Collaborating for a safe and reliable energy future

Summary overview of the Natural Gas Long-Term Capacity Report provided to the New York State Department of Public Service

March 2020

nationalgrid

Customer Assistance Programs

We know that many of our residential and small business customers were inconvenienced as a result of being denied natural gas service last year. We have Customer Assistance Programs for those who experienced financial hardship as a way to help. If you submitted a completed application for gas service between May 15, 2019 and October 11, 2019, you may be eligible for a bill credit and other financial assistance. Please review our programs by visiting www.nationalgridus.com/gasconnect-assist. And also visit our Consumer Advocates table at the March 2020 public meetings for more information and assistance with these programs.

Introduction

For National Grid, serving our 1.9 million natural gas customers across Brooklyn, Queens, Staten Island, Nassau, and Suffolk is both a privilege and a responsibility. New York has seen dynamic economic growth in the Downstate region, expanding residential and non-residential building space, and thousands of oil-to-gas conversions over the last 10 years. These factors have resulted in a substantial increase in the demand for natural gas, placing stress on our existing gas network and threatening National Grid's ability to meet our customers' needs when demand is at its peak. This leaves little room for error in the face of unplanned supply interruptions or other contingencies.

As part of the settlement agreement with New York State that lifted the moratorium on new gas connections imposed in May 2019, we are taking numerous measures to ensure we have sufficient supply for the winters of 2019/2020 and 2020/2021, including increasing reliance on compressed natural gas ("CNG") trucking when needed to meet peak demand.

Beyond the next two winters, however, continued growth in demand for natural gas creates a challenge that must be addressed. There are multiple potential solutions, each with its own considerations regarding safety, reliability, environmental and community impact, and cost. National Grid has prepared and provided to New York State an extensive Long-Term Capacity Report to facilitate constructive dialog in the quest to answer the challenges presented by increasing demand. The purpose of this Summary Report is to distill the content of that full report for the general public so that all may understand the issues involved and the potential solutions to be considered.

We wish this to be a collaborative process and encourage feedback, either through the public meetings hosted by National Grid in March 2020 or by sharing your thoughts via our online survey at www.ngrid.com/longtermsolutions. This site also provides access to the full report and a link through which you can share feedback directly with the New York State Department of Public Service.

Scan this QR code with your smartphone to go directly to www.ngrid.com/longtermsolutions

Planning to Meet Our Customers' Increasing Needs

The United States produces enough natural gas to satisfy its domestic needs while also exporting it to other parts of the world—supply is not an issue. Peak demand in our Downstate NY region, however, is projected to exceed the capacity available to National Grid to transport gas from where it's produced and to store it for peak periods.

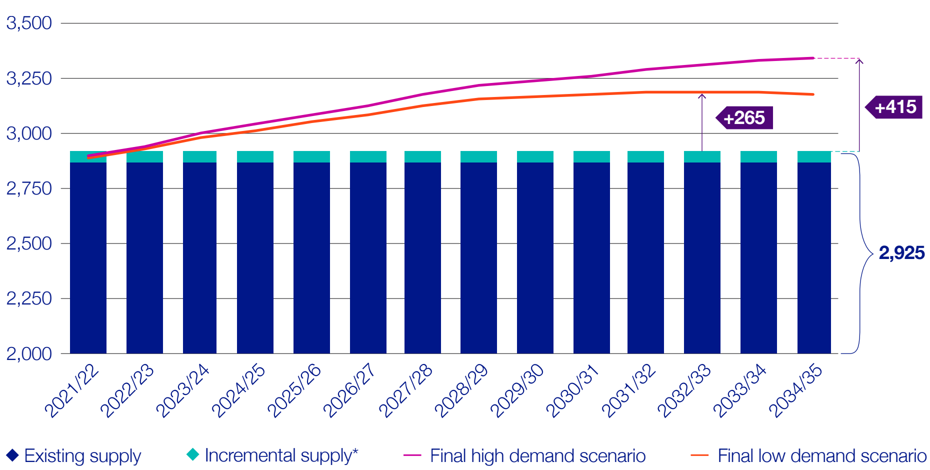
Understanding Design Day Planning

In this report we quantify energy capacity and demand in terms of thousands of dekatherms per day (MDth/day). For reference, on average, 1,000 dekatherms (1 MDth/day) will supply 10 residential gas heating customers in the Downstate NY region for an entire year. "Design Day" is a concept we use to plan for peak demand conditions. It represents the level of gas delivery needed to serve all of our customers during an extreme cold weather event. In the Downstate NY region Design Day is defined as a 24-hour period that averages 0° Fahrenheit in Central Park. Approximately 85% of this Design Day capacity is used to heat homes and businesses—keeping people warm on the coldest of days.

Growth in Demand Through 2035

During the last decade, total Design Day demand increases averaged 2.4% annually. Demand growth has primarily been driven by conversions to gas heating and new construction.

Design Day Gas Demand and Supply (MDth/day)



** Incremental supply includes addition of CNG (53 MDth/day) and RNG (1 MDth/day) capacity.*

Note: Figures above represent the entire National Grid Downstate NY network for a Design Day. Normal usage fluctuations, particularly during morning and evening hours, create Design Hour supply shortages that start in 2021/22, even after factoring in the impact of incremental CNG.

Source: National Grid analysis

We have taken several steps to supplement our capacity in the short term. Even with improved energy efficiency and increased reliance on electric heating (Electrification), however, we project Design Day demand to increase by a compounded annual growth rate of 0.8–1.1% over the next 15 years. The following graph illustrates how these increases contrast with our existing capacity and planned incremental supply additions. By 2035, we project a gap between Design Day demand and our supply of approximately 265–415 MDth.

Projected Demand vs. Supply Capacity

The two lines indicating high and low-demand scenarios reflect implementation of large building efficiency laws and the degree of success in lowering natural gas demand through Energy Efficiency (EE), Customer Demand Response, and electrification programs.

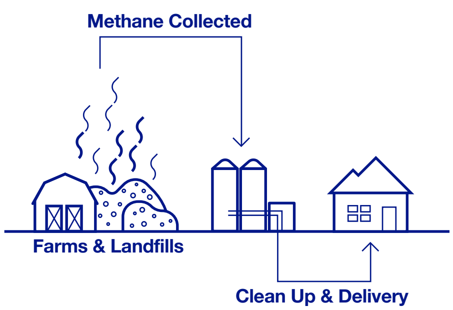
In the high demand scenario, we are assuming 80% of New York State's latest EE targets are achieved. In the low demand scenario, we are assuming 100% of targets are achieved.

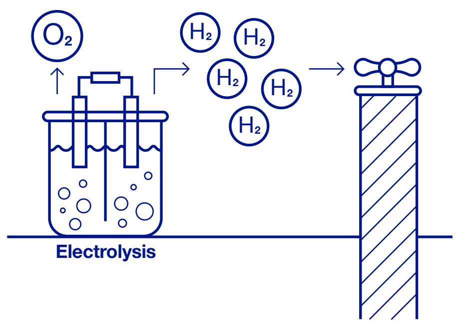
Based on these projections, and after factoring in the estimated impact of low-carbon solutions, **we will need to close a gap of up to 400 MDth/day between customer demand and available natural gas supply** to ensure customer needs are met even in high demand scenarios.

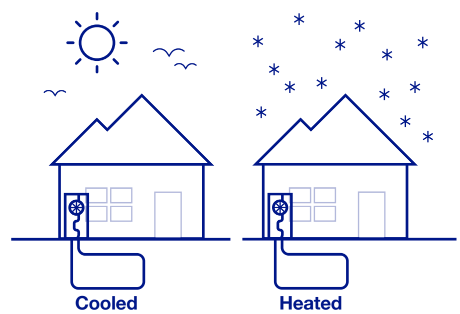
Narrowing the Gap **with Low-Carbon Solutions**

Effectively closing the projected supply gap will require the combined contribution of multiple solutions. Though they represent only a small step in closing the gap, low-carbon solutions will be an important part of reaching longer-term clean energy goals.

With proper funding and support, we anticipate that Renewable Natural Gas (RNG), Hydrogen, and incremental Geothermal Heat Pump programs can cover 15–35 MDth of the Downstate NY gas supply gap. Their contributions will need to be supplemented by other solutions to fully address projected needs. National Grid supports New York State's ambitious goal of reaching net zero carbon emissions by 2050, and we are actively engaged in developing the following low-carbon gas alternatives:







Renewable Natural Gas (RNG)

RNG facilities use biomass—such as landfills, wastewater treatment, food waste, and livestock manure—as feedstock for producing gas. National Grid currently has two RNG sites in our Downstate NY region: one on Staten Island and another at Newtown Creek expected to come online in the winter of 2020. We believe there is even more opportunity to expand RNG in our Downstate NY region.

