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

Prepared for

OsComp Systems

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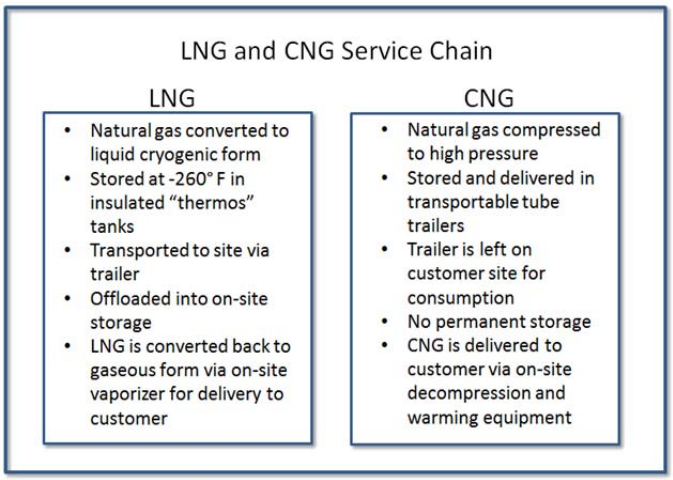
Given the abundant supplies and relatively low cost of natural gas in North America, consumers currently using oil or propane are seeking to convert to natural gas to save money and improve the environment. For commercial, institutional and industrial customers not on or near the natural gas pipeline 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:

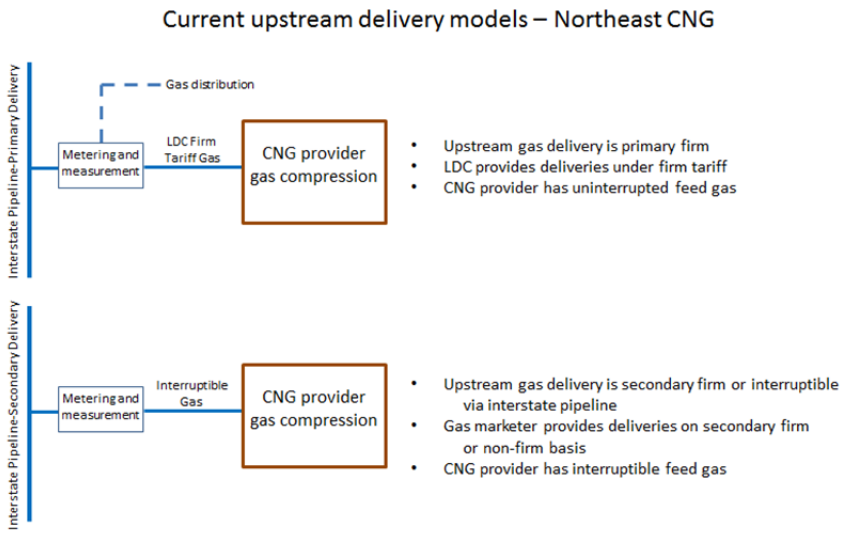
1. Fuel Availability and Production
2. New Customer Facility Permitting, Construction, Site Footprint and Safety
3. Operations and Maintenance
4. Transportation and Properties
5. Customer Requirements, Load Profile and Distance from the LNG or CNG Production Facility
6. Cost
    a. CAPEX depending on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



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

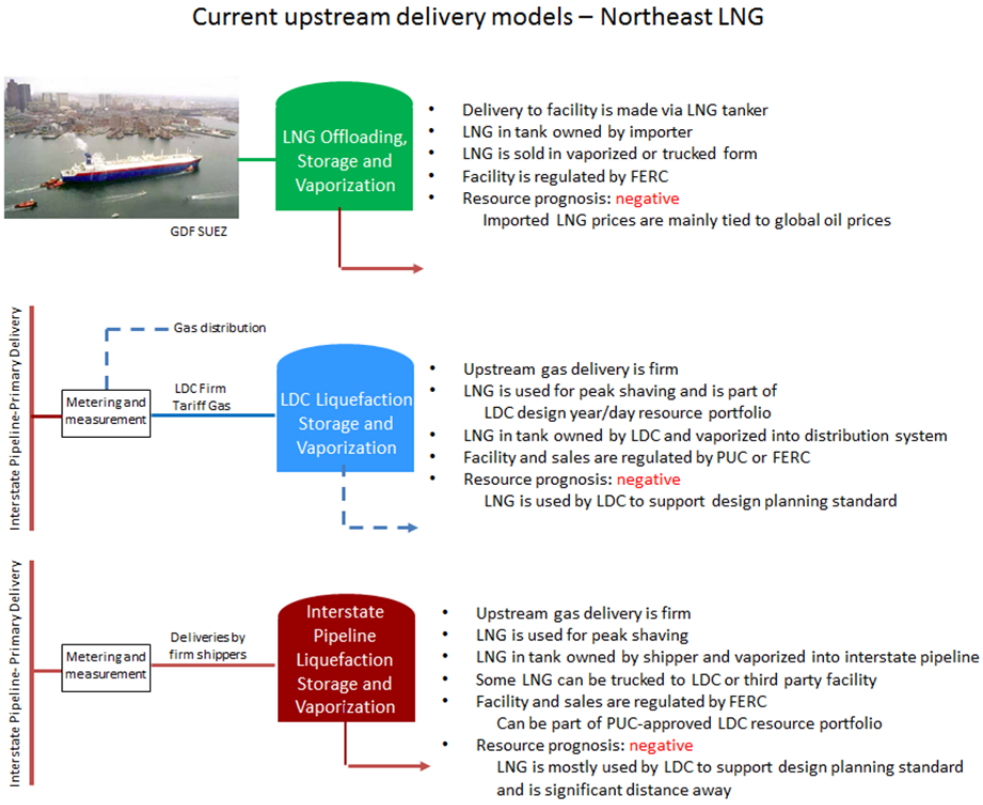
Relative to other areas of North America, the Northeast has significant LNG importation capability as well as a developed network of satellite LNG liquefaction, storage and vaporization facilities. Despite this, it is challenging to find available supply of LNG to serve commercial and industrial customers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

