

# CRYOGENX4

## CARBON REDUCTION CHALLENGE

### 2025



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Energy Efficient Technologies (ESquaredT), led by CEO Joe Mearman and founded in 2007, is the global distributor of CryoGenX4. As a member of the Drawdown Georgia Business Compact, ESquaredT supports statewide carbon reduction goals and is currently in discussions for a sole-source contract with Georgia Tech. Through the Carbon Reduction Challenge at Georgia Tech, the company aims to lower energy use, cut costs, and extend HVAC system performance while reducing the university's carbon footprint.

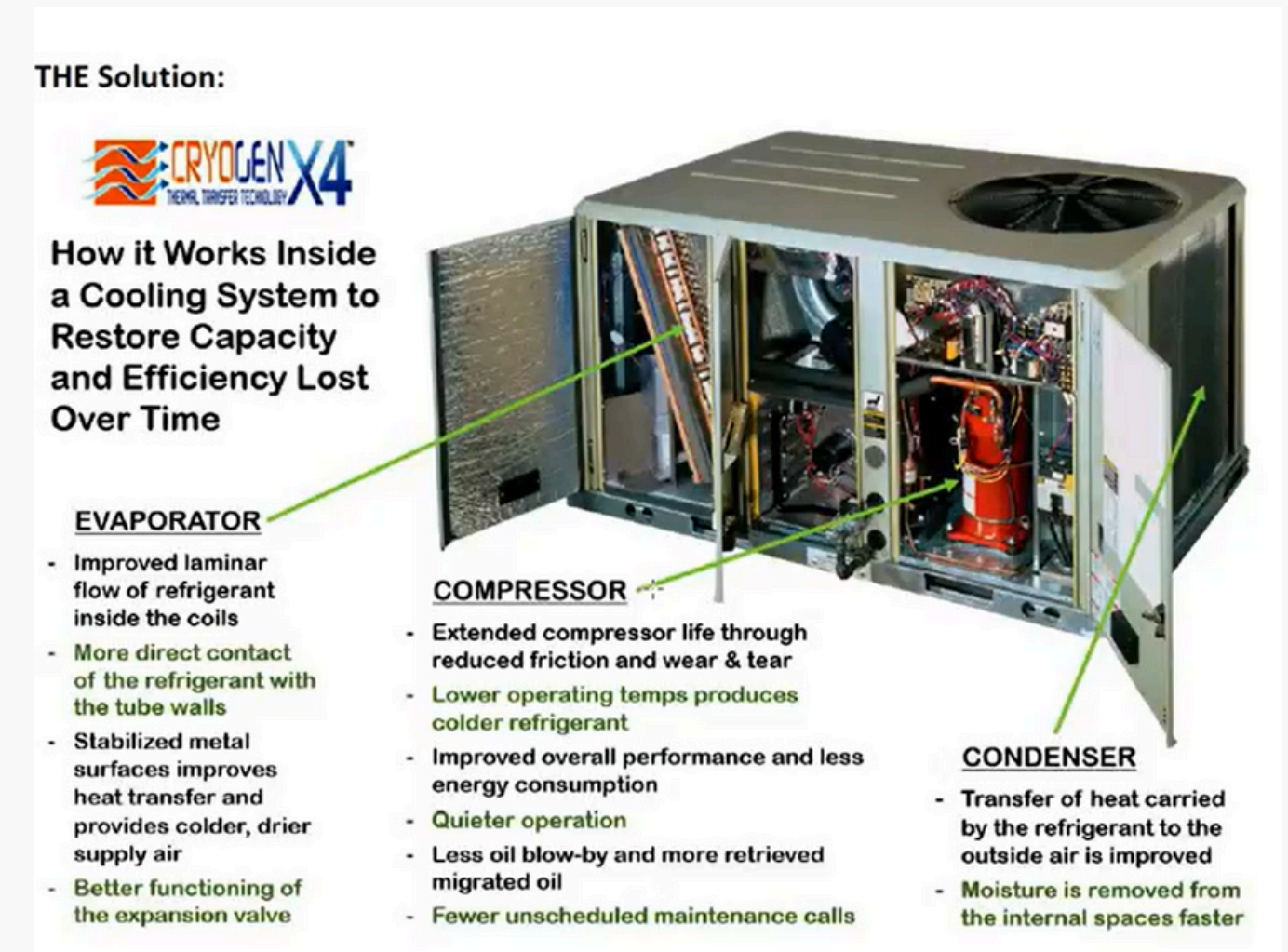
# OVERVIEW

- 99% of 6 billion HVAC/chiller systems in use globally are oil-lubricated, all of which will experience a universally known issue of oil fouling --> when oil leaks past components and coats refrigerant lines.
- Oil fouling reduces heat transfer efficiency, forcing systems to work harder and consume more energy, which raises electricity & maintenance costs and Scope 2 CO<sub>2</sub> emissions.
- CryoGenX4 addresses this issue by remediating oil fouling in HVAC and refrigeration systems, improving thermal performance 15% to 30%.
- By enhancing efficiency, CryoGenX4 helps lower energy usage, cut Scope 2 CO<sub>2</sub> emissions, and extend equipment lifespan by 20%.



# HOW CRYOGENX4 WORKS

- **CryoGenX4** is an advanced, one-time treatment injected into the refrigerant line during operation, requiring only 15 to 30 minutes for installation.
- The solution effectively removes insulating oil buildup from internal surfaces --> thermal efficiency.
- CryoGenX4's polarized molecules penetrate the oil layer of the compressor, lifting it away and clearing thermal pathways to enhance performance.
- CryoGenX4 forms a durable, thermo-conductive nanoscale layer on metal surfaces that improves heat exchange, resists future fouling, and enhances oil lubricity to reduce friction, heat buildup, and wear on moving parts.



