

NEW RIVER REGIONAL LANDFILL

First Renewable Natural Gas Project in Florida



**NEW RIVER SOLID
WASTE ASSOCIATION**



OPAL
FUELS



TECO
PEOPLES GAS
AN EMERA COMPANY



2023 SWANA FL Summer Conference | July 24, 2023

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Introductions

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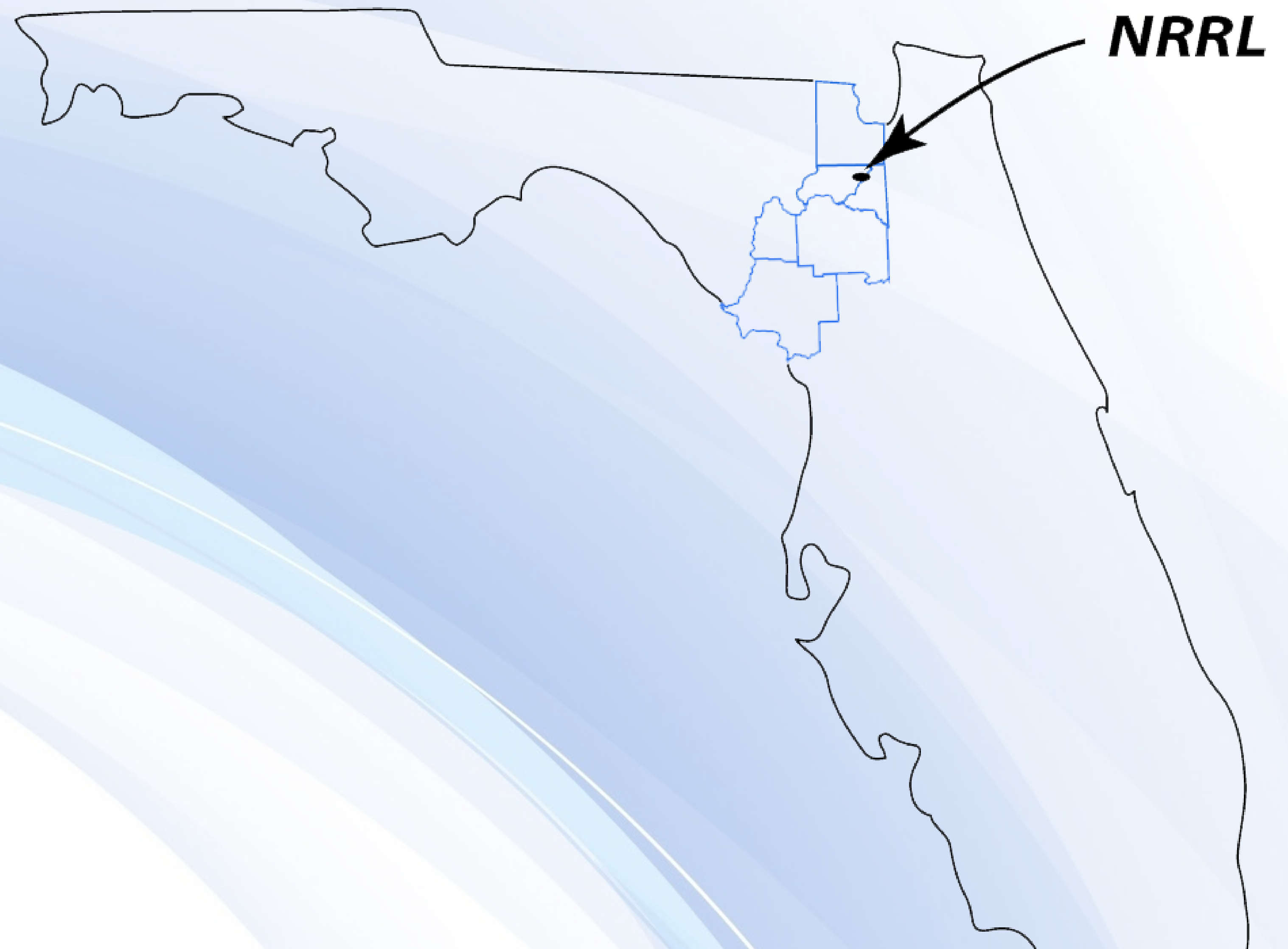
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OPAL
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New River Solid Waste Association

- **Formed in 1988**
- **Member Counties:**
 - Baker, Braford, and Union
- **Customer Counties:**
 - Alachua, Levy, Gilchrist
- **Located in Union County**
- **Opened gates in 1992**
- **99-acre Class I LF**
- **Approximately 1,100 TPD**



