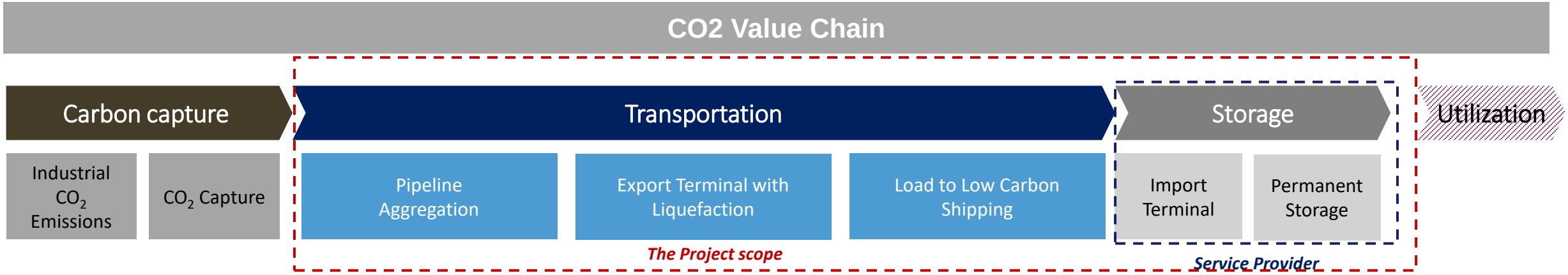
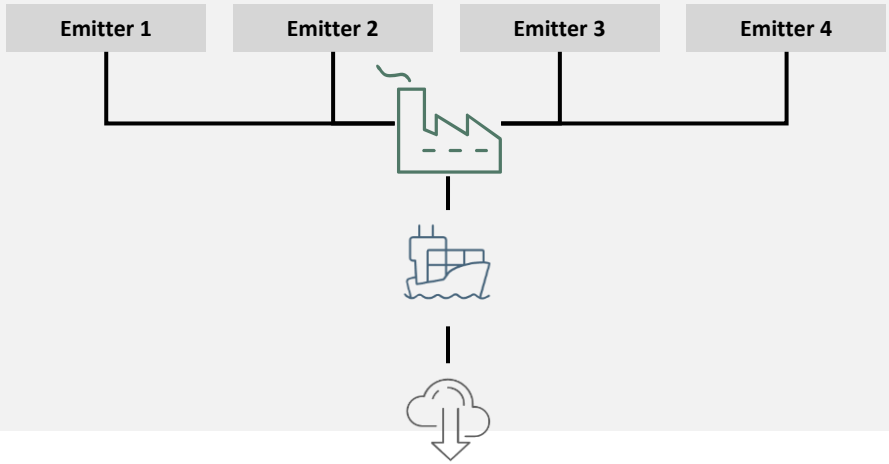
Update on the CCS project in Greece

The CO2 value chain



Key highlights

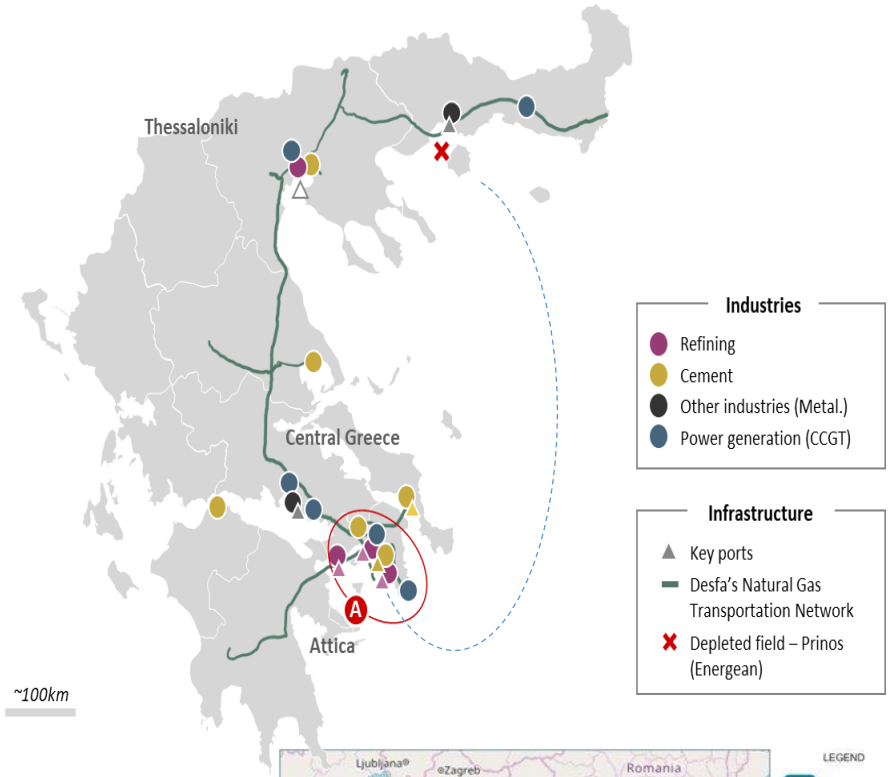


- Due to the benefits offered by **economies of scale**, DESFA proposes **an aggregated scenario** of a **single export facility** located barycentrically regarding industrial plants
- CCS Hub based on a scalable platform-as-a-service, with **an open-access system to add potential partners and technology** (e.g., smaller-scale emitters and cold energy usage)
- Provide much greater opportunity **accessing EU and National level subsidies** along the chain
- Accelerated licensing and permitting application and process

Main benefits from CCUS

- Strengthen the Energy Transition pathway, decarbonizing part of Greek industrial emission by 2030
- Support Greek Industry to stay in country by enhancing competitiveness in Green Products
- Green Job Creation for construction, engineering and innovation with opportunity for Local Labour Upskilling

DESFA's CCS project in the 6th PCI cycle



Key Highlights of Prinos CO_2 Project

- The **"Prinos CO2"**, project submitted by Energean and DESFA within the framework of the **6th PCI's list** of the **European Commission** also successfully passed the technical evaluation, which make it **eligible for inclusion in the relevant preliminary list**
- The project's budget is approximately **€1.4bn**, from which **DESFA's part** covers approximately **€500mn**[1].
- It is envisaged Prinos CO2 Storage Project to represent the first **CO2 storage hub at industrial/commercial scale in the Mediterranean**. The project aims to serve CO2 produced by local sources and remote sources from those hard-to-abate emitters
- **DESFA's** project contribution includes the construction of a **dedicated CO2 pipeline** connecting emitters from the region of Attica
- This pipeline will aggregate the volumes in a liquefaction terminal, where the **CO2 will be liquefied and temporarily stored in a dedicated facility**, until its loading to **CO2 carriers that will transport it via sea** to Prinos Storage facilities

[1]*Carbon capture cost is excluded.*

Thank you

Kleopatra Avraam
Strategic Planning Senior Manager

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e : k.avraam@desfa.gr

Innovative shipping solution for CO2

In this hand-out we tell you about our new flexible CO2 transportation and storage service.

