



Achieving Deep Emissions Reductions with CO₂ Networks

Many pathways are needed to decarbonize our energy system.

Carbon capture and storage offers a solution for deep emissions reductions from key industrial processes, including the production of iron and steel, cement, and chemicals, which remain the building blocks of modern society.

The building blocks of modern society:

STEEL
PRODUCTION



CEMENT
PRODUCTION



CHEMICAL
PRODUCTION



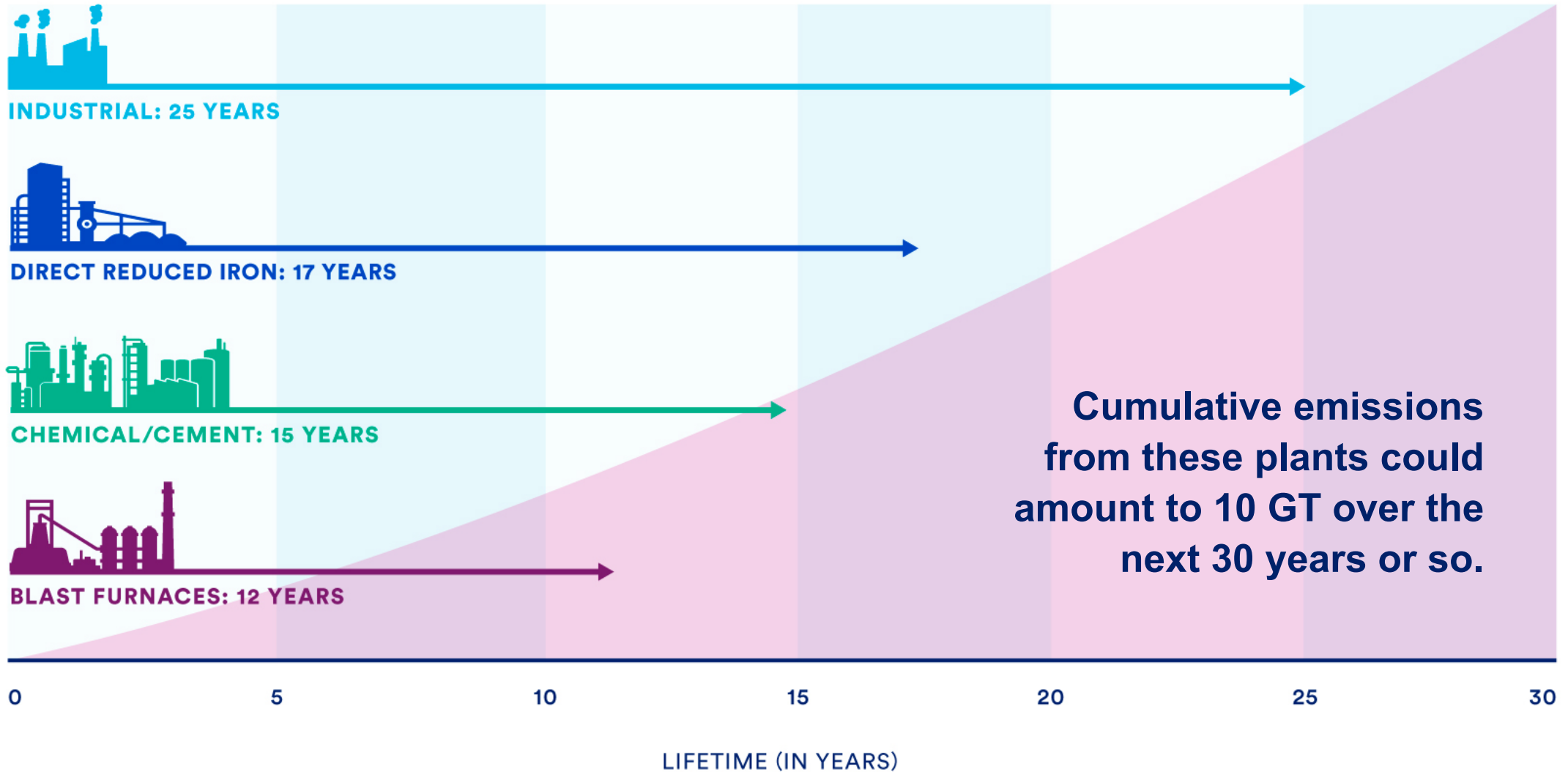
We need to **capture CO₂** before it makes it into the atmosphere.

