National Fuel®

Achieving a Low-Carbon Future in New York

National Fuel Gas Distribution Corporation
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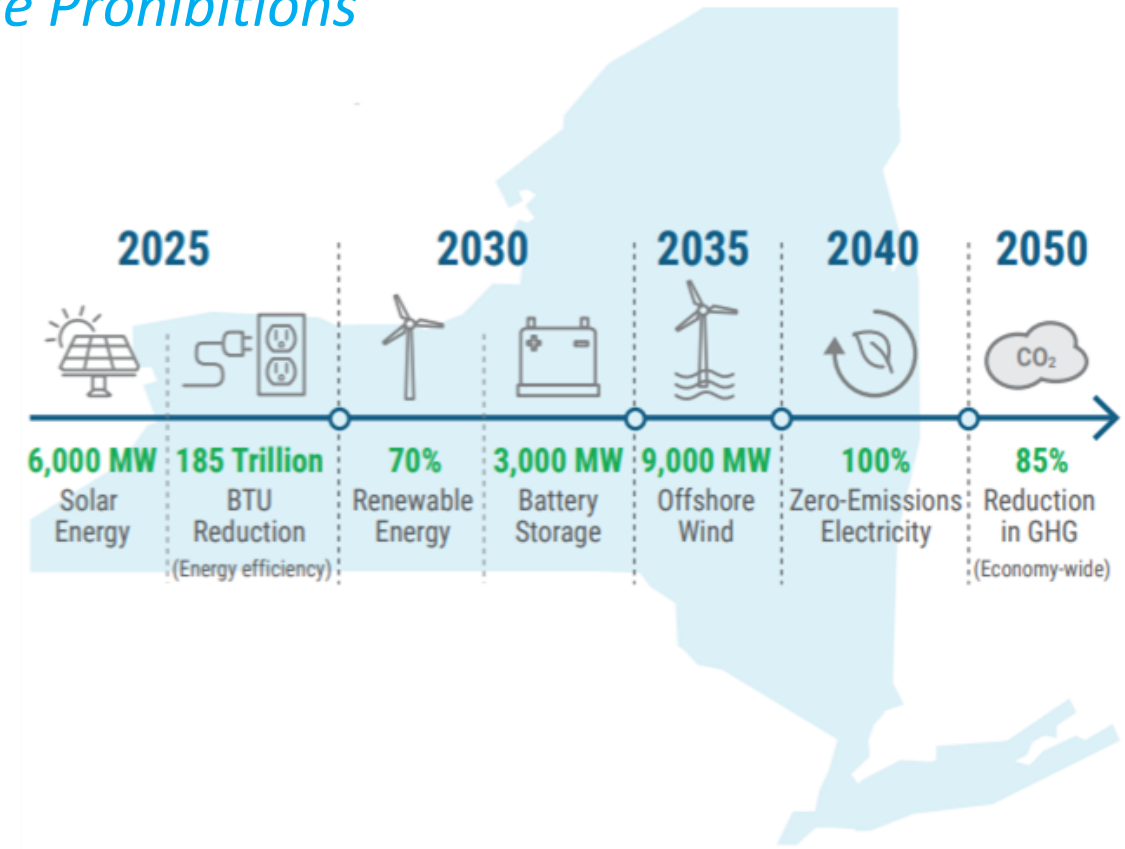
CLCPA Draft Scoping Plan

- July 18, 2019, the Climate Leadership and Community Protection Act (Climate Act) was signed into law. New York State's Climate Act is among the most ambitious climate laws in the world.
- Goals: 70% renewable energy by 2030. 100% Zero-emissions electricity by 2040; 85% GHG reductions by 2050
- The law creates a Climate Action Council (CAC) charged with developing a scoping plan of recommendations to meet these targets and place New York on a path toward carbon neutrality.
- CAC released its Draft Scoping Plan on Dec. 30, 2021 commencing a public comment period through July 1, 2022.

What's IN the Draft Scoping Plan?

A Number of Statewide Prohibitions

- No new gas service to existing buildings beginning in 2024
- No natural gas in newly constructed buildings, beginning in 2024.
- No new natural gas appliances for home heating, cooking, water heating, clothes drying beginning in 2030.
- No gasoline-automobile sales by 2035



The Plan will have a significant impact on New York residences and businesses, including elimination of energy choice and a likely increase in overall energy costs.