*Florida's first publicly-owned,
multi-county, regional
solid waste facility*

New River Solid Waste Association

Vision and Guiding Principles

- Protect environmental resources
- Assess and implement cutting-edge waste management technologies
- Contribute to the waste management community to make waste management sustainable on the global scale
- Provide a platform for training undergraduate and graduate students as waste management professionals
- Maintain reasonable disposal costs

New River Regional Landfill



New River Solid Waste Association

A History of FIRSTS at NRSWA

- Full-scale **Bioreactor Demonstration Project** (1999)
- **Carbon Credits** back to 2003: 225,000 credits verified by CAR
- Innovative **Bioreactor Bottom Liner**
- **Exposed Geomembrane Cover (EGC)** Final Closure (permit issued 2017)
- Use of **Whole-Tires** for use as a **geoconduits** for liquids addition (variance first issued 2009)

Florida's First LFG to RNG Project

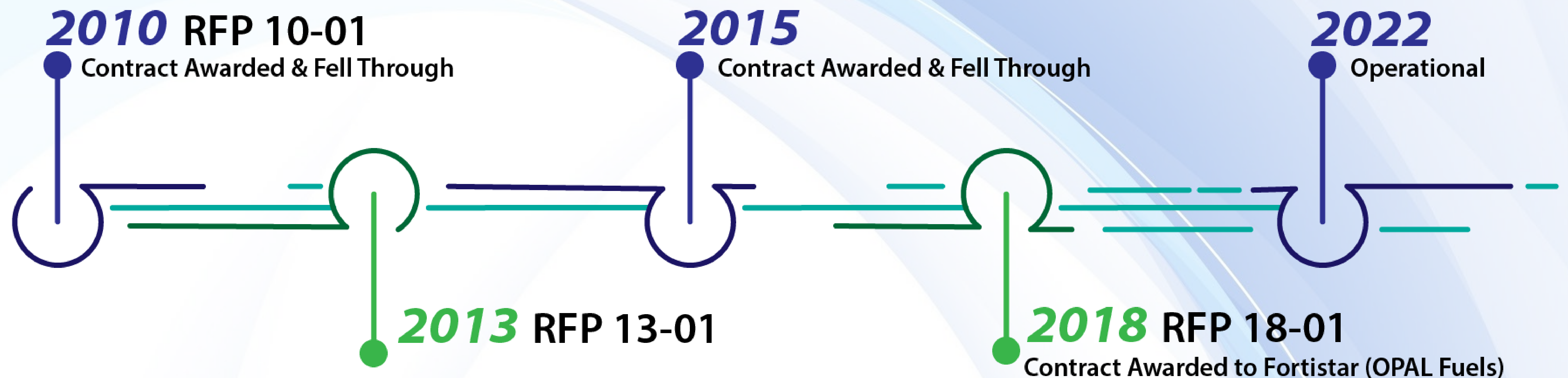


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How did we get here?

10 Long Years!



What is RNG?

