



Cover

Til Økonomiudvalget

Orientering: E.ON og ARC går sammen om at fange CO₂ på Amager Bakke.

E.ON og ARC har den 25. marts 2025 udsendt en fælles pressemeddelelse om, at de i partnerskab vil søge om prækvalifikation til at byde på statens udbud af støtte til CO₂-fangst.

Partnerskabets ambition er at fange 400.000 ton CO₂ årligt fra ARC. Endelig investeringsbeslutning, når statens udbud er afgjort, forventes at være i 2026. CO₂-fangstanlægget forventes at være i operativ drift i 2030. E.ON og ARC har døbt partnerskabet CopenCapture.

Økonomiforvaltningen vurderer, at partnerskabet understøtter Københavns Kommunes Energistrategi (ØU 29. oktober 2024), som har en målsætning om CO₂-fangst i storskala, inden for kommunegrænsen, på fx ARC's anlæg.

E.ON er et stort tysk energiselskab, primært inden for energidistribution (ledninger og net), samt salg af energi og digitale løsninger til kunder.

Bilag

- E.ON og ARC går sammen om at fange CO₂ på Amager Bakke
- CopenCapture Factsheet

27-03-2025

Sagsnummer i F2
2025 - 7043

Dokumentnummer i F2
7639048

Sagsnummer eDoc
2025-0099629

Sagsbehandler
Jesper Svensson

Pressemeddelelse den 25. marts 2025

E.ON og ARC går sammen om at fange CO₂ på Amager Bakke

400.000 ton CO₂. Så meget vil det nye partnerskab mellem det internationale energiselskab E.ON og det kommunale affaldsenergianlæg ARC årligt fange fra udledningen på Amager Bakke – også kendt som CopenHill.

I dag starter kapløbet om Energistyrelsens store CCS-udbud på 28,7 mia. kr., hvor deadline for at søge om prækvalifikation oprinder.

Midlerne skal bruges til at indfange og lagre CO₂ fra 2030, og nu melder et nyt partnerskab sig på banen til den opgave. Det tyske energiselskab E.ON og den fælleskommunale affalds- og energivirksomhed ARC går sammen om projektet CopenCapture, der har som ambition at indfange hele 400.000 ton CO₂ årligt fra Amager Bakkes udledning og lagre den i undergrunden.

På toppen af Amager Bakke har parterne underskrevet en eksklusiv aftale, der skal gøre det kendte, danske affaldsenergianlæg til et internationalt fyrtårn for CO₂-fangst og -lagring (CCS).

"Elektrificering kan reducere mange typer CO₂-udledning. Men vi har ikke egnede teknologier, der kan eliminere behovet for miljørigtig behandling af restaffald, der ikke kan genbruges eller genanvendes. At omdanne restaffaldet til lokal varme og elektricitet for lokalsamfund og virksomheder er den bedste løsning, vi har. Men affaldsenergi (WtE) har fortsat en udfordring: CO₂-udledning fra processen. Derfor er CO₂-fangst på affaldsenergi en helt afgørende klimaløsning, vi som virksomhed ønsker at bidrage til," siger Marten Bunnemann, CEO for E.ON Energy Infrastructure Solutions, og fortsætter:

"Set fra vores perspektiv bør det mest moderne og ikoniske WtE-anlæg i verden også være et frontløberprojekt for CCS. Amager Bakke er et moderne anlæg med lang levetid, der er i drift året rundt og lever op til de højeste miljøstandarder. Danmark har med udbuddet skabt gode forudsætninger for at etablere nye CCS-projekter. Partnerskabet om CopenCapture er en unik mulighed for skabe et internationalt foregangsprojekt, der viser, hvordan vi kan tackle en af de sværeste og mest komplekse klimaudfordringer, nemlig den øgede CO₂-udledning."