What's MISSING from the Draft Scoping Plan

Full Assurance of Ongoing Energy Reliability

- Lacking an integrated holistic system reliability analysis across sectors
  - It is essential to ensure electric grid reliability and resiliency before mandating electrification
- Unprecedented level of NEW renewable electricity generation development in next 8 years.
  - 26% current → 70% required
- NYISO published its concern about declining levels of reliability beginning as early as 2023
- Measures will likely increase the cost of almost anything that relies on electricity while adding risk to reliability of the electricity grid

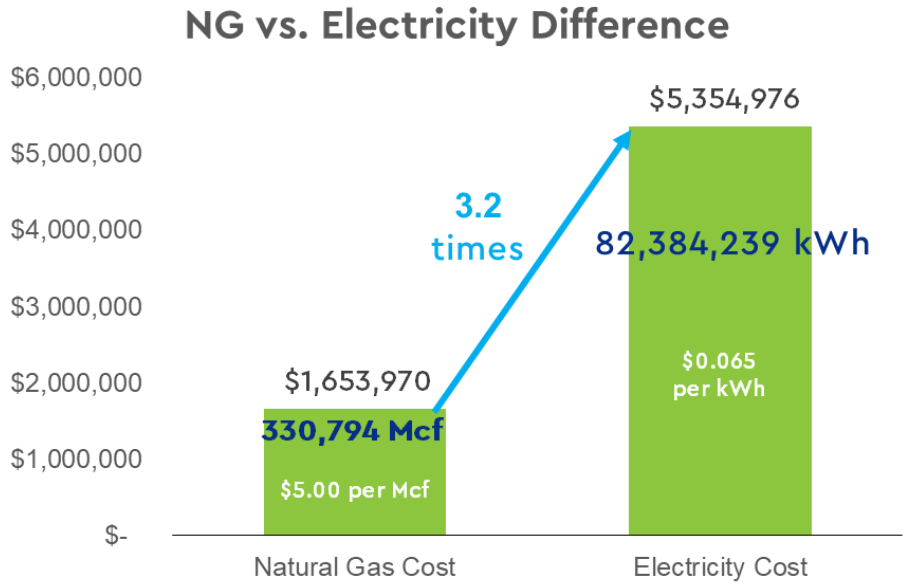
Natural gas is a highly reliable and resilient energy source with a 99.9% delivery rate.

What's MISSING from the Draft Scoping Plan

Full Assessment of Customer Affordability and Practicality

- Customers required to electrify will face higher operating costs as electricity prices are approximately 3.2x higher than natural gas prices
- Converting a natural gas home in upstate NY to all-electric:
  - $20,000 - $50,000 Presentation to the CAC (Feb. 2021)
  - $35,000 - Consumer Energy Alliance Analysis (May 2021)
  - Depending on household appliances, home configuration, labor and reliance on natural gas.
- The already high cost of doing business in NY will increase

Cost impact for a representative large manufacturer in New York



Based on National Fuel large customer data analysis

The consumer cost impacts resulting from the Plan's proposals are not disclosed in the Plan.

Note: Natural gas and electric unit costs are total costs (commodity and delivery charges) as of January 2022

A Hybrid Dual Energy Pathway Is The Best Solution

We can reach the State's goals in a more affordable and practical way for consumers using a hybrid approach

