Turning Vero Beach's Landfill Gas into Pipeline-Quality RNG: Lessons from a Fast-Tracked EPC Project

Ryan Murray | Waste-to-Energy Project Developer

Mead & Hunt

Project Background

- **Landfill Owner:** Indian River County
- **RNG Developer:** Nopetro Energy
- **EPC:** Mead & Hunt
- **Gas Utility:** Florida City Gas
- **Location:** Vero Beach, Florida
- **Process:** Landfill Gas to RNG
- **Delivery Method:** Engineering, Procurement, and Construction (EPC)
- **Public-Private Partnership (P3) with Indian River County**

Southern Florida's First!



Ultimate Collaborative Team Structure

Development & Design	Permitting & Construction	Operations & Maintenance	Measurement & Verification
Indian River County, Florida			
NOPETRO ENERGY		NOPETRO ENERGY	NOPETRO ENERGY
Mead & Hunt	Mead & Hunt		Mead & Hunt

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Why Public Private Partnership P3?

- **Schedule** – Optimize and accelerate over other methods
- **Cost Certainty** – Maximum communication between all parties
- **Design Control** – Scope is well understood by all parties
- **Total Cost Focus During Design** – Design to project budget
- **Change Order Risk** – Total collaboration between parties

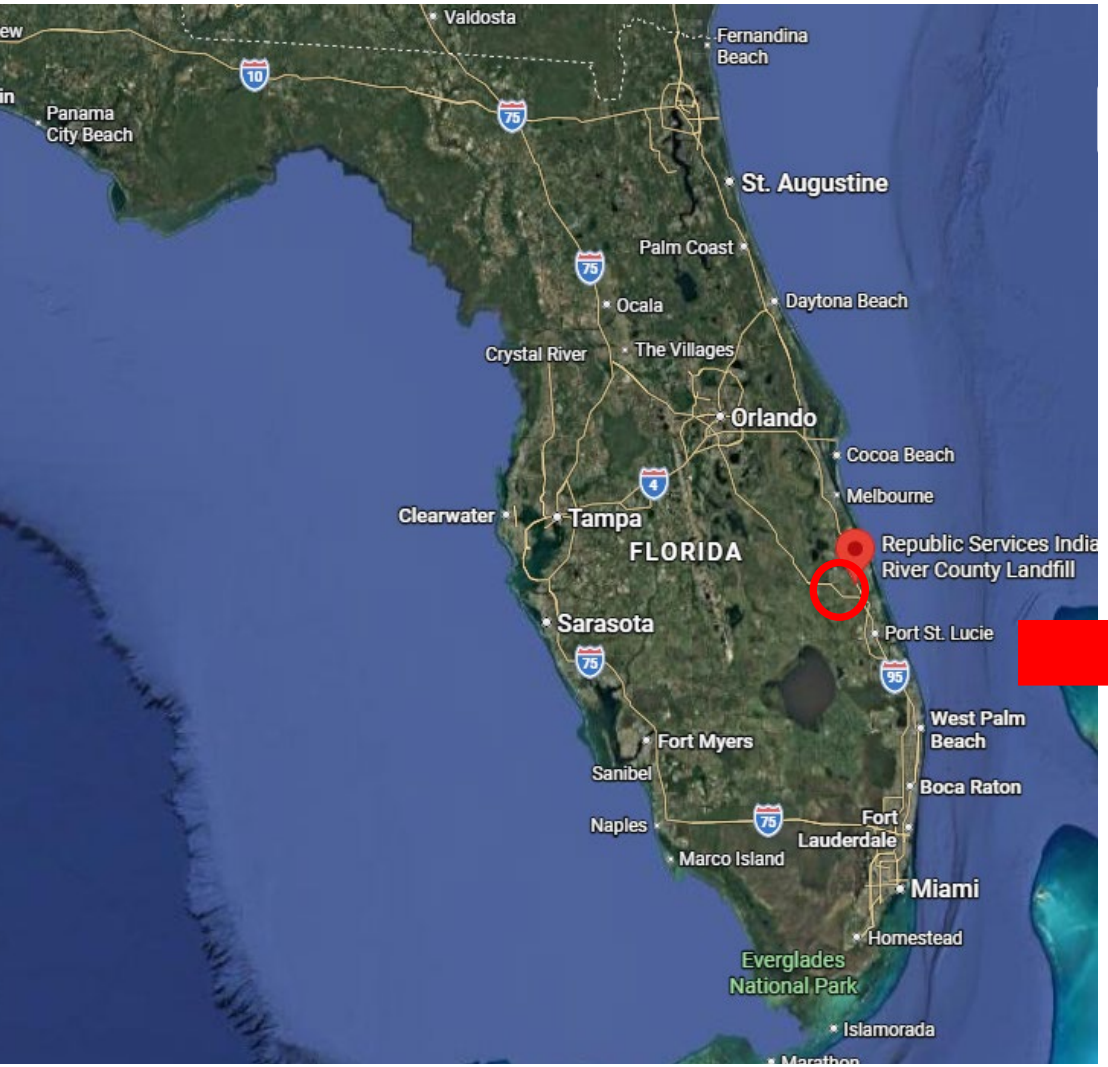


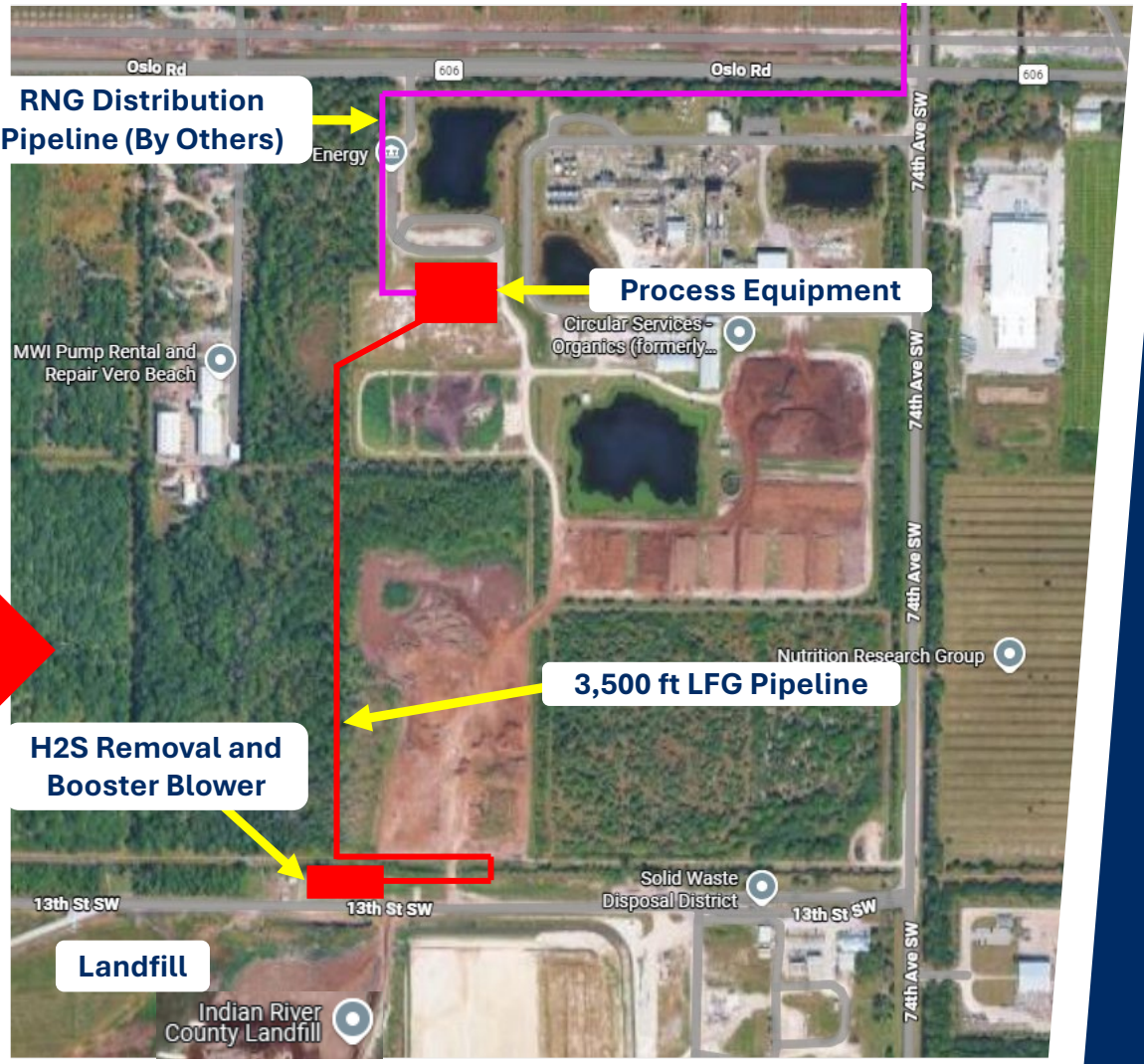
Project Details

- **Project Type:** Landfill gas to RNG via pipeline injection
- **Raw Biogas Flow:** 2,000 SCFM
- **Capacity/Generates:** 1,002 SCFM RNG
- **Project Start:** June 2023
- **Project Completion:** March 2024 (design), October 2025 (construction)