Kind regards

Carbon Collectors

P.s. If you have any questions or remarks feel free to contact us.

info@carboncollectors.nl

CARBON COLLECTORS

CO2 emissions are unavoidable in some industries today

THIS IS A FACT WE HAVE TO DEAL WITH

Let's start with the "why?" Well, it's simply because a solution is needed to rapidly cut CO2 emissions in the so called "hard to abate" industries. These are the industries that have done what they can to optimize their production processes but still emit large quantities of CO2. Typical examples are: **steel plants, chemical plants, cement plants, waste-to energy plants and power plants.**

CARBON COLLECTORS

This creates a growing environmental, economic and license-to-operate problem

WE CAN HELP INDUSTRY TO SOLVE THIS PROBLEM

While their products are still absolutely needed, the associated emissions are causing a growing environmental, economic and license-to-operate problem for these industries

CARBON COLLECTORS

Action NOW
CCS is an effective solution
Flexibility & scalability needed

TIME TO ACT NOW

That's why we need solutions that can be implemented in the short term and that will have immediate effect. CCS is such a solution and it's one that can make a big impact over the next few decades, while more fundamental new technologies are developed and implemented that can ensure fully sustainable production processes in the long-term. And we need to find a way to connect these CO2 emitters from various locations over variable periods of time to safe, permanent storage facilities. The combination of CCS solutions need to offer flexibility and scalability.

CARBON COLLECTORS

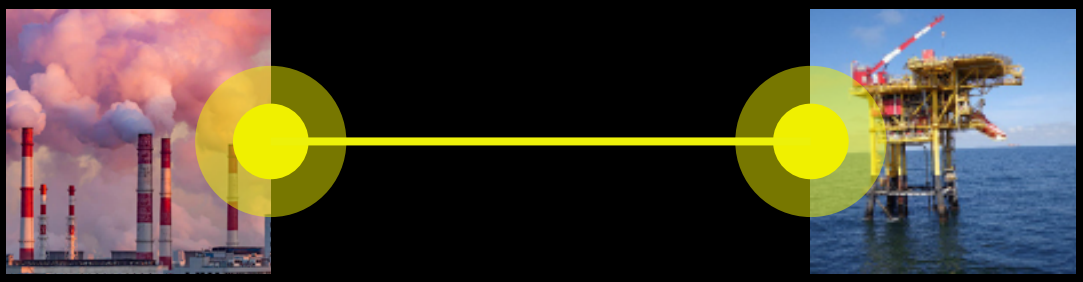
Carbon Collectors unburdens industrial clients through a **flexible, cost competitive CO2 collection**, transportation and storage service

THE CO2 COLLECTION SERVICE FOR LARGE INDUSTRIAL EMITTERS

Carbon Collectors offers a flexible, cost competitive CO2 collection, transportation and storage service for large industrial emitters. Our goal is to unburden our clients with a full service that starts at the outlet of the CO2 capture plant.

CARBON COLLECTORS

CO2 from **source** to **sink**



CO2 Emitter

Offshore storage

SOMETIMES THE BEST SOLUTION IS OBVIOUS

So how do we do it? Well, we need to connect CO2 emitters to suitable permanent storage locations. The storage locations we will use are offshore gas fields that have ceased production and that have proven track records of storing gas for millions of years. We make use of the existing wells and platforms for the duration of the storage period, which can typically be between 10 and 20 years.The CO2 emitter builds a CO2 capture plant that delivers highly concentrated CO2. **Carbon Collectors takes the CO2 as it comes out of the capture plant and takes care of the rest.**

CARBON COLLECTORS

CO2 from **source** to **sink**

CO2 Emitter

CARBON COLLECTORS

COMPRESSION, CONDITIONING & LIQUEFACTION

CARBON COLLECTORS

TRANSPORT

CARBON COLLECTORS

OFFSHORE INTERFACE

Offshore storage

CO2 Emitter
At the customer's site we take the CO2 as it comes out of the capture plant,

COMPRESSION CONDITIONING & LIQUEFACTION
Carbon Collectors place a compression, conditioning & liquefaction unit near the capture plant to bring the CO2 to the right conditions for transportation at 40bar and 5 degrees Celsius.

