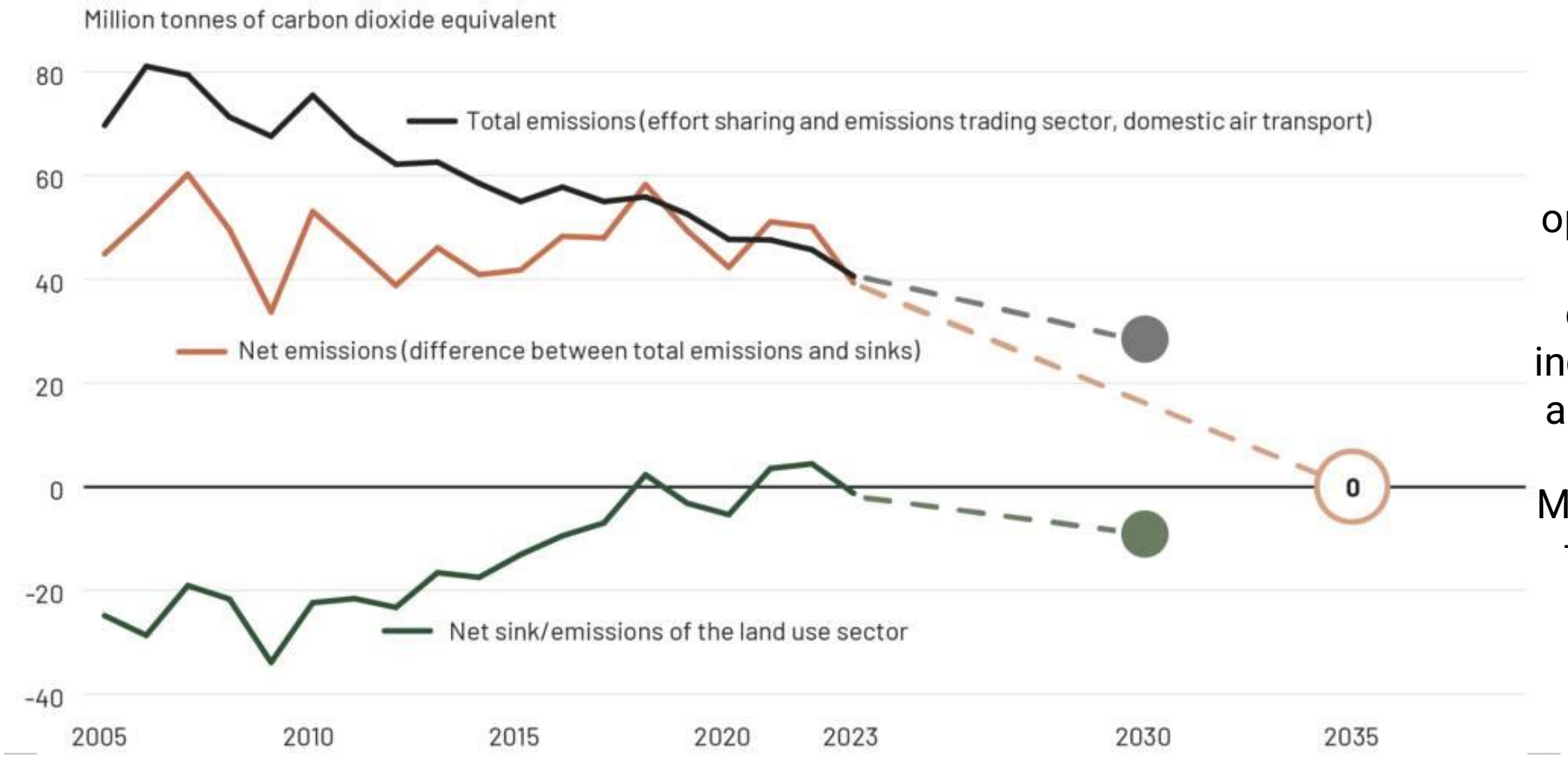
Updates on the Finnish CCUS policy landscape

Erika Laajalahti
Bioenergy Association of Finland
4.2.2025

Finland’s path to carbon neutrality in 2035



“Our greatest opportunity in terms of scale is to capture carbon dioxide from industrial smokestacks, and we are developing incentives for this”, Minister of Climate and the Environment **Kai Mykkänen**.

