DG 14-091

THE STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION
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June 4, 2014

HAND DELIVERED
Ms. Debra Howland
Executive Director
New Hampshire Public Utilities Commission

Re: DG 14-091, Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities (Liberty)
Special Contract and Lease Agreement with Innovative Natural Gas, LLC d/b/a iNATGAS
Staff Report

Dear Ms. Howland:

Please find attached Staff's Report, prepared by Stephen P. Frink, Assistant Director, Gas & Water Division, regarding the above-captioned matter. This Report includes three Attachments.

Sincerely,

Alexander F. Speidel
Staff Attorney

Cc: Service List
Attachments

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: June 4, 2014
AT (OFFICE): NHPUC

FROM: Stephen P. Frink SPF
Assistant Director, Gas & Water Division

SUBJECT: DG 14-091
Liberty Utilities/iNATGAS Special Contract and Lease Agreement
Staff Report

TO: Commissioners
Executive Director
Docket File
Service List

Summary of Staff's Position

Staff analyzed the special contract and lease agreement (the Agreements) proposed by Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities (Liberty) and its counterparty, Innovative Natural Gas, LLC d/b/a iNATGAS (iNATGAS), for a compressed natural gas (CNG) venture. In its analysis of the Agreements, Staff applied the statutory standards of RSA 378:18, requiring that special contracts be just and consistent with the public interest, and of RSA 374:30, requiring that leases of public utilities be for the public good. Staff concludes that the Agreements, as connected components of a business proposal by Liberty and iNATGAS, do not meet these standards of approval as currently structured, and require modification. Staff proposes two major modifications. (1) iNATGAS or its guarantors must provide an additional financial security payable to Liberty in the event of a default by iNATGAS under the terms of the Agreements, in the form of either a security bond or a lien on real property as collateral. (2) Liberty and iNATGAS must establish under the Agreements that Liberty will have the final say on CNG compressor operations and maintenance; must enter into a signed maintenance agreement that comports with the recommendations of Liberty's engineering consultant; and must file the maintenance agreement with the Commission within 10 days of execution as a condition precedent for Commission approval. If these modifications are made by Liberty and iNATGAS, Staff would support Commission approval of these parties' business proposal under the governing standards of review.

Liberty's financial analysis comparing the revenue and cost streams using the discounted cash flow methodology indicates Liberty ratepayers may realize a substantial benefit under the terms of the Agreements, but the financial analysis does not reflect the risks associated with the projected revenue. While the upfront capital costs have a great deal of certainty, the revenue streams are much less certain given the nascent and speculative CNG market and iNATGAS's recent entry into the market. These risks to Liberty, and by extension, its ratepayers, must be ameliorated with additional financial security to enable the Agreements to meet the public

interest-public good standards of review. There is also a concern regarding the operation and maintenance of the compressors which will be owned by Liberty but operated and maintained by iNATGAS. The lease agreement is unclear as to which entity has final say on operations and maintenance and compressor service life is dependent on the level of maintenance. Staff views these operational matters to be an inherent component of the public interest-public good standards of review.

General Background

On April 4, 2014, Liberty filed with the Commission a petition for approval of its Agreements with iNATGAS, related to the proposed construction of a CNG filling and fueling station in Concord. The proposed CNG station is designed to primarily serve large commercial and industrial customers' on-site energy requirements, referred to as bulk or thermal CNG, but it will also serve CNG vehicles.

On April 14, 2014, the Commission issued an Order of Notice that identified the following issues: whether Liberty's investigation and analysis of the risks and benefits of constructing, owning and operating a CNG station are reasonable; whether entry into the long term special contract to provide CNG to iNATGAS is prudent and in the public interest; whether the proposed lease agreement is for the public good; whether Liberty's investment in the CNG facility is prudent; and whether Liberty's plans and specifications to build and operate the proposed CNG station meet the appropriate construction and operating safety standards.

Staff and the OCA issued rolling data requests and participated in two technical sessions. The technical sessions included CNG providers, station owners, operators and transporters, which received the status of limited intervenors under Commission Order 25,666 (May 14, 2014). Staff independently contacted two New Hampshire CNG end users for additional technical and business background.

Liberty Analysis of the Risks and Benefits

Liberty used the discounted cash flow (DCF) methodology to determine the Net Present Value (NPV) of the project. DCF compares the present value of money today to the present value of money in the future by comparing revenue and cost steams and accounting for inflation. Typically, the cost stream is quite certain, with the capital costs being incurred very early in the time horizon, whereas the timing and magnitude of the revenues associated with the investment are much less certain. Staff supports the use of the DCF methodology in determining the prudency of the project but a clear understanding of the assumptions underlying the revenue stream is vital in the evaluation.

Capital Costs: Liberty is obligated to construct a compressor station, conduct all site survey work and site preparation, extend a distribution grade natural gas service line[1] to the compressor station from its take station on Broken Bridge Road, provide an electric transformer and related electrical connections, and install gas conditioner equipment and up to six electric compressors.

[1] Assumes the gas service line will be less than 20% SMYS using an appropriate steel grade material and heavy wall thickness.

Liberty's capital investment is expected to be $2.2 million. These costs will all be incurred prior to the commencement of CNG service. These costs are included in Liberty's analysis as a component of the annual revenue requirement calculation.

Annual Operating Costs: iNATGAS will be responsible for operating and maintaining the electric compressors, including the cost of electricity. Liberty will be responsible for site up-keep such as grass trimming and snow removal, as well as monitoring the site. Liberty's annual estimated operating costs total $11,500. These costs were not included in Liberty's analysis.

Cost Stream – Annual Revenue Requirement: Liberty intends to seek recovery of these costs in a future rate case and therefore used the annual revenue requirement associated with the project as the annual cost. The methodology Liberty used in calculating the annual revenue requirement is consistent with the approved methodology used in determining the revenue requirement for Liberty's annual Cast Iron Bare Steel adjustment. Liberty did not request approval of the proposed ratemaking treatment in this proceeding but, if approved, the annual revenue requirement related to this project is the appropriate cost stream to use in the DCF analysis.

Revenue Stream – Delivery Revenues: iNATGAS will pay a fixed per therm charge for the 15 year term of the contract and is also subject to a 'must take' provision whereby iNATGAS must pay for annual volumes whether or not those volumes are actually taken. The annual 'must take' volumes are 300,000 Dth[2] in Years 1 and 2,500,000 Dth in Years 3 and 4, and 1,300,000 Dth in Year 5. Liberty's analysis calculates annual revenues based on three sales scenarios: (1) Minimum Take-or-Pay Assumption Level, using the 'must take' requirement for Years 1-5 and the Year 5 requirement for the remainder of the 15 year contract; (2) Base Assumption Level, representing expected sales; and (3) Accelerated Sales Assumption Level, representing potential sales.

Revenue Stream – Cost of Gas Revenues: Cost of Gas (COG) rates reflect both variable and fixed costs. Demand charges for pipeline capacity are a significant fixed cost included in the COG and borne by firm sales customers and non-grandfathered (capacity assigned) transportation customers. iNATGAS will be a firm sales customer in Year 1 and subject to the COG rate on metered sales. COG revenues related to fixed costs paid by iNATGAS represent an avoided cost for existing ratepayer subject to those charges. iNATGAS may elect to switch to transportation service after the first year but would be subject to capacity assignment and continue to pay capacity costs. These revenues were not included in Liberty's analysis.

Along with failing to quantify and include a significant revenue stream, Liberty's analysis does not reflect the risks associated with the revenue streams and assumes 'Take or Pay' sales at the Year 5 level throughout the remainder of the contract term, in spite of the fact that the 'must take' provision is only in effect for the first five years. If the projected sales do not materialize and the only revenues realized through the Agreements are those required under the 'must take' provision, the NPV of the annual revenues would be $1,223,640, considerably less than Liberty's upfront cost of $2.2 million.

[2] Dth, or dekatherm, equals 10 therms.

Another issue not addressed in Liberty's analysis is the possibility that future revenues under the special contract may not exceed Liberty's marginal cost to serve iNATGAS over the life of the contract. The delivery rate provided for in the special contract is higher than the tariff delivery rate, so it can be assumed the revenue under the special contract exceeds the marginal cost at this time. However, the long 15-year term of the contract, with no provision for rate adjustments tied to inflation, means that the special contract revenues could fall short of the marginal cost of serving iNATGAS in the future.

Financial Prudency of Entering into a Long Term Special Contract with iNATGAS

The results of Liberty's DCF analysis indicate the project provides a substantial benefit to ratepayers under all three scenarios:

Liberty Sale Scenario Results	
Sales Level	Net Present Value
Minimum Take-or-Pay	$1,767,310
Baseline	$4,732,416
Accelerated	$5,541,275

As previously stated, Liberty's analysis does not address the risk that marginal costs could exceed revenues, does not include annual operating costs, and fails to include potential COG revenues related to fixed gas costs. Because the special contract delivery rate is significantly higher than the tariff delivery rate and, with only minor exceptions, the operating and maintenance costs are iNATGAS' responsibility, the possibility that the special contract revenues would fall below the marginal cost to serve are remote. Also, as Liberty's annual operating costs under the provisions of the Agreements are relatively minor, including those costs in the analysis would not have a material impact on the results of the analysis. Although Liberty failed to include the avoided gas costs as a revenue stream in its analysis, the results show that exclusion of this revenue stream is not fatal to the analysis.

Where the analysis fails is in not weighing the risk associated with the future revenue streams, which is substantial. Liberty will be serving one customer, iNATGAS, which is new to the thermal CNG market, has no captive customers at present, has limited resources, and faces competition in close proximity (*i.e.*, the Clean Energy facility in Pembroke). Another concern is that the CNG market, which is just starting to develop using novel technology, is a competitive and limited market generally. These concerns and how, if at all, these concerns are addressed through the terms of the Agreements are explored below.

New England CNG Market:

Natural gas is currently significantly cheaper than alternative energy supplies and has spurred development of CNG and liquefied natural gas (LNG) infrastructure to serve large energy users located beyond the natural gas pipelines. Businesses such as paper mills, asphalt plants, manufacturers, commercial laundry plants, hospitals, and colleges can see a significant return on investment when converting to CNG, as compared with #2 or #6 oil. The CNG supply train

consists of producers, pipelines, compressor stations, on-road transportation and decompression stations. End users must also purchase new systems or convert existing systems to be able to use CNG.

See Attachment Staff-1 for a general description of the supply train and costs, and related article and presentation.

See Attachment Staff-2, White paper prepared by Concentric Consulting on behalf of OSCOMP on the comparative benefits of converting to CNG or LNG, http://www.oscomp.com/wp-content/uploads/2013/09/Concentric-White-Paper-1.pdf.

To be competitive, a CNG station needs to be located on a natural gas pipeline with sufficient pressure to operate, have sufficient pipeline capacity that is competitively priced, be located close to end users, and have sufficient refill capability to minimize transporter refill and wait times.

