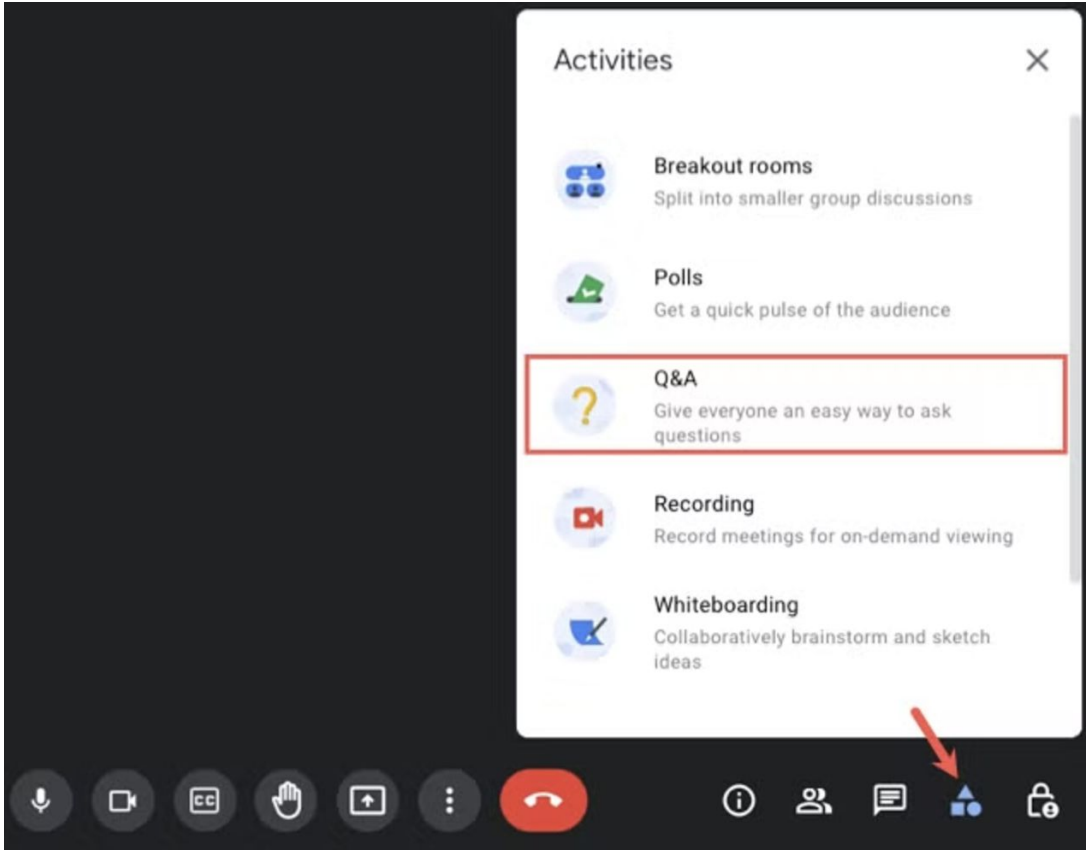
REEF

REFRIGERANT EMISSIONS ELIMINATION FORUM

Refrigerant Recovery: The Critical Next Step

Navigating Google Meet

How to Submit Questions for Moderator and Speakers



Zoe Dawson

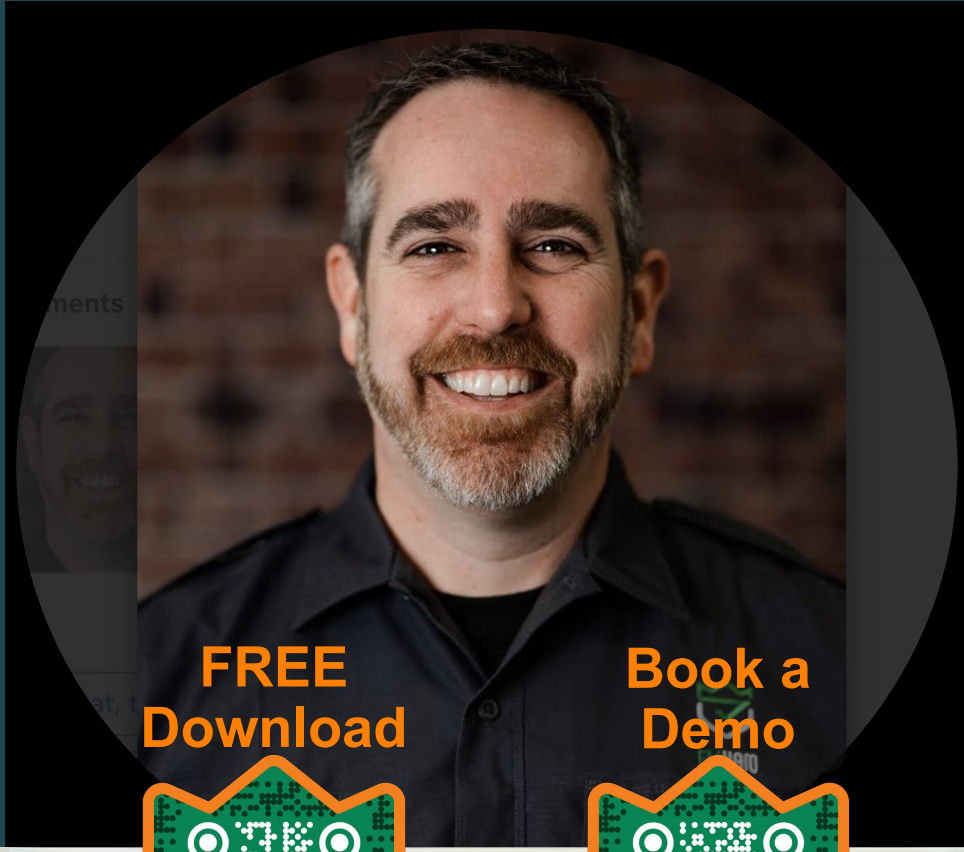
REEF CEO

Panel Moderator

Refrigerant gasses are powerful and overlooked drivers of climate change. They are EVERYWHERE. Collectively, refrigerants are also the world's fastest growing category of greenhouse gases.

Adam Dykstra

FM Hero
Co-Founder



PANEL SPEAKER

Connect People, Data & Environment

Where:

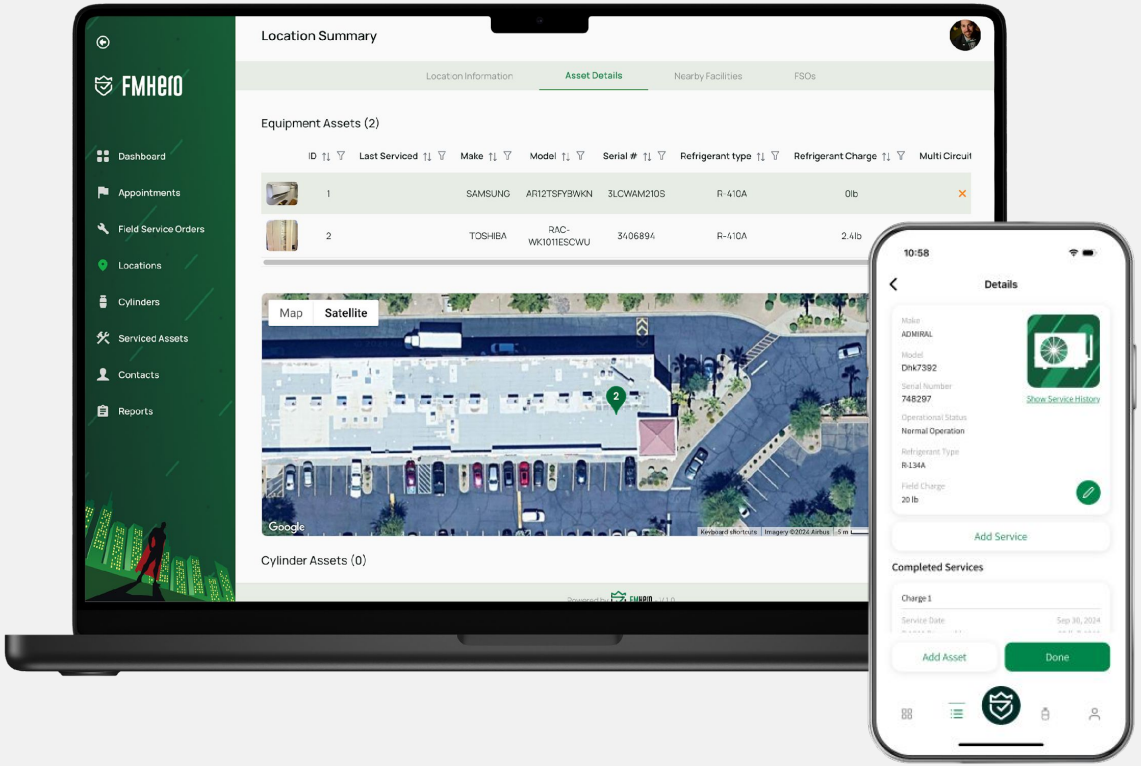
Small Systems

Who:

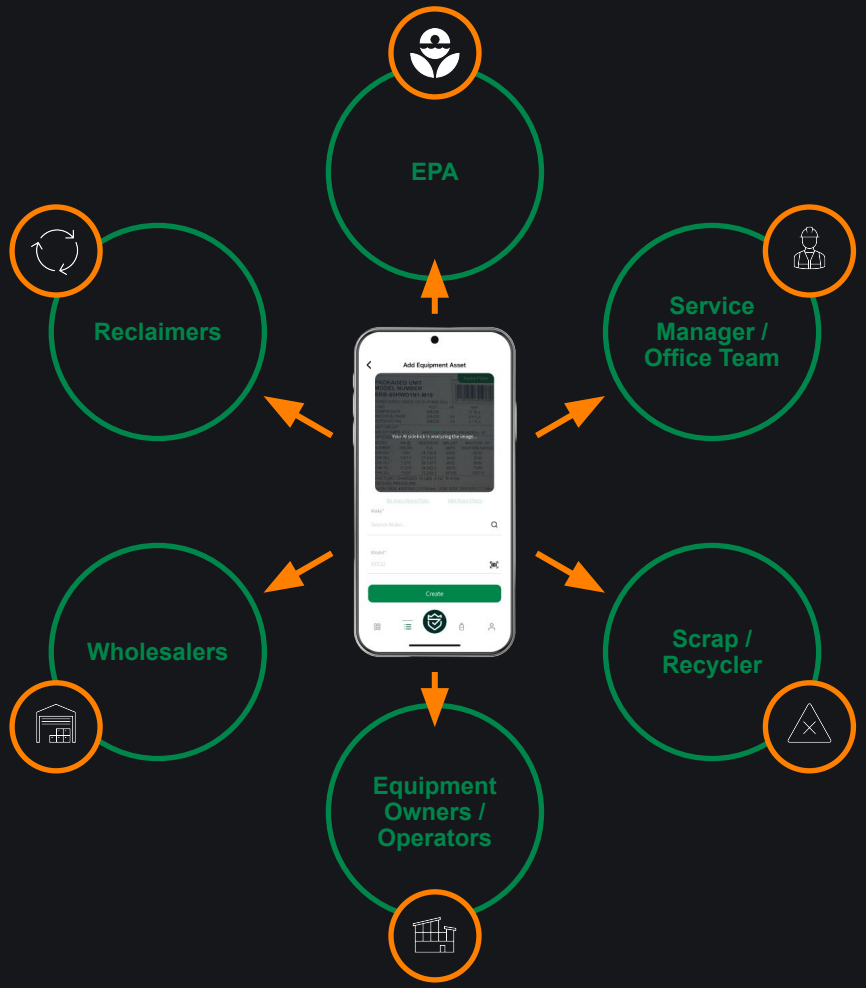
The “who” is you

FMHERO'S ROLE

A Scalable Field Platform



Single Source of Truth



International Coverage

Incredible Allies

Action

Industry Policy Collaboration

“We don’t just want to help people recover refrigerant. We want to help people recover control, recover profits, and recover trust in the system. That’s what FMHero is all about.” - Adam Dykstra

