



CCS in Europe - the critical path to success

EBN CARBON STORAGE DIALOGUES: READY TO SCALE UP?

ROTTERDAM, 12 OCTOBER 2023

Per-Olof Granstrom

Outline

- ▶ CCS – the start
- ▶ The European Green Deal and net-zero
- ▶ Status
- ▶ Way forward – what to expect and some worries
- ▶ Conclusions

CCS – the start

- ▶ Sleipner and Snøhvit...
- ▶ Coal power CCS demo, whole value chain, EU ETS
- ▶ €500-700/tonne RES subsidies, EUA < €10/tonne
- ▶ Paris Agreement
- ▶ European Green Deal & Climate Law – CCS necessary
- ▶ Energy and Ukraine crises
- ▶ Net-zero Industry Act, Industrial Carbon Management Strategy

European projects and policies – cross-border cooperation and agreements ...

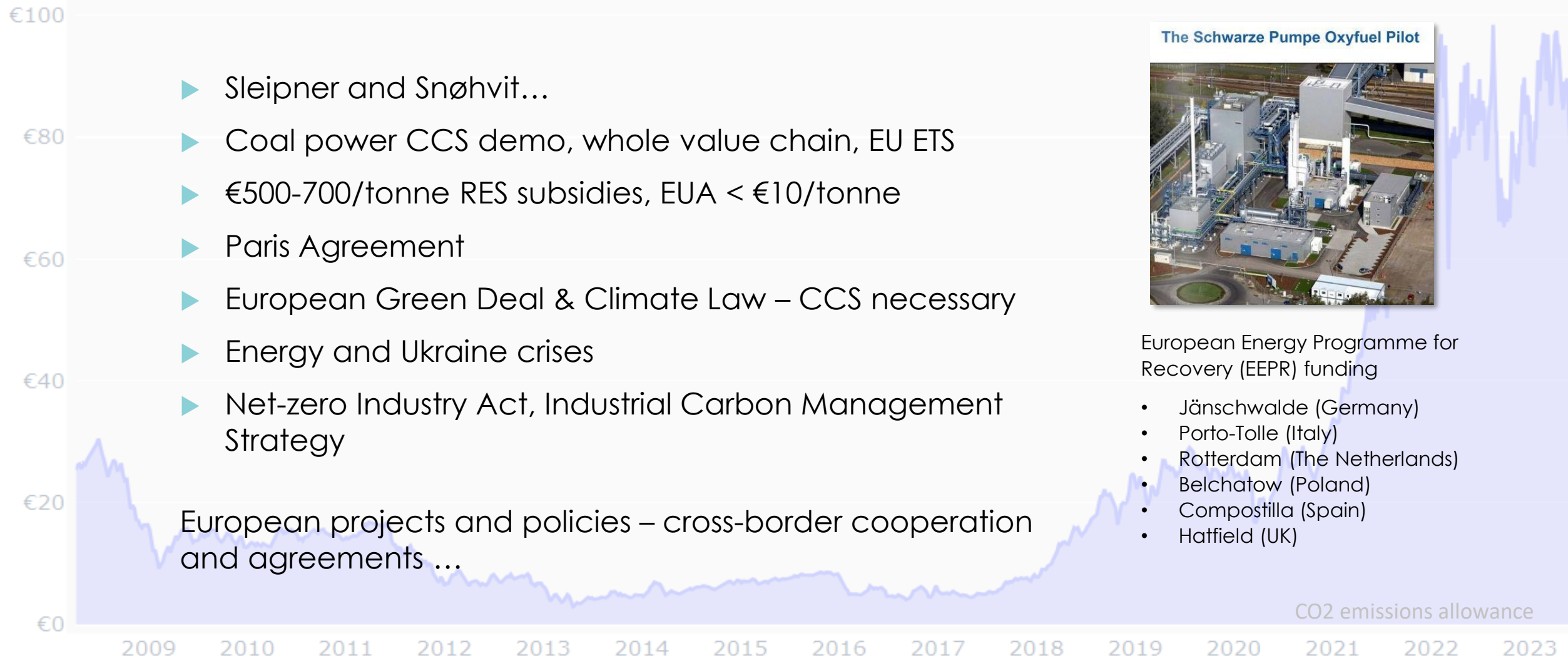
The Schwarze Pumpe Oxyfuel Pilot



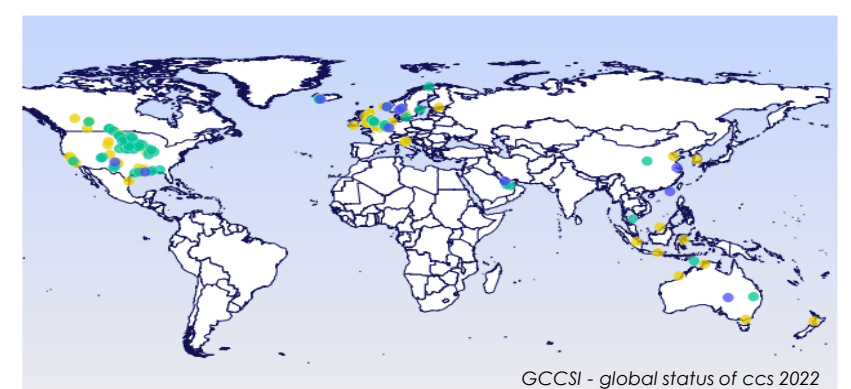
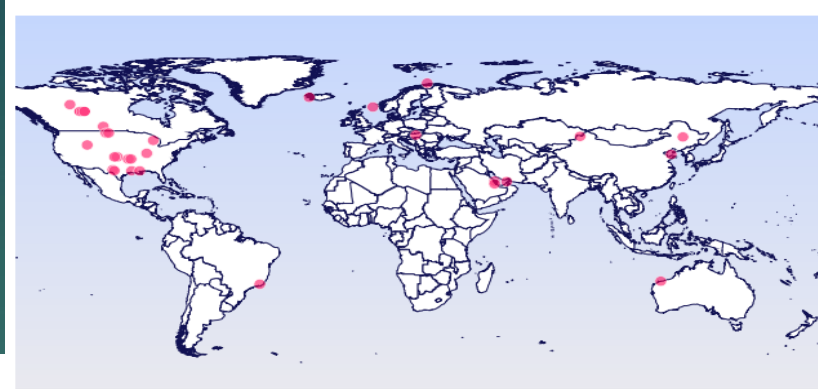
European Energy Programme for Recovery (EEPR) funding

- Jämschwalde (Germany)
- Porto-Tolle (Italy)
- Rotterdam (The Netherlands)
- Belchatow (Poland)
- Compostilla (Spain)
- Hatfield (UK)

