



Bio-Based CCUS and Nordic-Baltic integration

Erika Laajalahti
Bioenergy Association of Finland
9.10.2025

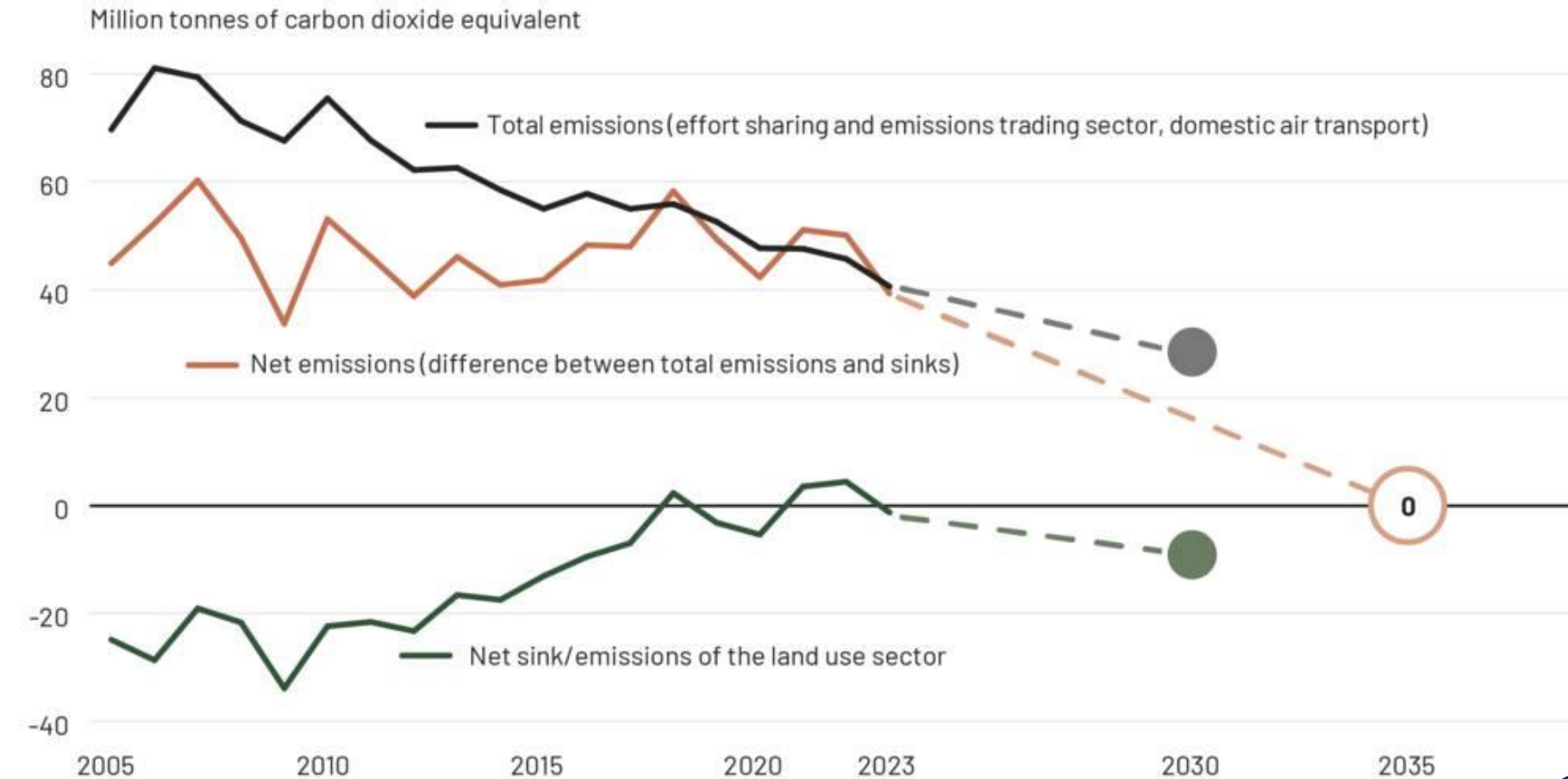
Bioenergy Association of Finland

- Business association with 250 member organisations.
- We represent the entire bioenergy and biochar sectors from land ownership to energy companies, as well as technology and research in the field.
- Our goal is to make Finland the best place in the world to create sustainable, bio-based, and even carbon-negative solutions.
 - Carbon removal & CCUS -committee & biochar network
- [Learn more!](#)





