Carbon Ridge

# Carbon Capture and Storage for Maritime Vessels

SBIR-280991

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Carbon Ridge, Inc

2024 FECM/NETL Carbon Management Research Project Review Meeting
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# Project Overview

**Title**

- Carbon Capture and Storage for Maritime Vessels (SBIR-280991)

**Performance Dates**

- 07/22/2024 to 03/21/2025

**Project Objectives**

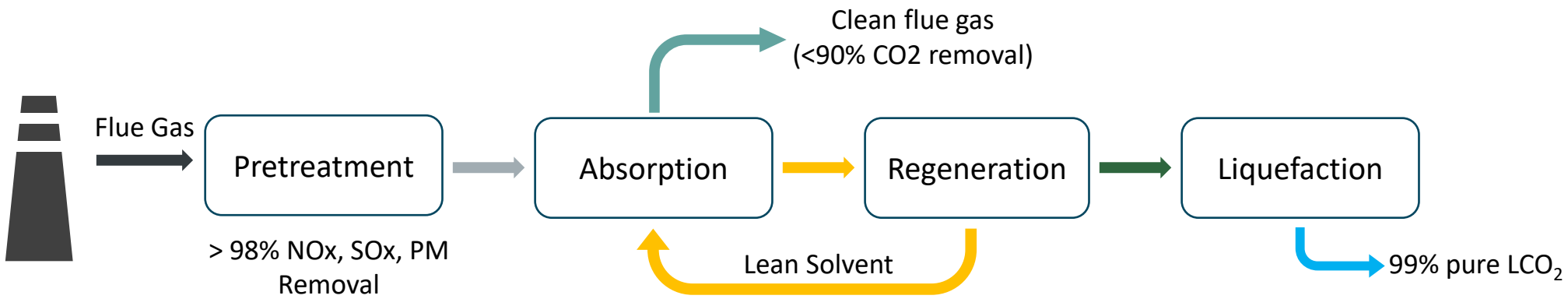
- Development of a PDP for 50 TPD $CO_2$ capture system
- Analyze opportunities and design an $CO_2$ offtake and transport plan targeting utilization and/or sequestration of $CO_2$
- Develop a techno-economic analysis of the proposed solution and compare alternative maritime decarbonization approaches based on cost, operational complexity, and environmental impact.

**DOE Funding**

- $249,995

# CR Core Technology

- CR OCCS utilizes an amine Absorption/Stripping coupled with liquefaction process to capture and store $CO_2$ from the engine flue gas.
- CR uses RPBs as main contactors, resulting in significant space and weight reduction.
- The CR system can achieve >90% $CO_2$ capture rates and removes NOx, SOx, and PM at >95% efficiencies.
- The CR OCCS is highly heat integrated to ship systems to reduce parasitic loads.



# Technology Commercialization

## Shipboard Pilot Testing

- CR is building a prototype rated to capture 1 Ton per day (TPD) of liquid CO2,
- The Pilot will undergo sea-based testing onboard a commercially operating LR2 vessel in Q1 2025

## Scale-up

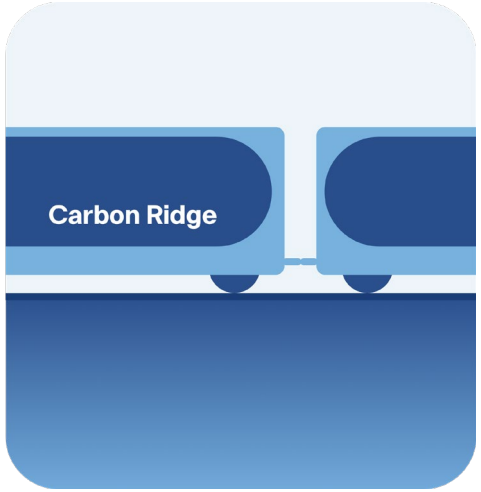
- Pilot testing data will be used to validate CR OCCS models
- CR will develop a PDP for a 50 TPD unit
- Research of offtake logistics and sequestration/utilization options for the LCO2

# Carbon Ridge is developing an end-to-end CCS solution for shipowners to decarbonize their fleets

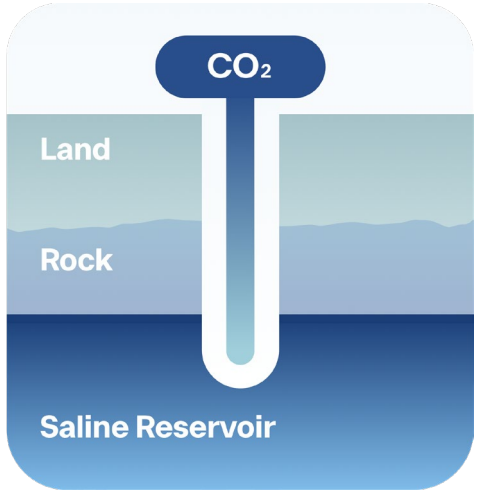
## The following elements are key in ensuring effective and verifiable decarbonization from funnel-to-well:

**Capture & Storage**
$CO_2$ is routed from the vessel exhaust, captured in CR's proprietary contactors, then compressed, refrigerated and stored in liquid form.


**Transportation**
CO2 is offloaded at port or on offshore terminals and transported to be permanently sequestered or utilized in value-added products.




**Sequestration**
Ensuring safe and permanent geologic storage, we work with strategic partners to inject captured CO2 from our systems into regulated storage locations.




**Monetization**
With verifiable CO2 capture and permanent storage, CR monetizes the credits awarded for every ton of CO2 through regulatory incentives and commercial markets.