New Energy Development Company
STRATEGY | PROJECT DEVELOPMENT | CAPITAL

# Chart Industries and New Energy Development Company

*Using GreenER™ Technology*

**3-31-2026**

**Lunch & Learn**

**Proprietary, Patented Technology**

# Executive Summary

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- Introduction
- New Energy Development Company
- Problem Statement: LNG peak shavers: They are enduring, but with few innovations
- Five-minute GreenER™ Technology video from Notebook LM
- GreenER™ Technology's effect on permitting risk, O&M, required footprint
- Scalable from bullets and full containment tanks
- Applications & best fit
- Proven, including Greenville Utilities Commission (GUC); others have ordered

# The New Energy™ Team

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| Track Record | Experience | Technology | Financing Strength | Global Network |
|---|---|---|---|---|
| Countless US peak shaving projects and 14 LNG Import and regasification projects delivered worldwide | 200+ years combined LNG, permitting, trading, finance and asset development expertise | Proprietary & Patented GreenER™ Cryogenic Technology | Proven project finance and investment banking capabilities derisking and delivering projects | Trusted relationships with LNG liquefiers, EPCs, shippers, and marketers - all securing supply and execution |

**Serving EPCs | Local Distribution Companies | Power Gen | Municipalities | Data Centers | Marine | Peak Shaving**

# U.S. Gas Supply

# Largest Natural Gas Supply Network in the World

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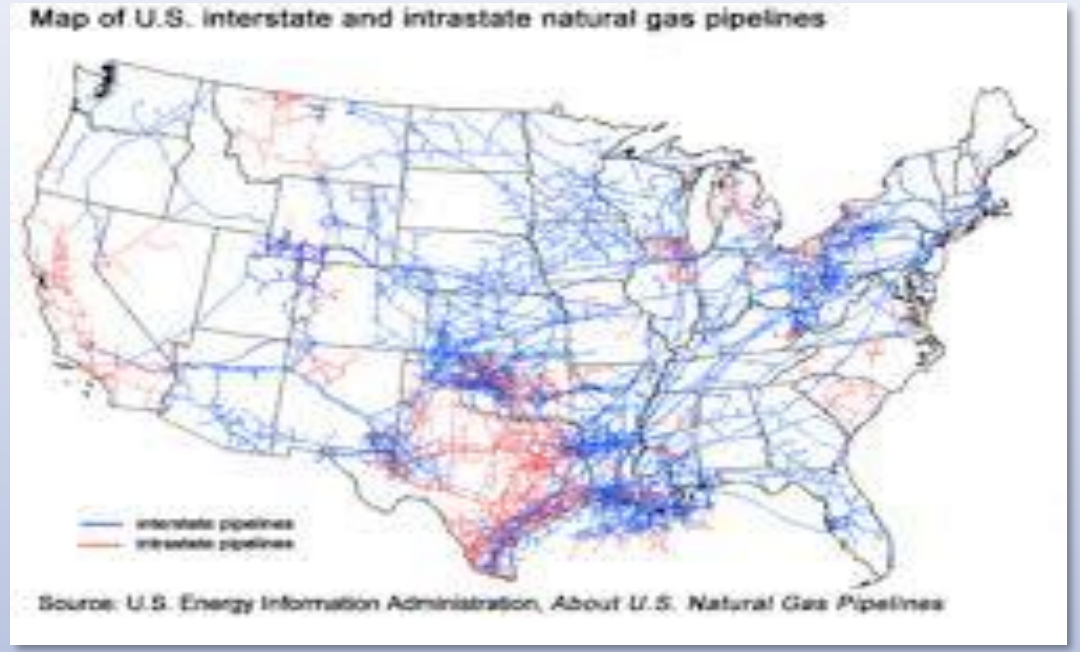
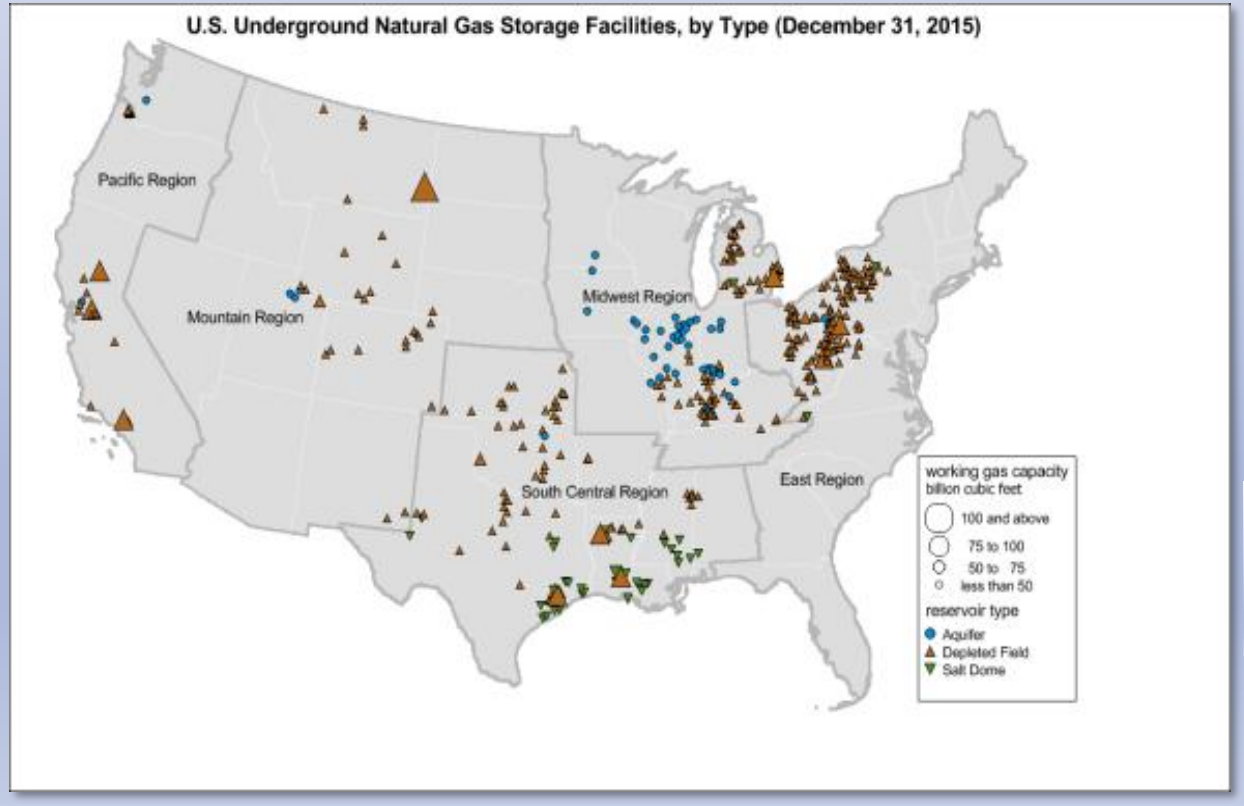
**250,000 miles of Interstate Pipelines (red)**
**2.25 mm miles Intrastate (Blue)**