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”,
Former Minister of Climate and the Environment **Kai Mykkänen.**

Source: [Finnish Annual Climate Report 2024](#)

Climate Act
review 2025

National policy development on CCUS



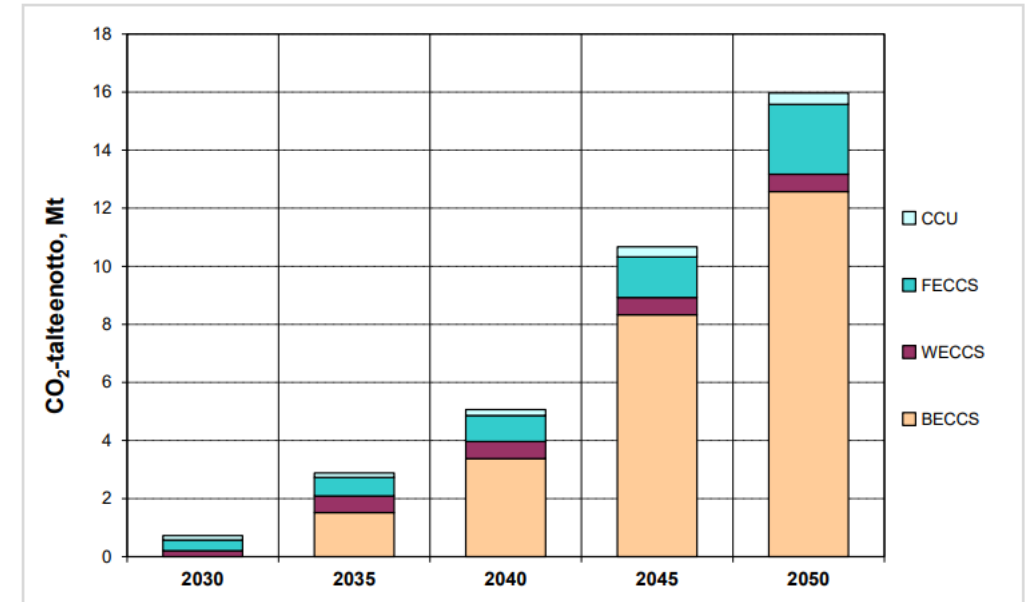
- Government's programme (June 2023): CCUS and technological sinks as one of the key priorities in the Finnish climate policy.
 - "The Government will explore and introduce policy instruments to ensure that carbon dioxide emissions to atmosphere from large industrial sources are eliminated by the mid-2030s. The Government is preparing to introduce sufficient incentives to advance investments."
- CCS:
 - Amendments to national CCS law allowing storage outside Finland.
 - MoUs with DK & NO completed in autumn 2025.
- CCU:
 - High ambition to develop green hydrogen & combine it with biogenic CO₂ for e.g. efuels. Several CCU-projects have received investment aid.
- Funding:
 - Investment funding 90M€ for carbon capture projects for biogenic CO₂. Reversed auction in the beginning of next year.
 - A tax credit scheme for large clean transition investment to be amended to include CCUS projects. Little detail yet. Under notification.





What is the Finnish strategy on CCUS?

- **National Energy and Climate Strategy update (to be published Q4/2025)**
 - Includes targets and measures to promote CCUS.
 - Large emphasis on EU-level policies to create the necessary support measures. Hope to be developed fast.



Kuva 26. Hiilidioksidin talteenoton kehitys WAM-skenaariossa 2030–2050.

Source: [KEITO-project](#) (VTT, Syke, GTK, Luke) conducting policy scenarios for E&C Strategy and Medium-term Climate Change Policy Plan.

