



VELKOMMEN TIL CCS-ALLIANCE-
MØDE!

Hos Dansk Metal, 23. februar 2023

DAGSORDEN

Velkomst: Emil Drevsfeldt Nielsen

Finansiering af CCS-projekter:

Finn Lauritzen, Axcelfuture; Andreas Thornit, EKF; Anders Grynnerup, PWC og Ulrik Weuder, Fidelis

How can Danish projects get EU-funding?

David Mora and Christian Jussen, Implement Consulting and Thor Iversen, Ministry of Climate, Energy and Utilities

How to monitor the entire CCS value chain

Nigel Greatorex, ABB

Status for EU-regulering

Stella Bücker, DI

Skal Danmark opprioritere CCS?

Hans Henrik Lindboe, EA Energianalyse og Tobias Sørensen, Concito

Eventuelt og lidt til ganen

FINANSIERING AF CCS ER ALFA OG OMEGA

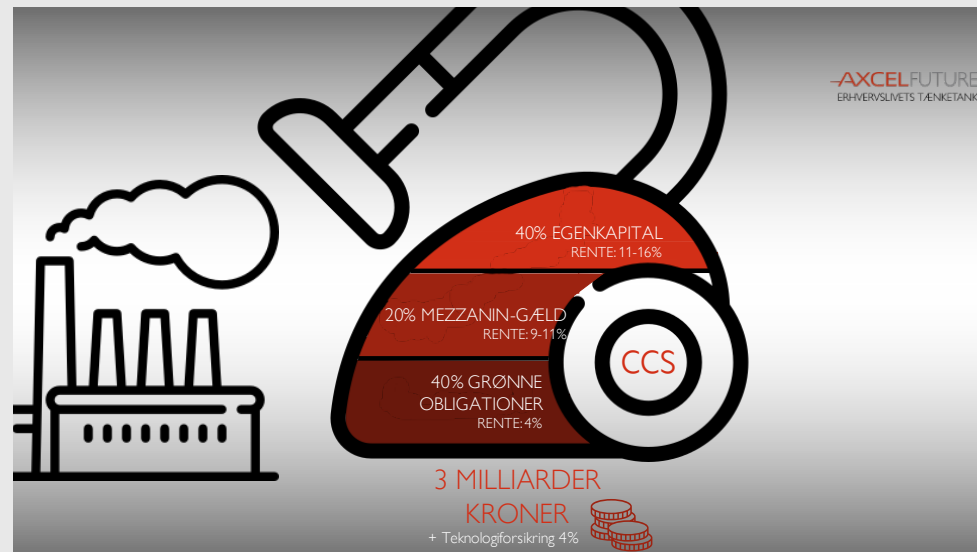
CCS-projekterne indebærer mange risici, især i starten
Finansieringen er blevet dyrere pga stigende rente

Vigtigste risici:

- konstruktions- og teknologirisici
- risiko for driftsproblemer og omkostningsstigninger
- risiko for stigende energipriser
- risiko for faldende CO₂-præmie
- risiko for problemer med transport og lagring
- risici ift varmeaftag
- langsigtet lagerrisiko
- politiske risici
- modpartsrisici/virksomhedsspecifikke risici

Samlet: er risiciene større end KEFM tror?

REGNEEKSEMPEL FOR TÆNKT PROJEKT MED FANGST AF 1 MTPA



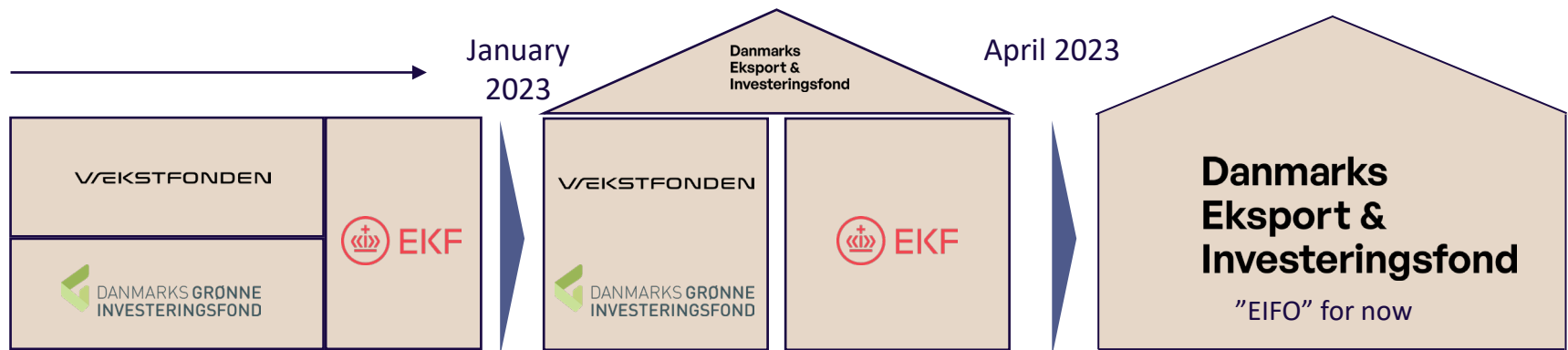
Aktivitet	Investe- ring, mio. kr.	Afskriv- ning, år	Rente, pct. pa.	Capex, kr/ton	Opex, kr/ton	Totex, kr/ton
Fangst, konkurrence- udsatte virksomheder	3.000	20	8,1	310 (290-330)	250-450	560-770
Fangst, forsyninger	3.000	20	6,5	272 (250-290)	250-450	500-740
Havne- og tankanlæg	500-1.000	20-30	8,1	80 (60-100)	30-50	90-150
Transport	-	50	3,5	75-175	25-145	100-320

KONKLUSION: CCS KAN FUNGERE UDEN SUBSIDIER – MEN FØRST OM NOGLE ÅR

Aktivitet	Omkostninger og sparet afgift, kr/ton CO2	Afhænger bl.a. af:
Fangst	500-920	Skala, energiomkostninger, varmeaftag mv., læring
Transport	100-320	Skala, transportmetode (rør-skib ea., hvor rør er billigst)
Lagring	100-450	Priserne på det enkelte lagringssted
I alt	700-1690	
Sparet afgift, kvote-omfattede virksomheder	773-1225	773 kr i 2025 stigende til 1225 kr i 2030
Sparet afgift, mineralogisk virksomhed	798-975	798 kr i 2025 stigende til 975 kr i 2030
Sparet, udledere af biogen CO2	?	Kræver politisk stillingtagen – helst i form af en negativ CO2-afgift og en negativ ETS-kvotepris



Denmark's Export and Investment Fund



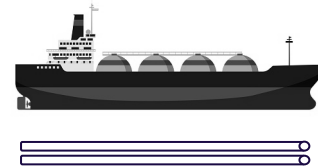
EIFO was established with a clear **mandate**:

- Make Denmark prosper by supporting investments in Denmark as well as Danish exports
- Good business and the green transition go hand in hand
- Large amounts of capital dedicated to PtX and CCUS as well as risk capital under Eksportpakke II
- Supporting PtX and CCUS is one of EIFO's license to operate and is a strategic must-win battle

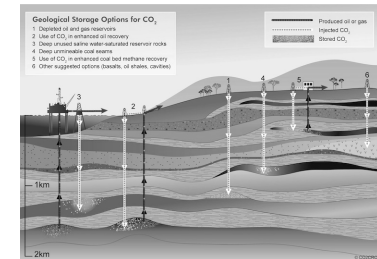
Credit risk perspectives on CO₂ infrastructure financing



Capture / Emitters



CO₂ Logistics



Sequestration

Economic rationale

Subsidies / Tax mitigation / EU-ETS

Profitable charter/transport agreement with emitter(s)

Profitable offtake agreement with emitter(s)

Credit considerations

Ability to manage full CO₂ value chain (certification risk)

CC assets does not generate stand alone earnings

Price volatility from EU-ETS / CO₂ tax

CC equipment integrated in existing assets infrastructure

CO₂ from operations -> Business risk

Separate earnings from individual CO₂ assets

Credit quality of emitter (passthrough of credit risk)

Interdependencies from CO₂ value chain

Contract features ("take-or-pay" / availability fee or are business risks passed through)

High switching cost / single purpose assets

Technical and operational risk (geological / well management / vessel risk)