The proposed iNATGAS compressor station proposal is based on a business plan that is very different from that of its competitors. Under the terms of the lease agreement with Liberty, iNATGAS has avoided the costs of building a take station off the interstate pipeline and of purchasing compressors, but will be required to pay a utility delivery charge and capacity costs. With the current pipeline constraints in New England, it may be that the Liberty capacity costs are competitive with that of third party suppliers and that potential customers may be willing to pay a premium for greater reliability. Whether that is actually the case, and for how long and to what extent the pipeline constraints will continue, is unknown. What is known is that, to date, competing CNG stations avoid using utility service. Since CNG end users have dual fuel capability, primary delivery is not critical, and end users are likely receiving a discounted price in exchange for interruptible service.

The iNATGAS business plan also differs from its peer competitors' in that it intends to offer service to all CNG transporters rather than signing an exclusive contract with one, as other CNG stations do. Exclusive agreements allow a transporter to cost effectively schedule tanker refills, minimizing tanker wait and refill times. How transporters will respond to the level of risk inherent in a public CNG station is unknown. The iNATGAS business plan will afford end users the opportunity to own and operate CNG trailers, as they will access a CNG refill station.

Another unknown is the growth potential of the CNG market. There are a finite number of potential customers and there is competition for those customers, both from other CNG providers and alternative fuel providers, notably, LNG. Current economics are such that new businesses with substantial energy loads only locate where natural gas is available. Consequently, the potential CNG market is limited to existing customers with substantial energy requirements that are located within 200 miles of a CNG station. Furthermore, there are a number of CNG providers competing for those customers and the largest potential customers may be better served by converting to LNG, a more costly conversion, but with the potential for greater savings. There is the possibility that CNG customers could increase production following conversion, as the energy savings could improve the businesses' competitive positioning and

profitability, although the risk of a customer decreasing sales or going out of business for unrelated reasons also exists.

The proposed iNATGAS CNG station appears to be ideally located for service to potential customers in Northern New England but it is entering a competitive and limited market and the iNATGAS business plan is untested. The market risk is substantial, and there are no guarantees that the proposed station will be able to capture and hold a significant share of the limited CNG market.

The 'must take' provision of the special contract offers limited protection to Liberty in the event that iNATGAS does not achieve the necessary growth to cover Liberty's investment. Under the terms of that provision, iNATGAS or its guarantors (including iNATGAS' principal, Mr. Babak Alizadeh) are to make set annual payments that total $1,817,000, compared to Liberty's projected capital costs of $2,245,000. If the only payments under the contract were those required under the 'must take' provision, the NPV of the project is a negative $1,146,286, as 45% of the required annual payments occur in Year 5.

The lease agreement also contains a provision that allows Liberty to acquire the CNG station at net book value in the event of default. If the default occurs because iNATGAS is unable to provide competitive CNG service, there is a strong possibility that the station would have limited value and that the guarantors would be experiencing economic distress. If that were the case, the 'must take' provision may prove worthless and purchasing the station at market value could produce further losses for Liberty and its ratepayers.

iNATGAS and Affiliated Companies:

iNATGAS is a Massachusetts LLC formed in 2013, has three employees, and is 100% owned by the Alizadeh family, with Mr. Alizadeh as principal. Affiliated companies include Alternative Vehicle Service Group, LP (AVSG) and Consolidated Utilities Corp (CUC). AVSG is a Massachusetts LP formed in 1994, has four employees and is 77% owned by the Alizadeh family. AVSG has been in the business of owning and operating public access CNG vehicle refueling stations for approximately 20 years. CUC is a Massachusetts "S" Corporation with 9 employees and 100% owned by the Alizadeh family. CUC is a design, construction and maintenance company of private access vehicle refueling stations.

iNATGAS is a new entity with no customers, three employees, very limited assets, and will be competing with the Clean Energy CNG station located within a mile of the Concord facility, along with other stations located in Vermont and Maine. If the iNATGAS business plan is not successful, the lease agreement provides for Mr. Alizadeh and the affiliate company AVSG to satisfy the requirements of the 'must take' provision. Liberty reviewed the balance sheets of the two guarantors and is confident that they will be able to fulfill their obligations in the event of a default.

Staff reviewed the guarantors' balance sheets, and while current assets appear sufficient to fulfill their obligations, there is no guarantee that those assets will be available if iNATGAS defaults during the five years the performance guarantee is in effect. An iNATGAS bankruptcy would

also be expected to have a negative impact on Mr. Alizadeh's balance sheet. The guarantors' current balance sheets do not ensure they will be able meet their obligations throughout the term of the guarantee, particularly in Year 5 when 45 percent of the 'must take' charges are due.

Financial Prudency of Entering into a Lease Agreement with iNATGAS

The land to be leased by iNATGAS and used as a buffer zone was purchased by Liberty in December of 2013, and the iNATGAS rent payments are based on the purchase price, including the acreage for the buffer zone, Liberty's weighted average cost of capital, and the length of the lease. Staff views these measures for rent payments to be prudent and appropriate.

Staff Recommendation on Entering the Special Contract and Lease Agreement

As currently structured, Staff does not believe approval of the proposed Agreements is in the public interest or public good as required by RSA 374:32 and RSA 378:18. The proposed project is a high risk, high reward proposition, largely dependent on how the CNG market develops and on the success of iNATGAS' business plan. Under the terms of the Agreements, the Liberty ratepayers bear a disproportionate share of the risk relative to that of iNATGAS. Liberty's upfront costs are approximately double those of iNATGAS, and the financial obligations under the 'must take' provision only offer limited protection.

The provisions in the Agreements designed to mitigate the risk, namely, the 'must take' requirement, the guarantees by AVSG and Mr. Alizadeh, and the option for Liberty to acquire the CNG station in case of default, do not offer sufficient ratepayer protection. An iNATGAS default could well mean the market value of the station is less than its net value and that the guarantor assets could be insufficient to satisfy their obligations at the time of default.

Because the iNATGAS business plan is untested and uses utility funding for major capital components, iNATGAS should assume a larger share of the risk. If the market rejects the iNATGAS business plan and the only revenues realized are those recovered through the 'must take' provisions, the cost to ratepayers would be over $1 million when factoring in time value of money. If no revenues are realized through the special contract, ratepayers may absorb the entire cost of the project.

Using Liberty's DCF analysis, adjusted to include iNATGAS' COG capacity payments, Staff considers three scenarios. Scenario I assumes no sales and no revenues, which would occur if iNATGAS and the guarantors defaulted on the contract. Scenario II assumes no sales but iNATGAS or the guarantors pay for the 'must take' volumes without using any gas. The NPV for Scenarios I and II uses a 31-year discounted cash flow to reflect full rate recovery. Scenario III assumes actual sales equal the 'must take' volumes for Years 1 through 5 and Year 5 sales for Years 6 through 15. The NPV for Scenario III uses a 15 year discounted cash flow. The three scenarios produce the following NPVs *(See Attachment Staff-3)*:

Staff Sale Scenario Results	
Sales Level	Net Present Value
Scenario I	($2,370,157)
Scenario II	($1,146,286)
Scenario III	$6,439,606

As the results indicate, there is substantial risk but if iNATGAS is able to achieve the sales that iNATGAS and its guarantors have committed to, ratepayers will see a very positive return. Sales above those levels would further enhance ratepayer benefits.

To balance the risk, Staff recommends that iNATGAS or the guarantors provide additional security, such as a security bond or a lien on real property as collateral. If this modification is made, the special contract would meet the approval standard of RSA 378:18. The security requirement would be adjusted at the end of each year based on the NPV of the actual and assured revenues over the balance of first five years of the contract.

Staff recommends the following calculation mechanism and sunset provision for this requirement. Actual Revenue would be the delivery charges and rent payments made to date by iNATGAS. Assured Revenues would be the annual rent payments and the actual and assured delivery revenues guaranteed by the terms of the Agreements. The Assured Revenues are to be calculated by multiplying the actual sales from the most recent 12 months by the delivery rate by the number of remaining years. Staff has determined that it is reasonable to assume that future sales will equal or exceed achieved sales in developing this mechanism. Below are two examples of how the additional security would be calculated at the end of Year 1.

Example 1 - Sales equal 'must take' volumes:

Required Security – Year 1	$1,223,640
Less: NPV of Actual and Assured Revenue (Actual and Assured Revenue $192,600 per year)	($702,737)
Required Security – Year 2	$520,903

Example 2 - Sales equal baseline assumption:

Required Security – Year 1	$1,223,640
Less: NPV of Actual and Assured Revenue (Actual and Assured Revenue $314,600 per year)	($1,148,252)
Required Security – Year 2	$75,388

Regarding the specific terms of the proposed lease agreement, Staff views these terms to be reasonable. However, the lease agreement, as a component of the Agreements between iNATGAS and Liberty, must be viewed in concert with the special contract. If the special contract is modified appropriately, as discussed above, that would be the first step towards making approval of the lease agreement in the public good, as required by RSA 374:30. The next step required for approval of the lease agreement would be certain engineering-related modifications to the Liberty-iNATGAS proposal, as outlined below.

Liberty Construction, Operation and Maintenance of Compressor Station (Engineering/Safety Aspects)

Liberty is constructing the compressor station, will be purchasing the compressors and associated equipment, and is financially responsible for replacement of failed compressors. iNATGAS is responsible for the operation and maintenance of the compressor station.

CUC, an iNATGAS affiliate, is the authorized warranty provider for the compressors and associated equipment and will be performing the maintenance. CUC has many years of experience in the compressed gas industry, servicing compressors as well as all other CNG equipment such as dryers, filters, dispensers, hoses and piping. CUC has a large number of factory trained technicians, and an extensive inventory of spare parts in stock. The compressor station will be remotely monitored around the clock and will be checked, in person, on either a daily or every other day basis by iNATGAS personnel. There will not be a person on site and the travel time and distance from the nearest CUC location are unknown if a problem were to occur.

The service life of a compressor is largely dependent on proper operation and maintenance. iNATGAS is operating and maintaining the compressors at its expense but Liberty is financially responsible for the replacement of compressors. This arrangement creates a conflict of interest, whereby Liberty may desire strict operating standards and a very high level of maintenance and iNATGAS may wish to operate under more exacting conditions and perform the lowest level of maintenance.

Liberty has retained an engineering consultant to review both the design and maintenance schedule of the compressor and filling stations and will have final determination of the maintenance schedule. A maintenance agreement will be developed upon the completion of the consultant's review.

The overall CNG station safety regulation is the National Fire Protection (NFPA) standard number 52-2013. This standard is used as a primary guide across the United States for the safe design, construction, and operation of CNG stations including the compressors. At the New Hampshire state level, the Office of the State Fire Marshal, in conjunction with the City of Concord Fire Department, will have local inspection/enforcement authority of the project's design and operations. The enforcement authority is unlike the PUC Safety Division as most ongoing maintenance and operations will not be inspected. The Fire Department typically puts its focus on upfront reviews of the station.

The proposed facilities will have to meet those safety requirements, as well as those required by the Concord Building, Electrical and Plumbing Departments. The Commission Safety Division is available to assist the State Fire Marshal and City of Concord with their review of the prosed project and has historically advised the State Fire Marshal on technical gas matters.