Hydrogen Blending and Power-to-Gas

Natural gas supplies can be augmented by blending in hydrogen gas produced by splitting water into hydrogen gas and oxygen gas through the process of electrolysis. Hydrogen blends, in the form of town gas, were used in heating for decades, both in the US and other countries. National Grid has proposed a two-year study to assess optimal parameters for incorporating hydrogen in the Downstate NY region.

Geothermal Heat Pumps

By transferring heat to and from the ground, geothermal heat pumps offer an attractive, low-carbon alternative for providing central heating and cooling. Based on the success of a demonstration project that connected 10 homes with shared-loop ground-source heat pump (GSHP) systems, National Grid is seeking to expand this program to 900 homes over the coming four years.

Options for **Closing the Remaining Supply Gap**

In this report we present ten distinct options for closing the gap of up to 400 MDth/day between natural gas demand and supply over the next 15 years.

None are offered here as a "best" or "most desirable" solution. Indeed, the approach ultimately to be taken will need to comprise a portfolio including two or more of these options. Our hope is that by helping our customers understand the possible approaches for addressing these concerns, they will provide feedback to help guide future decision making.

Creating a comprehensive solution requires looking at how different options can work together to solve the gap between demand and supply. While there are numerous ways to combine solutions, for ease of comparison, we've grouped them into three possible approaches:

Build out **Large-Scale Infrastructure**, capable of almost fully meeting projected needs. To the extent that construction is not completed before 2021/22, incremental Energy Efficiency (EE), Demand Response (DR) and Electrification would be required to reduce demand and meet customer needs. CNG trucking would be discontinued once the infrastructure is completed. Any shortfall in meeting demand reduction targets would lead to restrictions on new customer connections until the infrastructure is completed.

Combine **Distributed Infrastructure solutions with incremental No-Infrastructure solutions**. Because each of these infrastructure options can only individually close 63–100 MDth/day of the projected 400 MDth/day gap, it will be necessary to combine one or two of these options with additional demand reductions achieved through EE, DR, and Electrification to fully meet needs. CNG trucking would remain in place unless demand reduction targets are exceeded, and any shortfall in meeting those targets would lead to restrictions on new customer connections.

Fully rely on a portfolio of **incremental No-Infrastructure solutions**, where demand is reduced through more aggressive incremental EE, DR and Electrification to the point where the existing National Grid gas supply will meet customer needs. Unless demand reduction targets are exceeded, CNG trucking would remain in place, and any shortfall in meeting such demand reduction targets would lead to restrictions on new customer connections.

Option Overview Legend

The following pages will review ten different options that can potentially play a role in closing the projected supply gap. The following definitions will help you assess each option for yourself.

DESCRIPTION: a high level explanation of how the solution will work

CONTRIBUTION SIZE: the estimated contribution, in 1,000s of dekatherms (MDths), the solution can make to closing the gap between supply and demand

RELIABILITY: the degree to which the solution can be implemented to full potential and/or the degree to which it can be counted on to deliver the anticipated contribution size on an ongoing basis once implemented

SOLUTION PORTFOLIO COST: the total estimated cost required to meet demand using this option, factoring in the incremental cost of supplementary demand-side solutions required to fully close the projected supply gap as part of a portfolio. Costs are presented as a range, demonstrating estimates for low demand to high demand scenarios.

ENVIRONMENTAL IMPACT: potential impact of implementation on ecology, community and climate

REQUIREMENTS FOR IMPLEMENTATION: changes to/waivers of existing laws, permitting requirements, and estimated time for the solution to be fully up and running

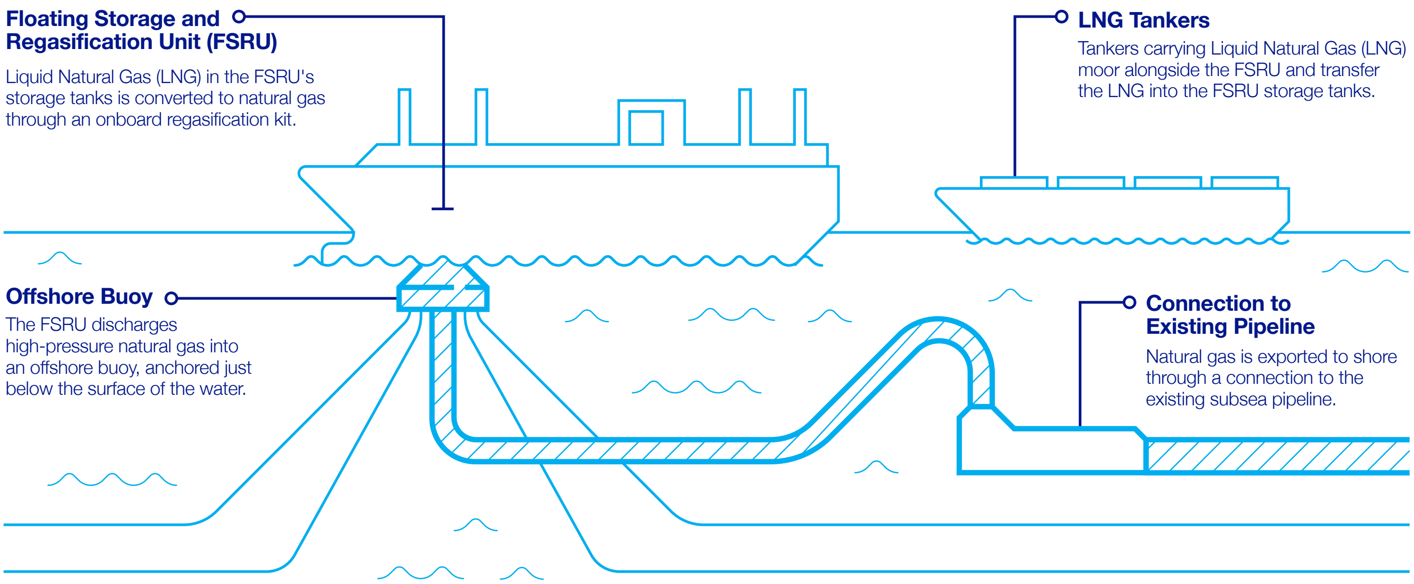
More detailed information on these solutions can be found in our full report available at www.ngrid.com/longtermsolutions

INFRASTRUCTURE KEY

- ◆ Large-Scale Infrastructure
- ◆ Distributed Infrastructure solutions
- ◆ Incremental No-Infrastructure solutions

LARGE-SCALE INFRASTRUCTURE PROJECTS

Option 1: Offshore LNG Deepwater Port



DESCRIPTION This option involves the installation of an offshore buoy connected to one of the existing undersea pipelines that currently supply the Downstate NY region. Connected to this buoy would be a floating Storage and Regasification Unit (FSRU)—a Liquid Natural Gas (LNG) bulk delivery ship typically capable of storing more than 3,000 MDth of LNG and vaporizing it for injection into the pipeline to accommodate peak demand and potentially meet daily demand during the year.

CONTRIBUTION SIZE There are two potential locations where this could be installed. Each location would be capable of delivering 400 MDth/day capacity.

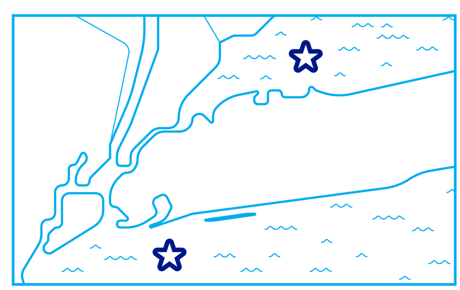
RELIABILITY Highly reliable

SOLUTION PORTFOLIO COST
$1.90 Billion–$2.22 Billion

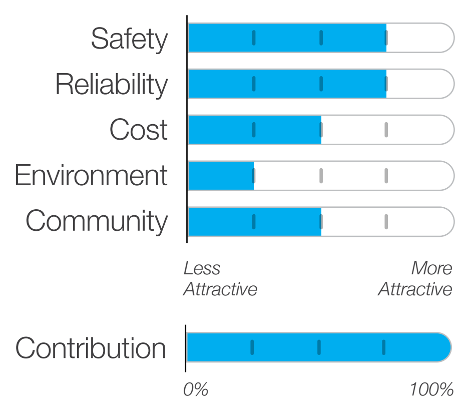
ENVIRONMENTAL IMPACT
During construction, impact includes disturbance of the seafloor, decreased water and air quality, increased sedimentation, noise, and waste generation. Once operational, the FSRU and refueling tankers can be expected to generate stack and cooling water emissions. Greenhouse gas (GHG) emissions from the vaporization process present a climate impact 10–15% greater than a standard natural gas solution. Given its offshore location, the community impacts of this option should be minimal.

REQUIREMENTS FOR IMPLEMENTATION Full implementation is estimated to require 6–8 years.