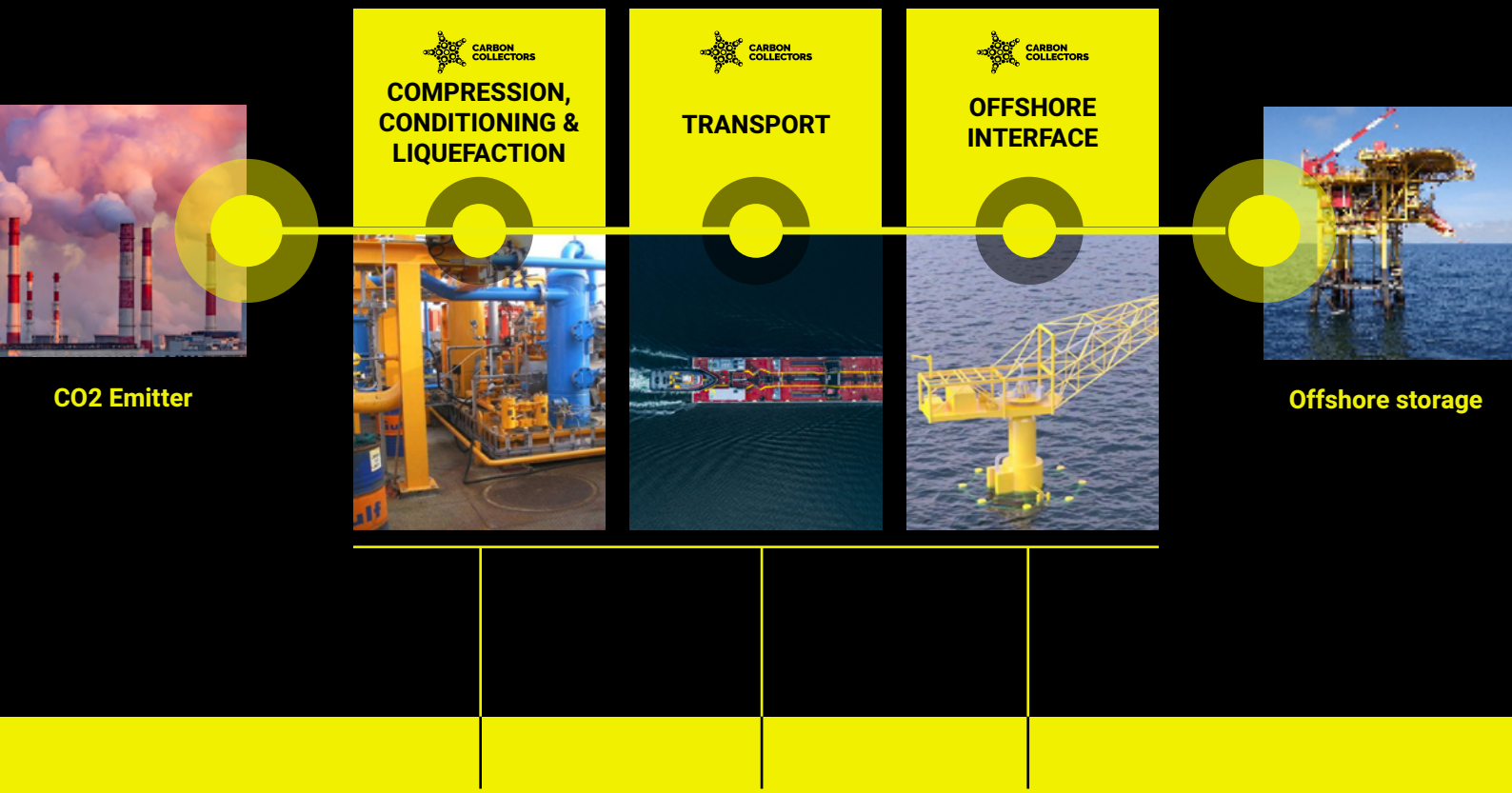
TRANSPORT
The CO2 is then directly loaded in an empty barge that's moored near the customer's site. This can take several hours to several days, depending on the rate of CO2 production. When the barge is full it is connected to a pusher-tug and put on transport to the offshore storage location. In the mean time, CO2 from the compression/ conditioning unit continues to flow into a new, empty barge. As such, it's a continuous process at the customer's location.

OFFSHORE INTERFACE
The tug-barge combinati-on arrives at the storage location and is moored at a Carbon Collectors Tower Loading Unit, also known as a Single Point Mooring System. The tug-barge combination stays at the Tower Loading Unit while the CO2 is discharged via a flexible hose, to the injection pump located on the tower. The injection pump (powered from the barge) brings the CO2 to the required pressure and delivers it to the wellhead on the platform via a short subsea pipeline.

Offshore storage
The CO2 is then injected in the wells and flows into the reservoir, some 3000 meters below the sea bed, where it is safely stored.