CO2 emissions allowance



CCS state of play

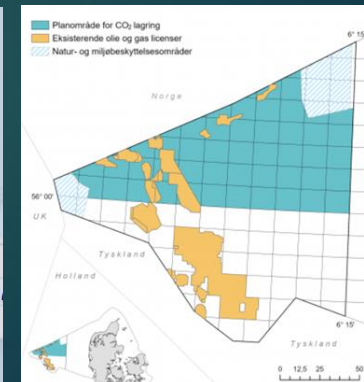
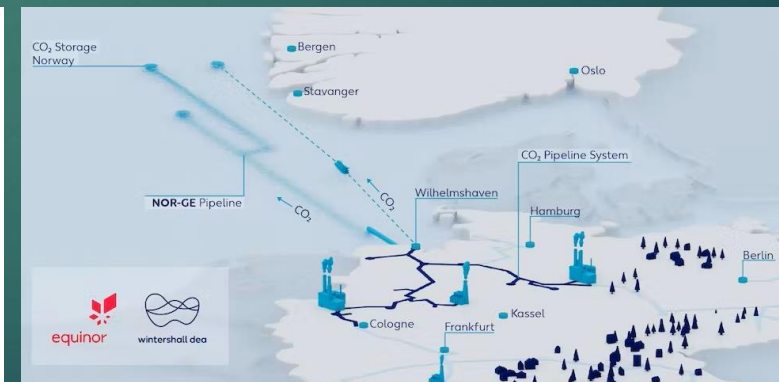
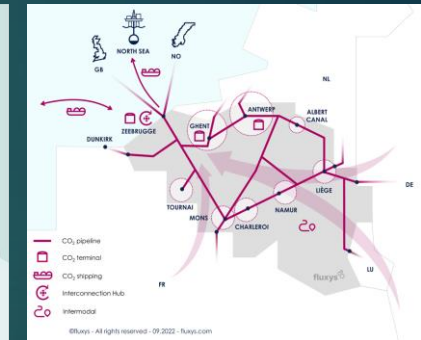
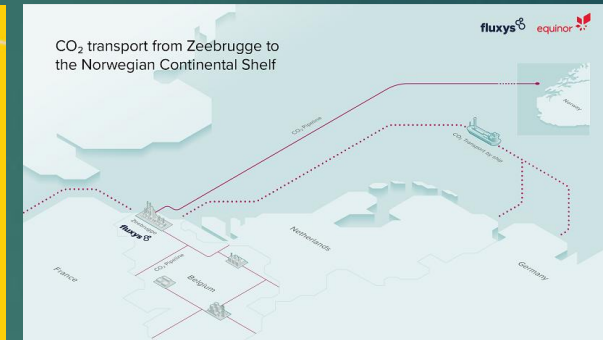
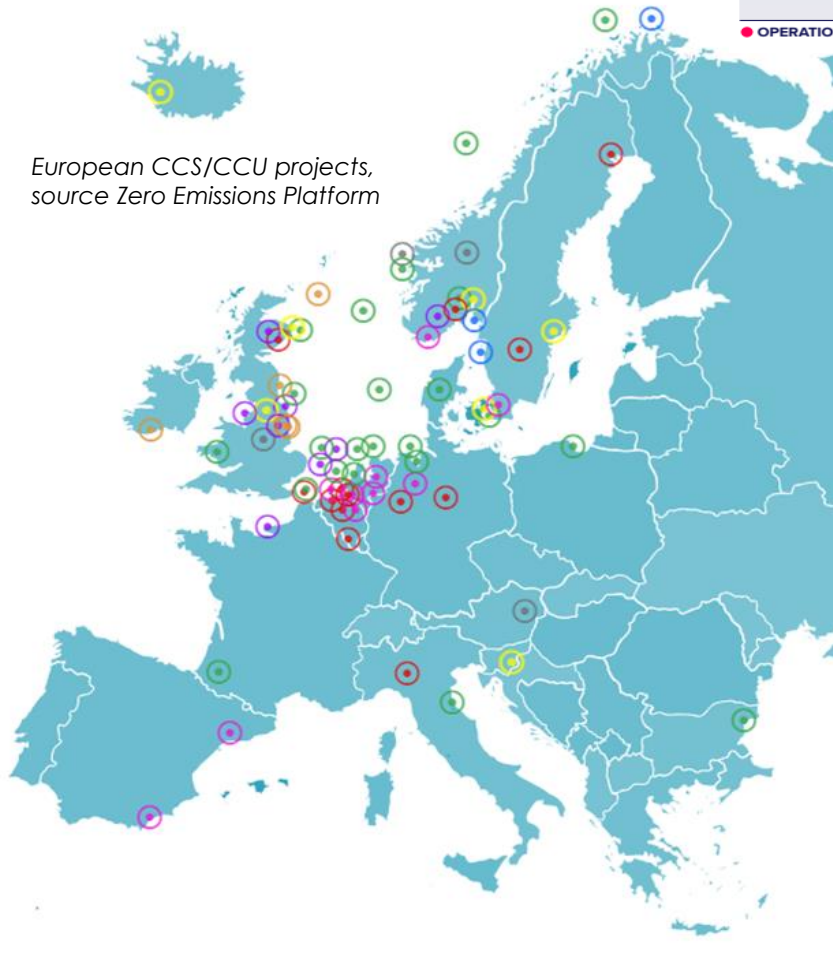