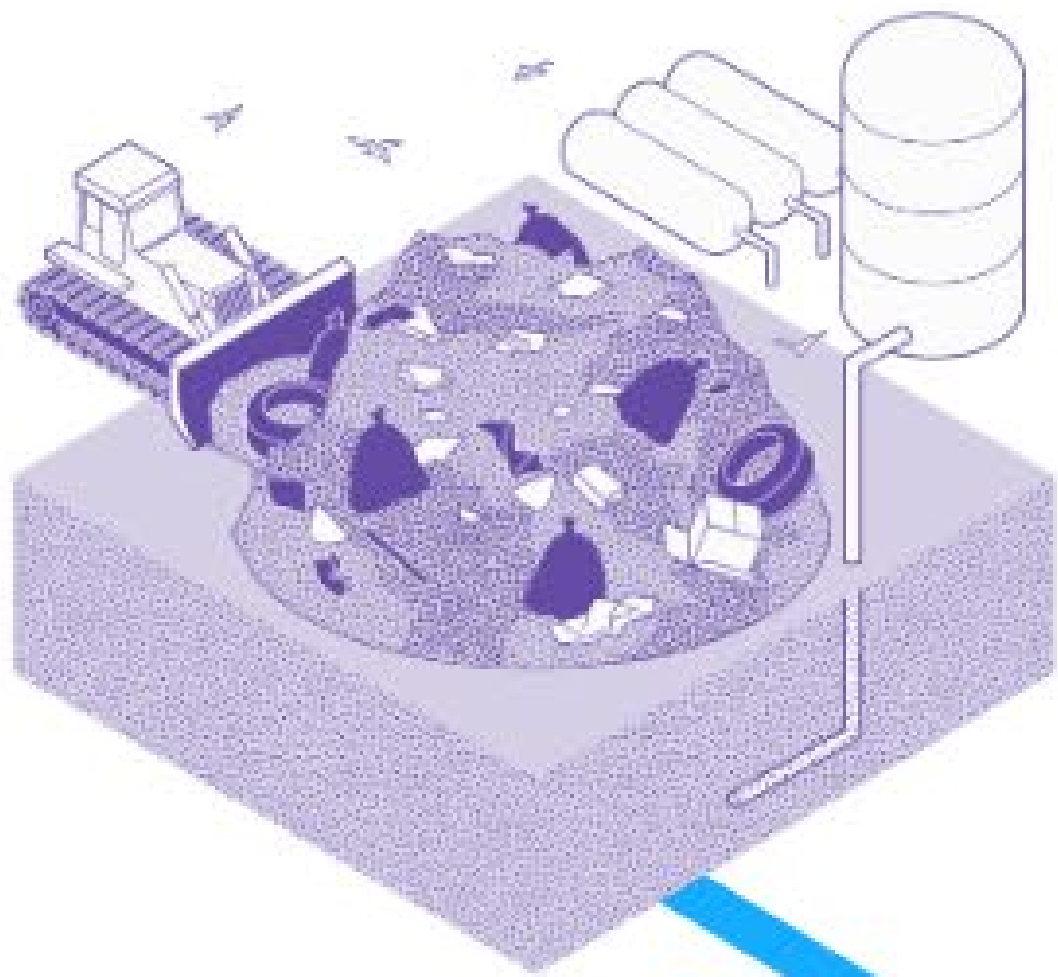
- Biogas that has been upgraded for use in place of fossil natural gas
- Sources include:
 - Municipal solid waste landfills
 - Digesters at wastewater treatment plants
 - Livestock farms
 - Organic waste management operations
- Used as a substitute for natural gas
 - Thermal applications
 - Generate electricity
 - Vehicle fuel
- Greater than 90% methane – 96-98% for pipeline injection
- Results in lower overall emissions

What is RNG?

Renewable Natural Gas at a Glance

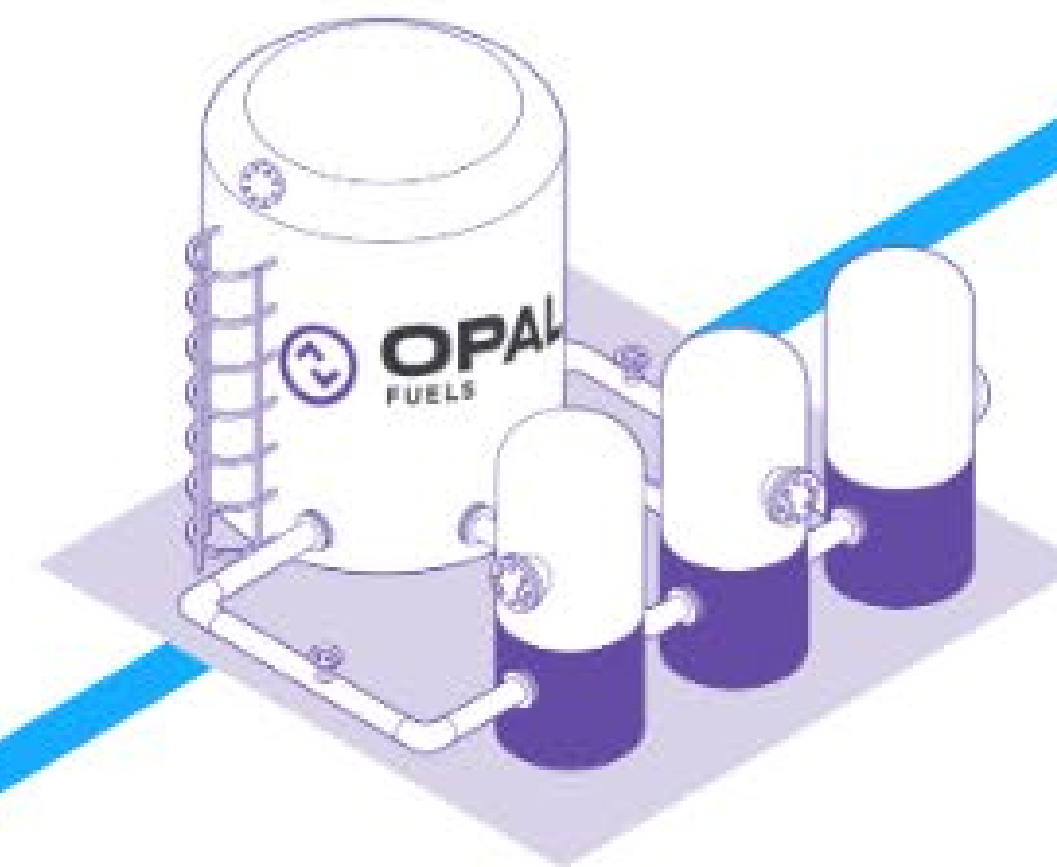
1

Methane emissions are captured on-site at landfills and livestock farms before they are released into the atmosphere or are required to be burned off