CARBON COLLECTORS

CO2 from **source** to **sink**

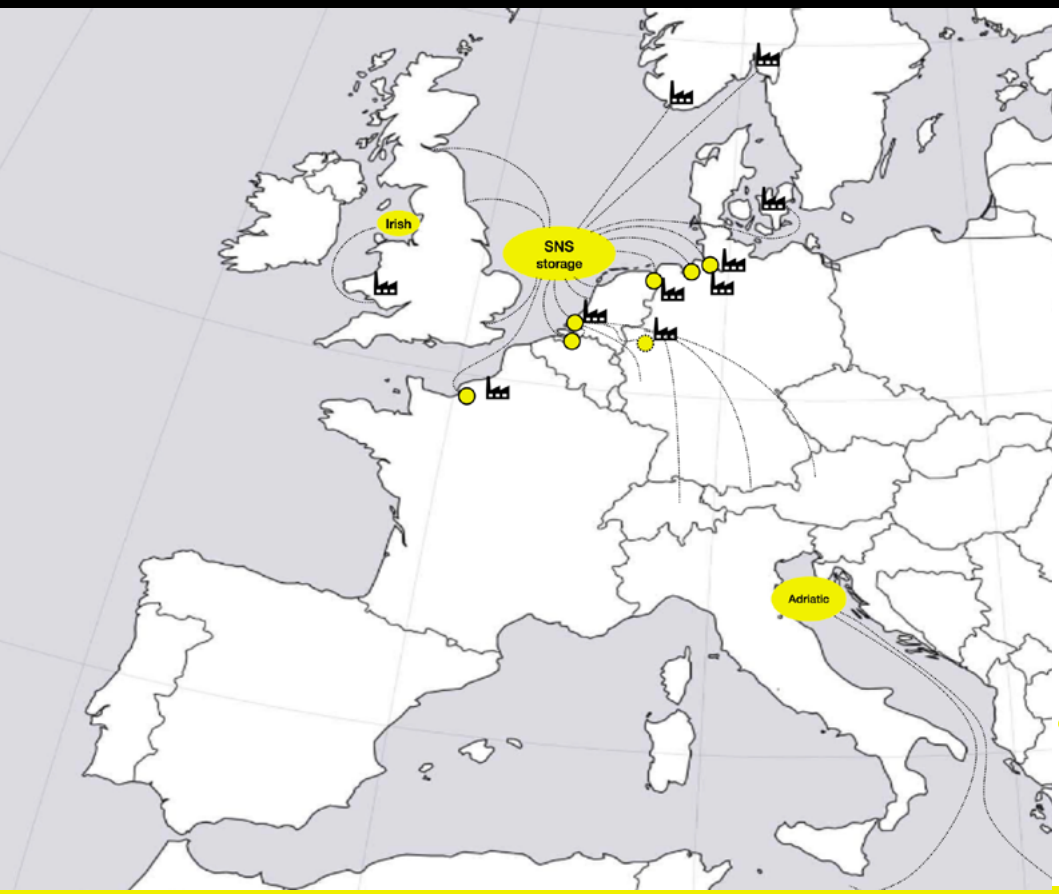


INLAND CO2 SOURCES CAN ALSO BE REACHED

Our standard solution is designed for CO2 sources near the coast. For in-land sources we add a step.The compression and conditioning takes place at the site of the inland CO2 source. The CO2 is then loaded into smaller (and lighter) inland ships, which travel between the source and a transfer terminal in the nearest port. There the CO2 is transferred (ship-to-ship) to an offshore barge and continues its journey to the storage location. CO2 from inland and coastal sources can either be combined at the port, or we make use of a dedicated stand-alone inland-offshore fleet for the inland customer. Alternatively, transport by rail or truck is also possible.

CARBON COLLECTORS

Carbon Collectors' service is available to customers across Europe



Stepping stone strategy

- Initial stores:
  Southern North Sea depleted gas fields
- Future storage areas:
  - Europe: Adriatic, Irish Sea,
  - Asia: South China Sea,
  - USA: Gulf of Mexico

Port with opportunity to aggregate 3rd party CO2

Suitable storage areas

Transportation route to storage

WE DON'T LIMIT OURSELVES TO THE NETHERLANDS

Our service has been initially designed for the Southern North Sea environment. The amount of storage space in this area is already significant and more space will become available as natural gas fields are depleted over the coming decade. Potential storage capacity is 1600Mt in the Netherlands alone! Our service is therefore available to customers in North-Western Europe first, but we will be offering the same service in other suitable regions shortly. Port-to-port transportation for CCU is also possible.
We are ready to start the first shipments as early as 2027.

CARBON COLLECTORS

Get in touch
Request a Digital meeting

info@carboncollectors.nl

CARBON COLLECTORS

we cut your plant’s emissions

CO_2 HIGHWAY EUROPE

Decarbonizing industries and bringing scale

In 2022, Equinor entered a strategic partnership with Fluxys to connect CO_2 emissions in North-West Europe for safe and permanent storage solutions in the North Sea. This joint initiative will be the largest CCS project to date, covering 30-40 million tonnes of CO_2 on a yearly basis. We aim to leverage our combined experience and tap into economies of scale to deliver a reliable and highly competitive solution for European carbon intensive industries.

Carbon capture, transport and storage (CCS) is essential for achieving significant CO_2 emission reductions in hard-to-abate industries. Equinor's ambition is to mature and develop 15-30 million tonnes of equity CO_2 transport and storage capacity per year by 2035. We are the pioneers of industrial CCS with over 25 years of operational experience across several projects in the North Sea region. Building on what we learned from our *Sleipner* and *Snøhvit* CCS sites, Equinor is developing more international collaborative projects like *Northern Lights* and *CO_2 highway Europe* in Norway and the *Northern Endurance Partnership* off the coast of the United Kingdom.
See more on equinor.com

Equinor ambition

15-30
MILLION TONNES / ANNUM
CO_2 transport and storage capacity by 2035
Equinor share