**400 Natural Gas Storage Fields in US with 30 Tcf of Storage**

# Network of 169 LNG Facilities in the United States*

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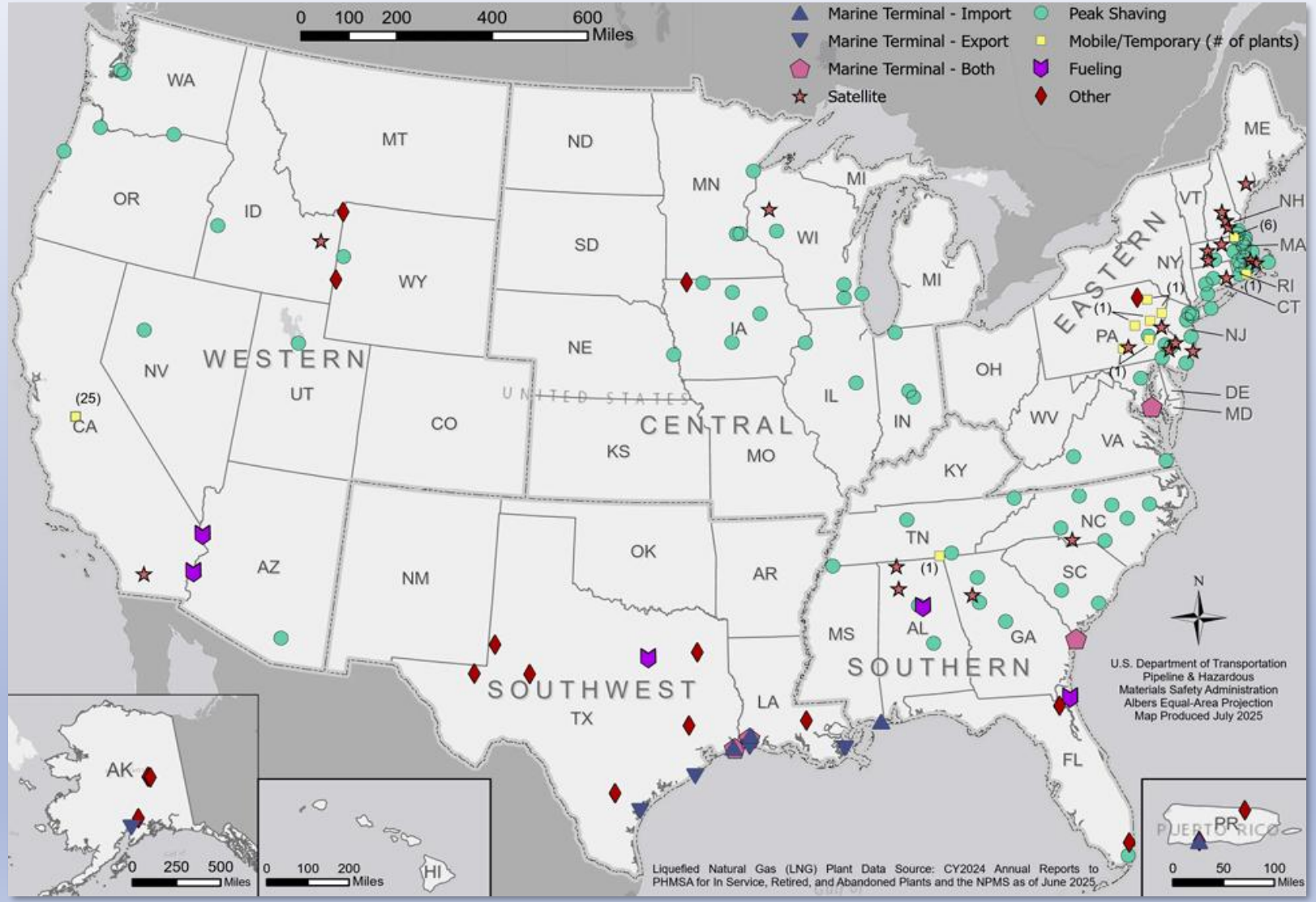
- **169 in-service LNG facilities**
- **62.5 Bcf of storage capacity***
- **~6.2 Bcf /day of deliverability**




*Not counting Canada; DoT 2004 LNG plants connected to pipelines including certain temporary LNG facilities

# Average Age is 33 yrs old, dating back to 1965!

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**Average LNG Facility Age: 33 years old**

**Oldest LNG Facilities reside in Wisconsin, Alabama and New Jersey**

1. **WepCo Elm Road LNG Plant**; Wisconsin, .2 Bcf; 72,590 MMBtu/d: 61 yrs old; 1965
2. **Spire Pinson LNG Plant,** Alabama, 1.2 Bcf 124,000 MMBtu /d: 61 yrs old; 1965
3. **TransCo Meadowlands,** NJ Station 240, 2.0 Bcf 414,800 MMBtu/d: 61 yrs old; 1965

# LNG Facilities Technology Problem

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**Issue: Very Little has Changed Since the 1970's**

# New Energy™ Brings First Major LNG Changes in Decades

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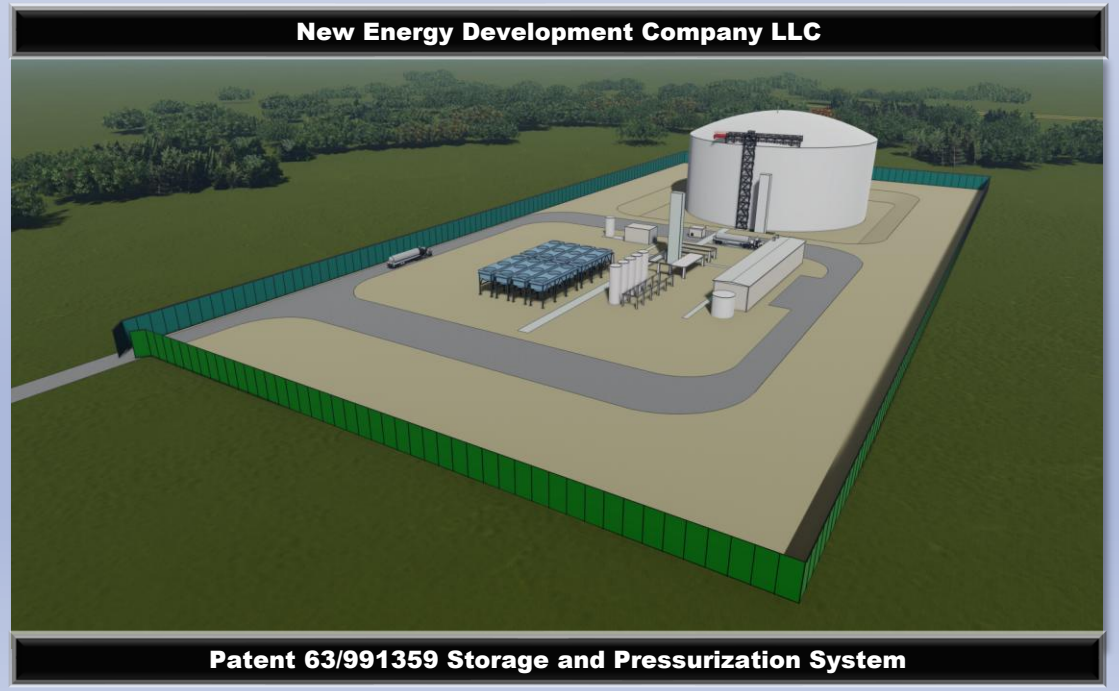
**Pre-engineered, modular, patented LNG systems, delivering**

- **Design-build packages**
- **For midscale and regional cryogenic assets**

# Review: LNG Facility Components

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LNG components provided by New Energy™ allow for a complete LNG plant offering:

- Pre-treatment and liquefaction
- Vaporization for local supply
- Custody transfer truck/rail/marine loading
- Onsite Customized Control Building
- HMI hardware, software, SCADA, screens
- Entire process, storage and exclusion zones easily fit on 500’ x 500’ site

**LNG Storage and Control Building**

**LNG Truck Loading**

**M&R and Odorization**

**LNG Vaporizer**

**LNG Liquefaction**

# Video Play

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## LNG Storage and Control Building

## LNG Truck Loading

## M&R and Odorization

## LNG Vaporizer

## LNG Liquefaction

# Introducing New Energy's GreenER™ Technology

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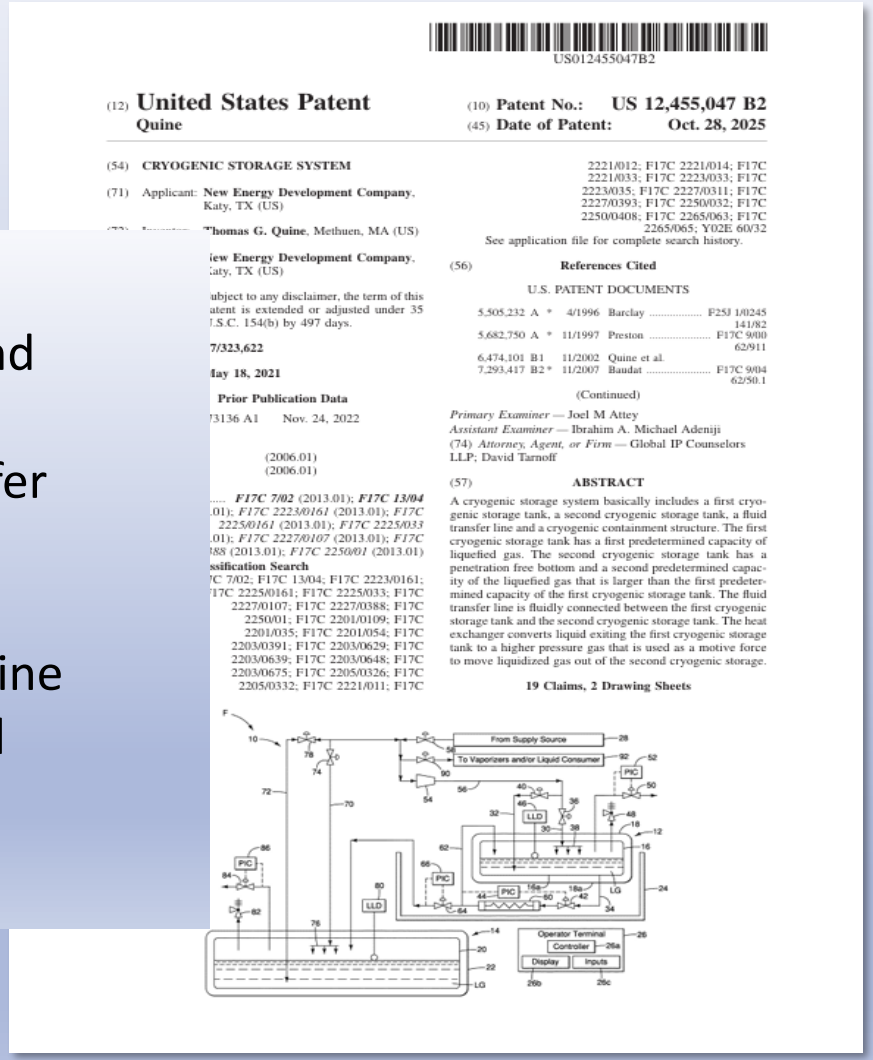
Covered by U.S. Patent 12,455,047 B2, the GreenER™ LNG storage and pressurization system uses full containment with no tank-bottom penetrations and a pressure-build approach that provides LNG transfer without pumps.