2

Emissions are cleaned, and repurposed at (on-site) processing facilities



3

OPAL Fuels distributes RNG fuel for Class 8 fleets nationwide



4

Over 60,000 Class 8 trucks run on natural gas and travel over 4 billion miles a year

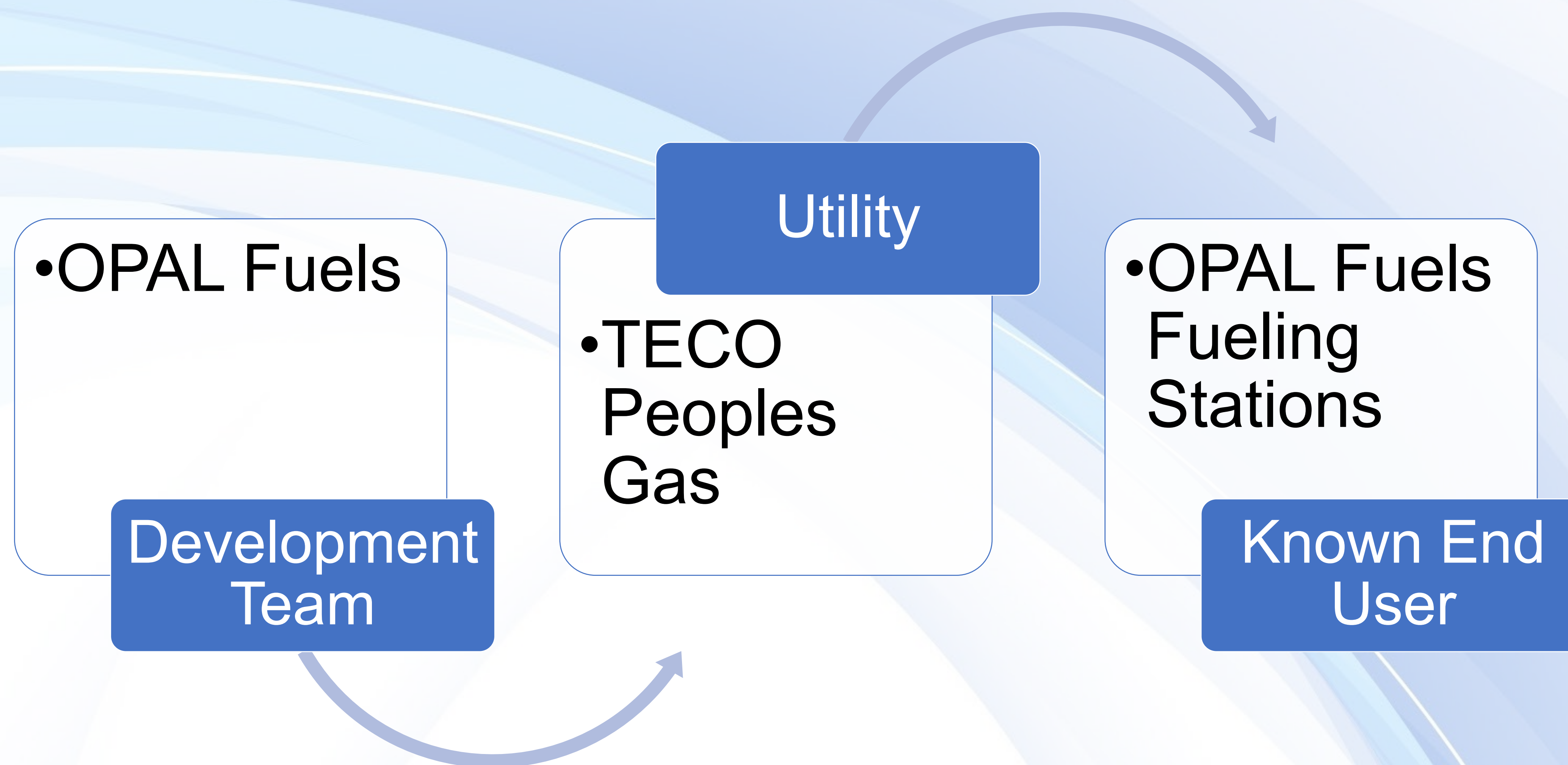


Why RNG?

