Ambrian Energy

CarbonBridge

About

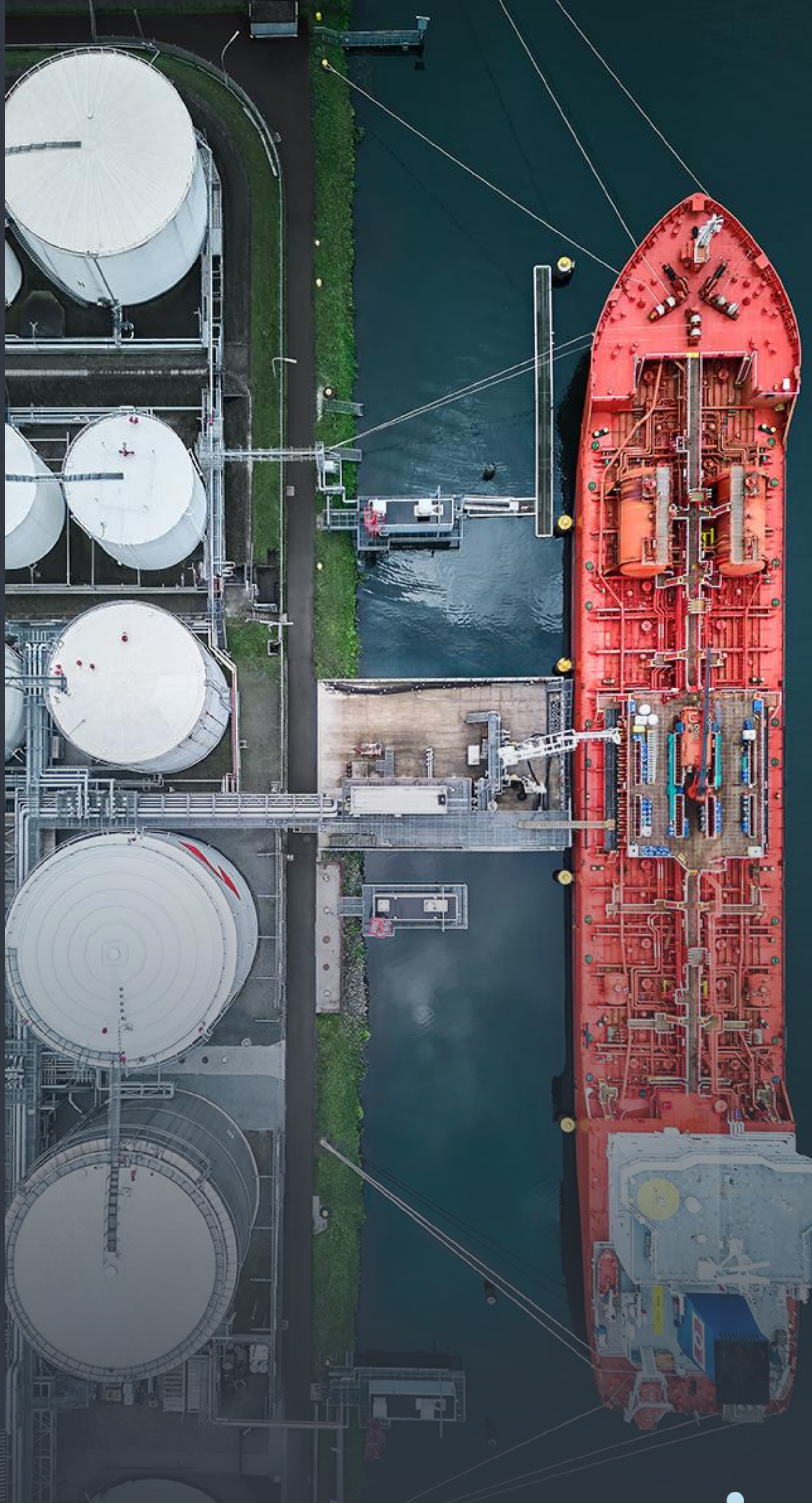

Carbon
Bridge
What?

Efficient CCS Logistic with CarbonBridge

Ambrian Energy is sponsoring the development of **CarbonBridge, Germany's first operational CO2 Export Terminal**. This state-of-the-art energy infrastructure project is designed with **scalable capacity** to meet future demands.

