



Renewable Gas 360 Webinar

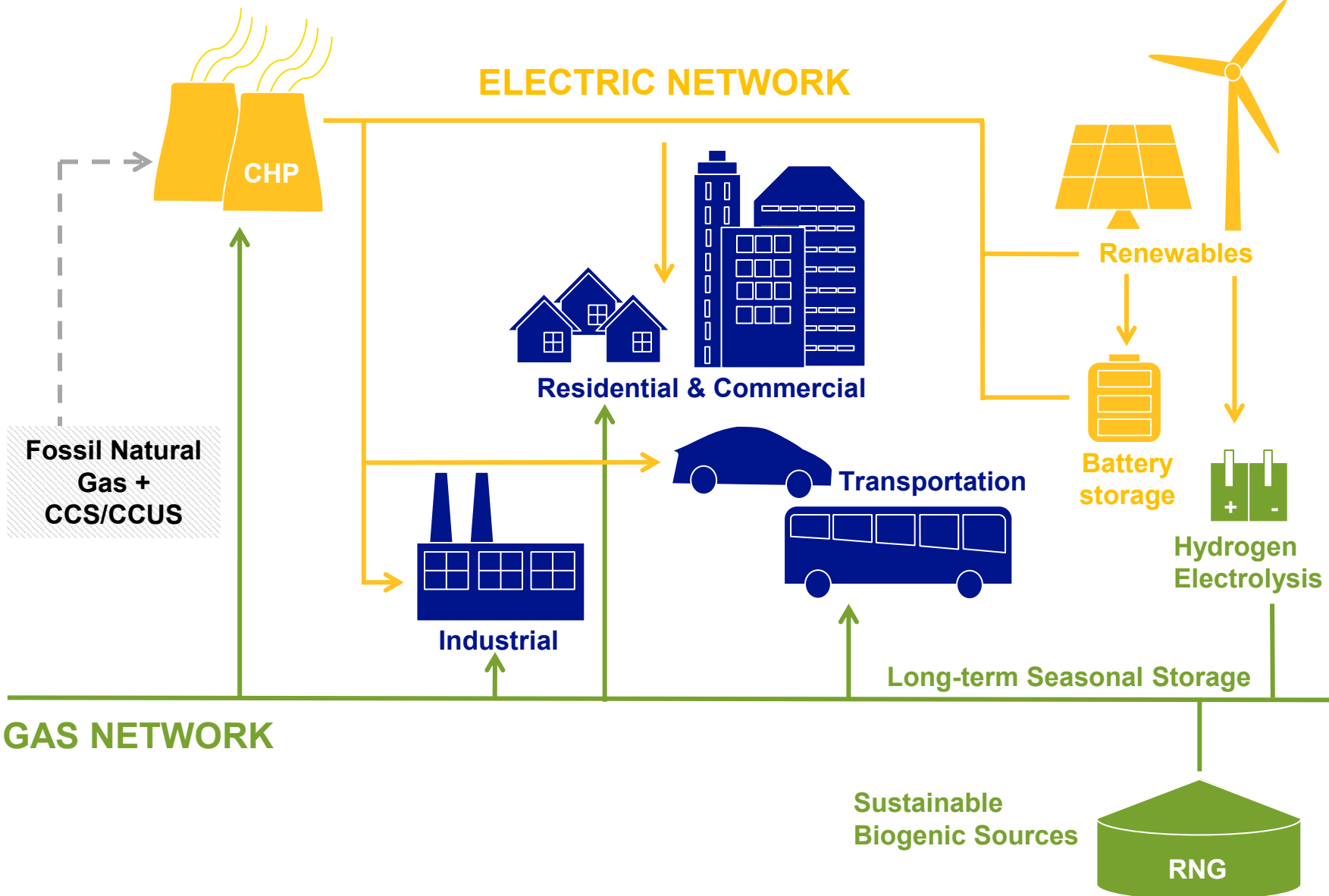
*Overcoming Challenges of a
Warming Planet: Policies and
Technologies to Enable Green Hydrogen*

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Oct. 7, 2021

nationalgrid

Our Vision of a 2050 Energy Network

A deeply decarbonized gas & electric system is integrated & complementary



'Net Zero' Strategy for Heat

- Continue to **reduce fugitive methane emissions** through infrastructure modernization
- **Ramp up energy efficiency** aggressively -- focused on building envelope improvements
- **Scale up renewable natural gas (RNG)** from local and regional sources to displace fossil gas
- **Blend hydrogen (H₂)** into gas networks (“no regrets” up to at least 20% over time) and lay the groundwork for high-H₂ gas networks in the long run
- Deploy extensive **dual fuel heating** systems for gas customers – i.e., heat pumps integrated with gas backup for the coldest days
- Build out **geothermal networks**, including as “non-pipe alternatives”

Hydrogen is a critical part of a portfolio of solutions to decarbonizing gas networks in the long run.

