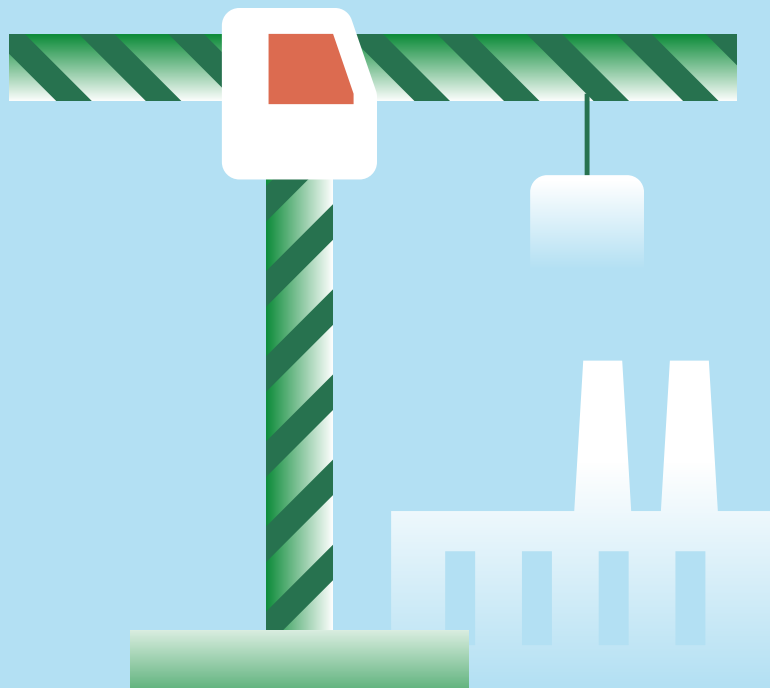THE CCUS HUB

THE CCUS HUB PLAYBOOK

A guide for regulators, industrial emitters and hub developers

POTENTIAL HUB DEVELOPERS

4.4 POTENTIAL HUB DEVELOPERS

A CCUS hub requires a hub developer who initiates and drives stakeholder engagement, especially on the local level, and manages the value chain. Hub developers are often oil and gas or infrastructure companies looking to offer carbon transport and storage services. But they can also be state-owned entities aiming to develop strategic infrastructure to support industry and jobs in a region, or indeed an emitter or group of emitters looking for a cost-effective solution to decarbonization.

WHAT DO YOU NEED TO KNOW ABOUT HUBS BEFORE YOU START?

A CCUS hub is a highly complex collaboration.
All the technologies required in the CCUS hub value chain are proven. Developing the market and business models are the main challenges in these early hub developments. There are also uncertainties to be addressed in relation to government support mechanisms, regulations, geological storage verification and risk, commercial agreements and getting broader societal buy-in.

Navigating these requires a convergence of interests, as well as shared knowledge and a shared narrative from companies with subsurface and CCUS experience, national and local politicians and community groups, and multiple emitters. When this ecosystem is in place, it creates the conditions and momentum to build a business model around concrete hub opportunities.

Creating that ecosystem is a massive alignment and co-ordination challenge – among hub partners to coordinate different interests and investment processes; with government over support mechanisms and risk allocation; and more broadly in relation to the value the project delivers both at a local level and as a credible part of a country's overall energy transition.

Government support is essential
It is needed to tackle four main challenges:

- Incentivize emitters to invest in capturing their carbon dioxide emissions so they can maintain competitiveness until the carbon value is high enough to create a level playing field.
- Incentivize potential carbon transport and storage operators to invest in infrastructure – providing a business case despite the lack of a sufficiently high and stable carbon price.
- Address challenges throughout the CCUS value chain like performance risk and counterparty risk.
- Establish the permission space for a CCUS hub.

CCUS hubs require local backing
National-level support is critical to getting hubs off the ground, but it is not sufficient. CCUS hubs enable regional industrial decarbonization and a transition of existing industrial hubs to low carbon ones. Strong local on-the-ground support – from mayors, local authorities, local businesses, industrial associations, labour unions and community organizations – is needed to navigate the complexity involved in achieving that transformation process. It is not enough to agree on a single national approach to hub development.

> **READ MORE**
> ❯ What are the advantages and disadvantages of a CCUS hub over a single project?

HOW DO YOU IDENTIFY A POTENTIAL HUB?

> ❯ The CCUS Hub Search

The identification of potential CCUS hub opportunities starts with two basic questions:

• where are the big industrial emission clusters?
• where are the potential geological storage sites?

High-level geospatial screening will suggest many possible hub locations. These then need to be analyzed along a number of dimensions to determine project viability:

• **Existing infrastructure and CCUS activity:** Are there any existing CCUS projects in the potential host country including demonstrations and pilots? Is there an existing CCUS and/ or oil and gas industry and associated supply chains? Is there an existing oil and gas pipeline infrastructure which links the industrial cluster to potential storage sites with existing oil and gas production infrastructure. What is the capacity of this infrastructure, and could it be retro-fitted for carbon dioxide (CO_2) transportation and storage? What are the estimated costs associated with carbon capture, transportation and storage?

• **Climate and CCUS targets, policies and regulations:** Does the government have clear and effective climate targets, for example, NDC commitments, and associated CCUS targets? What is the status of policy support for CCUS hubs? Is there any form of carbon pricing such as an emissions trading scheme or carbon tax? Are there any CCUS mandates? Are regulations for CCUS projects in place?