Staff Recommendation Regarding CNG Operations, Maintenance and Safety:

Liberty and iNATGAS must establish under the Agreements that Liberty will have the final say on CNG compressor operations and maintenance; must enter into a signed maintenance agreement that comports with the recommendations of Liberty's engineering consultant; and must file the maintenance agreement with the Commission within 10 days of execution as a condition precedent for Commission approval.

The initial site and planning designs filed with the State Fire Marshal and City of Concord should also be provided to the Commission's Safety Division, as should any substantive changes during the planning and construction phases and the final design. If changes in the design materially impact design and construction costs, the additional costs would be subject to a prudency review if Liberty seeks recovery of those incremental costs.

Whether Liberty's Investment in the CNG Facility is Prudent

Liberty will be purchasing equipment and facilities not used in the direct provision of utility service to its customers. While not a common practice, there are instances where New Hampshire's natural gas utilities have done so. One of Liberty's predecessor companies, EnergyNorth Natural Gas, Inc., offered a free gas water heater to potential customers along new or replacement mains, as it was cost effective to install a service at that time under the assumption that increased sales would occur when those customers eventually converted to heating service. Northern Utilities, Inc. made a $495,000 capital contribution to convert the University of New Hampshire's (UNH) boiler plant and to rehabilitate its propane system when extending service under the terms of the 10 year special contract with a 'must take' provision. The Commission approved the Northern/UNH special contract and the amortization expense of the capital contribution in future rates. *Northern Utilities, Inc.*, 81 NH PUC 662, Order No. 22,297 (Aug. 28, 1996).

Staff Recommendation Regarding Prudency of Investing in the CNG Facility:

Based on a very narrow focus, that being the risk and benefit to ratepayers, investing in the CNG facility is prudent if the modifications recommended by Staff to the Agreements are made. The additional delivery revenues, rent payments, and gas revenues from the projected increase in sales justify the investment by Liberty.

Rate Treatment

In a future rate case, Liberty intends to include the capital cost of the project in rate base, and associated revenues and expenses when calculating the revenue requirement. While a Commission decision is not required on the intended rate treatment at this time, if the Commission rules that the investment is prudent as part of this proceeding Staff would not seek to disallow the costs if the project ultimately proved unprofitable. Therefore Staff's recommendation regarding prudency is very narrowly focused on the customer rate impact.

DG 14-091

NG ADVANTAGE™
BEYOND THE PIPELINE

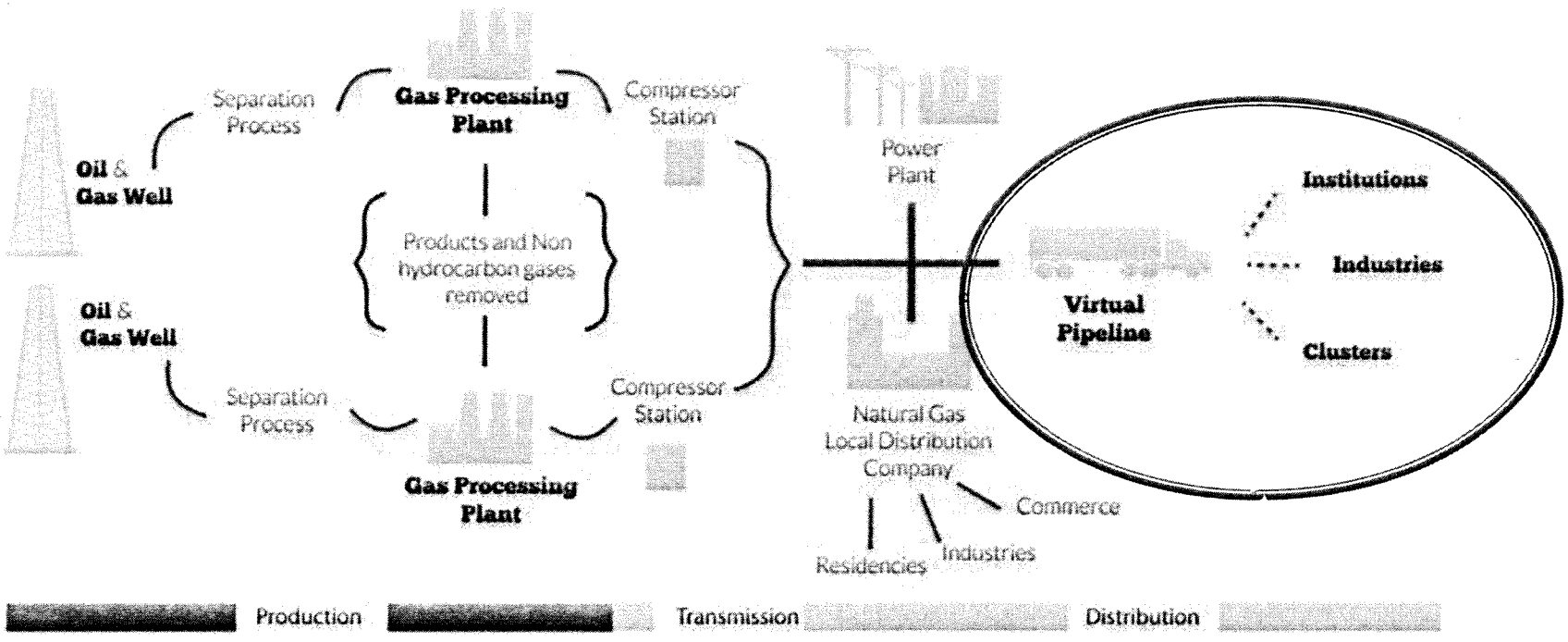
Delivering Natural Gas Beyond the Pipeline in New Hampshire

STAFF ATTACHMENT 1

(1)

New Segment of Gas Delivery System

The Natural Gas Industry

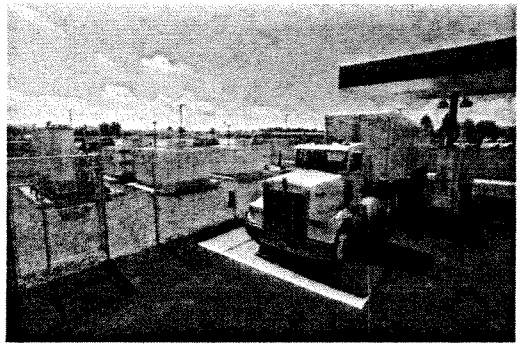


NG ADVANTAGE BEYOND THE PIPELINE

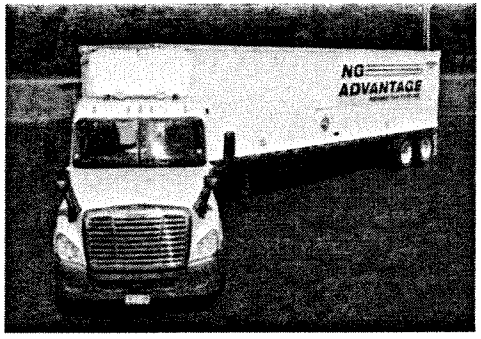
DG 14-091

STAFF ATTACHMENT 1

Beyond the Pipeline

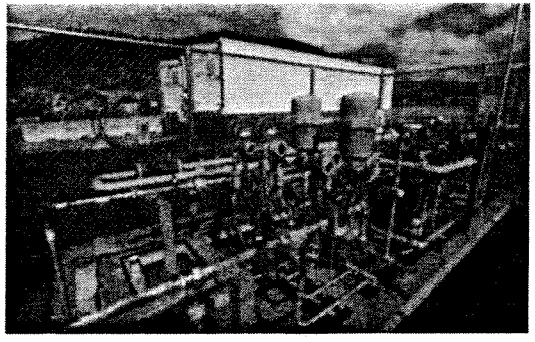


1. Compressor site on pipeline



2. Delivered in composite containers

24/7 Dispatch



3. Customer offload facility

4. Empty trailers return for refilling

NG ADVANTAGE
BEYOND THE PIPELINE

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STAFF ATTACHMENT 1

(3)

Sample Institutional or Industrial Customer Economics

Current Cost of Fuel

Fuel	Annual usage	Unit price	Equivalent natural gas price (per Mcf)	Fuel annual cost
#6 oil	1,000,000 gal	$3.25	$21.33	$3,250,000

Current Cost of Delivered CNG

Contract term	Commodity Price (per Mcf)	Process & delivery adder	Annual Usage (Mcf)	CNG annual cost	Annual energy savings	Percent savings
5 Years	$8.25	$6.92	152,400	$2,312,020	$937,980	29%

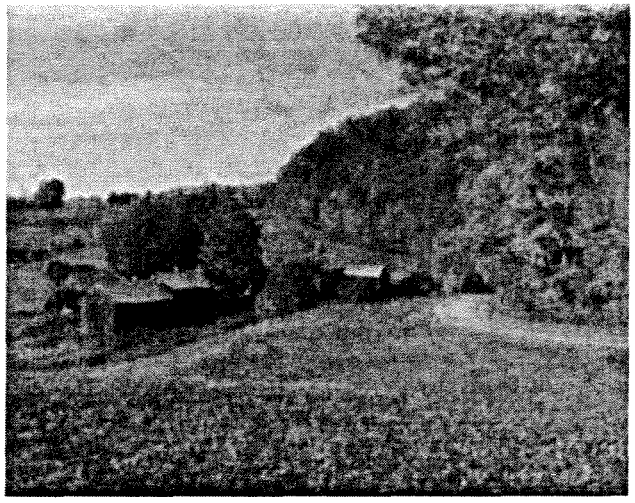
- ✧ Customers say that no other energy projects have as quick or significant ROI as the conversion to CNG.
- ✧ Boiler upgrades repaid in 6-12 months.

D.G. 14-091
STAFF ATTACHMENT 1
(4)

Annual environmental impact of replacing 1.5M gallons of #6 oil

In addition to being a domestically abundant and secure source of energy, natural gas is also cleaner than oil products.

