

Building a Sustainable Future



Leading NJ to a Clean Energy Future

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New Jersey Natural Gas

- Largest Subsidiary of New Jersey Resources (NJR)
- Founded in 1952
- More than 575,000 customers across five counties
- Over 7,500 miles of distribution and transmission pipeline



JD Power Awards
Residential Large East
Business Large East



Past Escalant Awards
Most Trusted Brand
Environmental Champion
Easy to Do Business With



The Value of our Natural Gas Infrastructure

A critical asset to achieving the clean energy transition

Today, our pipeline network can integrate and deploy low and zero carbon fuels, such as Renewable Natural Gas and hydrogen, driving lower emissions without a massive, costly buildout of new infrastructure

New Jersey's Pipeline Network



**\$17 Billion
Already Invested¹**



**35,000 Miles of
Underground
Delivery Pipeline²**



**~75% of
Residents Rely
on Gas Home
Heating³**



**Far Fewer Outage
Events than
Electric Grid⁴**

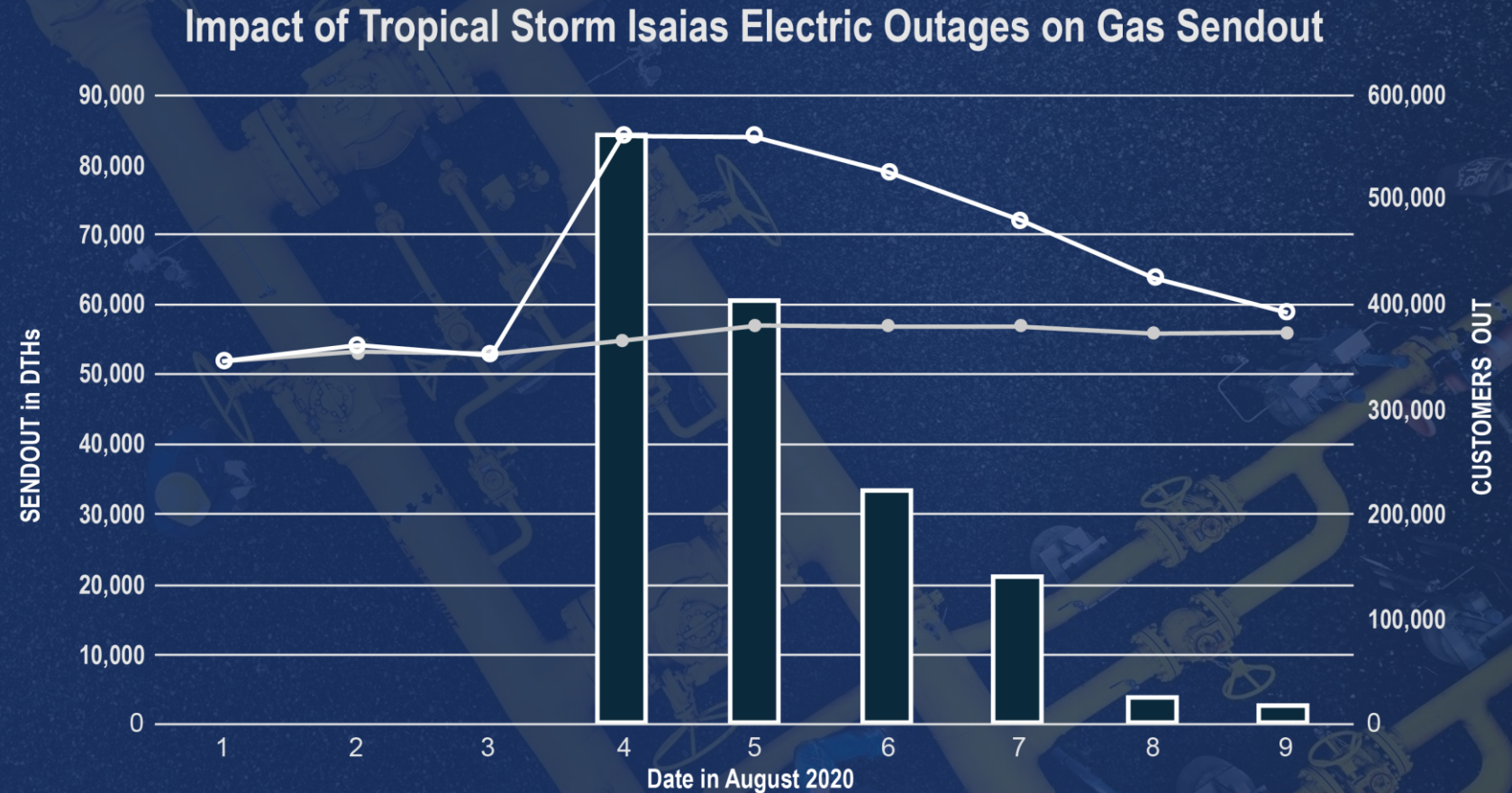


**Compatible with
Low- and Zero-
Carbon Fuels**

NJR has already achieved more than 50% emissions reductions in our operations versus 2006, and we are driving our operations to be Net Zero by 2050.