Strategically **located on our premises in Bremen adjacent to our existing hub (see picture)**, our CO2 export hub offers **excellent connectivity** to the national railway network, ensuring seamless access from across the German hinterland. Our location facilitates efficient and reliable transportation routes, making CarbonBridge **a central link in Germany's carbon management network.**

CarbonBridge is not just a CO2 hub; it's a **commitment to a greener tomorrow.** Leveraging Ambrian Energy's more than **50 years of expertise** in hazardous and liquid goods handling and logistics management, we offer a comprehensive suite of services through CarbonBridge. These include **CO2 loading and unloading, rigorous testing, and intermediate storage solutions** meticulously tailored for emitters in **hard-to-abate industries** like cement production, waste incineration and lime manufacturing.



Picture: Ambrian Energy – Existing fuel hub at Bremen port

CarbonBridge in the CCS Value Chain

Carbon Capture and Storage (CCS) is a critical process designed to mitigate climate change by capturing carbon dioxide (CO2) emissions at their source and safely storing them underground. This prevents CO2 from reaching the atmosphere and contributing to global warming. CCS is particularly vital for carbon-intensive and hard-to-abate industries striving to achieve carbon neutrality by 2050, as outlined in the European Green Deal.

THE CCUS VALUE CHAIN

Carbon point source

CO2 emissions are primarily generated from industrial processes or power plants. These sources produce significant amounts of CO2 that need to be managed to mitigate environmental impact.

Carbon capture & local storage

At the point of emission, CO2 is captured using technologies that separate it from other gases. The captured CO2 is then liquified and stored temporarily at a local facility.

Transport from point source

From the local storage, the liquified CO2 is transported to a central CO2 hub. This transportation can be facilitated by rail, pipeline, or vessels, ensuring efficient movement of CO2.

CarbonBridge

Intermediate external storage

The CO2 hub acts as an intermediate storage facility where CO2 is temporarily held before further transportation. This hub streamlines connections and prepares CO2 for the next phase of its journey.

Transport to location

CO2 is then transported from the hub to offshore storage facilities. Flexible transport routes, such as pipelines or vessels, are essential for ensuring smooth and efficient delivery.

Storage or utilization

Finally, the CO2 is injected deep underground into geological formations like depleted oil and gas fields or deep saline aquifers. This secure storage prevents CO2 from escaping into the atmosphere.

EU SUPPORT FOR CCS:

- The European Union advocates Carbon Capture and Storage (CCS) to reduce greenhouse gas emissions.
- The European Green Deal and EU Climate Law aim for net-zero emissions by 2050, with CCS being crucial.
- Directive 2009/31/EC provides a legal framework for safe geological CO2 storage, including site selection, risk assessment, and monitoring.
- Funding programs like Horizon Europe and the Innovation Fund advance CCS research, development, and deployment, supporting innovation, reducing costs, and enhancing scalability.
- In 2024, Germany established the Carbon Dioxide Storage and Transport Act (KSpTG) for onshore CO2 pipelines and offshore CO2 storage.
- The German Carbon Management Strategy, including KSpTG and funding schemes for CCS/CCU, was agreed upon but not formally adopted.
- The coalition contract agreed upon in 2025 by the newly elected German government demonstrates strong support for the deployment of CCS in energy policy.

Source: CCS Factsheets - Global CCS Institute; DNV – Energy Transition Outlook Germany 2025

Who is Ambrian Energy?

We are building the green infrastructure of tomorrow.

Ambrian Energy is a reliable, family-owned partner with over 50 years experience in the procurement, processing and distribution of innovative, sustainable and high-quality fuels located in Bremen right along site the port.

Just as we have always played an active role in shaping the energy markets with innovative strength and new product ideas, we will continue to do so in the market for CCS.

Only one thing will remain the same in the future: our reliability and the high degree of flexibility with which we can find the right solution for every task.

Leveraging our expertise and equity to fund CarbonBridge with only one goal in mind:

Becoming more sustainable together.

Picture: Ambrian Energy – Existing fuel hub at Bremen port

Why?

