

Swiss biomethane CCS – Airfix learnings

Aymeric Reymond, Head of Project Development



Our offering

A one-stop-shop for biogenic carbon emitters and long-term carbon credit offtakers

Getting projects off the ground

Our #1 priority is project development support for biogenic emitters.

- Arrange transport and storage services.
- Secure revenue streams.
- Conduct robust carbon asset development.
- Work together with international best-practice carbon standards

Our first Swiss project is launched, with a growing European pipeline to follow.



Channel carbon finance into the BiCRS market

We make the voluntary BiCRS market accessible via long-term credit offtake agreements.

- Portfolio of local BiCRS projects.
- Single project pre-purchase.
- BiCRS expertise to vet high integrity and certified carbon removal (CDR) projects.

We work towards guaranteeing future carbon removal offtakes in our pipeline projects to make them a reality and scale them.



Advising large carbon emitters

Our 'Roadmap to carbon removal and storage' constitutes a holistic advisory along emitters' value chain.

- We offer advisory services for:
 - Value chain/Life cycle assessments;
 - Biomass and environmental sustainability assessments;
 - Potential carbon standards and methodology reports; and
 - CDR market potential analyses.

We also work towards aggregating supply in emitters' and transport partner clusters.



Advocating for BiCRS

We shape the regulatory framework for scaling the European BiCRS market.

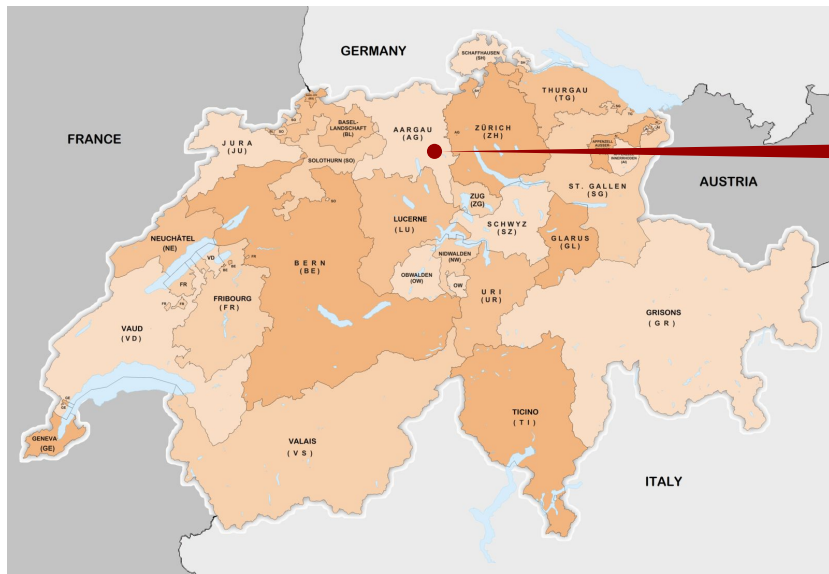
- We partner up and promote thought leadership
- We are active members of a number of business associations, research institutes and multi-stakeholder platforms
- We create clarity and certainty for BiCRS suppliers, buyers and investors alike.

We are channeling our communications and advocacy efforts to relevant decision-making bodies.



The largest BiCRS project in Switzerland

Demonstrating the potential of carbon removals for the biogas and other industries



Niederwil, Aargau, Switzerland

RegionalWerke Baden & CO2Energie AG are leading the way in Switzerland by developing the first BiCRS project that will capture:

5'000 tCO₂ / year

The carbon capture infrastructure will be an integrated part of the construction of a new biogas plant.