[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.

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.



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

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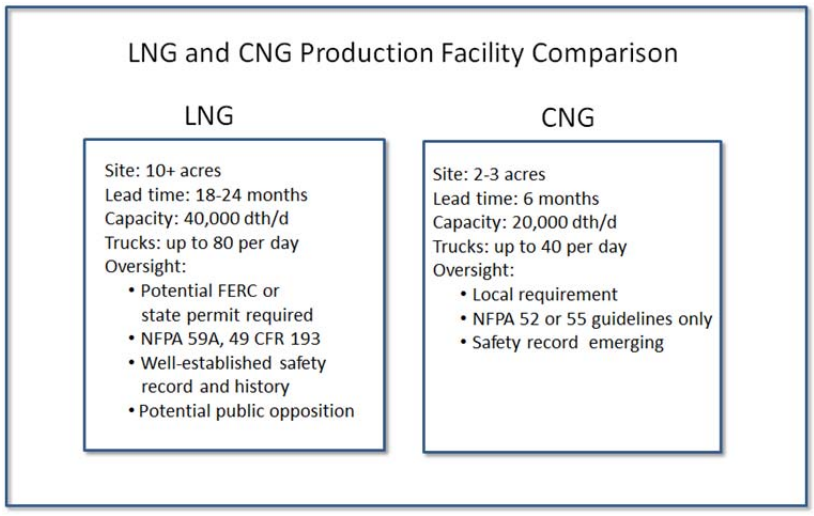
2 Most internationally traded LNG is sold worldwide based on global oil prices. Most customers considering conversion to natural gas are doing so for economic relief from the high cost of fuel associated with these same global oil prices.

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.

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.

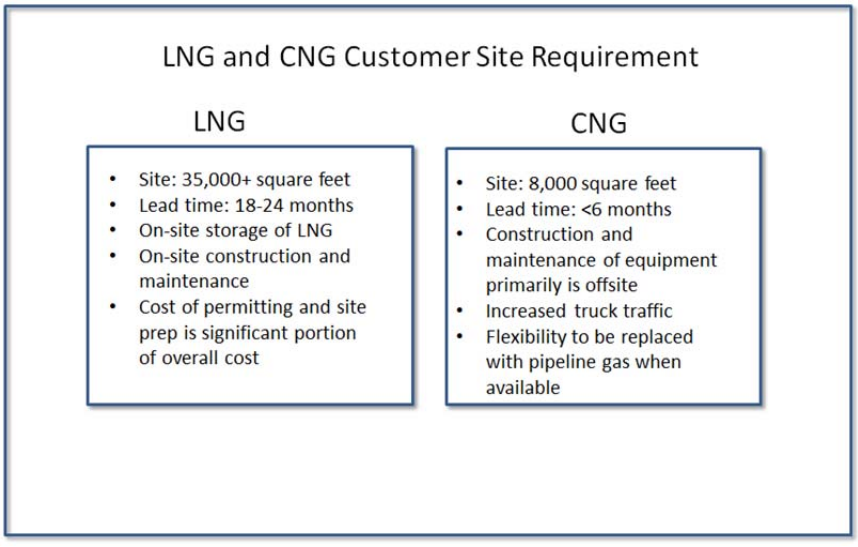
LNG

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 breach. 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.



[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 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.

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

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.

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

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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.

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 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.

[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.