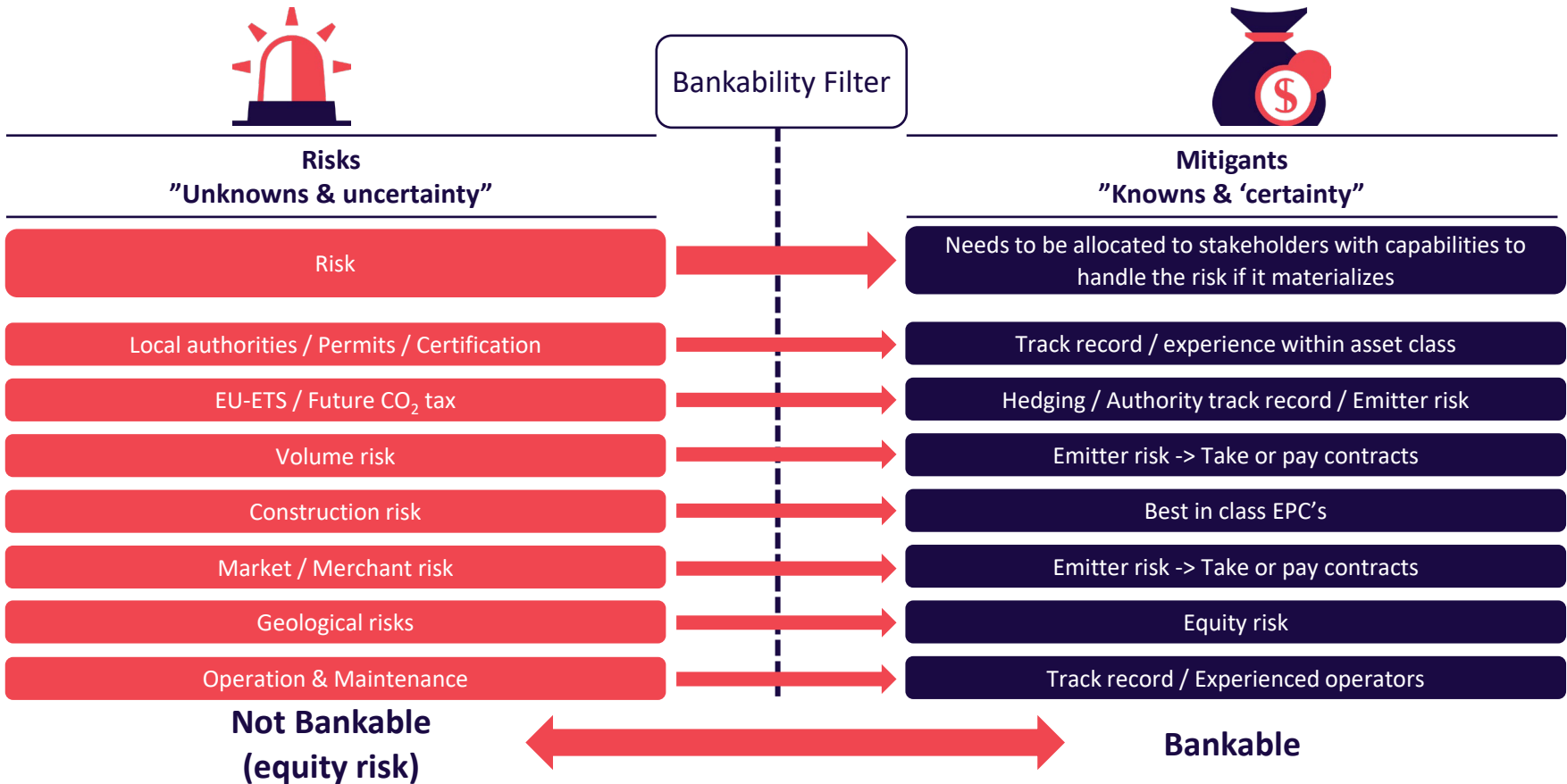
Financing implications

Strong balance sheets with high credit quality required (Corporate Financing)

Stand alone financing eligibility (Project Finance) but key risks must be mitigated through fair risk allocation



Bankability of CO₂ infrastructure (general and not exhaustive)



Wrap-up and key takeaways

- EIFO wish to support CCUS in DK and assist DK companies with projects abroad
- Strong balance sheets are needed for emitters, but also require a holistic approach to risk allocation across the CCUS value chain
- We believe that CO₂ capture equipment would typically be financed on balance sheets (Corporate Financing) while CCUS infrastructure could be eligible for separate finance structures (Project Finance) pending risk allocation and mitigants
- Project Financing of CCUS infrastructure requires bullet-proof contracts of long duration with strong counterparts and risks need to be allocated to the parties most equipped to manage them
- Capital structures may need to be more conservative than mature energy assets (wind) due to industry maturity and untested risk models





Connect with the New Energy Origination team



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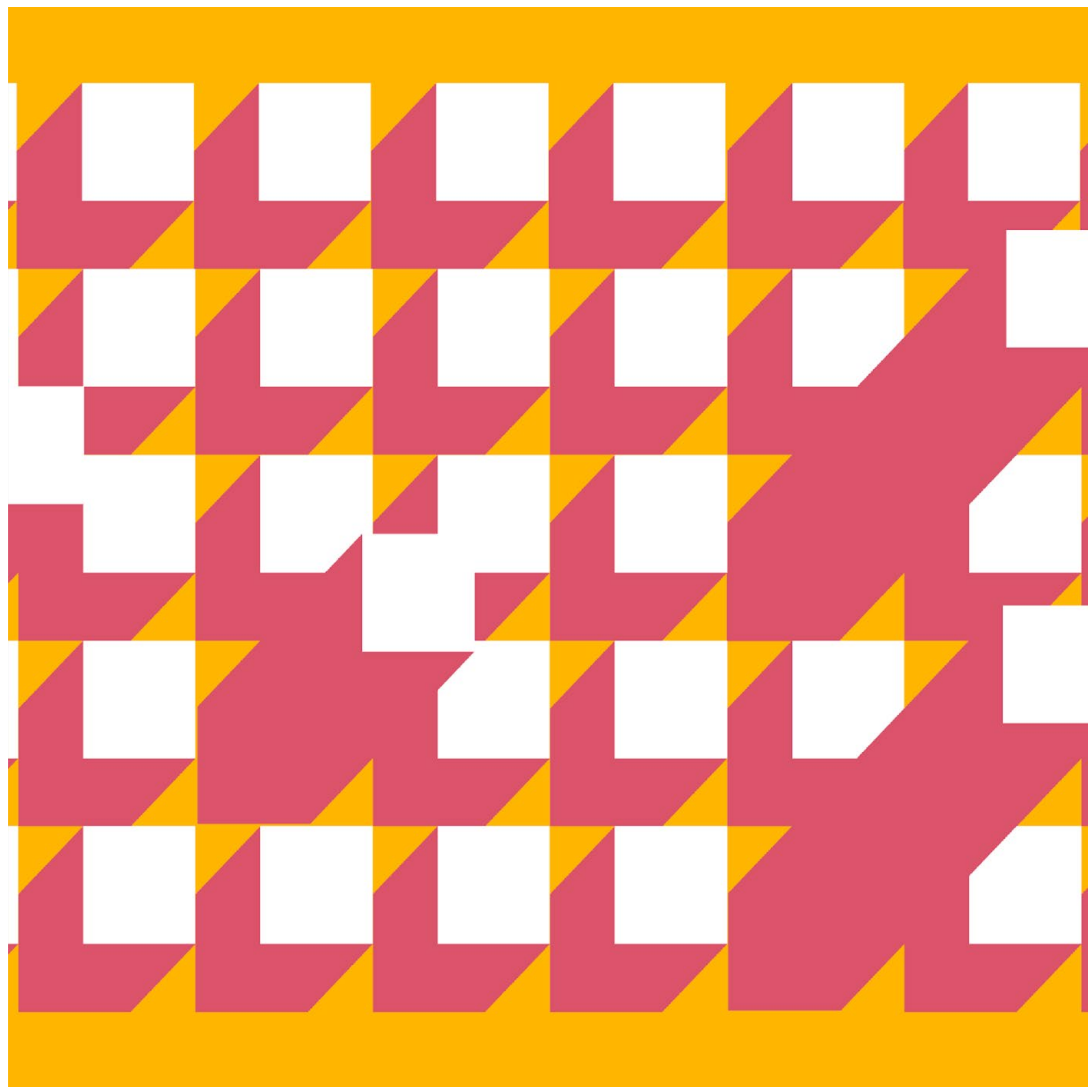
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Barrierer og perspektiver for finansiering

CCS-alliancen
23. februar 2023

Revision. Skat. Rådgivning.

pwc

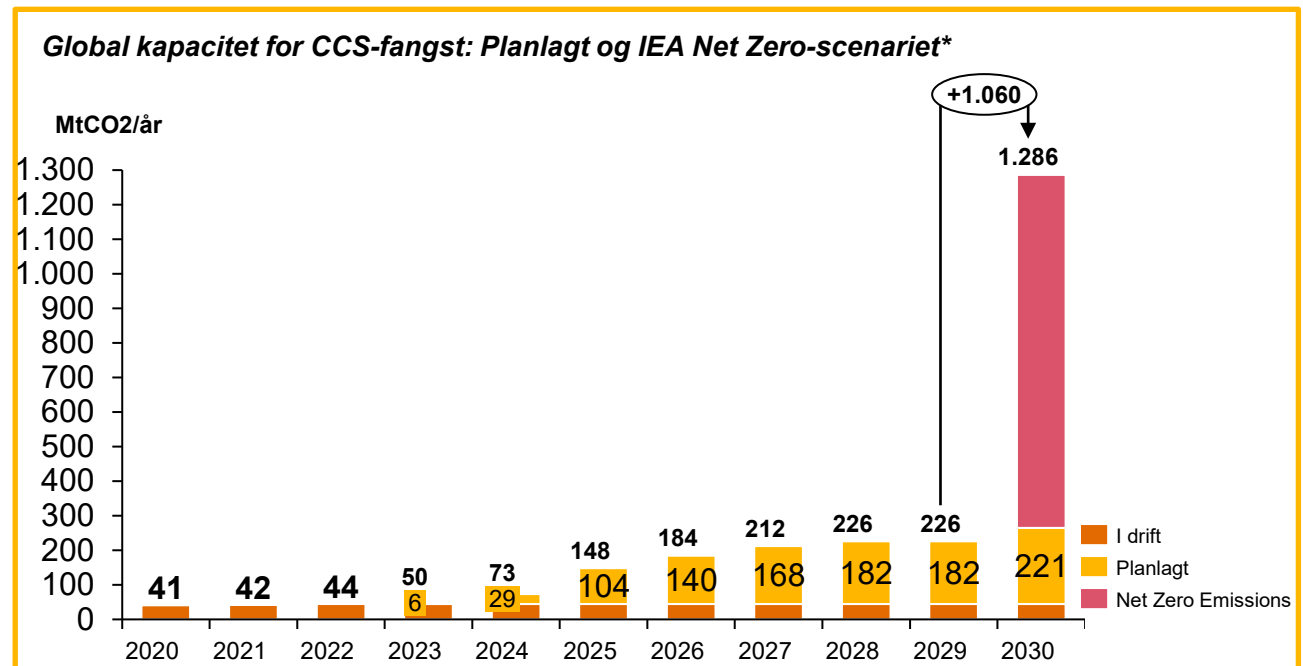




- Det kræver omfattende investeringer i CCS-sektoren, hvis de danske og globale klimamål skal opfyldes.
- På nuværende tidspunkt kan der konstateres en kløft mellem realiserede investeringer og det forventede behov.
- Derfor er der nationalt og internationalt igangsat offentlige initiativer, der skal accelerere investering i industrien.