Modular, purpose-built design supports new builds, expansions, marine application, and retrofits, and is optimized for space-constrained and brownfield sites.



US012455047B2

(12) **United States Patent**
**Quine**

(10) **Patent No.: US 12,455,047 B2**
(45) **Date of Patent: Oct. 28, 2025**

(54) **CRYOGENIC STORAGE SYSTEM**

(71) Applicant: **New Energy Development Company**, Katy, TX (US)

**Thomas G. Quine**, Methuen, MA (US)

**iew Energy Development Company**, Katy, TX (US)

ubject to any disclaimer, the term of this atent is extended or adjusted under 35 .S.C. 154(b) by 497 days.

**7/323,622**

**lay 18, 2021**

**Prior Publication Data**

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(2006.01)
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*F17C 7/02* (2013.01); *F17C 13/04* .01); *F17C 2223/0161* (2013.01); *F17C 2225/0161* (2013.01); *F17C 2225/033* .01); *F17C 2227/0107* (2013.01); *F17C* 88 (2013.01); *F17C 2250/01* (2013.01)

**ssification Search**
C 7/02; F17C 13/04; F17C 2223/0161; 17C 2225/0161; F17C 2225/033; F17C 2227/0107; F17C 2227/0388; F17C 2250/01; F17C 2201/0109; F17C 2201/035; F17C 2201/054; F17C 2203/0391; F17C 2203/0629; F17C 2203/0639; F17C 2203/0648; F17C 2203/0675; F17C 2205/0326; F17C 2205/0332; F17C 2221/011; F17C 2221/012; F17C 2221/014; F17C 2221/033; F17C 2223/033; F17C 2223/035; F17C 2227/0311; F17C 2227/0393; F17C 2250/032; F17C 2250/0408; F17C 2265/063; F17C 2265/065; Y02E 60/32

See application file for complete search history.

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(Continued)

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*Assistant Examiner* — Ibrahim A. Michael Adeniji
(74) *Attorney, Agent, or Firm* — Global IP Counselors LLP; David Tarnoff

(57) **ABSTRACT**

A cryogenic storage system basically includes a first cryogenic storage tank, a second cryogenic storage tank, a fluid transfer line and a cryogenic containment structure. The first cryogenic storage tank has a first predetermined capacity of liquefied gas. The second cryogenic storage tank has a penetration free bottom and a second predetermined capacity of the liquefied gas that is larger than the first predetermined capacity of the first cryogenic storage tank. The fluid transfer line is fluidly connected between the first cryogenic storage tank and the second cryogenic storage tank. The heat exchanger converts liquid exiting the first cryogenic storage tank to a higher pressure gas that is used as a motive force to move liquidized gas out of the second cryogenic storage.

**19 Claims, 2 Drawing Sheets**

# LNG Breakthrough Improvements from GreenER™ Tech

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## Lower cost, faster delivery, and simpler operations

**Modular & Pre-Engineered.** Faster, simpler deployment with phased scalability.

**Eliminates Most Civil Work.** Less impoundment, smaller pad, lower installed cost.

**Safer · Full Containment.** Lower permitting risk, faster regulatory approvals, improved project certainty.

**Simplified Pressure-Driven LNG.** No internal pumps. Lower capital deployed, structurally lower O&M over the asset life, simpler startups under weather and stress conditions

* Two utilities have ordered the full system, and others are preparing orders. Results vary by site and execution

# New Energy's GreenER™ Technology

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**1. GreenER™ Tech can enable faster deployment with lower execution risk**

- Modular, pre-engineered system enables rapid LNG system buildout and phased expansion
- Reduces time-to-revenue and project complexity

# New Energy's GreenER™ Technology

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## 2. Lower total installed cost

- Smaller Vapor Exclusion Zone & TEZ translate into smaller acreage requirements
- No penetrations at the tank bottoms reduces or eliminates the need for concrete or earthen berms along with costly impoundment construction*, driving meaningful capex savings & capable of marine deployment
- No liquid tank extraction pumps means lower capital

*Full tank design spill reduced to 10-minute design spill

# New Energy's GreenER™ Technology

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**Siting: More siting flexibility and smaller footprint**

- Compact design enables deployment in constrained or existing sites where traditional LNG systems just don't fit
- Ideal for LNG add-ons, marine, power expansions, data centers, specialty apps

# New Energy's GreenER™ Technology

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**Smaller acreage: makes it ideal for expansions and retrofits**

- Brownfield upgrades and incremental capacity additions
- Creates a lower chance of a required full-facility redesign or permitting reset

# New Energy's GreenER™ Technology

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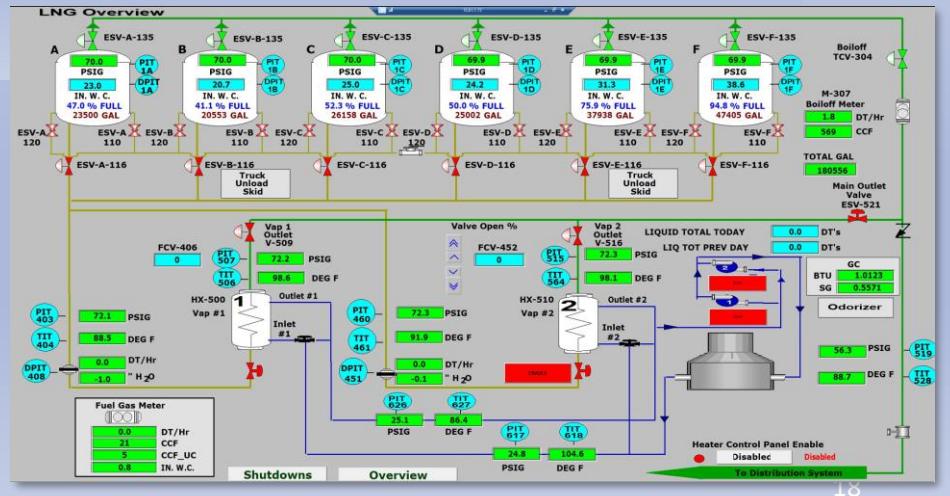
## 3. Enables simplified operations and 4. Structurally lower O&M

- Simple, risk-free daily operational start up
- Reduced equipment count, maintenance burden, and lifecycle costs
- No in-tank pumps because it's a pressure-driven system
- No pumps results in lower capital expenditures, reduced operational complexity and lower long-term maintenance cost



# New Energy's GreenER™ Technology

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**Project Implications:**

- Faster deployment, lower execution risk
- Modular, pre-engineered system enables rapid buildout and phased expansions
- Reduces time-to-revenue and project complexity

# Quantifying Project Regulatory & Permitting Risks

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## Reg Levels

- Federal
- State
- Local
- Coast Guard
- Others

**Regulatory & Permitting Risk = Monetary Exposure**

| | |
|---|---|
| Uncertainty of completion | $$$$ |
| Months or years of delays | $$ |
| Added design and engineering costs | $$$ |
| Surprise certification costs* | $$ |
| Incremental periodic maintenance | $$ |
| Cost of capital & finance | $$ |

*PHMSA will examine inputs to PHAST/DEGADIS-type modeling

# Review: US Code of Federal Regulations

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## 49 CFR Part 193, 33 CFR Part 127 and NFPA-59A

## Siting Considerations*

- VEZ: Vapor exclusion zone* - flammability hazard boundary (gas Full Seismic Investigation Limit
- cloud)
- TEZ: Thermal exclusion zone - heat hazard boundary (fire radiation). We design to the worst-case of the two, and that's what ultimately constrains your site.
- 100 Year Flooding
- Soil Conditions
- Design Wind Speed
- Other Severe Weather
- Adjacent Activities To The Site
- Property Lines And Equipment Separation
- Proximity To Airports
- Local Site Zoning

*PHMSA guidance and project-specific modeling can materially change distances; PHMSA examines inputs to PHAST/DEGADIS-type modeling
*U.S. Coast Guard regulatory requirements include 33 CFR Part 127