	Reduction of pollutants compared to #6 oil
SO_2	353,113 lbs
NO_x	38,496 lbs
CO_2	9,168,000 lbs



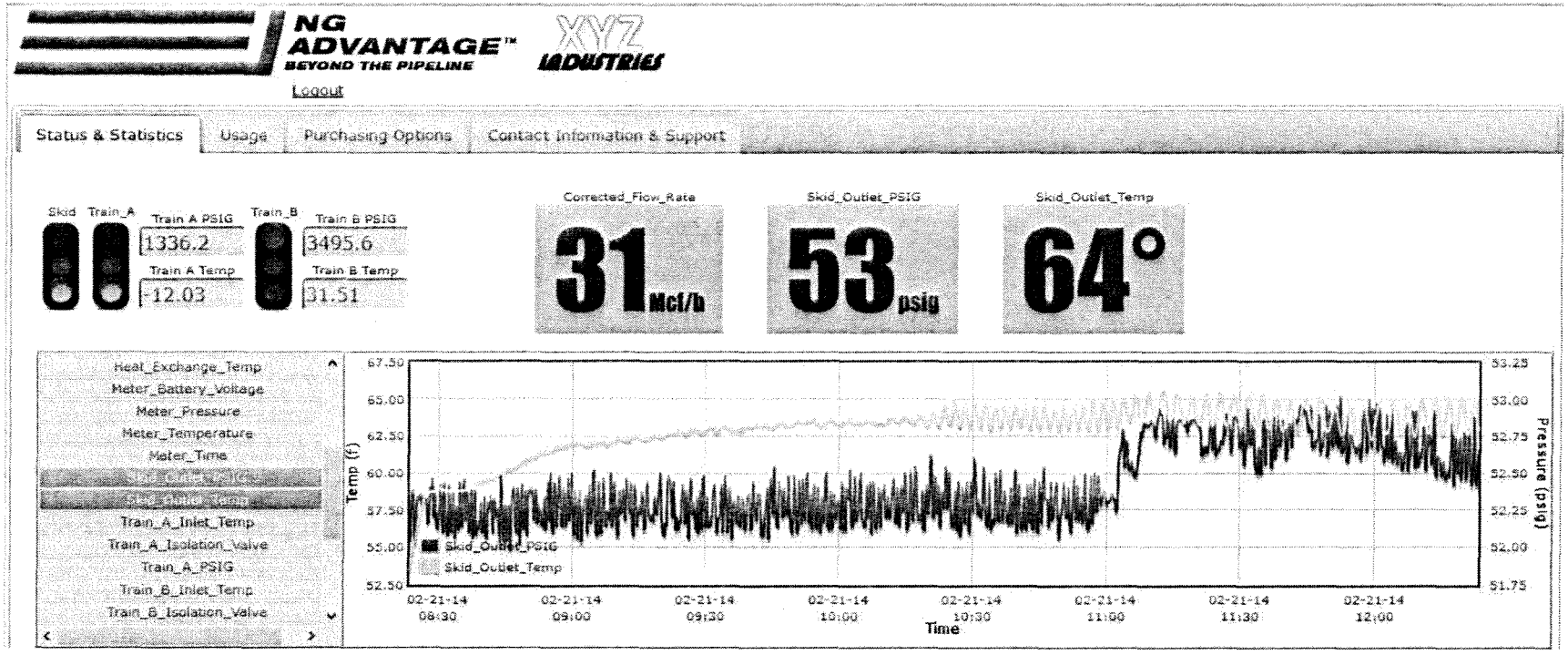
(5)

NG ADVANTAGE
BEYOND THE PIPELINE

D6 14-09

STAFF ATTACHMENT 1

On-Line Customer Dash Board



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STAFF ATTACHMENT 1

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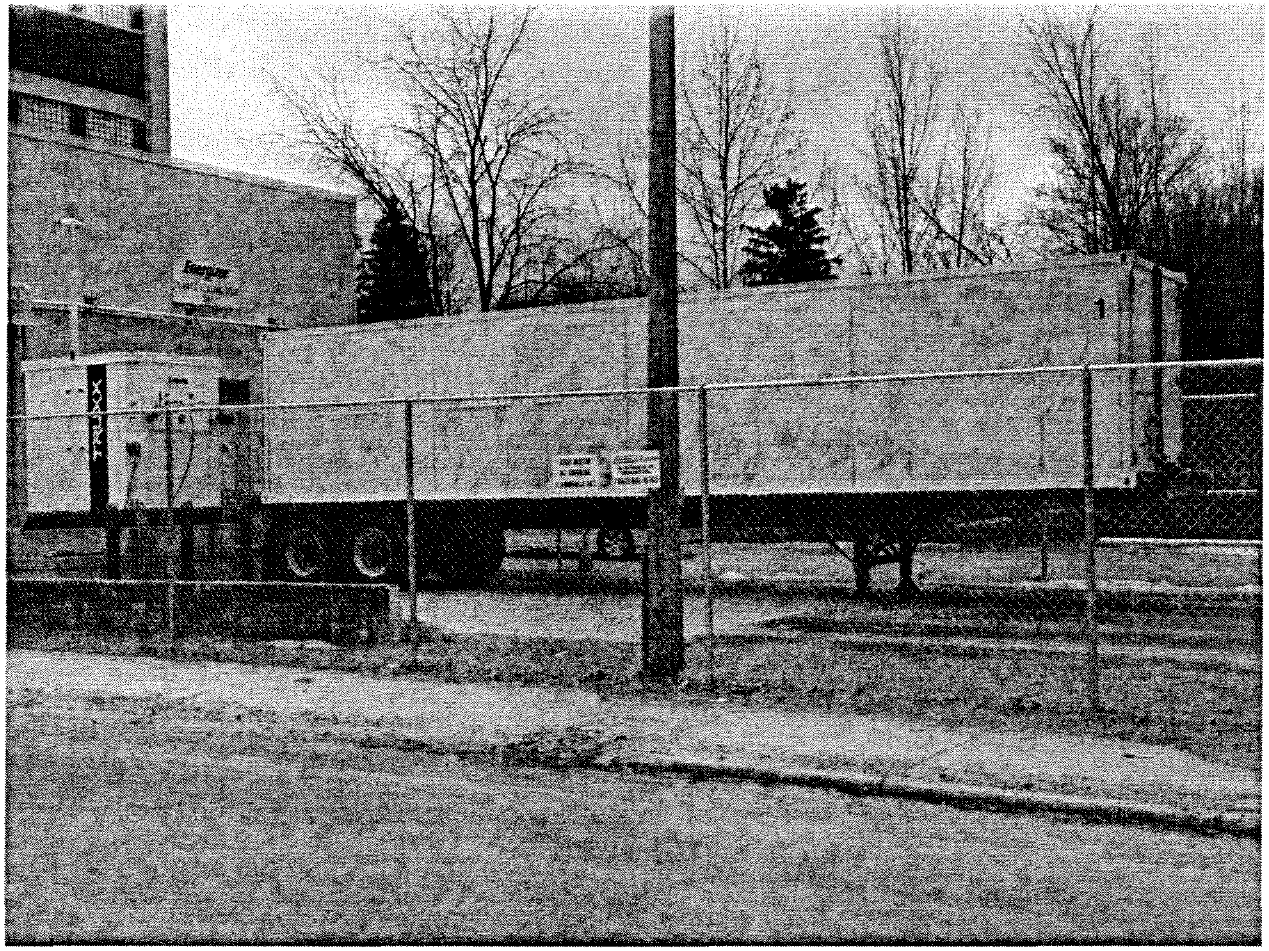
STAFF ATTACHMENT 1



(7)

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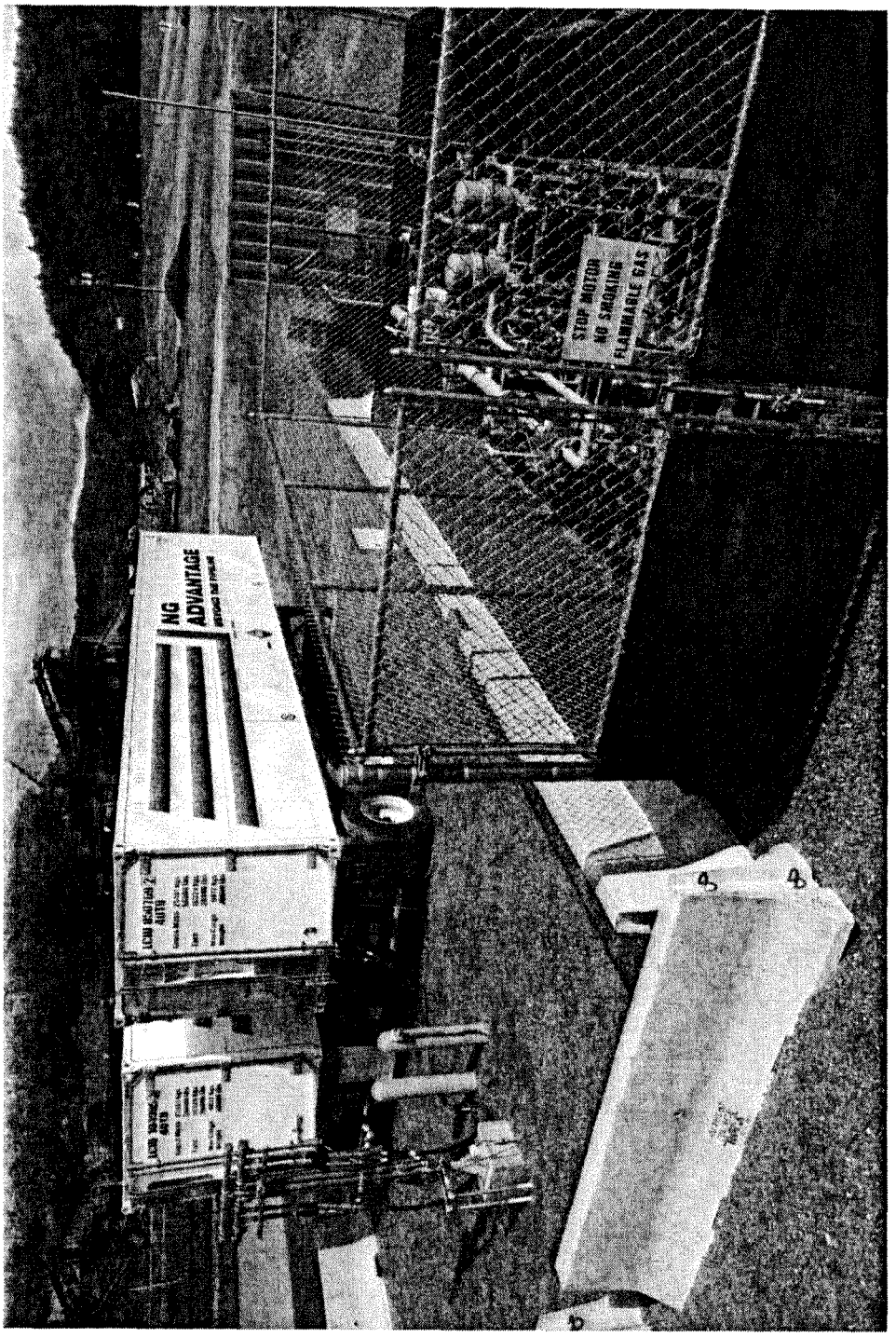
STAFF ATTACHMENT 1



(8)

Announced Sales

APC

ERVING INDUSTRIES
WE'RE ON A ROLL

WILK PAVING INC.