The Importance of Reliable Supply

During the outage, NJNG saw a 53% increase in gas sendout due to home generators.



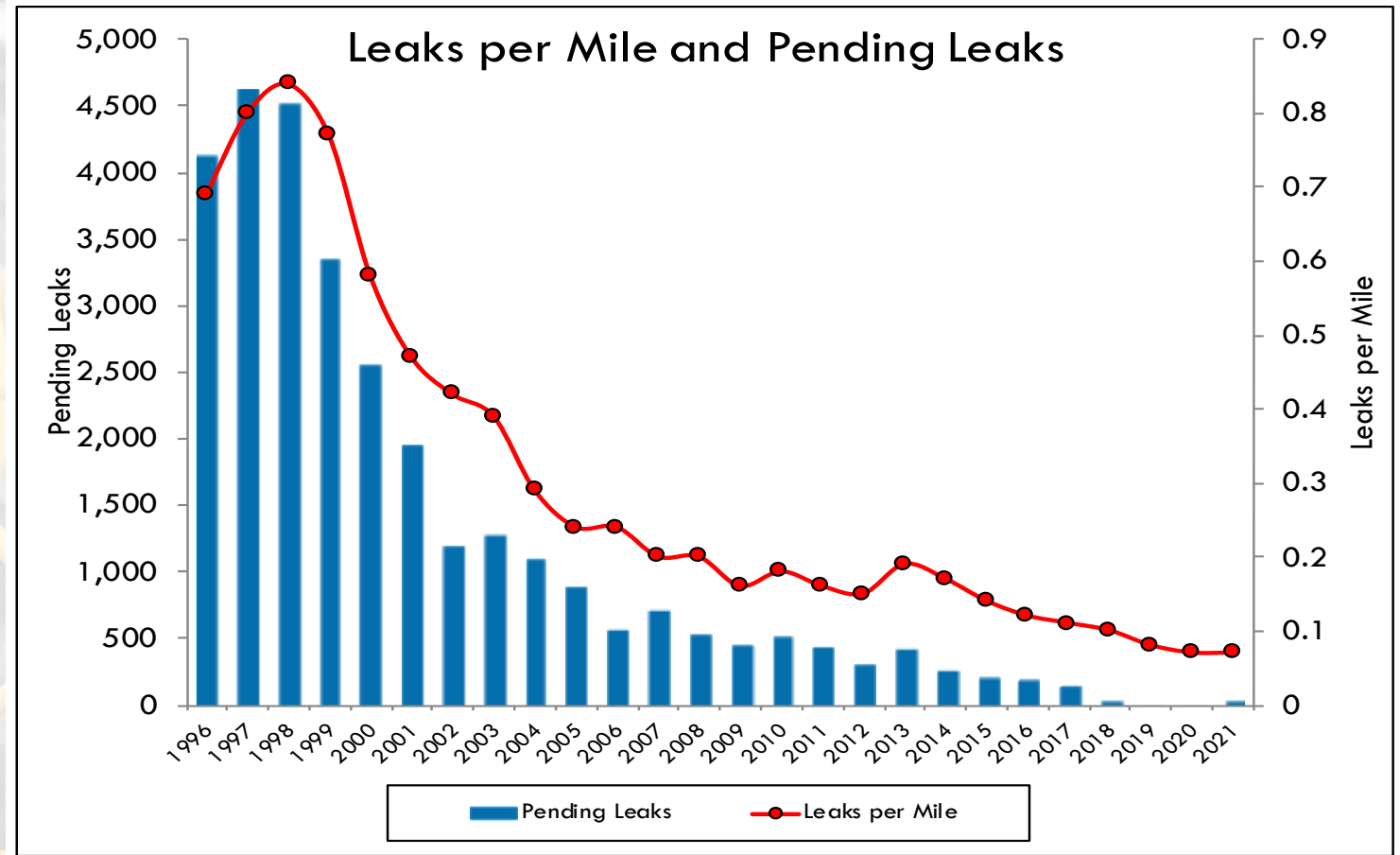
Customer expectations demand 100% reliability, which the electric companies cannot deliver. That is why a dual-fuel approach using low-to zero-carbon fuels will be the most effective way to ensuring reliability