# Site Size & De-Risking: Can Save Tens of Millions

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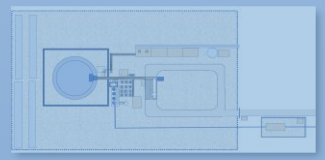
**You Derisk Your LNG Site with GreenER™ Technology**

**GreenER™ Technology can significantly shrink the combination VEZ and TEZ, enabling a significantly smaller site footprint:**

- **Smaller Footprint = smaller site**
- **Smaller site can and will save millions (you may assume $1mm/acre), especially for marine calculations**
- **Derisks, creates more project and site certainty**
- **Less change of later siting and permitting complications**

**Saving 20 acres on a 50-acre site can easily save $20mm or more on a project**

Your LNG Site



*Not to scale. PHMSA will examine inputs to PHAST/DEGADIS-type modeling

# Review: US Code of Federal Regulations: TEZ

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## 49 CFR 193 LNG THERMAL EXCLUSION ZONES (TEZ)

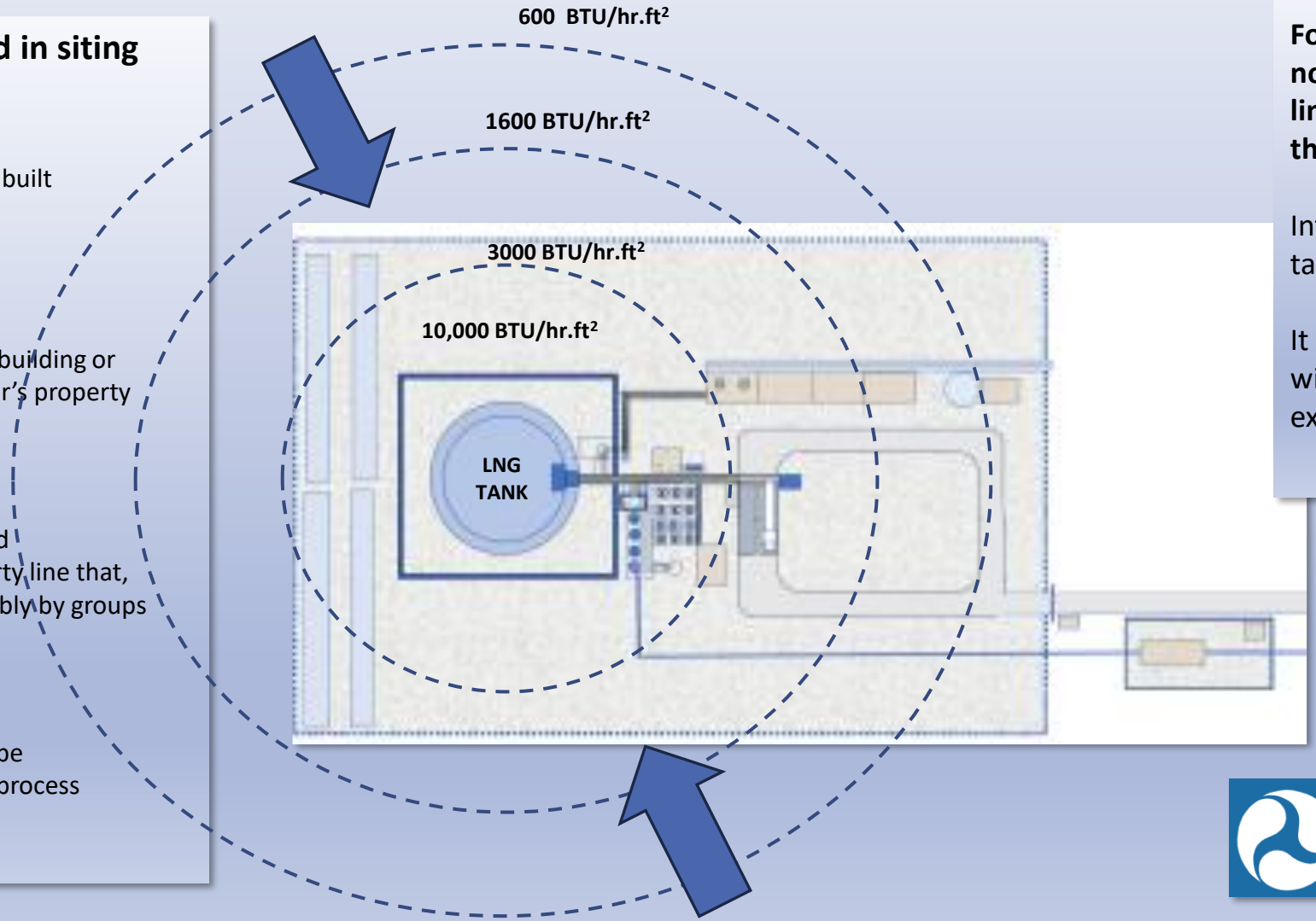
**The TEZs are defined in siting regulations***

**10,000 Btu/hr.ft2**
A property line that can be built upon for a fire over an impounding area.

**3,000 Btu/hr.ft2:**
at the nearest point of the building or structure outside the owner's property line used for occupancies

**1,600 Btu/hr.ft2:**
At the nearest point located outside the owner's property line that, is used for outdoor assembly by groups of 50 or more persons

**600 Btu/hr.ft2**
At a property line that can be built upon for ignition of a process design spill.




**For a facility with LNG tanks with no bottom penetrations, the limiting factor for siting is the thermal radiation zone.**

Influenced / created by the LNG tank secondary containment.

It is recommended that the project will meet, and in some cases, exceed the Requirements.

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

*Not to scale: PHMSA will examine inputs to PHAST/DEGADIS-type modeling

# Review: US Code of Federal Regulations: VEZ

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## 49 CFR 193 LNG VAPOR EXCLUSION ZONES (VEZ)

**The VEZ is typically measure in concentration of methane as a percent of air volume**

LNG vapor is:

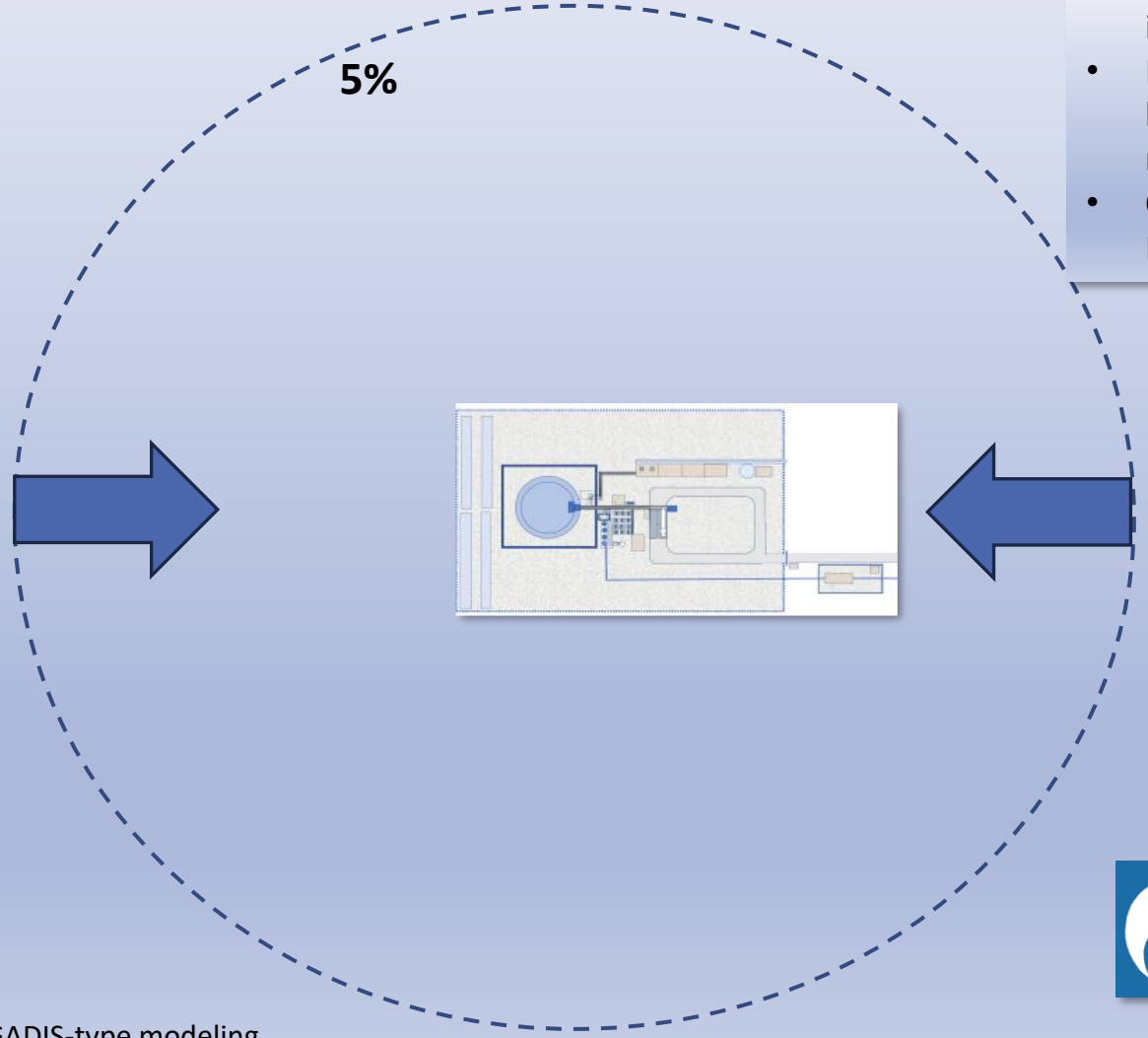
- Cold and dense and therefore stays near ground
- Can travel horizontally before dispersing