Et foregangsprojekt for offentligt-privat klimasamarbejde

Partnerskabet er ifølge Jane Egebjerg Andersen, COO hos ARC, et godt eksempel på, hvordan offentlige og private virksomheder kan arbejde sammen:

"Med E.ON som partner får vi det bedste fra to verdener. Hos ARC kan vi fortsætte med at levere god affaldshåndtering og -behandling og sikker, konkurrencedygtig fjernvarme til borgerne, mens E.ON kan bidrage med deres store teknologiske ekspertise og internationale erfaring med store energiprojekter til at realisere CopenCapture og bygge CO₂-fangstanlægget," siger Jane Egebjerg Andersen og fortsætter:

"At opgradere CopenHill med CopenCapture er et naturligt næste skridt for os og kan blive et meget vigtigt bidrag til at nå de klimamål, der er besluttet politisk – i København, i Danmark såvel som med Paris-aftalen."

Med en ambition om at indfange 400.000 tons CO₂ årligt vil CopenCapture også være en vigtig brik i forhold til at København når sine klimamål.

Den nye partnerskabsaftale markerer, at E.ON ansøger om prækvalifikation til Energistyrelsens CCS-udbud, der har et krav om fuld fangst af CO₂ i 2030. Selve etableringen af CopenCapture er betinget af tilskud fra CCS-puljen.

En betydelig del af den udledte CO₂ stammer fra organiske materialer (eks. beskidt papir og pap). Denne CO₂ er såkaldt biogen, og fangst af denne vil føre til såkaldte negative emissioner – CO₂ fra et naturligt kulstofkredsløb som fanges og fjernes permanent fra atmosfæren. Disse negative emissioner kan sælges som klimakreditter – højkvalitets Carbon Removal Credits (CRC'er), som vil blive solgt på det frivillige marked for CO₂-kreditter, hvor virksomheder kan købe CO₂-reduktioner enten som kompensation eller bidrag.

Fakta om CopenCapture

CopenCapture er et banebrydende projekt inden for kulstoffangst og -lagring (CCS), der vil tage det ikoniske affaldsenergianlæg Copenhill til et nyt niveau inden for affaldshåndtering. Anlægget er beliggende i København og ejes samt drives af Amager Ressource Center (ARC). Som et af verdens mest avancerede affaldsenergianlæg er ARC nu på vej til at blive en global frontløber inden for affaldsbehandling med lavere CO₂-udledning. Projektet er udviklet i et eksklusivt partnerskab mellem E.ON Energy Projects GmbH (E.ON) og ARC og har til formål at indfange 400.000 ton CO₂ om året, hvilket styrker Københavns position som foregangsby inden for klimahandling.

Om ARC

ARC er til for at levere affaldsservices til samfundet. Vores opgave er at hjælpe borgere og virksomheder med at bortskaffe deres affald på den mest miljø- og klimavenlige måde. ARC:

- Driver genbrugsstationer i Storkøbenhavn
- Indsamler affald i København, Dragør og Tårnby
- Driver Amager Bakke, hvor det ikke-genanvendelige restaffald behandles miljømæssigt forsvarligt, og der samtidig produceres el og fjernvarme til ca. 90.000 husstandes årlige forbrug

Om E.ON

E.ON er et internationalt børsnoteret energiselskab med hovedsæde i Essen, Tyskland, der fokuserer på energinetværk, kundeløsninger og energisalg. Som en af Europas største energiselskaber spiller E.ON en ledende rolle i udviklingen af en bæredygtig, digital og decentraliseret energifremtid. Til dette formål udvikler og sælger omkring 75.000 medarbejdere produkter og løsninger til private, kommercielle og industrielle kunder. Mere end 47 millioner kunder køber elektricitet, gas, digitale produkter eller løsninger inden for elektrisk mobilitet, energieffektivitet og klimabeskyttelse fra E.ON. E.ON i Danmark udvikler, bygger og driver ladeløsninger til elbiler, fjernvarme til private hjem, virksomheder og kommuner samt producerer 10 % af Danmarks samlede biometan gennem medejerskab af fem biogasanlæg. For mere information, besøg www.eon.com.