Most Environmentally Sound System in the State

In the mid-1990's Operations embarked on a strategy to eliminate Cast Iron and Unprotected Steel pipe to drive a strong reduction in leaks

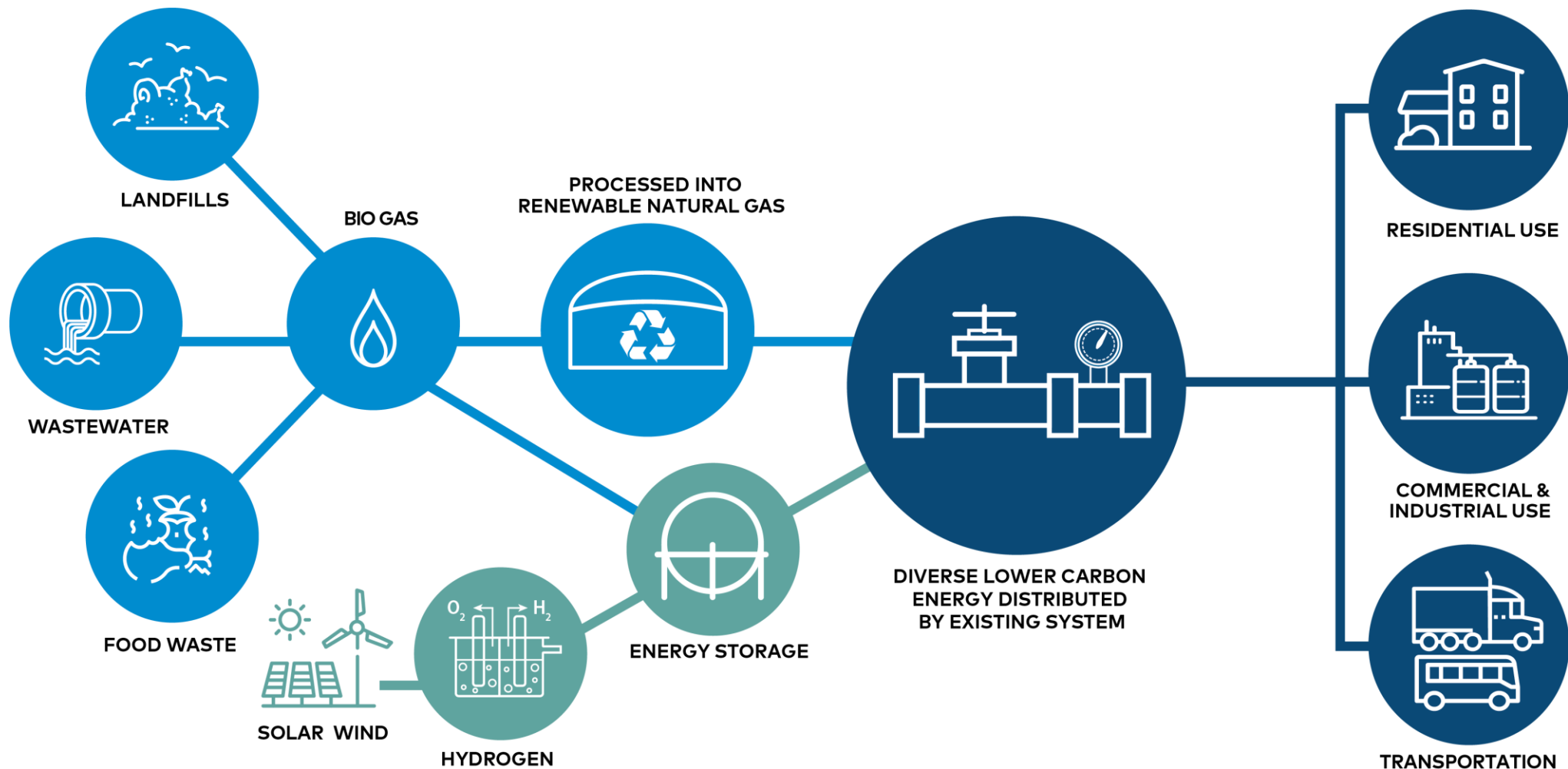
Today, NJNG has the lowest number of leaks-per-mile of any natural gas utility in the state

The strategy enabled us to pursue hydrogen investments with certainty of delivery



How does the underground infrastructure get used in the clean energy evolution? ...