Even moderate spills can create:

- **long, low-level vapor clouds**

Result:

Distance to **LFL (5% methane)** can extend farther than thermal limits




- Measured in gas concentration (%) in the air  Volume % methane
- Key Threshold: Lower flammable limit (LFL), approximately 5% methane by volume.
- Output measure is distance (ft) to LFL

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

*Not to scale. PHMSA will examine inputs to PHAST/DEGADIS-type modeling

# Shop Fab Systems:  A drill down on how this works

# GreenER™ Technology Shop Fabricated Systems

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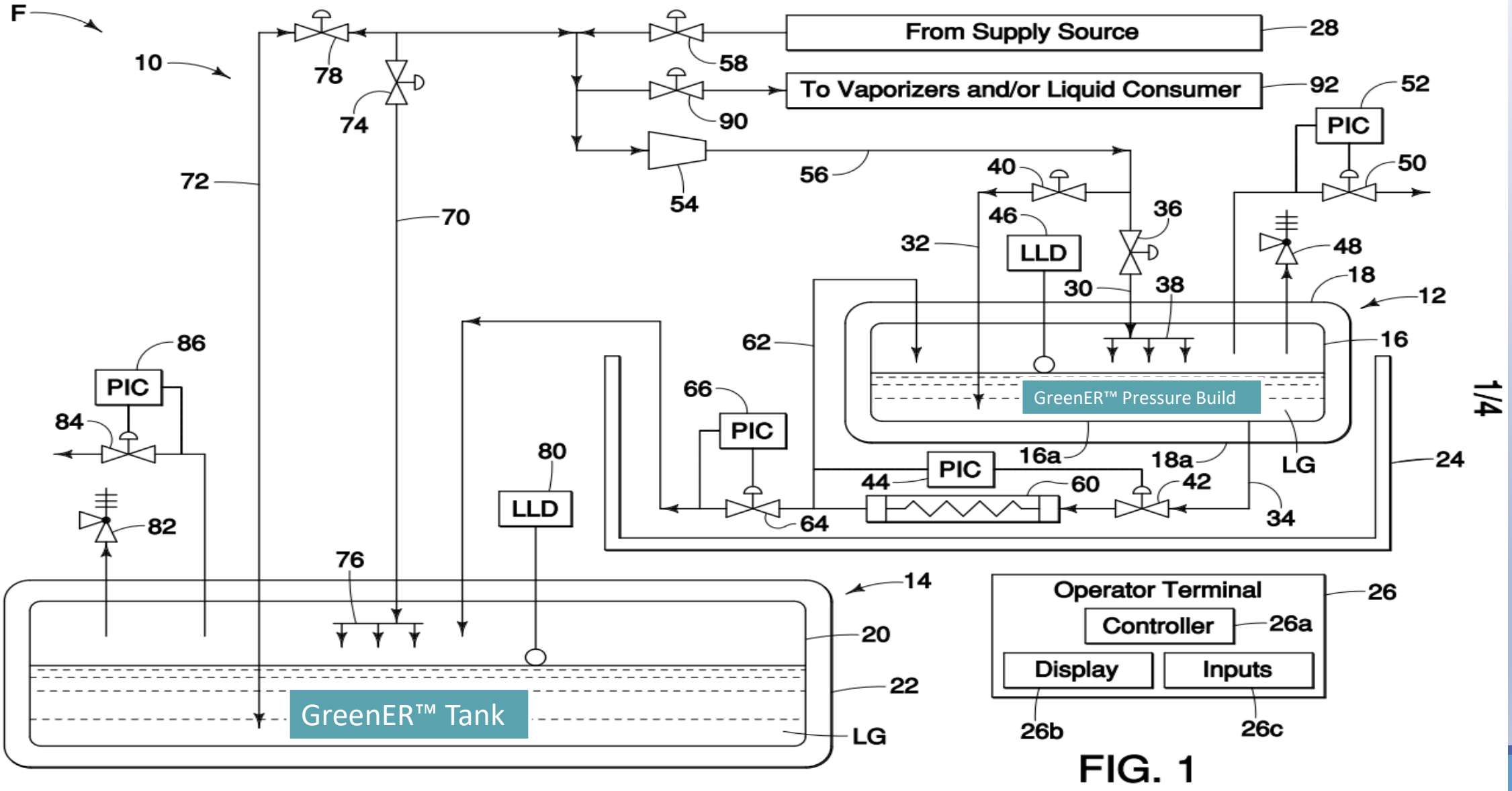


FIG. 1

1/4

# Larger Scale: 1.0 Bcf or larger

# GreenER™ Technology is Now Scalable

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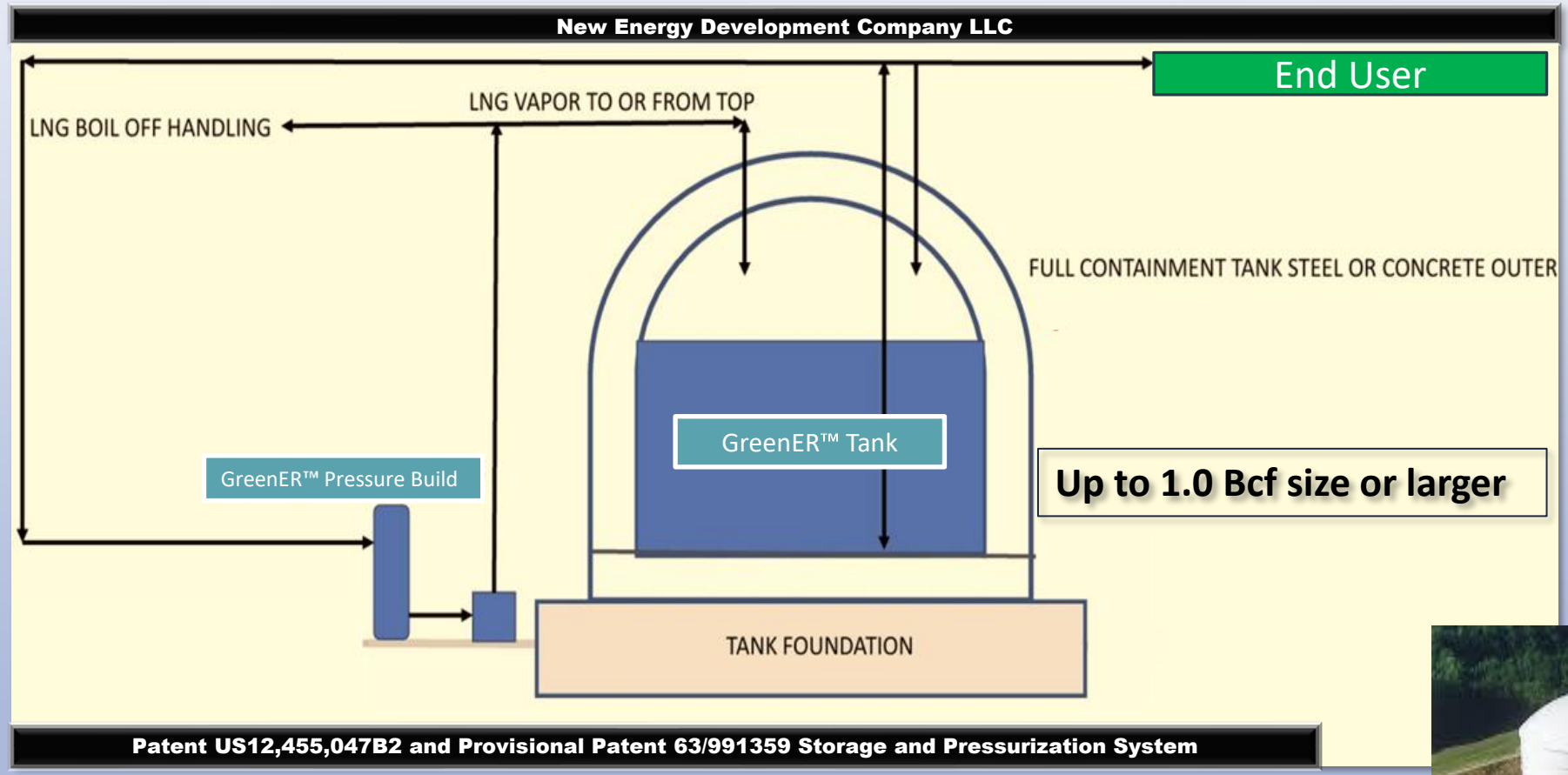


- Inner single wall reinforced for limited pressure
- Saves cavity infrastructure normally required for pump reinforcement and maintenance
- Creates a full containment system
- Completely satisfies 49 CFR 193 requirements
- ~1.0 Bcf (50 x 206 ft): P~10 psi required to drive the LNG out the top*.