Key Benefits of CarbonBridge

1 Easier and faster start of hub operations thanks to lower volume requirements, with no dependency on pipelines or other 3rd parties

2 The entire project is situated on land owned by Ambrian Energy within Bremen's industrial port next to the existing Ambrian facilities

3 The facility will feature a fully dedicated train unloading structure, enabling rapid train turnarounds and optimised operations

4 The hub will include 55,000 cubic meters of dedicated storage capacity, with the flexibility to expand as needed

5 A jetty with a 10.5-meter draft will accommodate larger vessels in the future, increasing operational efficiency and throughput

6 Future proof with scalable capacity and provisions for future pipeline connection points have been integrated into the design to ensure long-term adaptability

Why CarbonBridge is the right partner for you

1 Leveraging Rail Connectivity

Transporting captured CO_2 is a significant challenge. Although pipeline network plans exist, commercial commissioning faces delays due to lengthy permitting processes, extended construction timelines, and substantial investments.

Rail Transport Solution: Rail transport can bridge the gap left by the lack of pipeline infrastructure. It offers a more flexible and faster solution than pipelines, leveraging existing railheads and infrastructure. The city of Bremen has a well-connected railway network that can be utilized immediately, accelerating the timeline for realizing CO_2 inbound transport to CarbonBridge. Further, at Ambrian, we are experts in railway transport and can always ensure precise metering and safe unloading of CO_2 from tank wagon trains.

2 Flexible Ship Loading Facilities

From storing CO_2 in the 55,000 cubic meter tank at CarbonBridge, the CO_2 needs to be transported to the offshore sequestration site via vessel.

Flexible Vessel Loading: Our facility is capable of handling various ship sizes up to 30,000 tons. A dedicated jetty with a 10.5-meter draft will accommodate larger vessels in the future, enhancing operational efficiency and throughput. This flexibility will enable CarbonBridge to manage different ship sizes, effectively catering to our clients' diverse fleets.

3 A Reliable Partner

Ambrian Energy is family-owned business with over 50 years of experience in hazardous and liquid goods handling and logistics, and we are set to make the CarbonBridge project a reality in Bremen.

Leveraging our experience, financial strength, and strategic land ownership, we will connect CO_2 emitters with permanent storage providers.

Expertise and Experience: With a solid track record in fuel distribution, we bring our knowledge of handling dangerous products to the forefront of the CarbonBridge project.

Strategic Land Ownership and Location: Our established hub at the Bremen port, coupled with adjacent land ownership, reduces investment costs and expedites project implementation.

4 Quick Ramp-Up

CarbonBridge is anticipated to begin operations by 2030, positioning it as Germany's first CO_2 hub project ready for operation. The swift development of this project is largely attributed to the strategic utilization of several key advantages:

- **Utilizing the existing railway network in Bremen**
- **Employing our own land for the construction of CarbonBridge**
- **Drawing on 50 years of expertise and experience in fuel distribution**

Project Size: CarbonBridge aims to start with a capacity of 55,000 cubic meters and scale up later. This approach allows the project to begin with lower volumes from emitters, requiring less market maturity to enter the business compared to larger-scale projects.

How CarbonBridge will drive the development of Bremen

1 Carbon Capture Necessities

Without carbon capture, Germany's net-zero goals are unlikely to be achieved. CO_2 emissions from hard-to-abate industries must be captured and either reused or stored permanently. Mature carbon capture technologies are available today, and numerous permanent CO_2 storage sites are under development in Northern Europe, primarily in the North Sea. However, a CO_2 hub is essential to facilitate the transportation of emissions from their sources to sequestration sites.

Green infrastructure leadership: With CarbonBridge, Bremen will host a state-of-the-art carbon infrastructure project enabling the success of CCS in Germany. This hub will establish Bremen as a key location in the future of carbon logistics, positioning the city prominently on the map.

2 Economic Growth and Development

The CarbonBridge project in Bremen is set to increase economic growth. By turning underutilised land into a CO_2 hub, we breathe new life into these spaces and stimulate the local economy.

Industrial Brown Field Utilisation: Transforming old industrial sites into active centres of productivity.

Harbour Development: The construction of the CO_2 hub will contribute positively to the development of Bremen port. Port fees will additionally benefit the cities' economy.

Revenue Generation: As the business grows, corporate taxes will help fund public services and infrastructure.

3 Quality Employment and Local Value

Ambrian Energy, a reputable family-owned business, will foster a supportive work environment for its employees, create new jobs and thereby also create societal value for the local community.

Ambrian Energy: Known for being a dependable and trusted employer, Ambrian Energy offers a nurturing and supportive workplace.