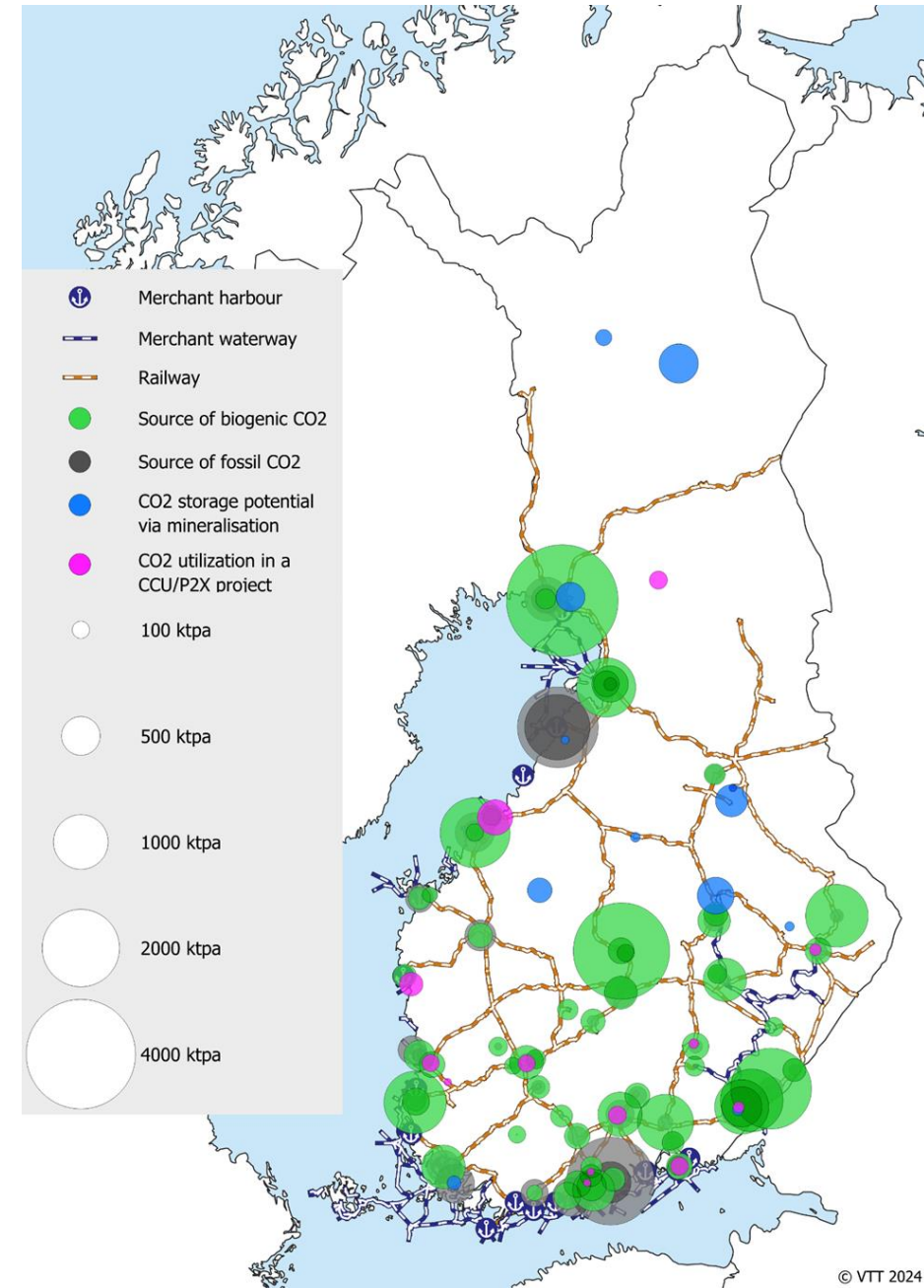


EU regulatory framework for CCUS

- **EU Climate Law:** The EU to be climate-neutral by 2050 and net-negative thereafter. Amendment for 2040 target -90 % upcoming.
- **ETS Directive:** The emissions trading system creates an incentive to store carbon dioxide from fossil sources. Revenues from emissions trading can be used to finance projects through the Innovation Fund (e.g., Stockholm Exergi's BECCS project). In 2026, potentially legislative proposal for e.g. integration of permanent removals and the treatment of non-permanent CCU.
- **CCS Directive:** Regulations and guidelines concerning storage infrastructure and access to storage sites.
- **RED3:** The share of advanced biofuels and renewable fuels of non-biological origin (RFNBO) must reach 5.5% by 2030, with a separate sub-target of 1% for RFNBOs in 2030.
- **ReFuelEU Aviation and FuelEU Maritime:** Incentives for the production of synthetic fuels. Sanctions included.
- **General Block Exemption Regulation (GBER):** Defines conditions for granting state aid to CCUS projects among others.
- **Net Zero Industry Act:** CCS, CCU, CO₂ transport, and sustainable fuels are considered net-zero technologies. The act accelerates project development by streamlining and expediting permitting processes. Separate target for EU storage capacity of 50 Mt CO₂ by 2030.
- **TEN-E, PCI (Projects of Common Interest):** The project list approved in November 2023 includes 14 projects related to CO₂ transport.
- **CO2 transport regulation:** Ongoing public consultation, legislative proposal 2026.
- **CRCF:** Certification framework and methodologies for permanent carbon removals, including BECCS, DACCS, and biochar, ready Q2/2026.
- **Industrial Carbon Management Strategy:** The ICM strategy integrates policy frameworks to create an enabling environment for developing and scaling different solutions. Initially, the focus is on establishing regulatory frameworks for storage capacity, transport infrastructure, and market rules.
- **Green Claims & Other Sustainability Regulations:** Regulating e.g. the voluntary claims on the use of carbon removal units.