Over 20% of Europe's GHG emissions come from industrial sources and **demand changes are unlikely to drop these emissions to zero.**

Source: IEA-<https://www.iea.org/reports/ccus-in-clean-energy-transitions/regional-opportunities>



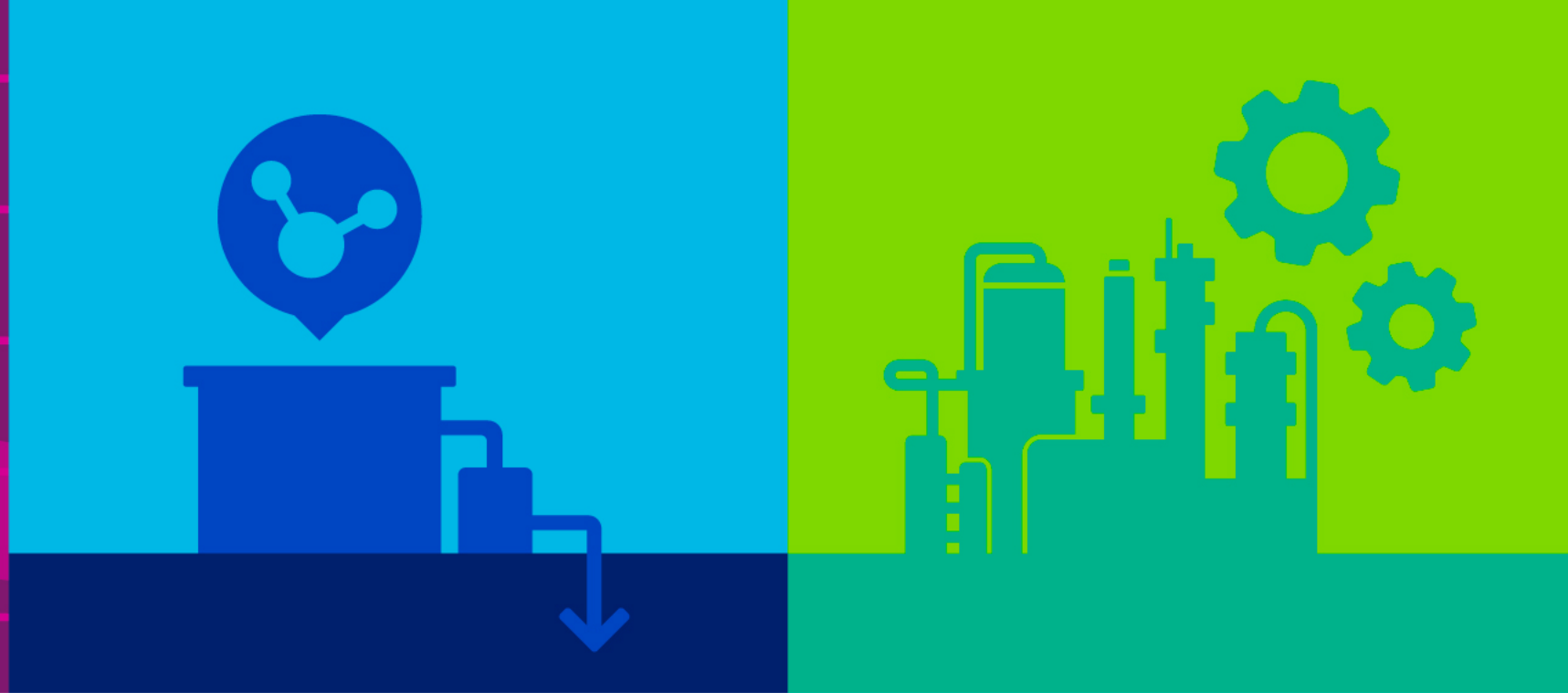
Europe Industry Average Lifetime (IEA)



The background image shows two workers in an industrial environment, possibly a power plant or refinery. They are wearing white hard hats and high-visibility safety vests. One worker is holding a tablet and they both appear to be looking at it. The scene is dimly lit with some bright light sources in the background, creating a blue-tinted effect. The text "What needs to happen?" is overlaid in white, bold font in the center of the image.

What needs to happen?

Climate Neutrality



1

Industrial CO₂ emissions need to be eliminated by 2050 in order to achieve climate neutrality.

2

Capture CO₂ at the source and store it in underground facilities. CO₂ capture is one of many options we need to implement for reducing industrial emissions.