Behovet for investering i sektoren er stort

Scenarier for Net Zero i 2050 viser, at der er behov for omfattende investeringer i CCS – allerede frem mod 2030



*Kilde: IEA, *Capacity of large-scale CO₂ capture projects, current and planned vs. the Net Zero Scenario, 2020-2030*.

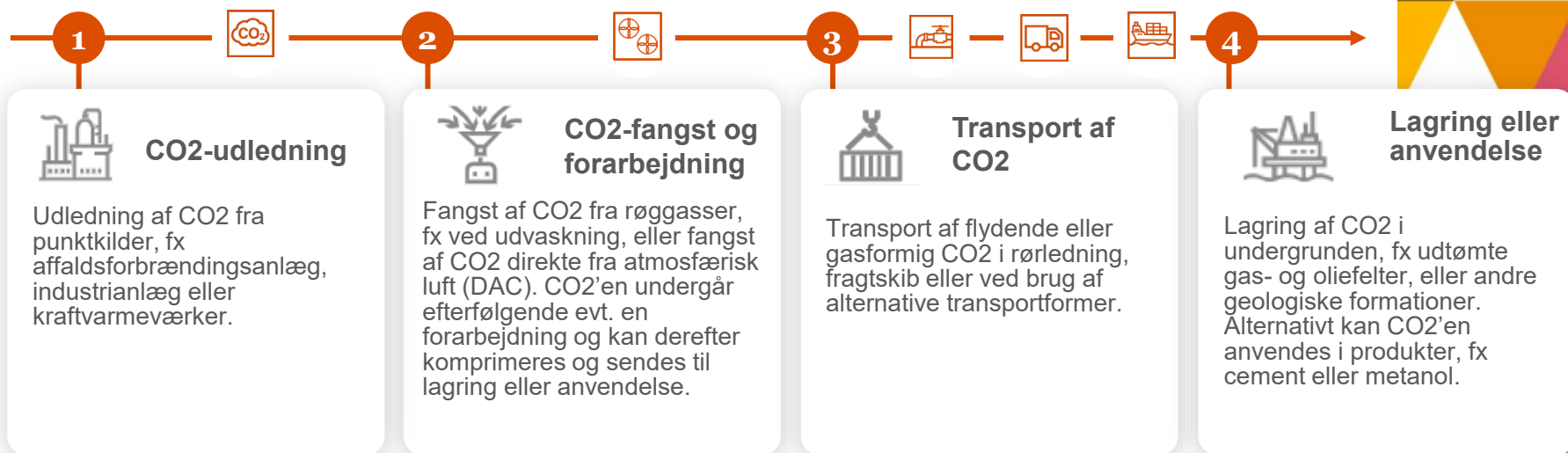
Net Zero-scenariet er et normativt scenarie udviklet af International Energy Agency, som viser en vej til net zero CO₂ i 2050. Der kan udvikles andre scenarier, som viser andre veje til net zero gennem andre kombinationer af teknologier.

<https://www.iea.org/reports/carbon-capture-utilisation-and-storage-2>

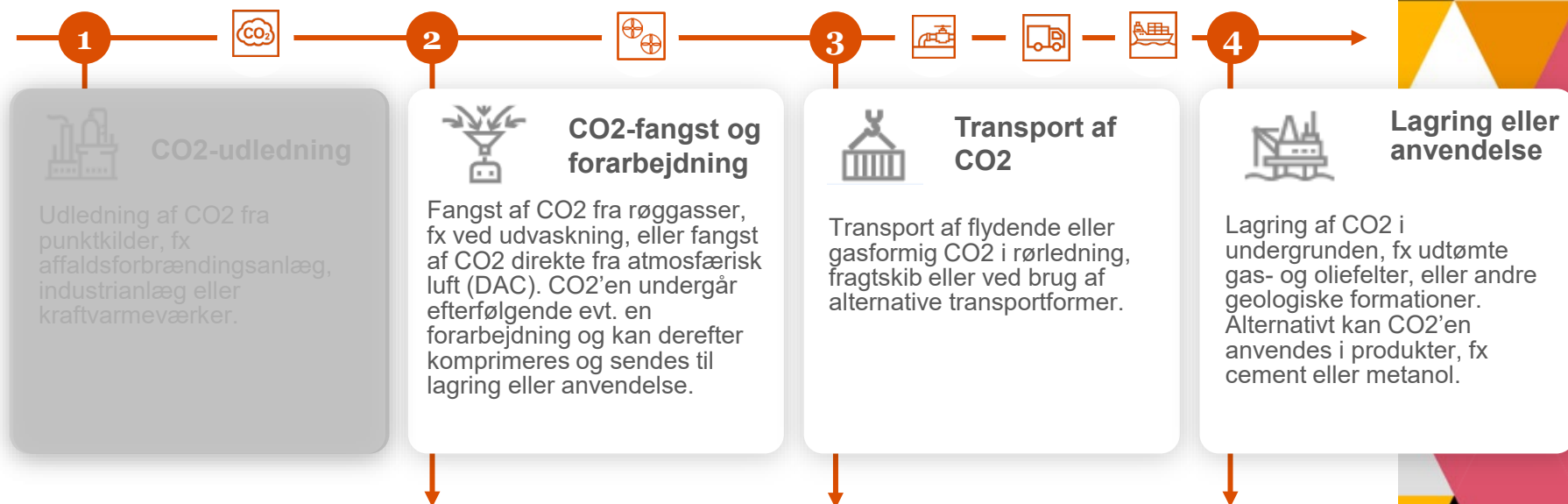
Februar 2023

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Finansiering og samarbejde på tværs af værdikæden

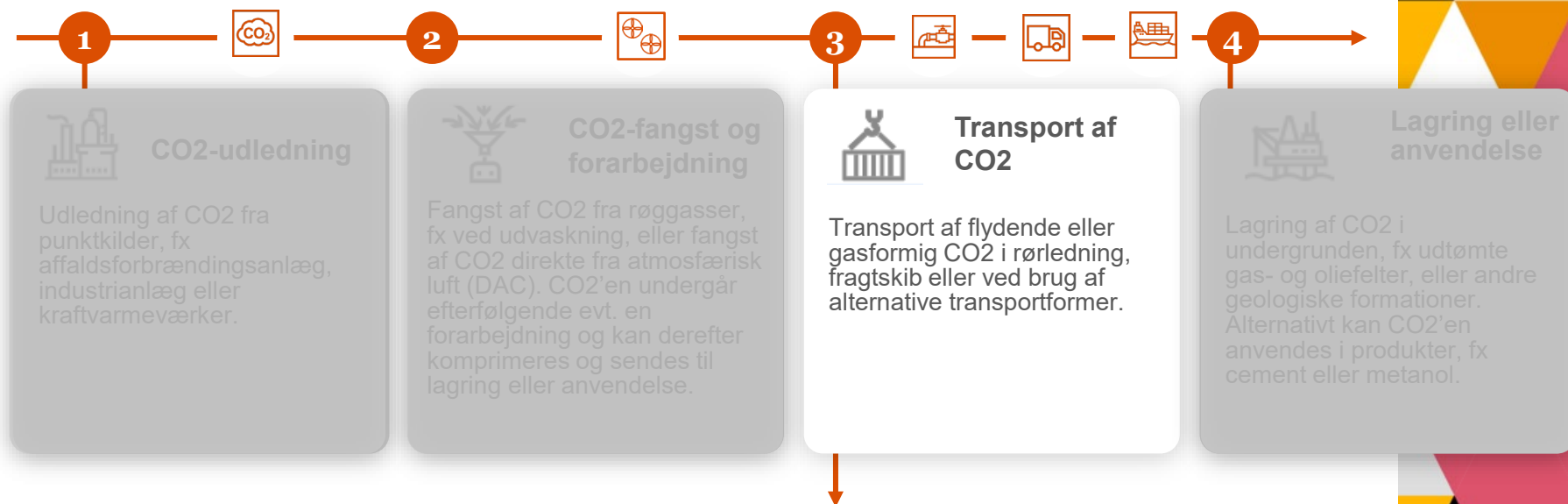


Finansiering og samarbejde på tværs af værdikæden (1/3)



