



Picture courtesy of Gas Connect Austria

10th meeting of Advisory Panel for Future Gas Grids

Key takeaways

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Update on the work and next steps of WG CO2 infrastructure



WG CO2 infrastructure under the CCUS Forum – IOGP

- Key objective is to provide recommendation to Commission on how to develop and deploy European CO2 infrastructure, transport and storage.
- General conclusions from CCUS Forum: **Importance of establishing non-restricting cross-border third party access to infrastructure, to storage and harmonisation of the technical standards.**
- **Regarding CO2 transport, locations shall not be a barrier.**
- Storage development is a complex activity.
- There is a need for an entity incorporating the emitters, transport providers and utilization and storage operators to coordinate the infrastructure planning, network design and facilitating cross-border cooperation.

Session on NetZero Industry Act – CCUS, CO2 transport and storage

Gas Storage Denmark

- **In the past, the momentum for CO2 storage was not there.** The industry looked for customers who wanted to store CO2. **This has now changed.**
- Policy makers in Denmark started to call: Can you store CO2? How fast can you do it? What will it Cost? **A lot of support for CO2 storage in Denmark came.**
 - **Developing storage is very complex.** We keep a very **high level of security** and we **stay connected with the local community**, who is near the storage site and which we know for 30 years.
 - **Problem: CCS has a complicated image**, image of waste – although it helps the net-zero future.
- The Danish Government is looking for several other places where you can actually store CO2.
- **Denmark has potential for storing billions of tons of CO2.**
- **CCS Price is competitive:** CCS storage in Denmark should be able to go below 10 Euros per ton if maximum potential is exploited.

European Commission

- CCS and CO2 infrastructure has a long history the European Commission. The issue was first tackled in 2006 – focusing on power generation.
- **Energy modeling shows that CCS is missing element of the of the climate policy** and will be needed when you go into to climate neutrality 2050 (negative emissions).
- **EC is working on a CCS, CCU and carbon removal strategy** that will be tabled later this year in the autumn. Infrastructure deployment, regulatory environment, infrastructure planning is marked as needed.
- Net Zero Industry Act is a vehicle to advance some work on the strategy
 - **Catch22 situation:** Emitters not investing, unsure if there is CO2 storage. Storage operators not investing, unsure if there is CO2 coming.
 - Now: Proposed target of yearly 50 mio tons injection by 2030, to have **certainty that there will be storage**
- On price discussion: Europe can be competitive on CCUS.
- On managing the process and top-down policies: **We have to do something from the international level**, the Commission or national level. If CCS development is just left to business, it may not happen.
- CO2 price itself from the EU ETS is not enough, **We need to help hard-to-abate industries with solutions like CCS.** Otherwise, there is a risk that they will be surprised by rising ETS prices at some point.

- **50 million tons are not yet at reach**, when you're adding all the different projects we have now. **There is a lot of work that is ahead of us** to make sure that we can deliver the storage objective by in 2030.
- Concerning Madrid Forum and natural gas infrastructure: **Before fading out natural gas infrastructure, you should think about reusing and repurposing this as CO2 infrastructure as well.**
- We have only two projects today which have been authorized under the CCUS directive with more than 4 million tons by 2030. So we are very far behind what is needed.
- **We were in a catch22 situation** concerning storage. Emitters might be unsure about the costs and not start capturing CO2.
- **It is absolutely crucial to enable the establishment of the full CCS value chains, to fully ensure that the storage capacities will be used.**
- **Developing projects is very complex.** There are many factors outside of the reach of developers. Projects can take over 10 years.
- **We need more policy support in many areas, including planning.**

Gasunie



- CCS can be very cheap if done right - keeping in mind of course safety and open access.
- It's very important that we are very transparent to each other, that we need commitments. We need clarity, what infrastructure can be developed in consequence. We need to help emitters to be firm.
- Porthos CCS project example: Emitters were tentative to book capacity compared to their expressions of interest. We explained that cost could be slashed in half with enough bookings. We got an oversubscription on the available capacity.
- CCUS has developed much faster and larger than expected. We had a market analysis with large industrial players in Germany, Belgium, Netherlands. To be ready for their needs we need three times more capacity than all projects which are currently in development.
- We need centralized and clear coordination – for cross-border coordination, planning of infrastructure. We can learn from some lessons from the gas value chain - network development, infrastructure planning.
- A level playing field is very important - open access and non-discrimination So all emitters have equal access to the system.
- European CO2 system: We don't think it will be pan-European but we will have regional clusters working together. Cross-border transport will be a really important topic for the EU to focus on.
- Repurposing: Most of the assets are not available because gas production is still going on. We will need a lot of new infrastructure for CCUS.

Equinor Low Carbon Solutions

- **Northern Lights** - it is a project that is being built, right now. Next steps: Not to tweak it but to **scale it up by a factor of 10**.
- Think big to **make sure transport and storage is available** and also to **drive costs down**, and when doing so, **pipelines are crucial**.
- We don't believe in a Pan-European-infrastructure. But **we do clearly believe in regional infrastructure**.
- **Pipelines offshore and onshore are critical, and connecting them through terminals**.
- In order for CCS to be a competitive solution, it has to be a low-cost solution or as low as possible.
- Norwegian storages shall be included when designing regulation and framework for CCS. **Regulation and framework must be designed with the objective of making CCS attractive, a business case**.
- The CO₂ infrastructure is where gas was 30-40 years ago.
- When **planning Co₂ infrastructure** it should be done in a **bottom up way, pragmatic**, with industry and policy together.
- **The European hard-to-abate industry** will not go bust, they **will move**. We need to avoid this and keep the EU industry – this is a key reason for CCUS.

Total Energies

- **Project delays are a major problem**
- First problem point: The announcement of the final **investment decision** from the CO2 capture site
- The **decision affects the value chain**: Then for the storage developer it's clearly an issue, also for the infrastructure developer
- There is a **lot of delay due to permitting, due to acceptability**. We need strong support of the different governments and politicians to break this chicken-and-egg problem.
- **Development complexity**: Sometimes it would be easier if we could develop with greenfield installation facilities rather than to repurpose it.
- **For some projects, we see the critical path is clearly pipeline infrastructure.**
- **Competitiveness problem**: CCS chain is more expensive in Europe comparison with US (Reason: Empty infrastructure in US)



Thank you for your attention

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