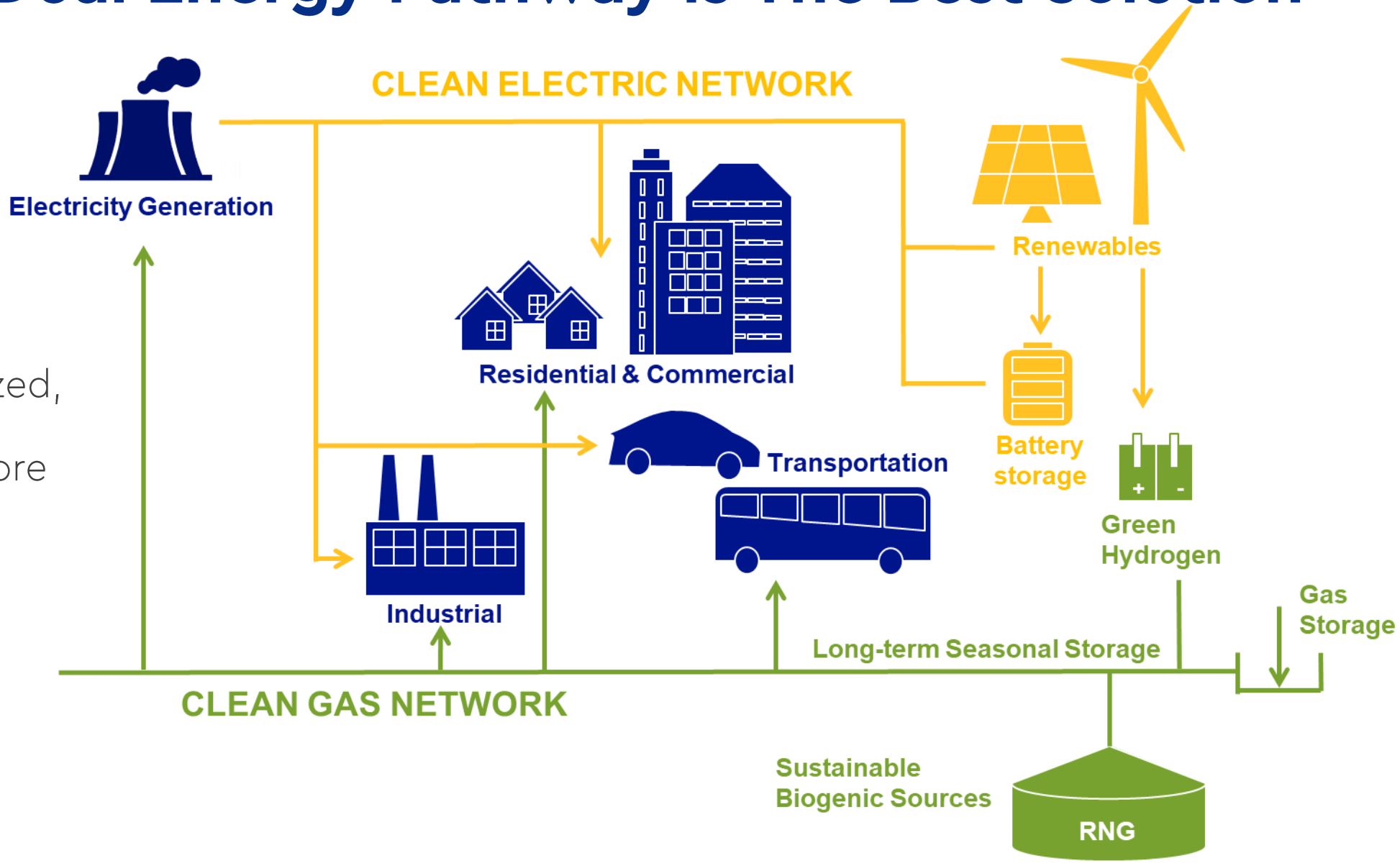
Collaborative analysis indicates that a hybrid dual energy approach to heat decarbonization utilizing both the natural gas and electric systems can achieve net zero more affordably and reliably through three key building blocks:

1) Widespread energy efficiency emphasizing weatherization and building envelope improvements
2) Hybrid dual-fuel heating and cooling systems
3) Use of the existing natural gas infrastructure to incorporate low carbon fuels, including RNG and hydrogen, into the supply mix