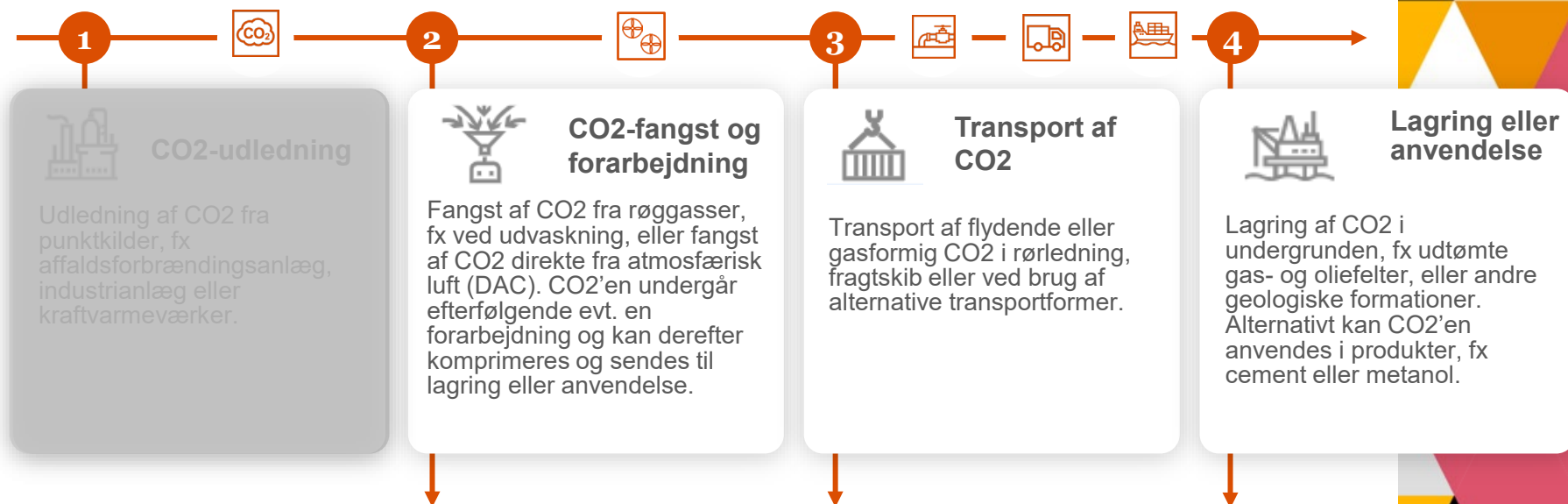
Afhængigheder mellem fangst-, transport- og lagringsaktører: Store afhængigheder mellem aktører i forskellige led af værdikæden kan medføre en "hønen eller ægget"-problematik: aktører i ét led af værdikæden ønsker sikkerhed for kapacitet/mængder og prisniveauer samt garanti for realisering i de resterende led af værdikæden, før de selv kan træffe en sikker investeringsbeslutning.

Finansiering og samarbejde på tværs af værdikæden (2/3)



Sikkerhed for transport: I dag mangler aktører sikkerhed for flere elementer, heriblandt ejerskab og organisering af rørinfrastruktur, tekniske afklaringer vedr. rørinfrastruktur og transportstandarder, sikkerhed for kapacitet og timing af transportinfrastruktur og –aftaler. Disse forhold kan have stor betydning for CCS-aktørers omkostningsniveau og planlægning.

Finansiering og samarbejde på tværs af værdikæden (3/3)



Puljer har fokus på garanti for hele værdikæden: Flere puljer har fokus på, at puljemodtager skal kunne garantere hele værdikæden. Dette risikerer at skabe usikkerheder for puljemodtager, særligt ift. de led i værdikæden, der varetages af andre aktører.

Perspektiver for finansiering

Erfaringer fra Projekt Longship i Norge



Statslig koordinering

Det statslige selskab, Gassnova, er ansvarlig for overordnet koordinering mellem aktørerne i projektet, herunder design af værdikæden, håndtering af afhængigheder mellem aktører og projektplanlægning. Overordnet ansvar for projektet ligger hos en styregruppe, som består af deltagere fra Gassnova og relevant ministerium.

Opsplitning af værdikæden

På trods af central koordinering af værdikæden er værdikæden opdelt, så der er lavet individuelle kontrakter mellem staten og de enkelte aktører.

Dette er gjort for at undgå tværgående risici, da det er vurderet, at aktører ikke vil påtage sig risici relateret til andre dele af værdikæden - "hønen og ægget-problematikken".

Risikodeling mellem stat og virksomheder

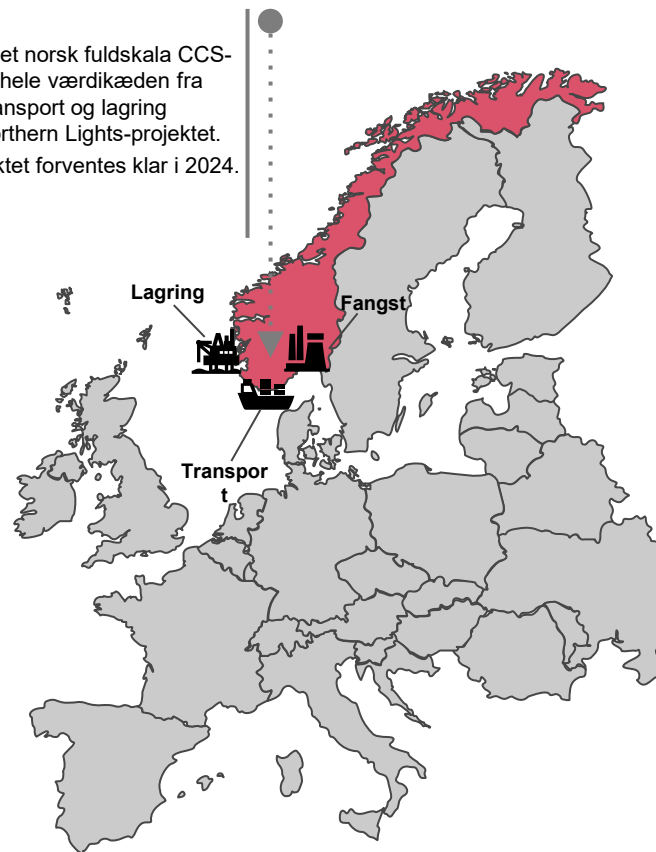
Den norske stat støtter fangst, transport og lagring. Der er etableret risikodeling mellem staten og virksomhederne, og staten påtager sig finansielle risici relateret til afhængigheder på tværs af værdikæden, fx ved forsinkelser som påvirker hele værdikæden. Virksomhederne benytter egne metoder og procedurer til at udvikle projekterne, og de har fuldt ejerskab over aktiverne.

Stort fokus på videndeling

En del af formålet med Projekt Longship er at skabe en platform for forretningsudvikling til brug for fremtidige projekter. Derfor udgiver det statslige selskab, Gassnova, og de private aktører rapporter med 'Lessons Learned' fra projektet.

Projekt Longship

- Projekt Longship er et norsk fuldskala CCS-projekt, der dækker hele værdikæden fra fangst til lagring. Transport og lagring dækkes gennem Northern Lights-projektet.
- Første fase af projektet forventes klar i 2024.



Tak for i dag.



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Succes skaber vi sammen ...

www.pwc.dk

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HOW DO WE WIN EU SUPPORT FOR DANISH PROJECTS?



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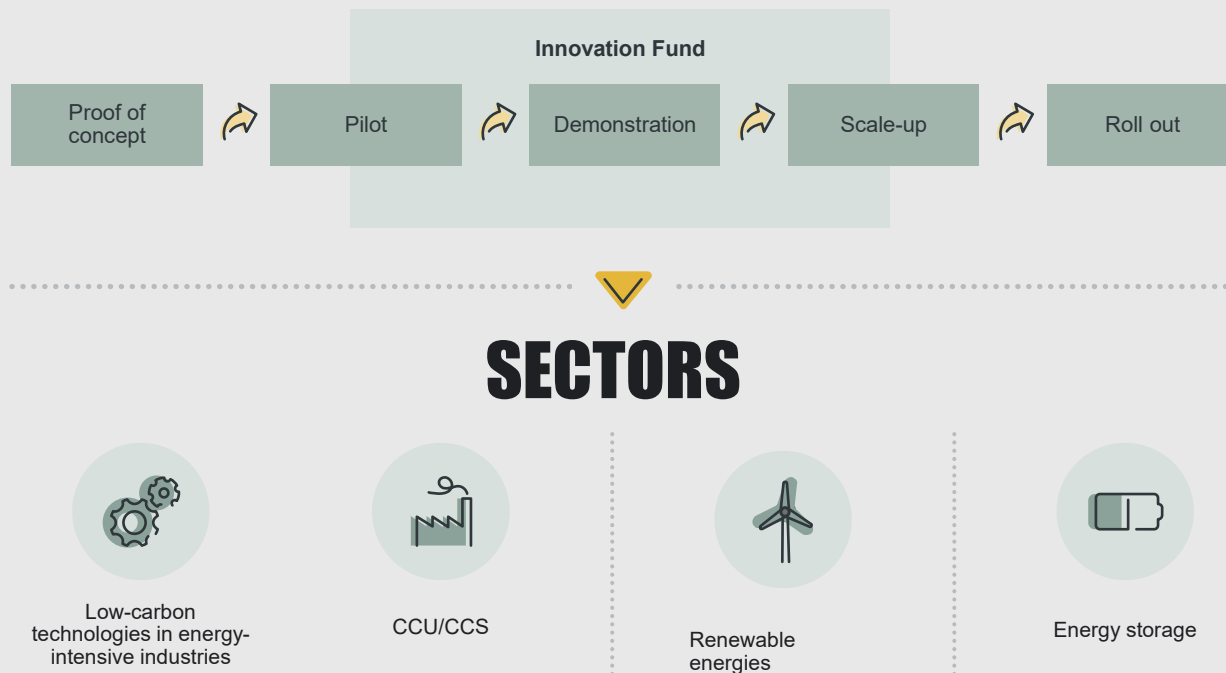


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THE EU INNOVATION FUND OFFERS EUR 40BN IN CAPEX AND OPEX SUPPORT FOR DECARBONIZATION PROJECTS.