Building on over 25 years of CO_2 storage in the North Sea

Cost down by bringing scale

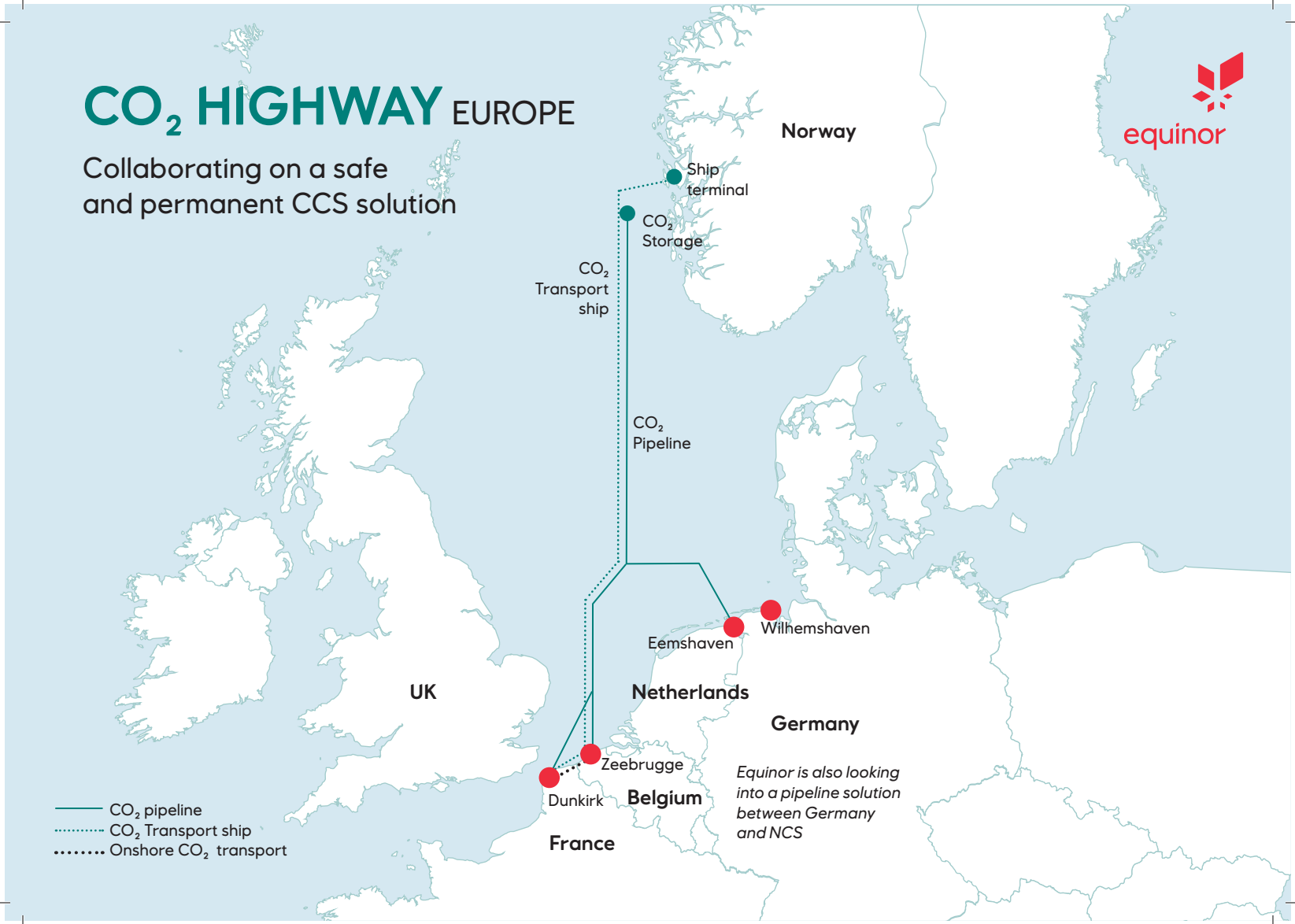
Market opener

Operation experience – technology works!

1996	2008	2024	2026	2028-2030
Sleipner	Snøhvit	Northern Lights	Northern Endurance Partnership	CO_2 highway Europe

CO_2 HIGHWAY EUROPE

Collaborating on a safe
and permanent CCS solution



EVIDA'S CO_2 JOURNEY AHEAD

CCS Knowledge Sharing Workshop by the Innovation Fund

November 28th, 2023

evida

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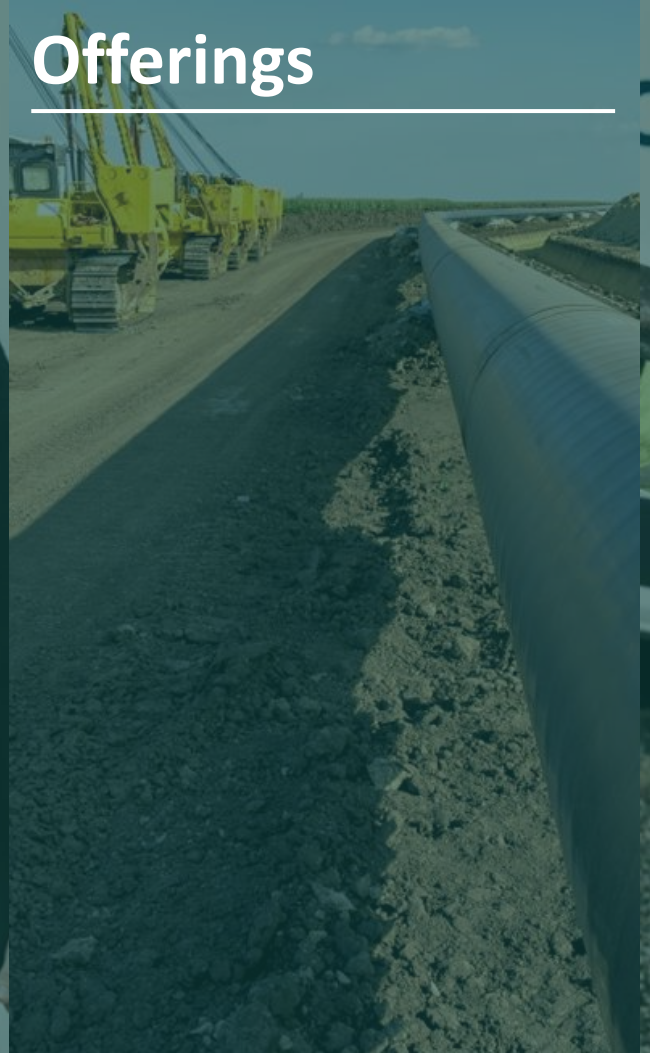

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Value chain

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EVIDA IS THE METHANE-DSO PLAYER IN DENMARK, DISTRIBUTING METHANE TO CUSTOMERS THROUGH THE METHANE DISTRIBUTION NETWORK

2019

Founded as a merger between HMN Gasnet and DGD

100%

Owned by the Danish Ministry of Finance

1,445 DKK mn revenue[1]

Revenue is currently via methane distribution business

350k customers[1]

Servicing: industrial B2B, Biogas plants, private B2C customers.
Services incl. disconnection, connection, and biogas solutions

99.99% uptime[1]

Safely and reliable net operation

1. Based on 2022 data

Source: Gasfakta

EVIDA WILL TAKE A CORNERSTONE POSITION IN CO_2 PIPELINE INFRA-STRUCTURE

Denmark is a first mover on CCS

There is a **global need for reducing CO_2** emissions

Danish **subsidies of ~37 DKK bn** will fund CCS of ~3.2 MTPA of Danish CO_2 in 2030

The government aspires to **reduce CO_2 emissions by 110% in 2050**

Evida will take a cornerstone position

Evida is **highly motivated** to **enter CO_2-infrastructure**[1]

Evida has a market-based approach, and is **already involved in multiple CO_2-partnerships**

Evida will **build CO_2-pipelines** to transport CO_2

Starting in the Copenhagen area

The **CO_2 hub in Copenhagen** has an expected CCUS **volume of ~3 MTPA** of CO_2

Experiences from the Copenhagen hub will **pave the way** for other pipeline sections

Main Line COD during **second half of 2027**

1. The Danish Ministry of Finance changed the purpose statement of Evida in 2021, allowing Evida to pursue the CO_2--business

