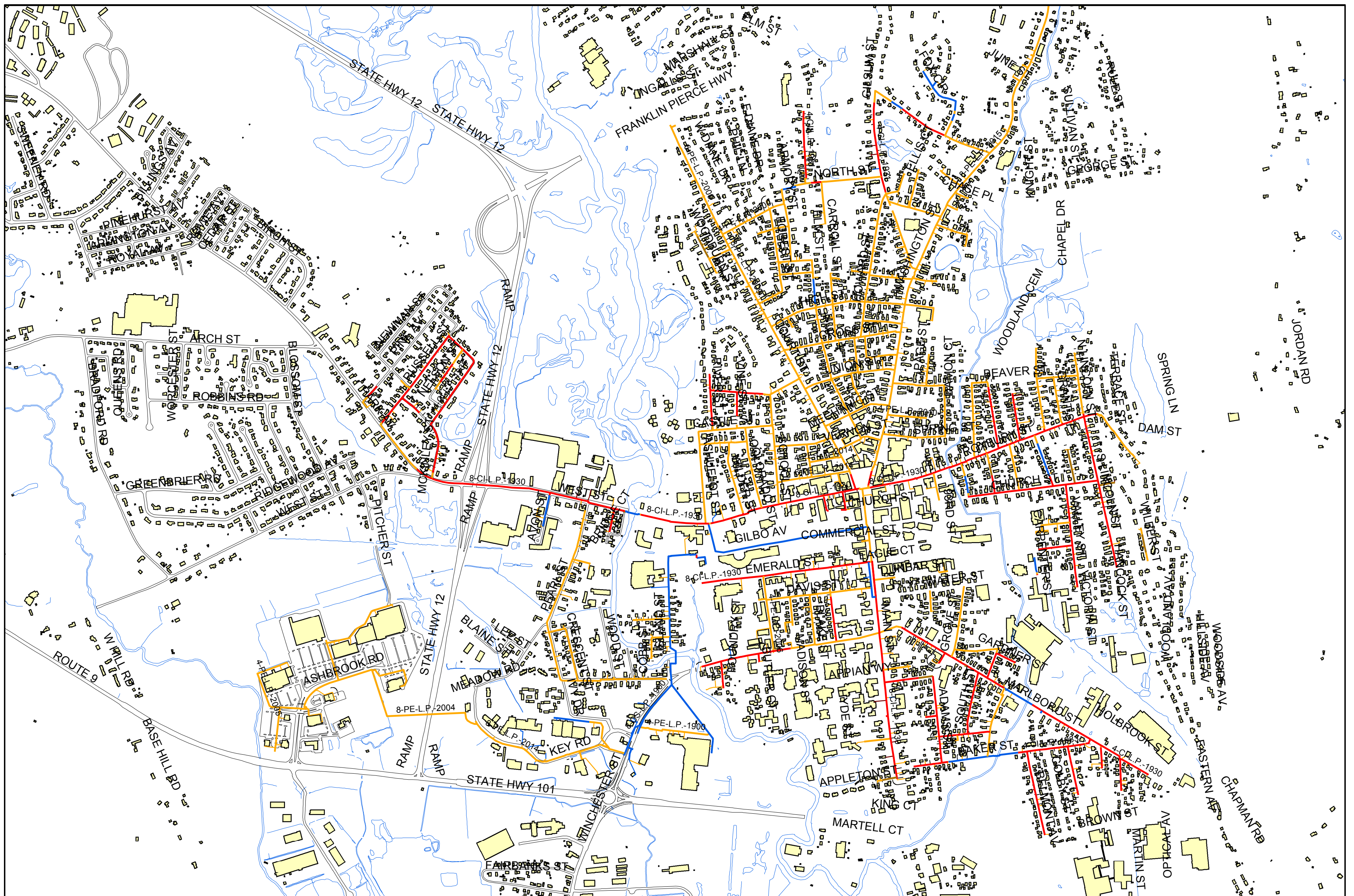
For the permanent CNG supply, Liberty owns a parcel of land located on Production Avenue in Keene which will be utilized for permanent siting of the CNG equipment utilized for all high pressure customers beginning in the fall of 2017. This location is currently being evaluated for the ultimate conversion of the entire system to natural gas as Phase 2 of the process, which would utilize LNG as the primary natural gas supply. During Phase 1 Liberty will install ~2,300 of 8" PL Main from the parcel to the distribution system on Ashbrook Road in 2017. Decompression equipment capable of ~80 MCFH or greater will be located at the new supply point and connected in the fall of 2017 to support the expanded natural gas conversion along the

high pressure system. System isolation and customer conversion for Phase I will commence in the late summer of 2017 and continue through the late fall.

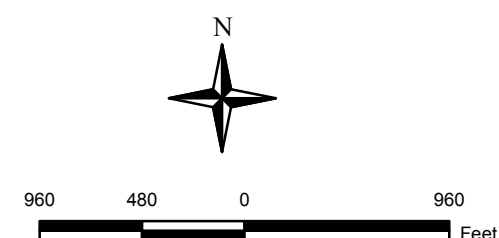
The total estimated cost to install isolation valves for the Monadnock Marketplace high pressure customers is \$40,000, and the total estimated cost for all high pressure customer conversions including equipment is \$60,000. The total estimated cost for the main extension from Production Ave. is \$400,000. This includes permitting and a directional bore under Route 9 to connect to the distribution system located in the Marketplace. Therefore, the total estimated capital delivery system investment is \$500,000. We expect to incur additional costs to develop the Production Ave. site to accept the Phase I CNG facilities and be compatible with the Phase II LNG facilities. These costs are estimated to be \$550,000. Operations and maintenance costs associated with Phase I of the CNG facilities are borne by the vendor, XNG, and will be a component in the semi-annual cost of gas calculation. The same applies to the cost of CNG supply and transportation.

The cost savings attributable to accelerating the conversion of the Monadnock Marketplace customers from propane/air to CNG is equal to the savings in incremental monthly costs to staff the production plant 24/7. The cost to staff the plant 24/7 is approximately \$22,000 per month versus \$3,900 per month without 24/7 staffing. Therefore the total incremental cost to staff the plant is approximately \$18,000 per month or \$90,000 for the period January through May 2017. This value does not take into account the further incremental savings from blower retirement attributable to energy cost and maintenance savings. The Company has not yet estimated the net cost savings from the complete conversion of the high pressure system to CNG supply or the conversion of the entire Keene distribution system to LNG supply.

- PRESSURE GAUGES ARE REQUIRED AT ALL MAINS FOR ALL TIE-INS. REFER TO GCON-7010 PROCEDURE.
- CHECK ELECTRONIC MAPPING SYSTEM FOR MOST CURRENT MAPPING INFORMATION.



Keene Distribution System Map



NOTE: The location of surface and underground objects shown are not warranted to be correct.

ENGINEER	RMB	SIZE	
DATE	12/11/16	MATERIAL	
LENGTH		PRESSURE	
SECTIONALS		WORK ORDER #	

ArcFM





Keene Customer Details

REDACTED

Docket No. DG 20-152
Exhibit 23
Attachment Staff 4-1.2
Page 1 of 43

Customer Name: H155 [REDACTED]

Address: [REDACTED]

Meter Size: 5M

Service Regulator: Itron B38R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
4	RoofTopUnit		Lennox	LGC180H2BS2G	NaturalGas	260,000

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
48	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NPT TAPERED)

1	RoofTopUnit	Lennox	LGA090H2BH3G	NaturalGas	240,000
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Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
11	LB-99216	Lennox	ORIFICE-BURNER, NAT-240 BTU

1	RoofTopUnit	Lennox	LGA060H2BH2G	NaturalGas	125,000
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Notes: 5 orifices per unit.

Quantity	Part Number	Manufacturer	Description
5	LB-99213	Lennox	ORIFICE-BURNER, NAT-125 UNITS(NEW STYLE NPT)

1	SpaceHeater	Reznor	
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Notes: Field verify and install orifices.

Total BTU/hr Connected: 1,405,000





Keene Customer Details

REDACTED

Docket No. DG 20-152
Exhibit 23
Attachment Staff 4-1.2
Page 3 of 43

Customer Name: H157 [REDACTED]

Address: 6 [REDACTED]

Meter Size: 3M

Service Regulator: Itron B34SR 1-1/4"

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating HotWater

Piping Materials: Steel/BMI

NFGC Compliance Notes:
None

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
2	Furnace		Carrier			

Notes: Field verify and install orifices.

2	Boiler		Weil Mclain			
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Notes: Field verify and install orifices.

Total BTU/hr Connected:





Keene Customer Details

REDACTED

Docket No. DG 20-152
Exhibit 23
Attachment Staff 4-1.2
Page 5 of 43

Customer Name: H158 [REDACTED]

Address: [REDACTED]

Meter Size: 5M

Service Regulator: Itron B38R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating HotWater

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
3	RoofTopUnit		Lennox	LGA060H2BT2Y	NaturalGas	125,000
<u>Notes:</u> 5 orifices per unit.						
		Quantity	Part Number	Manufacturer	Description	
		15	LB-99213	Lennox	ORIFICE-BURNER, NAT-125 UNITS(NEW STYLE NPT)	
2	RoofTopUnit			Lennox	LGC300H2BH2Y	NaturalGas 480,000
<u>Notes:</u> 12 orifices per unit.						
		Quantity	Part Number	Manufacturer	Description	
		24	LB-99216	Lennox	ORIFICE-BURNER, NAT 470 BTU(NEW STYLE NPT TAPERED)	
4	WaterHeater			Rheem	RTGH-950VLP	Propane 199,000
<u>Notes:</u> Replace entire unit.						
		Quantity	Part Number	Manufacturer	Description	
		4	RTGH-95DVLN	Rheem	Tankless Water Heater	
Total BTU/hr Connected:						2,131,000





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Customer Name: H159 [REDACTED]

Address: [REDACTED]

Meter Size: 1000

Service Regulator: Itron B34R 1-1/4"

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
2	RoofTopUnit		Trane	YHC102A3RHA1XF00000000000 D	NaturalGas	200,000

Notes: 4 orifices per unit.

Quantity	Part Number	Manufacturer	Description
8	ORF01342	Trane	ORIFICE; GAS, SPUD, 3.3 MM DIA

Total BTU/hr Connected: 400,000





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Customer Name: H160 [REDACTED]

Address: [REDACTED]

Meter Size: 7M

Service Regulator: Itron, B838R

Riser: 4" Flanged

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Carrier	48HJD01211-671UJ15	NaturalGas	180,000

Notes: Orifices only.

2	RoofTopUnit		Carrier	48HJD00611-641UJ01	NaturalGas	
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Notes: Orifices only.

11	RoofTopUnit		Carrier	48HGT14AB-61KD5	NaturalGas	250,000
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Notes: Orifices only.

1	Other	Make up air unit	Munters	1		
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Notes: Install conversion kit. Contacted Munters with store number/address for correct kit.

Quantity	Part Number	Manufacturer	Description
1	P0014G03020	Munters	REPLACEMENT PARTS, CONVERSION KIT-NAT BG043 ORF



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1	RoofTopUnit	Carrier	48HJD00811-641UJ16	NaturalGas	125,000
---	-------------	---------	--------------------	------------	---------

Notes: Orifice kit only.

2	SpaceHeater	Sterling		NaturalGas	240,000
---	-------------	----------	--	------------	---------

Notes: Assumed 12 orifices per unit, ordered extra. Orifices (+ pilot).

Quantity	Part Number	Manufacturer	Description
28	J36R04694-028	Sterling	Standard Orifice #42 Natural Gas

Total BTU/hr Connected:	3,535,000
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Customer Name: H161 [REDACTED]

Address: [REDACTED]

Meter Size: 5M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Lennox	LGA120H2BH3G	NaturalGas	240,000

Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
11	LB-99216	Lennox	ORIFICE-BURNER, NAT-240 BTU

1	RoofTopUnit		Lennox	LGA060H2BS2G	NaturalGas	78,000
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Notes: 3 orifices per unit.

Quantity	Part Number	Manufacturer	Description
3	LB-99213	Lennox	ORIFICE-BURNER, NAT-78 UNITS(NEW STYLE NPT)

2	RoofTopUnit		Lennox	LGC156H2BS2G	NaturalGas	260,000
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Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
24	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NPT TAPERED)

5	RoofTopUnit		Lennox	LGC180H2BM2G	NaturalGas	260,000
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Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
60	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NPT TAPERED)



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1 SpaceHeater Lennox

NaturalGas

Notes: Field verify and install orifices.

Total BTU/hr Connected: 2,138,000





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Customer Name: H162 [REDACTED]

Address: [REDACTED]

Meter Size: 425

Service Regulator: Actsris, B38R

Riser: 2" Threaded

Multi Meter Set: Yes

Gas Usage: Heating
Piping Materials: Steel/BMI
NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Lennox	LGA060H2BH2G	NaturalGas	125,000
<u>Notes:</u> 5 orifices per unit.						
		Quantity	Part Number	Manufacturer	Description	
		5	LB-99213	Lennox	ORIFICE-BURNER, NAT-125 UNITS(NEW STYLE NPT)	
1	RoofTopUnit			Lennox	LGA060H2BH2G	NaturalGas 125,000
<u>Notes:</u> 5 orifices per unit.						
		Quantity	Part Number	Manufacturer	Description	
		5	LB-99213	Lennox	ORIFICE-BURNER, NAT-125 UNITS(NEW STYLE NPT)	
Total BTU/hr Connected:						250,000





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Customer Name: H163 [REDACTED]

Address: [REDACTED]

Meter Size: 3M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: Yes

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Lennox	LGA120HH2G	NaturalGas	235,000

Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
11	LB-99216	Lennox	ORIFICE-BURNER, NAT 235 BTU(NEW STYLE NPT TAPERED)

1	RoofTopUnit	Lennox	LGA120HH2G	NaturalGas	235,000
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Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
11	LB-99216	Lennox	ORIFICE-BURNER, NAT 235 BTU(NEW STYLE NPT TAPERED)

1	RoofTopUnit	Lennox	LGC156HS1G	NaturalGas	260,000
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Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NEW STYLE NPT TAPERED)

Total BTU/hr Connected: 730,000





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Customer Name: H164 [REDACTED]

Address: [REDACTED]

Meter Size: 5M

Service Regulator: Actaris4

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	SpaceHeater		Unknown		NaturalGas	

Notes: Standard inshot burner heater. Field verify details and parts.