POSSIBLE LOCATIONS

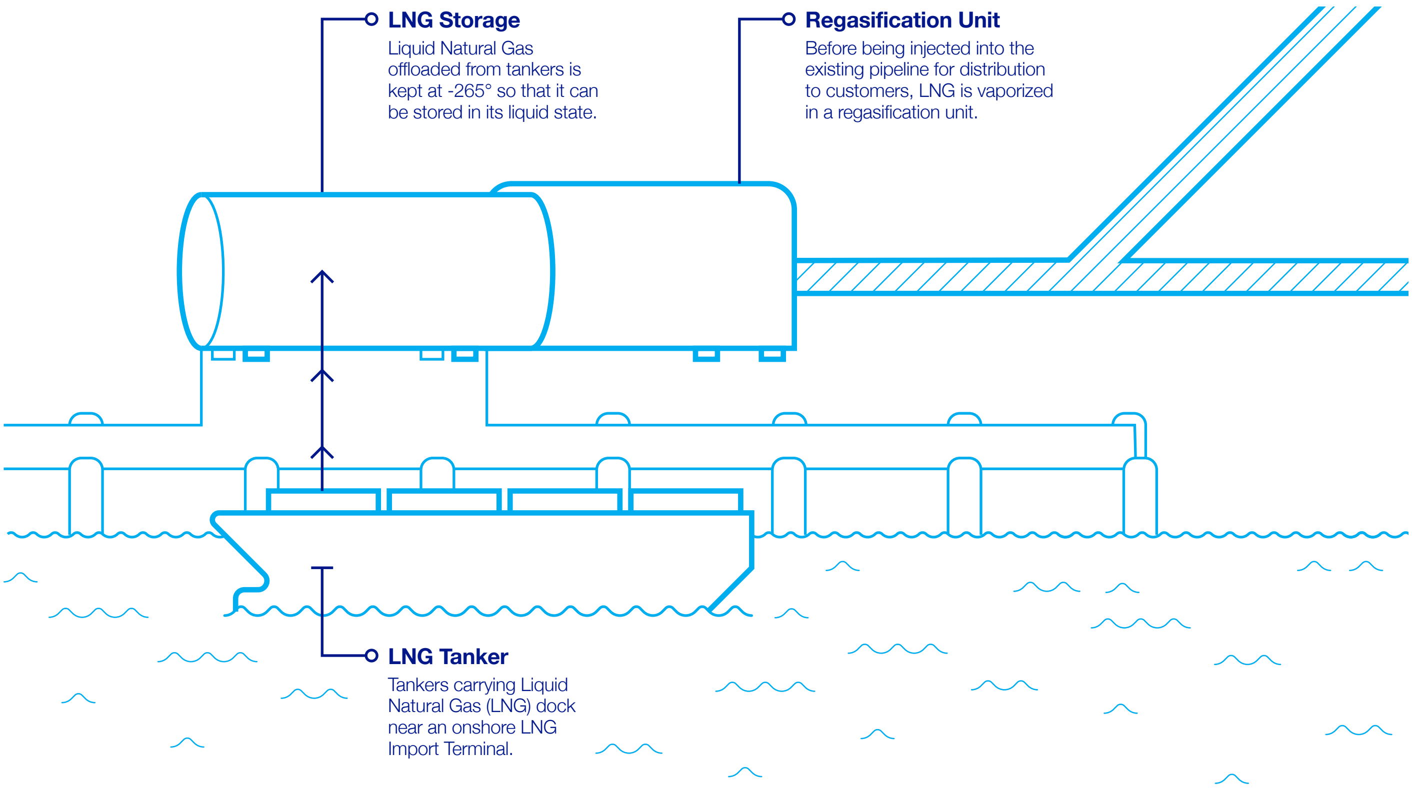


RELATIVE ATTRACTIVENESS



LARGE-SCALE INFRASTRUCTURE PROJECTS

Option 2: LNG Import Terminal



DESCRIPTION This option involves building the infrastructure necessary to accommodate LNG carrier ships, including an LNG receiving facility, onshore storage, regasification and transportation components. Such a facility would be able to accommodate peak demand and be managed to help meet daily demand during the year. It will, however, require changes to or a waiver of existing New York State law that limits land storage of natural gas.

CONTRIBUTION SIZE 400 MDth/day capacity

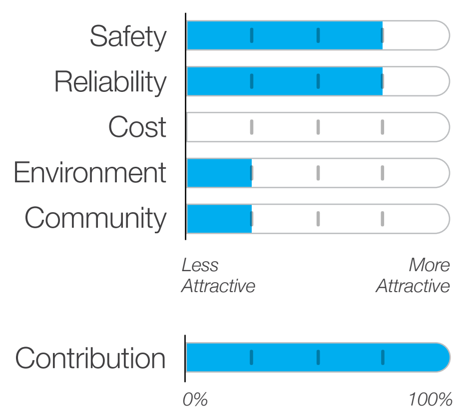
RELIABILITY Highly reliable, however, more vulnerable to weather/severe weather events than the LNG Deepwater Port or LNG Barge options.

SOLUTION PORTFOLIO COST
$2.46 Billion–$2.78 Billion

ENVIRONMENTAL IMPACT
Equivalent or slightly higher than those associated with the Offshore LNG Deepwater Port, and higher than pipeline development. GHG emissions present a climate impact 10–15% greater than a standard natural gas solution. Significant impact to the community resulting from construction and operation.

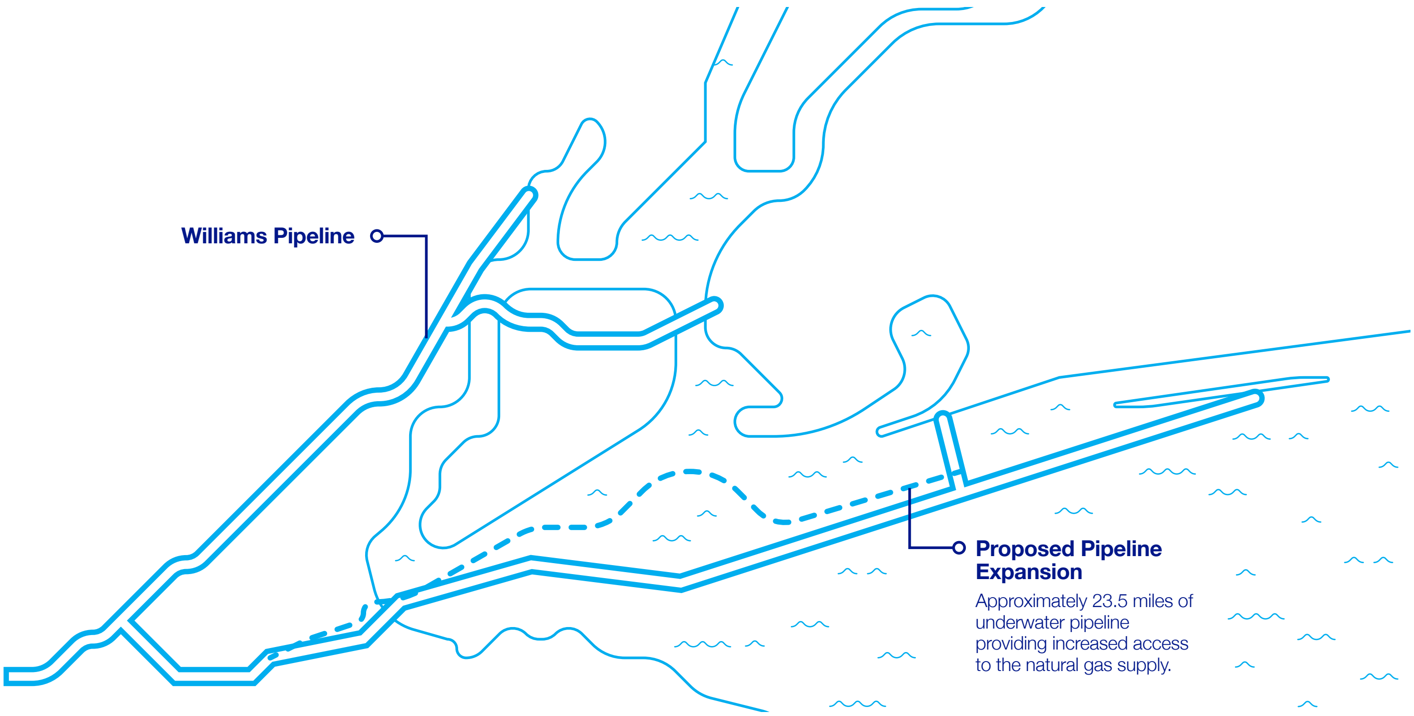
REQUIREMENTS FOR IMPLEMENTATION
Pending necessary change of NYS law, estimated timeline to completion is 5–6 years.