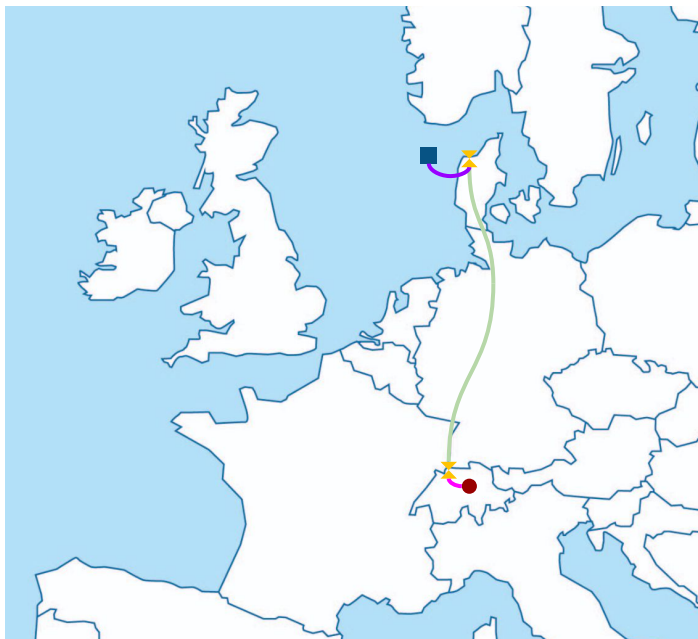
The project will be commissioned in **2026**.



Picture:
Existing carbon capture infrastructure at another biomethane plant of CO2Energie (2023)

The largest BiCRS project in Switzerland

Demonstrating the potential for the biogas and other industries



● Emitter ★ CO₂ Hub ■ Storage
— Truck — Rail — Ship

Transport to the North Sea



Storage (to be determined)

- Several options are currently being explored for **storage in the North Sea**, mainly in Denmark & Norway
- CO₂ will be stored in **depleted oil & gas fields** or **saline aquifers**

Carbon removal certificates

- Sold ~22'000 CDRs (Carbon Dioxide Removals) to the Climate Cent Foundation for the period for 2026–2030



Stiftung Klimarappen
Fondation Centime Climatique
Fondazione Centesimo per il Clima
Climate Cent Foundation



Learnings from the project

CO₂ Capture



Challenges

- **Space:** integrating technology within limited space on-site
- **Technology selection:** locked-in for 15–20 years – crucial decision
- **Integration:** adapting carbon capture infrastructure to biomethane plant
- **Feedstock changes:** monitoring the feedstock changes to ensure final CO₂ has the right specifications & CO₂ stored is truly a removal



Opportunities

- **Standardisation:** container-sized solutions being developed across Europe specifically for biomethane cases
- **Low-energy demand/cost of capture:** the “pure” CO₂ stream, a bi-product of biomethane, requires less energy to capture than combustion processes
- **Low reputational risk:** lower risk of biomass feedstock leading to leakage emissions, although it must be monitored closely



- Work closely with organisations – such as **Carbon Impact** – that help biomethane plants in selecting the technology provider and with on-site integration
- **Analyse biomass feedstocks** to ensure alignment with international standards



CO₂ Transport



Challenges

- Complex **multi-modal transport** approach needed
- **Infrastructure needs & stranded assets:** such as intermediate storage / CO₂ hubs and how to ensure CO₂ can flexibly shift to other closer storage
- **Risk sharing:** linked to transport delays (e.g. strikes) that are not within control of any of the stakeholders & take-or-pay storage contracts
- **High cost & cost uncertainties:** due to future prices of energy
- **Regulatory complexity:** on classification and licensing of CO₂ exports
- **Lack of attractivity of Switzerland:** low volumes / far from storage sites