* For initial flow, not counting syphon effect if pipe terminus is near bottom of tank. Flat bottom Tank: API 620: 2.3 ft for every ft of elevation. 10 lbs = 50 ft pressure. 100 ft tank diameter x 50 ft height = 393 CF; 3mm gal. = 250,000 MMBtu. If 200 ft dia x 50 = 11mm gal = 1Bcf. 15 lbs = 75 ft, less boiloff; therefore savings. Multiple wells for pumps!

# GreenER™ Technology is Now Scalable

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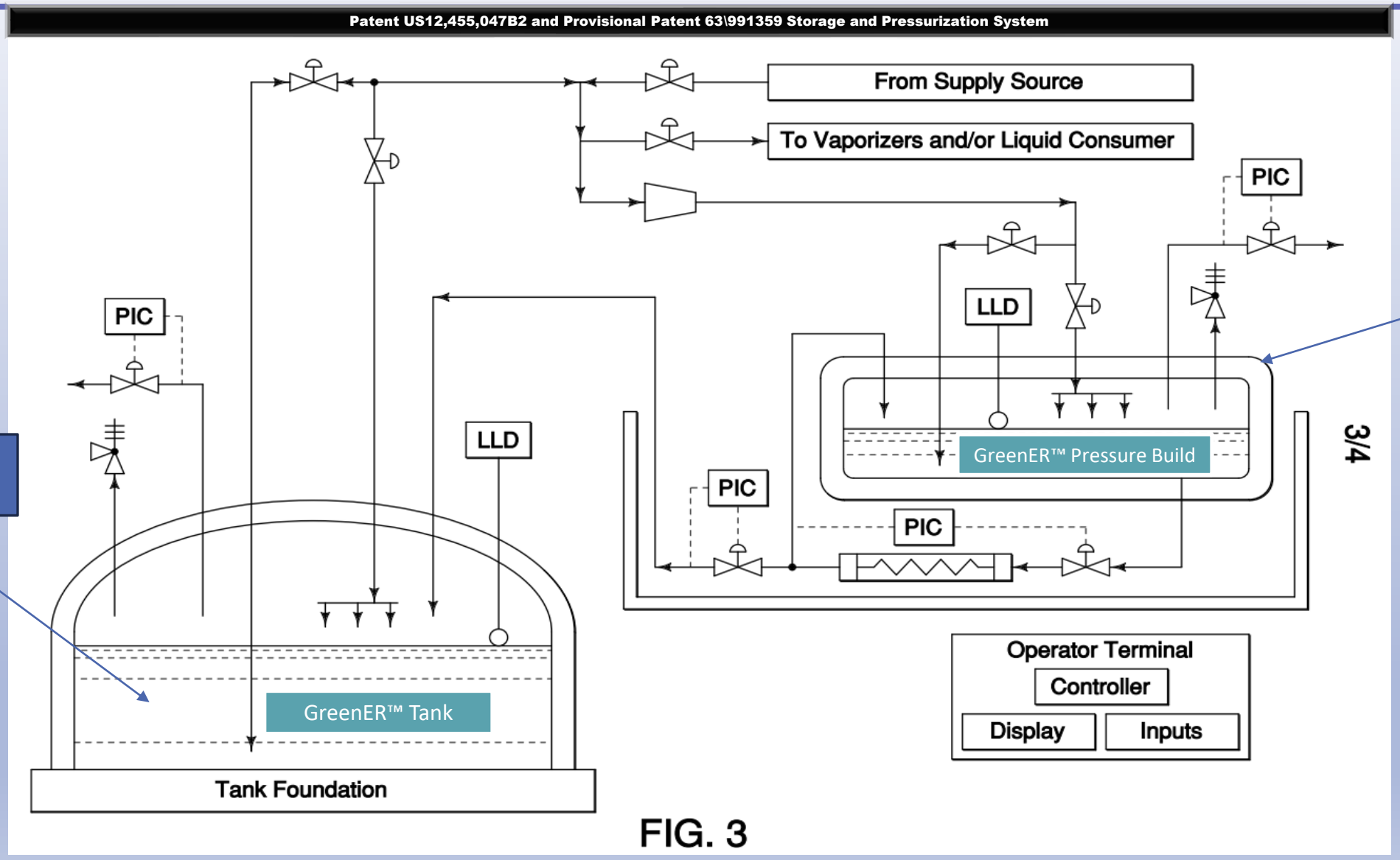


No pump cavities or infrastructure

Tank size not to scale

# New Energy™ and Chart Industries: Making History Right Now

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***Bullet Tank Configuration*** sizes range from 10,000 to 500,000 gallons per tank and provide shop-fabricated quality and modular deployment options


**Patent US12,455,047B2 Storage and Pressurization System**


*Examples: 49 CFR 193, NFPA 59A, and USCG

# Example: Project GUC GreenER™ LNG Expansion

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**6 New Tanks plus Liquefaction**

Patent US12,455,047B2 Storage and Pressurization System

# The GreenER™ Greenville Utilities Plan

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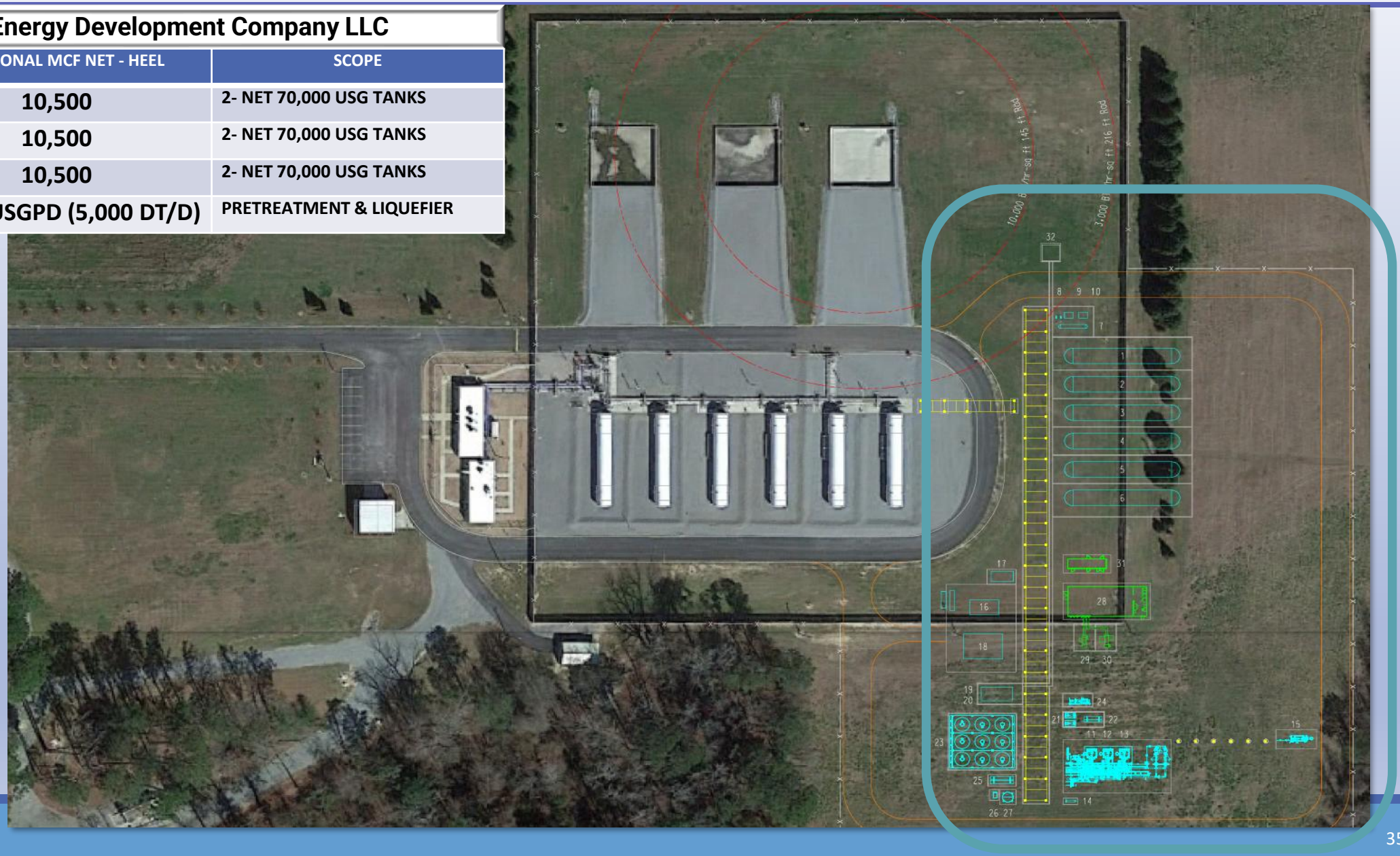
| New Energy Development Company LLC | | |
|---|---|---|
| PHASE | ADDITIONAL MCF NET - HEEL | SCOPE |
| 1 | 10,500 | 2- NET 70,000 USG TANKS |
| 2 | 10,500 | 2- NET 70,000 USG TANKS |
| 3 | 10,500 | 2- NET 70,000 USG TANKS |
| 4 | 60,000 USGPD (5,000 DT/D) | PRETREATMENT & LIQUEFIER |