1	RoofTopUnit		Lennox	LGA036HS2G	NaturalGas	78,000
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Notes: 3 orifices per unit.

Quantity	Part Number	Manufacturer	Description
3	LB-99213	Lennox	ORIFICE-BURNER, NAT-78 UNITS(NEW STYLE NPT)

1	RoofTopUnit		Lennox	LGC156HS1G	NaturalGas	260,000
---	-------------	--	--------	------------	------------	---------

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NEW STYLE NPT TAPERED)

1	RoofTopUnit		Lennox	LGC156HS1G	NaturalGas	260,000
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Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NEW STYLE NPT TAPERED)



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NaturalGas 260,000

1 RoofTopUnit Lennox LGC156HS1G

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NEW STYLE NPT TAPERED)

1 RoofTopUnit Lennox LGC156HS1G NaturalGas 260,000

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE-BURNER, NAT 260 BTU(NEW STYLE NPT TAPERED)

1 RoofTopUnit Lennox LGA060H2BS2G NaturalGas 78,000

Notes: 3 orifices per unit.

Quantity	Part Number	Manufacturer	Description
3	LB-99213	Lennox	ORIFICE-BURNER, NAT-78 UNITS(NEW STYLE NPT)

Total BTU/hr Connected: 1,196,000





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Customer Name: H165 [REDACTED]

Address: [REDACTED]

Meter Size: 3M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: Yes

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
2	RoofTopUnit		Lennox	LGA090HH2G	NaturalGas	235,000

Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
22	LB-99216	Lennox	ORIFICE-BURNER, NAT 235 BTU(NEW STYLE NPT TAPERED)

Total BTU/hr Connected: 470,000





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Customer Name: H165. [REDACTED]

Address: [REDACTED]

Meter Size: 3M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: Yes

Gas Usage: Heating HotWater

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	WaterHeater		A.O. Smith	BTR-198 118	NaturalGas	199,000

Notes: Orifices only - intermittant pilot.

Quantity	Part Number	Manufacturer	Description
1	076243-032	AO Smith	Main Burner Orifice - Natural

1	RoofTopUnit	Lennox	LGH060H4EH2G	NaturalGas	150,000
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Notes: 7 orifices per unit.

Quantity	Part Number	Manufacturer	Description
7	LB-99216	Lennox	ORIFICE-BURNER, NAT-HI HT,150 BTU(.089)(BEFORE 06/20/13

1	RoofTopUnit	Lennox	LGH092H4BH1G	NaturalGas	240,000
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Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description
11	LB-99216	Lennox	ORIFICE-BURNER, NAT-240 BTU

1	RoofTopUnit	Lennox	LGH156H4BM2G	NaturalGas	360,000
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Notes: 18 orifices per unit.

Quantity	Part Number	Manufacturer	Description
18	LB-97758	Lennox	ORIFICE-BURNER, NAT-360 BTU



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NaturalGas 240,000

1 RooftopUnit Lennox LGH120H4BH2G

Notes: 11 orifices per unit.

Quantity	Part Number	Manufacturer	Description	
11	LB-99216	Lennox	ORIFICE-BURNER, NAT-240 BTU	
Total BTU/hr Connected:				1,189,000



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Customer Name: H166 [REDACTED]

Address: [REDACTED]

Meter Size: 1000

Service Regulator: Actaris, B34SR

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Trane	YDC181C3LACA	NaturalGas	250,000

Notes: Remove air shutter / Reset gas pressure ?

Quantity	Part Number	Manufacturer	Description
1	ORF01029	Trane	ORIFICE; #P-.323 DIAMETER

1	RoofTopUnit		Trane	YDC151C3HABB	NaturalGas	250,000
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Notes: Change orifice plate on burner. Remove air shutter / Reset inlet pressure?

Quantity	Part Number	Manufacturer	Description
1	ORF01029	Trane	ORIFICE; #P-.323 DIAMETER

Total BTU/hr Connected: 500,000





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Customer Name: H167 [REDACTED]

Address: [REDACTED]

Meter Size: 16M

Service Regulator: 2"x4" Actaris B838

Riser: 4" Flanged

Multi Meter Set: No

Gas Usage: Heating HotWater Cooking

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	Other	Rotisserie	Rotisol France	1375	NaturalGas	122,000

Notes: Replace orifices and adjust air per manufacturer instructions.

Quantity	Part Number	Manufacturer	Description
3	INJ290	Rotisol	TAPERED THREAD INJECTOR

6	Furnace	Back Hall Unit Heaters	Reznor	UDBP (Assumed)	NaturalGas	75,000
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Notes: Field verify and install orifices.

2	Furnace	Loading Dock Unit Heaters	Reznor	Unk	NaturalGas	150,000
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Notes: Adjust unit.

1	WaterHeater	Upstairs Mech Room	Rheem Rudd	G91-200-1	NaturalGas	199,900
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Notes: Orifices and pilots.

Quantity	Part Number	Manufacturer	Description
1		Rheem	Orifice

1 Range Grill Baker's Pride XX-4

Notes: Adjust orifices and burners.

		Quantity	Part Number	Manufacturer	Description		
		4	R3043X	Bakers Pride	Hood Orifice #47, Nat		

2 Other Fryer Anetsberger Brothers Inc 18-AA NaturalGas 150,000

Notes: Change orifices.

		Quantity	Part Number	Manufacturer	Description		
		4	P8904-98	Anetsberger	PG,ORF RNR TU 18E/20E NAT		
		4	P8905-83	Anetsberger	ORF,BRN #34 NAT 1.56LONG ANETS		

2 RoofTopUnit RTU 5 AAON Inc 58903 NaturalGas 480,000

Notes: Need to take apart to find number of burners.

		Quantity	Part Number	Manufacturer	Description		
		16		AAON	Orifice		

3 RoofTopUnit RTU 2 AAON Inc 65015 NaturalGas 780,000

Notes: Observed unit inoperable and missing parts on left side.

		Quantity	Part Number	Manufacturer	Description		
		26		AAON	Orifice		

2 RoofTopUnit MAU 1 Greenheck PVF400H NaturalGas 800,000

Notes: 24 orifices per unit.

		Quantity	Part Number	Manufacturer	Description		
		24	460481	Greenheck	Orifice		



1 Other Bagel Cooker Davrik Systems BK-40

Notes: Change burner orifice. Check pilot orifice for function.

		Quantity	Part Number	Manufacturer	Description		
		1		Generic	Orifice Blank, Drillable		

1 RoofTopUnit RTU 9 AAON Inc 65018 NaturalGas 90,000

Notes: Replace orifices.

		Quantity	Part Number	Manufacturer	Description		
		3		AAON	Orifice		

1 Other Bread Oven MIWE ID4.1216-B2.1 NaturalGas 200,000

Notes: Adjust gas valve regulator outlet pressure until correct combustion is achieved.

1 RoofTopUnit Dehumidifier Munters P00332005 / P00125050 NaturalGas 1,550,000

Notes: Install conversion kit. Contacted Munters with store number/address for correct kit.

		Quantity	Part Number	Manufacturer	Description		
		1		Munters			

1 Other Bagel Oven Hobart H0851G NaturalGas 260,000

Notes: Air adjustment.

		Quantity	Part Number	Manufacturer	Description		
		1	01-1000V9-00050	Hobart	Mixer - Gas 2-1/2 In. Dia. (NAT)		
		1	01-1M1131-00001	Hobart	Kit - Pilot Replacement (NAT)		



1 Range 6 Burner Range w/ Oven American Range AR-6

Notes: Orifices and pilot for oven.

Quantity	Part Number	Manufacturer	Description
1	A11104	American Range	Pilot, Nat Gas .018 SSL-2 AR/SAG 10413
1	A29000	American Range	Orifice Hood, #39 1/2" Brass 11039 Nat Gas

1 Other Fryer Henny Penny Pressure Fryer 600 NaturalGas 80,000

Notes: Called Henny Penny with serial number. Use LP to nat. conversion kit. Kit comes with orifices and instructions.

Quantity	Part Number	Manufacturer	Description
1	14325	Henny Penny	Kit, LP to Nat. Conversion

1 Other Fryer Henny Penny EFG-691 NaturalGas 100,000

Notes: Called Henny Penny with serial number. Use LP to nat. conversion kit. Kit comes with orifices and instructions.

Quantity	Part Number	Manufacturer	Description
1	14221	Henny Penny	Conversion Kit - LP to Nat

1 Other Pizza Oven Marsal Unk NaturalGas 260,000

Notes: Adjustable orifice. Standard FNM parts on controls. Assumed model number based on BTU input.

Quantity	Part Number	Manufacturer	Description
2	70383	Marsal	Burner Orifice, NAT 130 MBTU
2	70482	Marsal	Pilot Orifice, NAT



1 Other Donut Fryer Avalon ADF24-G

Notes: Generator. 6 tube burners with small regular standard small orifice. Robert Shaw controls.

Quantity	Part Number	Manufacturer	Description
1	AP1017	Avalon	Thermocouple Orifice (Natural Gas)
1	AP1022	Avalon	Burner Orifice #53 (Natural Gas)
1	AP1024	Avalon	Carry Over Tube Orifice #53 (Natural Gas)

1 Other Bakery Oven Hobart HBA1G NaturalGas 180,000

Notes: Two 18 burner setups. Remove and plug bolts on orifices.

Quantity	Part Number	Manufacturer	Description
2	01-1000V9-00174	Hobart	Orifice #53 (0.059 In.) (NAT)

3 RoofTopUnit RTU 3 AAON Inc 65016 NaturalGas 270,000

Notes: Replace orifices.

Quantity	Part Number	Manufacturer	Description
9		AAON	Orifice

Total BTU/hr Connected: 10,360,900





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Customer Name: H168 [REDACTED]

Address: [REDACTED]

Meter Size: 7M

Service Regulator: Actaris, B838R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating HotWater Cooking

Piping Materials: Steel/BMI

NFGC Compliance Notes:

All the kitchen equipment is still here but th
slated to be demolished in the spring.

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
3	RoofTopUnit		Lennox	LGA090H2BH3Y	NaturalGas	240,000

Notes: 33 orifices per burner.

Quantity	Part Number	Manufacturer	Description
33	LB-99216	Lennox	ORIFICE BURNER, NAT-240 BTU

2	RoofTopUnit	Lennox	LGA102H2BH4Y	NaturalGas	240,000
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Notes: 11 orifices per burner.

Quantity	Part Number	Manufacturer	Description
22	LB-99216	Lennox	ORIFICE BURNER, NAT-240 BTU

2	RoofTopUnit	Lennox	LGA120H2BH3Y	NaturalGas	240,000
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Notes: 11 orifices per burner.

Quantity	Part Number	Manufacturer	Description
22	LB-99216	Lennox	ORIFICE BURNER, NAT-240 BTU

1	Other	Make up air heater	Captive Aire Systems	A4-D.1500-920	NaturalGas	1,250,964
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Notes: Manufacturer states to reset high and low fire settings on unit.



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Propane 300,000

2 WaterHeater AO Smith BTH 300A 201

Notes: Not field convertible, building scheduled to be demolished. Disconnect and cap fuel piping.

Total BTU/hr Connected: 3,530,964





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Customer Name: H169 [REDACTED]

Address: [REDACTED]

Meter Size: 5M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating HotWater Cooking

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	WaterHeater		State	SBD85365NEA 118	NaturalGas	365,000

Notes: Asked Mostone. Intermittant pilot - orifices only.

1	Dryer	Make up air	Captive Aire Systems	NHMUA2.18-G15	NaturalGas	291,060
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Notes: Manufacturer states to reset high and low fire settings on unit.

1	RoofTopUnit		Trane	YSC120A3RHA1T00A0C1A000C0	NaturalGas	250,000
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Notes: 5 orifices per unit.

Quantity	Part Number	Manufacturer	Description
5	ORF01342	Trane	ORIFICE; GAS, SPUD, 3.3 MM DIA

2	RoofTopUnit		Trane	YCD150D3H0BB	NaturalGas	250,000
---	-------------	--	-------	--------------	------------	---------

Notes: 1 orifice plate per unit.

Quantity	Part Number	Manufacturer	Description
2	ORF01029	Trane	ORIFICE; #P-.323 DIAMETER



3 Other Frialator Pitco SG14-JS

Notes: Orifices only.

		Quantity	Part Number	Manufacturer	Description		
		3	B7510087-C	Pitco	GAS CONV KIT LP TO NAT VR8204 SG14,SG18		

1 Other Infrared broiler Vulcan ICM36 NaturalGas 30,000

Notes: Replace 1 burner and pilot orifice.

		Quantity	Part Number	Manufacturer	Description		
		1	00-844516-00012	Vulcan	Orifice #38 (Nat) 27" Burner		
		1	00-844516-00083	Vulcan	Orifice - Pilot (Nat)		

1 Other Char-broiler Vulcan Unknown NaturalGas 102,000

Notes: Install 6 hood type orifices.

		Quantity	Part Number	Manufacturer	Description		
		6	00-719951-00050	Vulcan	# 50, ORIFICE HOOD (NAT. GAS)		

1 Other Flat top griddle Vulcan 960A-353 NaturalGas 250,000

Notes: Intermittant pilot, 50,000 btu / burner (x5) orifices only.

		Quantity	Part Number	Manufacturer	Description		
		5	00-802389-00022	Vulcan	Orifice #41 – Burner (NAT) (Sea Level to 2000 Ft.)		

Total BTU/hr Connected: 2,118,060





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Customer Name: H170 REDACTED

Address: REDACTED

Meter Size: 5M

Service Regulator: Actaris, B38R

Riser: 2" Threaded

Multi Meter Set: No

Gas Usage: Heating HotWater Cooking

Piping Materials: Steel/BMI

NFGC Compliance Notes:

Appliance List

Quantity	Appliance Type	Other Type / Location	Manufacturer	Model	Original Fuel	BTU/hour
1	RoofTopUnit		Lennox	LGC180H2BS2Y	NaturalGas	260,000

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE BURNER, NAT 260 BTU(NPT TAPERED)

1	RoofTopUnit		Lennox	LGA240H2BS3Y	NaturalGas	260,000
---	-------------	--	--------	--------------	------------	---------

Notes: 12 orifices per unit.