We can achieve New Jersey's clean energy goals more reliably and affordably by using **existing pipeline infrastructure** to enable emission reductions across economic sectors.



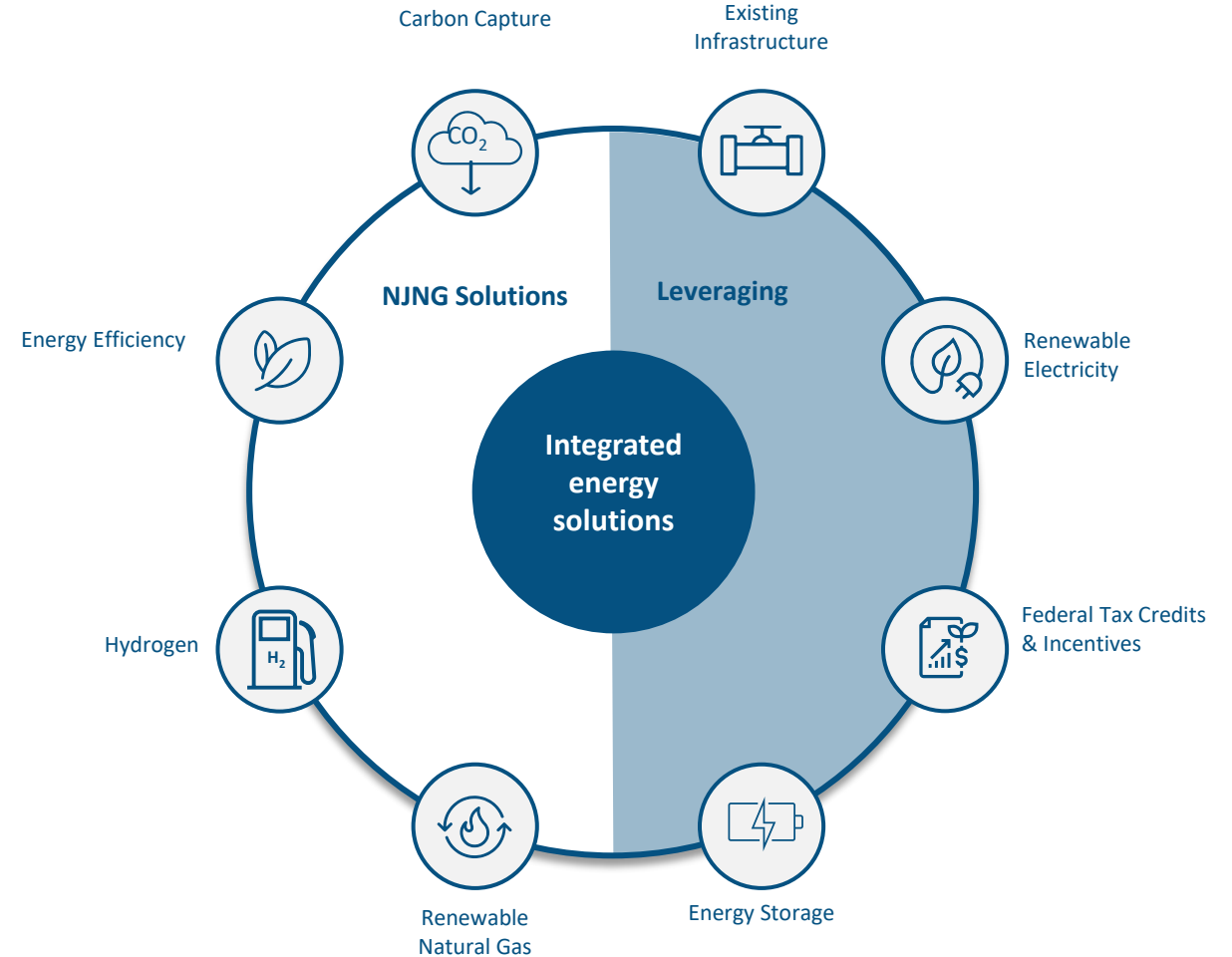
... Pipelines can store and deliver clean fuels to decarbonize multiple end uses

A Mix of Practical Decarbonization Solutions is Necessary

Diversified solutions across the energy system are critical to **maintaining system reliability** and will help achieve emissions targets **faster and more affordably**.

Leveraging gas and electric decarbonization solutions will:

- Avoid billions in unnecessary costs to reach net-zero
- Preserve systemwide energy reliability, particularly in severe weather events and on the coldest days of the year
- Protect customer choice in energy service and equipment
- Achieve Net-Zero emissions by 2050 with greater feasibility by avoiding high hurdles to 100% electrification



“ ... Every generation for the past 500 years has seen the battle waged between those who want to use the power of the state to fit some daydream on the one hand and the economists who have seen the futility in this manipulation and warn against it on the other..”