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UTC Aerospace Systems

NG ADVANTAGE
BEYOND THE PIPELINE

DG 14-091
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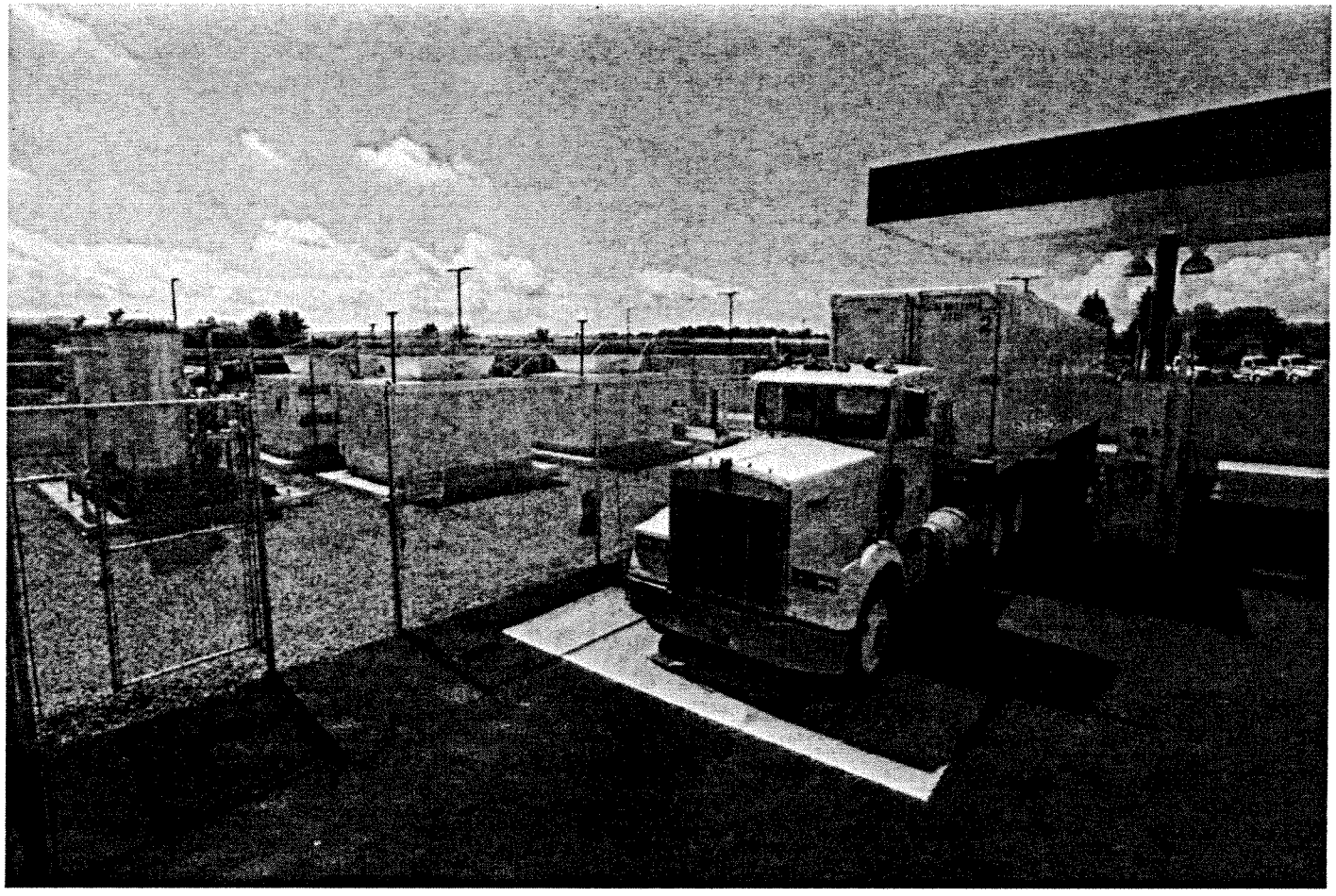
Milton Compressor Station
Operational Q2 2013



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Pembroke, NH Compressor Station Operational Q2 2014

Building in partnership with one of T Boone Pickens' companies, Clean Energy Fuels

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The company today

Customers

- 1st delivery in US - March 2013
- Sold out 1st compressor station
- Paper mills, asphalt plants, manufacturers, hospitals, food processors, commercial laundry plants
- LDCs

Operations

- 21 signed customer sites,11 customer sites in operation
- Proprietary SCADA
- Customer dashboard
- Pembroke NH site -June 2014, NY site coming

(12)

DG 14-091

Current Strategic Relationships

Clean Energy

Building Concord, NH site

Sprague

Joint selling

JP NOONAN

Respected hauler

(13)

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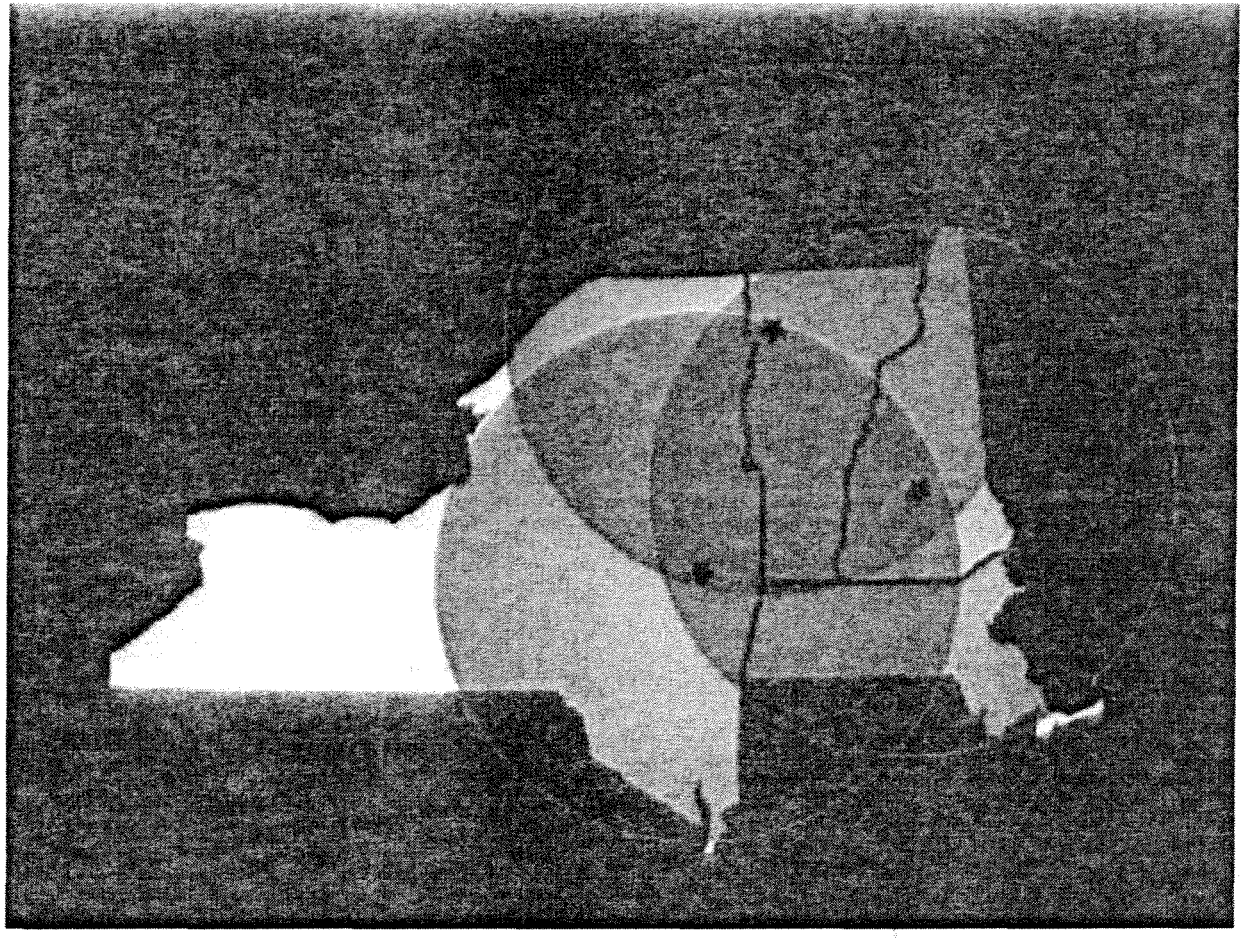
First Region Completed Q4 2014
Next Regions Under Development



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Attachment Staff-1
Gas Daily Article

Gas Daily
August 23, 2013 Issue
CNG Startups Target End-users Far from Pipeline

CNG startups target end-users far from pipelines Natural gas delivery companies, virtually unheard of two years ago, are creating a niche market in the Northeast, where many industrial and institutional customers are far removed from gas pipeline service.

"In some parts of the country, especially in upper New England, there are not a lot of gas lines," Rich Kolodziej, president of the trade group NGVAmerica, said Wednesday. "There is a real attraction to having gas service at industrial plants, vehicle fueling and so forth. So what do you do? How do you get the gas from a pipeline to some remote location?"

One answer, he said, is receiving delivered compressed or liquefied natural gas by truck. "Now, with the price of CNG so much lower than propane, diesel and the other alternatives, you are seeing companies who are saying, 'I want that natural gas'."

Kolodziej, who has spent years advocating the use of CNG and LNG in automobiles, cited Clean Energy Fuel's announcement this month of a first-of-its-kind agreement with a firm called NG Advantage to truck gas to manufacturers and other-energy intensive users.

NG Advantage said it retained Clean Energy to design, build and operate a CNG refueling station in Pembroke, Massachusetts (incorrect, NH), that will be able to compress and deliver 1.25 Bcf/year of gas. The station will be used exclusively to fill trailers capable of carrying the equivalent of 355 Mcf of CNG to specific customers.

The partnership "is expected to allow our two companies to bring these same advantages to America's manufacturers who are located beyond the reach of our nation's natural gas network," Clean Energy Regional Vice President Mark Riley said.

In a recent interview, NG Advantage Co-Founder Mary Evslin said industrial plant managers "are very excited because they can all of a sudden be more competitive than they thought they ever would be. The reason is not genius. Three or four years ago the price of fuel and the price of natural gas kind of went up and down together. Now the price of gas is low enough there is room enough for a middleman, whereas before there wasn't."

Since organizing in 2011 and setting up its headquarters in Milton, Vermont, NG Advantage has signed contracts to supply CNG to asphalt companies in Vermont and four paper mills in Vermont and Massachusetts.

'Low Energy Costs are Crucial to being Competitive'

Among its clients is Soundview Vermont Holding, which began using CNG instead of fuel oil in March. The Putney, Vermont, plant operates around the clock making tissue, towel and napkin products from recycled materials for use at commercial and institutional facilities.

Soundview CEO George Wurtz said that "lower energy costs are crucial to being competitive. Soundview is also focused on reducing the environmental impact of our products. Using CNG to run our Putney plant meets both our economic and environmental goals. Our CO2 emissions are now 28% lower than with oil, and there are practically no other emissions."

The market for delivered CNG and LNG in New England, New York and lower Canada is said to be between 5 and 12 Bcf/year, or no more than around 30,000 Mcf/d — a small fraction of overall gas demand of about 25 Tcf/year.

But suppliers and customers alike expect that niche market to continue growing given the demand for relatively low-cost gas in regions currently served only by more expensive fuels like oil and propane.