Quantity	Part Number	Manufacturer	Description
12	LB-99216	Lennox	ORIFICE BURNER, NAT 260 BTU(NPT TAPERED)

1	RoofTopUnit		Lennox	LGC150S2BS2Y	NaturalGas	130,000
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Notes: 6 orifices per unit.

Quantity	Part Number	Manufacturer	Description
6	LB-99216	Lennox	ORIFICE BURNER, NAT-130 BTU

4	WaterHeater	On Demand	Noritz	NCC1991-DV	Propane	199,900
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Notes: Replace entire unit, not field convertible.

Quantity	Part Number	Manufacturer	Description
4	NCC1991-DV-NG	Noritz	199,900 BTU Natural Gas Instant Water Heater



1 Other Pizza oven Middleby Marshall PS636G6BU000

Notes: Replace orifices.

		Quantity	Part Number	Manufacturer	Description
		3	44984	Middleby Marshal	Burner Orifice

1 Other Frialator Henny Penny EEG-164 FFFG Propane 300,000

Notes: Field conversion unknown, 1 four gang unit

		Quantity	Part Number	Manufacturer	Description
		4	140291	Henny Penny	KIT-LP TO NAT F UP TO 5000 FT

1 Other Griddle Vulcan 948A NaturalGas 120,000

Notes: Orifices only

		Quantity	Part Number	Manufacturer	Description
		4	00-802389-00022	Vulcan	Orifice #41 – Burner (NAT) (Sea Level to 2000 Ft.)
		4	00-819146	Vulcan	Orifice – Pilot (Natural Gas)

Total BTU/hr Connected: 1,944,600



Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-2

Date of Response: 12/12/16
Respondent: David Simek

REQUEST:

Please provide a list of the customers that will be receiving CNG service, their monthly and annual weather normalized usage. Please provide the monthly and annual usage of the CNG customers in total, monthly and annual usage for the Keene Division in total and calculate the percentage of total Keene usage that will be served by CNG.

RESPONSE:

A list of the CNG customers along with their 2015 monthly and annual weather normalized usage is shown in Attachment Staff 4-2. Monthly and annual usage for the Keene Division in total and the percentage of total Keene usage that will be served by CNG is also shown in Attachment Staff 4-2.

**Actual 2015 Usage
Monadnock Market Place**

Address/Business Name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
██████████	577	1,916	1,882	1,140	370	4	0	0	0	0	133	357	6,379
████████████████████	1,179	2,233	2,059	1,308	588	88	53	2	3	40	351	500	8,404
██████████	247	958	943	358	13	0	0	0	1	42	202	945	3,709
██████████████	535	1,007	1,111	540	312	36	511	0	0	1	172	304	4,531
██████████	2,633	5,540	4,587	3,066	880	423	7	2	4	30	830	1,923	19,925
██████████	1,633	3,921	3,542	1,975	673	56	17	1	1	29	421	864	13,134
██████████	90	414	435	133	21	1	1	0	0	0	2	0	1,097
██████████	756	850	875	750	323	7	0	0	0	1	55	116	3,733
████████████████████	217	812	858	371	35	1	1	0	0	1	4	64	2,364
██████████	136	511	531	249	39	0	0	0	0	0	4	36	1,505
██████████	434	1,006	1,018	551	136	42	40	43	36	36	71	122	3,536
██████████	280	697	659	316	121	20	7	5	8	9	98	246	2,469
██████████████	7,968	13,607	13,505	11,198	7,610	5,056	4,275	4,350	2,663	3,280	6,145	6,670	86,328
██████████████	5,631	7,933	8,334	6,868	3,557	2,528	2,404	2,051	844	4	122	729	41,004
████████████████████	1,808	2,714	2,808	2,175	1,669	1,444	1,355	1,494	1,433	1,422	1,748	1,602	21,673
██████████	1,234	1,783	1,818	1,416	1,000	835	778	815	827	827	1,223	908	13,464
TOTAL	25,358	45,904	44,964	32,415	17,349	10,542	9,449	8,763	5,820	5,723	11,582	15,388	233,257
Weather Normalized Usage	25,126	51,293	51,824	34,974	16,167	9,879	9,482	8,763	5,820	5,723	11,350	13,451	243,852
Base Load	9,106	9,106	9,106	9,106	9,106	9,106	9,106	9,106	9,106	9,106	9,106	9,106	
Heating Load	16,252	36,798	35,858	23,309	8,243	1,436	343	0	0	0	2,476	6,281	
Actual Billing Degree Days (Concord)	1,239	1,457	1,311	879	383	126	53	5	40	300	596	753	
Normal Billing Degree Days (Concord)	1,256	1,244	1,060	782	437	183	47	21	103	340	652	985	
Actual Unit Heat Load (Therm/DD)	13	25	27	27	22	11	7	0	0	0	4	8	
Weather Adjustment	-232	5,390	6,860	2,559	-1,182	-663	33	0	0	0	-232	-1,937	
Normal Heat Load	16,020	42,187	42,718	25,868	7,061	773	376	0	0	0	2,244	4,344	
Total Keene Usage 2015	159,910	302,157	292,500	205,166	105,648	50,510	44,065	42,307	36,559	42,399	85,617	123,777	1,490,614
Monadnock Market Place Usage as a Percentage of Total Keene Usage 16.4%													

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-3

Date of Response: 12/12/16
Respondent: Richard MacDonald

REQUEST:

Please describe the customer outreach regarding the proposed conversion from propane air service to CNG service.

RESPONSE:

A formal letter was sent during the week of October 3, 2016¹ to all customers served by the high pressure system stating that the Company plans to convert them to natural gas in 2017. A copy of the letter is provided in Attachment Staff 4-3. The Keene administrative staff then contacted each customer in 2016 that the Company targeted for conversion and made appointments to conduct an appliance and equipment survey.

¹ The September 15, 2016, date on Attachment Staff 4-3 is the date of the final draft of the letter.



September 15, 2016

Dear Liberty Utilities Customer:

Liberty Utilities is currently in the planning process to convert a portion of our Keene distribution system from propane/air to modern natural gas in 2017. To carry out this work Liberty Utilities will need to purchase needed parts to convert current customer appliances and equipment. In October and November of this year we will be visiting all of our customers in the conversion area to inventory and gather information regarding the appliances and equipment that would be converted. The material and labor cost of converting your gas appliances and equipment will be covered by Liberty.¹ You can be assured that Liberty Utilities will continue to keep you informed of our progress as the conversion plan develops.

So that we can schedule a time to inventory appliances, we are gathering updated telephone numbers and email addresses for customers in the conversion area. We are requesting that you please complete and mail back the enclosed information card with preferred contact information. A self-addressed postage paid reply envelope has also been included for your convenience.

Beginning in October we will be contacting customers to schedule a convenient time so that we may gain access to your property to take an inventory of your gas appliances and equipment. If you have questions, please call feel free to call us at (603) 352-1230. We look forward to seeing you in the upcoming weeks to inventory your appliances.

Respectfully,

Steve Rokes
Manager – Liberty Utilities Keene Division

¹ If during the appliance and equipment inventory survey pre-existing safety code violations are determined remedy costs associated to the safety violation are the responsibility of the customer. Liberty will work with you to resolve unexpected safety issues.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-4

Date of Response: 12/12/16
Respondent: Robert Mostone
Stephen Rokes

REQUEST:

Please explain how CNG service will be metered and billed to account for the btu difference between CNG (1,000 btu) and propane air (740 btu).

RESPONSE:

Liberty Utilities will be converting all customer appliances to natural gas. The appliance conversions will be accomplished by replacing or adjusting all appliance orifices back to natural gas specifications resulting in a decrease in volume flowing through the meters. Because CNG has a higher heat content than propane air, the factor that is currently applied to the meter reading amount for propane air (740 btu/ccf) will be replaced by the heat content of CNG (1,000 btu/ccf), resulting in the same amount of therms used by and billed to the customer.

For billing purposes, here is an example of how the bills will account for the btu difference:

	Propane Air	CNG
(a) Usage	10,000 ccf	7400 ccf
(b) Heat content	740 btu	1,000 btu
(c) Therms ((a)x(b)/100,000)	74	74

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-5

Date of Response: 12/12/16
Respondent: Ryan Burns

REQUEST:

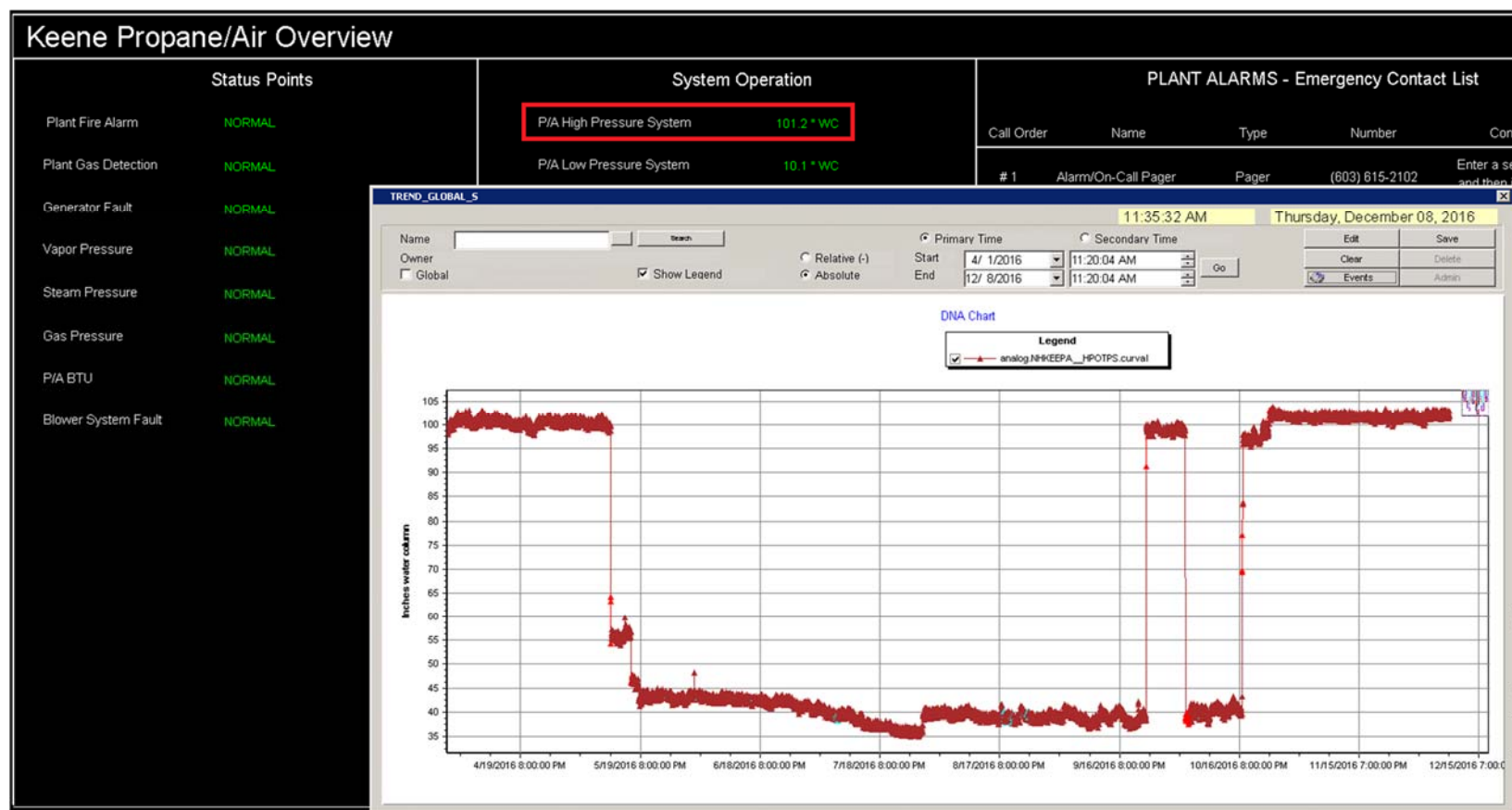
Will the 3 psig system be reduced to inches water column for CNG service?

RESPONSE:

The 5 psig system will be set to run between a 3- 4 psig set point with CNG as a supply source in order to meet current customer requirements as well as preserve hydraulic efficiency, capacity, and reliability.

The associated Keene 5 psig system is currently in blower control mode running at 103 inches water column (IWC) which is equal to ~3.7 psig during the heating season. During non-heating conditions, atmospheric mode effectively operates at ~40 IWC (~1.5 psig). Please see Attachment Staff 4-5 for a graph that depicts actual system pressures as recorded by Liberty's Supervisory Control and Data Acquisition (SCADA).

Graph: Keene 5 psig System SCADA Pressures (April 2016 – December 2016)



Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-6

Date of Response: 12/12/16
Respondent: Norman Gallagher

REQUEST:

What is the mechanism to measure BTU gas? Is a calorimeter required?

RESPONSE:

Yes, a Cutler Hammer calorimeter is utilized. It is located in the plant.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities – Keene Division

DG 16-812
Winter 2016-2017 Cost of Gas

Staff Data Requests - Set 4

Date Request Received: 11/30/16
Request No. Staff 4-7

Date of Response: 12/12/16
Respondent: William Clark

REQUEST:

Please explain how CNG deliveries and storage will satisfy the 7 day storage requirement for customers receiving CNG service.