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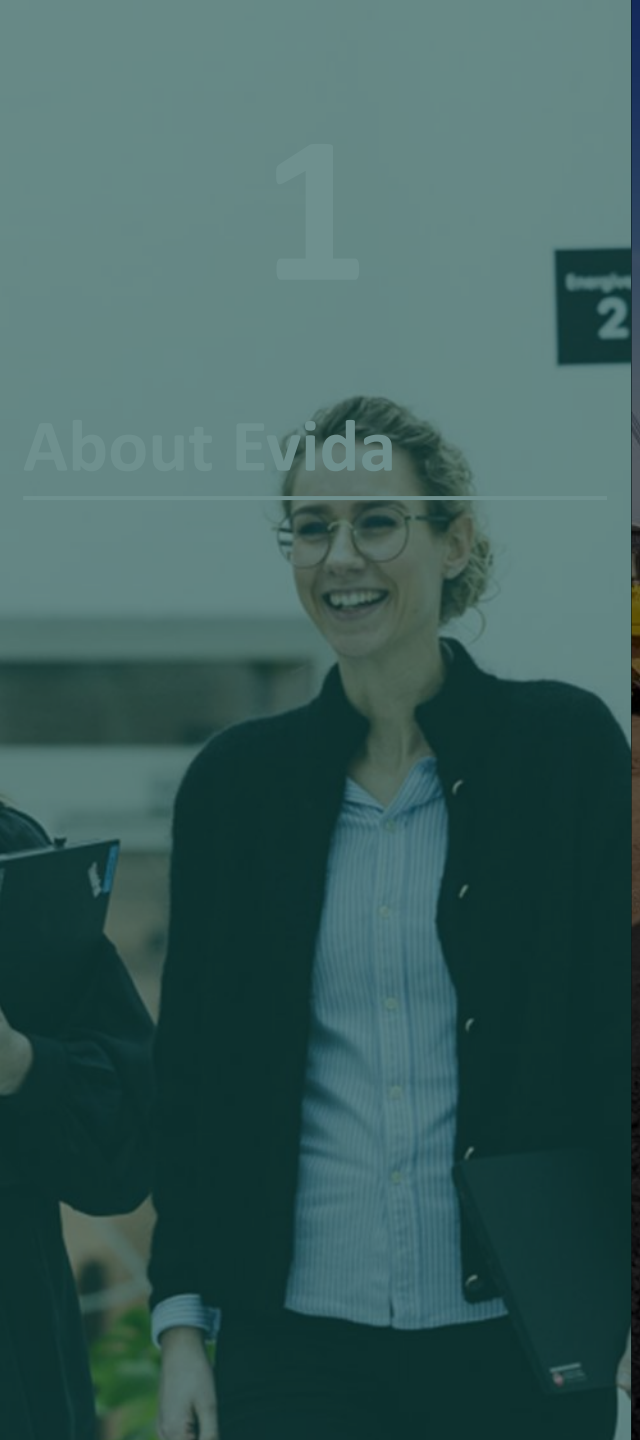
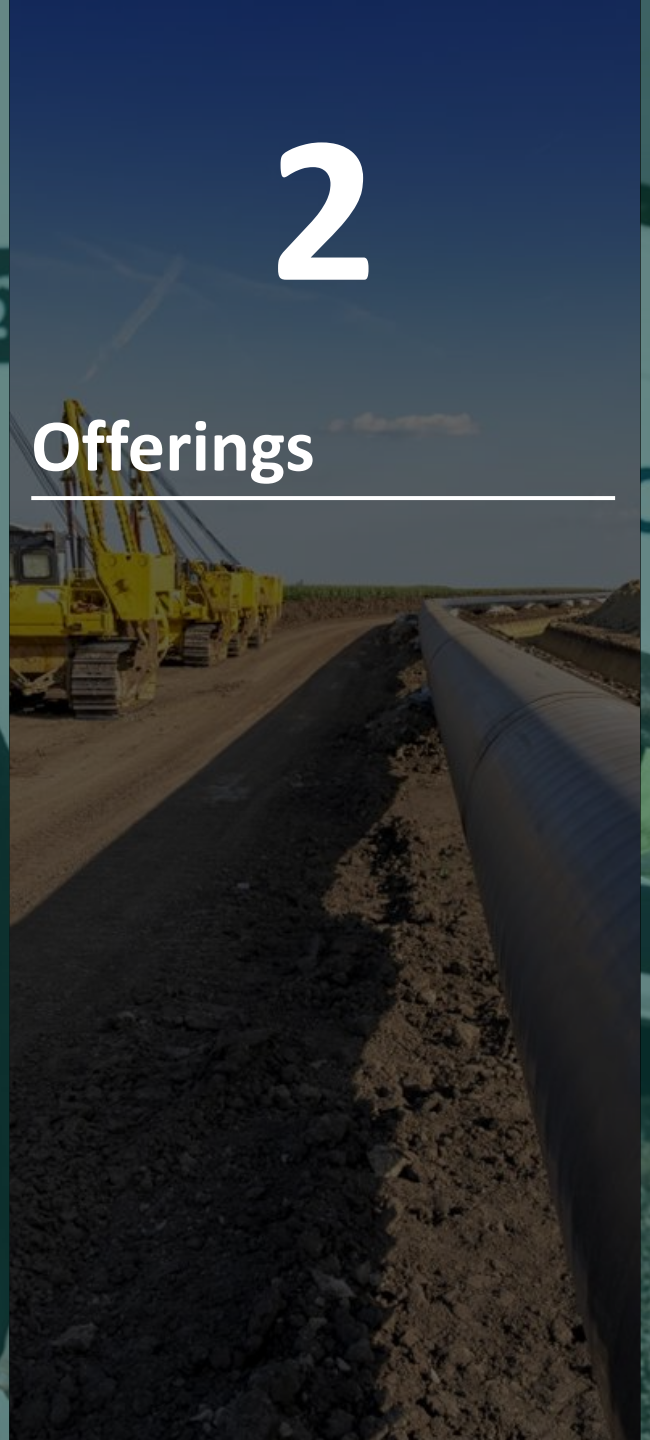
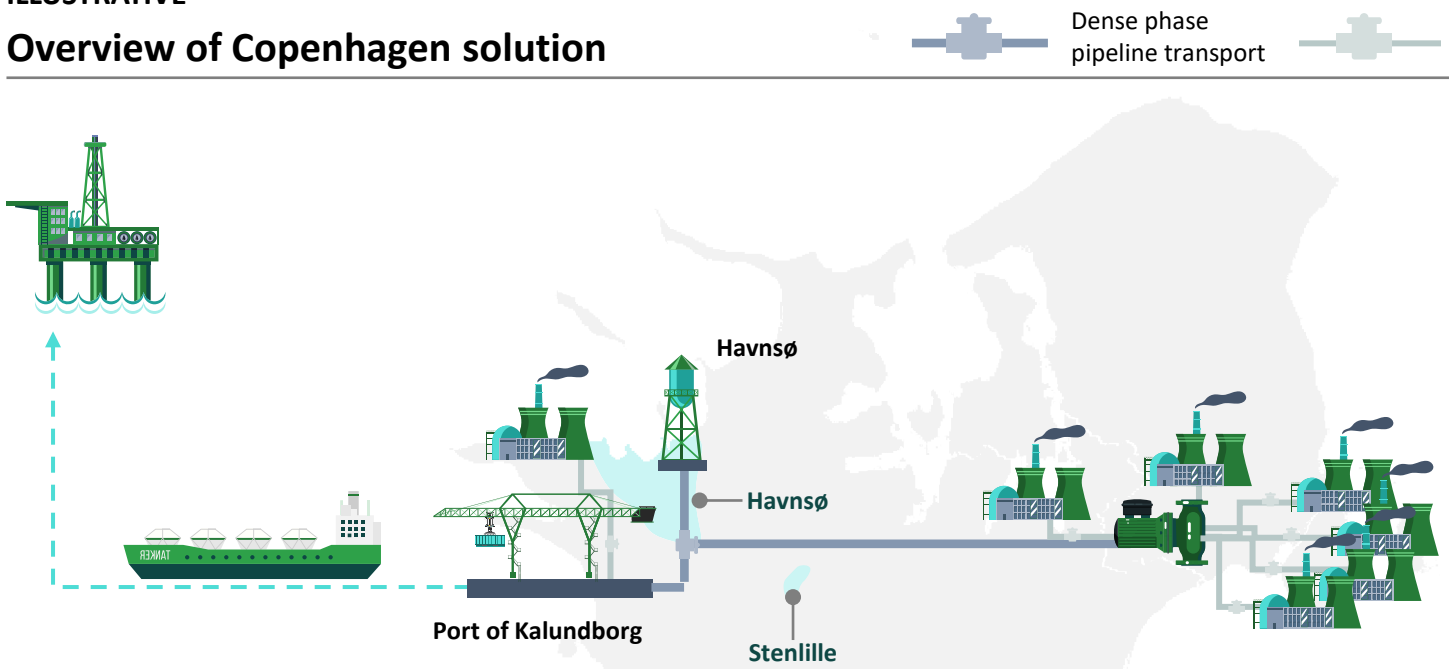