RELATIVE ATTRACTIVENESS



LARGE-SCALE INFRASTRUCTURE PROJECTS

Option 3: Northeast Supply Enhancement (NESE) Project



DESCRIPTION The NESE Project option involves the construction of interstate pipeline infrastructure to transport natural gas from Pennsylvania to New York through New Jersey via the Raritan Bay and Lower New York Bay. The pipeline would include approximately 23.5 miles (approximately 17 in New York) of underwater pipeline to the Rockaway Peninsula of Queens.

CONTRIBUTION SIZE 400 MDth/day capacity

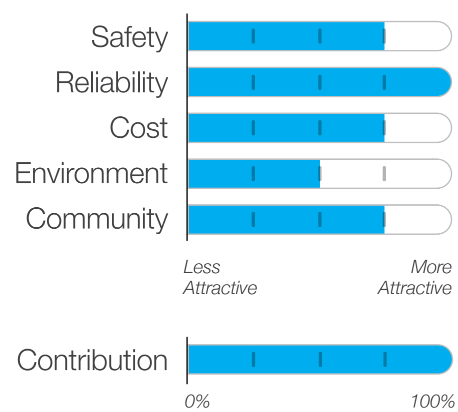
RELIABILITY Extremely reliable, and inherently resistant to above ground weather events.

SOLUTION PORTFOLIO COST
$1.82 Billion–$1.83 Billion

ENVIRONMENTAL IMPACT
Ecological impact of construction would be similar to Offshore LNG Deepwater Port, albeit over a larger geographic area. Ongoing operations will have a much lower effect on the environment, and GHG emissions are expected to be 10–15% lower than any of the LNG solutions. Community impacts would be minimal with majority of construction happening offshore.

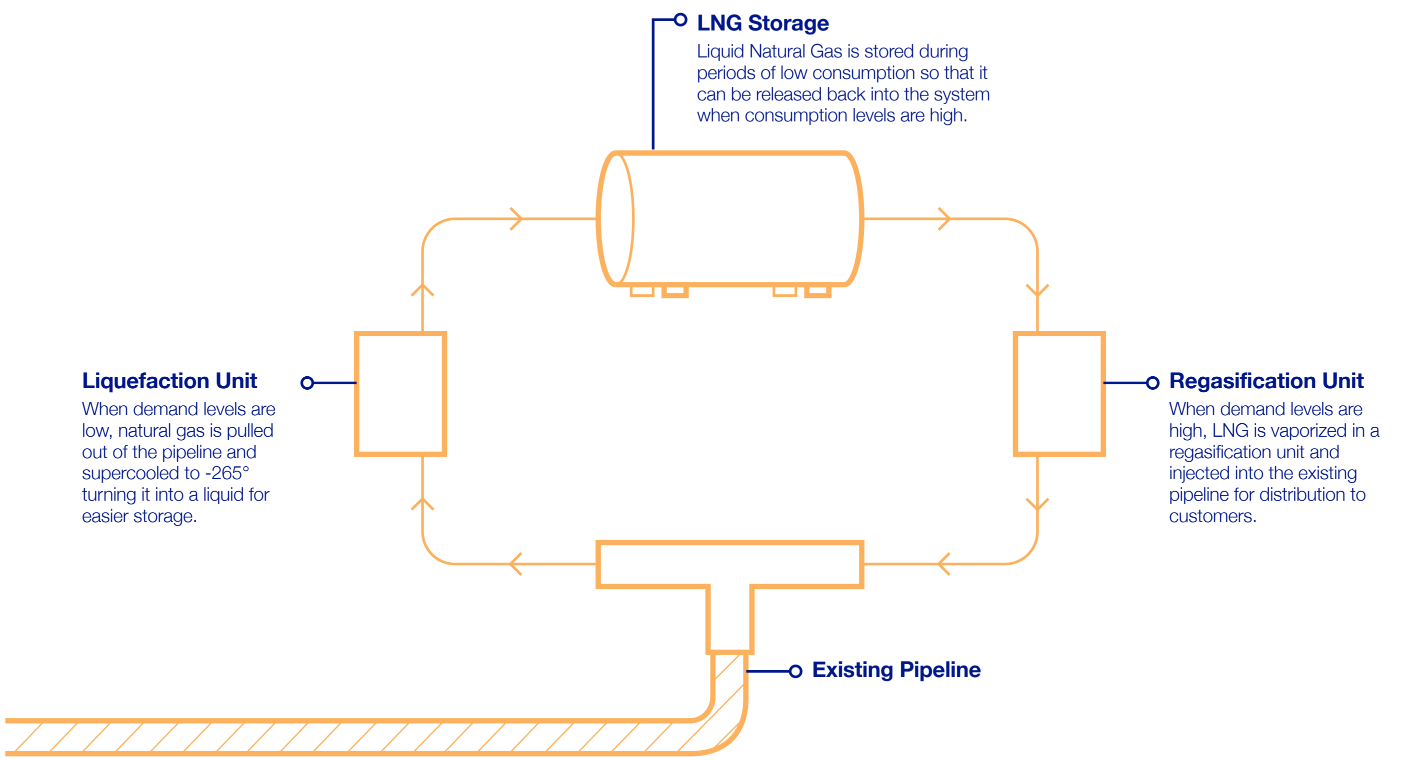
REQUIREMENTS FOR IMPLEMENTATION Assuming permit approval by June 2020, estimated completion by December of 2021.

RELATIVE ATTRACTIVENESS



DISTRIBUTED INFRASTRUCTURE OPTIONS

Option 4: Peak LNG Facility



DESCRIPTION This option involves construction of a new LNG peak shaving plant similar to the facilities operated by National Grid in Greenpoint and Holtsville. It would support the liquefying and storage of excess natural gas during warmer periods for future vaporization and injection into the distribution system to meet Design Day demand when temperatures drop. As with the LNG Import Terminal option, construction of a Peak LNG facility will require a change to, or waiver of, existing New York State law that limits land storage of natural gas.

CONTRIBUTION SIZE 100 MDth/day capacity

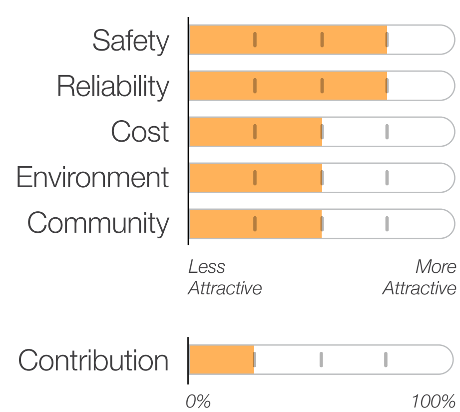
RELIABILITY Highly reliable

SOLUTION PORTFOLIO COST
$1.49 Billion–$2.54 Billion

ENVIRONMENTAL IMPACT
Moderate ecological impacts typically associated with large construction projects. GHG emissions would also be limited to peak times but about 10–15% higher than standard natural gas supply. Since this permanent facility would be sited in a community, community impact has the potential to be high.

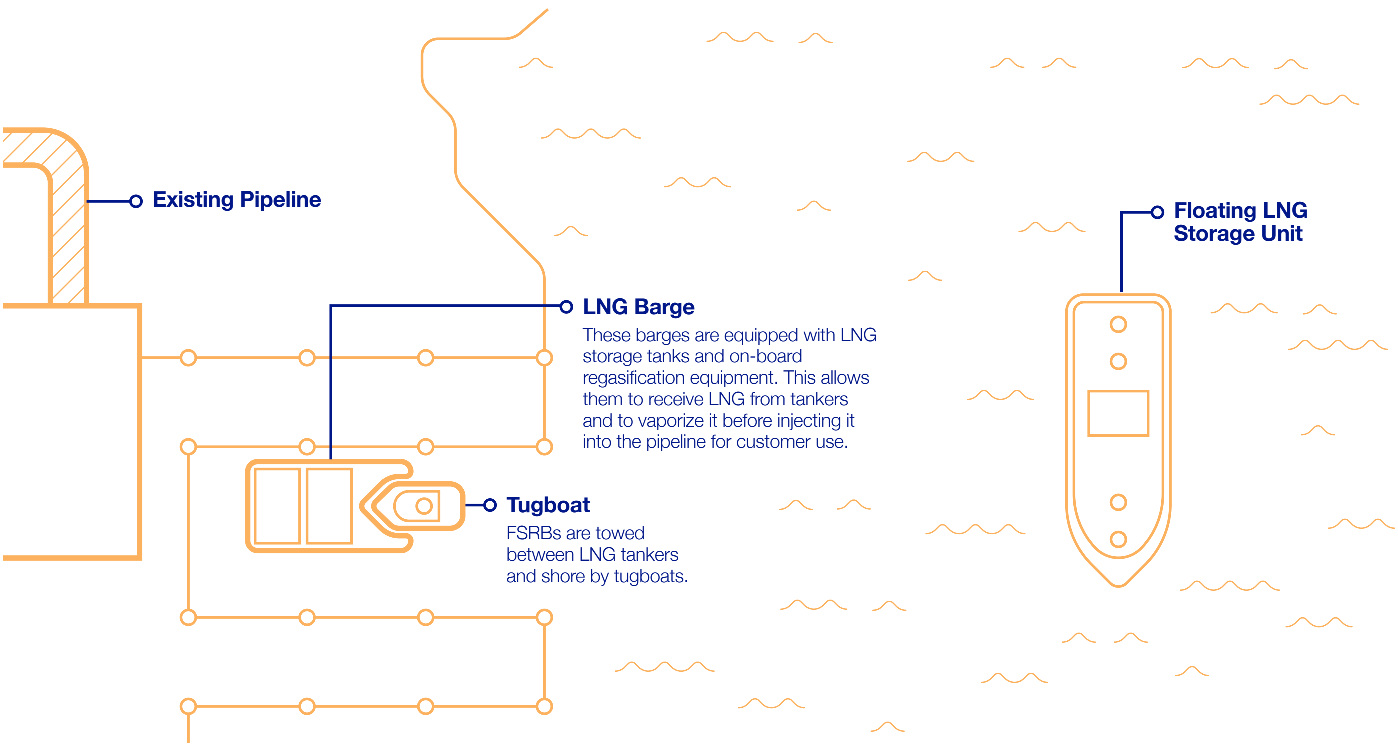
REQUIREMENTS FOR IMPLEMENTATION Pending necessary change of NYS law, estimated timeline to completion is 5–6 years.