GCCSI - global status of ccs 2022

● OPERATIONAL

● EARLY DEVELOPMENT ● ADVANCED DEVELOPMENT ● IN CONSTRUCTION

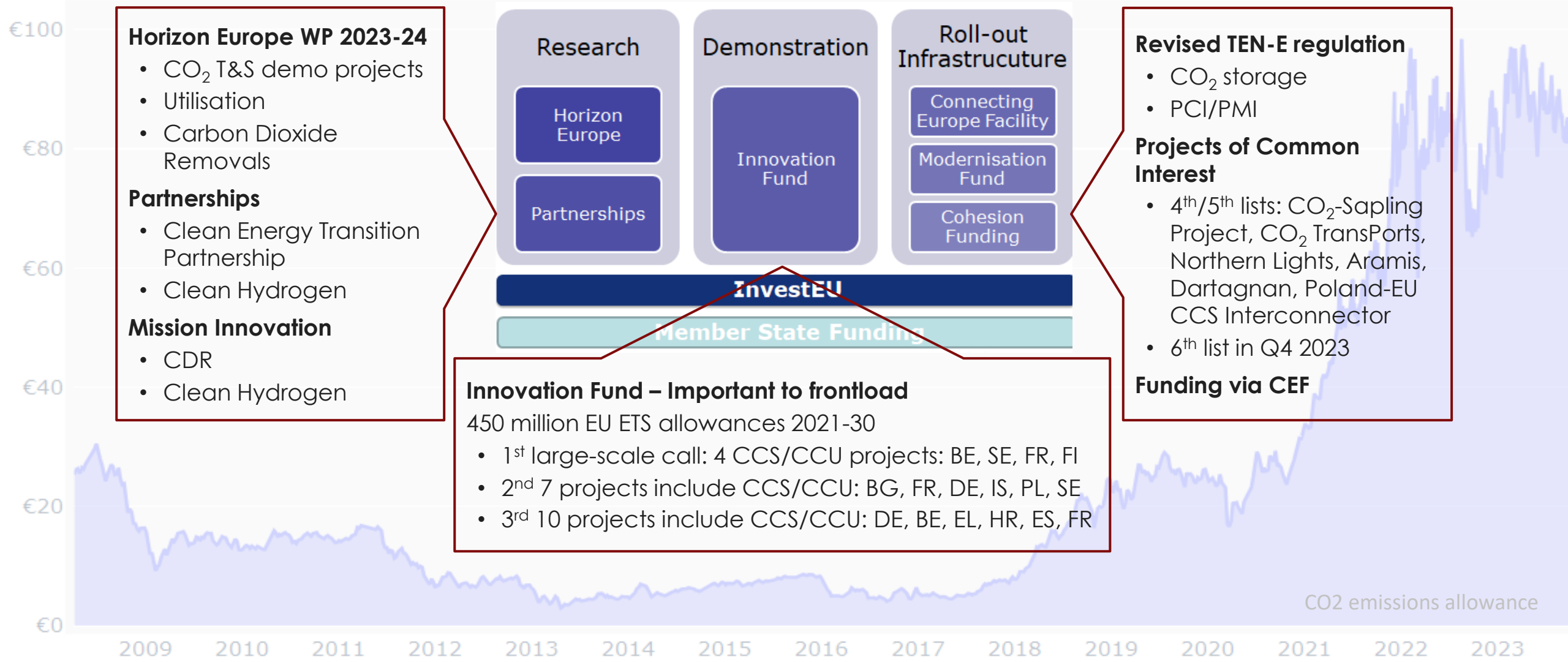
European CCS/CCU projects, source Zero Emissions Platform



CCS state of play

- ▶ **CCS (CO2 storage) Directive - revision**
- ▶ **The London Protocol**
- ▶ **EU ETS/CBAM and the Monitoring & Reporting Regulation**
- ▶ Innovation Fund
- ▶ Trans-European Networks for Energy Regulation – PCIs/PMIs and CEF
- ▶ **EU taxonomy for sustainable activities**
- ▶ **Regulatory framework for the certification of carbon removal activities**
- ▶ National Energy & Climate Plans
- ▶ Net-Zero Industry Act
- ▶ Industrial Carbon Management Strategy
- ▶ ...