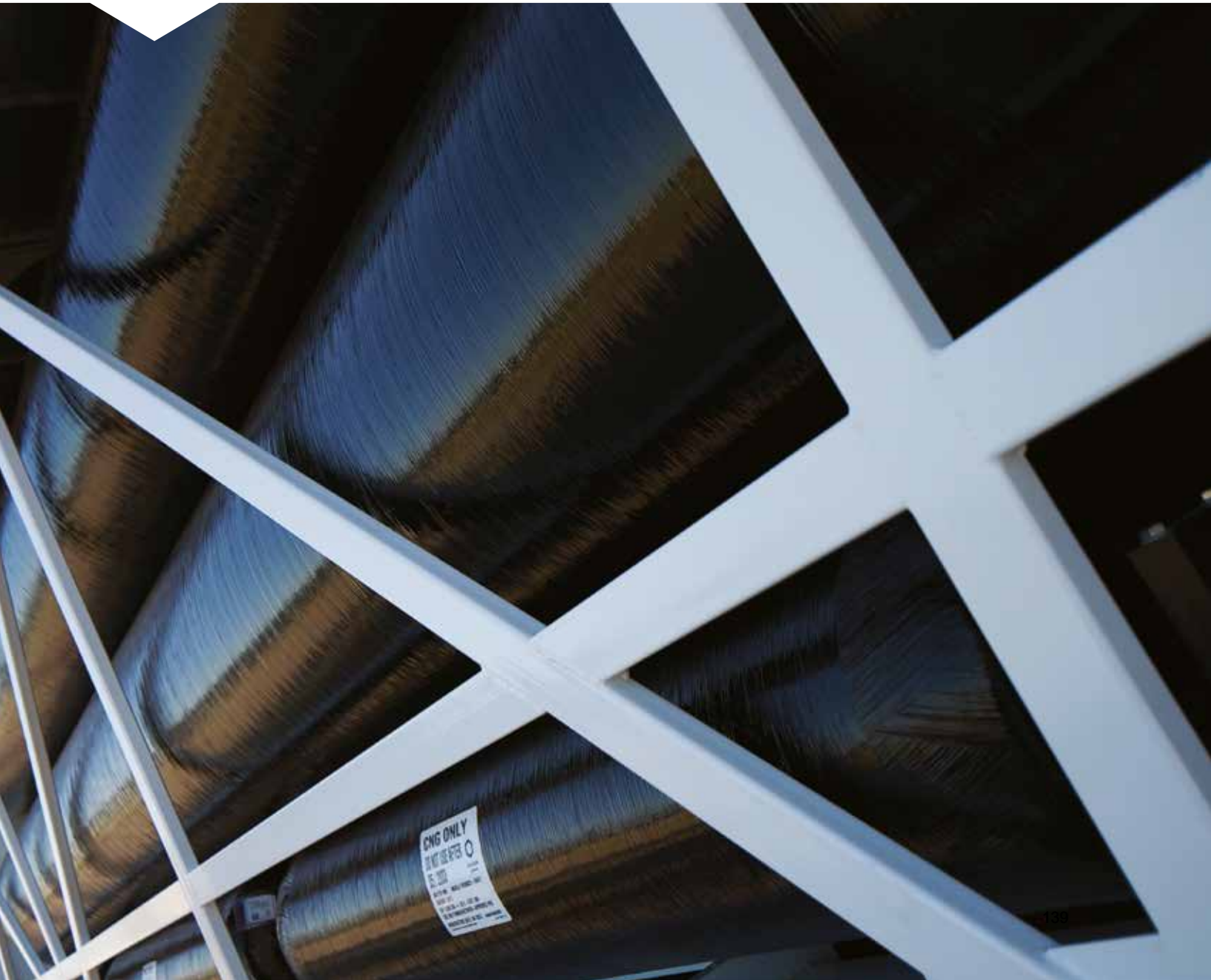
RESPONSE:

Customers receiving higher pressure propane/air from the dedicated distribution and blower system have a design day of 473 Dth. Based on the coldest seven-day period, January 9, 2004, through January 15, 2004, the seven-day requirement for these customers is 2841 Dth. Liberty has contracted with XNG to supply CNG for these customers that will include three trailers being onsite during the winter period. These three trailers have a combined storage capacity of 1092 Dth. The Company has also contracted with XNG for 2500 Dth of firm pipeline capacity over a five-day period at their gate stations with firm trucking transportation service. Pursuant to Puc 506.03(d), 70% of this capacity can be utilized for the seven-day storage requirements. This equates to 1750 dth. Combined with the three trailers on site, the total contracted storage is 2842 Dth, which meets the 7-day storage requirement. For a calculation of the requirement please see Attachment Staff 4-7.1.xls. For a specification sheet detailing the storage capacity of each trailer please see Attachment Staff 4-7.2.

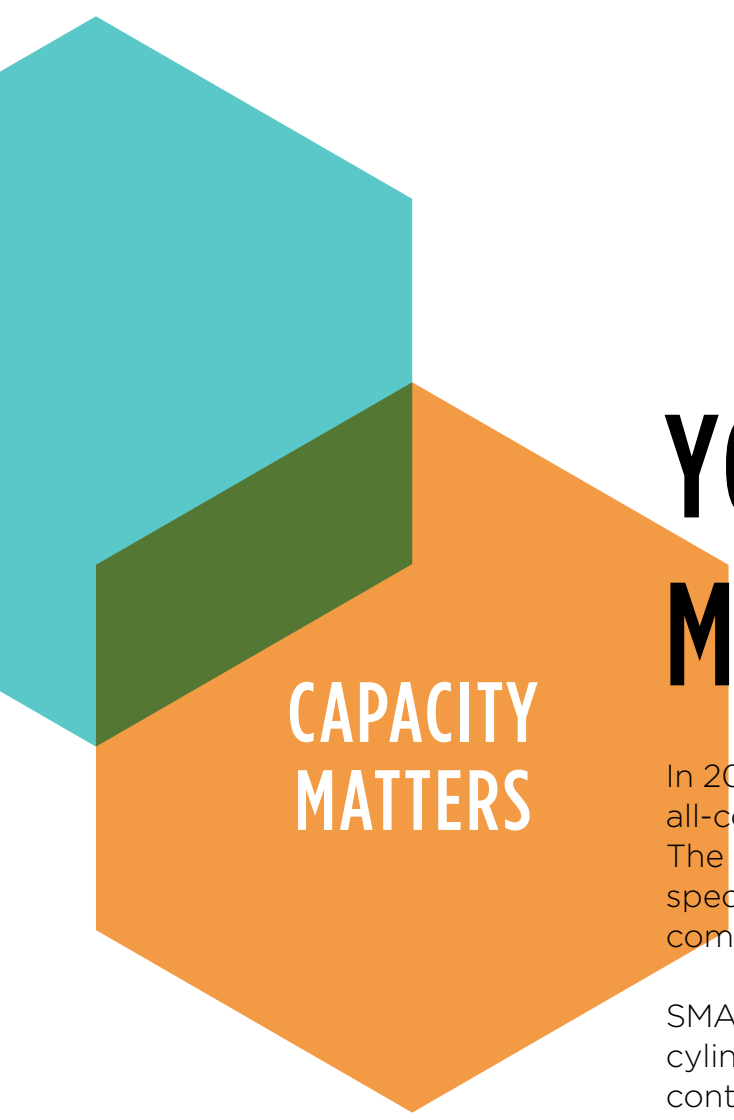


MOBILE PIPELINE®

Bulk transportation and storage of energy gases



***An advanced pipeline to supply
energy gases over long distances
at competitive costs***



**CAPACITY
MATTERS**

YOUR MOBILE PIPELINE[®]

In 2006, Hexagon began development on the largest all-composite commercial pressure vessel in the world. The TITAN[®] trailer and storage module are designed specifically for bulk transportation of large amounts of compressed natural gas.

SMARTSTORE[®] is Hexagon's large capacity TUFFSHELL[®] cylinder storage module. This lightweight HC ISO container is easy to transport by standard trailer equipment and intermodal.

You'll find TITAN[®] and SMARTSTORE[®] in regions that are not currently served by natural gas pipelines. Industrial consumers and vehicle filling stations no longer need to wait for a real pipeline to be built before switching to natural gas.



Hexagon's TITAN® cylinders are the largest all-composite commercial pressure vessels in the world.



SMARTSTORE® offers excellent storage efficiency for regions not accessible by our TITAN® solutions.

*The largest all-composite
commercial pressure vessel in
the world*



SHIPPING CONTAINERS & TRAILERS

TITAN[®]

Our TITAN[®] line is ideal for businesses that require a large consumption of gas at a high flow rate, but are not currently served by pipeline. The modules and trailers essentially become your Mobile Pipeline[®], delivering large quantities of gas efficiently and cost effectively from a mother station to your location.

The TITAN[®] 40 ft Module is a 40 ft ISO 1496 certified shipping container, which contains four TITAN[®] tanks, weighs only 34,613 lb / 15,700 kg unpressurized, and can be transported via rail, truck or ship.

The TITAN[®] 40 ft XL Trailer configuration allows for the addition of a 30 ft TITAN[®] cylinder and optional additional TUFFSHELL[®] tanks to maximize onboard storage capabilities. The lightweight trailer ensures high weight efficiency and enables tandem operation.

- Carbon filaments perform with high strength and zero fatigue
- Polymer liner is corrosion free
- Large manifolds and tube diameters support high gas flow
- Mounted to allow for growth of the tank during pressurization cycle
- Neck mounted carbon steel boss interfaces
- Components safely incorporated directly into the frame
- No welded plumbing connections
- Single-point fill/discharge manifold with up to four receptacles
- Designed for a singular fueling and defueling manifold location
- Fixed end with interconnect plumbing
- Sliding end with proprietary radial bearing design
- Quarter-turn manual shut-off valves at each cylinder
- Optional cascade design for operation with mobile compressor stations
- Equipped with a state-of-the-art fire protection system
- Designed to be low maintenance and to reduce reinspection costs
- Full list of certifications and inspection requirements are available at hexagonlincoln.com



Hexagon's TITAN® operates around the world.



Superior plumbing delivers large quantities of gas at a high flow rate.



COMPRESSED NATURAL GAS DELIVERED

TITAN® Module and Trailer

TITAN® SIZE	30 FT MODULE	40 FT MODULE	40 FT XL TRAILER
Number of TITAN® Tanks	4 x 30 ft	4 x 40 ft	4 x 40 ft, 1 x 30 ft
Number of MAGNUM™ Tanks	0	0	7 all-carbon tanks
Water Volume	6,475 G / 24,512 L	8,993 G / 34,047 L	13,010 G / 49,250 L
Operating Pressure	3,600 psi / 248 bar	3,600 psi / 248 bar	3,600 psi / 248 bar
Gas Volume	262,105 scf / 7,422 scm*	364,059 scf / 10,309 scm*	526,612 scf / 14,912 scm**
Gas Mass	11,781 lb / 5,344 kg*	16,363 lb / 7,422 kg*	24,524 lb / 11,124 kg**
Gasoline Equivalent	1,947 G / 7,370 L	2,705 G / 10,240 L	3,913 G / 14,812 L
Diesel Equivalent	1,812 G / 6,859 L	2,517 G / 9,528 L	3,640 G / 13,780 L
Tare Weight	28,892 lb / 13,105 kg	34,500 lb / 15,649 kg	51,150 lb / 23,200 kg
Loaded Weight	40,673 lb / 18,449 kg	50,860 lb / 23,070 kg	75,674 lb / 34,325 kg
Overall Dimensions			
Length	30 ft / 9.14 m	40 ft / 12.19 m	40 ft / 12.19 m
Width	8 ft / 2.44 m	8 ft / 2.44 m	8.5 ft / 2.59 m
Height	8 ft / 2.44 m	8 ft / 2.44 m	13.5 ft / 4.11 m

*CNG @ 0.72 kg/scm, 15 °C / 0.04578 lb/scf, 59 °F **CNG @ 0.75 kg/scm, 15 °C / 0.04682 lb/scf, 59 °F

***Excellent storage efficiency
for regions not accessible by
our TITAN® solutions***

**LARGE
CAPACITY
TUFFSHELL®
STORAGE**

SMARTSTORE®

Our SMARTSTORE® large capacity cylinder storage module is ideal for areas where infrastructure is undeveloped, large containers are not permitted, storage space is limited, and surrounding roads have restricted load conditions. It's perfect for swap and tandem operations, supplying multiple customers in one trip, and onsite refueling in remote or temporary locations.

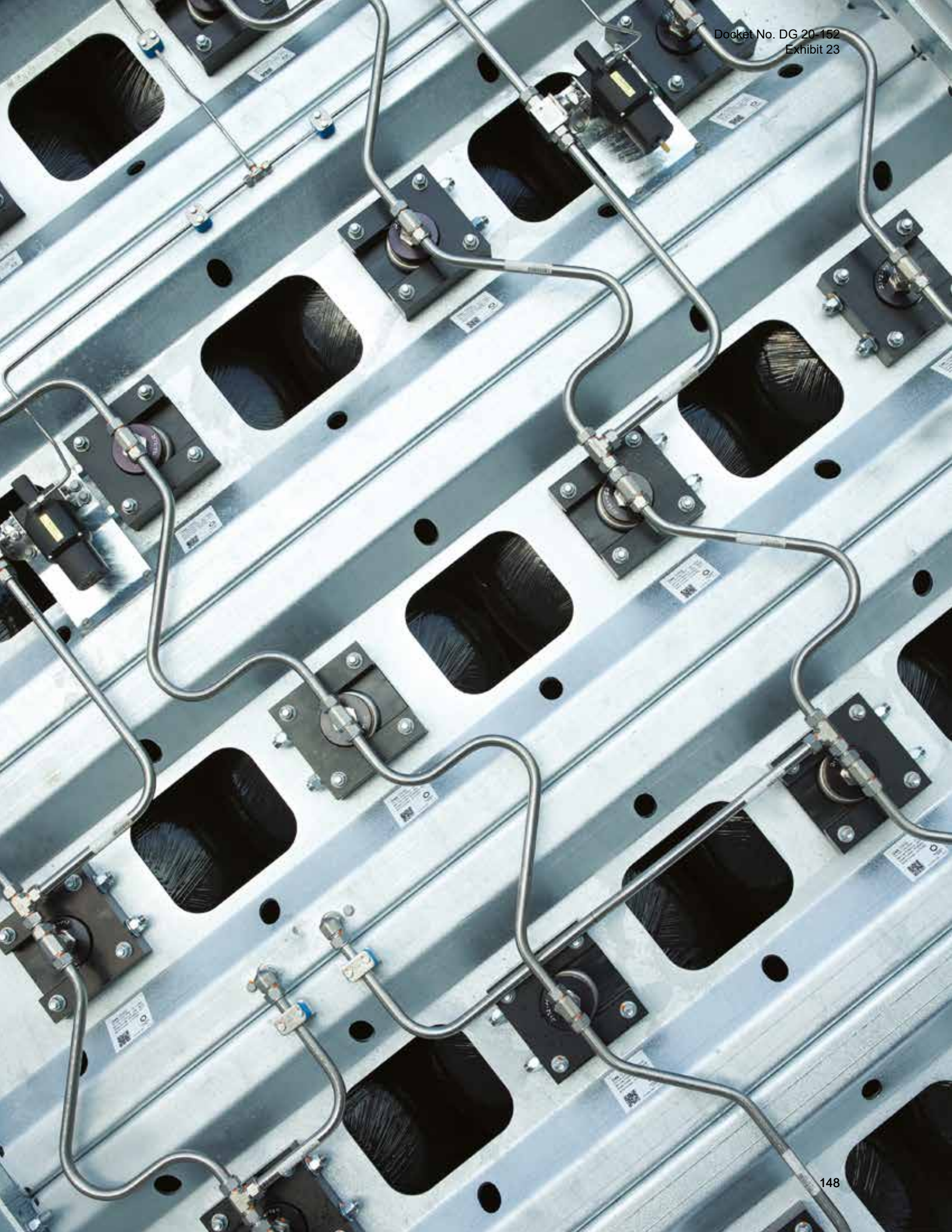
- Multi-receptacle design allows for fast fueling and defueling
- Cylinder arrangement allows for easy drainage of compressor oil and liquids
- Easy access to all piping and valves from front and backside of the module
- Robust steel frame has Swagelok® fittings, all stainless steel tubing, and no welded piping
- Boss mounting eliminates surface damage to tanks from metal straps
- Optional cascade design for operation with mobile compressor stations
- Equipped with a state-of-the-art fire protection system
- Designed to be low maintenance and to reduce reinspection costs
- Full list of certifications and inspection requirements are available at hexagonlincoln.com



SMARTSTORE® is ideal for areas where large containers are not permitted.