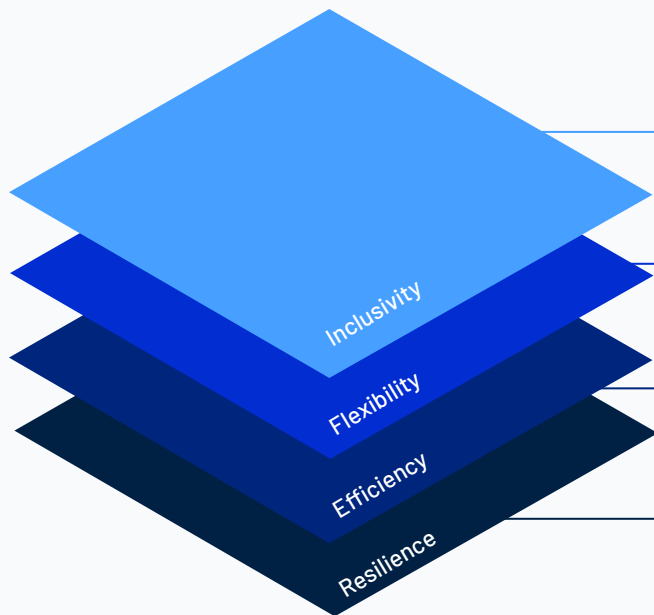
Opportunities

- **Aggregation:** pooling volumes from a range of emitters in the same region enables new transport options (e.g. bulk shipping) & more efficient routes
 - **Integrating “small-” and “medium-” sized emitters** in the concept and infrastructure needs of CO₂ Hubs that are being developed in Europe
 - **Existing network:** small volumes can be transported today within existing infrastructure (rail & road)
 - **Flexibility:** of transport assets regarding destination (potential to be shifted in the future to closer storage or utilisation)
- **Aggregate volumes** from a portfolio of emitters in order to **optimise the transport value chain** and gain access lower cost, lower emission and more efficient transport modalities
 - **Network of logistics partners** that handle the day to day operations
 - **Clarifying regulatory hurdles** for emitters based on experience



Considerations for a CO₂ transport network

The European CO₂ transport of tomorrow must consider the below key considerations to ensure the infrastructure built today serves our long-term objectives.



Inclusive – to stimulate the development of offerings for all emitter sizes and geographies



Flexible – to adapt to progressively more volumes and new, long-term geological storage sites, while avoiding stranded assets



Efficient – to aim to minimise impact (CO₂ emitted during transport and construction of transport assets) and the cost of transportation



Resilient – to ensure the capacity to transport sustained volumes of CO₂, taking combined transport approaches into account



CO₂ Storage

Note: We focus here on carbon capture and **storage** rather than **utilisation**.

However, we do recognise the value of **utilisation** and believe both markets should be developed in parallel.



Challenges

- **Limited storage capacity available for early-movers** (2025-2026)
- **Limited appetite of storage providers for small volumes**
- **Take-or-pay contracts:** putting delivery risk fully on emitters
- **Guarantee requirements:** large, long-term contracts that typically require a financial guarantee
- **Cost transparency:** limited data points to determine what the storage cost should be



Opportunities

- **Aggregation:** pooling volumes from a range of emitters to better negotiate conditions and mitigate delivery risk by having CO₂ from a variety of sources
 - **Reliability:** biomethane projects are perceived as less risky than large biomass or waste-to-energy projects
 - **Small volumes are easier to accommodate**, although they are not sufficient for storage sites to base an FID on
 - Financial and insurance industries **are entering the CCS / CDR space**
- **Aggregate volumes** from a portfolio of emitters in order to **optimise the distribution of the CO₂** as close as possible to the emission source
 - **Network of storage partners** to increase the chances of emitters to secure storage capacity
 - Working on **guarantee instrument** to act as storage intermediary



CO₂ Monetisation and MRV (Monitoring, Reporting & Verification)



Challenges

- **Selecting the right carbon standard:** among the range of options with heterogeneous robustness
- **Complexity of developing a carbon project**
- **Data collection** for the MRV process
- **CDR sales at scale** considering the currently limited size of the market and competition with large-scale BECCS projects



Opportunities

- **Initiatives being developed to ensure the integrity of CDRs**, such as the Voluntary Carbon Market Integrity Council and the EU's Carbon Removal Certification Framework
- **Dedicated methodologies** under development (e.g. CCS+ Initiative & Verra)
- **Digital MRV systems** being developed specifically for BECCS
- **Growing market demand for CDR** and in some countries strong appetite for local projects
- **CDR marketplaces and buyer's club** (e.g. NextGen) are supporting the scaling up of the market



- Advise on the **selection of the carbon standard**
- Lead or support the **development and registration of the carbon project**
- **Develop the MRV concept** for the full value chain of the project
- **Broker CDR deals** with corporate buyers and foundations, based on large portfolio of potential buyers of its partner South Pole



Thank you for your attention



Aymeric Reymond

Head of Project Development

a.reymond@airfixcarbon.com