Raymond Rieling

Tradewater
Partnerships Manager

PANEL SPEAKER

Tradewater

Refrigerant Recovery – The Critical Next Step

June 2025

Certified B Corporation

GIVING GREEN.earth

PROJECT DRAWDOWN

npr

NATIONAL GEOGRAPHIC

The Atlantic

BBC

About Tradewater

Mission

Tradewater is a mission-based company that collects, controls, and destroys essential greenhouse gases.

Focus

Tradewater is focused on eliminating the release of non-CO_2 gases, such as refrigerants and methane, that are potent accelerators of climate change.

Impact

Tradewater has eliminated the release of 10 million tons of CO_2e and is on track to eliminate 32 million tons by 2030.

A leader in carbon offset development

Tradewater's projects create high-quality verified carbon offset credits that achieve consistently high ratings from independent carbon credit rating agencies.

2 projects credited by The Verra Registry (Verra)

99 projects credited by the American Carbon Registry (ACR)

10,355,219

tons of CO_2e to date

Projects verified under **7 different protocols**

158 verifications completed in total

Projects developed on **4 different continents**

Over **$50 million invested** in communities

An enormous problem

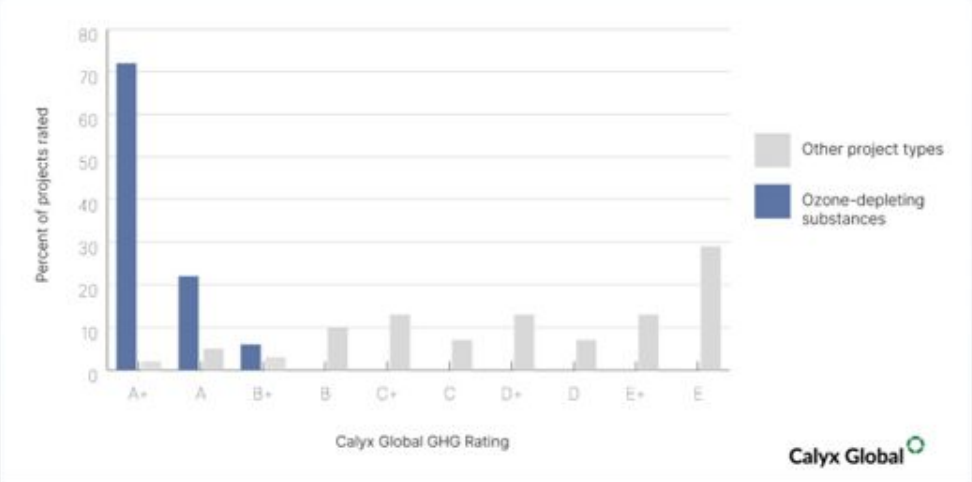
- Refrigerant gases have tremendous warming potential. R22 has a GWP of 1,810 and R12 has a GWP of 10,900.
  - Leaking one lb of R22 has the same global warming effect as driving 2,000 miles
- A 2020 MIT report revealed **that 9 billion metric tons of CO2e** stand to be released into the environment from existing ODS (CFC & HCFC) gases alone.
  - 9 billion metric tons of CO2e has the equivalent global warming effect to burning 1 trillion gallons of gas
- Our projects are mostly made up of R11, R12, R113, R114, R500, R502, and R22.
  - About 50% of what we purchase is R12 and 20% is R11

Destruction is a critical solution

- The production of CFCs and HCFCs is banned, and HFCs are being phased down, but there are no requirements on the end-of-life for these materials other than prohibiting intentional venting.
- As a result, these dangerous gases are either stockpiled or reused until they inevitably leak. Everything has a 100% leak rate over time.
- Destruction breaks this cycle and is the only way to ensure that refrigerant gases never reach the atmosphere.