RELATIVE ATTRACTIVENESS



DISTRIBUTED INFRASTRUCTURE OPTIONS

Option 5: LNG Barges



DESCRIPTION Under this option, one or more specialty LNG Barges would be constructed with onboard vaporization equipment. Called Floating Storage and Regasification Barges (FSRBs), these vessels would be towed to locations where water access, pier capacity, and gas system takeaway allow them to transfer LNG from a variety of land- and sea-based sources and inject vaporized natural gas into the existing onshore pipeline.

CONTRIBUTION SIZE 100 MDth/day (two barges at 50 MDth/day per barge)

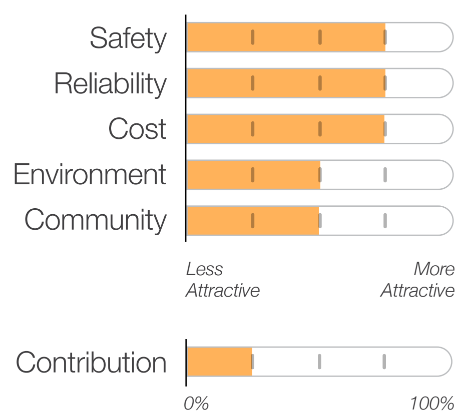
RELIABILITY Highly reliable; mobility makes them less vulnerable to the effects of severe weather.

SOLUTION PORTFOLIO COST $1.36 Billion–$2.42 Billion

ENVIRONMENTAL IMPACT Ecological impacts would be similar to an offshore LNG port solution, but at a smaller scale. GHG emissions are projected to be 10–15% higher than a pipeline solution. Only minor community impacts to water views in winter and waterside recreation.

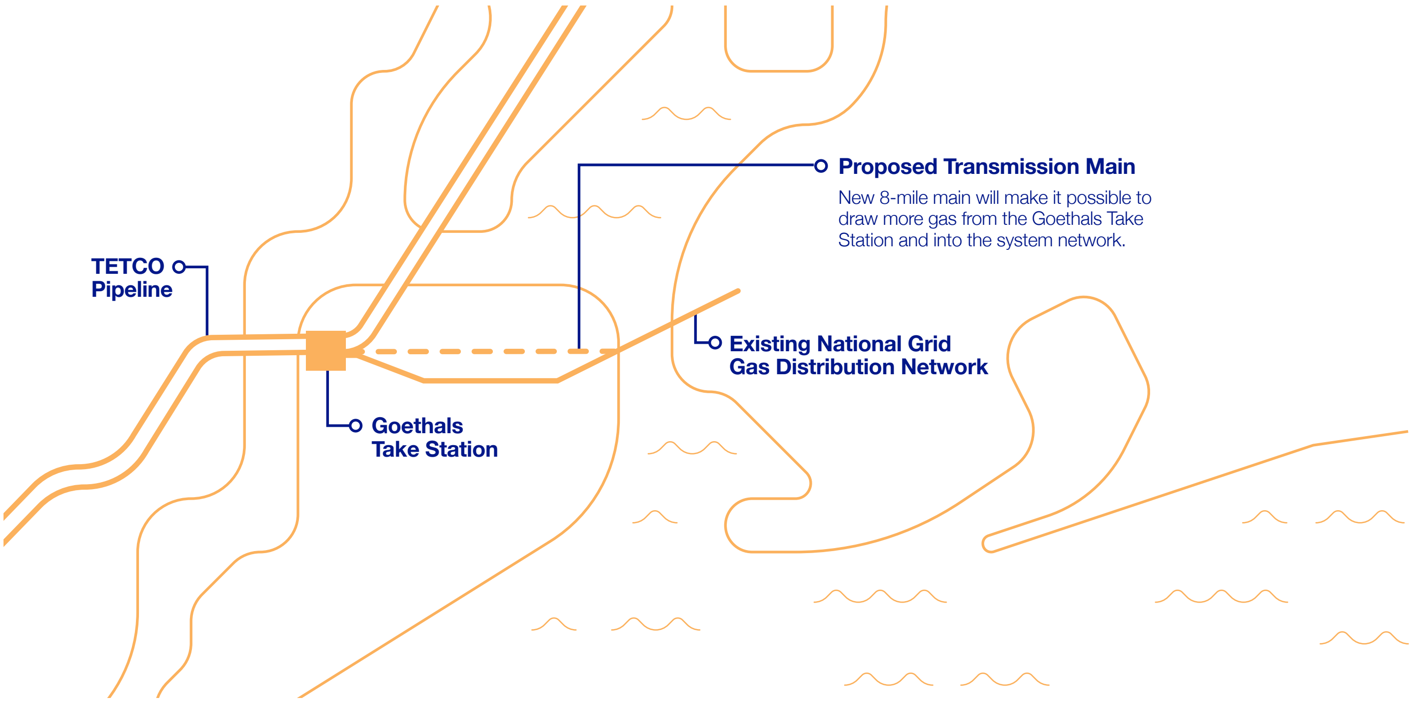
REQUIREMENTS FOR IMPLEMENTATION Total estimated implementation timeline is 5–6 years.

RELATIVE ATTRACTIVENESS



DISTRIBUTED INFRASTRUCTURE OPTIONS

Option 6: Clove Lakes Transmission Loop Project



DESCRIPTION This option would expand our natural gas capacity with the construction of approximately 8 miles of a new, 30-inch steel transmission main across Staten Island, enabling National Grid to remove a "bottleneck" and draw more gas through the existing TETCO Goethals Take Station. The project can be compared to adding an additional lane to a roadway—it adds additional capacity to move gas.

CONTRIBUTION SIZE 70–100 MDth/day

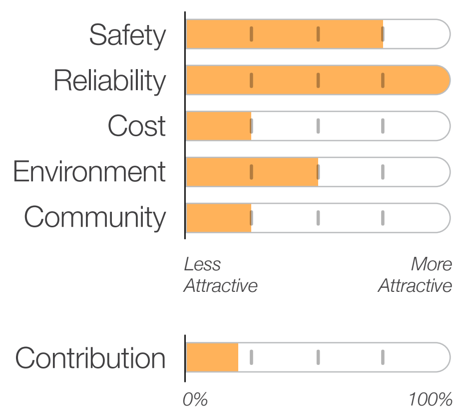
RELIABILITY Extremely reliable, and inherently resistant to above ground weather events.

SOLUTION PORTFOLIO COST
$1.57 Billion–$2.63 Billion

ENVIRONMENTAL IMPACT
Ecological impacts would be relatively small as it crosses already developed areas. Ongoing impacts will be minimal, since little maintenance will be necessary. Outside of construction activities, GHG emissions will be minor, and significantly lower than those associated with LNG options. Construction would take place in heavily populated areas—potentially impacting highways, water crossings, etc.

