



Picture courtesy of Gas Connect Austria

11th meeting of Advisory Panel for Future Gas Grids

Key takeaways

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- We are in a new reality, where **we need CCUS in different industry sectors, mostly hard-to-abate** – cement, steel or even hydrogen production. We also **might need CO2 capture in the power sector. CCS, CCU and CO2 capture will be a major part of our future.**
- For our **CCUS strategy and CO2 transport we will use a number of scenarios** following the mood of Member States. One of the scenarios that we are modelling is that C2 storage would be possible only offshore.
- **Future network: Projects supported by Innovation Fund and TEN-E will already form a certain network.** A base line for our network development, as they already represent a few CO2 hubs.
- The **upcoming strategy will have three pillars - divided by technology – CCS, CCU and industrial carbon removals.** So a combination of CCS and non-fossil CO2.
- Future market: We have questions like: What parts should be or could be subject to regulated tariffs? Or will we need more CO2 storage targets than currently in NZIA? **We'll wait and see what the market brings.**
- **Next steps: CCUS strategy** in 2024. And we'll have next year for actually doing a good **stakeholder consultation** on what is needed in terms of regulatory environment on CO2 transport and storage.

WG CO2 infrastructure under the CCUS Forum – IOGP update



- The **objective** of the working group and the report is to provide **recommendation on how to build CO2 transport and storage infrastructure** and to ask the Commission for concrete actions
- The **CO2 storage directive is the basis**. There the directive states the principles which are needed for infrastructure - which is a not-discriminatory principle and open access.
- There is a **need for a new regulatory framework for CO2 transport infrastructure**. The **level of regulation will depend very much on the market**, on the maturity and of the size of the market
- However, **there should be some basic principle to prevent fragmentation** and to give **some certain regulatory certainty for the market to develop**.
- We have the **need for cross-border issues to be solved. Interoperability is crucial**. There is the need for standards and network codes,
- One important element is also capacity building and **acceleration in terms of licensing and permitting**.

Florence School of Regulation

- Concerning **regulation for CO2 infrastructure** : **There is no one-size fits all solution.** Different parts of the value chain will need different regulation levels.
- **Some parts of the chain will need a high level of Third Party Access (TPA), unbundling and tariff regulation.**
 - Trunk line pipelines between industrial facilities and storage facilities for example will be an essential facility, because we will not build competing trunk lines. Onshore pipelines would be logical to require third party access.
- However, there will be **other areas that won't need TPA or very limited TPA.** And if you apply TPA **and get it wrong, you will simply limit investment.** Example: If you have a capture facility in the back of a steel plant and a storage tank after that, it doesn't make sense that that would be third party access.
- Probably most of the value chain may or may not require third party access and unbundling and regulation depending on the situation.
- Regulation now is tricky. **You're trying to apply regulation** that we designed in relation to a market that already exists **for a market that doesn't exist.**
- However, We need a regulatory regime now. Because we're looking to have huge investments over the next few years.

- **Kickstarting a market? Incentivise.** Example: Wind power market - we didn't oblige windmills to be build. We incentivised the production of wind power. Investments need to have business cases. This a brand new value chain we build and it's not economic yet. So funding and de-risking mechanisms are needed.
- **De-Risking:** For example, the steel factory will need a long term offtake contract before they invest into capture facilities The transportation company needs government backed guarantees because they risk oversizing their infrastructure for the start, not knowing the market development. Storages need long term store or pay contracts. a 10 to 15 year certainty on that, the storage - which will be invested into - is needed with a certain number of bookings.

Regulation of CO2 infrastructure: Let's start talking about transportation, infrastructure and storages separately.

- **CO2 transport via pipelines:** Operators need long term back-to-back capacity bookings to some extent. Regulated tariffs have a role, de-risking any transportation infrastructure investment. Revenue uncertainties for onshore pipeline infrastructure investors can be reduced by a fit for purpose tariff regulation to facilitate investments.
- **CO2 transport via ship or rail:** This probably doesn't need a regulatory framework. It's just one different gas which is being transported in ships and rails.
- **CO2 storage activities:** These probably don't need regulation. Let storages compete against each other in providing services - as we do it today. In countries where there's only one storage, there may be a case for regulation.

Equinor



- **Building the the full CCS value chains** and efficient value chains – is a **“We” effort**, together.
- **Infrastructure planning should be bottom up.** It’s sounder to **start with industrial plans** – e.g. the 16 PCI applications in Europe now. There is an industrial logic built into them. After that it's up to the regulators and organisations to make it further coherent.
- We want to go to a **large scale, cost efficient, flexible and robust system.**
 - For this, **we want as much of the CO2 to be transported by pipelines from emitters to storage.** In this way we can **reduce costs in the value chain**, avoiding intermediate storage, liquefaction, manual transport by ships or trucks or trains.
 - Concerning pipeline size and capacity: **We do not call it oversize, we call it right size**, which means bigger than needed in the beginning. Because **that's what can drive costs down. A right size pipeline will open up a fluid market.**
- **The most important thing is to get something built. Not to make the market model perfect before the market exists.** We do not have the market yet. We do not have the infrastructure yet. We have to incentivise it. **Because unless it is attractive to build and invest in the first infrastructure we will not have it.**
- The **cheapest and best way for policymakers to incentivize the CCS system is to welcome all industry to the use of CCS.** Do not fragment the market – otherwise we may never have any infrastructure that is cost efficient.

ENTSO



- Transportation is one part of the of the value chain. **TSOs and infrastructure are enablers for the market.**
- **Risk is a big topic along the value chain:** We have risks for emitters, transport and storage. **This is a nascent market.**
- **CCUS needs to make sense as a business:**
 - If you are capturing CO2 post-combustion, to store that CO2 will be more expensive than buying CO2 allowances at this point.
 - **We need a business model and de-risking mechanisms.** These could be **Contracts For Difference, PCI funds or guarantees.**
- **We need to fill the missing gaps in the business model:**
 - For example: **Guarantees of Origin**, which is a climate value climate tool to pass those costs for instance from the producers of blue hydrogen to the consumers of blue hydrogen.
- **Concerning regulation: High Level regulatory principles** like **third party access, non-discriminatory access** and natural monopoly policy should be put in the regulation. **However, we are flexible on how we start and evolve** over time.

Gasunie



- **Porthos is the first CO₂ transport and storage project to take FID (*Final Investment Decision*) in Europe.**
 - This is a **major milestone for CCUS in the Netherlands.**
 - This decision will allow construction of the first major CO₂ transport and storage system in the Netherlands to start in 2024. Porthos system is expected to be operational in 2026.
 - Porthos will **transport the CO₂ from large emitters through the port of Rotterdam to depleted gas fields in the North Sea.**
- Concerning **planning the system: Not oversized – but right sized. This is good to drive down the costs.**
 - **TSOs** have the confidence to **develop onshore and offshore pipelines.**
- **If you have more feasibility and more positive trust, the appetite for CCUS quite increases rapidly.**
 - You also see then the ability of contractors to build at competitive rates
- **Concerning regulation of CO₂ infrastructure:** Here the **transportation part should be a regulated part of business.** The **storage part not per se.**



Thank you for your attention

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