A Hybrid Dual Energy Pathway Is The Best Solution

Vision of a 2050 Energy Network

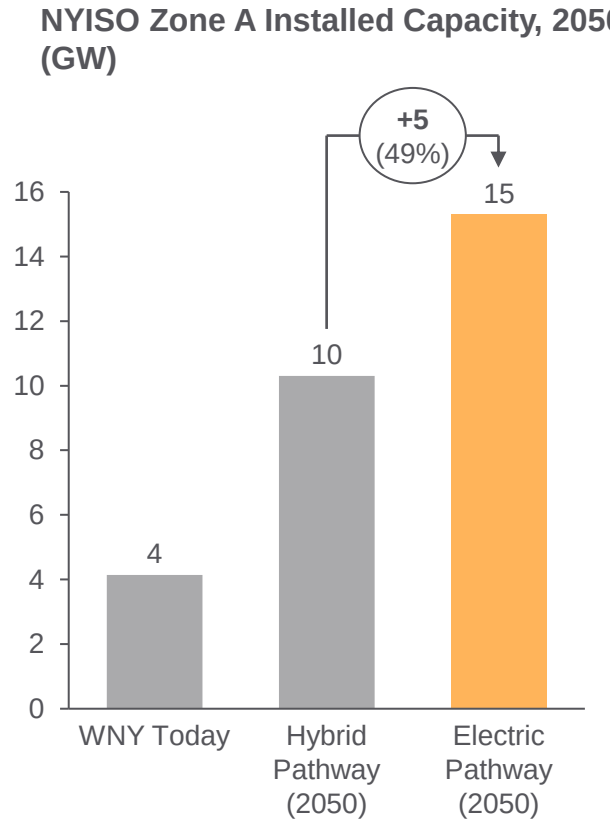
A deeply decarbonized, integrated gas & electric system is more affordable, practical, and more likely to achieve New York's emissions goals

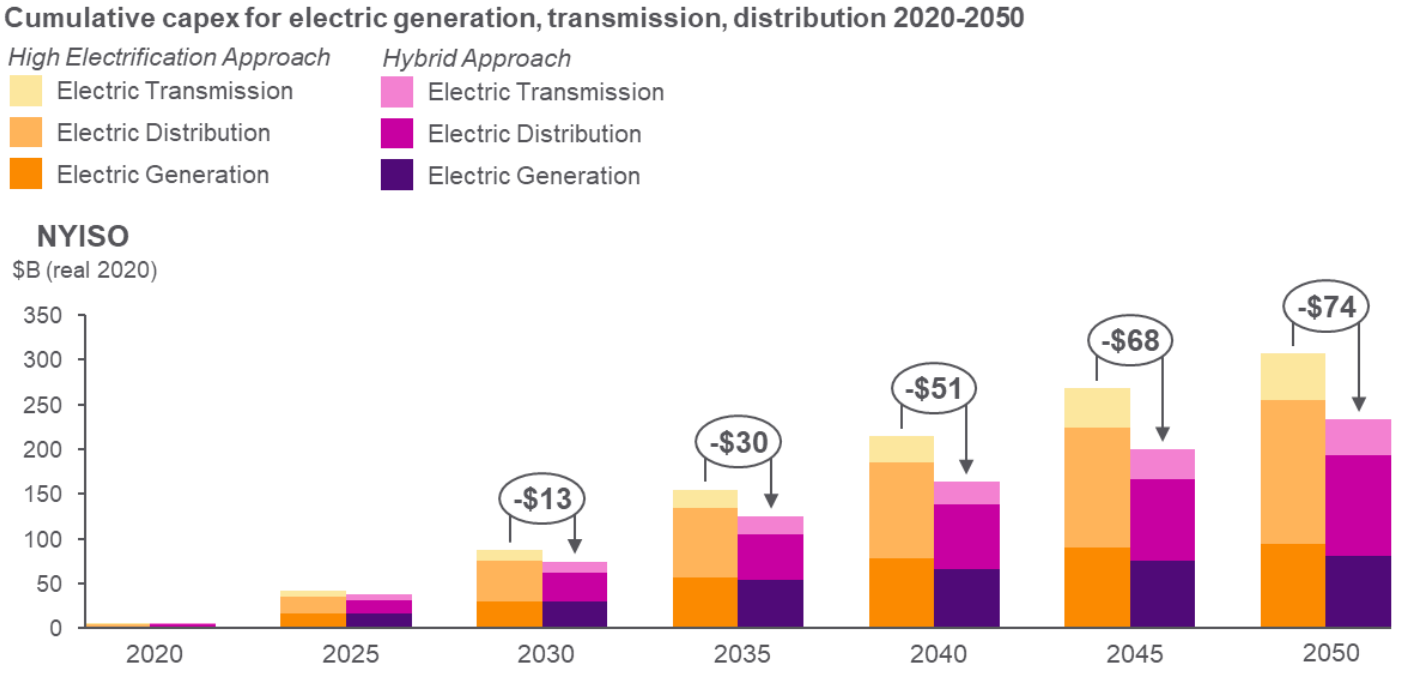


Hybrid Dual-Energy Pathway Requires Less Costly Upgrades

Reduces requirements for siting and permitting extensive electric system upgrades and utilizes the most cost-effective emission reduction strategies.