EVIDA WILL ENSURE COST EFFICIENT TRANSPORT

ILLUSTRATIVE

Overview of Copenhagen solution



The solution in short

Our solution will bring scale and time dependent benefits allowing all emitters in Copenhagen to connect to the pipeline that has capacity to meet Copenhagen demand

- Onshore gaseous pipeline connecting customers in greater Copenhagen
- Large compressor just outside central Copenhagen converting into dense phase transport when volume allows
- Onshore pipeline transport to Havnsø/Kalundborg

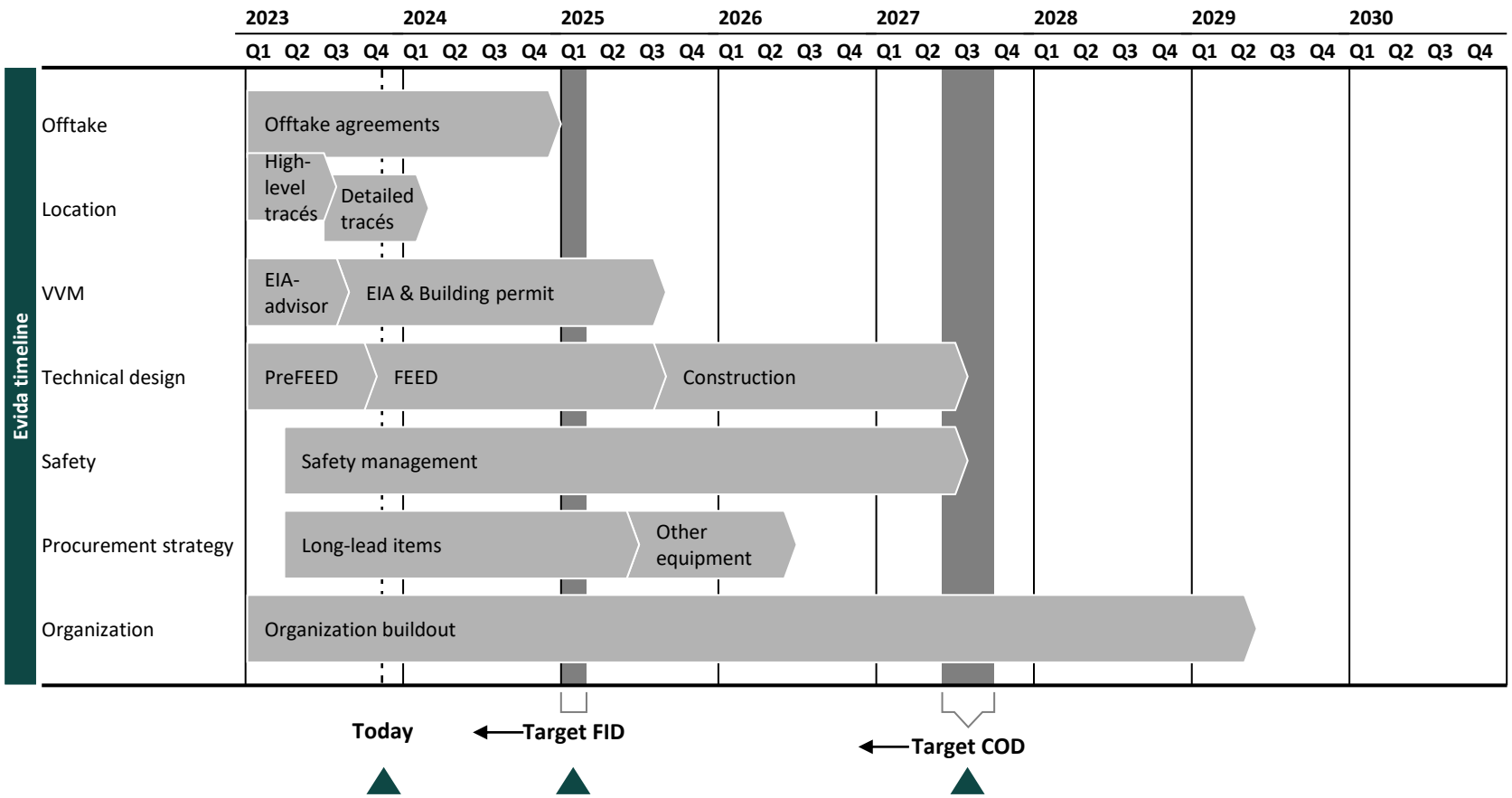
Timeline

Main Line FID in the beginning of 2025 — **Q1 2025**

Main Line COD during second half of 2027 — **Q2-Q3 2027**

EVIDA TARGETS A COMMERCIAL OPERATION DATE IN Q2/Q3 2027 FOR THE CPH PIPELINE

INDICATIVE



Timeline highlights

Timeline suggests a solution enabling **operations to go-live in 2027**

Key progress include

- High-level **tracé** developed and detailed tracé currently under development
- **EIA-advisor** selected and in dialogue with political stakeholders
- **Pre-FEED** conducted and FEED about to start
- **Procurement strategy** initiated with key long-lead items de-risked
- **Organization** under development