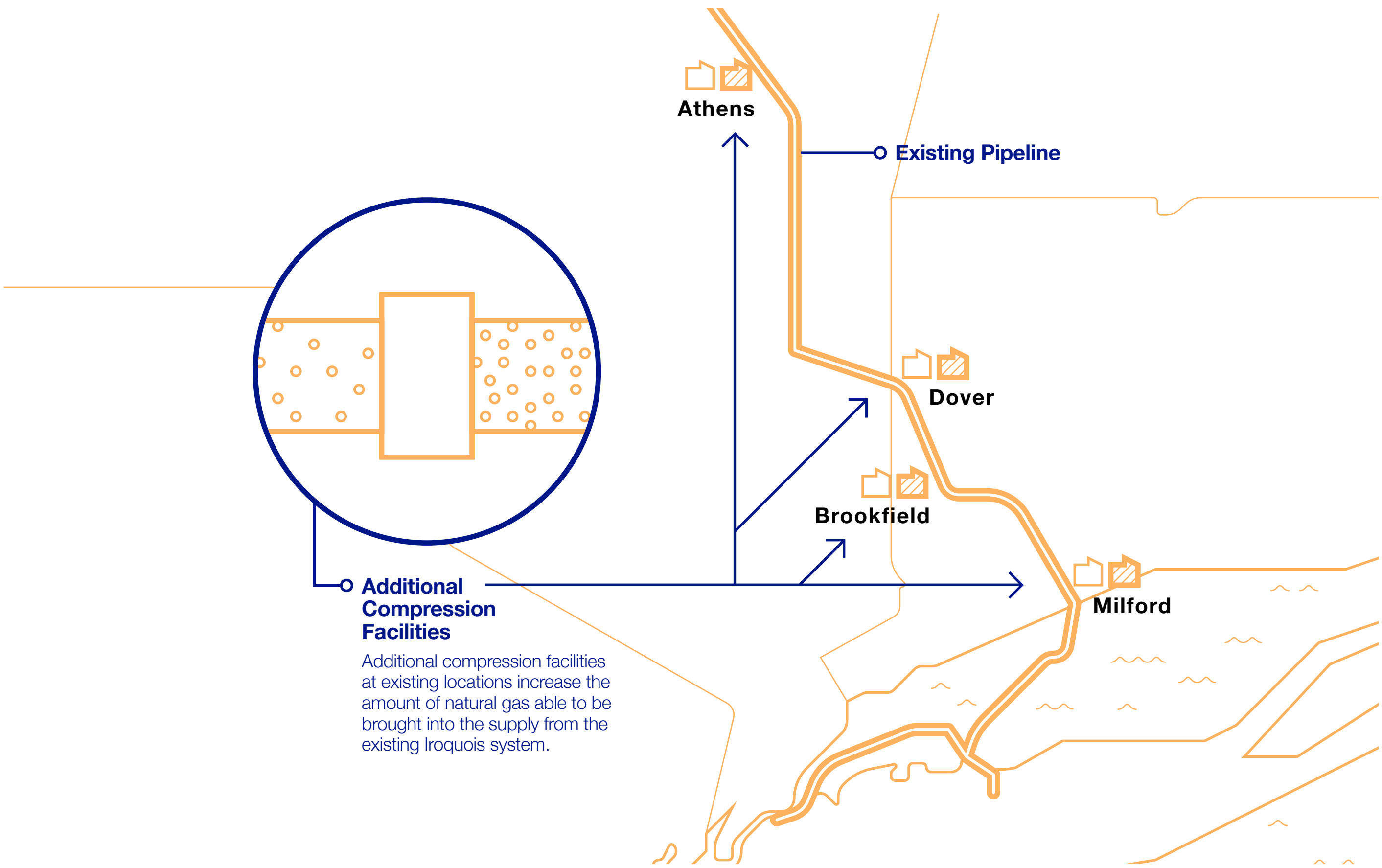
REQUIREMENTS FOR IMPLEMENTATION Initial estimates indicate that the transmission main could be in service by November 2025, at the earliest.

RELATIVE ATTRACTIVENESS



DISTRIBUTED INFRASTRUCTURE OPTIONS

Option 7: Iroquois Enhancement by Compression (ExC) Project



DESCRIPTION This project option includes construction of additional compression facilities intended to increase the capacity available through the existing Iroquois pipeline system, and is expected to involve the addition of incremental compression and/or gas cooling at, or adjacent to, Iroquois' existing Athens, Dover, Brookfield and Milford Compressor Stations.

CONTRIBUTION SIZE Additional 125 MDth/day of supply to be evenly split between National Grid and Con Edison.

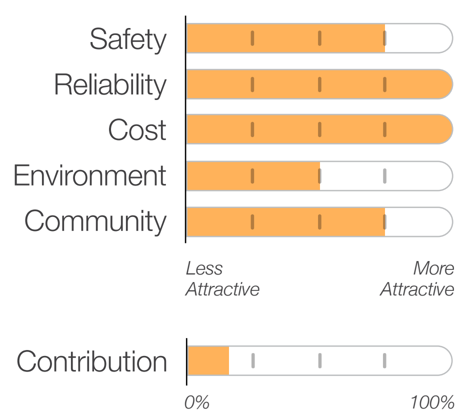
RELIABILITY Extremely reliable, and inherently resistant to above ground weather events.

SOLUTION PORTFOLIO COST
$1.11 Billion–$2.22 Billion

ENVIRONMENTAL IMPACT
Since any new compressor station will be constructed at existing facilities, the ecological impact will be moderate. Iroquois is proposing to install methane recovery systems to capture released natural gas and reduce methane emissions. Minimal community impacts are anticipated.

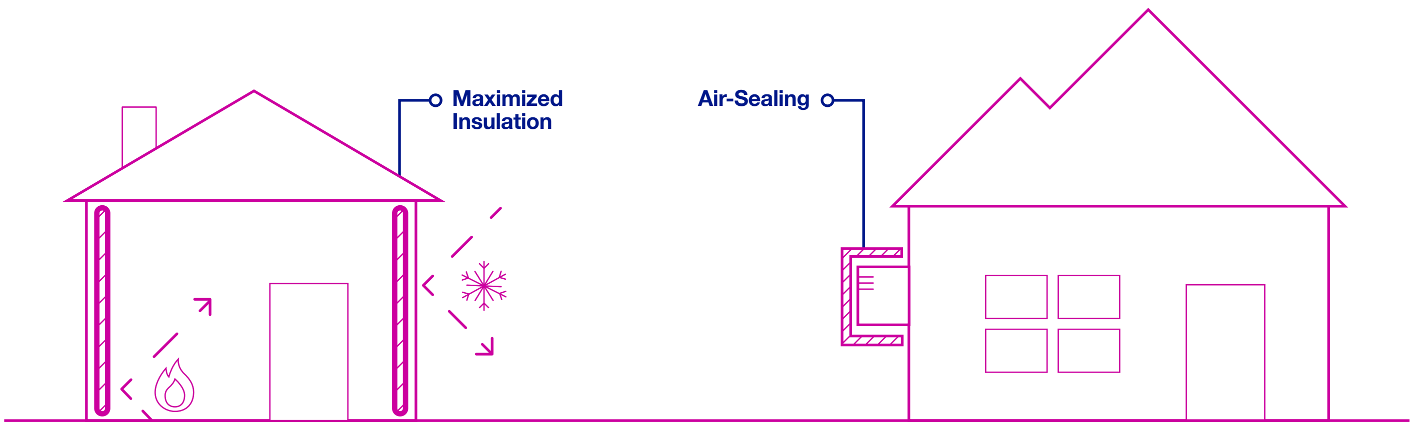
REQUIREMENTS FOR IMPLEMENTATION Assuming necessary authorizations, project is expected to be in-service by November 2023.

RELATIVE ATTRACTIVENESS



NO-INFRASTRUCTURE OPTIONS

Option 8: Incremental Energy Efficiency (EE)



DESCRIPTION This option focuses on reducing Design Day demand through intensive weatherization measures, such as air-sealing and maximized insulation, that will reduce the heating needs in our Downstate NY region.

CONTRIBUTION SIZE 111–216 MDth/day, assuming 30% of customers engage in intensive weatherization by 2035.

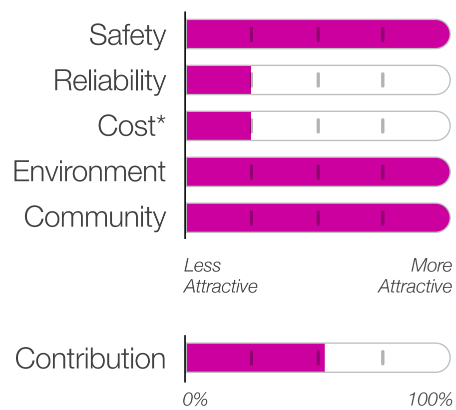
RELIABILITY Key challenge will be in ability to aggressively scale programs to the level and size required. Reliability could improve over time as programs mature.

SOLUTION PORTFOLIO COST $1.51 Billion–$2.62 Billion (total cost for no-infrastructure portfolio of energy efficiency, demand response, and electrification)*

ENVIRONMENTAL IMPACT Ecological impacts will be minimal; significant reduction in GHG emissions. Community impacts are expected to be positive, anticipating nearly $2 billion investment through 2035, stimulating local economies.