For yderligere information, kontakt

Alexander Ihl, Head of Press and Employee Relations, E.ON
+49 201 1844224
alexander.ihl@eon.com

Sune Martin Scheibye, pressechef, ARC
+45 24 60 02 22
sus@ar-c.dk



Copen
Capture

Factsheet

Welcome to the CopenCapture Factsheet — a comprehensive overview of Copenhagen's pioneering carbon capture and storage (CCS) project.

Inside, you'll find key information about the project, the companies behind it, and the role of CCS in decarbonizing waste-to-energy. Explore details about the site, project milestones, and how CopenCapture is shaping the future of waste management.



copencapture.com



e-on a/c

Introduction

CopenCapture is a pioneering carbon capture and storage (CCS) project that will take the iconic Waste-to-Energy facility Copenhill to the next level in state-of-the-art waste management. The facility is located in Copenhagen, owned and operated by Amager Ressource Center (ARC).

As one of the world's most advanced waste-to-energy facilities, ARC is now set to become a global leader in decarbonizing waste treatment. Developed in an exclusive partnership between **E.ON Energy Projects GmbH (E.ON)** and **ARC**, the project aims at capturing approximately **400,000 tonnes of CO₂ per year**, reinforcing Copenhagen's leadership in climate action.

As part of Denmark's national CCS strategy, CopenCapture is set to apply for **government funding in 2025**, with a **final investment decision anticipated in 2026** and **operations targeted by 2030**. The realization of the CopenCapture project relies on external funding from the Danish CCS tender and Carbon Dioxide Removals (CDR's).



CopenCapture

Advancing Climate Leadership in Waste-to-Energy

E.ON and ARC have formed an **exclusive partnership** that brings together the best of both worlds. This collaboration allows E.ON to leverage its **technical expertise** and capacity, while ARC continues to provide **essential waste services and affordable heating** to local communities. Together, we offer a **unique opportunity to tackle emissions**, enabling companies to support innovation without taking on unnecessary risks that could impact local communities.



E.ON is an international investor-owned energy company headquartered in Essen, Germany, which focuses on energy networks, customer solutions and energy sales. As one of Europe's largest energy companies, E.ON plays a leading role in shaping a sustainable, digital, decentralized world of energy. To this end, around 77,000 employees develop and sell products and solutions for private, commercial and industrial customers. More than 47 million customers purchase electricity, gas, digital products or solutions for electric mobility, energy efficiency and climate protection from E.ON.

E.ON in Denmark develops, builds, and operates charging solutions for electric vehicles, district heating for private homes, businesses and municipalities and produces 10% of Denmark's total biomethane production through co-ownership of five biogas plants.

For more information, please visit www.eon.com.

ARC is here to provide waste services to society. Our job is to help the general public and companies to dispose of their waste in a way that is best for the environment and climate. ARC:

- Operates recycling stations in greater Copenhagen
- Collects the waste in Copenhagen, Dragør and Tårnby
- Operates Amager Bakke where the non-recyclable residual waste is environmentally treated. In return, ARC delivers electricity and district heating for approximately 90.000 households yearly need in the surrounding society.

For more information, please visit www.a-r-c.dk.



CopenCapture in Numbers

≈ **400.000t**
of CO₂ captured per year.

≈ **300-500M€**
total investment.

≈ **2030**
date of commercial
operation.

≈ **-40%**
reduction of Copenhagen's fossil emissions.*



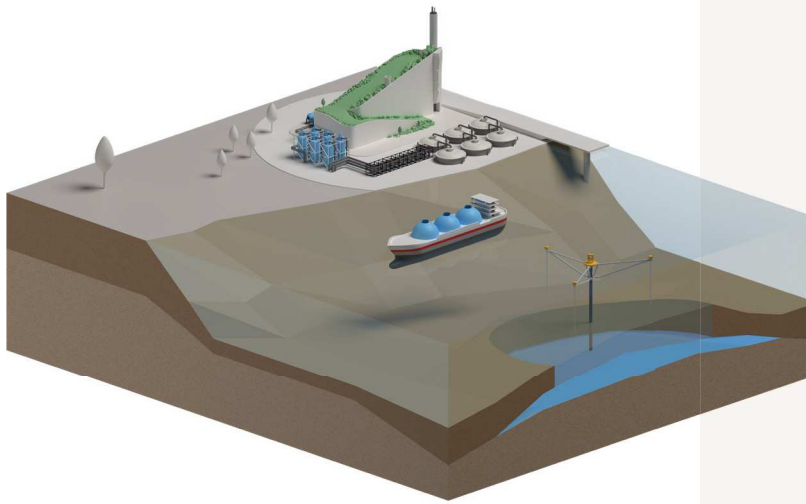
*compared to 2023 levels.