- The EU Innovation Fund supports highly innovative technologies and industrial solutions to the market for **decarbonizing Europe**
- The focus is on funding the **first industrial implementation of innovative low-carbon technologies** that are not yet commercially available
- The scheme targets legal entities in Member States, associated countries (incl. Norway and Iceland) and third countries – as long as the project is implemented on **European territory**
- The maximum budget for this year is of **3 billion euros** for the LS call, with a 20% flexibility clause



A LOOK AT THE PROJECTS FUNDED IN THE FIRST TWO ROUNDS

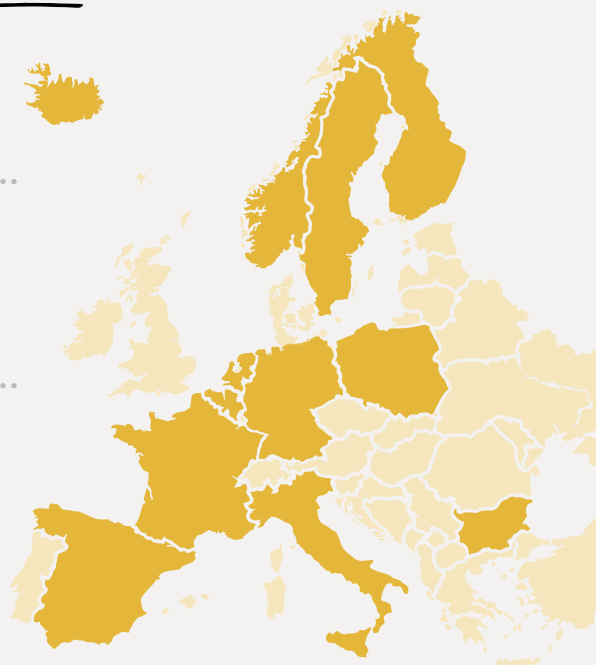


2020 and 2021 Edition

23
projects

**From 2.3Mt
to 27,6 Mt
CO₂**
avoidance potential

€ 3bn
Total distributed



Benelux
France
Italy
Sweden
Finland
Norway
Germany
Netherlands
France
Spain
Poland
Bulgaria



Key characteristics



Heterogeneity in terms of geographical coverage, sector and technology



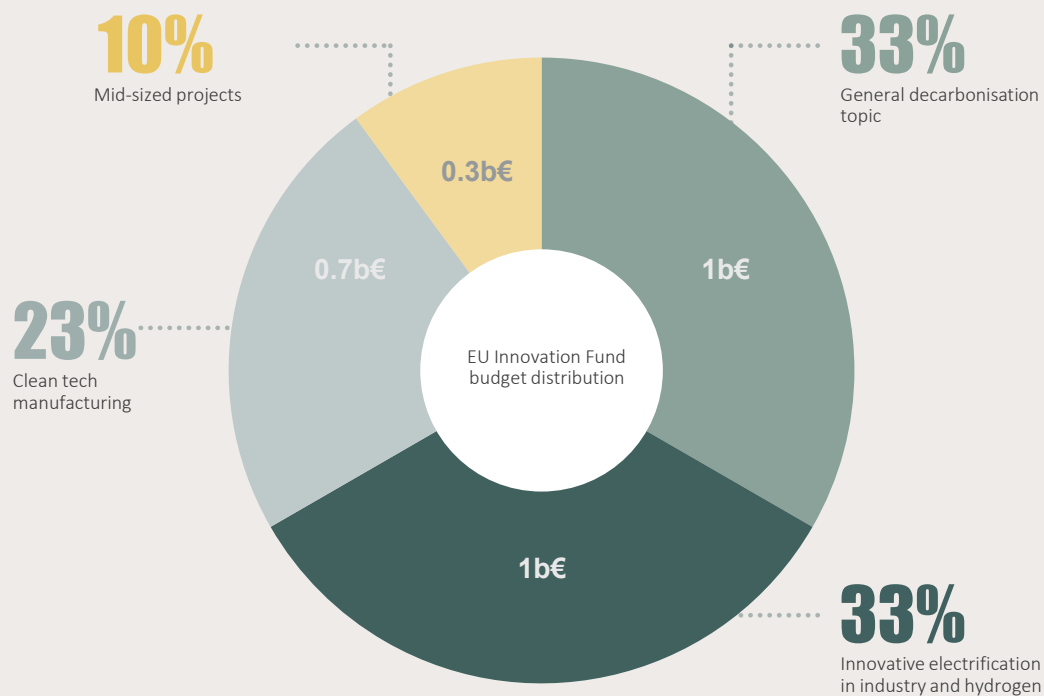
Strong representation of EILs and CCS



Several products output – multi-sided business models

	LSC1 (2021)	LSC2 (2022)
Average grant request	157,1M€	105,8M€
Average CO₂ avoidance (first ten years of operation)	10,4 MtCO _{2e}	8 MtCO _{2e}
Cost efficiency	15,1€ grant per tCO _{2e}	13,2€ grant per tCO _{2e}

For the 2023 call, the EUIF programme introduced 4 buckets







BUCKETS FOR APPLICATION

- 1 General decarbonisation
- 2 Innovative electrification in industry and hydrogen
- 3 Clean Tech Manufacturing
- 4 Mid-sized projects



AMONGST THE 21 WINNING PROJECTS FOR EMISSIONS REDUCTION, CARBON CAPTURE TECHNOLOGY IS FOUND IN 11 PROJECTS AND CCS IS APPLIED IN 6 PROJECTS.

 Sector	 # projects	 CCS project location	 Technology pathways
Hydrogen production	4	Finland	Hydrogen electrolysers (renewables based, + distribution/ use) + CCS Waste to hydrogen
Cement	5	France, Poland, Bulgaria	Oxy-fuel + CCS Oxy-fuel + CC/ H2 for methanol production
Refineries	2	-	Second-generation biofuels (drop-in) & biochar from forestry waste Synthetic aviation fuels from RES H2 and CC
Chemicals	3	-	Chemical recycling of plastics— feedstock for refinery Methanol production from RES H2 and CC Textile fibre from pulp to replace polyester
Manufacturing of components	3	-	Li-ion Battery systems Li-ion Battery recycling Solar PV manufacturing
Renewables	1	-	Offshore wind, turbines + electrolyser
CCS infrastructure (other)	2	Belgium	Carbon mineral storage terminal (basalt) / CCS
Biofuels	1	Sweden	BECCS

THE SCORING DEPENDS ON THE WINDOW OF APPLICATION CHOSEN

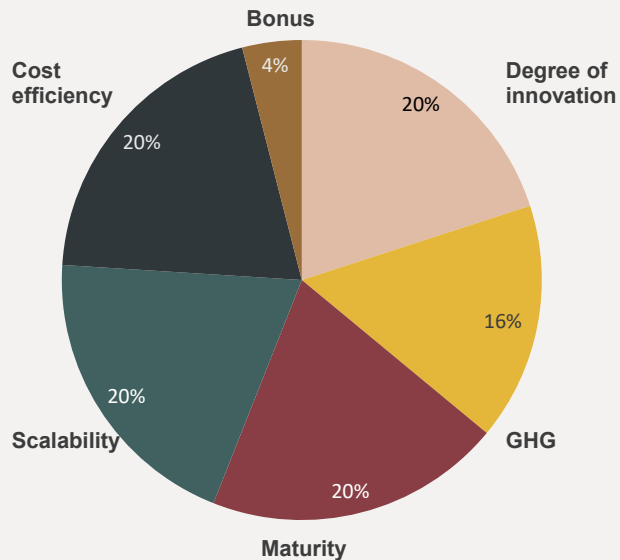


General decarbonisation topic

Degree of innovation [15 pts]	Innovation in relation to the state-of-the-art [9/15]		
GHG emissions avoidance [12 pts]	Absolute GHG [2]	Relative GHG [5]	Quality of calculations, min. requirements [3/5]
Maturity [15 pts]	Technical [3/5]	Operational [3/5]	Financial [3/5]
Scalability [9/15 pts]	Efficiency gains	Further technology or solutions deployment	Quality of KSP
Funding efficiency [15 pts]	Cost efficiency ratio [12]		Quality and credibility of cost calculation [3]
Bonus points [3 pts]	Net carbon removals [1]	Other GHG savings [1]	Additional RE [1]

Max of 75 points

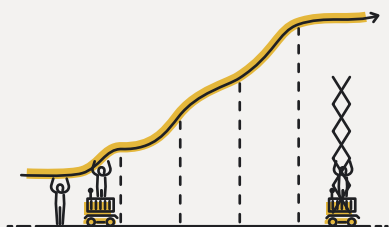
Overview of the scoring weighting for the general window



→ To be in a striking range, you need to aim to get 90% points, i.e. a score of **67 points out of 75**



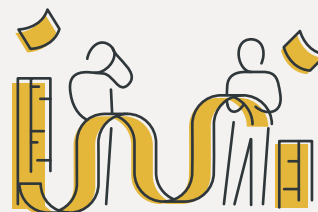
SOME TIPS TO BUILD A COMPETITIVE EDGE



Be strategic and position your project well in your relevant sector – you should be able to stand the comparison – also to other CCUS projects



Be very clear on the proposed legal and organizational structure of the project (e.g. the possibility to include or create an SPV) and how your project makes “**business sense**”



Be realistic in your assumptions and calculations and ensure consistency of claims and numbers across your documentation (Peer reviews of material is a must)



Make sure **that parties** upon which the project implementation depends are fully in line with the proposal and **provide explicit support** (e.g. permits, buy-back rights, licences, additional funding etc.)