Location


Valdosta
Fernandina Beach
Panama City Beach
St. Augustine
Palm Coast
Ocala
Daytona Beach
Crystal River
The Villages
Orlando
Cocoa Beach
Melbourne
Clearwater
Tampa
FLORIDA
Republic Services India River County Landfill
Sarasota
Port St. Lucie
West Palm Beach
Fort Myers
Sanibel
Boca Raton
Naples
Fort Lauderdale
Marco Island
Miami
Homestead
Everglades National Park
Islamorada


RNG Distribution Pipeline (By Others)
Process Equipment
3,500 ft LFG Pipeline
H2S Removal and Booster Blower
Landfill
Oslo Rd
606
Energy
74th Ave SW
MWI Pump Rental and Repair Vero Beach
Circular Services - Organics (formerly...
Nutrition Research Group
13th St SW
Solid Waste Disposal District
Indian River County Landfill

Selected Robust Treatment Process

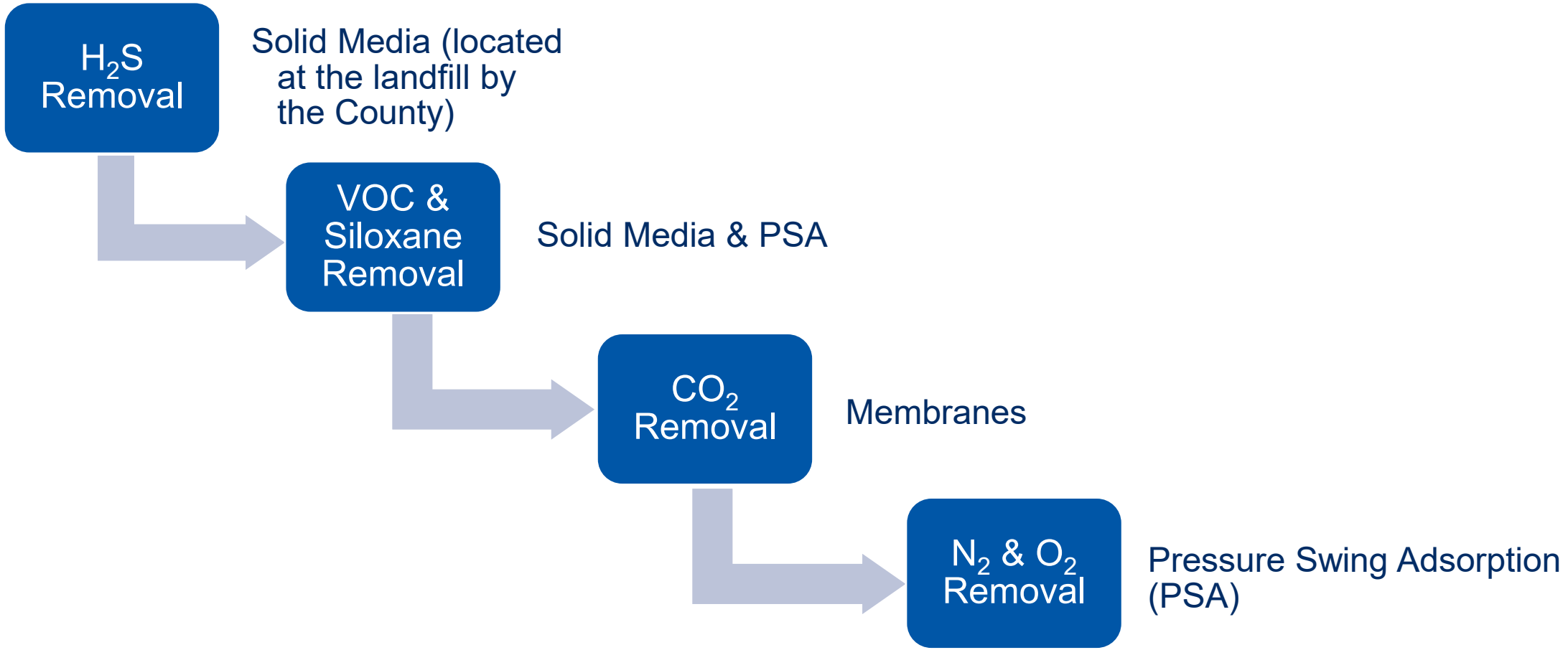



Illustration © Mead & Hunt


1 Interconnect Metering Station (by others)
2 Natural Gas Meter (by others)
3 Utility (by others)
4 4160:480 Transformer
5 Condensate Sump
6 Activated Carbon Vessels
7 Moisture Knockout Vessel
8 Feed Compressor
9 Feed Compressor Oil/Gas Cooler
10 LFG Drying Skid
11 Chiller
12 Raw Gas Chromatograph
13 VOC Siloxane Removal Skid
14 Membrane Skid
15 NRA PSA Valve Skid
16 PSA Absorber Vessel
17 PSA Absorber Vessel
18 PSA Absorber Vessel
19 PSA Absorber Vessel
20 PSA Absorber Vessel
21 NRU Recycle Compressor
22 NRU Recycle Compressor Aftercooler
23 NRU Recycle Compressor Oil Cooler
24 NRU Vacuum Compressor Skid
25 NRU Vacuum Compressor Skid Oil
26 NRU Product Gas Buffer Vessel
27 NRU Product Gas Buffer Cooler
28 Product Gas Flow Controller
29 Tail Gas Flow Controller
30 NRU Tail Gas Buffer Vessel
31 Product Compressor
32 Product Compressor Intercooler/Aftercooler
33 Flare Control Panel
34 Flare
35 Thermal Oxidizer
36 Thermal Oxidizer Control Panel
37 Air Compressor
40 Medium Voltage Motor Control
41 Product Gas Chromatograph
42 Gas Analyzers
43 HVAC Condenser Unit 1
44 HVAC Condenser Unit 2
46 Product Gas Dryer Location
Illustration © Mead & Hunt



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Construction Complete



Date: October 2025

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H_2S System at Landfill



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Summary of Our Scope & Services

- **Design Services**
  - Civil/site
  - Structural
  - Mechanical
  - Plumbing/HVAC
  - Process
  - Electrical