LEARN MORE
> ❯ The GCCSI's Global Policy Indicator (CCS-PI) is a useful resource which tracks the status of government CCUS policies.

HOW DO YOU GET SUPPORT FROM STAKEHOLDERS?

Multiple stakeholders are involved in and affected by CCUS hub projects. In addition to hub partners, these include national and regional governments, local authorities, industry regulators, trade unions, industry associations, local communities and NGOs. Establishing the permission space for CCUS in general and for the specific hub project is vital. How can this be done?

Stakeholder engagement should start with a listening process – aiming to understand the needs and goals of different stakeholders, their questions about CCUS and specific concerns about the hub project. This can be done through a combination of structured one-on-one interviews with key stakeholders, public meetings and even workshops to explore how to align their needs with the overall hub project. Early and frequent communication with stakeholder groups as the project progresses is essential.

At a broader societal level, the focus of the engagement is likely to be on the role of CCUS hubs in meeting climate targets and decarbonizing heavy industry. At a local level, topics such as the safeguarding of existing jobs and creation of new opportunities enabled by the hub project will be key.

The Climate Accord Process in the Netherlands provides a good example of engagement leading to broader acceptance of CCUS as a necessary climate technology in a country where scepticism was particularly high.

The government held a joint fact-finding process on the potential role of CCUS in the Dutch energy transition, led by independent, academic facilitators and involving NGOs, industry and industry associations. Eight roundtables were convened, structured around a list of questions. All stakeholders were invited to provide answers to these questions which gave the basis for a common view. While some NGOs pulled out of the process, there was alignment around the conclusion that CCUS would be necessary to get quick reductions in industrial emissions without stopping the economy.

This provided an important source of legitimacy for both CCUS and the Porthos project and gave the government confidence to let emitters compete for SDE++ CCUS funding, alongside other decarbonization projects, based on the cost of emissions reductions. Of the €5bn total pool of SDE++ funding up to €2.1bn (depending on the EU ETS price) went to emitters involved in Porthos, based on their low relative cost.

WHAT FOUNDATIONS DO YOU NEED WHEN LAUNCHING A HUB PROJECT?

Focus on getting collaboration with partners right: hubs bring together different industries which may, or may not, have pre-existing commercial relationships and different stakeholder groups all of which can have distinct and different goals and objectives. One lesson that emerges from the most advanced CCUS hubs is not to skimp on building solid collaboration at the beginning of the project. Ensuring that partners are aligned takes time but is critical.

How to get collaboration right

- **Establish strong foundations.** Start by agreeing why you are undertaking the project and why you need each other. Spend the necessary time to understand each other's business, key drivers, risks and company cultures.

- **Develop deep alignment.** Create a simple shared narrative built around a common vision across the whole value chain, and write it down to keep on track later. At this early stage of hub development, the focus should be on the why, rather than the what or how.
- **Build confidence and trust.** Build trust by sharing power and creating cross-partner teams to work together on progressing different elements of the hub development project. Create confidence and deepen trust by demonstrating and celebrating tangible progress at each stage in the hub development process.

Other lessons emphasised by hub developers include:

- **Get the right people on board.** Involve the right people and start the project with positive attitudes and mindsets. Invest in personal relationships.
- **Be agile.** Expect that the rules of the game will change in relation to government support, financing and customer needs. Think win-win and use agile working methods.
- **Understand your customers.** Hub projects involve multiple emitters operating different industrial processes each subject to different regulations and different internal processes. These are the customers for the hub and it is vital to understand their specific needs. They are typically low-margin businesses, and they are focused on optimizing their production operations – not on the amount of waste product, ie carbon dioxide, they produce. They will know very little about CCUS, their risks and how they can manage them. Even in the early stages, it's important to go beyond just one or two emitter customers – designing for what success would look like.
- **Do not play hide and seek.** Once you have built trust, show your weaknesses and organize for them. Hub partners should start by focusing on the risk areas and identifying positions to each other before embarking on technical detail otherwise big issues might be discovered at the last minute.
- **Learn how to work with government.** At this early stage of CCUS hub development, policy definition and hub developments are often proceeding in parallel. Resist the temptation to ramp the project up quickly if policy is not mature.

How to work with government – tips from the advanced hub developers:

- **Build confidence and trust.** Take a step-by-step approach when working with government. Build confidence and trust by demonstrating tangible progress at each stage. Take photographs so politicians have something to show.
- **Keep communicating.** During this early phase of hub development, there is so much uncertainty – policy development requires trust and continual dialogue between hub developers, transportation and storage developers, emitters, policy makers and politicians. Understand the political process.
- **Help governments understand the risks.** It is vital for the hub partners to provide input into the risks that government is taking. Governments typically have the tools and experience to incentivize and regulate the carbon dioxide transportation business but they can struggle with understanding geology and the associated storage risks.
- **Understand government processes and timelines.** Government timelines for deciding policy support are driven by political processes, whereas CCUS hub development timelines are driven by industrial project maturity processes. These two timelines do not always coincide and sometimes hub partners need to make commercial decisions before detailed technical work (FEED) is completed. Continued dialogue between government and hub partners is necessary.