How much this market expands depends partly on how well the industries that might use delivered gas — paper and pulp, medical services, food processors, large institutions — perform in a tough economy. Some of those sectors, such as paper mills, have shrunk since the recession began in 2008 and are operating on razor-thin margins.

Tom Evslin, founder and managing member of NG Advantage, said he believes the company will sell nearly 1 Bcf in 2013, with that volume likely to rise in future years.

The price the company charges for its service depends on how far away a customer is from a gas compressor station, he said. The firm has access to compressors at Milton, Vermont, and Pembroke, Massachusetts.

What NG Advantage charges for its delivered gas has two parts — a fixed price and commodity price, Evslin explained. The fixed price includes trucking costs, pipeline charges NG Advantage incurs, the energy used to run the compressor units, and the construction and installation of the off-loading skid at the customer site.

The variable price is based on differentials to the monthly NYMEX Henry Hub value.

"The pricing will get a little more complex when we start selling in southern New England because the basis may vary as well," he said. "The transport prices into New England vary. The transport prices into Vermont are set by tariff so that is not a variable and so we include it in our fixed price."

"When we quote a price to a customer not in the Milton area, we say that we will charge the daily basis at their compressor site" — Tennessee Gas Pipeline zone 6 at Pembroke — "plus a fixed adder/Mcf of gas that we deliver," he explained. "That's what I call our vanilla price. The customer is free to do any hedging they feel appropriate on the variable portion, which is Tennessee zone 6 in this case."

"If the customer likes, we can help the work with a third party to hedge the variable portion so that they can predict their price per Mcf," he said. "This is more complex pricing — even though it results in a fixed price — because the customer must pay the third party for the cost of placing the hedge and will have to commit to certain quantities."

Tennessee zone 6 cash prices tend to be quite volatile, especially during the peak winter heating season when demand is high and pipelines get increasingly constrained. For the year-to-date, zone 6 cash basis averaged $3.086/MMBtu, according to Platts data, compared with $1.12/MMBtu on average last year. Mary Evslin said the market her company serves "is a market where the pipeline is not going to go, or it's going to take a while before the pipeline gets there."

As for the gas delivery itself, "we use carbon fiber tractor trailers," she said. "They look like big white containers. Inside are four tanks. We purchase from the gas company at somewhere around 500 pounds per square inch and compress it to 4,000 PSI."

The tractor backs up to a pad placed at a customer's plant and is hooked up to a burner inside the plant. "We remotely watch the temperature, how much the flow is, and so forth," she said. "Another tractor shows up before the first tanks are empty and takes them back to the refueling station," she said, adding that customers "don't have to have a storage facility."

Some customers use the contents of five or six trailers every day, she said, adding that a customer always has the option of shutting down the CNG service and returning to its previous energy provider.

"We will get more accounts," Evslin predicted. "But we are only dealing with companies that use about a half million dollars-worth of fuel a year, or about 150,000 gallons of fuel oil. There are only so many of them."

"Geographically we are expanding," she said, adding that the Pembroke station allows service to customers within a 200-mile radius. "The goal is to have the stations overlapping so that we have redundancy in case there is something wrong with the supply or price at a station."

She said she isn't concerned about the future price of gas. "The supply is so wonderfully huge. You hear about people burning off the extra gas out in the field, and you hear about lots of drilling and the wells being plugged because they are really unhappy with the low price of gas."

NG Advantage's largest competitor is Xpress Natural Gas, which is based in Boston and has captured several large accounts within the last year. Among them are four paper mills, three medical centers, Plymouth State University, several food processors and a textile company. Most of the plants are in the US but two are in Canada.

Mark Smith, the company's executive vice president, said Wednesday that "we are setting the standard in this emerging industry. We are in five states and two Canadian provinces. We expect to have more announcements shortly."

Smith said the company anticipates a "run rate" of at least 5 Bcf this year and more as new clients are recruited. In its November 2012 application filed with the Department of Energy's Office of Fossil Energy to export CNG to Canada, Xpress said it intends to truck between 2 and 3 Bcf/year under long-term contracts to large users in New England.

In January, DOE permitted Xpress to export up to 12.5 Bcf/year by truck from its Baileyville, Maine, compressor station to Canada, which is connected to the Maritimes & Northeast Pipeline.

Xpress said in April that it inked an agreement to serve Plymouth State in New Hampshire this fall. By converting to gas, Plymouth State estimated it would save the university about $500,000 annually after the first year.

With regard to pricing for its service, Smith said: "Like any utility provider, we have a delivery charge or adder and the commodity is a straight pass-through to the customer." He said the company doesn't make any money on the gas it sells.

"Our pricing is a function of transportation distance and volume," he said. "Because we are tapping interstate pipelines, we price our commodities based on the local city-gate and work with the gas suppliers that have the capacity at our station locations to bid out the volume of gas for our customers and try to get the most cost-effective basis. In general, we price to the indices reported by Platts."

"We transparently bid the gas on behalf of our customers; we provide that pricing to them as a service," Smith said. "They can solicit pricing for a period of time forward if they like. We pass through the gas price at the relevant citygate price."

The company accesses most of its LNG supply from GDF Suez's terminal near Boston, he said. "We do have a couple of smaller liquefaction sources that we work with in the New England Area. We use them the supplement the baseload we get out of Boston."

Aroostook Medical Center is one of the facilities that Xpress serves. Jason

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Parent, director of advancement at Aroostook, said the facility "has seen a tremendous drop in its costs to heat and cool the facility." Since going online with CNG in late April, the medical center has saved $120,000.

"We will have this project paid for in under a year," Parent said. "When you look at comparative forms of energy, that is pretty impressive."

DG 14-091 STAFF ATTACHMENT 1

Attachment Staff-1
Overview

DG 14-091
Overview of New England CNG Market
CNG Supply Train, Costs and Pricing

Below is a general description of each component and average costs.

Producers – Currently, there is an abundance of natural gas in the United States and very little export, resulting in favorable pricing relative to oil.

Pipeline – Pipeline capacity into New England is constrained during peak demand days, making it exceedingly valuable and expensive during those times. Natural gas utilities contract for primary firm delivery rights on the interstate pipelines, the most expensive and reliable type of capacity, and recover their costs through their bundled sales and non-grandfathered transportation customers (C&I customers that switched to delivery service after May 2000 are non-grandfathered). Utilities typically have high capacity costs relative to third party suppliers due to the need for primary delivery rights that ensure supply reliability. CNG providers contract for non-firm pipeline capacity.

Compressor Stations – The all-in cost of a compressor station is approximately $4-$5 million. The most expensive component category is the compressors; their cost and ability to compress the gas is tied to the pressure coming off the pipeline. CNG stations are generally located at the farthest point along the natural gas distribution system at which adequate pressure is available.

Transporters – CNG trailers cost $500,000 each and provide both transportation and storage. A trailer is delivered to the customer's site and attached to a decompressing station, or daughter station, which decompresses the gas for direct use by the customer. Transportation costs include, but are not limited to, a truck to haul the trailer, a driver and diesel fuel. Similar to capacity demand charges, the cost effectiveness of the trailers is tied to utilization. Scheduling is critical in minimizing the time for filling, transporting and emptying the trailers. Fill times at the compressor station varies depending the compression capabilities and the number of trucks being served at the time, normal fill time is between 1 ½ to 2 ½ hours. Time to empty a trailer depends on customer size, a large customer may use four trailers a day whereas it may take two or three days for a small customer to empty a trailer. Transportation costs make it uneconomical to serve customers located more than two hundred miles from a station.

Decompression – Decompression equipment costs $300,000 to $700,000 and the station is located on the customer's premises, with site preparation the responsibility of the customer. The equipment is typically owned, maintained and serviced by the transporter, although in some instances, the customer purchases the equipment up front.

End User – CNG customers are responsible for conversions costs "beyond the wall," which can run from several hundred thousand to a million dollars. The customer contracts with a

transporter for a 3-5 year term and is charged for delivery and commodity costs. The commodity charge is a direct pass through, typically tied to first of the month or daily index prices. The delivery charge is for 'process and delivery' and covers pipeline transport costs, the cost to process the gas, and the cost to transport the gas from the station to the end user. End use customers retain the ability to burn alternative fuel, although some contracts include monthly "must take" provisions. The negotiated rate an end user pays is determined largely by the customer's usage and distance from the compressor station.

DG 14-091 STAFF ATTACHMENT 2

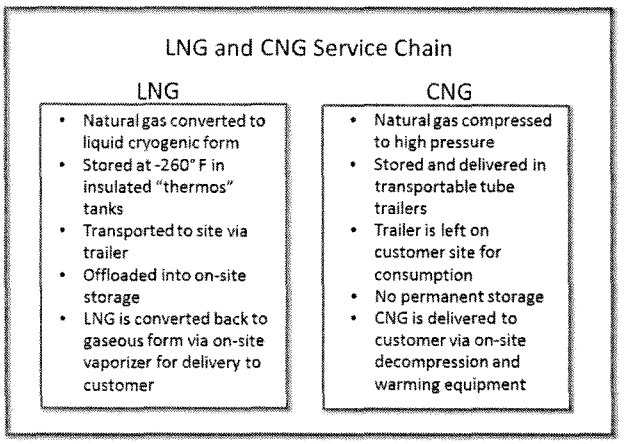
Distributed CNG and LNG as sources of natural gas in New England

Prepared for

OsComp Systems

May 15, 2013

Given the abundant supplies and relatively low cost of natural gas in North America, consumers currently using oil or propane are seeking to convert to natural gas to save money and improve the environment. For commercial, institutional and industrial customers not on or near the natural gas pipeline system, delivered LNG or CNG can provide the benefits of natural gas without the need for construction of a pipeline delivery system. LNG and CNG are different forms of natural gas, with delivery systems reflecting their properties:



There are both similarities and differences potential customers and stakeholders should consider when comparing LNG to CNG as a distributed fuel. These comparisons are broken down into the following categories and are discussed in detail below:

1. Fuel Availability and Production
2. New Customer Facility Permitting, Construction, Site Footprint and Safety
3. Operations and Maintenance
4. Transportation and Properties
5. Customer Requirements, Load Profile and Distance from the LNG or CNG Production Facility
6. Cost

a. CAPEX depending on scale

b. OPEX

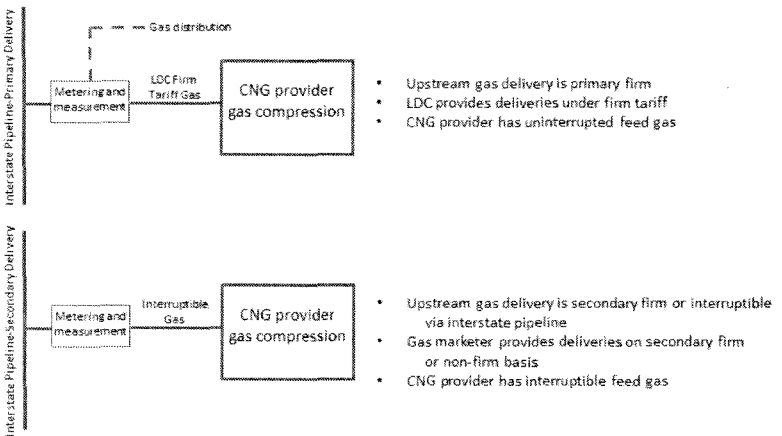
c. Scale – customer fuel requirement

1. Fuel availability and production

CNG

CNG is currently more readily available than LNG to serve distributed fuels markets in the Northeast with several CNG production and loading facilities in operation or planned/under construction throughout the region. Pipeline capacity to deliver natural gas to these facilities is currently very constrained, particularly during winter and summer peak consumption seasons. Interruptible natural gas pipeline capacity, relied on by some CNG producers, has become increasingly unreliable in the Northeast[1]. The OsComp/Global CNG production facility in Bangor, Maine and supplied by Bangor Gas is the only US Northeast-based announced CNG distribution facility fed with a long term supply of firm natural gas.