Carbon Capture & Storage

What is CCS?

Carbon Capture and Storage (CCS) is a technology that reduces CO₂ emissions by capturing carbon dioxide from industrial processes, power generation, or, as in our case, waste treatment before it enters the atmosphere. Once captured, the CO₂ is compressed, transported, and securely stored deep underground in geological formations, such as depleted oil and gas reservoirs

or saline aquifers, where it remains permanently trapped. This process helps prevent emissions from contributing to climate change and is particularly important for industries where full decarbonization through electrification or alternative technologies is not yet possible.



A simplified look at the CCS process at CopenCapture:

Emissions from Amager Bakke are captured and processed at a dedicated carbon capture facility next to the plant. The CO₂ is then transported to an intermediate storage site at the nearby harbor before being transferred onto ships for safe transport to a permanent storage location.

This streamlined approach minimizes the project's footprint while ensuring efficient and secure CO₂ management.

Why capturing carbon at a WtE-facility?



Residual waste remains one of the most difficult challenges for reaching net zero. Unlike many other industries, waste treatment cannot be electrified, and no disruptive technologies have yet emerged to eliminate the need for environmentally sound treatment of residual waste. With little change in waste volumes anticipated in the near future, the need for decarbonization remains substantial. A consequence of our modern society that needs to be managed to mitigate climate change.

As a result, Waste-to-Energy (waste incineration) remains the most viable solution for managing residual waste in a controlled and environmentally sound way, as landfills — its primary alternative — emit methane, a greenhouse gas over 25 times more potent than CO₂.

The integration of carbon capture and storage (CCS) with Waste-to-Energy offers a practical approach to removing CO₂ emissions while managing residual waste responsibly.

The site

About CopenHill

CopenHill is a showcase for the green agenda in Europe located close to the center of Copenhagen. It is one of the best waste-to-energy plants in terms of energy efficiency and environmental performance.

The 17.000 m² large roof and part of the facade is offering a stunning recreational facility where visitors can ski, hike, run and enjoy themselves. More than 300 trees and 7.000 bushes are planted on the roof, creating a biodiverse and wild landscape that calls for exploration and play.

CopenHill is an ambitious take on how a piece of industry infrastructure can be transformed into a recreational facility providing a joyful and valuable experience; to raise awareness about



both the beneficial and problematic aspect of waste – as a valuable resource if treated well, and as a societal and environmental problem if treated wrongly.