REQUIREMENTS FOR IMPLEMENTATION To support the deployment of these programs, the ecosystem of licensed contractors and vendors would need to significantly increase. Implementation will also require state approval to set up and fund incentive programs.

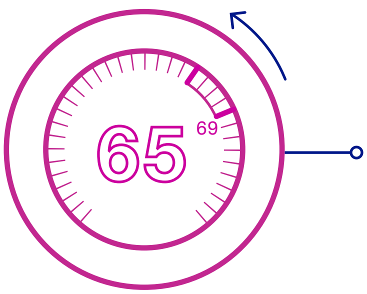
RELATIVE ATTRACTIVENESS



The same cost numbers are presented for each of the no-infrastructure options since each is part of a no-infrastructure portfolio to address the entire supply-demand gap. Nonetheless, we rated them on cost separately, as each option has a different degree of cost-effectiveness, despite each option being needed as part of a no-infrastructure portfolio.

NO-INFRASTRUCTURE OPTIONS

Option 9: Demand Response (DR)

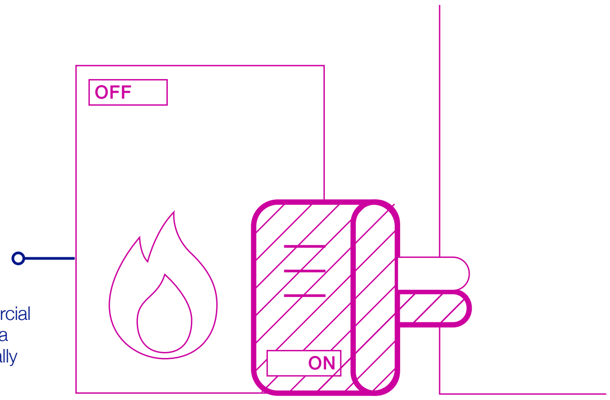


Connected Thermostat

Thermostat setback programs can help reduce consumption by residential heating customers on peak demand days.

Alternate Fuel Source Heating Systems

On the coldest days, commercial customers switching over to a backup heating system (usually fuel oil) can go a long way to reducing demand.



DESCRIPTION For residential customers, this would involve incentivizing the installation of connected thermostats used to reduce consumption on peak demand days. We'll also incentivize our larger customers to use backup oil heating on the coldest days.

CONTRIBUTION SIZE 81–108 MDth/day. This assumes the percentage of customers using smart thermostats increases from 10% to 50%, and all large customers currently using backup heating oil on the coldest days continue to do so.

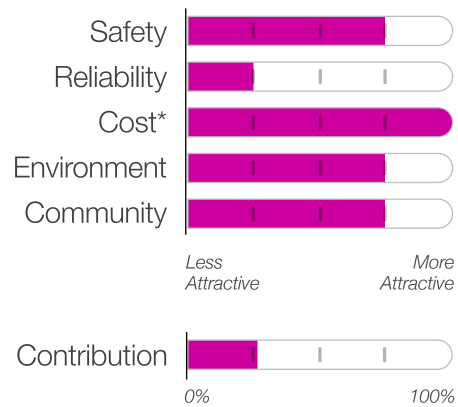
RELIABILITY If the targeted number of customers do not enroll in the program, there is risk to falling short of projected impact. Reliability could improve over time as programs mature.

SOLUTION PORTFOLIO COST $1.51 Billion–$2.62 Billion (total cost for no-infrastructure portfolio of energy efficiency, demand response, and electrification)*

ENVIRONMENTAL IMPACT These programs offer little or no ecological, climate or community impacts.

REQUIREMENTS FOR IMPLEMENTATION New rate programs will need to be established, and thermostat setback programs of the size contemplated will require aggressive promotion and continued adoption of smart thermostats by residential customers.

RELATIVE ATTRACTIVENESS



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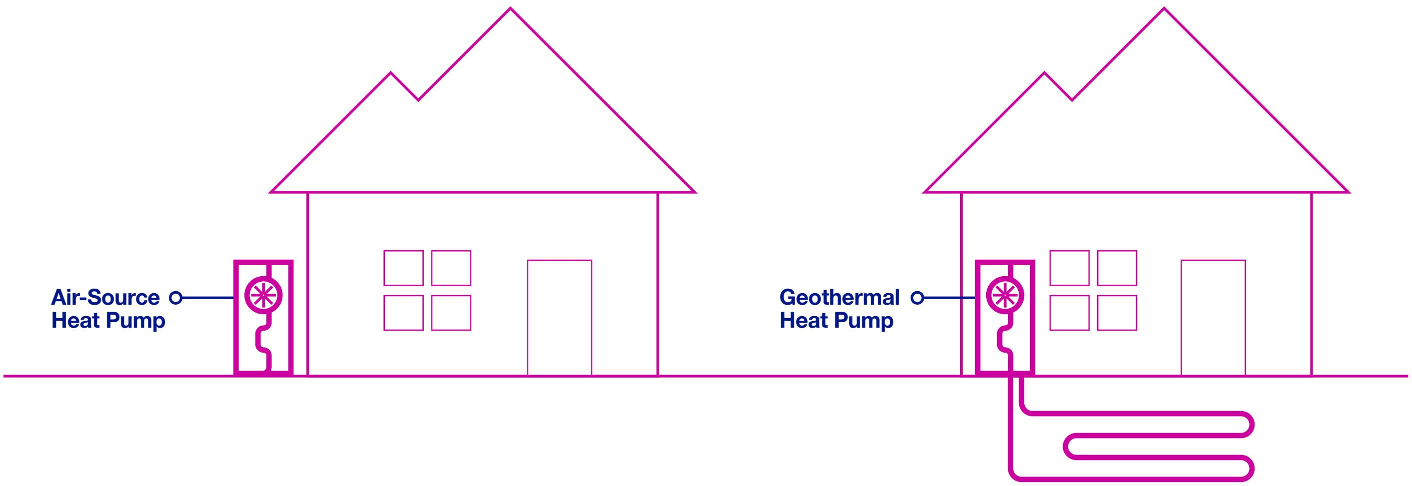
NO-INFRASTRUCTURE OPTIONS

Option 10: Electrification



DESCRIPTION Another opportunity for reducing natural gas consumption is by converting customers' space heating energy source from natural gas to electricity. This could be achieved using cold-climate, electric heat pumps that may be installed and operated in residential, commercial, and multi-family properties.

CONTRIBUTION SIZE 52–86 MDth/day

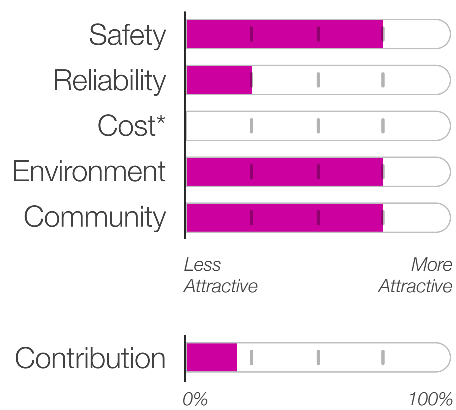
RELIABILITY Design Day savings will be significant and certain once implemented. Unless customer adoption reaches the necessary scale, however, there is risk of falling short of projected impact. Reliability could improve over time as programs mature.

SOLUTION PORTFOLIO COST $1.51 Billion–$2.62 Billion (total cost for no-infrastructure portfolio of energy efficiency, demand response, and electrification)*

ENVIRONMENTAL IMPACT The ecological impact will be minimal and overall GHG emissions will ultimately be reduced. Community impacts are expected to be positive, anticipating roughly $1 billion investment through 2035, stimulating local economies.

REQUIREMENTS FOR IMPLEMENTATION There will be an immediate need to grow the ecosystem of licensed contractors and vendors to meet the program requirements. Implementation will also require state approval to set up and fund incentive programs.