  - System integration
- **Fabrication Services**
  - Shown: Dehydration skid
  - Process and equipment skids
  - Pipe supports
- **Construction Services**
  - Preconstruction
  - Bidding and subcontractor selection
  - Equipment procurement
  - Construction management/site management
  - Project management
  - Construction inspection
  - Start-up and commissioning



Project Results & Value to Vero Beach Community

Financial

- **$200K-$400K annual revenue** stream (plus renewable energy credits 4M RINs annually) for the County
- **$40M private investment** from Nopetro
- Private-public model transfers risk and guarantees performance

Environmental

- Expected to produce over **3M gallons RNG annually**
- **300,000 metric tons of CO_2 emissions avoided** annually
- Converts landfill gas into a valuable, low-carbon energy resource

Community & Local Economic Development

- Creation of **40 temporary + 5 permanent jobs**
- Expected to **supply up to 80% of Indian River Co.'s annual natural gas demand**, benefiting homes, businesses, and fleet

First landfill gas-to-RNG facility in Southern Florida!

Strategic

- Aligns with sustainability and long-term infrastructure goals
- Demonstrates scalable model for other municipalities
- Supports domestic sourcing

Environmental & Regional Impact

Energy & Environmental Impact

Up to 2,000 scfm of landfill gas converted to ~540,000 MMBtu/year RNG

300,000 metric tons of CO_2 emissions per year avoided

Equivalent to:



4,300 cars off the road



~4.3M gallons of gasoline/ year



Energy for 700+ homes/ year

Regional Impact

"This partnership highlights the value of working with the private sector to bring innovation and investment to Indian River County. It's a responsible use of resources that supports local families, strengthens our economy and ensures access to dependable energy,"

— County Commission Chairman, **Indian River County**
Joseph Flescher

"Opening this is a major step, not just for Nopetro's growing natural gas production and distribution network, but for Indian River County,"

— CEO, **Nopetro Energy**
Jorge Herrera

Question #1

Q

On a scale of 1-5:

Prior to today, how familiar were you with landfill gas-to-RNG projects?



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Question #2

Q What is the biggest challenge to developing landfill gas projects?