CO₂ point sources and existing transport infrastructure

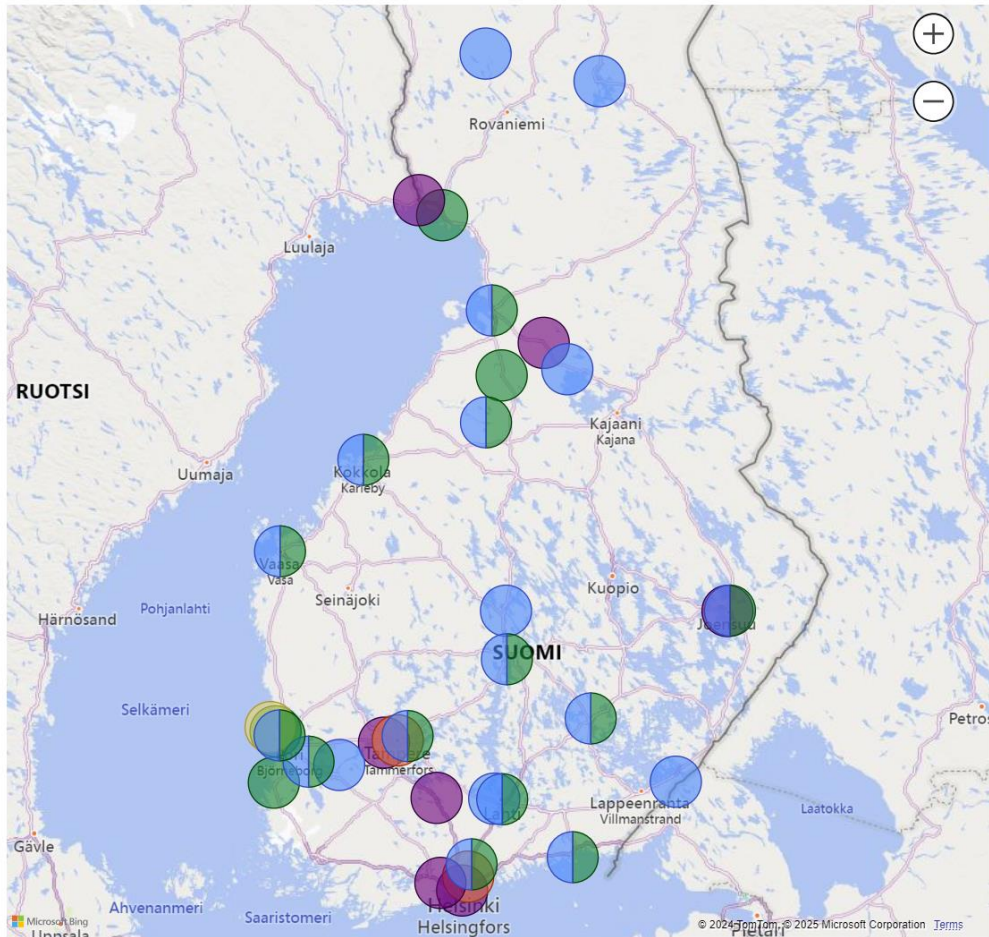
- [Outlook of CO₂ logistics in Finland for CCUS](#)
- Large CO₂ point sources are scattered evenly, excluding the northernmost region.
- 30Mt/a biogenic CO₂ from large point sources + smaller sources (biogas 0,13 Mt)
- Existing railway network covers nearly all the examined large point sources.
- Several plans for utilization projects have been announced, totaling for capacity of around 2 MtCO₂/year. The projects are largely located near existing CO₂ point sources.
- No geological storage potential, cross-border collaboration a must for CCS at scale.
- 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.