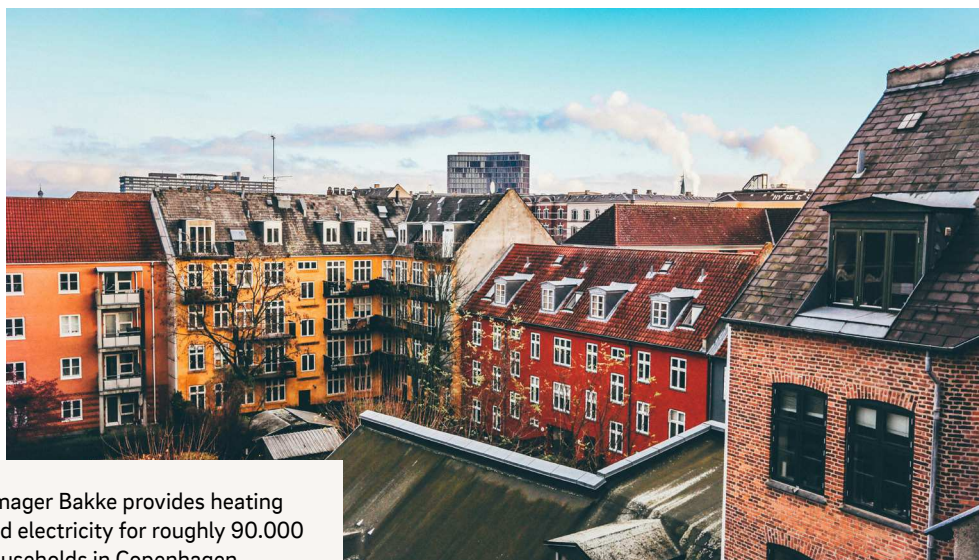
Energy for CPH

At Amager Bakke, non-recyclable residual waste is converted into electricity and district heating. The waste-to-energy plant is an integrated part of the Danish energy eco-system: the widespread district heating system in large Danish cities makes it possible to harvest the residual heat from the incineration process and turn it into district heating. Amager Bakke provides heating and electricity for roughly 90.000 households yearly consumption.

By utilizing residual waste, the reliance on other more carbon-intensive energy production methods can be decreased.

The flue gas cleaning system is one of the most advanced of its kind. Each furnace line has a separate flue gas cleaning system comprising an electric filter, three scrubbers and a dust filter. During the flue gas cleaning, dust (also known as fly ash), NO_x particles, hydrochloric acid, mercury, Sulphur dioxide and other undesirable substances are eliminated. The flue gas exiting the stack is nearly only consisting of steam and CO₂.

The future installation of CO₂ capture will take this advanced facility one step further and turn it into an important climate mitigation tool.



Amager Bakke provides heating and electricity for roughly 90.000 households in Copenhagen



Infrastructure

The project is **strategically located** near the port, minimizing the footprint needed for transporting CO₂ to offshore storage, optimizing logistics for the entire process. With ARC's modern infrastructure and **long remaining operational life**, CopenCapture is positioned to be a **long-term solution to decarbonizing waste treatment**. Additionally, ARC has already gained experience with CO₂ management through its test unit, which captures CO₂ for industrial use. The captured CO₂ has e.g. been used in greenhouses and in concrete production. This **technical expertise** will be leveraged to ensure the success of the carbon capture process at scale. The project will leverage proven CCS technology and existing

infrastructure to deliver a fully operational solution by 2030. Additionally, excess heat from the capture process could be repurposed, benefiting thousands of district heating customers in the region. This ensures the **proper handling of end-of-life waste and the decarbonization of a hard-to-abate sector**, all while supporting the city's ambitious climate goals as well as the national climate targets of Denmark.

Project details

Climate Impact

Once fully operational, CopenCapture will capture approximately 400,000 tonnes of CO₂ annually. Currently, around 50% of the CO₂ in ARC's flue gas comes from fossil-based sources, meaning the project has the potential to cut fossil CO₂ emissions by about 200,000 tonnes per year—equivalent to reducing fossil emissions in the Copenhagen Municipality by nearly 40% (based on 2023 levels).

At the same time, the remaining 200,000 tonnes of captured CO₂ originate from biogenic sources, effectively removing carbon from the natural cycle and creating negative emissions. These carbon removals are essential to offset unavoidable emissions in hard-to-abate sectors. CopenCapture is a cornerstone of Copenhagen's climate strategy, playing a vital role in the city's goal of becoming CO₂-positive by 2035.

Technology & Facility Details

At CopenCapture, carbon capture will rely on proven amine-based technology to separate CO₂ from flue gases. This mature, reliable, and safe technology is provided by an experienced supplier with decades of expertise in CO₂ separation. Once separated, the CO₂ undergoes further purification, followed by compression and cooling to increase pressure and lower its temperature, transforming it into liquid form. The liquefied CO₂ is then stored temporarily before being transported by vessel to its designated storage site.

As a waste-to-energy facility, ARC operates year-round, enabling the carbon capture facility to run continuously, with only brief shutdowns for annual maintenance. This ensures high equipment utilization, minimal downtime, and a cost-effective solution for CO₂ capture.