Highly rated ODS destruction credits

Ratings agency Calyx Global: “Our first rating of an ODS destruction project was in May 2022. Since then, we have sought to rate as many such projects as possible, as **they tend to generate higher GHG integrity credits compared to all other categories of credits.** We believe that the ICVCM has made a good choice to approve this category for Core Carbon Principle (CCP) eligibility.”



Without professional recovery, destruction is impossible

- Refrigerant must first be recovered to be destroyed. The material must be captured in a usable way.
- Maintaining purity levels is essential both for the material to be eligible for carbon markets and for the economics of destruction projects.
- Documenting the chain of custody is required for destruction projects. This starts with things like chiller model and serial numbers, technician 608 certs, and moving the material compliantly

Recovery and the future of refrigerant destruction projects

- The market for refrigerant destruction projects is growing:
  - CFCs and HCFCs become less important to existing equipment and more attractive for carbon projects.
  - HFCs become eligible in more markets.
  - Companies must rely on carbon offsets to meet 2030 net-zero goals.
- Destruction projects provide an economic incentive for HVAC technicians to recover refrigerant effectively and professionally.
- Every pound of refrigerant recovered and destroyed is cash in an HVAC tech's pocket and global warming potential avoided.

Together, we can prevent a climate crisis.

Ray Rieling
Rrieling@tradewater.us

Kirk Reimer

Hudson Technologies
Vice President of Sales

PANEL SPEAKER

Follow us on Social Media:

Hudson Technologies

NASDAQ: HDSN

Lifecycle Refrigerant Management (LRM)

Embracing LRM can **prevent fluorocarbon emissions** equal to 90 billion metric tons of CO^2 this century.

LRM is a circular economy solution leading the path to **net-zero emissions** in an efficient and achievable manner.

Without **proper recovery**, refrigerant reclaimers cannot **create reuse** of used refrigerant.

Improving maintenance and leak reduction **increases the available amount of refrigerant** for recovery and reuse.

LRM leads to **maximum economic value for HVAC systems owners** proactively managing their refrigerant.

LRM facilitates orderly **conversions of operating HVAC** systems.

Emissions Impact of R-410a Refrigerant Reclamation

A 2024 report by the Rocky Mountain Institute, sponsored by Hudson, highlights **reclaimed R-410A refrigerant reduces greenhouse gas emissions up to 70% compared to that of newly manufactured virgin refrigerant!**

Unlock The Report Here:

RMI
ENERGY. TRANSFORMED.

R-410A can reduce emissions by up to 70%

It's time we reclaim the future, together.

Why Reclamation? What Are The Benefits

Environmental:

- Reclaiming, recertifying, and reusing refrigerants **reduces waste** and **greenhouse gas emissions**
- 1lb. reclaimed is 1lb. not made
- Is a **measurable** and **verifiable** environmentally sustainable action.
  - CO_2e associated with reclaimed refrigerant contributes to **ESG goals**
- Supports the circular economy of refrigerants by turning waste into resource

Market:

- Allows system owners to support their installed base
- Help bridge the gap in supply during transition periods
- Creates maximum economic value for used refrigerants.

3 R's of Reclamation

RECOVERED

Refrigerant that has been recovered from equipment and has not been further processed or packaged.

RECYCLED

Refrigerant that has been recovered from equipment using approved recycling equipment, without meeting all requirements for reclamation.