- **NRSWA's vision and guiding principles**
- LFG to RNG supports **NRSWA's commitment to:**
 - **Innovative** industry leading **practices**
 - Maximizing **environmental protection**
 - **Waste conversion**
 - **Energy recovery**
 - **Emissions reduction** – reduce carbon footprint
- Contributes to **sustainability** goals of members and customers
- **Highest earnings** potential

Why Opal Fuels?

This team provided a continuous path toward meeting New River's goal of a renewable gas project.



New River knew that this was a premiere project that would result in an environmentally successful project and provide a return on everyone's investment.

Project Development

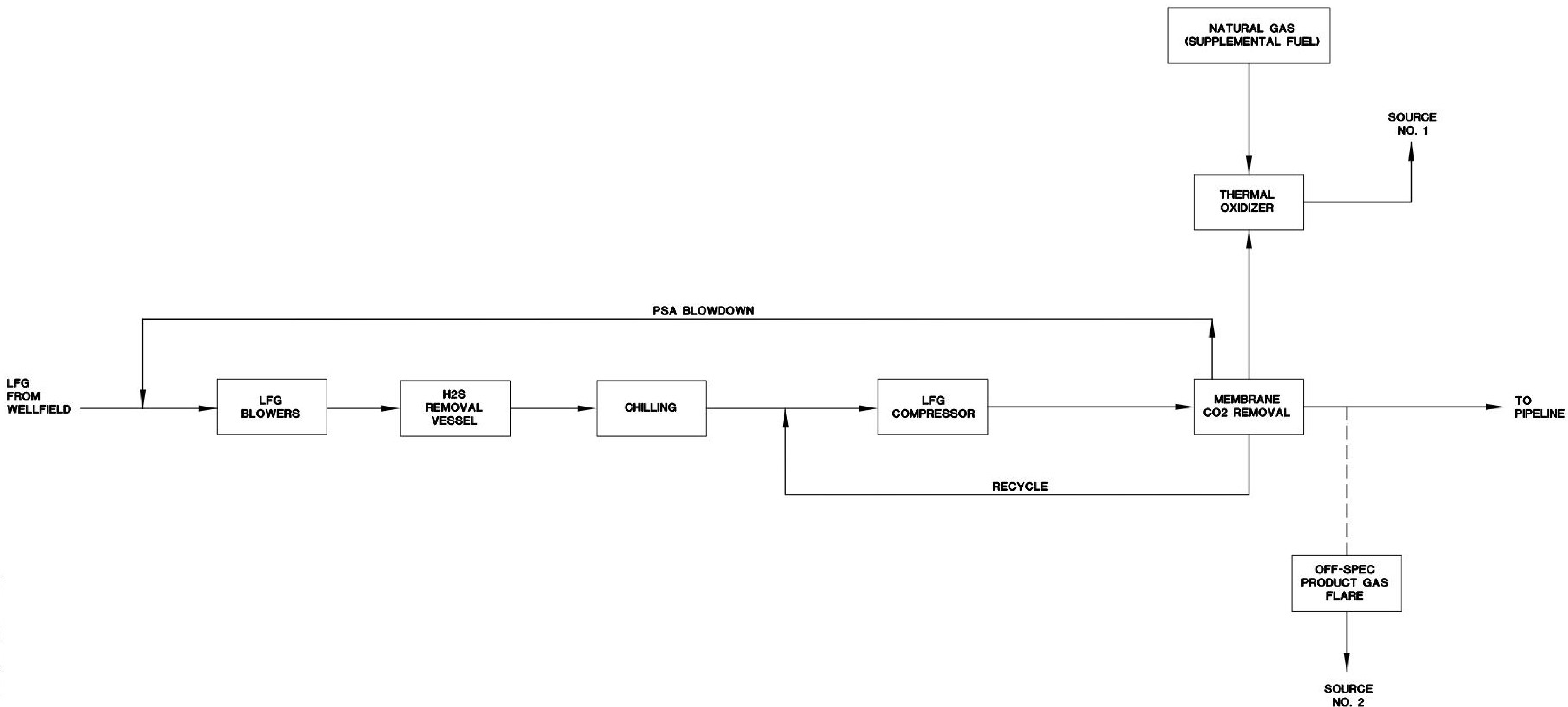
4 years from bid acceptance to startup

What happened during this time period?