NEARLY HALF OF PROPOSALS PLAN TO FINANCE WITH EQUITY ONLY

PROJECTS ARE PERCEIVED AS HIGH RISK FOR FINANCCERS

About 40% of proposals submitted were planning to finance their projects entirely with equity, reflecting the challenge to find debt investors for innovative projects entailing high risks



For projects planning to raise debt, the gearing ratio (debt as a share of debt plus equity) was around 51% on average



The majority of pre-selected projects were planning to raise equity only. For those with debt in the financing mix, the average gearing ratio was 38%, reflecting a more conservative stance



Capital structures tend to differ across sectors, suggesting that risks are not uniform across industries

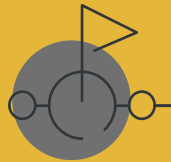


HOW CAN DANISH PROJECTS INCREASE WINNING CHANCES FOR EU FUNDING?

OUR EXPERIENCE AND BEST PRACTICES

Mature projects have better chances to win

Project strategy and grant strategy development well before call publication and submission date will increase chance of winning!



Engage with EU national contact points for advice and support.

Other member states have strong NCP support for studies support and counseling for grant application. Are we doing the right thing in Denmark?



Allocate sufficient and engaged internal and external resources early and dare to ask for third party review.

We have never seen an application won by an internal only team. EUIF application is complex and a significant resource investment case.



Advance the sourcing of capital as much as possible and determine a realistic timeline to reach financial close*

* The moment in the project development cycle where all the project and financing agreements have been signed and all the required conditions contained in them have been

met



MATCHING AND ALIGNING YOUR STRATEGIC INNOVATION PROJECTS TO RELEVANT FUNDING INSTRUMENTS IS KEY



FUNDING STRATEGY

How do we, as an organization, decide to work with funding?

Through interviews with key stakeholders in the organization (e.g., in R&D, sustainability, finance) and strategy workshops, we help you define where you want to play in the funding landscape and how you will win. This supposes to run through a cascade of decisions that together will form the basis on how you will engage with public funding to win.

Playing to win framework: "Strategy is about choices"



Going for the right projects – How do we prioritize projects

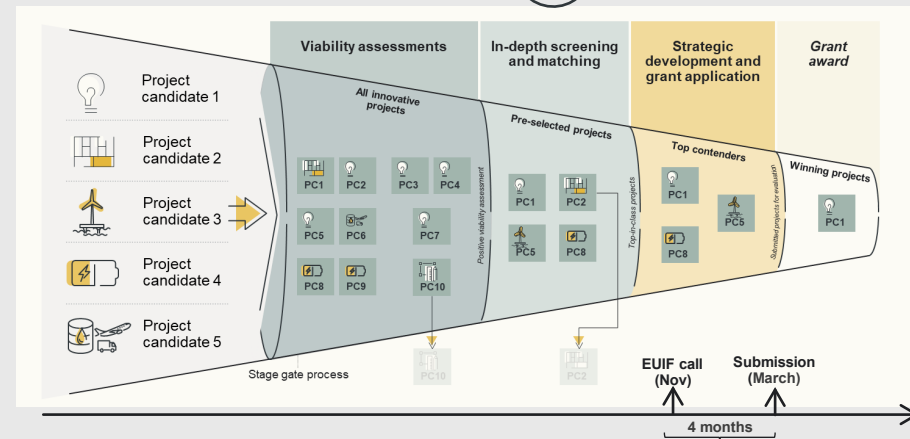
How do we know on what projects and funding opportunities to focus on?

Companies make the most out of funding by focusing only on the top project candidates for funding, and the most impactful funding instruments that suit the needs of the project.

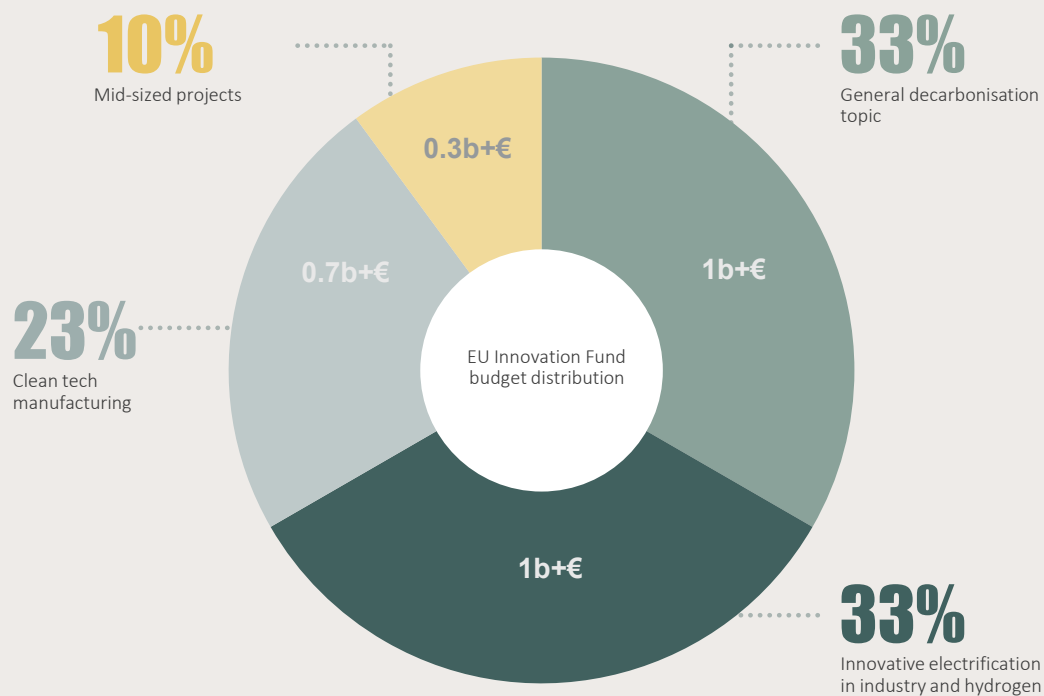
You need to identify gaps and work priorities before kick-starting the grant development work. We estimate chances of success and formulate detailed proposals to increase the outlooks.

This will make sure that you invest your resource into the right programs

Building a funding pipeline



IF YOU ARE CONSIDERING EU-IF CALL IN 2024 THIS IS WHAT YOU SHOULD EXPECT:



EU-IF 2024:

- #1 Same 4 buckets
- #2 Introduction of Carbon Contracts for Difference (CFD) for hydrogen
- #3 More than 3 billion EUR budget
- #4 More competition for mid-sized projects



EU INNOVATION FUND

FORMÅL



- Støtter **udviklings- og demonstrationsprojekter** inden for innovative kulstoffattige teknologier og processer
- Områder: **1)** Energiintensiv industri omfattet af EU ETS, **2)** CCU, **3)** CCS, **4)** Energilagring, **5)** Vedvarende energi
- Projekttyper:
 - **Large-scale-projekter** (over EUR 7,5 mio.)
 - **Small-scale-projekter** (EUR 2,5 - 7,5 mio.)
- Støtter private og offentlige **virksomheder** og **konsortier**

BUDGETRAMME



- Ca. **EUR 38 mia.** i 2021-2030
- To årlige calls:
 1. Large-scale-projekter: i 2023 **EUR 3 mia.**
 2. Small-scale-projekter: i 2022 **EUR 100 mio.**

PROJEKTSTØTTE



- Large-scale-projekter: op til **60 pct. af ekstra kapital- og driftsomkostninger** ved anvendelse af innovativ teknologi
- Small-scale-projekter: op til **60 pct. af totale kapitalomkostninger**

PROJEKTEKSEMPLER



HySkies (2023-2027)

- Vattenfall, Shell og LanzaTech
- Large-scale anlæg til produktion af bæredygtigt flybrændstof
- Støtte: **EUR 80,2 mio.**

GreenFoil (2021-2023)

- Gränges Finspång AB
- Bæredygtig aluminiumproduktion til batterier til elektriske køretøjer
- Støtte: **EUR 2,7 mio.**

KONTAKT



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INTRODUCTION TO ABB BALANCE OF OPERATIONS

A Fully Integrated Approach for CCS Cluster Projects

Balance of Operations –
Digital Solutions for CCS



ABB Balance of Operations

The major challenge facing CCS industrial hub projects is the transition from design to operations

ABB Balance of Operations is a **full chain** model of the entire CCS network, from emitter to disposal reservoir, to support operators and operations