# CARBON REDUCTIONS & COST SAVINGS

**With an initial investment of \$747,520 for 14 chillers on campus:**

Annual CO<sub>2</sub> emission reductions: 16.1 million lbs.

Annual Savings (Reduced Energy Costs): \$ 403,688

Lifetime Savings (Reduced Energy Costs): \$9,104,795

Annual reduction in energy consumption: 10,350,967 Kwh

Years to Payback: 1.9 Years

**For the 14 chillers:**

**11 YEAR ROI:  
1118%**

**IRR:  
48.91%**

**NPV:  
\$2,453,099.77**

**With an initial investment of \$2,472,629 for 23 campus buildings:**

Annual CO<sub>2</sub> emission reductions: 276 million lbs.

Annual Savings (Reduced Energy Costs): \$ 627,776

Lifetime Savings (Reduced Energy Costs): \$ 6,905,534

Annual reduction in energy consumption: 16,096,815 Kwh

Years to Payback: 4.05 Years

**For the 23 campus buildings:**

**11 YEAR ROI:  
179%**

**IRR:  
11.46%**

**NPV:  
\$636,049.14**

\*assuming an assumed firm debt of \$5 million and a firm equity of \$7 million



# HOW DOES THIS COMPARE TO OTHER SAVINGS?

Sustainability Metrics: CryoGenX4			
Annual kWh Reduced Per Location	10,350,967.00	Number of Wind Turbines Running for a Year	34.00
Annual kWh Savings - Portfolio	10,350,967.00	Number of Smartphones Charged	20,079,513,167.00
Annual Metric Tons of CO2 Reduced-- Portfolio	7,318.00	Acres of US Forest Preserved from Conversion of Cropland	1,128.00
Lifetime kWh Reduced During Equipment Life	223,456,292.00	Number of Urban Tree Seedlings Grown for 10 Years	2,750,893.00
Lifetime Metric Tons of CO2 Reduced	165,054.00	Number of Homes' Electricity Use	29,982.00
Reduced Pounds of Coal Burned	182,379,667.00	Number of Incandescent bulbs switched to LED	6,252,030.00
Railcars of Coal eliminated	910.00	Tanker Trucks filled with Gasoline	2,185.00
Lifetime Equivalent Reduced Miles of Automobiles Driven	403,554,030.00	Barrels of Oil Consumed	383,846.00
Reduced Gallons of Gasoline Consumed	18,572,476.00	Passenger Vehicles per Year	35,881.00
Reduced Tons of Waste Recycled instead of Landfilled	56,141.00	Gallons of Diesel Consumed	16,213,517.00
Avoided Costs of Deploying Solar	7,611,005.00	Avoided Acres of Solar panels	38