– Jeffrey Tucker, American Institute of Economic Research



Howell Green Hydrogen Project

Project Details

- Commercial operation reached in October 2021
- Entire project located within NJNG's Howell facility
- Converts renewable electricity to zero-carbon hydrogen, blended into natural gas distribution system
- System expected to offset ~180 US tons of CO2 per year

NJNG Howell LNG Facility



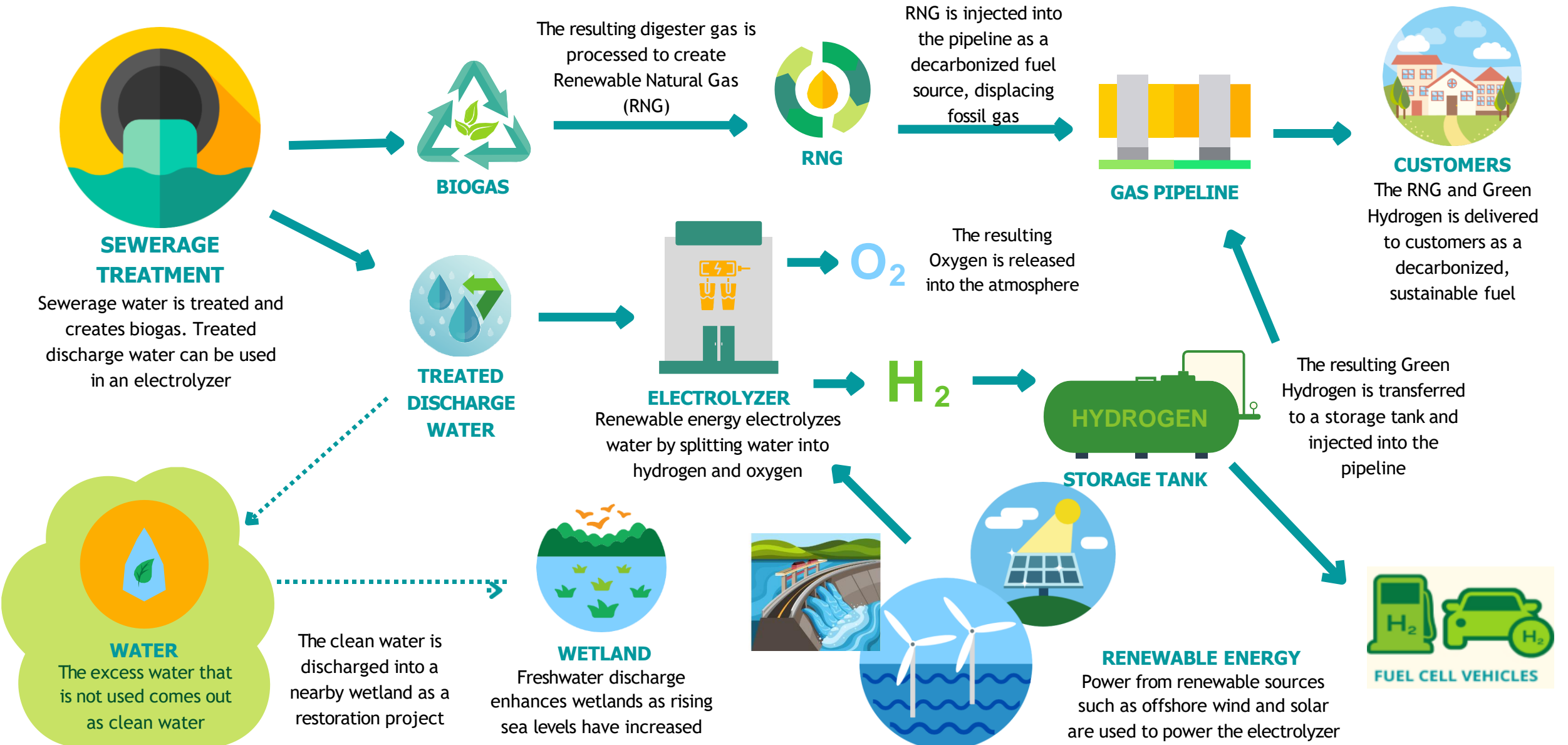
Electrolyzer will source solar power from a 416 kw DC array on site

Electrical current will split water molecules into hydrogen and oxygen

Hydrogen initially stored in onsite vessel before being blended into distribution system

New Jersey's RGGI Legislation enabled electric and gas public utilities to invest in and earn a return on investments in Energy Efficiency and Renewable Assets. The Howell Project was approved in Rate Base in December 2021

Wastewater to Clean Energy: A real example of Sustainability!