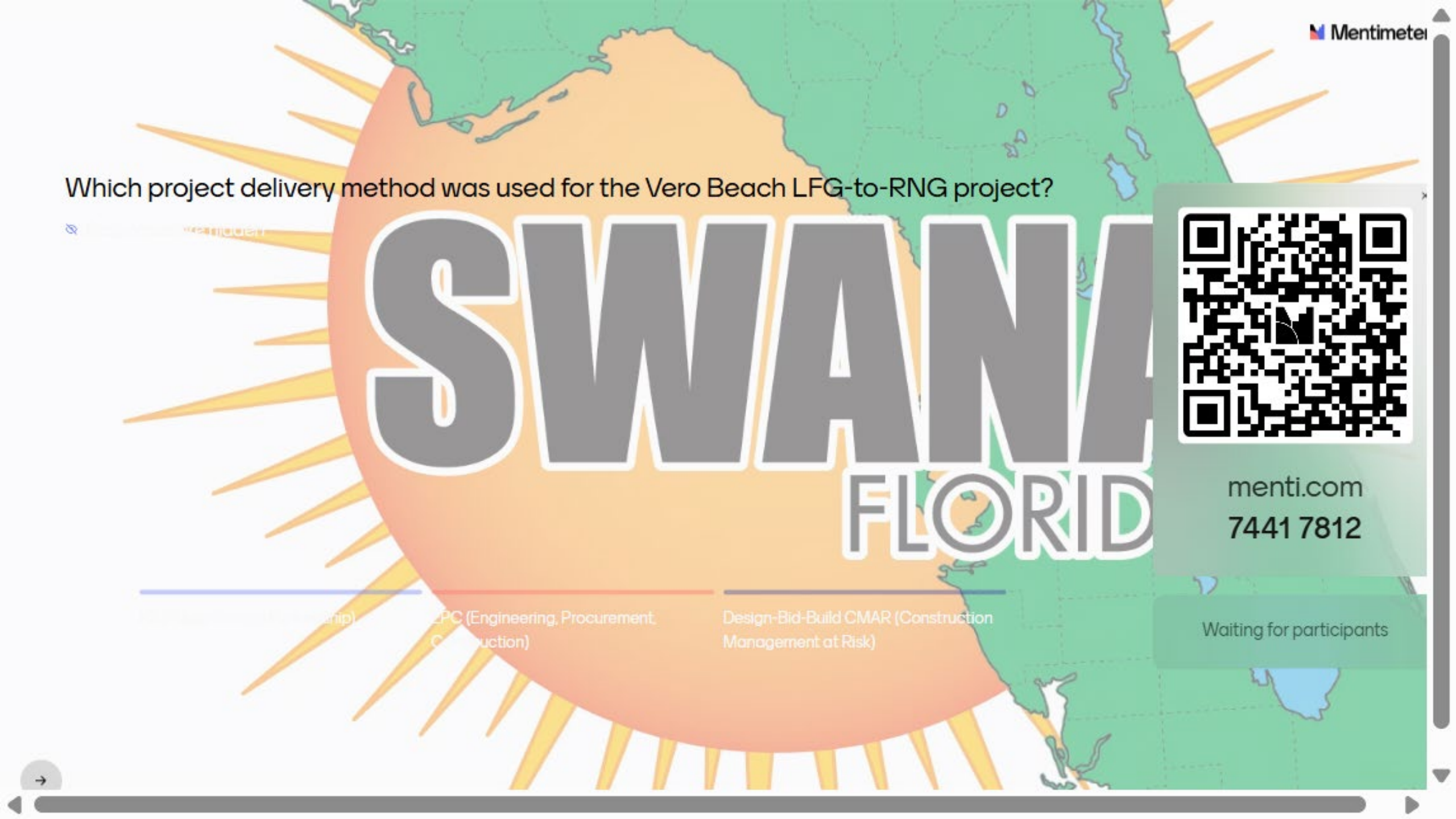
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Question #3

Q Which project delivery method was used for the Vero Beach LFG-to-RNG project?

- P3 (Public-Private Partnership)
- EPC (Engineering, Procurement, Construction)
- Design-Bid-Build
- CMAR (Construction Management at Risk)




Mentimeter
Which project delivery method was used for the Vero Beach LFG-to-RNG project?
SWANA
FLORID
menti.com
7441 7812
Waiting for participants
Design-Bid-Build CMAR (Construction Management at Risk)



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Q Open for Questions