Maximize uptime by always operating where the system can react to change

Assure safety by avoiding corrosion, temperature, and integrity limits

Save money by reducing compression, heating, and other operating costs



ABB are the experts
in process/safety operations



Pace CCS are the experts
in CCS design



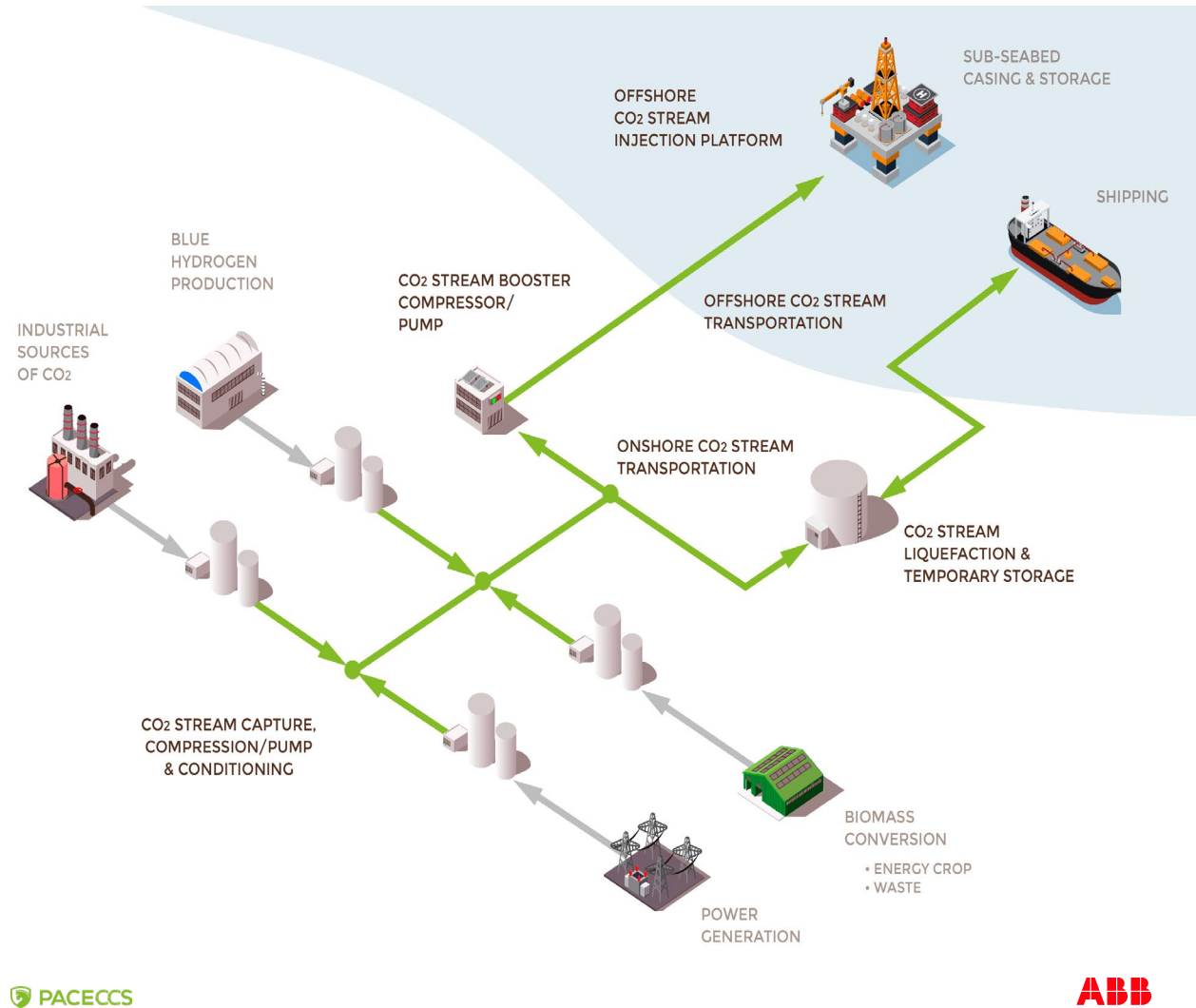
Example of a CCS Cluster Project

Investment is phased as the cluster grows:

- Gathering pipeline network
- Export pipelines
- Power
- Compression
- Blue hydrogen & new industry
- Storage reservoirs
- Wells & injection capacity

Re-use of infrastructure:

- Midstream and oil & gas pipelines
- Re-purposed platforms
- Re-purposed wells



Carbon Capture & Storage (CCS)

CCS – A new challenge

- CO₂ emissions contain impurities
- Impurities can react to create corrosive compounds
- We need to protect the overall CCS infrastructure
 - Pipelines
 - Compressors
 - Valves / Wellheads
 - Aquifer / reservoir
- CO₂ states vary from Gaseous to Supercritical
- Minimize Costs – Maximize storage capacity safely
- It is most cost effective to use existing infrastructure where possible

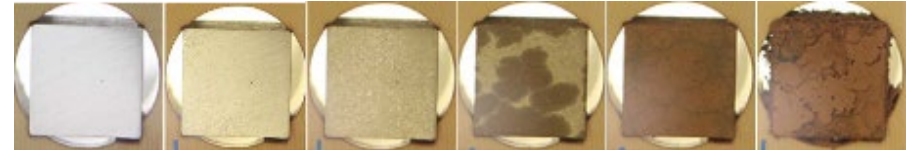


Figure: carbon steel corrosion in CO₂, caused by typical CCS impurities reacting to form strong acids

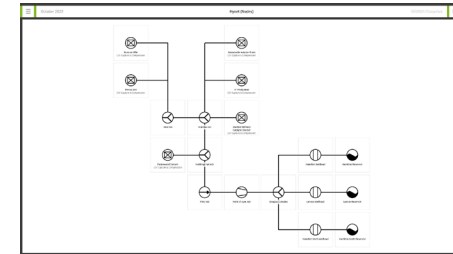
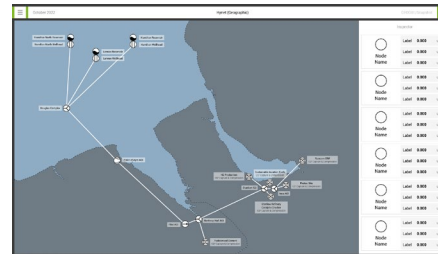
- 100 bar / 1500 psi & ambient temperature
- 99+ % CO₂
- Impurities are NO_x & H₂O at <100 ppm

ABB Balance of Operations

CCS Chain

- Analyze each emitters composition
- Calculate the blended emission composition
- Predict corrosion factors
- Model the reservoir / aquifer
- Minimize energy consumption for compression and heating when required
- Learn how parameters change over time (machine learning)
- Factor all the above into a holistic Digital Tool set
- Assure availability as emitters go online/offline
- Reduce operating costs and energy consumption
- Maximize storage capacity
- Perform “what if” scenario modelling
- Enable autonomous operations

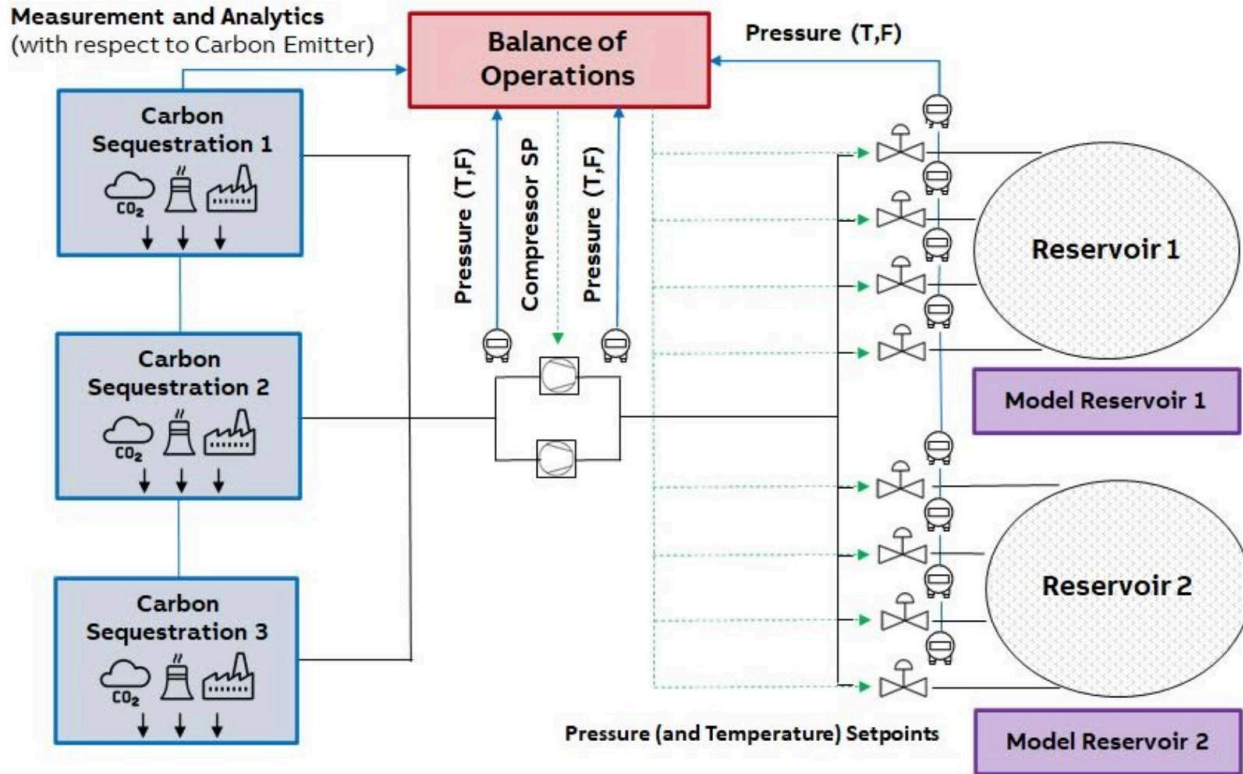
Digital Twin



Optimax



Our Vision



ABB

- 1. DCS
- 2. SIS
- 3. Edgenius
- 4. Electrical



Business Risks & Opportunities

Operation Issue	Operational Effect	Consequences	Would BoPs mitigate those consequences
Emitter plant trips	Lower flow rates of CO2 change and altered blended composition	Revised set points required, compression, pressure, temperature	Yes
Pipeline integrity breach or compressor trip	Unable to collect and transport CO2	Liquidated damages applied from emitters	Yes
Sub-surface geological formation unavailable	CCS network shutdown	Liquidated damages applied from emitters	Yes
Corrosion	Integrity of infrastructure	Shutdown and high expense to repair. LDs from emitters	Yes
Energy usage, compression and heating	Excess OPEX costs	Profitability	Yes
Sub-surface geological formation	Reduced capacity and life expectancy	Failure to meet design life/performance criteria	Yes
New emitters coming on-line	Increased flow rates of CO2 change and altered blended composition	Modification to compression, heating and instrument sizing	Yes
Not having a holistic operational view of the complete CCS chain	Inefficient operations, higher OPEX costs, risks to availability	Various shutdown scenario's	Yes