Source: Finnish Annual Climate Report 2024

National policy development on CCUS

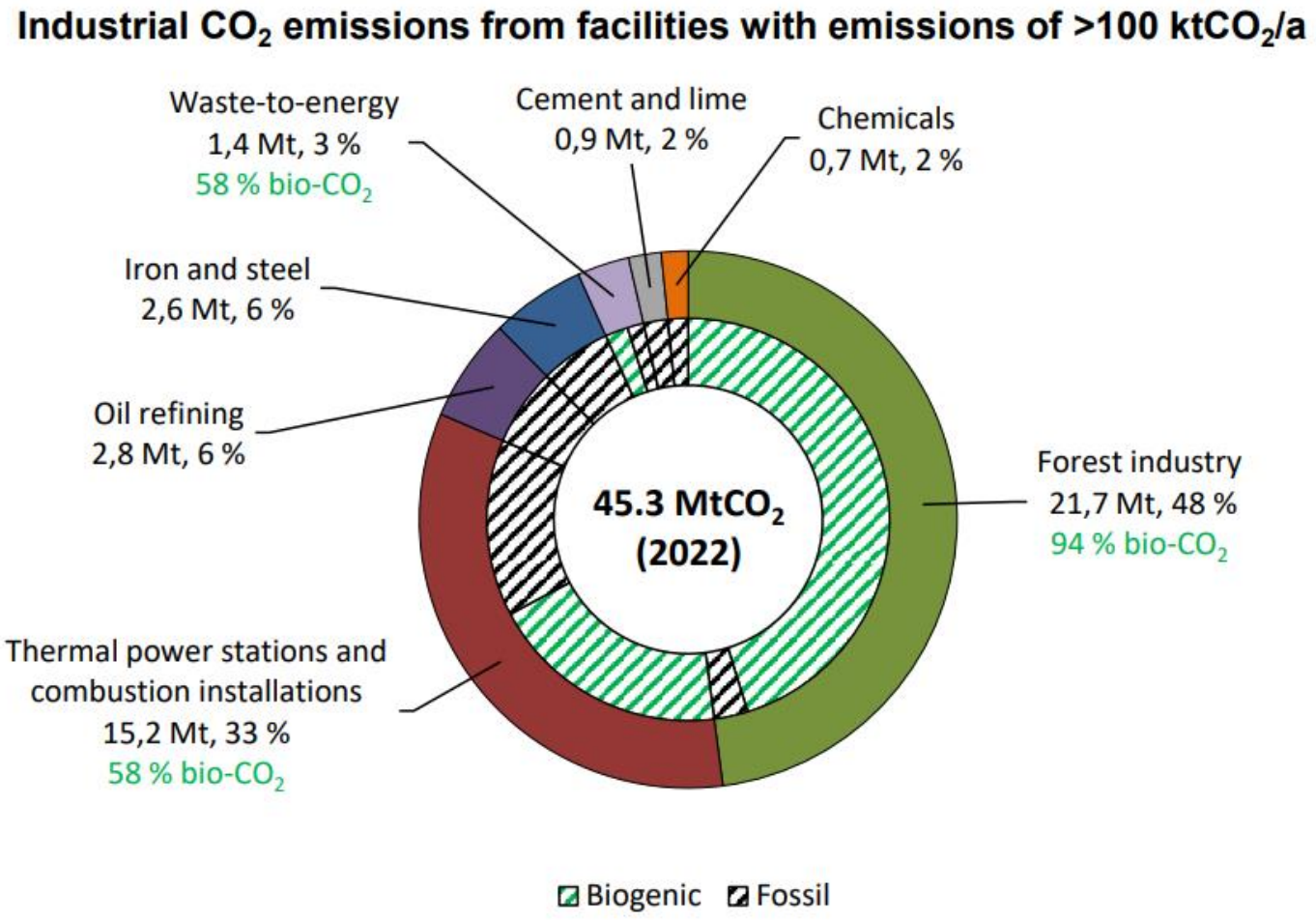
- Finland aims to become the European leader in the hydrogen economy in the entire value chain (resolution from 2/2023). Aim to produce at least 10 % of the EU's clean hydrogen in 2030.
- Priority treatment of projects that promote investments in the green transition in permit procedures (Environmental Protection Act/Water Act) 2023-2026, includes CCUS. Urgent status also in the administrative courts until 2028.
- Government's programme (June 2023): CCUS solutions as one of the key priorities in the Finnish climate policy. Highlights the role of Bio-CCU & Bio-CCS.
- **"The Government will explore and introduce policy instruments to ensure that carbon dioxide emissions to atmosphere from large industrial sources are eliminated by the mid-2030s."**

