

Utility Perspective on Fossil Energy Hydrogen Challenges

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National Fuel Gas Company

National Fuel Gas Company is a diversified energy company headquartered in Williamsville, New York, that operates an integrated collection of natural gas and oil assets across four business segments throughout Western NY and Northwestern PA:

- ✓ Exploration & Production
- ✓ Pipeline & Storage
- ✓ Gathering
- ✓ Utility

Guiding Principles

✓ Safety

- ✓ Environmental Stewardship
- ✓ Community
- ✓ Innovation
- ✓ Satisfaction
- ✓ Transparency





Organizational Structure \rightarrow **Unique Integration**



Meeting the Challenge: Scenarios for Decarbonizing NY's Economy

NY CLCPA Goals and Objectives	Practical Considerations	
70% Renewable Energy by 2030	Consumer Affordability	
100% Zero-emission Electricity by 2040	Safety and Reliability	
85% GHG Reduction by 2050	Resiliency and Delivery Certainty	



Pathway to a Low-Carbon Future

An "all-of-the-above" approach is the optimal solution for consumers, providing a broad range of emissions reduction solutions while ensuring a safe, reliable, and resilient energy delivery system.

Four Pillars for Achieving New York's Climate Goals			
I. Scale Energy Efficiency	II. Reduce Utility Emissions	III. Decarbonize the Energy Source	IV. Leverage Existing Infrastructure
 Transportation Buildings Industrial 	 Continued reduction in fugitive methane emissions Invest in system modernization and safety Commitment to substantial reduction of delivery system emissions 	 Renewable Natural Gas Hydrogen - enriched Natural Gas Industrial Local Hydrogen Carbon Capture and Storage 	 Serve hard-to-electrify customers with low- carbon options Mitigate peak electricity demand / avoid more substantial infrastructure build-out Assure a reliable and resilient energy system
	delivery system emissions	Storage Community Geothermal	Assure a reliable a resilient energy sy



Potential Hydrogen Pilot – NY Hub

Potential Western New York Site

- Potential Hydrogen Production
 - Hydroelectric resources
 - Solar and Wind Farms
 - Proximity to PA Natural Gas production
- Potential to supply existing and future businesses with low/no carbon fuel sources
- ✓ Natural Gas Supply

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- High pressure pipelines and local distribution
- HENG Blending Opportunities
- Potential Hydrogen Storage
 - Existing and Abandoned Salt Mines
- Light and Heavy Vehicle Fueling
 - I-90 (NY Alternative Fuels Corridor) / Proximity to Canada
- Industrial/Commercial/Residential Customers
 - Rochester & Buffalo Markets





Regulatory Considerations

- Policies to increase the supply of RNG/permit hydrogen deployment to help decarbonize the energy source in a safe and reliable fashion
- ✓ Support development of resiliency assets
- Reduce long-term uncertainty in the low carbon fuel and infrastructure market to help drive requisite private investment