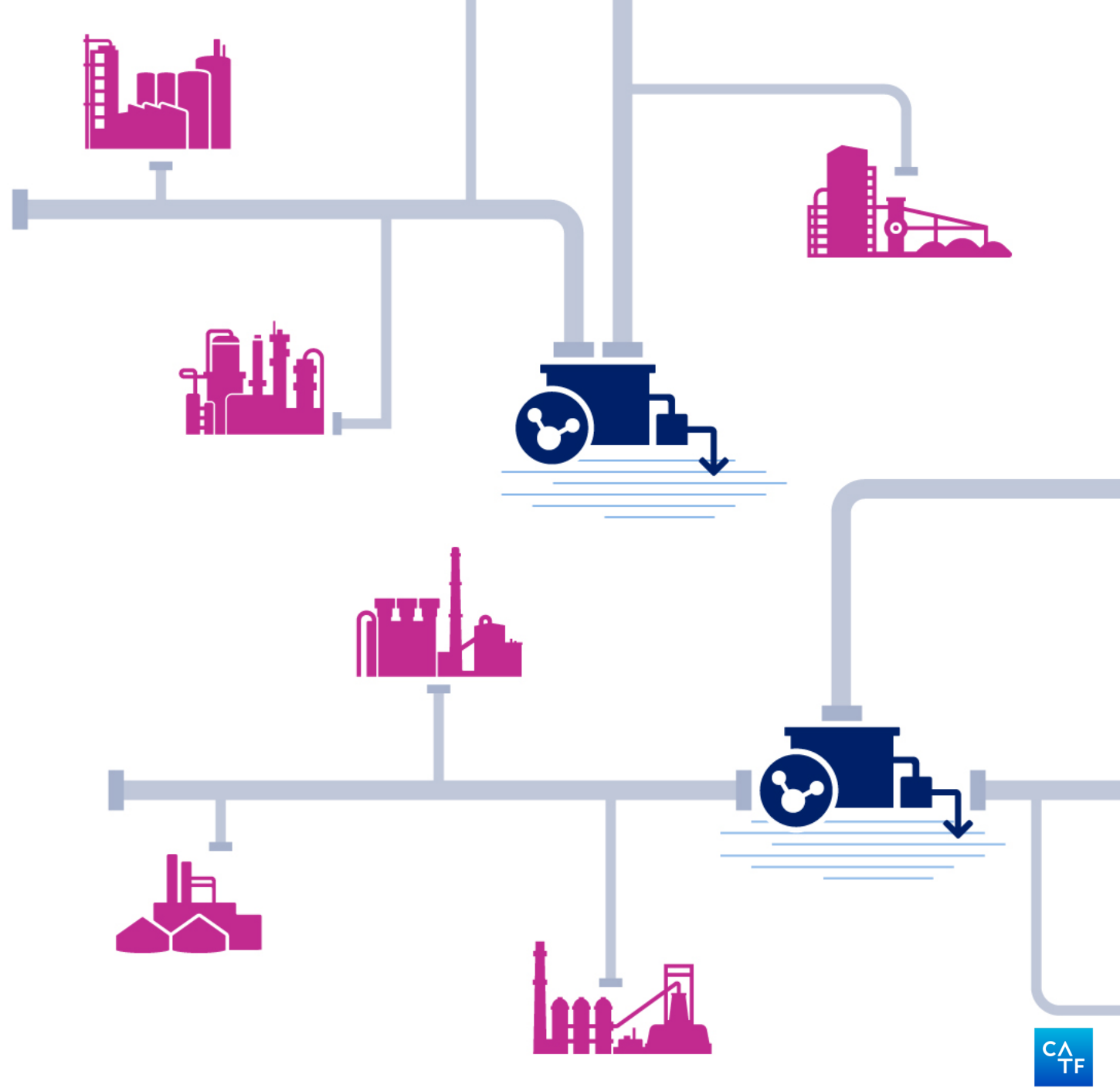
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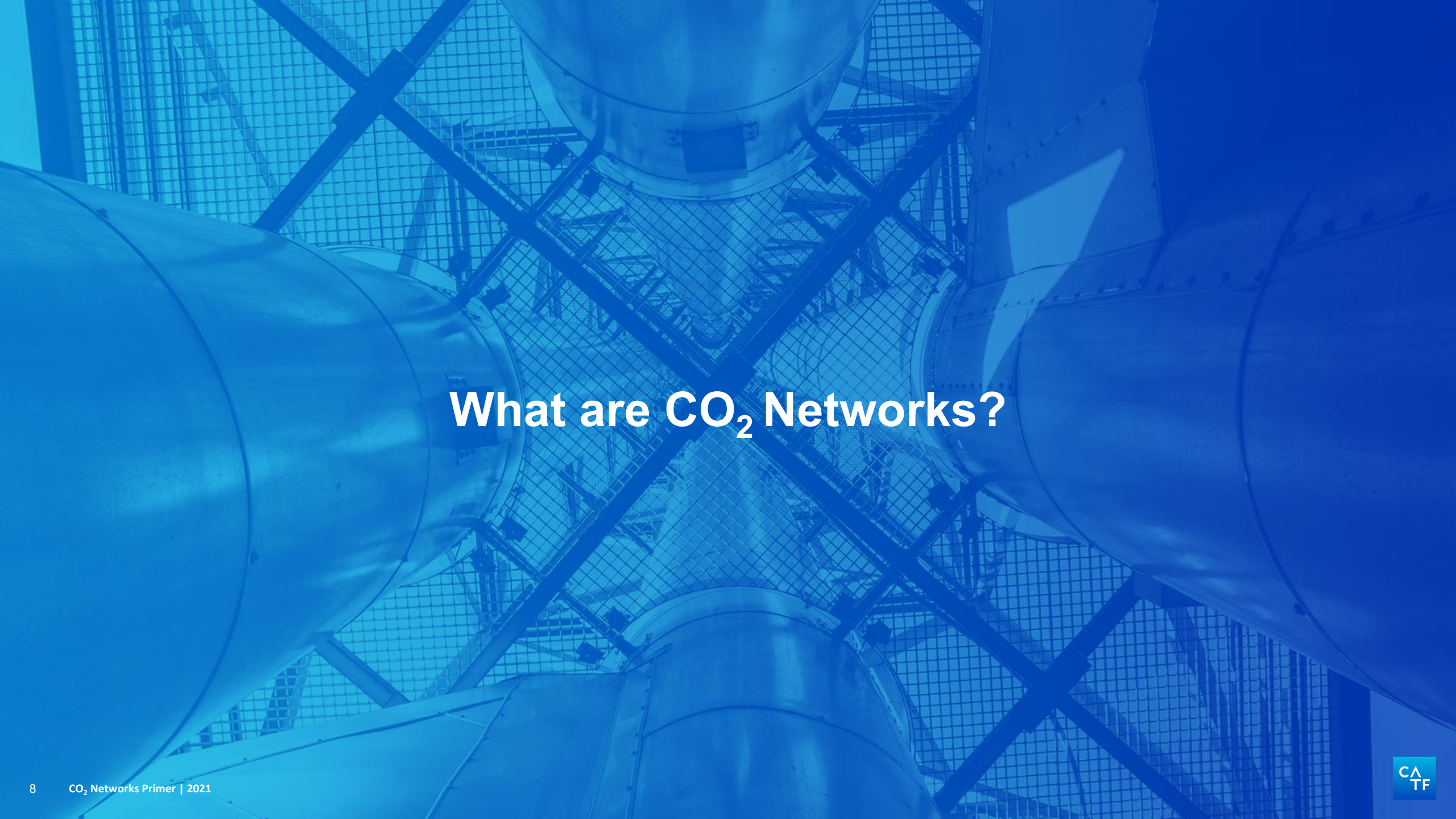
The scale and urgency needed in order to shift the global economy to net-zero means we must **build on existing infrastructure to reduce emissions.**