At the various Wastewater Treatment Plants, we can comprehensively recycle water and biogas and improve environmental outcomes. A complete ecosystem to create Hydrogen and RNG for use in homes and vehicles!

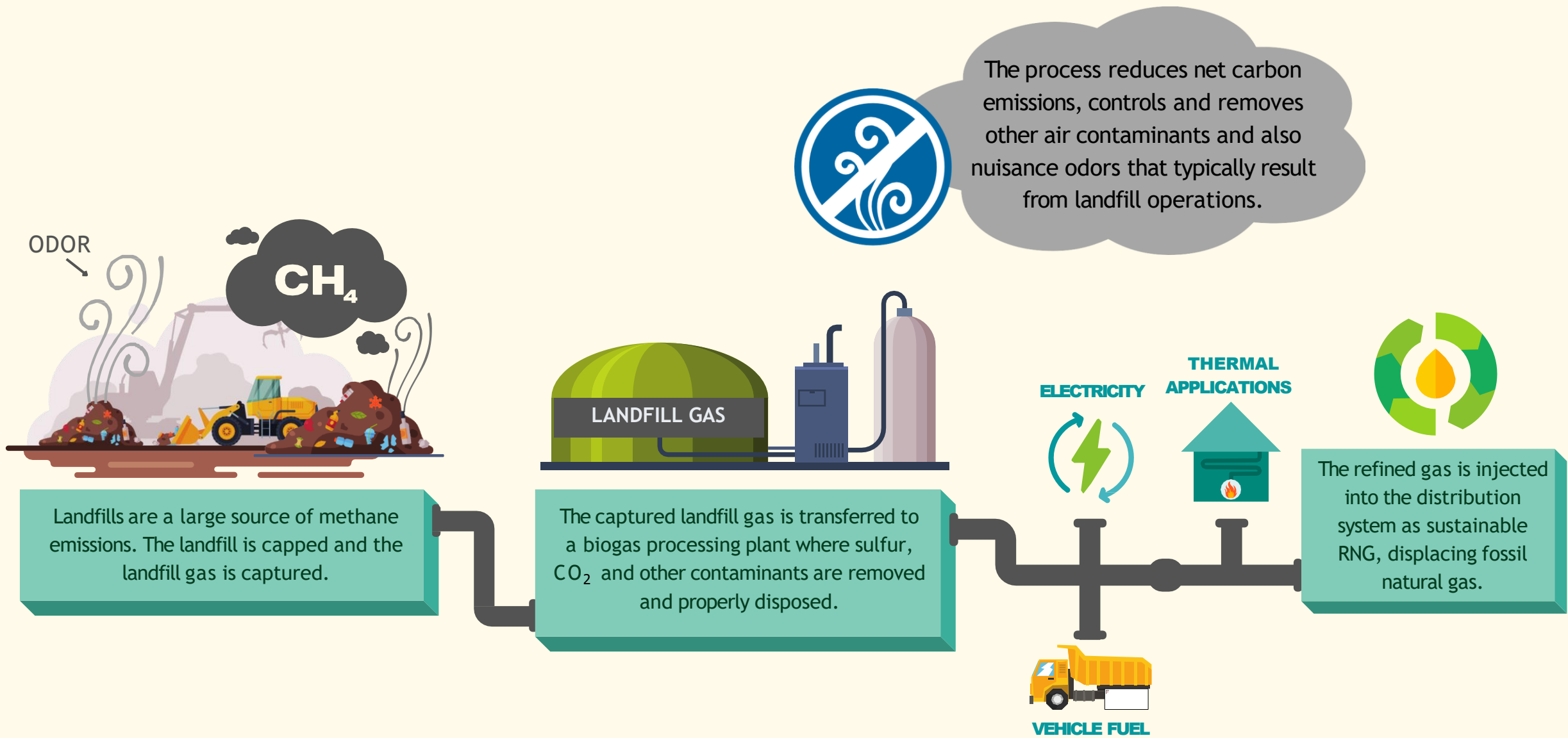
Why so bullish on Hydrogen Vehicles

	Electric Battery Vehicles	Hydrogen Fuel Cell Vehicles
Range	150 – 375 miles	400 – 600 miles
Environmental Impact	<ul style="list-style-type: none"> • No Emissions, but <ul style="list-style-type: none"> • Mining Minerals • Disposal of batteries • Electric Gen Sources 	<ul style="list-style-type: none"> • Water Vapor • Recyclable at end of use • What color of hydrogen
Refueling (Once you solve refueling infrastructure)	4 – 8 hours	5 – 10 MINUTES (just like today's ICE vehicles)
Performance	Better than ICE, but needs full charge	2-3X thrust vs ICE
Cost	\$45,000 - \$80,000 less incentives	\$50,000 - \$60,000