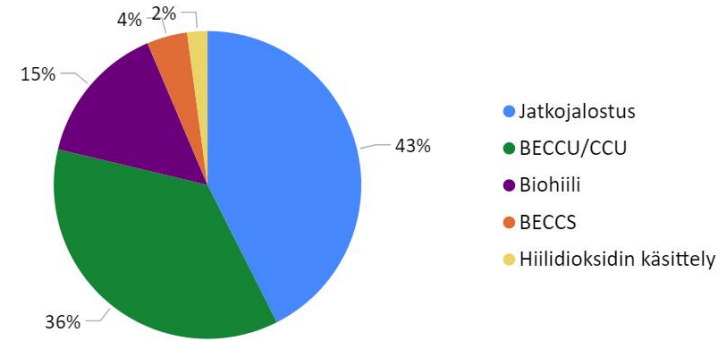


Bio-CCUS & biochar project map

● BECCS ● BECCU/CCU ● Biohiili ● Hiilidioksidin käsittely ● Jatkojalostus



Teknologiakategoria



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:



Link to the map:

bioenergia.fi/bio-ccus-ja-biohiili

Recent development on CCUS-projects



Metsä Group's carbon capture pilot underway – Investigation of a demo plant beginning

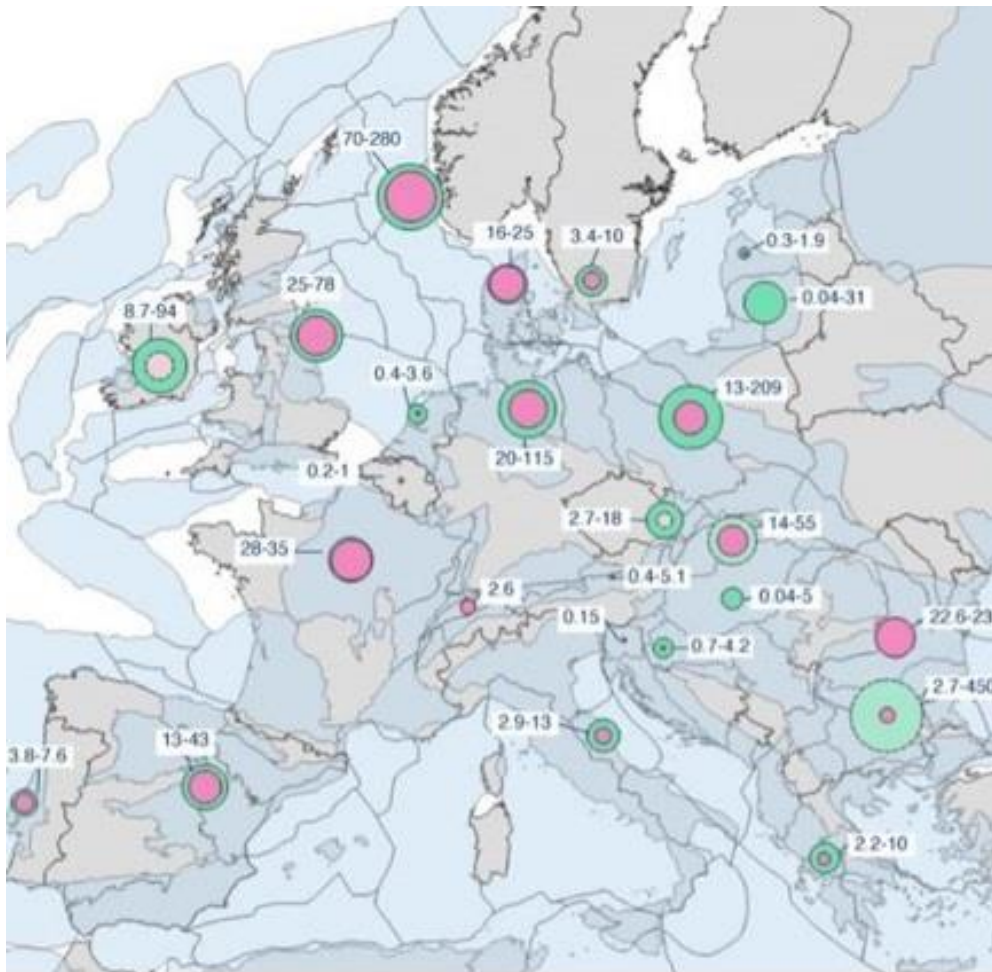
Press releases | 04.09.2025 14:00 EET | Metsä Group