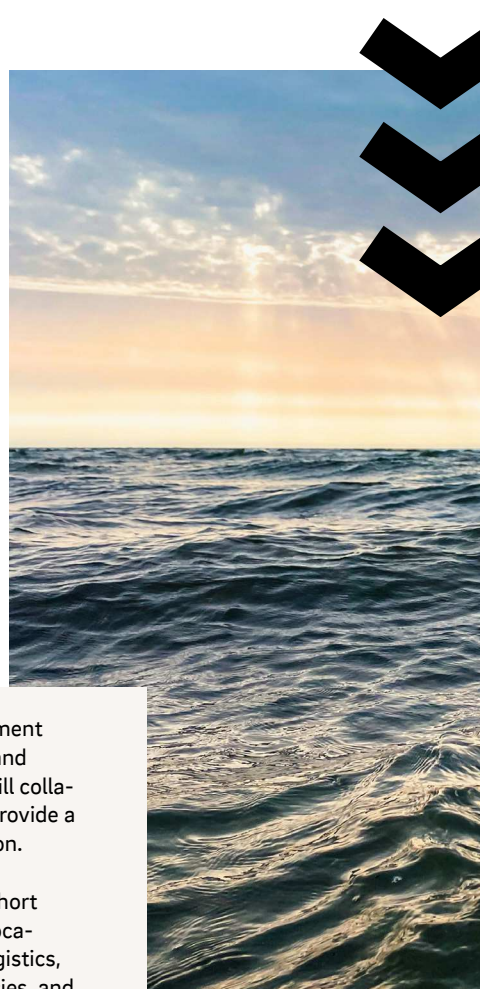
Storage

The captured CO₂ from CopenCapture will be permanently stored in deep geological formations, at depths of more than 2,000 meters. These formations, similar to those that once held oil and natural gas, consist of porous rock layers sealed by solid caprock. CO₂ is injected into these formations in liquid form through wells, where its movement and pressure are continuously monitored by the storage operator. Over time, depending on the surrounding rock's chemical composition, the CO₂ gradually mineralizes, becoming permanently trapped as solid carbonate rock.



Several storage sites are under development both onshore and offshore in Denmark and neighboring countries. CopenCapture will collaborate with a storage partner that can provide a secure, cost-effective, and timely solution.

The project benefits from its relatively short transport distance to multiple storage locations, which allows for more efficient logistics, reduced need for buffers and redundancies, and ultimately lower costs.





Economics & Financing

Today, Denmark offers the most fit-for-purpose CCS tender and regulatory framework in Europe. On one hand, there is a clear incentive for emitters to take action in the CCS sector through local CO₂ taxes. On the other hand, the Danish state supports the market's ramp-up phase with – compared to other European countries – an attractive funding tender.

The project's commercial viability is driven by four distinct revenue streams: a base fee from the Emitter Plant to E.ON, which partially

compensates for the project developer's costs in capturing, transporting, and storing CO₂; carbon removal certificates that assist offtakers on their path to Net-Zero; the supply of climate-neutral heat to the nearby district heating system; and funding to ensure a commercially viable ramp-up during this early market phase.

The realization of the CopenCapture project relies on external funding from the Danish CCS tender and CDR's.

Roles & Responsibilities

ARC and E.ON are working together to establish a partnership to develop a carbon capture facility at Copenhill. This partnership aims at developing a competitive full value chain project, and will apply for the subsidy from DEA to support the 2030 climate target of Copenhagen.

ARC has great expertise in operation and management of waste-to-energy including supply of district heating. E.ON has a long experience from developing, building, owning and operating energy assets. To this E.ON add expertise in carbon capture, logistics as well as expertise in district heating and utilities from our extensive DH business throughout Europe.

Additionally, ARC has already gained experience with CO₂ management through its test unit, which captures CO₂ for use in concrete production. This technical expertise will be leveraged to ensure the success of the carbon capture process at scale.





copencapture.com

e-on **arc**