In addition to providing heat for buildings, hydrogen will also play a role in electricity generation, energy storage, industrial high temperature processes (e.g., melting steel) and transportation (e.g., marine and rail)



Roadmap to Hydrogen Blending

2020

2025

2030

2035

LAY THE TECHNICAL FOUNDATION

Portfolio of research efforts that assess the integration of hydrogen into the energy system, covering the entire value chain. Partners include U.S. DOE national laboratories, EPA, state level agencies, local and national universities, tech companies, industry associations that conduct research, etc.

PROGRESS DEMONSTRATION PROJECTS

Begin blending projects in portions of our network (2023-2027)

SCALE HYDROGEN THROUGH ITS INTEGRATION WITH LSRs

By the early 2030s, as large offshore wind, storage and solar generation are interconnected to the electric grid, ensure hydrogen production with storage systems are integrated and are viewed as complementary to a renewable electricity grid

LAY THE POLICY & PARTNERSHIP FOUNDATIONS

Develop supportive policy frameworks, build strategic partnerships across sectors, educate stakeholders by sharing the narrative, develop internal expertise and technical SMEs, support innovation and technology incubators

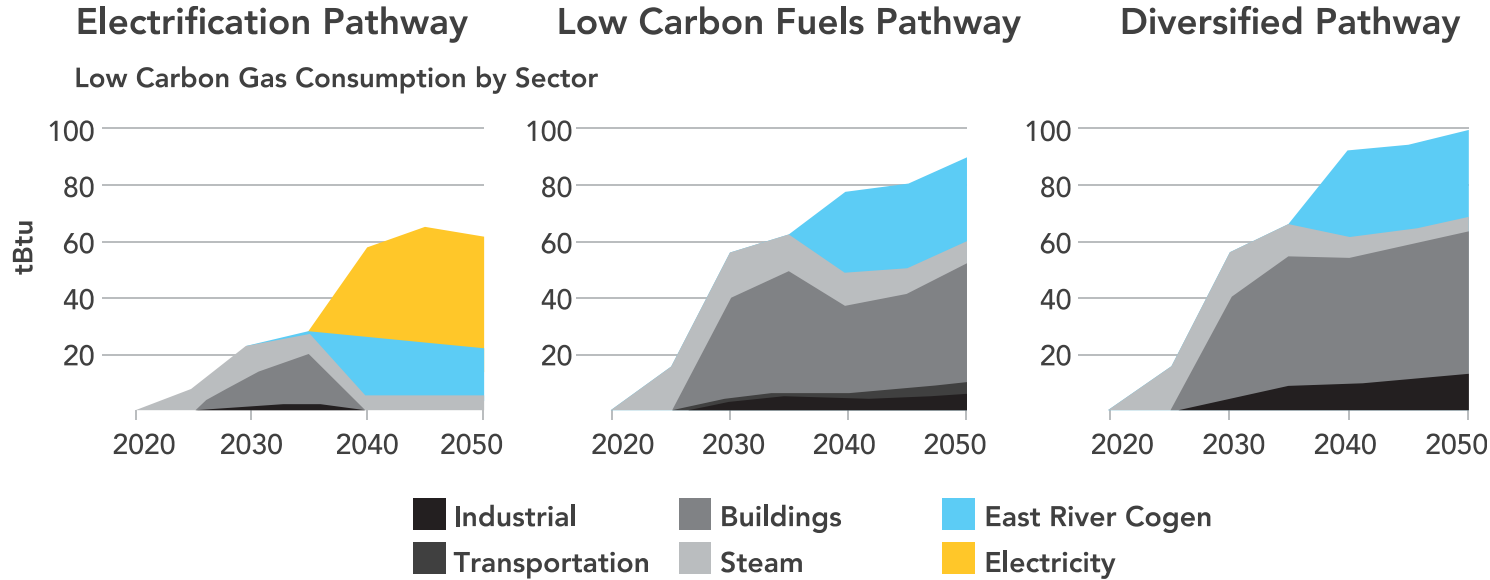
ENSURE SUPPORTIVE LEGISLATION & REGULATORY CONSTRUCTS ARE IN PLACE

- Allow procurement of hydrogen as part of energy supply portfolio (late 2020s)
- Ensure regional / national targets are established for low carbon fuels, incl. H2 (late 2020s)
- Promote significant flow of capital with various business models for cost recovery

New York City Pathway Study – Gas Sector Results

Low carbon gas (biogenic RNG, synthetic RNG and hydrogen) is an important emissions reduction strategy for end uses that do not electrify across all pathways

Sector



Fuel Type