RECLAIMED

Refrigerant that has been recovered, processed, tested, and certified by an EPA certified reclaimer to meet or exceed the AHRI 700 standards

Reclamation Process

1. WE PICK IT UP FROM YOUR LOCATION
2. WE SEND NEW LIKE-FOR-LIKE CYLINDERS.
3. WE TEST REFRIGERANT TYPE, PURITY ANDWEIGHT
4. WE SEND YOU A BUY BACK REPORT WITH DETAILS
5. YOU GET PAID

No Fees!
No Cost To You
Clean, Fresh, Tested Cylinders
Fast Analysis & Payment

Keys To Growing Recovered Refrigerant

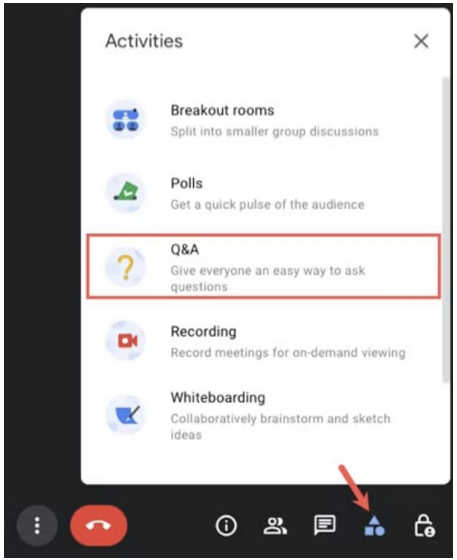
- ✓ Contractor Training & Awareness
- ✓ Cost Center vs. Profit Center For Contractor
- ✓ Best Practice Techniques & Tools

Type of Recovery Equipment Essential

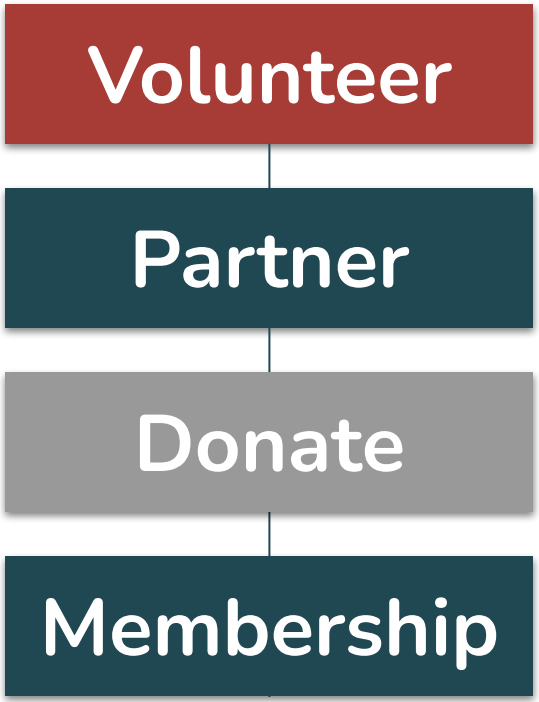
Factors Key to Efficient and Fast Recovery

- Must be compatible with all refrigerants, including A2Ls.
- Ultimate Vacuum Level of at least 500 Microns vacuum during recovery.
- Vapor Recovery Rate: At least 0.5 lbs/min for vapor recovery.
- Liquid Recovery Rate: At least 7 lbs/min for liquid recovery.
- Auto-Purge Functionality: Automatically clears residual refrigerant from the machine to prevent cross-contamination.
- EPA Section 608 Compliant
- UL Certified
- Oil-less compressor.
- High recovery speed (dual-cylinder systems are faster).
- Overload protection to prevent system damage.
- Portability (lightweight and durable casing).

Q+A


Activities
Breakout rooms
Split into smaller group discussions
Polls
Get a quick pulse of the audience
Q&A
Give everyone an easy way to ask questions
Recording
Record meetings for on-demand viewing
Whiteboarding
Collaboratively brainstorm and sketch ideas

REEF - Get Involved



Offer your time and expertise to support REEF initiatives.

Collaborate with us to amplify REEF's impact.

Contribute to drive significant changes in the industry.

Access valuable resources and a network of industry leaders.

contact@reefclimate.org