Incentive scheme & Finnish strategy on CCUS

- **National incentive scheme: 140 M€ funding for CCUS projects.**
  - Mechanism to be implemented & projects awarded in 2025.
  - “Government will introduce a reverse auction of negative emissions or a similar mechanism to encourage the capture of carbon dioxide.”
  - VTT is conducting a brief study on the mechanism.
- **Industrial Policy Strategy (12/2024)**
  - Seven key objectives with two particularly relevant for CCUS.
    - Exploit opportunities offered by the clean transition, the bioeconomy and the circular economy
    - Invest in logistics, infrastructure and industrial hubs
- **National Energy and Climate Strategy update (Q2/2025)**
  - A dedicated chapter on CCUS in the making.
  - KEITO-project (VTT, Syke, GTK, Luke) conducting scenarios for E&C Strategy and Medium-term Climate Change Policy Plan (KAISU). Current estimates (not finalized yet) are quite conservative on CCUS.

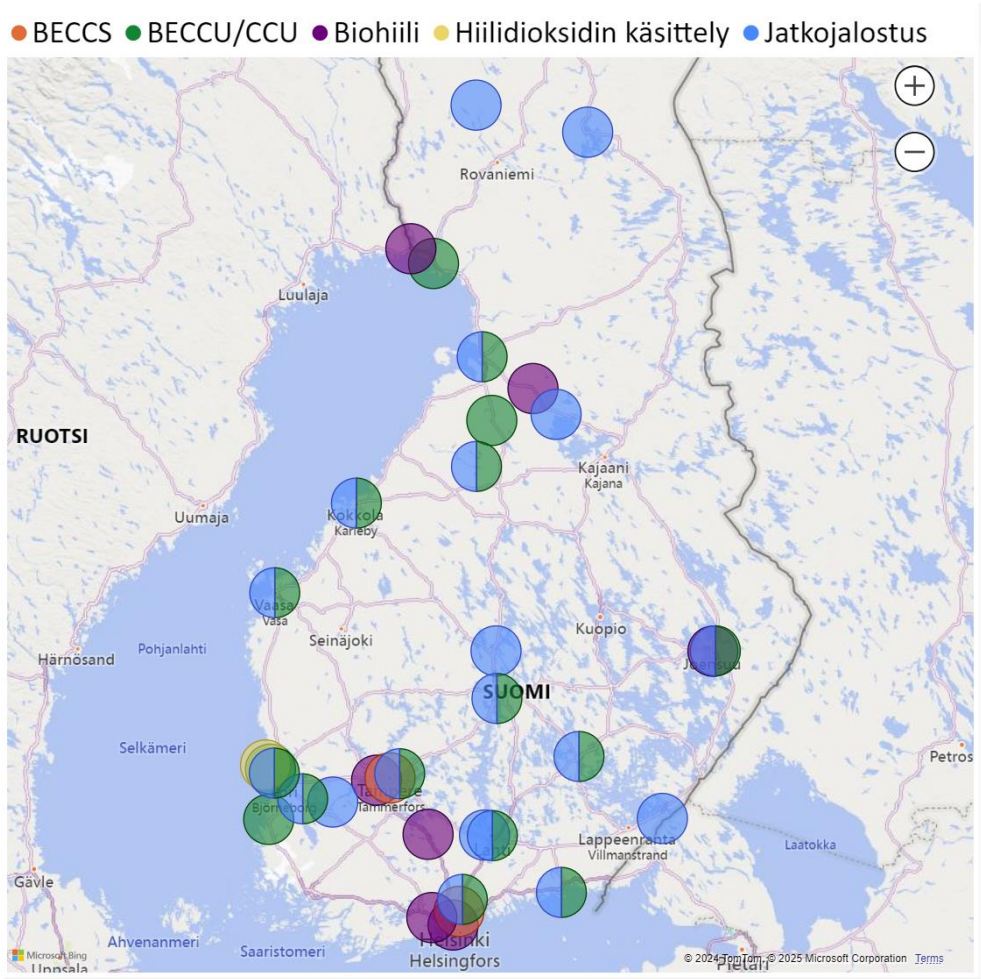
Finnish perspectives on CCUS

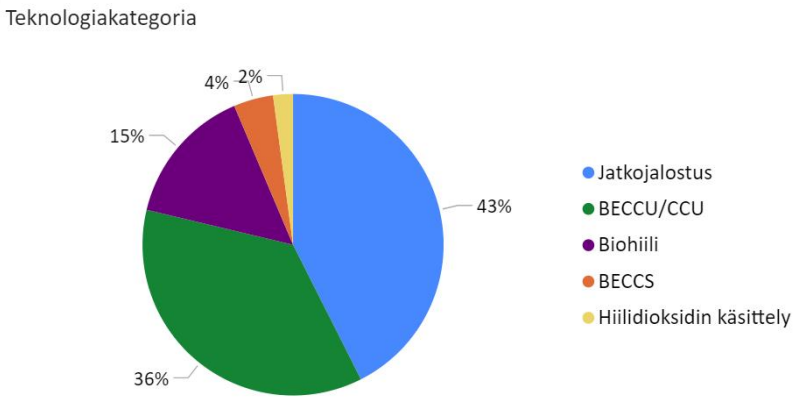
- **Biogenic CO2**:
  - 30 Mt of biogenic CO2 produced annually. CO2 available all year round.