## Georgia Technical Institute / University System of Georgia Executive Memorandum

Subject: Assurance of Warranty Integrity - CryoGenX4's 18-Year, 160,000-Deployment, Issue-Free Record

### 1. Acknowledging Legitimate Executive Scrutiny

We understand the skepticism, especially from financial and operational leaders, when presented with a claim that no OEM warranty dispute has occurred over 18 years across 160,000+ global deployments. This response is not only valid but expected.

### 2. Proven Performance, No Conflict

Engineered for OEM Compatibility: CryoGenX4 enhances HVAC/R efficiency through patented nanotechnology, without altering key system parameters like refrigerant pressures, material compatibility, or lubricant performance, factors that typically trigger OEM concerns.

Wide OEM Adoption, No Reported Issues: Successfully deployed across 160,000+ installations globally, CryoGenX4 has operated across more than 38 OEM platforms, including York, Carrier, Trane, Daikin, Lennox, and others, without a single recorded warranty denial or dispute.

Independent Laboratory Validation: CryoGenX4's Generation 3.1, 3.2, and 4.1 formulas are backed by four U.S. patents and have been rigorously tested over the past two decades by TRI-S Technologies in collaboration with many of the world's most respected scientific and engineering organizations (Technical Bulletin upon request).

Validations were conducted under stringent protocols from:

- AHRI – Air Conditioning, Heating and Refrigeration Institute
- API – American Petroleum Institute
- ASTM – American Society for Testing and Materials
- ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers
- EPA – U.S. Environmental Protection Agency
- ANSI – American National Standards Institute

These independent validations confirm CryoGenX4's safety, compatibility, and performance across all refrigerant types, oils, seals, HVAC/R and chiller configurations, ensuring zero disruption during deployment and long-term system integrity.

### 3. Federal Warranty Law Protects End Users

Under the Magnuson-Moss Warranty Act (15 U.S.C. § 2302(c)), OEMs cannot void warranties solely because a non-OEM additive or enhancement has been used. Instead, they are required to:

- Demonstrate with clear evidence that the product directly caused equipment failure.
- Avoid blanket or anticipatory threats that are not based on factual, tested outcomes.

To date, no OEM has produced such evidence against CryoGenX4.

### 4. Sole Source Procurement Justification

Due to its patented formulation, proprietary application process, and lack of any commercially available equivalent, CryoGenX4 qualifies as a sole-source procurement under USG and Georgia state purchasing guidelines. While a competitive bid process is not required, the state agency must publish a public notice of intent to award a sole-source contract via the Georgia Procurement Registry for the required period, 15 calendar days if \$250K or more, before proceeding to award. This ensures compliance with public transparency and protest provisions.

### 5. Strategic Fit for the University System of Georgia

- Minimal Risk, Maximum Value: With a proven, litigation-free history and no known warranty conflicts, the risk profile is exceptionally low.
- Substantial Operational ROI: CryoGenX4 routinely delivers 8 to 20% annual energy savings, reduces maintenance burden, and lowers carbon output, supporting USG's strategic financial and environmental performance goals.