Job Creation: New, highly qualified jobs will provide opportunities for Bremen's residents by Ambrian Energy

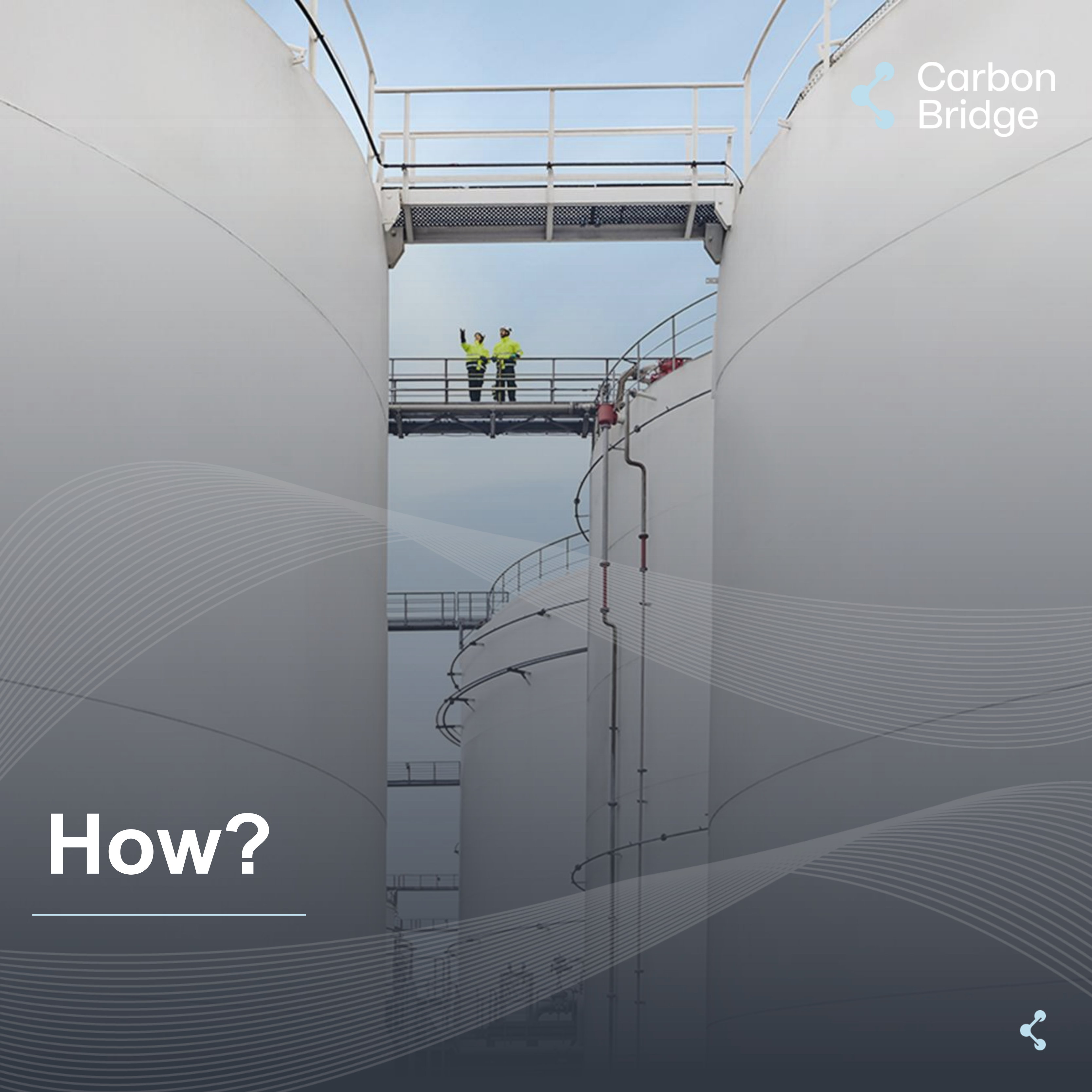
Local Value Creation: The project will boost local value through active business engagement, community involvement and employing local contractors.

4 Environmental Standards

We are committed to maintaining high environmental safety standards. With first-class safety protocols, we ensure the least possible environmental impact. We actively reduce noise and light pollution and assure minimal emissions.

Safety Standards: Implementing top-tier safety measures to protect the environment and minimize impact.

Environmental Protection: CarbonBridge's priority is to protect the environment and positively contribute to a greener future.


Carbon
Bridge
How?