# Zoom-in: The GreenER™ GUC Expansion

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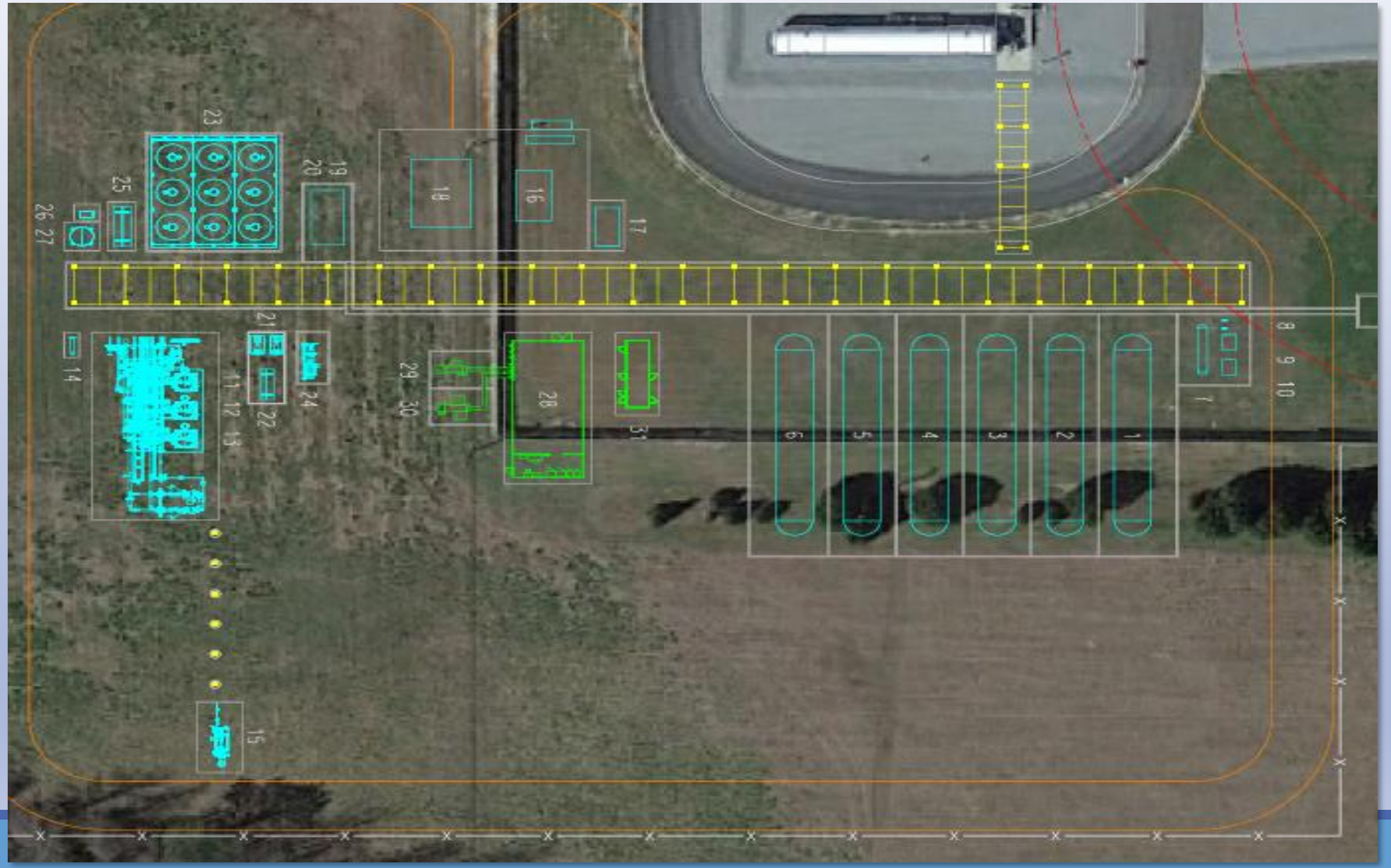

# GreenER™ Technology Chart Fabrication

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# Chart Facilities Transport to GUC

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# The GreenER™ GUC First Foundation Lay

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New Energy Development Company LLC, Patent US12,455,047B2 , GreenER™ Storage & Pressurization System

# The GUC Layout – Ariel View

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# GreenER™ LNG Tank and Pressure Build System in Action

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# GreenER™ LNG Tank and Pressure Build System in Action

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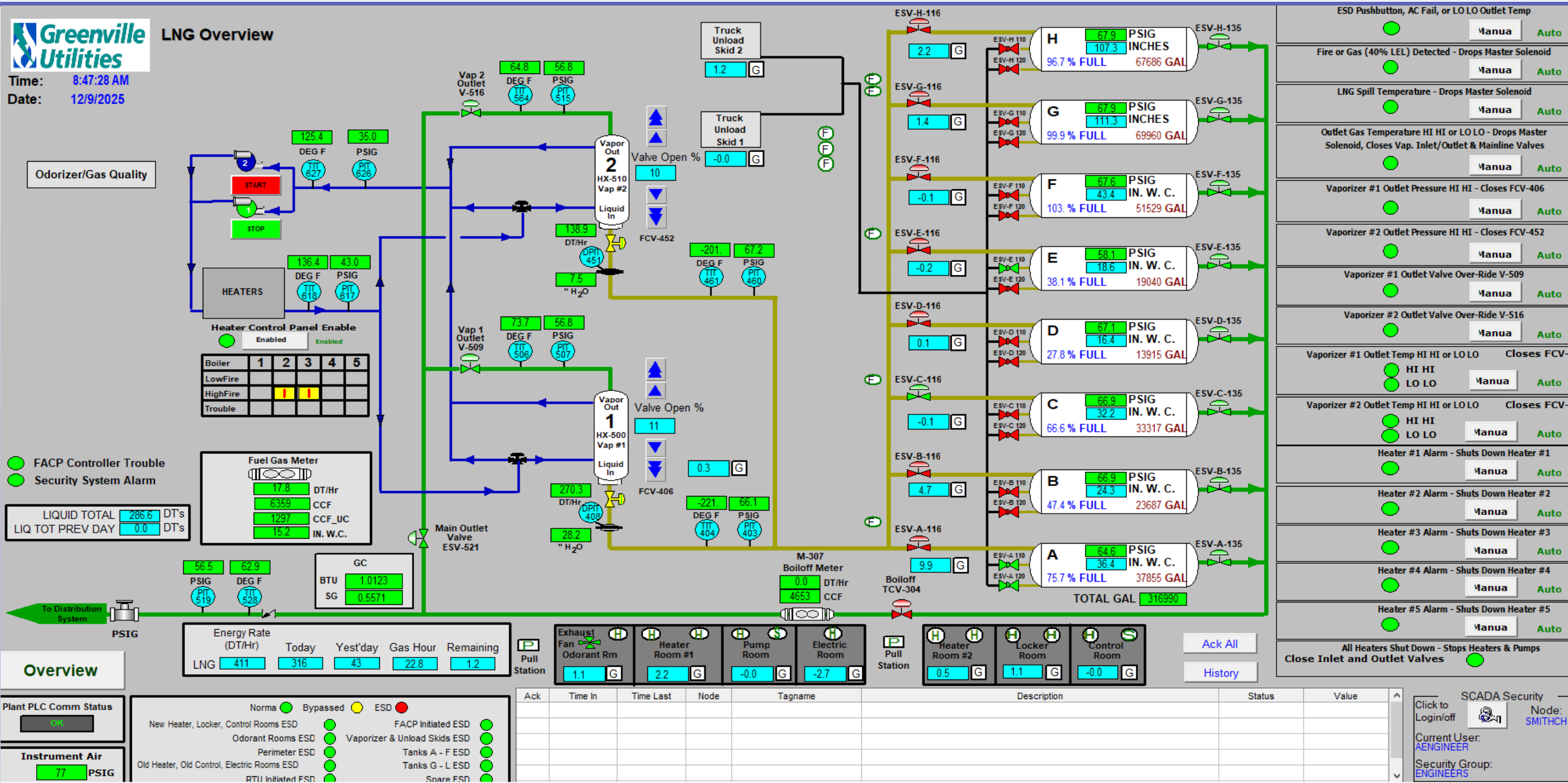