### 6. Full Transparency Available

We are pleased to provide:

- Third-party test results and technical analyses
- Legal references regarding warranty protections and sole-source eligibility
- Summaries of OEM platform deployment history

### Conclusion

Your due diligence is exactly what makes technologies like CryoGenX4 viable within respected public institutions. With a flawless track record, strong legal protections, compliance with global engineering standards, and eligibility for sole-source contracting, CryoGenX4 presents the University System of Georgia with a unique opportunity to cut costs, reduce CO<sub>2</sub>e, and lead by example, without compromising equipment warranties or procurement standards.

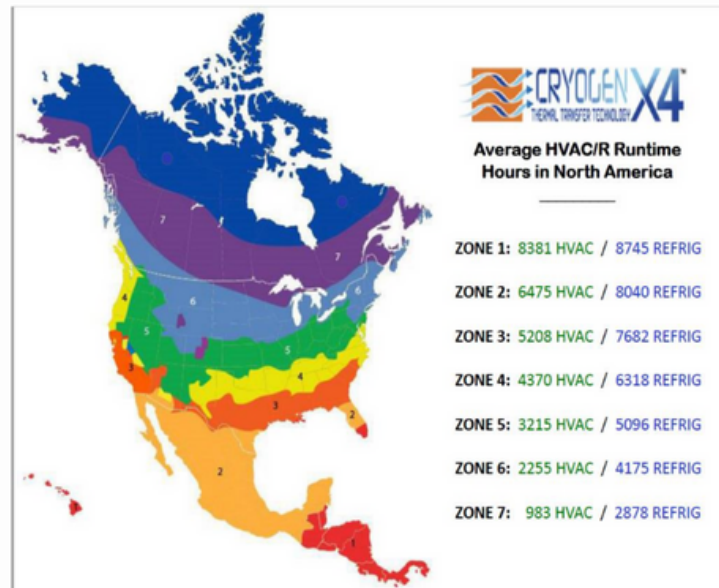
Please let us know if you would like a formal proposal for any USG institution.

Sincerely,

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# CO-BENEFITS



## Heat Resilience

- High summer heat in Atlanta (Zone 3) drives demand for efficient HVAC in campus buildings.
- CryoGenX4 **optimises systems & reduces grid strain**, and protects health during heatwaves.

## Cost Savings

- EET installations show 20–30% improvement in HVAC energy efficiency.
- This leads to 8–20% cuts in total building energy costs, based on HVAC load share.

1

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## Impact on Climate

- According to the EPA, every 1,000 kWh saved avoids ~828 lbs (0.375 metric tons) of CO<sub>2</sub> emissions.
- In GT buildings with 15–30% HVAC performance degradation, CryoGenX4 can achieve 50 to over 100 metric tons of CO<sub>2</sub> emissions reductions per year, per facility contributing directly to Georgia Tech's Scope 2 reduction targets.

## Operational Efficiency

- CryoGenX4 reduces oil fouling, lowering compressor stress and HVAC runtime.
- Less wear increases equipment life by approximately 20% lending to cost savings for academics and student services.

## Partnerships

- EET benefits from talent and insights through collaboration with Georgia Tech.
- Students gain mentorship, while Georgia Tech builds a replicable cross-sector partnership model.



# ANTICIPATED OBSTACLES

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# NEXT STEPS

- Administrative approvals and fixed budget cycles may extend decision-making timelines and affect project implementation.
- Facilities teams may seek additional information on CryoGenX4's performance, compatibility with existing systems, and assurances that the quick, non-invasive treatment won't disrupt operations.

- CryoGenX4 is ready for deployment following the challenge and a sole-source contract; EET proposes beginning with 14 identified chillers across Georgia Tech's campus.
- Key performance metrics—including energy use, system capacity, and compressor behavior—will be closely monitored to validate impact.
- This proposed initial phase supports long-term goals to reduce energy consumption, ease operational strain, and deliver lasting infrastructure improvements aligned with Georgia Tech's sustainability objectives.



# THANK YOU!

AND A SPECIAL THANK YOU TO:



Joe Mearman  
CEO of Energy Efficient  
Technologies



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Commissioner

**and all of the  
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