Given Range Anxiety, Fueling Inconvenience and Performance, once we solve hydrogen sourcing and fueling locations, Hydrogen vehicles will become the long-term solution to Transportation sector emissions

Source: <https://bacancysystems.com/blog/hydrogen-vs-electric-cars>

LANDFILL RNG PRODUCTION



Landfills are a large source of methane emissions. The landfill is capped and the landfill gas is captured.

The captured landfill gas is transferred to a biogas processing plant where sulfur, CO₂ and other contaminants are removed and properly disposed.

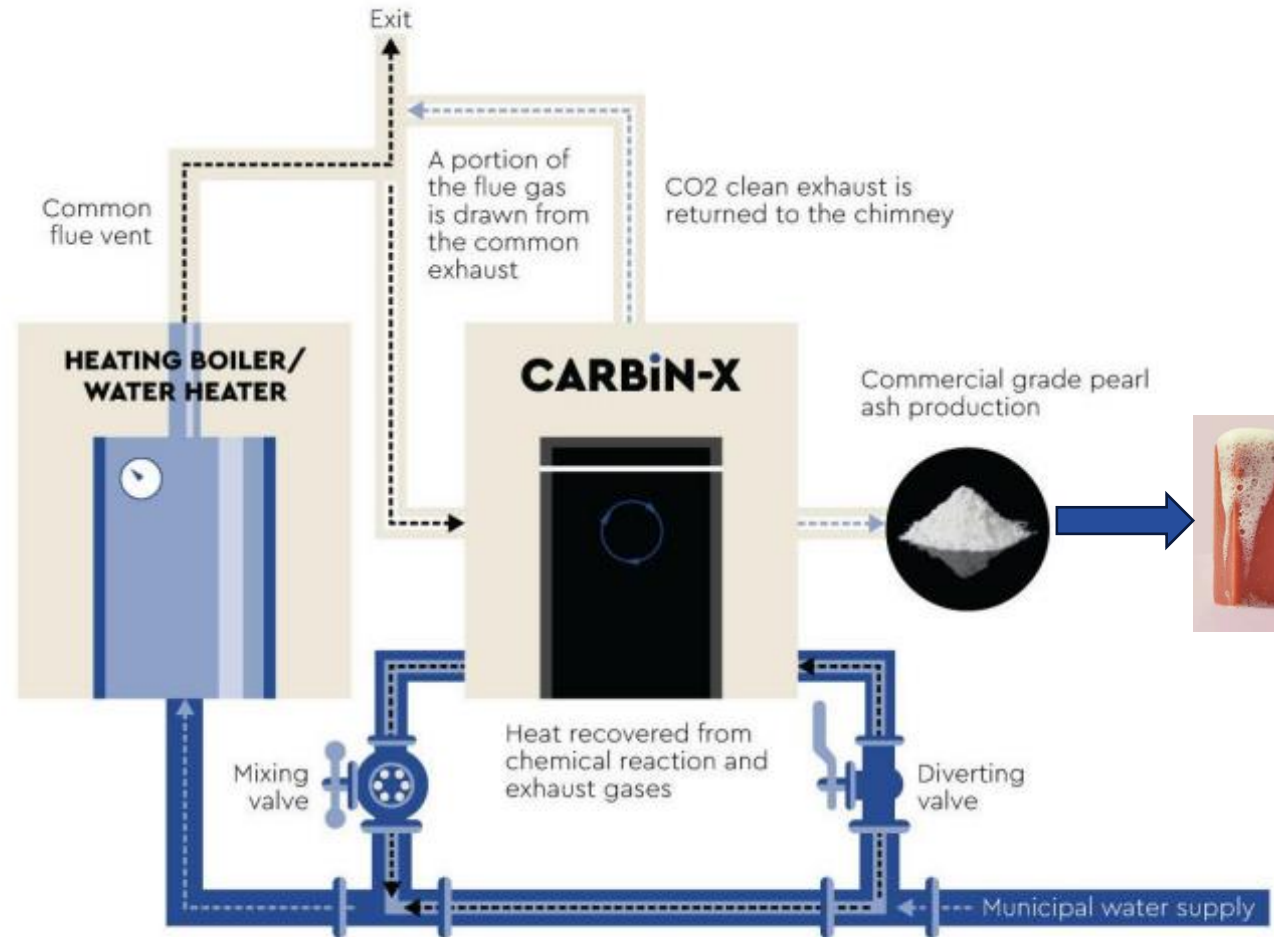
The refined gas is used for **ELECTRICITY**, **THERMAL APPLICATIONS**, and **VEHICLE FUEL**.