SMARTSTORE® features Swagelok® fittings, all stainless steel tubing, and no welded piping.



MOVE GAS
NOT STEEL

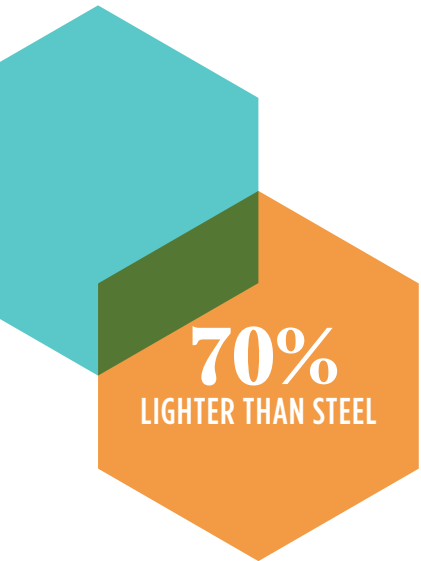
SMARTSTORE® Module

SMARTSTORE® SIZE	10 FT	20 FT	20 FT
Number of TUFFSHELL® / MAGNUM™ Tanks	20 x 10 ft	14 x 20 ft	15 x 20 ft
Water Volume	2,377 G / 9,000 L	5,714 G / 21,630 L	6,122 G / 23,175 L
Operating Pressure	3,600 psi / 248 bar	3,600 psi / 248 bar	3,600 psi / 248 bar
Gas Volume	94,162 scf / 2,666 scm **	227,721 scf / 6,448 scm **	243,987 scf / 6,909 scm **
Gas Mass	4,409 lb / 2,000 kg **	10,426 lb / 4,729 kg **	11,171 lb / 5,067 kg **
Gasoline Equivalent	762 G / 2,883 L	1,830 G / 6,928 L	1,961 G / 7,422 L
Diesel Equivalent	681 G / 2,578 L	1,637 G / 6,196 L	1,754 G / 6,638 L
Module Tare Weight	13,390 lb / 6,074 kg	19,070 lb / 8,650 kg	19,842 lb / 9,000 kg
Module Loaded Weight	17,799 lb / 8,073 kg	30,267 lb / 13,729 kg	31,012 lb / 14,067 kg
Overall Dimensions			
Length	10 ft / 3.05 m	20 ft / 6.10 m	20 ft / 6.10 m
Width	8 ft / 2.44 m	8.20 ft / 2.50 m	8.37 ft / 2.55 m
Height	9.5 ft / 2.90 m	9.5 ft / 2.90 m	9.5 ft / 2.90 m
Approval	ADR / TPED	ABS / ISO11439	USDOT SP / ABS / ISO11439

**CNG @ 0.75 kg/scm, 15 °C / 0.04682 lb/scf, 59 °F



**HEXAGON
COMPOSITES**



70%
LIGHTER THAN STEEL

Hexagon's TITAN[®] and SMARTSTORE[®] are designed specifically for bulk transportation of natural gas. Used on their own or in tandem, they create a Mobile Pipeline[®] for industrial consumers and vehicle filling stations that don't have access to an actual pipeline.

Hexagon operates one of the world's most advanced facilities for designing, testing and manufacturing composite Type 4 pressure vessels. After 50 years of fabricating advanced filament-wound composites and 20 years building Type 4 compressed natural gas tanks, we are the global leader in the industry.

- TUFFSHELL[®]
- TITAN[®]
- SMARTSTORE[®]



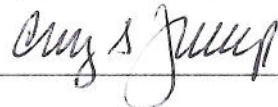
Project Close Out Report **2016**

Requesting Region or Group:	KNE	Date of Closeout (MM/DD/YY):	12/31/2016
Project Number	8843-REL113		
Project Name:	Keene HP System Conversion		
Requesting Region:	New Hampshire	Sponsor (Name):	Brouillard; Chris
Project Champion:	Frost; Brian	Project Manager	Frost; Brian
Project Start Date:	1/1/2016	Project Completion Date:	12/31/2016
Requested Capital (\$)	\$250,000	Expenditure Included in Approved Budget?	YES

Section 1. Approval

Approval of the Project Closeout and Assessment Report indicates an understanding and formal agreement that the project is ready to be closed. By signing this document, each individual agrees all administrative, financial, and logistical aspects of the project should be concluded, executed, and documented as described herein.

Further, by signing this Report, it is accepted that CWIP (FERC Account 107) should be transferred to Utility in Plant Service (FERC Account 101)

Approver Name	Title	Signature	Date
Brouillard; Chris	Director of Engineering		2/24/17
Craig Jennings	Vice President-Operations and Engineering		3/2/17

Section 2. Final Deliverable/Deployment Checklist

Sponsor to respond to each question. For each "no" response, include an issue in Open Issues section.

Project Close Out Report **2016**

Item	Question	Response
2.1	Do you agree that the product and/or service is ready to be deployed?	Yes
2.2	Do you agree the product and/or service has sufficiently met the stated business goals and objectives?	Yes
2.3	Do you fully understand and agree to accept all operational requirements, operational risks, maintenance costs, and other limitations and/or constraints imposed as a result of ongoing operations of the product and/or service?	Yes
2.4	Do you agree the project should be closed? If no, please explain:	Yes
	Rate your level of satisfaction with regards to the project outcomes listed below	
2.5	Project Quality	3
2.6	Product and/or Service Performance	3
2.7	Scope	3
2.8	Cost (Budget)	3
2.9	Schedule	3

Section 3. Project Documentation Checklist

Project Manager Respond to each question. For each "no" response, include an issue in Open Issues section.

Item	Question	Response	
3.1	Have project documentation and other items (e.g., Business Case, Project Plan, Charter, Budget Documents, Status Reports) been prepared, collected, filed, and/or disposed?	Yes	
3.3	Were audits (e.g., project closeout audit) completed and results documented for future reference?	Yes	
3.4	Identify the storage location for the following project documents items:	See below	
Item	Document	Location (e.g., Google Docs, Webspace)	Format
3.4a	Business Case	Local W Drive	Electronic
3.4b	Project Charter	Local W Drive	Electronic
3.4c	Project Plan	Local W Drive	Electronic
3.4d	Budget Documentation and Invoices	Local W Drive	Electronic
3.4e	Status Reports	Local W Drive	Electronic
3.4f	Risks and Issues Log	Local W Drive	Electronic
3.4g	Final deliverable	Local W Drive	Electronic

Project Close Out Report **2016**

3.4h	If applicable, verify that final project deliverable for the project is attached or storage location is identified in 3.4.	Local W Drive	Electronic
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Section 4. Project Team

Project Manager to list resources specified in the Project Plan and used by the project.

Name	Role	Type (e.g., Contractor, Employee)
N/A	N/A	N/A

Section 5. Project Lessons Learned

Project Team to identify lessons learned specifically for the project. State the lessons learned in terms of a problem (issue). Describe the problem and include any project documentation references (e.g., Project Plan, Issues Log) that provide additional details. Identify recommended improvements to correct a similar problem in the future.

Problem Statement	Problem Description	References	Recommendation
None	No Spend	N/A	N/A

Section 6. Post-Implementation Support Plans

Project team to identify plans for post-implementation activities after project closeout. Refer to the Benefits Realization review gate for information about the Post-Implementation Review of Business Outcomes deliverable.

Project Close Out Report **2016**

Action	Planned Date	Assigned To	Frequency
Post-Implementation Review of Business Outcomes (actual review)	N/A	N/A	N/A
Post-Implementation Review of Business Outcomes (approval)	N/A	N/A	N/A

Section 7. Open Issues

Project Manager and Functional Lead to describe any open issues and plans for resolution within the context of project closeout. Include an open issue for any "no" responses in the Final Product and/or Service Acceptance Checklist and the Project Artifacts Checklist sections.

Issue	Planned Resolution
N/A	N/A

Section 8. Financials

Project Manager and Functional Lead to provide details for the following tables.

Financial Descriptor	Amount
Total Actual Project Costs (including all Regional, Corporate and 3 rd party costs)	\$
Total Budgeted amount	\$250,000
Variance	\$250,000

Reasons for Variance	Impact
Project Not Completed in 2016, PUC requested deferral of solutions until after 2016/2017 heating season.	Did not spend budgetted amount

Project Close Out Report **2016**

Project Manager to list of all work orders associated with project that should be closed once Close Out Report is accepted.

Registry of All Job Codes (Regional, Corporate, LABs)	
Work Order 1	No work orders
Work Order 2	
Work Order 3	
Work Order 4	
Work Order 5	

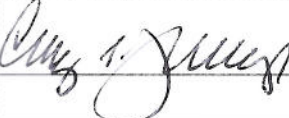
Project Close Out Report **2016**

Requesting Region or Group:	KNE	Date of Closeout (MM/DD/YY):	12/31/2016
Project Number	8843-C18820		
Project Name:	Install Production Ave Main Extension		
Requesting Region:	New Hampshire	Sponsor (Name):	Brouillard; Chris
Project Champion:	Frost; Brian	Project Manager	Frost; Brian
Project Start Date:	1/1/2016	Project Completion Date:	12/31/2016
Requested Capital (\$)	\$200,000	Expenditure Included in Approved Budget?	YES

Section 1. Approval

Approval of the Project Closeout and Assessment Report indicates an understanding and formal agreement that the project is ready to be closed. By signing this document, each individual agrees all administrative, financial, and logistical aspects of the project should be concluded, executed, and documented as described herein.

Further, by signing this Report, it is accepted that CWIP (FERC Account 107) should be transferred to Utility in Plant Service (FERC Account 101)

Approver Name	Title	Signature	Date
Brouillard; Chris	Director of Engineering		2/24/17
Craig Jennings	Vice President-Operations and Engineering		3/2/17

Section 2. Final Deliverable/Deployment Checklist

Sponsor to respond to each question. For each "no" response, include an issue in Open Issues section.

Project Close Out Report 2016

Item	Question	Response
2.1	Do you agree that the product and/or service is ready to be deployed?	Yes
2.2	Do you agree the product and/or service has sufficiently met the stated business goals and objectives?	Yes
2.3	Do you fully understand and agree to accept all operational requirements, operational risks, maintenance costs, and other limitations and/or constraints imposed as a result of ongoing operations of the product and/or service?	Yes
2.4	Do you agree the project should be closed? If no, please explain:	Yes
	Rate your level of satisfaction with regards to the project outcomes listed below	
2.5	Project Quality	3
2.6	Product and/or Service Performance	3
2.7	Scope	3
2.8	Cost (Budget)	3
2.9	Schedule	3

Section 3. Project Documentation Checklist

Project Manager Respond to each question. For each "no" response, include an issue in Open Issues section.

Item	Question	Response	
3.1	Have project documentation and other items (e.g., Business Case, Project Plan, Charter, Budget Documents, Status Reports) been prepared, collected, filed, and/or disposed?	Yes	
3.3	Were audits (e.g., project closeout audit) completed and results documented for future reference?	Yes	
3.4	Identify the storage location for the following project documents items:	See below	
Item	Document	Location (e.g., Google Docs, Webspace)	Format
3.4a	Business Case	Local W Drive	Electronic
3.4b	Project Charter	Local W Drive	Electronic
3.4c	Project Plan	Local W Drive	Electronic
3.4d	Budget Documentation and Invoices	Local W Drive	Electronic
3.4e	Status Reports	Local W Drive	Electronic
3.4f	Risks and Issues Log	Local W Drive	Electronic
3.4g	Final deliverable	Local W Drive	Electronic

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3.4h	If applicable, verify that final project deliverable for the project is attached or storage location is identified in 3.4.	Local W Drive	Electronic
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Section 4. Project Team

Project Manager to list resources specified in the Project Plan and used by the project.

Name	Role	Type (e.g., Contractor, Employee)
Brian Frost	Project Engineer	Employee
Gas Field Operations	Assist HDD	Employee

Section 5. Project Lessons Learned

Project Team to identify lessons learned specifically for the project. State the lessons learned in terms of a problem (issue). Describe the problem and include any project documentation references (e.g., Project Plan, Issues Log) that provide additional details. Identify recommended improvements to correct a similar problem in the future.

Problem Statement	Problem Description	References	Recommendation
None	N/A	N/A	N/A

Section 6. Post-Implementation Support Plans

Project team to identify plans for post-implementation activities after project closeout. Refer to the Benefits Realization review gate for information about the Post-Implementation Review of Business Outcomes deliverable.