RELATIVE ATTRACTIVENESS



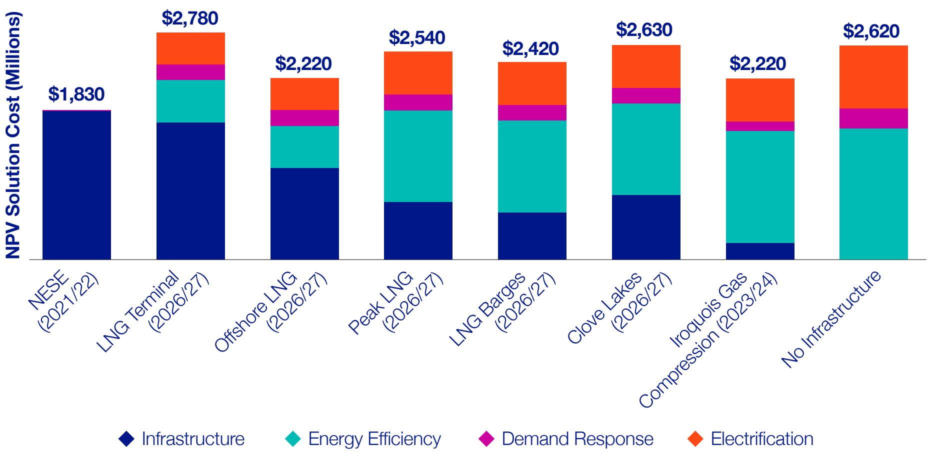
* *The same cost numbers are presented for each of the no-infrastructure options since each is part of a no-infrastructure portfolio to address the entire supply-demand gap. Nonetheless, we rated them on cost separately, as each option has a different degree of cost-effectiveness, despite each option being needed as part of a no-infrastructure portfolio.*

Assessing Costs

The charts below are designed to provide an apples-to-apples comparison by combining the cost of individual solutions with the incremental costs of supplementary non-infrastructure efforts required to fully close the projected supply gap. They are based on detailed assumptions of the various one-time and ongoing costs necessary to support these solutions. They also factor in the time it will take to have a solution up and running, and the cost implications of the other solutions necessary to cover demand in the interim. The two charts that follow provide a look at total cost implications for each option from 2020–2035 in both high and low demand scenarios.

Net Costs by Option—High Demand Scenario

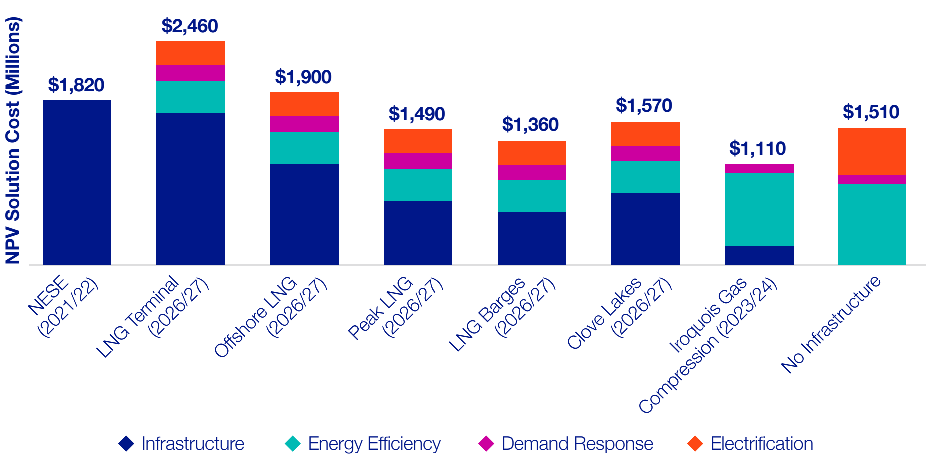
High demand scenarios project the need for a total net impact of 400 MDth/day.



Notes: Net present value of costs over contracted lifetime of resources, using a 6.3% discount rate (average after-tax Weighted Average Cost of Capital between KEDNY and KEDLI established in the last rate case under Case 16-G-0059). Infrastructure costs include fixed and commodity costs, which are assumed to have a 15 year life that starts in the listed operational year, net of commodity savings from avoided CNG trucking and short term contracted peaking supplies if applicable. Demand side resource costs include program administration and incentive costs, net of commodity savings.

Net Costs by Option—Low Demand Scenario

Low demand scenarios project the need for a total net impact of 230 MDth/day.



Notes: Net present value of costs over contracted lifetime of resources, using a 6.3% discount rate (average after-tax Weighted Average Cost of Capital between KEDNY and KEDLI established in the last rate case under Case 16-G-0059). Infrastructure costs include fixed and commodity costs, which are assumed to have a 15 year life that starts in the listed operational year, net of commodity savings from avoided CNG trucking and short term contracted peaking supplies if applicable. Demand side resource costs include program administration and incentive costs, net of commodity savings.

A Portfolio of **Solutions for the Long Term**

A long-term solution that effectively meets customer needs will likely require a combination of the options presented. Choosing the option or combination of options that provides the most desirable approach will be a complex process. National Grid has employed a wide range of criteria to evaluate the various options presented. Economic, operational and regulatory feasibility had to be considered, along with considerations regarding safety, reliability, cost, and impact on the environment. Issues of scale and timing come into play as well, considering the overarching need to close the gap in capacity as quickly as possible.

Again, our purpose here is not to recommend a particular solution, but rather present the available possibilities as a basis for public discussion and evaluation.

Evaluating the Options

To help our customers and the general public evaluate the options, National Grid has assessed the relative attractiveness of the proposed options with respect to each of the evaluation criteria. These findings are presented in the following table, using a 5-point scale that ranges from highly attractive to highly unattractive.

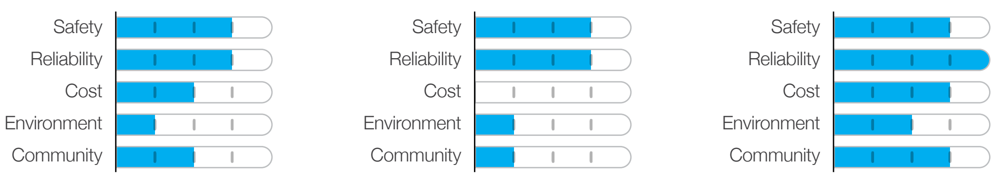
Relative Attractiveness of Different Options to Close the Gap Between Downstate NY Gas Demand and Supply

Large-Scale Infrastructure Options

1. Offshore LNG Port Size (MDth/day): **400**

2. LNG Import Terminal Size (MDth/day): **400**

3. NESE Project Size (MDth/day): **400**



Distributed Infrastructure Options

4. Peak LNG Facility Size (MDth/day): **100**

5. LNG Barges Size (MDth/day): **100**

6. Clove Lakes Size (MDth/day): **80**

7. Iroquois ExC Project Size (MDth/day): **63**

No-Infrastructure Options

8. Energy Efficiency Size (MDth/day): **111–216**

9. Demand Response Size (MDth/day): **81–108**

10. Electrification Size (MDth/day): **52–86**

* *Reliability could improve over time as programs mature.*

Glossary

To help you get the most out of this report, here are definitions of some of the terms and acronyms that are used in a specific way or with which you may not be familiar:

Compressed Natural Gas (CNG) – natural gas that has been pressurized in a hard container for storage and/or transport.

Dekatherms (Dth) – a unit of energy used to measure natural gas.

Demand Response – actions taken by consumers or businesses to reduce the amount of natural gas they need to heat their homes or businesses during periods when demand is high.

Design Day – a hypothetical 24-hour period used for planning customer gas needs on the coldest of days. In Downstate NY, the Design Day is based on a 24-hour period that averages 0° F in Central Park.

Downstate NY Region – one of the geographic regions to which National Grid provides natural gas. It includes Brooklyn, Queens, Staten Island, and Long Island and is the focus of this report.

Electrification – use of electric power instead of natural gas. For example, switching to electric heating instead of natural gas or oil.

Geothermal Heat Pump – a renewable energy source that transfers heat into the ground for cooling or from the ground for heating.

Greenhouse Gas (GHG) – gas that traps the sun's heat by absorbing and emitting radiant energy. Common GHGs include carbon dioxide, methane, nitrous oxide and ozone.

Liquefaction – process by which natural gas is converted to a liquid state.

Liquid Natural Gas (LNG) – natural gas cooled to -265° converting it from a gas to a liquid—typically for storage purposes.

MDth – 1,000 dekatherms.

Regasification – process by which liquid natural gas is converted back to natural gas.

Renewable Natural Gas (RNG) – natural gas derived from organic waste material (e.g., food waste, animal and plant material). RNG does not come from underground wells.

Vaporize – to turn liquid natural gas into gaseous form.

Thank You

This summary report has been prepared to equip the general public with an overview of the extensive analyses and evaluations contained in the Long-Term Capacity Report that National Grid has provided to New York State. Our goal is to provide readers with important information on the potential options so that they may offer their point of view for how best to evolve our network to meet customer needs.

You can learn more and provide feedback through upcoming public meetings or through our website www.ngrid.com/longtermsolutions. Public meetings will be held in March of 2020 at various locations throughout Downstate NY, where these options can be explored and discussed.

We look forward to receiving public feedback regarding these options, including which should and should not be part of the portfolio of elements making up a long-term solution.

For more information about the public meetings, to submit written comments, or to obtain copies of this report or the full report submitted to New York State, please go to: www.ngrid.com/longtermsolutions

Scan this QR code with your smartphone to go directly to www.ngrid.com/longtermsolutions