Layout

Terminal fed by: Rail, Pipeline from local emitters, National pipeline (later stage)

Can accommodate vessels up to 30,000 tonnes

Storage capacity of 55,000 cubic meters

Start of construction 2027

Start of operation 2030

Timeline*

2025
- End of feasibility
- PreFeed work
- Permitting preparation

2026
- Permit obtained
- FEED work
- EPC tender

2027
- Fully executed
- EPC FEED
- Financial Close

2028
- Start of Construction

2029
- Construction

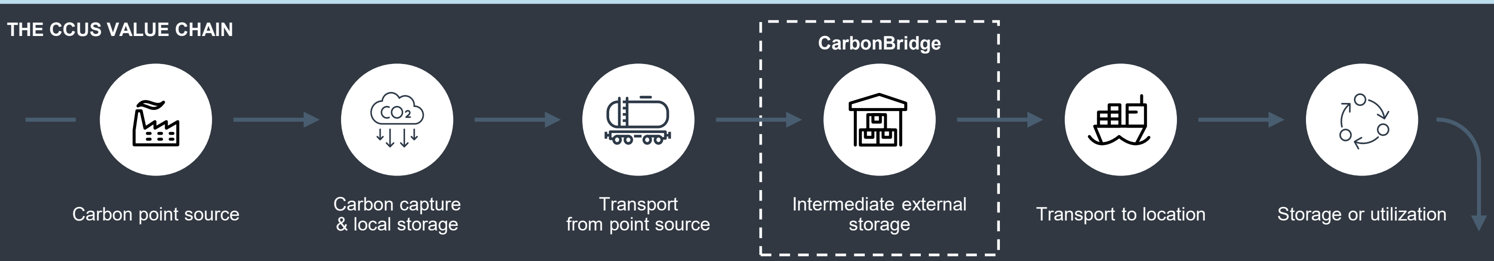
2030
- **Start of Operation**

* Preliminary timeline

Service Offerings

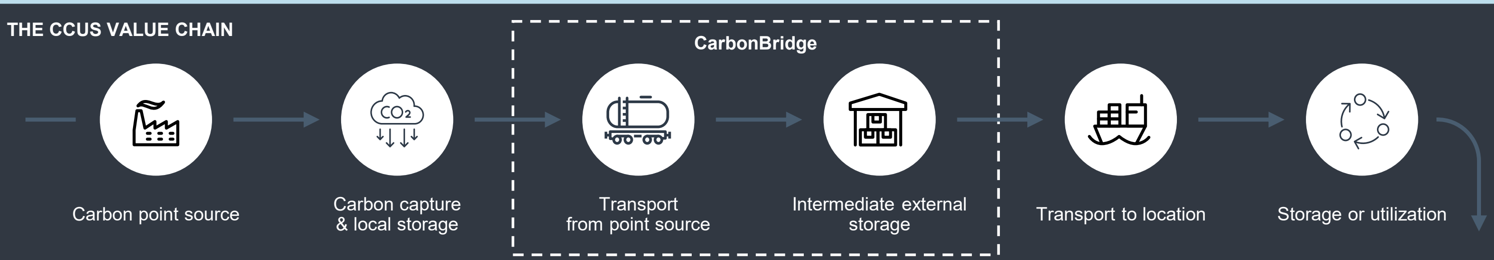
Core Services

PACKAGE 1 - EXCLUDING ON-SHORE TRANSPORTATION TO BREMEN



- **Included Services:** Testing and unloading the trains DAP Bremen, intermediate CO2 storing including cooling, sea cargo loading FOB Bremen.
- **Client Responsibilities:** Manage railway logistics to transport CO2 to Bremen and arrange seagoing cargo.

PACKAGE 1 - EXCLUDING ON-SHORE TRANSPORTATION TO BREMEN



- **Included Services:** On-shore transport management to Bremen FCA Client's Location, intermediate CO2 storing including cooling, sea cargo loading FOB Bremen.
- **Client Responsibilities:** Metering, inspection and loading of CO2 onto the train and arrange seagoing cargo.

ALWAYS INCLUDED

- **Storage Site Selection:** Offer consultation on selecting appropriate storage sites.
- **Railway and Off-shore Operations:** Provide expert guidance on managing logistics, including specific requirements for loading arms.
- **Necessary Documents:** Supply essential documents, such as test results, for CRD- and BECCS crediting.
- **Direct Communication:** Assist with direct communications with storage facilities and shipyards to ensure smooth operations.

CONTACT & INFORMATION

Are you interested?
Then reach out to us:

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