- Complex contract negotiations
- FGT Pipeline interconnection
 - First in the state
 - Stringent pipeline specifications
- Design and permitting
- Construction during a pandemic

LFG Treatment Process

General Process: removes H_2S and other sulfur compounds, VOCs, CO_2 , and O_2



New River RNG Project Specs

NRSWA Raw LFG

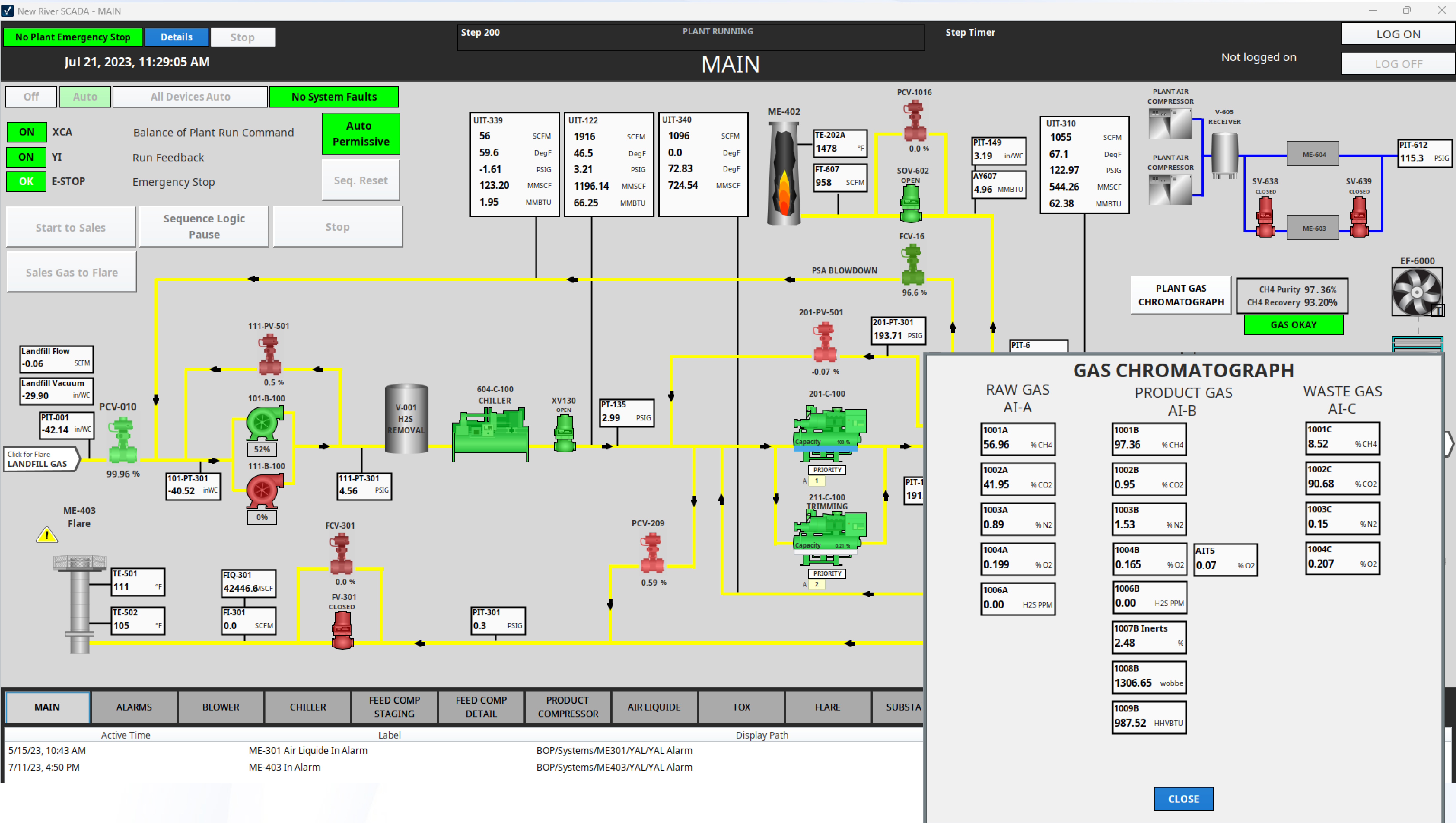
- ~2000 scfm raw LFG
- 30" WC system vacuum
- 57% CH₄
- 41% CO₂
- 0.2% O₂
- 0.8% N₂

Opal Product Gas

- ~1000 scfm sales flow
- 900+ psi into pipeline
- < 3% inerts (N₂, CO₂, etc.)
- Plant capacity = 2500 scfm raw LFG
- Approx 6 miles to FGT interconnect