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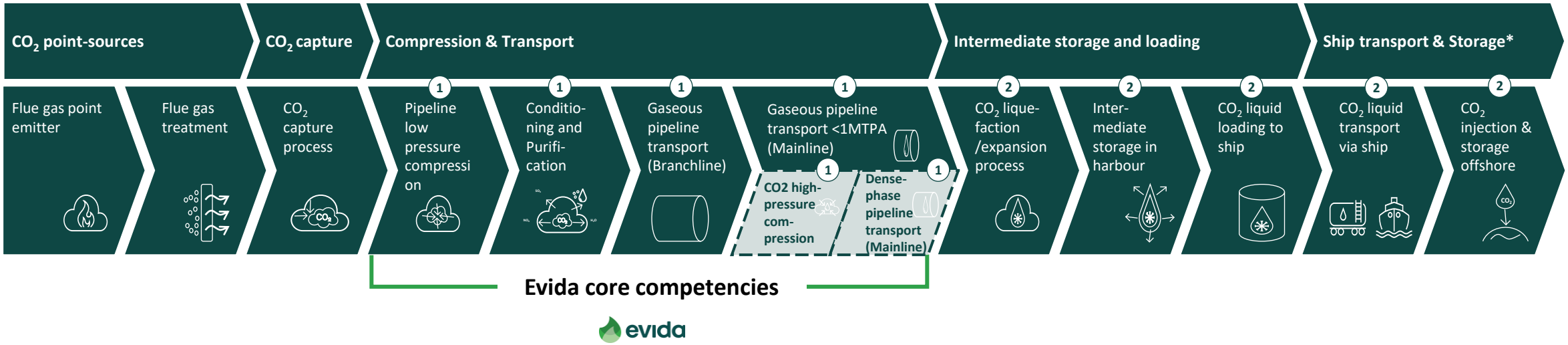
Collaborate with Evida

EVIDA WILL OFFER CO_2 PIPELINE TRANSPORT FOR THE OFFSHORE STORAGE VALUE CHAIN

Value chain for offshore storage

Relevant for dense-transport (>1MTPA)



Evida plans to play a significant role within the compression and transport phase of the value chain, with

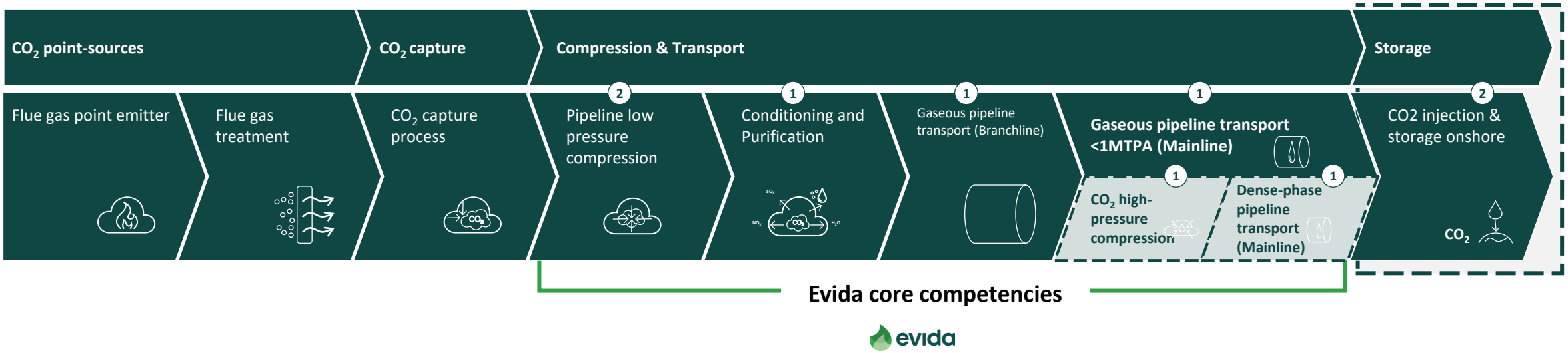
1. **Core competencies:** pipeline transport in main and branch lines, including compression and drying/cleaning
2. **Facilitate a complete value chain :** intermediate storage, shipping and storage

* Port to port and port to storage

EVIDA WILL OFFER CO_2 PIPELINE TRANSPORT FOR THE ONSHORE STORAGE VALUE CHAIN

Value chain for onshore storage

Relevant for dense-transport (>1MTPA)



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2. **Facilitate a complete value chain :** storage

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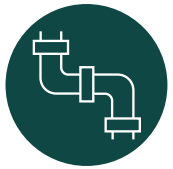
EVIDA IS AN IDEAL COLLABORATOR FOR CCUS/PTX ACTORS



Experienced pipeline operator

Evida already operates ~18,500 km of methane pipeline and knows the pipeline industry and relevant regulators.

Evida will leverage capa-bilities for running a highly secure and resilient pipeline network

Sizable solution for all

The Evida solution will be designed to allow customers to connect to the joint, flexible and modular infrastructure solution that allows for economics of scale

Copenhagen is just the start

Evida will start with the Copenhagen cluster and plan to expand reach to other customers and areas across Denmark

Winning cost proposition

Evida will apply modular design principles, enable reuse of materials and components, leverage advanced tools incl. predictive maintenance to streamline several operational processes

CONNECT WITH EVIDA TODAY TO LEARN MORE ABOUT CCS OPPORTUNITIES

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