  - CO2 emissions are large volumes compared to many domestic material flows. If a major part is refined to high-value products, export of products is a must.
- **Clean electricity:**
  - The CO2 emission intensity of electricity production is low (average ca. 70 gCO2 /kWh) compared to the respective EU average (ca. 240 gCO2 /kWh) (averages between 2020-2022, EEA, 2023).
- **CO2 storage:**
  - Finland does not have suitable geological formations for storing CO2. Limited potential in storing CO2 in mining wastes (0,5 Mt-2.0Mt/a) or in e.g. construction products.
  - Cooperation a must.



VTT, 2024

Bio-CCUS & biochar project map





Teknologiakategoria

- [ ] BECCS
- [ ] BECCU/CCU
- [ ] Biohiili
- [ ] Hiilidioksidin käsittely
- [ ] Jatkojalostus

Toimija

- [ ] Aliceco Energy + TEH2 + Kokkolan Energia
- [ ] Alva-yhtiöt + Nordic Generation Fuels
- [ ] Bioenergo
- [ ] Carbo Culture
- [ ] Carbofex
- [ ] Carbonaide
- [ ] GRK
- [ ] HSY Ämmässuo
- [ ] Joensuu Biocoal
- [ ] Kemira Chemicals
- [ ] Keravan Energia + Nordic Ren-Gas
- [ ] Metsä Group + ANDRITZ
- [ ] Nordfuel

BIOENERGIA

BIOENERGIALEHTI

Kumppanit kartan toteutuksessa:

TAMPEREEN ENERGIA

vantaan energia

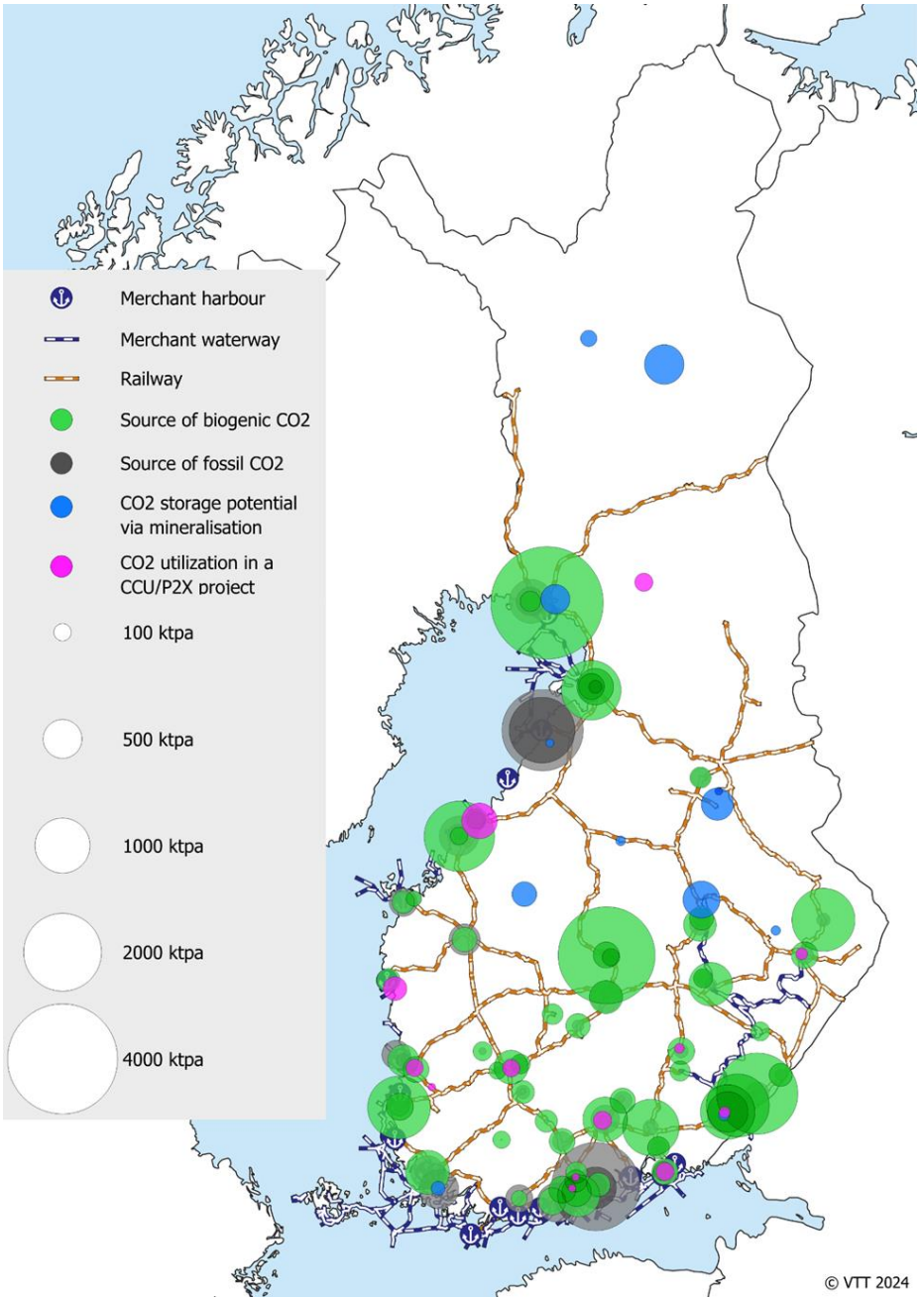
Endress+Hauser

Link to the map:

bioenergia.fi/bio-ccus-ja-biohiili

CO_2 point sources and existing transport infrastructure

- Outlook of CO2 logistics in Finland for CCUS
- Large CO_2 point sources are scattered evenly within Finland, excluding the northernmost Lapland region.
- Existing railway network covers nearly all the examined large CO_2 point sources.
- Plans for 13 utilization projects have been announced in Finland, totalling for capacity of only 1.3 $MtCO_2$/year. The projects are largely located near existing CO_2 point sources, from where CO_2 could be supplied to these projects if carbon capture is implemented.
- Potential sites for CO_2 storage via mineralization are mainly located at central and northern parts of Finland, some of which are neither near existing CO_2 point sources nor railways.
- Sharing common infrastructure would reduce project costs by an average of 30 % and simultaneously enable more projects to participate in carbon capture, utilisation, or storage.



Thank you!

erika.laajalahti@bioenergia.fi
+358 44 753 0700
twitter: @ErikaLaajalahti
LinkedIn
www.bioenergia.fi