Finland's first green hydrogen plant was inaugurated in Harjavalta

26.03.2025

SEP 18, 2025

Copenhagen Infrastructure Partners backs Finland's largest biogas plant

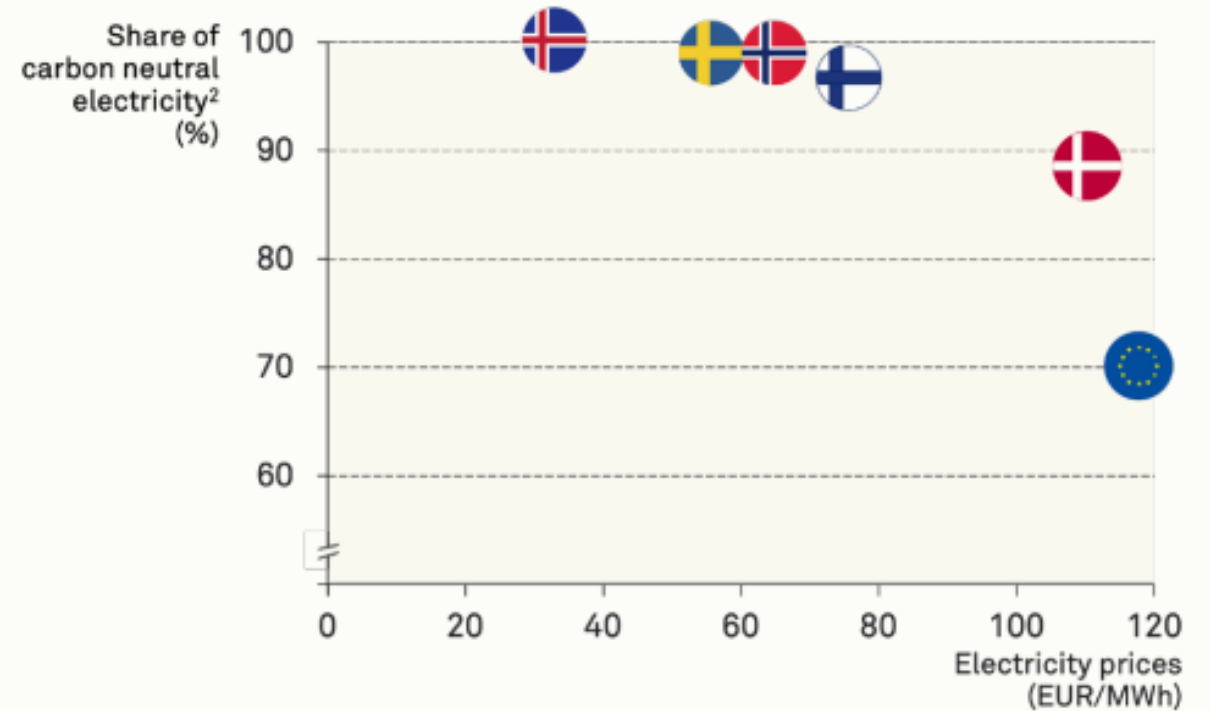


Theoretical storage capacity estimates for each country (GtCO₂)

○ = 10 GtCO₂ ■ High estimates ■ Low estimates ■ Sedimentary basins

Source: [Clean Air Task Force](#), 2023

Figure 16: Electricity prices and carbon-free electricity shares in the Nordics



Source: [Nordic Carbon Removal Association](#), 2025



Nordic–Baltic Regional Collaboration on CCUS

- **Cross-border value chains:** Coordinated development of CO₂ transport and storage infrastructure where possible/needed.
- **Aligned frameworks:** Harmonized planning and regulation across countries & addressing region-specific issues (e.g. the Helsinki Convention). Learning from other countries success stories in policy & project development.
- **Shared strengths:** Leveraging resources, expertise, and technologies to accelerate deployment of both CCS and CCU.



Thank you!

erika.laajalahti@bioenergia.fi

+358 44 753 0700

[LinkedIn](#)

www.bioenergia.fi