5 million gasoline gallon equivalent (GGE) per year of RNG at full capacity

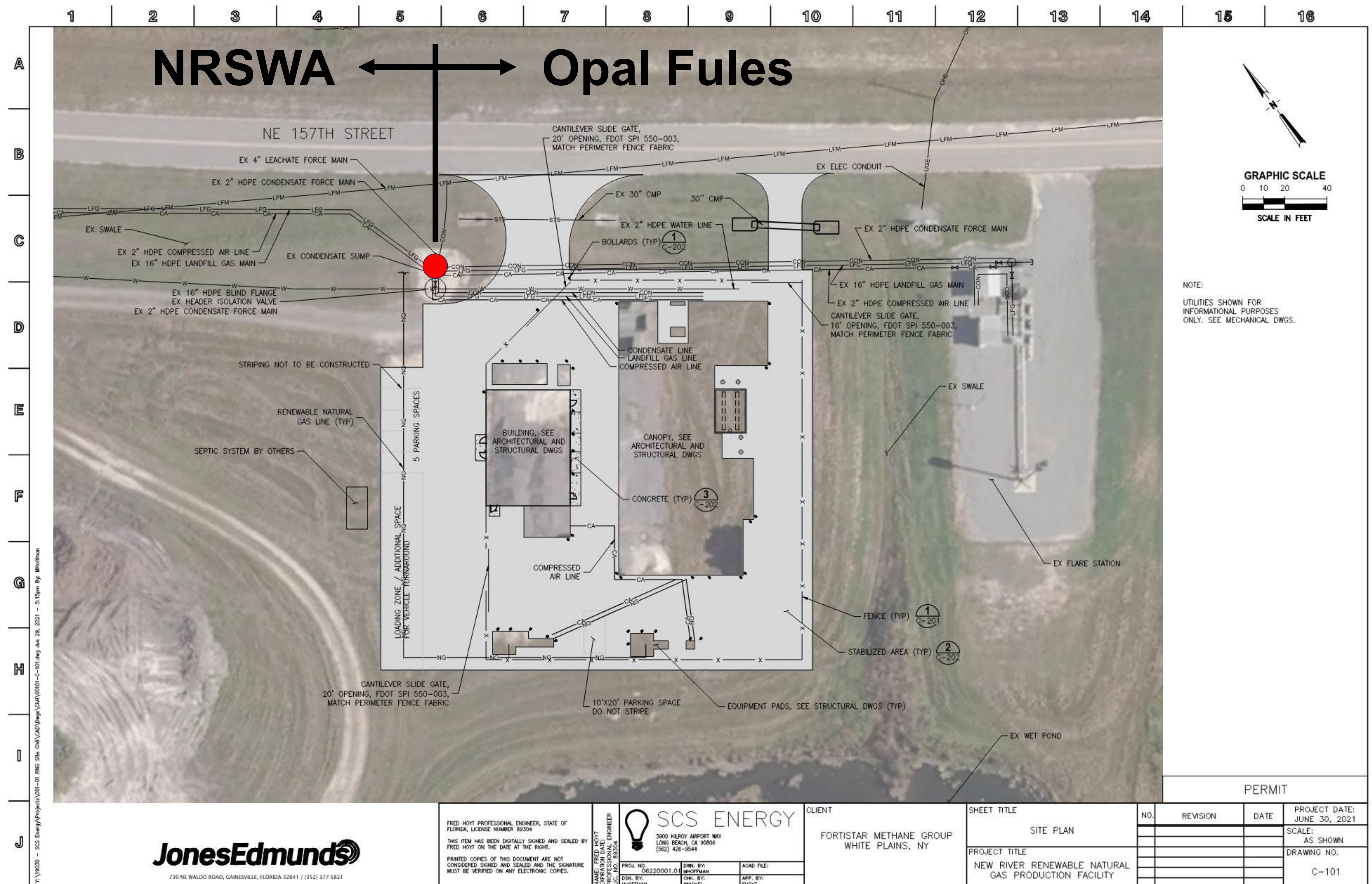
New River RNG SCADA



Project Division

- **NRSWA** – owns and operates the GCCS
 - Maintains separate FDEP Air Operations Permit
- **New River RNG, LLC (Opal Fuels)** – owns and operates the RNG Plant on property leased by NRSWA
 - Plant is not a Title V major source of air pollutants
 - Plant is not a major source of HAPs
 - Maintains separate FDEP Air Operations Permit

Project Division



Challenges and Hurdles

- **Being the first**
- Project team changes
- **FGT interconnection**
 - 1000 BTU waiver
 - Tight specifications – less than 3% total inerts (CO₂, N₂, etc)
 - Definition of “Natural Gas”
- Pipeline construction
- Virtual pipeline
- Construction during a pandemic



Project Status and Performance

- Construction completed April 2022 (Approx 9 months)
- Startup April 2022
- Commercial Operations May 2022
- Direct injection to Peoples Gas pipeline March 2023
- Exceeding projections

Success!
The project is exceeding expectations

Project Performance

“Royalty Payment” means the following:

(i) an amount equal to four percent (4%) of Project Revenues for the first (1st) Thirteen Million Three Hundred Thirty Thousand and No/Dollars (\$13,330,000) of Project Revenues received by Buyer in each Operating Year; plus

(ii) an amount equal to fifteen percent (15%) of Project Revenues in excess of Thirteen Million Three Hundred Thirty Thousand and No/Dollars (\$13,330,000) received in the same rating Year.