Current upstream delivery models – Northeast CNG



[1] As an example, Spectra's Algonquin natural gas pipeline system which serves the Northeast curtailed interruptible service on 19 days between the period August 2009 through July of 2010. This increased to 89 interruption days in 2010-11 and 292 days in 2011-12. Based on interruption days from August 2012 to date, the 2012-13 period will see greater than 300 days of interruption days.

Competition among suppliers will likely keep delivered CNG costs in check and also provide the ability for mutual aid among CNG suppliers in the unlikely event of a single facility production outage.

LNG

Relative to other areas of North America, the Northeast has significant LNG importation capability as well as a developed network of satellite LNG liquefaction, storage and vaporization facilities. Despite this, it is challenging to find available supply of LNG to serve commercial and industrial customers in the Northeast who are considering a conversion to natural gas.

LNG that is imported into the US through the GDF SUEZ Everett Marine Terminal near Boston Massachusetts and the Canaport LNG terminal in Saint John New Brunswick must compete with other global markets for shipments of LNG. Most global LNG markets can pay prices significantly higher[2] than is necessary to support LNG sales in North America.

The satellite LNG facilities in Northeast are relied on by the local distribution companies to provide gas supply during peak winter weather. As these facilities play a critical role in the LDCs resource portfolios, the LDCs generally cannot sell LNG services to third parties from these facilities. As such, LNG will likely have to be trucked to the Northeast customer's site from large distances away[3]. This could put upward pressure on price and increases the potential for weather and other factors to disrupt deliveries.

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[2] Most internationally traded LNG is sold worldwide based on global oil prices. Most customers considering conversion to natural gas are doing so for economic relief from the high cost of fuel associated with these same global oil prices.

[3] Concentric understands that LNG that will be consumed by a large industrial customer in Vermont who is converting to natural gas will be receiving deliveries from an LNG facility in southeastern Pennsylvania.

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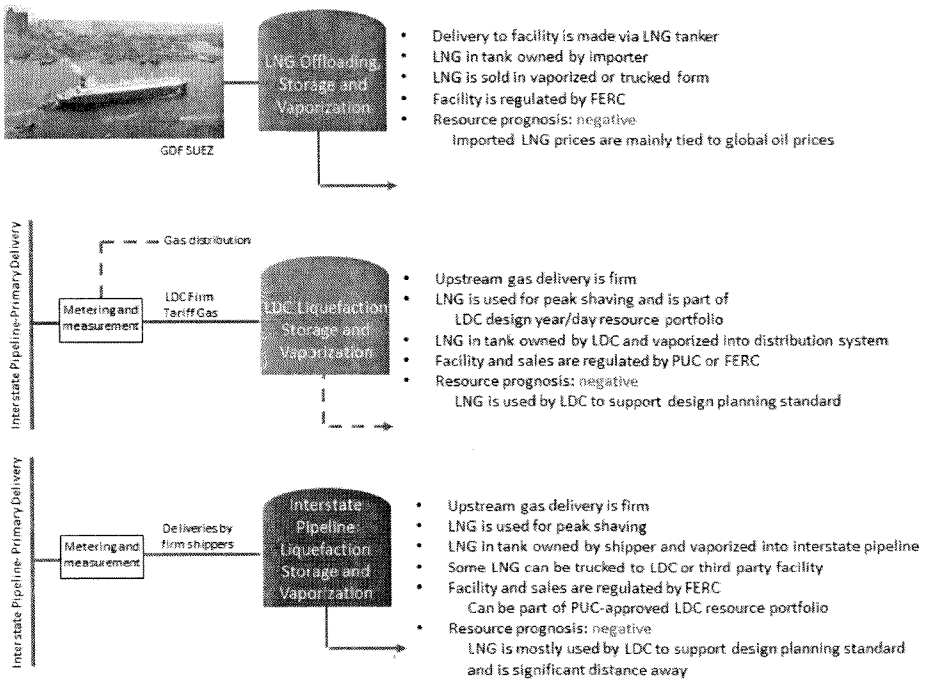
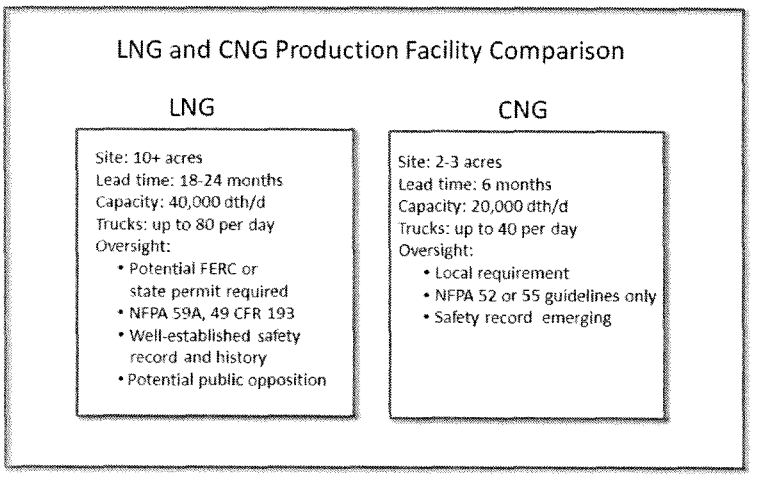
Current upstream delivery models – Northeast LNG



New "purpose-built" LNG liquefaction and storage facilities may be proposed that could serve industrial baseload markets and new applications like on-road and marine transportation applications. However, permitting and lead times associated with constructing these facilities are significant (up to 3+ years depending on location and size of facility) and site requirements are extensive. Currently in New York State, the construction of new LNG liquefaction is not permitted although rules for permitting are under review.

Lead time and site requirements for the permitting, construction and operation of a CNG production facility is relatively short compared to an LNG production facility. For example, the OsComp/Global facility in Bangor Maine will be permitted and constructed in approximately six months. Permitting requirements for a new CNG facility depends on the location but the process is relatively straightforward.



2. New Customer Facility Permitting, Construction, Site Footprint and Safety

CNG

On site CNG facilities also require local authorizations and the permitting process is relatively simple. Installation of the warming decompression station on the company's property will require a building permit and the local fire chief will be involved. As noted above, there are no current NFPA standards for distributed CNG for commercial and industrial use. Related NFPA standards (52, 55 and 70) will be followed to the extent applicable.

Space will be required for the CNG truck to connect to the customer's warming/decompression station and a small site will be required for the decompression equipment itself. Decompression facilities along with trailer parking space can vary in size but generally require no more than 8,000 square feet of the customer's property.

LNG

On-site LNG permitting of new LNG storage and receiving facilities requires local permits for building and construction. Certain locations also require a permit for above ground storage tank in the case of LNG. In general, the building permit will require the input of the local fire chief as well as other

agencies involved in the siting of above ground fuel storage[4] or construction of stationary facilities. For the construction and operation of LNG facilities, the fire chiefs will generally refer to guidelines established by NFPA Part 59A. Depending on the size of the LNG storage facility, state and federal permits may be required[5].

A large industrial facility in Vermont has decided to convert fuels from No. 2 oil to LNG. The facility required state authorization which, though uncontested, took close to a year from filing to receipt of permit. Construction of the LNG storage and vaporization facility will take up to one year.

LNG requires a significantly larger site footprint than a CNG. For a standard LNG facility with a 20-30,000 LNG storage tank, the site could be in excess of 35,000 square feet. For many commercial, institutional and industrial customers, land is not available. LNG will be stored on site. Regulations require that the containment dikes must be built around the tank in the unlikely case of a storage breech. The containment area must be equivalent to 100% of the capacity of the storage facility. LNG requires vapor dispersion analysis; that is, in the event of a spill, the ability for the vaporized gas to vent harmlessly to the atmosphere, avoiding potential sources of ignition. Regulations therefore require certain building setbacks, requiring space between the storage tank and any occupied buildings. LNG sites will also require space for truck unloading, metering and measurement, and vaporization equipment.

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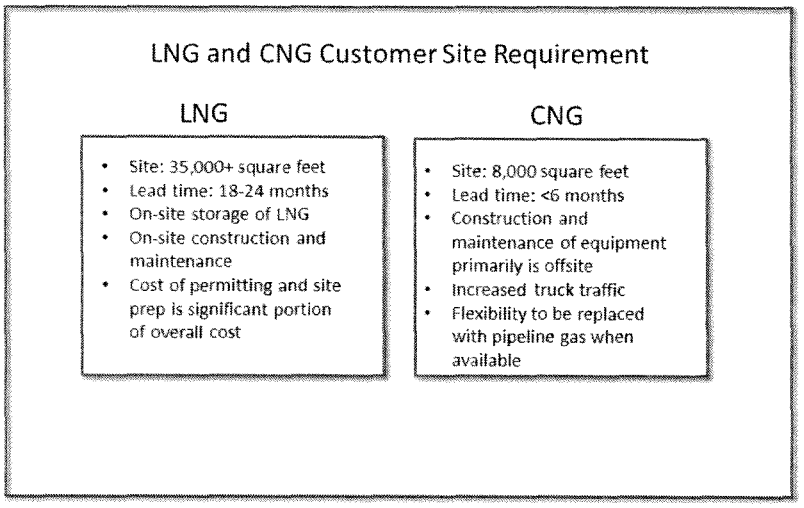
[4] While on-site CNG storage is temporary (storage is on the back of portable trailers that are shuttled to and from the central compression facility), to the extent trailers stay on site for longer periods of time, a storage permit may be required. This will depend on the specific arrangement between OsComp and the customer as well as state and local regulations.

[5] For example, in Massachusetts, an LNG storage facility over 25,000 gallons requires approval from the State of Massachusetts Energy Facilities Siting Board - EFSB 980 CMR § 1.01 (4) (e).



Safety

Both LNG and CNG are hydrocarbons and will burn to generate energy. As such, they must be produced, delivered and consumed with care and, at minimum, in accordance with applicable safety standards. Once compliant with minimum standards, companies can provide additional safety measures that may improve reliability and general public and employee safety.

LNG and CNG are lighter than air and will dissipate into the atmosphere in the unlikely event of a spill or leak[6]. It is important that LNG and CNG equipment allow for escape of the gas; confining LNG or CNG production or delivery into spaces with overhead barriers is not acceptable.