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Action	Planned Date	Assigned To	Frequency
Post-Implementation Review of Business Outcomes (actual review)	N/A	N/A	N/A
Post-Implementation Review of Business Outcomes (approval)	N/A	N/A	N/A

Section 7. Open Issues

Project Manager and Functional Lead to describe any open issues and plans for resolution within the context of project closeout. Include an open issue for any "no" responses in the Final Product and/or Service Acceptance Checklist and the Project Artifacts Checklist sections.

Issue	Planned Resolution
N/A	N/A

Section 8. Financials

Project Manager and Functional Lead to provide details for the following tables.

Financial Descriptor	Amount
Total Actual Project Costs (including all Regional, Corporate and 3 rd party costs)	\$154,511
Total Budgeted amount	\$200,000
Variance	\$45,489

Reasons for Variance	Impact
Scope limited to bore completed under state road due to resource constraints.	The remaining 2000' will be completed in 2017.
Project came in less than budgetted amount	Did not spend budgetted amount

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Project Manager to list of all work orders associated with project that should be closed once Close Out Report is accepted.

Registry of All Job Codes (Regional, Corporate, LABs)	
Work Order 1	8843-0001000077
Work Order 2	8843-0001000091
Work Order 3	
Work Order 4	
Work Order 5	

Indicative Scope of Services and Pricing

Operations and Maintenance Support for CNG Installation at

**New Hampshire Gas Corporation
Keene, New Hampshire**



Liberty Utilities®

February 15, 2017

Prepared by Xpress Natural Gas LLC



160 State Street, 8th Floor
Boston, MA 02109

Please note that this estimate is considered confidential information, contains trade secrets of Xpress Natural Gas LLC and has been prepared for Liberty Utilities only in connection with its consideration of CNG services.

February 15, 2017



Mr. William Clark
Director, Business Development
Liberty Utilities
15 Buttrick Road
Londonderry, NH 03053

Dear Bill,

I wanted to put together a more formal statement of the type of support that we can provide for the CNG system in Keene in the event that Liberty Utilities elects to purchase the equipment. XNG can contract for the following services for a ten (10) year term.

The attached information outlines the typical support services that we would expect to provide, as well as a standard rate card. We would propose providing support and maintenance on a time and materials basis.

With any utility service agreement, we expect to comply with any operator qualifications (OQ), and I have attached a sample list. All of our technicians can be certified to meet Liberty and state regulatory requirements. We also provide any required training and/or safety documentation on a time and materials basis.

- 1. Scheduled Maintenance and Training Responsibilities**
- 2. Suggested Operator Qualification**
- 3. XNG Standard Rate Card**
- 4. Operator Responsibilities Matrix – Example Only**

We appreciate the opportunity to develop this exciting project together.

Sincerely,

A handwritten signature in black ink that reads "Gary Ritter". The signature is written in a cursive, flowing style.

Gary Ritter
VP, Sales and Development - Utilities
Xpress Natural Gas LLC

1. Scheduled Maintenance, Training and Documentation

Operational Responsibilities.

Prior to operation, we will identify the specific **operational and maintenance responsibilities** that Liberty Utilities will perform, and which Xpress Natural Gas will perform, including specifically Part 255 Facilities compliance with the Part 255 Regulations.

All work done by XNG would be subject to the XNG rate card attached as Exhibit 3. Rates subject to annual adjustment for any multi-year term of agreement.

A sample Operational Responsibility Matrix is attached as Exhibit 4.

Operator Training

We also recommend that we conduct **educational and training sessions** on the construction and operation of the decompression site equipment for all Liberty and New Hampshire Gas personnel who will be responsible for the operation and maintenance of the interconnection between the equipment and the NH Gas system. Training can be done annually or as needed for the benefit of new or replacement personnel, per the XNG rate card. XNG is also able to update training and education sessions as needed so they are current as to the state of operation of the CNG Station.

Documentation

We will provide a written **emergency response plan** describing in detail the procedures and steps to prevent, address, and remediate gas leaks or any other failure affecting the site, equipment or CNG trailers, subject to Liberty Utilities review and approval prior to implementation, per the XNG rate card.

2. Suggested Operator Qualifications

We would recommend that XNG resources be OQ-certified through Liberty. We will provide a copy of our program (separate cover), but if you require additional OQ we will have our technicians certified through your process.

XNG is also a member of the Northeast Gas Association. If required, our technicians can be certified on any NGA OQ program based on time and materials per the attached rate card, and any cost for course work.

- 2 Measuring pipe-to-soil potential
- 6A Inspecting for atmospheric corrosion
- 8A Visually inspecting for internal corrosion (A = Fitters)
- 18 Conducting Gas Leakage Surveys
- 19 Patrolling & Inspecting Pipeline
- 20D Gas Leak Certification (D = Investigating Leaks - outside only)
- 23 Inspecting the condition of exposed metallic pipe or pipe coating.
- 24 Inspect pipe for damage
- 26 Repairing and maintaining transmission Line Valves
- 32 Purging a pipeline into service
- 33 Purging a Pipeline Out of Service
- 35 Stopping gas flow
- 38 Starting up or shutting down any part of a pipeline that could cause MAOP to be exceeded
- 41 Inspect, Lubricate and Operate Valves
- 42 Repair of Distribution Line Valves.
- 49 Mechanical joining of pipe other than plastic, using a bolted or compression coupling
- 55 Maintain a Pipeline Compressor Station
- 56 Operate a Pipeline Compressor Station, from Gas Control or On-Site.
- 58 Maintaining Gas Detection Systems and Alarms in Compressor Stations
- 59 Controlling and Monitoring Gas Pressures and Flows.
- 60 SCADA: Controlling and monitoring gas pressures and flows/
Operation of Remote Control Valves (SCADA)
- 61 Inspect Recording Gauge
- 62 Inspect and test pressure regulator station
- 63 Install and test Overpressure Protection.
- 64 Inspect (Electronic Recording) and Telemetry Equipment at a Pressure Limiting
or Regulator Station
- 65 Bypass a Regulator Station
- 66 Field Interpretation of Pressure Recording Devices.
- 69 Monitor natural Gas Odorization Levels.
- 70 OC; Abnormal Operating Conditions and Properties of Natural Gas.

We will provide Liberty Utilities with copies of any qualifications for its records.

3. XNG Standard Rate Card**XNG STANDARD RATE CARD**

Manpower Rates		Rate Per Hour
Senior Engineer		████
Senior Technician		████
Safety Trainer		████
Third-Party Services		
Vendor Services	Cost +15%	Parts and labor not covered by warranty.
Travel & Expenses		
Per Diem Expense		████
Lodging		████
Personnel Mileage		Current IRS Standard Mileage Rate will apply.
Equipment Transport Mileage		May be negotiated on a project basis.
Holiday Surcharge		Rates subject to holiday surcharge

Note: All travel expenses will be reimbursed at cost, unless provided for under per diem.
Planes may be used for travel involving more than 2 employees or distances with travel time over 6 hours.

4. Operational Responsibility Matrix - EXAMPLE ONLY

Item	Activity	Inspection Required	Frequency	Responsible Party	Applicable NYSEG procedure	Schedule	Operator Qualification Required	Comments
1	Regulator Station Inspection	X	Monthly	NYSEG	7.450		X	Visual inspection of the station and components. Pressure recording chart where applicable. Check for leaks.
2	Regulator Station Inspection	X	Annual	XNG	7.450	During Delivery Period when skid is energized	X	Detailed inspection of station and all equipment. Relief valve performance test. All XNG tasks will require completion of necessary forms to be supplied to NYSEG. All deficiencies to be addressed immediately to satisfy 7.600.
3	Transmission Valve Inspection	X	Annual	XNG	7.500	During Delivery Period when skid is energized	X	Inspect each skid valve annually for leakage and operability
4	Maintaining MAOP	X	5 Yr	XNG	6.200	During Delivery Period when skid is energized	X	5 year MAOP pressure record for skid piping
5	Patrols and Inspections	X	Bi-Annual	NYSEG	7.250		X	Patrolling the skid piping operating at 125psig or greater during the monthly NYSEG inspection (with #1)
6	Transmission Leak Survey	X	Annual	NYSEG	7.150		X	Leak survey once a year during the monthly NYSEG inspection (with #1)
7	Odorization of Gas	X	Weekly	XNG	8.200	During Delivery Period when skid is energized	X	Weekly odorometer test plus odorometer test for each CNG truck delivered.
8	Annual Corrosion Program	X	Annual	XNG	4.150	During Delivery Period	X	This requires taking annual reads to ensure that any underground piping remains cathodically protected.

9	Atmospheric Corrosion Control	X	Every 3 years	XNG	4.250	During Delivery Period	X	Every 3 years inspect above ground pipe for atmospheric corrosion This needs to include removing any insulation and looking under pipe supports, etc. during the annual XNG inspection (#2)
10	Internal Corrosion Control	X	TBD	XNG	4.200	During Delivery Period	X	Need to inspect for internal corrosion in the event piping is opened up for maintenance during the annual XNG inspection (#2) when required
11	Calibration of Pressure Indicating Gauges, remote gauges and telemeter units	X	Annual	XNG	8.925 & 8.930	During Delivery Period	X	Annual calibration. RTU gauges calibration and verification with the remote screen readout. Annual calibration of station inlet and outlet pressure charts during the annual XNG inspection (#2)
12	Investigation of Gas Leak and Odor Complaints	X	As Needed	NYSEG	8.700	NYSEG responds first to investigate and make safe then call out XNG if necessary	X	Response to odor complaints initiated by the public concerning the CNG site. Call-out to XNG should only occur when energized (and during Delivery Period).
13	Indirect Heater	X	Annual	XNG		During Delivery Period when skid is energized		As part of the monthly station inspection. (There is no procedure for this but XNG to check at least annually.)
14	Record Retention		As Needed	NYSEG	1.250			Maintain O&M records for both NYSEG and XNG tasks
15	Calibration of Tools Used for O&M		As Needed	BOTH	1.500	During Delivery Period (for XNG)		Calibration of the tools and equipment used for the O&M work
16	Maps and Records Maintenance		As Needed	XNG	8.650	After a modification		Maintaining and updating operating maps and records and providing to NYSEG
17	Notification of Incidents		As Needed	NYSEG	9.250			Reporting incidents, interruptions, damages and others to PSC. XNG responsible to notify NYSEG if a reportable incident occurs during their O&M work.

WS Project Number	8843-C18820
Project Description	Install Production Ave Main Extension

Sum of Transaction Amount			Cost Element		
WS Job Number	WS Job Name	Year	Labor	Voucher	Grand Total
8843-0001000077	PRODUCTION AVE, KNE	2016	3,433.64	105,307.70	108,741.34
8843-0001000091	ASH BROOK RD, KNE	2016	1,716.33	44,052.84	45,769.17
Grand Total			5,149.97	149,360.54	154,510.51

About jobs are total actual spending as of Dec. 2016

12/31/16 WIP Accrual \$54,345.38 to job# 8843-0001000077

WS Project Number	8843-C18820
Project Description	Install Production Ave Main Extension

Sum of Transaction Amount			Cost Element		
WS Job Number	WS Job Name	Year	Labor	Voucher	Grand Total
8843-0001000077	PRODUCTION AVE, KNE	2017	191.08	(8,729.60)	(8,538.52)
8843-0001000091	ASH BROOK RD, KNE	2017		(28,238.93)	(28,238.93)
Grand Total			191.08	(36,968.53)	(36,777.45)