2022 Total Project Revenues = \$10,181,495.40
Royalty to NRSWA = \$407,259.82

Completed RNG Plant



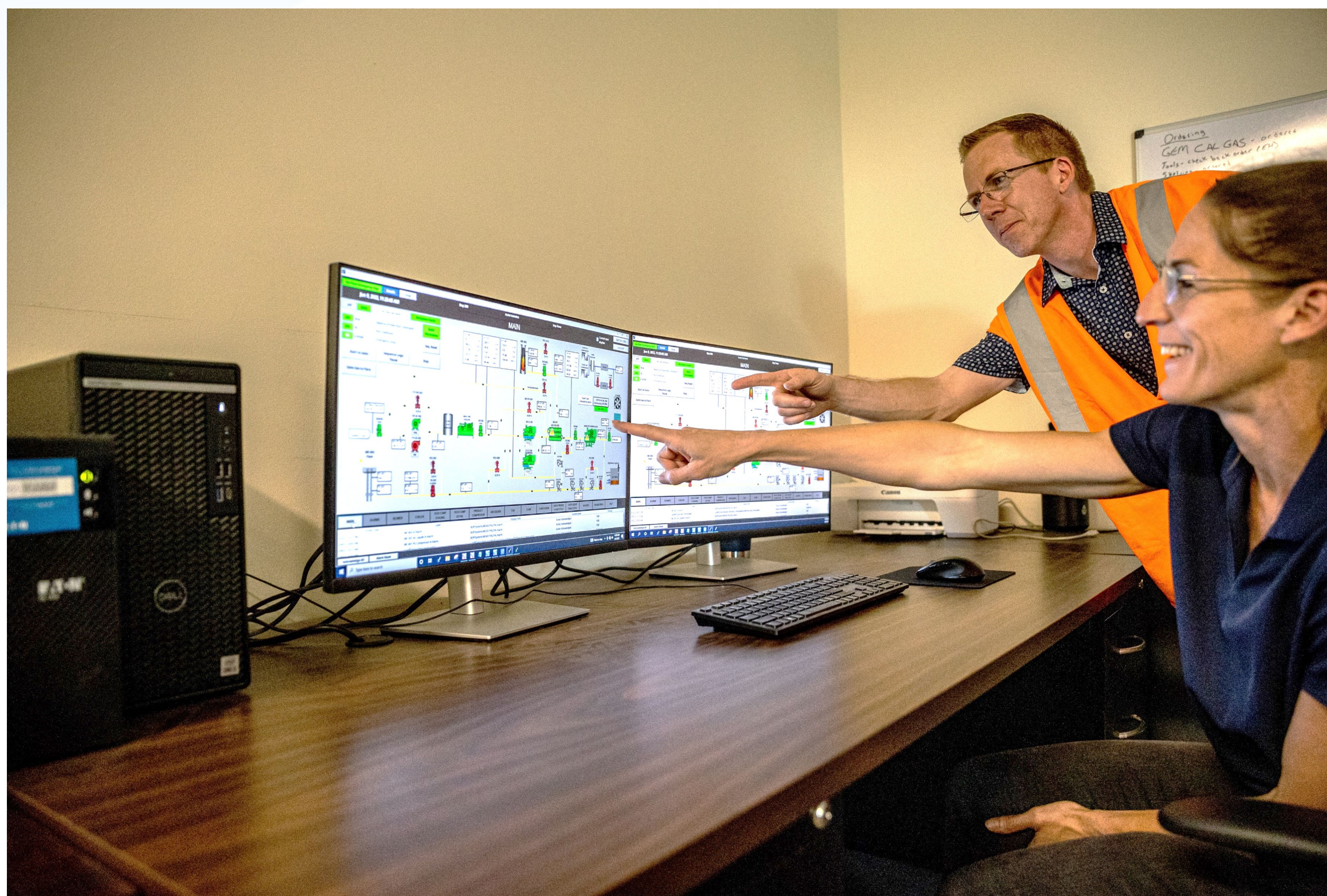
Completed RNG Plant



Completed RNG Plant



Completed RNG Plant



Summary

New River RNG aligns with NRSWA vision

First of a kind projects take time!

Challenges and Hurdles

RNG may not be suitable for all sites

Strict LFG quality requirements

Increased focus on GCCS operations

RNG can be very lucrative

NRSWA - Another First in Florida

NRSWA is proud to be paving the way for similar projects to begin development in Florida



Florida – 2023 Project of the Year



New River Operations Staff



QUESTIONS

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