CO₂ capture and storage needs to scale.

Capturing CO₂ is necessary, but for emission reductions at scale there needs to be easy access to CO₂ storage facilities.

This is why **we need to build CO₂ networks that enable CO₂ transport and storage** to decarbonize the global economy and scale carbon management infrastructure.



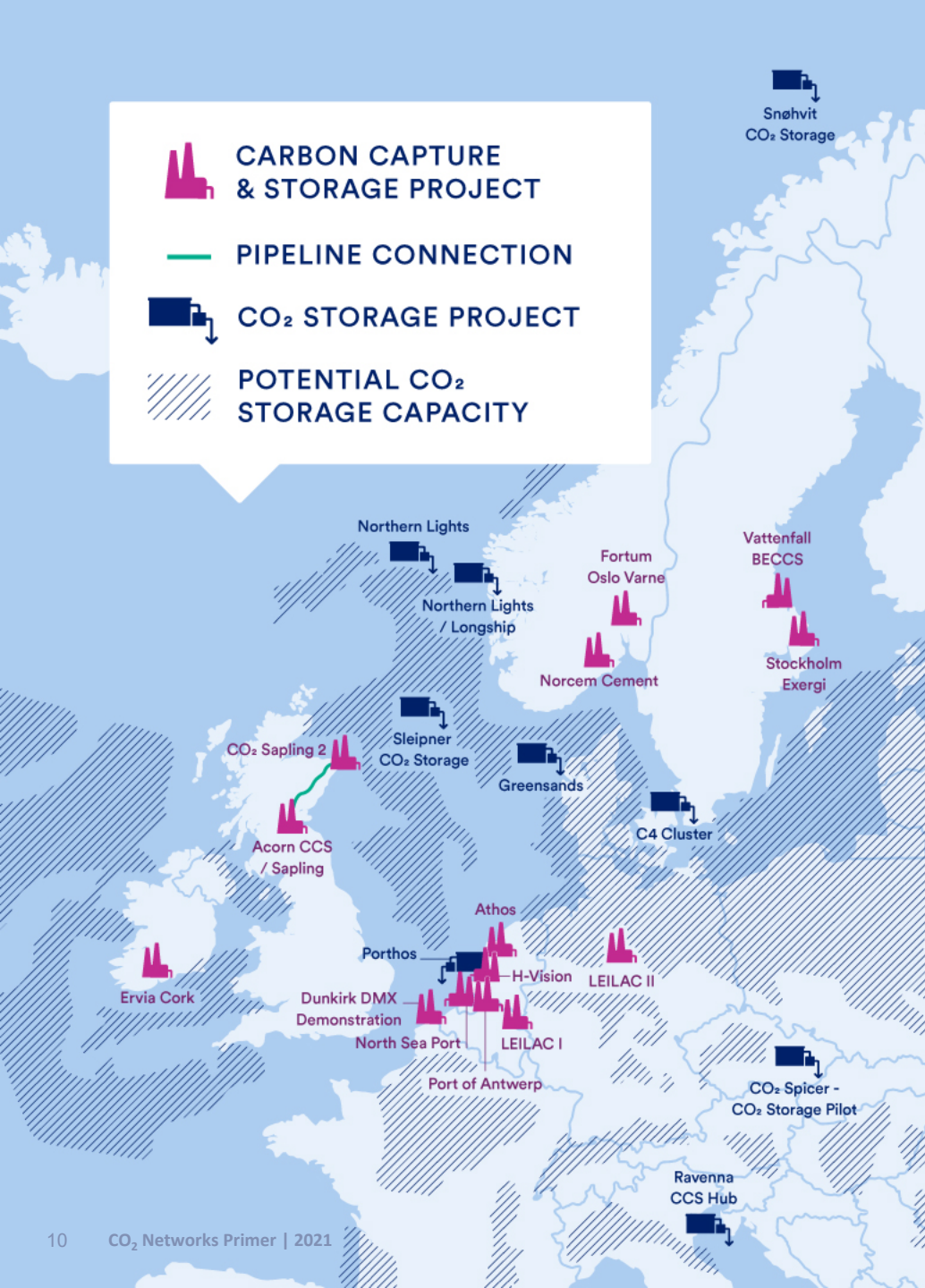


What are CO₂ Networks?



A CO₂ network is a shared **system of efficiently sited CO₂ transport infrastructure and carefully selected geologic CO₂ storage sites** that are connected to several CO₂ capture sites at industrial facilities.

CO₂ is transported via by pipeline, ship, rail, barge, or road tanker to be stored in geological formations deep underground where geology is suitable for permanent and safe storage.



Why do we need to build CO₂ Networks in Europe?



Availability

Not all EU countries have suitable geology for storage, so CO₂ must be transported to regions that do, to enable equal access to carbon capture as a decarbonization option.



Transport & Infrastructure

Infrastructure to transport captured industrial CO₂, and access to geologic storage opens opportunities for all countries to store CO₂ emissions.



Interconnected Networks

Interconnected CO₂ transport systems can collect CO₂ from multiple sources and deliver it to shared geologic storage hubs in suitable regions.

The background of the slide is a blue-tinted image. On the left, the European Union flag, featuring a circle of twelve gold stars on a blue field, is waving on a flagpole. In the background, a large, classical-style building with a curved facade and many windows is visible, likely a European Union institution. The overall tone is professional and institutional.