On 7/26/17 reclass charges of \$34,495.40 to job# 8843-0001000091

1/1/17 WIP Accrual -\$54,345.38 to job#8843-0001-000077

WS Job Number	WS Job Name	Cost Code String	Cost Code Description	Cost Element	Account Number String	Transaction Amount	Transaction Description	GL Posting Date	Year	Actual Completion Date	Transfer to Plant	Item Number	Job TRX Number	Document Source	TRX Source	Journal Entry	Document Number	Document Date	Vendor ID	Batch Source	Transaction Date	Purchase Order Number	Modified User ID	Vendor Name	WS Inactive
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	163.46	11/3/2016 to 11/26/2016	12/2/2016	2016	12/30/2016			664875	GI		664875			12/2/2016		GL_Normal	12/2/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	342.81	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	81.01	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	398.25	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	16.00	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	225.00	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	856.25	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	121.88	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	575.00	11/27/2016 to 12/10/2016	12/16/2016	2016	12/30/2016			673438	GI		673438			12/16/2016		GL_Normal	12/16/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	8.00	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	168.75	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	325.00	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	8.00	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	37.50	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	25.00	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	00000-0001-0001-0000	Labor-Install	1	18843-2-0000-10-1618-1070	81.73	12/11/2016 to 12/24/2016	12/30/2016	2016	12/30/2016			680430	GI		680430			12/30/2016		GL_Normal	12/30/2016		TSANDERSON	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	340.00	8" ELBOW PE24068IN IPS SDR13.5	10/25/2016	2016	12/30/2016		3/31/2017 6910499	RC700026644	REC	REC7000002286	646471	16027550	10/25/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	298.60	8" ELBOW PE24068IN IPS SDR13.5	10/25/2016	2016	12/30/2016		3/31/2017 10014472	RC700026644	REC	REC7000002286	646471	16027550	10/25/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	9	48843-2-0000-10-1618-1070	9.40	CAP 2IN SDR 11 PE2406 BUTT FUS	10/25/2016	2016	12/30/2016		3/31/2017 8840-00311255	RC700026644	REC	REC7000002286	646471	16027550	10/25/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	415.60	CAP 8IN IPS SDR11 8F PE2406 UP	10/25/2016	2016	12/30/2016		3/31/2017 8840-00311259	RC700026645	REC	REC7000002286	646472	16027550	10/25/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	560.00	COUPLING ELECTROFUSION 8 IPS 4	10/25/2016	2016	12/30/2016		3/31/2017 8840-00311628	RC700026645	REC	REC7000002286	646472	16027550	10/25/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	250.00	WIRE 12AWG SOLID HMWPE YELLOW	10/25/2016	2016	12/30/2016		3/31/2017 8840-003199607	RC700026646	REC	REC7000002286	646473	34207	10/25/2016	8810-KRISTECH	Rcvg Trx Entry	1/1/1900	P0000008339		KRIS-TECH WIRE CO INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	450.00	WIRE #10AWG 49 STRANDS 3025S Y	10/25/2016	2016	12/30/2016		3/31/2017 8840-003199608	RC700026646	REC	REC7000002286	646473	34207	10/25/2016	8810-KRISTECH	Rcvg Trx Entry	1/1/1900	P0000008339		KRIS-TECH WIRE CO INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	8.00	8" ELBOW PE24068IN IPS SDR13.5	10/31/2016	2016	12/30/2016		3/31/2017 6910499	RC700026700	REC	POIVC00000626	649058	105882	10/31/2016	8810-PPIGAS	Rcvg Trx lvc	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	-	8" ELBOW PE24068IN IPS SDR13.5	10/31/2016	2016	12/30/2016		3/31/2017 10014472	RC700026700	REC	POIVC00000626	649058	105882	10/31/2016	8810-PPIGAS	Rcvg Trx lvc	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	-	CAP 2IN SDR 11 PE2406 BUTT FUS	10/31/2016	2016	12/30/2016		3/31/2017 8840-00311255	RC700026700	REC	POIVC00000626	649058	105882	10/31/2016	8810-PPIGAS	Rcvg Trx lvc	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	125.00	BOX VALVE 8" NOROSTROM PLASTIC	11/17/2016	2016	12/30/2016		3/31/2017 DROW OFF FEE	RC700026938	REC	REC7000002315	658896	89351445	11/17/2016	8810-PERFORMPIP	Rcvg Trx Entry	1/1/1900	P0000008058		PERFORMANCE PIPE .	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	194.28	BOX VALVE 8" NOROSTROM PLASTIC	11/18/2016	2016	12/30/2016		3/31/2017 8840-00308054	RC700027074	REC	REC7000002317	659811	73074	11/18/2016	8810-BINGHAM&T	Rcvg Trx Entry	1/1/1900	P0000008338		BINGHAM & TAYLOR	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	66.05	BOX CURB VALVE - 1/2" - 1 1/4"	11/18/2016	2016	12/30/2016		3/31/2017 8840-00308054	RC700027074	REC	REC7000002317	659811	73074	11/18/2016	8810-BINGHAM&T	Rcvg Trx Entry	1/1/1900	P0000008338		BINGHAM & TAYLOR	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	11,968.00	12" SDR11 8300 YELLOWSTRIPE PI	11/18/2016	2016	12/30/2016		3/31/2017 1064557 PERFORMANCE PIPE	RC700027075	REC	REC7000002327	659812	89351444	11/18/2016	8810-PERFORMPIP	Rcvg Trx Entry	1/1/1900	P0000008058		PERFORMANCE PIPE .	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	519.00	TIE HI VOL ELECTROFUSE 8" IPS	11/21/2016	2016	12/30/2016		3/31/2017 10009502	RC700027077	REC	REC7000002329	660857	16027550	11/21/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008348		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	12.00	BOX VALVE 8" NOROSTROM PLASTIC	11/26/2016	2016	12/30/2016		3/31/2017 8840-00308059	RC700027152	REC	POIVC00000635	663721	82918	10/17/2016	8810-BINGHAM&T	Rcvg Trx lvc	1/1/1900	P0000008338		BINGHAM & TAYLOR	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	-	BOX CURB VALVE - 1/2" - 1 1/4"	11/26/2016	2016	12/30/2016		3/31/2017 8840-00308054	RC700027152	REC	POIVC00000635	663721	82918	10/17/2016	8810-BINGHAM&T	Rcvg Trx lvc	1/1/1900	P0000008338		BINGHAM & TAYLOR	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	-	WIRE 12AWG SOLID HMWPE YELLOW	11/27/2016	2016	12/30/2016		3/31/2017 8840-003199607	RC700027249	REC	POIVC00000636	663848	122507	9/22/2016	8810-KRISTECH	Rcvg Trx lvc	1/1/1900	P0000008339		KRIS-TECH WIRE CO INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	-	WIRE #10AWG 49 STRANDS 3025S Y	11/27/2016	2016	12/30/2016		3/31/2017 8840-003199608	RC700027249	REC	POIVC00000636	663848	122507	9/22/2016	8810-KRISTECH	Rcvg Trx lvc	1/1/1900	P0000008339		KRIS-TECH WIRE CO INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	690.00	12" PE3408 PLASTIC BUTT FUSION	12/2/2016	2016	12/30/2016		3/31/2017 10009510 CENTRAL PLASTICS	RC700027279	REC	REC7000002350	668288	16033810	12/2/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008709		PPi GAS DISTRIBUTION INC	No
8843-0001000077	PRODUCTION AVE, KNE	36700-0001-0004-0001	You-T&D Mains	4	48843-2-0000-10-1618-1070	14,472.25	12" PE3408 PLASTIC BUTT FUSION	12/2/2016	2016	12/30/2016		3/31/2017 10009510 CENTRAL PLASTICS	RC700027279	REC	REC7000002350	668288	16033810	12/2/2016	8810-PPIGAS	Rcvg Trx Entry	1/1/1900	P0000008709		PPi GAS DISTRIBUTION INC	No
8843-0001000077																									

From: [William Clark](#)
To: [Michael Sheehan](#)
Subject: FW: Skid Cost & Price Adjustments
Date: Wednesday, November 18, 2020 6:18:45 PM

William Clark | Liberty Utilities (East Region) | Senior Director, Business Development
P: 603-724-2124 | C: 603-475-8107 | E: William.Clark@libertyutilities.com
From: Gary Ritter [mailto:gritter@xng.com]
Sent: Thursday, February 23, 2017 9:46 AM
To: William Clark <William.Clark@libertyutilities.com>
Cc: Matt Smith <msmith@xng.com>; Matt Campano <mcampano@xng.com>
Subject: Re: Skid Cost & Price Adjustments

Morning Bill,

1. We can put together a maintenance contract for services performed at the facility for a desired term. As for cost for such services, I would suggest services on an as-needed or scheduled basis per the rate card we provided.
2. With regular maintenance, you can assume the system has a 20 year life cycle.

If you chose to purchase the skid, a 5 year deal with a price match option would be great. Look forward to hearing from you.

Gary

On Wed, Feb 22, 2017 at 12:49 PM, William Clark <William.Clark@libertyutilities.com> wrote:

Hi Gary,

This is great information and very helpful. We should have a decision soon on which way we will go. I do have a couple questions:

1. If we own the equipment, we will need a maintenance agreement. What is the annual cost for that?
2. We would depreciate/amortize the equipment based on "useful life". Is 20 years a good assumption?

I think we can work something out on a 5 year term with price match options.

Bill

William Clark | Liberty Utilities (New Hampshire) | Director
P: [603-216-3637](tel:603-216-3637) | C: [603-475-8107](tel:603-475-8107) | E: William.Clark@libertyutilities.com

From: Gary Ritter [mailto:gritter@xng.com]
Sent: Friday, February 17, 2017 12:11 PM
To: William Clark
Cc: Matt Smith; Matt Campano
Subject: Skid Cost & Price Adjustments

Bill,

Thanks again for your time yesterday. The below estimates will hopefully help you in your planning process.

Purchase of 150 dth/hr capacity decompression system: [REDACTED] (est) plus tax and delivery

Upgrade to 150 dth/hr on same contact: [REDACTED] (est) demand surcharge on top of existing [REDACTED] = [REDACTED] per month (est)

Since we finance our equipment over 10 years, if you purchase the skid, it would reduce the current demand charge from [REDACTED] to [REDACTED]. But compared to the upgraded demand surcharge, that is a net reduction of about [REDACTED] per month or about [REDACTED] per year. If you are financing over 20 years at better rates, I think the purchase is favorable in all cases.

We would ask for exclusivity on the fuel supply for a 5-7 year term with the option to match price on extension. We will need to make sure our contract provides for easy adjustment for additional trailers to be positioned on site or in reserve if needed to address PUC requirements.

Available to discuss if you have questions.

Gary

--

Gary Ritter
Sales & Development
Xpress Natural Gas
e: gritter@xng.com
m: [978-270-8284](tel:978-270-8284)
p: [603-217-2233](tel:603-217-2233)

--

Gary Ritter
VP, Sales & Development
Xpress Natural Gas
e: gritter@xng.com
m: 978-270-8284

p: 603-217-2233

From: [Michael Sheehan](#)
To: [Michael Sheehan](#)
Subject: FW: Keene Temp design plans
Date: Tuesday, November 24, 2020 6:04:20 PM

From: William Clark
Sent: Tuesday, March 21, 2017 3:06 PM
To: Speidel, Alexander <Alexander.Speidel@puc.nh.gov>; Knepper, Randy <Randy.Knepper@puc.nh.gov>; Wyatt, Robert <Robert.Wyatt@puc.nh.gov>; Frink, Steve <Steve.Frink@puc.nh.gov>; Michael Sheehan <Michael.Sheehan@libertyutilities.com>
Cc: Vercellotti, Joseph <Joseph.Vercellotti@puc.nh.gov>; Burnell, David <David.Burnell@puc.nh.gov>; Ruoff, William <William.Ruoff@puc.nh.gov>; Naylor, Mark <Mark.Naylor@puc.nh.gov>
Subject: RE: Keene Temp design plans

Hi Alex,

Attached is a better resolution version when enlarged. However, this version has several options that were evaluated. Page 3 is the option that was chosen. In addition, I didn't previously attach the CNG skid specs. They are attached to this email.

Bill

William Clark | Liberty Utilities (New Hampshire) | Director
P: 603-216-3637 | C: 603-475-8107 | E: William.Clark@libertyutilities.com

From: Speidel, Alexander [<mailto:Alexander.Speidel@puc.nh.gov>]
Sent: Tuesday, March 21, 2017 1:59 PM
To: Knepper, Randy; Wyatt, Robert; Frink, Steve; William Clark; Michael Sheehan
Cc: Vercellotti, Joseph; Burnell, David; Ruoff, William; Naylor, Mark
Subject: RE: Keene Temp design plans

Bill and Mike:

I noticed that the file labelled "Keene Truck Paths 1-2" have poor-resolution letters/legends. Would a better copy be made available to this group today?

Thanks,

Alexander F. Speidel, Esq.
Staff Attorney/Hearings Examiner
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, New Hampshire 03301-2429
(603) 271-6016
Alexander.Speidel@puc.nh.gov

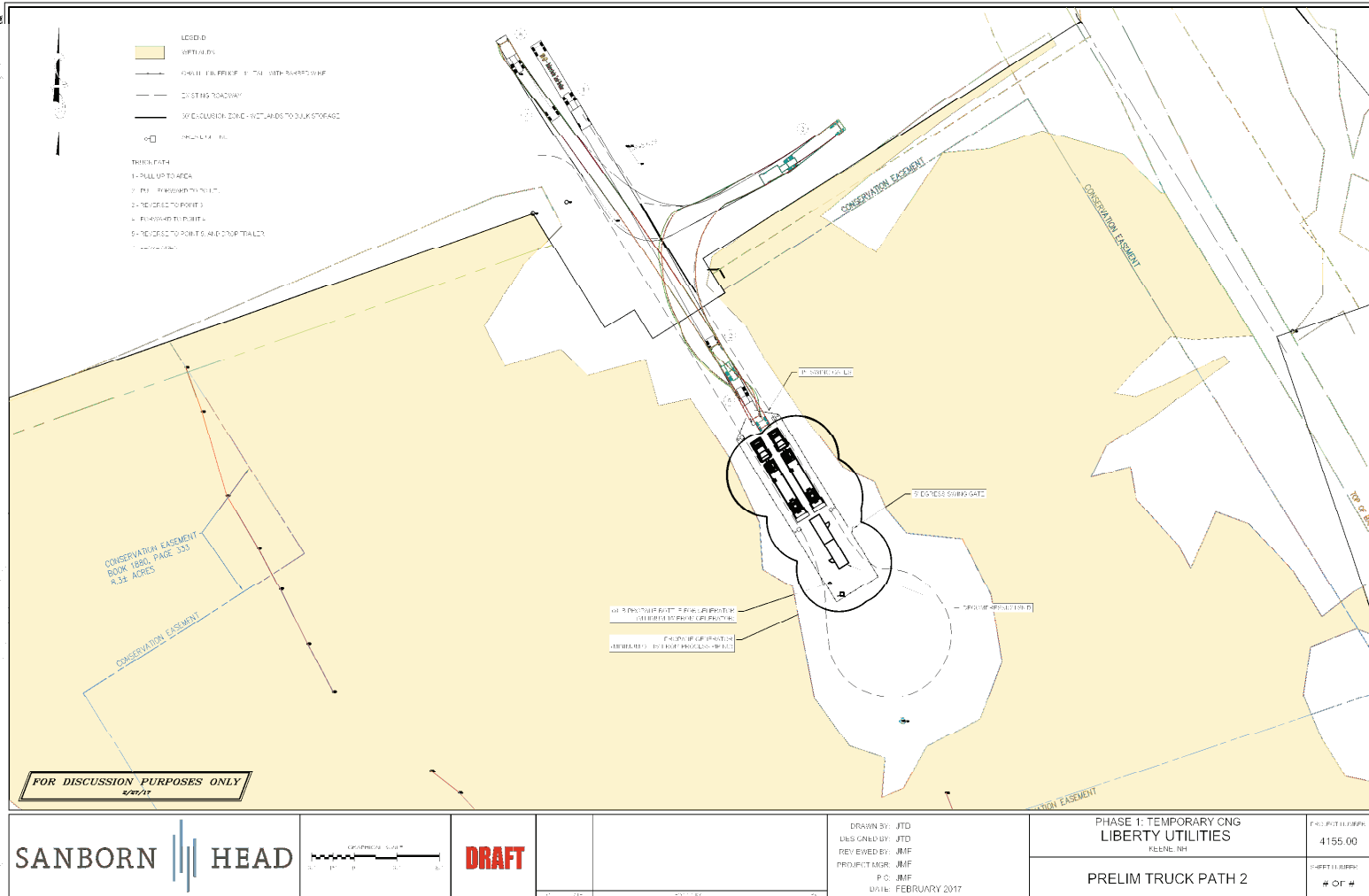
From: William Clark [<mailto:William.Clark@libertyutilities.com>]
Sent: Tuesday, March 21, 2017 12:10 PM
To: Speidel, Alexander
Cc: Michael Sheehan
Subject: Keene Temp design plans