February 24, 2023



STATUS PÅ EU-REGULERING

5. møde i CCS-alliancen
23. februar 2023
Stella Bücker



EU CCUS strategi

Byggesten for strategien

- Eksisterende EU regulering (f.eks. CCS Direktivet)
- CCUS Forum: Issue papers & arbejdsgrupper
- Analyser af CO2 infrastruktur og lagringspotentialer
- Offentlig høring

Høring i marts 2023

- Spørgeskema baseret på inputs fra arbejdsgrupperne & issue papers
- 12 ugers høring
- Offentliggøres på Kommissionens hjemmeside

Offentliggørelse i slutningen af 2023

- Kommissionens communiqué = CCUS strategi
- Strategien omfatter som udgangspunkt ikke yderligere lovgivningsforslag

Arbejdsgrupper

- CO2-infrstruktur: Endelig rapport/issue paper skal offentliggøres i marts 2023
 - Regulering, teknisk implementering, business models
- Ekspertgruppe til CO2 specifikationer med 15 eksperter (maj/juni 2023)
- 2 analysere:
 - Kortlægning af fangst- & lagringspotentialer – EU Joint Research Center / maj 2023
 - Regulering af CO2 transport og fangst – Trinomics & TNO / slut februar 2023
- Case præsentationer fra bl.a. Belgien & Holland



Opdatering af vejledningsdokumenter til EU's CCS-Direktiv

Omfang

- Hjælp til implementering af Direktiv 2009/31/EC
- Teknisk opdatering af 4 vejledende dokumenter
 - Skal reflektere den globale status af teknologien
 - Identificere markedsrelaterede og teknologiske ændringer
- Identificering af nyt behov for vejledning

Tilgang

- Send kommentarer direkte via: <http://ccsguidanceupdate.dnv.com/> eller ccs-guidance-update@dnv.com
- Eller virtuelle møder med DNV
- Hvad skal ændres og hvorfor?
- Overordnede eller konkrete ændringer

Tidsplan

- Q 1-2 2023: Stakeholderkonsultation
- Juli 2023: Workshop
- Q 1-2 2024: Offentliggørelse og videndannelse



PCI – EU Projects of Common Interest

Baggrund

- 2021-2027: TEN-E budgettet på EUR 5.84 milliarder
- Grænseoverskridende energiprojekter, interoperabilitet af netværk, samt bedre integration af det indre energimarked.
- PCI-projekt = for-projekt der giver berettigelse til indsendelse af CEF TEN-E ansøgning
- Forudsætter signifikant effekt for mindst to medlemsstater og/eller EU associerede lande, og ansøgningen skal udarbejdes i samarbejde mellem medlemslandene

Proces

- Ansøgere skal anerkendes som PCI hos en national myndighed = Energistyrelsen
- Energistyrelsen indstiller PCI projektet til et regionalt udvalg (reps. fra medlemsstaterne)
- Kommer projektet på PCI-listen berettiger det til at der kan indsendes en CEF TEN-E ansøgning
- Ansøgninger har omkring 200 sider.

Frister

- Sidste ansøgningsfrist var den 15. december 2022
- Den endelige PCI-liste vedtages i efteråret 2023. Næste PCI-liste er åben for indsendelse ultimo 2024.

Projekter

- 18 CCUS-projekter har søgt i 2022
- Projekter med dansk deltagelse: EU2NSEA, Bifrost, Norne



Certificeringssystem til kulstoffjernelse

- EU-Kommissionen har fremlagt et først forslag til et certificeringssystem til kulstoffjernelse (Carbon Removal Certificates)
- Permanent lagring kan eksempelvis være:
 - Tiltag på landbrugs- og skovarealer
 - Fangst- og lagring af CO₂ fra biomasse
 - Fangst af CO₂ fra luften
 - Lagring via eksempelvis byggematerialer
- EU-Kommissionens foreslår at gå i gang med at fastlægge metoder til de forskellige certifikater – i dialog med en særlig ekspertgruppe
- I de kommende måneder skal Europa-Parlamentet og Rådet forholde sig til EU-Kommissionens udspil.

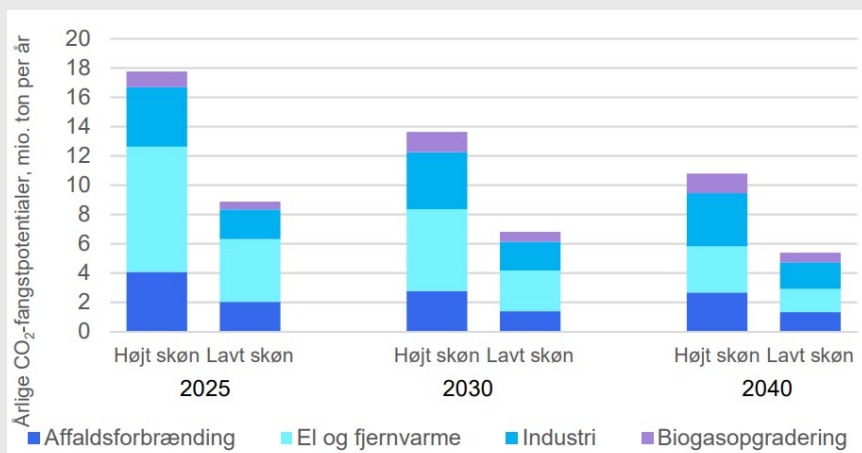
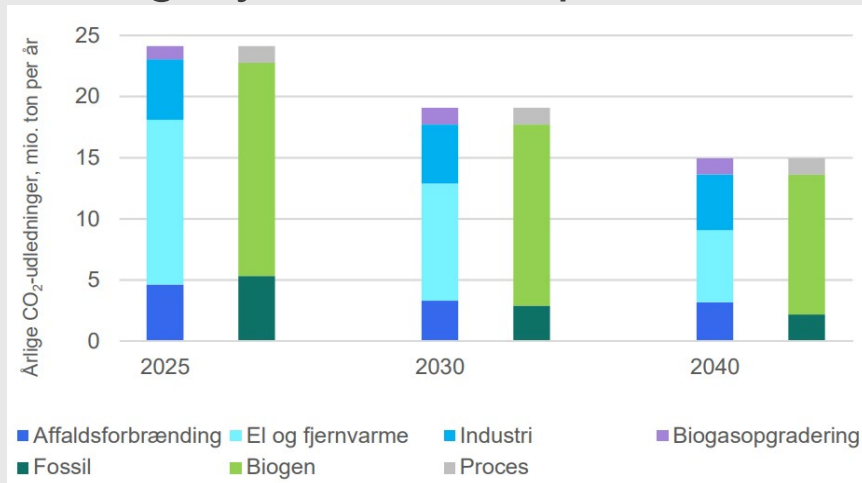
POLITISK DRØFTELSE: BEHOVET FOR CCS

Landbrugets aftalte reduktioner kan ikke nås uden at halvdelen af danske landmænd går konkurs. Så vi mangler mindst 2 mio. tons CO₂ i 2030:

Enhed: Millioner tons CO ₂ e/år	Korrigeret klimafremskrivning	Korrigeret klimafremskrivning, med forventede forslag fra CO ₂ -afgiftsudvalget, medio 2023
Landbrug, skovbrug mv	15,0	13,0
Affald	2,1	2,1
Raffinaderier	1,9	1,9
Fremstilling, byggeri mv	2,2	2,2
Transport	10,6	9,2
I alt, bruttoudledninger	31,9	29,9
CCS, støtteudbud	-0,9	-0,9
CCS, NECCS-udbud	-0,5	-0,5
CCS, skattereform	-1,8	-1,8
I alt, CCS	-3,2	-3,2
I alt, nettoudledninger	28,7	25,4
Manko	5,3	2,0
Mål	23,4	23,4

POLITISK DRØFTELSE: BEHOVET FOR CCS

Energistyrelsen har opdateret sit skøn for CCS-potentialet:



Det giver flg. spørgsmål:

- skal CCS opprioriteres?
- hvordan sikrer vi CCS af både fossil og biogen CO₂?
- hvordan balancerer vi støtten til CCS ift andre klimaudgifter?