How CO₂ Networks Can Enable a Just Transition



Existing Technologies

The timeframe to reach net-zero means adopting existing technologies is needed to decarbonize industrial activities and we have to get this right because these are crucial industries for Europe.



Opportunity

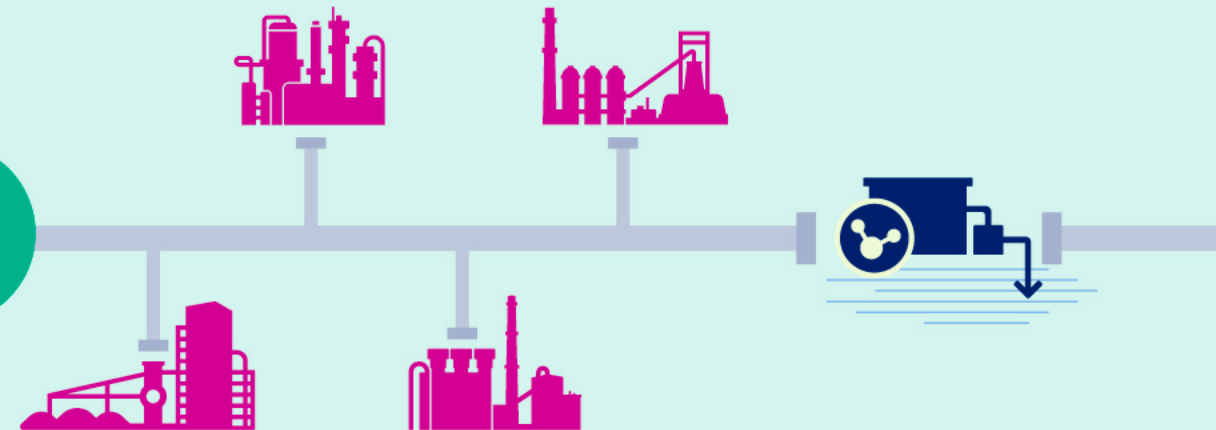
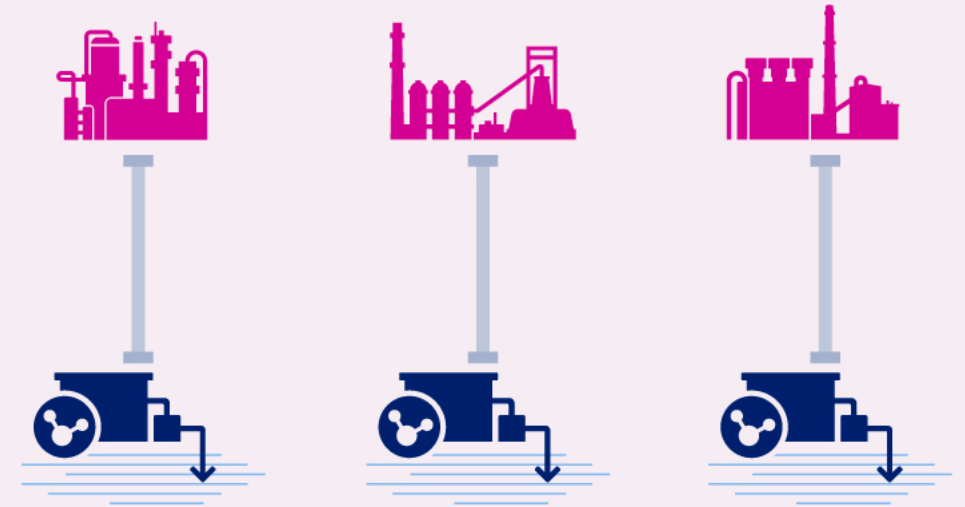
In Europe, an additional 10,000 people could be employed in a centralised transport and storage industry in the North Sea by North Sea CO₂ network alone.

Source: IEA-<https://www.iea.org/reports/ccus-in-clean-energy-transitions/regional-opportunities>

We can lower the cost of industrial decarbonization through shared infrastructure.

CO₂ transport and storage infrastructure has strong economies of scale, whereby larger infrastructure handling greater CO₂ volume has lower unit cost per ton of CO₂.

CO₂ networks can set European nations up for at scale decarbonization extending beyond industrial sectors, potentially allowing negative emissions through carbon removal.





For more information, visit:
catf.us/eu-expansion