According to **National Grid**, the **Hybrid Pathway** avoids siting and permitting **~5GW** of winter peak capacity in Zone A relative to **Full Electrification,** more than all of today's installed capacity in Zone A.





Statewide, in NYISO, the Hybrid pathway would avoid ~60GW of new capacity

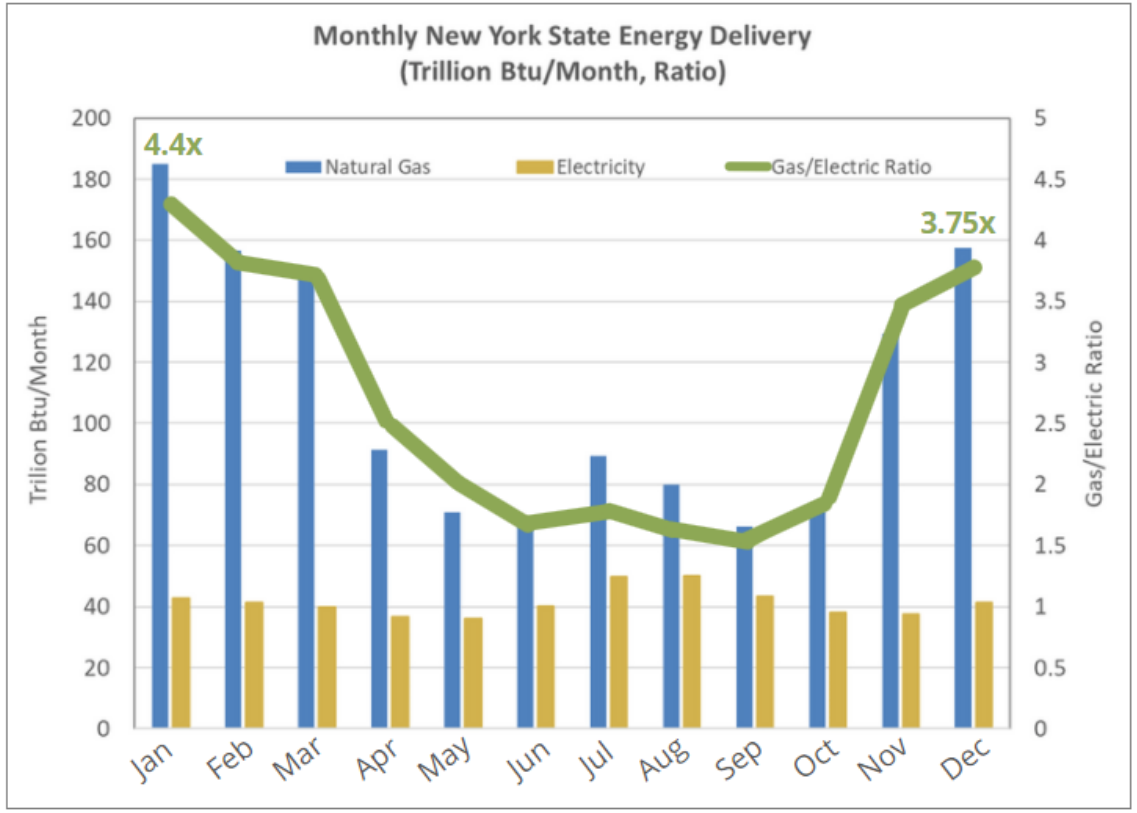
Managing winter peaks through dual fuel heating could avoid ~$70B of capex in New York by 2050

Hybrid Pathway Provides Greater Resiliency

Hybrid pathway will reduce outages and issues caused by weather-related events

- The existing natural gas system is:
  - Reliable & resilient
  - Underground and storm-resistant
  - 99.9% reliability on energy delivery