The refined gas is injected into the distribution system as sustainable RNG, displacing fossil natural gas.

NJNG is currently working with Monmouth County to supply RNG to more than 11,000 homes.

What Carbon Capture Technology is NJNG Deploying?

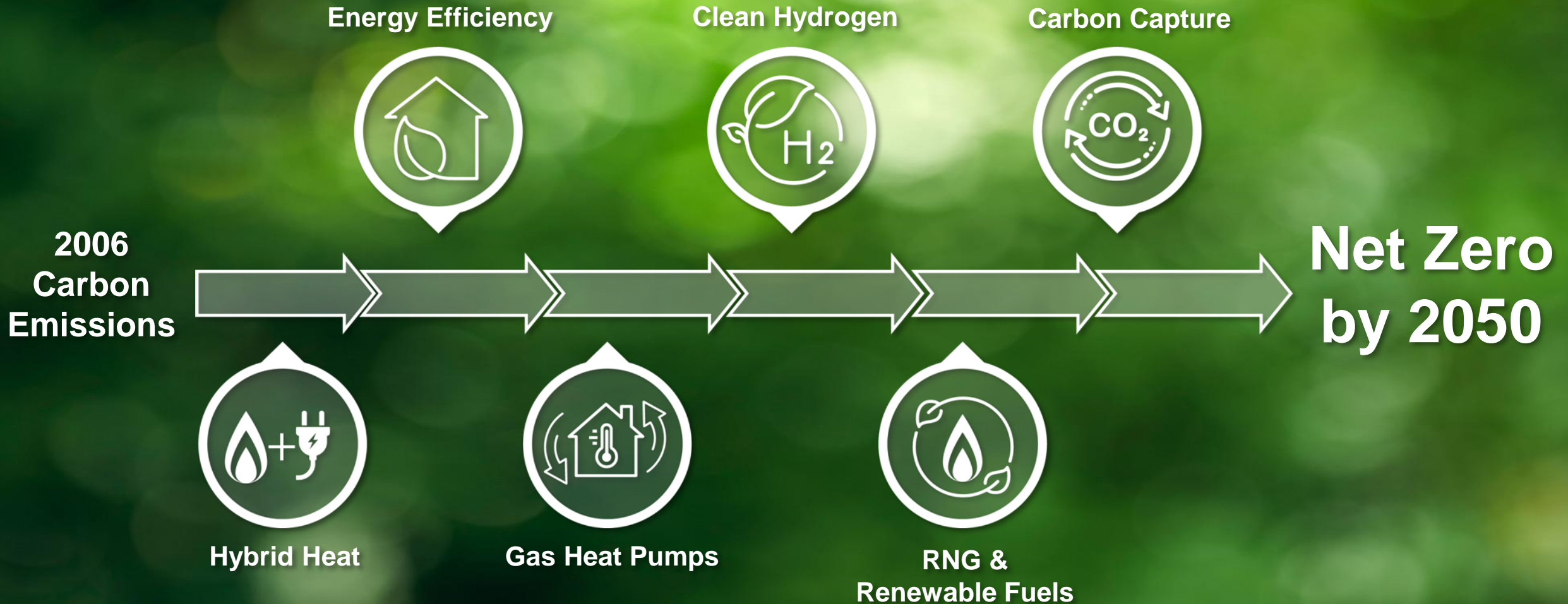
CarbinX™



NJNG is following NW Natural and CenterPoint down this important path. Transforming post-combustion emissions and converting it to a useful end-product will demonstrate that our strategy is effective!

Technologies to Reach 2050:

Decarbonization Solutions for Pipeline Infrastructure and Customers – Reduce Emissions While Pursuing “All-of-the-Above” Approach



NJNG has initiatives planned for each of these strategies to demonstrate that the cost impacts are much less than a full electrification strategy AND that customers can do this with very little inconvenience.

Lessons Learned from our Business Development Efforts

- Strong linkage between Business Development and Operations is a key to success
- Electrolyzer projects
 - Water and Power
 - Blend Locations and System Overlap
- Pioneers are the ones ducking the arrows
- Project development with a public-entity partner is a time-consuming, painful task