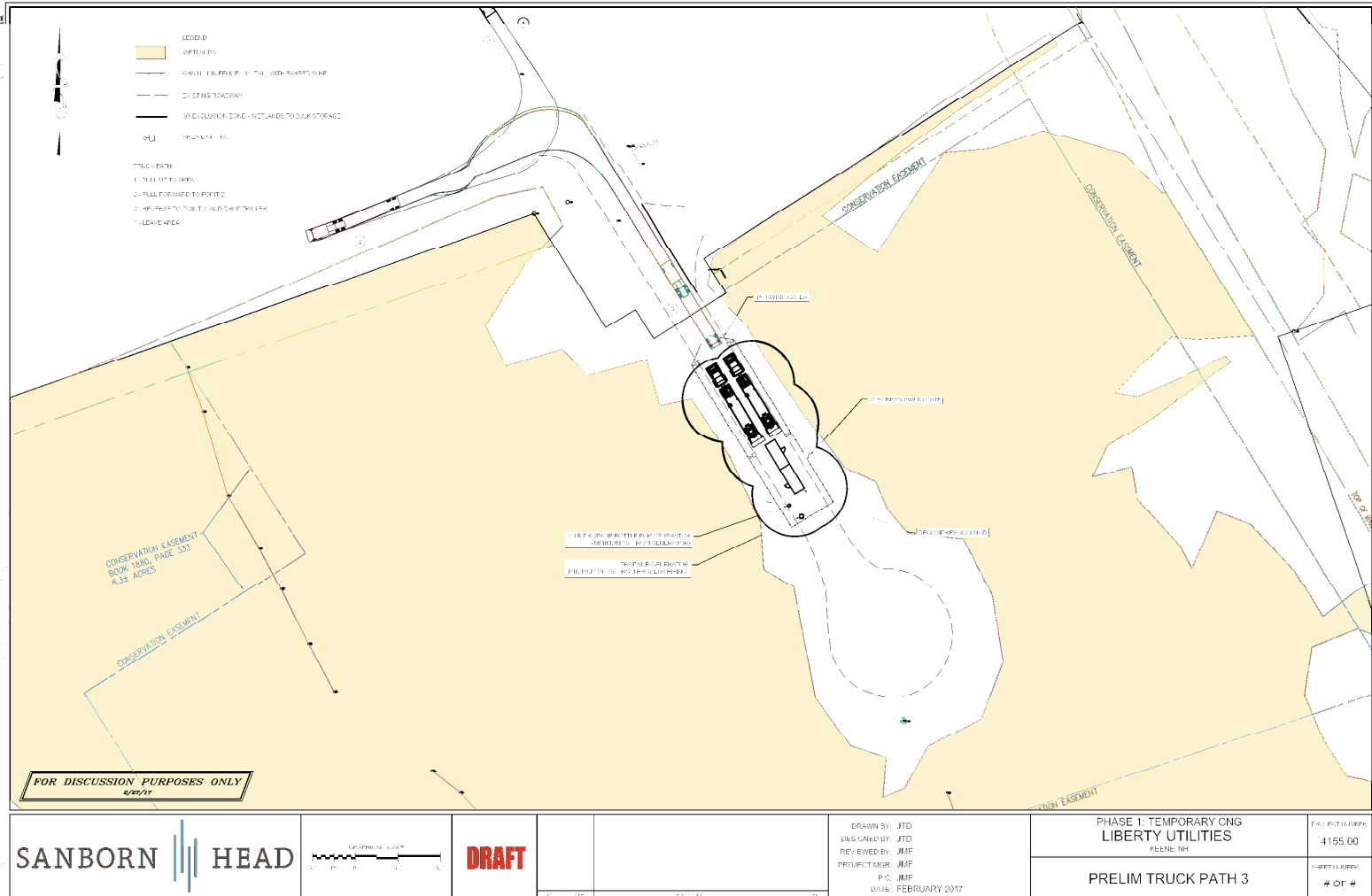
Alex,

Attached are the plans for Phase 1 conversion of Keene (the temp design) for the winter of 2017/2018.

Bill

William Clark | Liberty Utilities (New Hampshire) | Director
P: 603-216-3637 | C: 603-475-8107 | E: William.Clark@libertyutilities.com
15 Buttrick Road , Londonderry, NH 03053







- CONSERVATION EASEMENT
BOOK 1880, PAGE 333
8.3± ACRES

FOR DISCUSSION PURPOSES ONLY
2/27/17

60LB PROPANE BOTTLE FOR GENERATOR
(MINIMUM 15' FROM GENERATOR)

PROPANE GENERATOR
(MINIMUM OF 15' FROM PROCESS PIPING)

— 15' SWING GATES

DECOMPRESSION SKID

5' WIDE EGRESS SWING GATE

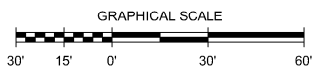
CONSERVATION EASEMENT

CONSERVATION EASEMENT

CONSERVATION EASEMENT

Op
Of
BA

SANBORN || HEAD



DRAFT

NO.	DATE	DESCRIPTION	BY

DRAWN BY: JTD
DESIGNED BY: JTD
REVIEWED BY: JMF
PROJECT MGR: JMF
PIC: JMF
DATE: FEBRUARY 2017

PHASE 1: TEMPORARY CNG
LIBERTY UTILITIES
KEENE, NH

PRELIM TRUCK PATH 1

PROJECT NUMBER:

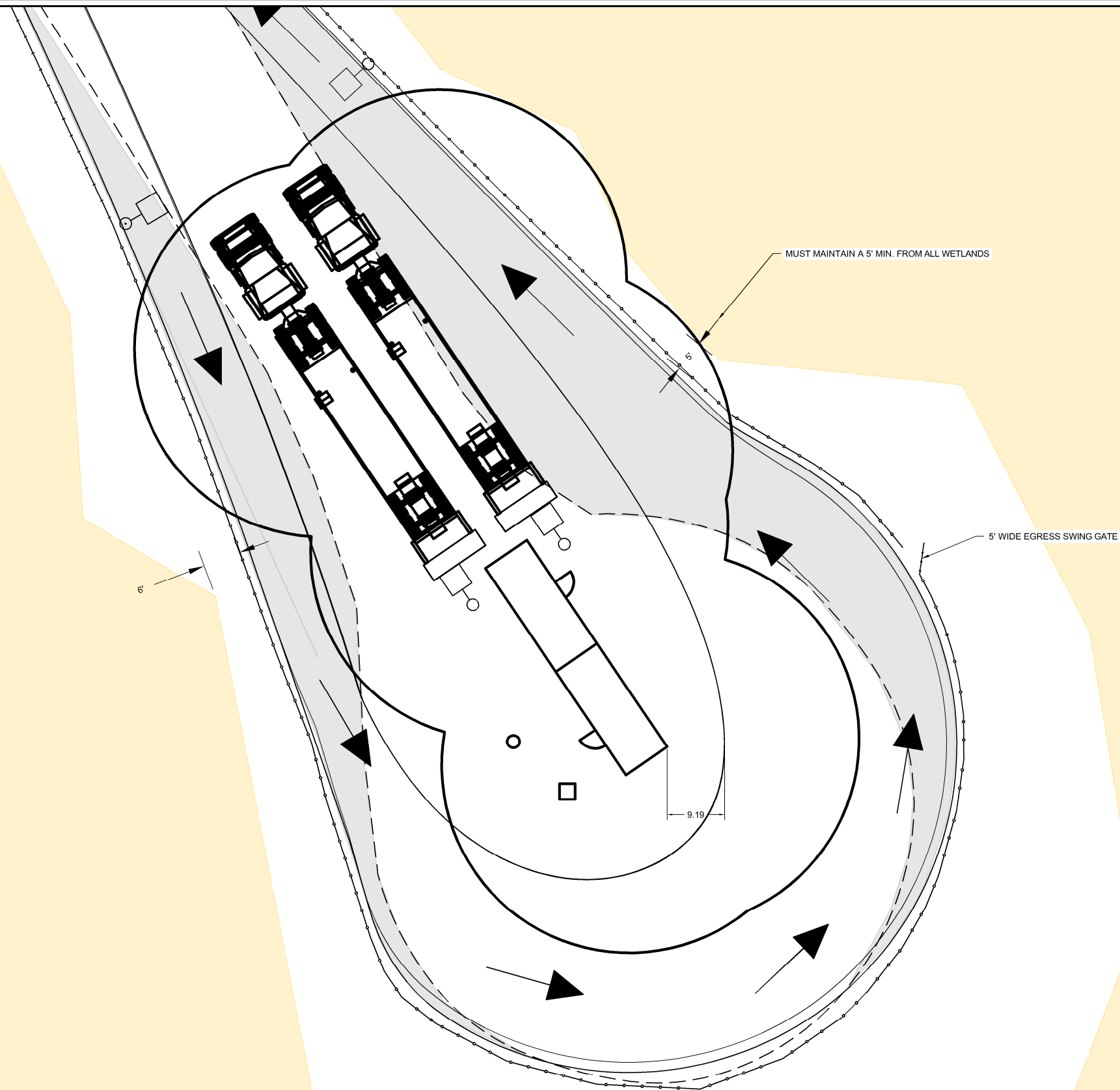
4155.00

SHEET NUMBER:

77 # OF #

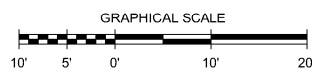


- LEGEND:
-  WETLANDS
-  FILL AREA / RETAINING WALL
-  CHAIN LINK FENCE - 10" TALL WITH BARBED WIRE
-  EXISTING ROADWAY
-  30' EXCLUSION ZONE - WETLANDS TO BULK STORAGE
-  TRUCK PATH
-  AREA LIGHTING



2/27/17

SANBORN HEAD



DRAFT

[illegible]

DRAWN BY: JTD
DESIGNED BY: JTD
REVIEWED BY: JMF
PROJECT MGR: JMF
PIC: JMF
DATE: FEBRUARY 2017

PHASE 1: TEMPORARY CNG
LIBERTY UTILITIES
KEENE, NH

PRELIM TRUCK PATH 1 - TURN AROUND AREA

PROJECT NUMBER:

4155.00

SHEET NUMBER:

178 # OF #

- LEGEND:
- WETLANDS
 - CHAIN LINK FENCE - 10' TALL WITH BARBED WIRE
 - EXISTING ROADWAY
 - 30' EXCLUSION ZONE - WETLANDS TO BULK STORAGE
 - AREA LIGHTING

- TRUCK PATH:
- 1 - PULL UP TO AREA
 - 2 - PULL FORWARD TO POINT 2
 - 3 - REVERSE TO POINT 3
 - 4 - FORWARD TO POINT 4
 - 5 - REVERSE TO POINT 5, AND DROP TRAILER
 - 6 - LEAVE AREA

CONSERVATION EASEMENT
BOOK 1880, PAGE 333
8.3± ACRES

CONSERVATION EASEMENT

CONSERVATION EASEMENT

CONSERVATION EASEMENT

TOP OF BANK

15' SWING GATES

5' EGRESS SWING GATE

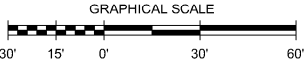
60LB PROPANE BOTTLE FOR GENERATOR
(MINIMUM 15' FROM GENERATOR)

PROPANE GENERATOR
(MINIMUM OF 15' FROM PROCESS PIPING)

DECOMPRESSION SKID

FOR DISCUSSION PURPOSES ONLY
2/27/17

SANBORN HEAD



DRAFT

NO.	DATE	DESCRIPTION	BY

DRAWN BY: JTD
DESIGNED BY: JTD
REVIEWED BY: JMF
PROJECT MGR: JMF
PIC: JMF
DATE: FEBRUARY 2017

PHASE 1: TEMPORARY CNG
LIBERTY UTILITIES
KEENE, NH

PRELIM TRUCK PATH 2

PROJECT NUMBER:

4155.00

SHEET NUMBER:

179 # OF #

- LEGEND:
- WETLANDS
 - CHAIN LINK FENCE - 10' TALL WITH BARBED WIRE
 - EXISTING ROADWAY
 - 30' EXCLUSION ZONE - WETLANDS TO BULK STORAGE
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CONSERVATION EASEMENT
BOOK 1880, PAGE 333
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CONSERVATION EASEMENT

CONSERVATION EASEMENT

CONSERVATION EASEMENT

TOP OF BANK

15' SWING GATES

5' EGRESS SWING GATE

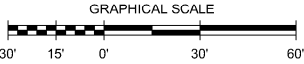
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PROPANE GENERATOR
(MINIMUM OF 15' FROM PROCESS PIPING)

DECOMPRESSION SKID

FOR DISCUSSION PURPOSES ONLY
2/27/17

SANBORN HEAD



DRAFT

NO.	DATE	DESCRIPTION	BY

DRAWN BY: JTD
DESIGNED BY: JTD
REVIEWED BY: JMF
PROJECT MGR: JMF
PIC: JMF
DATE: FEBRUARY 2017

PHASE 1: TEMPORARY CNG
LIBERTY UTILITIES
KEENE, NH

PRELIM TRUCK PATH 3

PROJECT NUMBER:
4155.00

SHEET NUMBER:
180 # OF #

From: [William Clark](#)
To: [Michael Sheehan](#)
Subject: FW: Skid Cost & Price Adjustments
Date: Wednesday, November 18, 2020 6:18:45 PM

William Clark | Liberty Utilities (East Region) | Senior Director, Business Development
P: 603-724-2124 | C: 603-475-8107 | E: William.Clark@libertyutilities.com
From: Gary Ritter [mailto:gritter@xng.com]
Sent: Thursday, February 23, 2017 9:46 AM
To: William Clark <William.Clark@libertyutilities.com>
Cc: Matt Smith <msmith@xng.com>; Matt Campano <mcampano@xng.com>
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P: [603-216-3637](tel:603-216-3637) | C: [603-475-8107](tel:603-475-8107) | E: William.Clark@libertyutilities.com

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Sent: Friday, February 17, 2017 12:11 PM
To: William Clark
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