- An all-of-the-above hybrid approach:
  - Allows natural gas infrastructure to provide energy supplies when intermittent generation renewable sources are unavailable
  - Limits constraints on the power grid during periods of peak energy demand



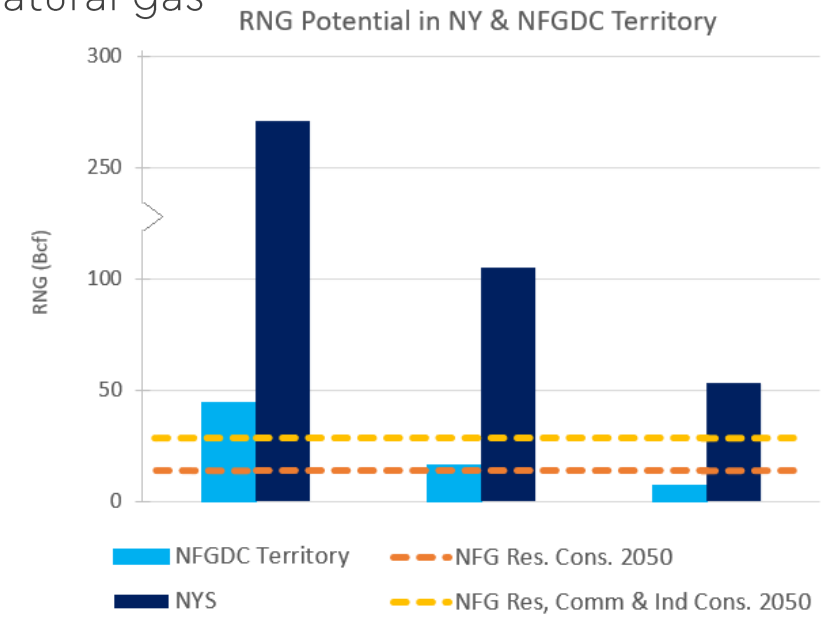
Source: DOE-EIA (2019 data)

Hybrid Pathway Utilizes Existing Infrastructure

Utilizes an existing storm-resistant, underground natural gas network to deliver low-carbon fuels into the region versus building brand new electric infrastructure

Renewable Natural Gas (RNG)

- RNG has lower carbon intensity with similar operational and performance characteristics to natural gas



Hydrogen

- Hydrogen offers enormous potential as a source of clean energy
- 10 million metric tons (MMT) of hydrogen is currently produced in the United States
- A 15% blend of hydrogen by volume into the natural gas stream may be feasible
  - Studies are looking at higher blends
- Hydrogen is particularly useful to decarbonize hard to electrify sectors

Utilizing these low carbon sources can decarbonize the natural gas network and significantly reduce emissions.

Dual Energy Pathway Can Account for Regional Differences

WNY is different than downstate in regard to weather, energy use, and housing stock

- Western New York has:
  - 56% colder temperatures than downstate = higher energy usage
  - 83.3% of homes utilize natural gas for heating > 57% in the rest of the state
  - 65% of homes are single family > 45% in the rest of the State
  - Residents in WNY counties have a lower median income than downstate

A hybrid approach that allows for dual energy heating will reach the State's goals in a more affordable, less burdensome way for consumers. 93% emissions reduction when combined with EE measures.

What Can Be Said About the Draft Scoping Plan

YES To lower emissions and a careful, consumer-focused energy transition

YES To expanded energy efficiency as STEP ONE

YES To some electrification as one of many levers to reduce emissions

- Areas for improvement:
  - Add hybrid heating as an option
  - Customer choice for appliances
  - Cost and practicality limitations of full electrification

YES To clean energy generation requirement

- Areas for improvement:
  - Manage total peak capacity by leveraging low carbon fuels

YES To the use of existing natural gas delivery system AND electric system for a reliable, resilient, integrated energy system

- Areas for improvement:
  - Recognition that the gas network can be decarbonized and enable the transition
  - To the use of low-carbon renewable natural gas and hydrogen for lowering emissions in heating

BNP BUFFALO NIAGARA PARTNERSHIP

TAKE ACTION

Tell State Leaders New Yorkers Need Affordable, Reliable Energy

Public comment period has been extended to July 1st

https://www.votervoice.net/THEPARTNERSHIP/Campaigns/91946/Respond