Both LNG and, more recently, CNG are important sources of energy to consumers, but new and growing applications (transportation, on site consumption) are increasing the general production, storage and use of the fuels. As such, local, regional and national fire safety officials have an increasing understanding of the fuels' properties and the systems that

[6] A heavier than air combustible fuel like propane accumulates at ground level, potentially exposing it to more ignition sources.

ensure their safe delivery and use. It is important for both LNG and CNG industries and regulators to share information on best practices to maintain favorable safety records.

3. Operations and Maintenance

OsComp CNG/natural gas delivery systems require very little involvement from customer representatives. CNG is delivered and stored on the trailer units provided by OsComp. The OsComp driver is responsible for connecting the laden trailer and disconnecting the empty unit. OsComp trailers are self-contained and resemble on-road intermodal storage containers.

LNG delivery requires the transfer of LNG from the delivery trailer to the on-site storage tank on the customer's property. Although LNG delivery transfers are performed safely thousands of times per year in the United States, the transfer of product, by its nature, adds a slightly higher level of risk than the trailer mounted CNG systems provided by OsComp.

Both LNG and CNG systems will require periodic maintenance. Maintenance on the OsComp CNG trailer will be performed at OsComp's site; the CNG decompression unit is maintained by OsComp on the customer's site. LNG storage and vaporization systems will require on-site maintenance.

4. Transportation and properties

Both LNG and CNG truck transportation is regulated by the US Department of Transportation ("DOT"). DOT oversees both the Federal Motor Carrier Safety Administration and the Pipeline and Hazardous Materials Safety Administration. Certain state and local officials may also oversee regulations regarding the transportation of LNG and CNG.

LNG is transported in special vacuum insulated tankers. Although these tankers are sealed and the product remains very cold (-260 degrees Fahrenheit), a very small amount of the LNG constantly vaporizes. As a

result, LNG must be taken out of the trailer after a certain period to avoid natural gas buildup.

CNG is transported in tube trailers that are attached to a trailer bed. CNG tubes remain pressurized and full regardless of the period of time that elapses between filling and consumption. CNG has less fuel density than LNG so a CNG trailer generally carries less natural gas than an LNG trailer. Consequently, truck traffic (the number of trucks arriving at the customer's site) is higher with CNG versus LNG. However, OsComp employs a patented Rapid Fill™ technology that allows for close to 100% of the capacity of the CNG trailer to be filled. As compared to other CNG providers, this technology results in fewer truck deliveries to the customer's site, reduced traffic and yard activity, and lower cost to the customer.

Both LNG and CNG storage tanks, stationary as well as those transporting product over the road, meet DOT or ASME design, fabrication, testing and inspection standards for safety.

5. Customer Requirements, Load Profile and Distance from the LNG or CNG Production Facility

For customers considering a conversion from fuel oil or propane to either LNG or CNG, best choice between the two forms of distributed natural gas depends on a variety of factors including:

- In-service requirement date;
- Daily consumption volume and consumption pattern;
- Price at source for the LNG or CNG
- Distance from fuel source and trucking route; and
- Opportunity for future pipeline supply and flexibility.

In-service requirement date

The lead time for a customer to convert to CNG is significantly shorter than LNG. For both LNG and CNG the customer must install any necessary changes to its burner equipment to allow for the consumption of natural gas.

Siting of CNG decompression at the customer's facility is simple. Installation of the decompression equipment generally requires a local building permit (with involvement of the local fire chief). The decompression equipment is fabricated offsite and shipped to the customer's facility for installation. The installed decompression equipment will be remotely monitored by OsComp. The customer must also provide space for two CNG trailers, one of which will be left on site to provide CNG inventory or a small vessel will be left in its place. Two trailers are on site as inventory is replaced. The customer must provide unrestricted access to the trailer location and keep the trailer(s) secure while stationary. OsComp estimates that customer conversion generally takes less than six months from concept to in-service. Customers converting to CNG can reap the benefits of lower cost natural gas in a very short period of time.

Permitting of an LNG facility can take considerably longer than CNG, sometimes requiring state approval which can take up to a year or more. Site construction is also more complex and time consuming, with estimated construction times generally six months or more. This could increase the potential for business disruption or, at a minimum, inconvenience. Customers converting to LNG may wait up to two years to receive the benefit of natural gas.

Daily consumption volume and consumption pattern

Customer choice between LNG and CNG can depend largely on the estimated daily and annual consumption volume and pattern. As mentioned previously, CNG is not as dense as LNG, requiring, on average, two to three CNG deliveries for each LNG delivery[7]. Generally, CNG can meet the requirements of most industrial, commercial and institutional customers considering conversion to natural gas. However, very large off-system customers, consuming over 4-5 million gallons of fuel oil per year, may opt for LNG to keep trucking traffic to the site at lower levels.

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[7] One LNG trailer generally carries about 850 mcf of fuel. OsComp CNG trailers, using OsComp's Chill-Fill™ technology carry about half the energy of an LNG trailer. Further, other CNG carriers not using Chill-Fill™ technology carry about 25% less fuel than OsComp's CNG trailers.

Customers also requiring high daily variation of load may also find on-site stored LNG to provide more daily flexibility than that provided by CNG.

Price at source of LNG and CNG

Customer economics will be very dependent on the cost of either LNG or CNG at the source. This cost can vary depending on the facilities location (inlet gas cost upstream of pipeline constraints or downstream of pipeline constraints), technologies employed, and the seller's market alternatives.

Distance from fuel source and trucking route

CNG can be deployed reasonably up to 250 miles from the central compression station depending on customer's daily and annual fuel requirements. The further the customer is from the source of fuel, the more costly it is for CNG trailers to be deployed as significant time can be spent on-road rather than on-site. Distance from the fuel source increases the changes for travel disruptions. For the large industrial customer in Vermont converting to LNG, fuel supply is coming from an LNG production facility about 350 miles away. This customer is investing in substantial on-site storage capability to insure uninterrupted deliveries of natural gas, despite its distance from the source of LNG.

Routing is also an important factor. Certain communities may put restrictions on either LNG or CNG trucking, potentially requiring longer travel time to the facility. OsComp would work with the first responders along any proposed CNG trucking routes to ensure high quality emergency response training needs are met.

Opportunity for future pipeline supply and flexibility

Ultimately, customers of LNG or CNG may opt to connect directly to a natural gas pipeline once pipeline supply becomes available[8]. Local distribution companies ("LDCs") in the Northeast are generally seeking to

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[8] Contracting and permitting LDC expansion pipeline requires substantial time investment on the part of the LDC. CNG can be used to build-out gas infrastructure well in advance of pipeline construction.

expand their distribution systems to reach more customers. However, sometimes customers are initially too far from the pipeline reach or there is not significant customer demand along a proposed route to economically justify the construction of a pipeline.

To the extent attaching to a natural gas pipeline becomes economical and feasible, deconstruction of on-site CNG equipment is simple – the decompression unit is removed from the facility. The CNG provider can deploy the equipment elsewhere. Deconstruction of the LNG facility is more complex and costs associated with site preparation (up to ½ of the initial costs of an LNG facility) will not be recovered.

As such, CNG can provide customers with greater economic flexibility to switch to pipeline supply if and when it becomes available.

DG 14-091 STAFF ATTACHMENT 3

Attachment Staff-3

DG 14-091
Liberty Proposed Lease Agreement and Special Contract
Net Present Value of Staff Scanerios 1-3

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Annual revenue requirement		366,152	352,499	339,640	327,477	316,128	305,137	294,535	283,824	273,159	262,222	251,318	240,300	229,286	218,016	206,735	198,192
Scenario I - No Revenue																	
Annual revenue requirement		(366,152)	(352,499)	(339,640)	(327,477)	(316,128)	(305,137)	(294,535)	(283,824)	(273,159)	(262,222)	(251,318)	(240,300)	(229,286)	(218,016)	(206,735)	(198,192)
NPV (31 years)	($2,370,157)																
Scenario II - Required Payments																	
Annual estimated revenue		192,600	192,600	314,600	314,600	802,600	-	-	-	-	-	-	-	-	-	-	
Annual revenue requirement		(366,152)	(352,499)	(339,640)	(327,477)	(316,128)	(305,137)	(294,535)	(283,824)	(273,159)	(262,222)	(251,318)	(240,300)	(229,286)	(218,016)	(206,735)	(198,192)
Excess revenue (deficiency)		(173,552)	(159,899)	(25,040)	(12,877)	486,472	(305,137)	(294,535)	(283,824)	(273,159)	(262,222)	(251,318)	(240,300)	(229,286)	(218,016)	(206,735)	(198,192)
NPV (31 years)	($1,146,286)																
Scenario III - 'must take' Sales																	
Annual estimated revenue -'must take' payments		192,600	192,600	314,600	314,600	802,600	802,600	802,600	802,600	802,600	802,600	802,600	802,600	802,600	802,600	802,600	
iNATGAS COG capacity payments		229,452	229,452	375,468	375,468	959,529	959,529	959,529	959,529	959,529	959,529	959,529	959,529	959,529	959,529	959,529	
delivery/rent/capacity revenue		422,052	422,052	690,068	690,068	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	1,762,129	
Annual revenue requirement		(366,152)	(352,499)	(339,640)	(327,477)	(316,128)	(305,137)	(294,535)	(283,824)	(273,159)	(262,222)	(251,318)	(240,300)	(229,286)	(218,016)	(206,735)	
Excess revenue (deficiency)		55,900	69,553	350,428	362,591	1,446,001	1,456,992	1,467,594	1,478,305	1,488,970	1,499,907	1,510,811	1,521,829	1,532,843	1,544,113	1,555,394	
NPV (15 years)	$6,439,606																

Year	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Annual revenue requirement	192,138	186,049	179,810	173,510	167,046	160,418	153,695	146,793	139,715	132,507	125,108	117,552	109,792	101,827	33,980
Scenario I - No Revenue															
Annual revenue requirement	(192,138)	(186,049)	(179,810)	(173,510)	(167,046)	(160,418)	(153,695)	(146,793)	(139,715)	(132,507)	(125,108)	(117,552)	(109,792)	(101,827)	(33,980)
Scenario II - Required Payments															
Annual estimated revenue															
Annual revenue requirement	(192,138)	(186,049)	(179,810)	(173,510)	(167,046)	(160,418)	(153,695)	(146,793)	(139,715)	(132,507)	(125,108)	(117,552)	(109,792)	(101,827)	(33,980)
Excess revenue (deficiency)	(192,138)	(186,049)	(179,810)	(173,510)	(167,046)	(160,418)	(153,695)	(146,793)	(139,715)	(132,507)	(125,108)	(117,552)	(109,792)	(101,827)	(33,980)

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

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Docket #: 14-091-1 Printed: June 04, 2014

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EXECUTIVE DIRECTOR
NHPUC
21 S. FRUIT ST, SUITE 10
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b) **Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.**

c) **Serve a written copy on each person on the service list not able to receive electronic mail.**