EU funding in brief



Horizon Europe WP 2023-24

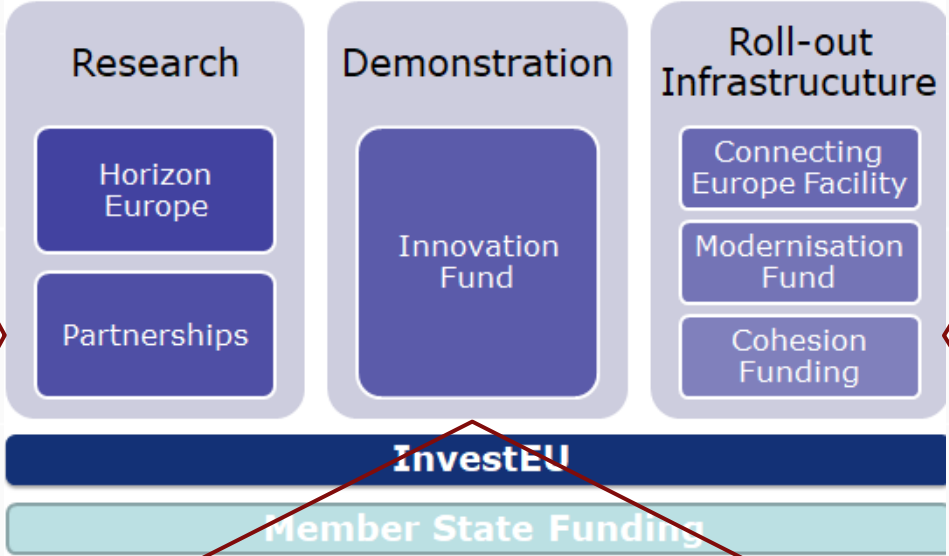
- CO₂ T&S demo projects
- Utilisation
- Carbon Dioxide Removals

Partnerships

- Clean Energy Transition Partnership
- Clean Hydrogen

Mission Innovation

- CDR
- Clean Hydrogen



Innovation Fund – Important to frontload

450 million EU ETS allowances 2021-30

- 1st large-scale call: 4 CCS/CCU projects: BE, SE, FR, FI
- 2nd 7 projects include CCS/CCU: BG, FR, DE, IS, PL, SE
- 3rd 10 projects include CCS/CCU: DE, BE, EL, HR, ES, FR

Revised TEN-E regulation

- CO₂ storage
- PCI/PMI

Projects of Common Interest

- 4th/5th lists: CO₂-Sapling Project, CO₂ TransPorts, Northern Lights, Aramis, Dartagnan, Poland-EU CCS Interconnector
- 6th list in Q4 2023

Funding via CEF

CO2 emissions allowance

Net-Zero Industry Act

Strengthen and overcome barriers to scaling up the manufacturing capacity of net-zero technologies in Europe

- ▶ Strategic net-zero technologies – CCS included...
- ▶ CO2 storage capacity by 2030 – at least 50 Mtpa
- ▶ Obligation for oil and gas licence holders – Article 18
- ▶ Pivotal role for Member States
 - ▶ Reporting need and sites for CO2 storage, project progress...
 - ▶ Planning and supporting strategic projects
 - ▶ Capacity building
- ▶ The permitting process
- ▶ Net-Zero Europe Platform (Member States and Commission) and Net-Zero Industry Academies

EU institution negotiations: Council this week, European Parliament ITRE Committee in two weeks, plenary in November...

Green Deal Industrial Plan

- ▶ **A predictable and simplified regulatory environment**
- ▶ Faster access to funding
- ▶ Enhancing skills
- ▶ Open trade for resilient supply chains



Industrial Carbon Management

- ▶ CCUS Forum in November: Vision, CO2 infrastructure, Industrial Partnerships, Public Perception...
- ▶ Reports on CO2 T&S: technical and regulatory
- ▶ 'No CCUS no net-zero' – role of CCS and CCU, targets, storage atlas, CO2 transport regulation, specifications /network code, funding...
- ▶ Results from the consultation
- ▶ Presentation in Q1 2024 – 2040 climate target
- ▶ National Energy and Climate Plans – France, Germany...



What happens after the strategy?

Some worries

- ▶ After the EU strategy – European Parliament elections, new Commission college...
- ▶ CCS “last resort” – CO2 infrastructure
- ▶ Rishi Sunak: max out UK fossil fuel reserves
- ▶ Skills and material – all infrastructure projects at the same time
- ▶ CCS for power – license to operate
- ▶ Carbon removals and trust
- ▶ ...

Some recommendations

- ▶ Urgency – finalise the NZIA, get momentum on the Strategy and NECPs...
- ▶ Walk the walk, show and communicate progress
- ▶ Open access and cross-border CO2 transport: framework, specifications/network code...
- ▶ De-risk projects – sharing real knowledge and best practices...
- ▶ Business models – Commission recommendations on CCFDs
- ▶ Think Europe-wide
- ▶ Markets for net-zero products
- ▶ ...



Thank you!

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