# The GreenER™ GUC Result

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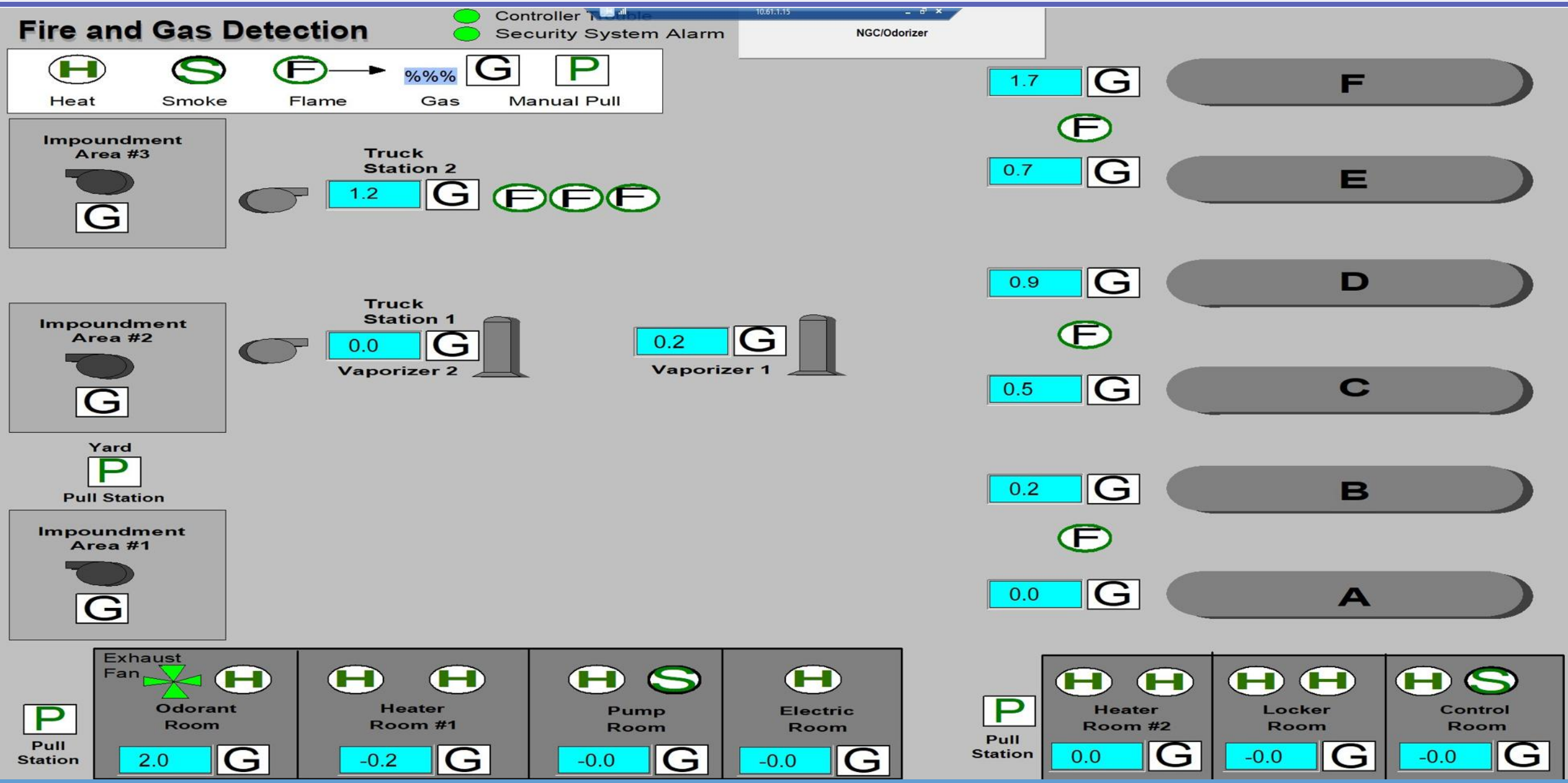

# The GreenER™ GUC Result

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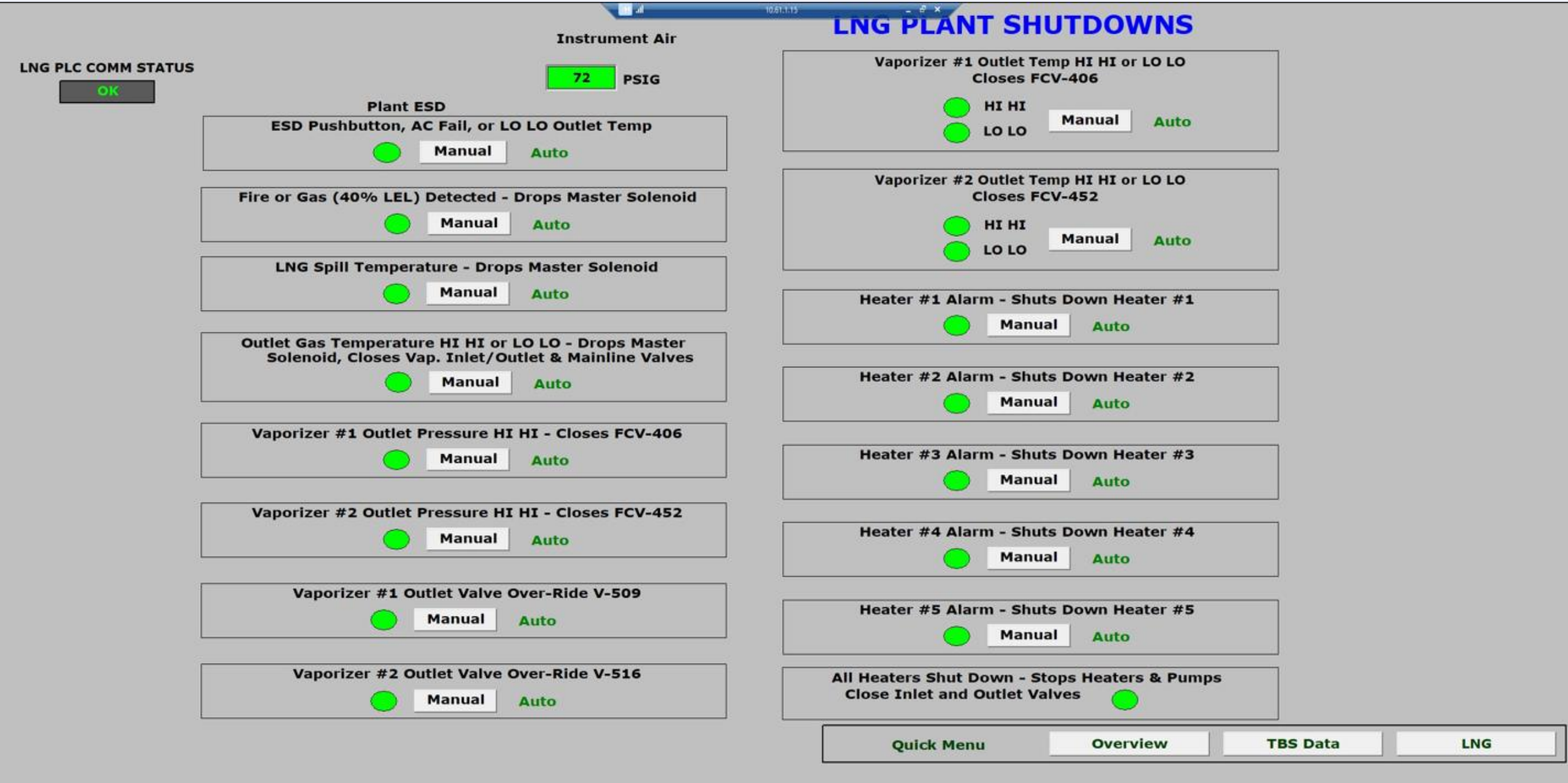

# GUC LNG: 2026 winter storm “Fern” at Greenville Utilities

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**$3.5mm saved with GreenER™ LNG tank and pressure build system during first winter in operation**

## GreenER™ LNG

## *Peak Shaver Acquisitions*

## *LNG Facility Expansions*

**CONFIDENTIAL SLIDE DECK,**
**PROPRIETARY, PATENTED TECHNOLOGY**