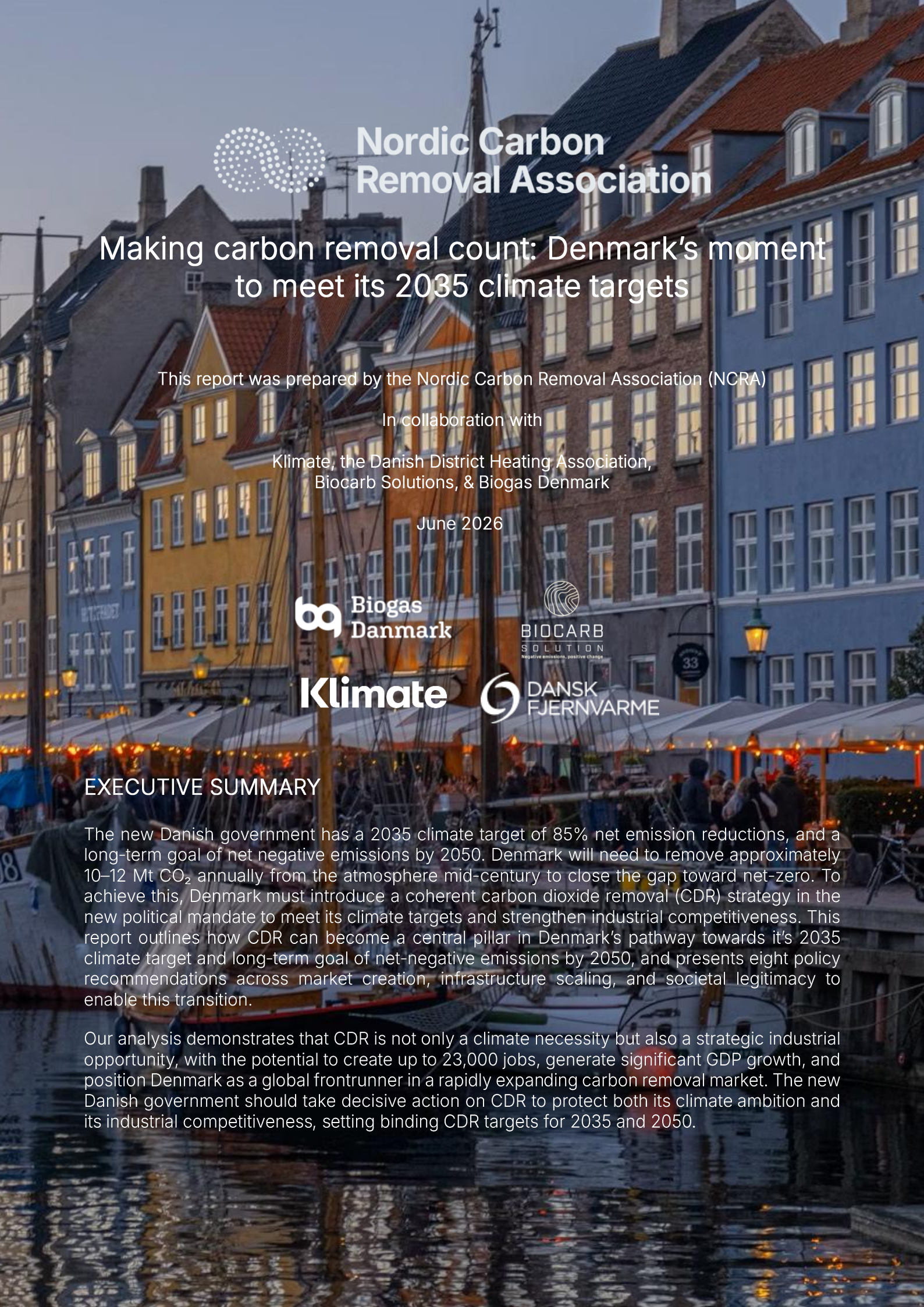

Nordic Carbon Removal Association

Making carbon removal count: Denmark's moment to meet its 2035 climate targets

This report was prepared by the Nordic Carbon Removal Association (NCRA)

In collaboration with

Klimate, the Danish District Heating Association,
Biocarb Solutions, & Biogas Denmark

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Biogas Danmark

BIOCARB SOLUTION
Negative emissions, positive change

Klimate

DANSK FJERNVARME

EXECUTIVE SUMMARY

The new Danish government has a 2035 climate target of 85% net emission reductions, and a long-term goal of net negative emissions by 2050. Denmark will need to remove approximately 10–12 Mt CO_2 annually from the atmosphere mid-century to close the gap toward net-zero. To achieve this, Denmark must introduce a coherent carbon dioxide removal (CDR) strategy in the new political mandate to meet its climate targets and strengthen industrial competitiveness. This report outlines how CDR can become a central pillar in Denmark's pathway towards it's 2035 climate target and long-term goal of net-negative emissions by 2050, and presents eight policy recommendations across market creation, infrastructure scaling, and societal legitimacy to enable this transition.

Our analysis demonstrates that CDR is not only a climate necessity but also a strategic industrial opportunity, with the potential to create up to 23,000 jobs, generate significant GDP growth, and position Denmark as a global frontrunner in a rapidly expanding carbon removal market. The new Danish government should take decisive action on CDR to protect both its climate ambition and its industrial competitiveness, setting binding CDR targets for 2035 and 2050.

INTRODUCTION

Denmark is a global frontrunner in offshore wind energy, having transformed early investments in North Sea wind farms into a world-leading industry built on long-term political vision, innovation, and strategic industrial policy. This success shows what is possible when ambition is matched with consistent action, and it offers a clear lesson: carbon dioxide removal (CDR) is the next strategic industry for Denmark to invest in. As a necessary complement to emissions reductions, CDR will play a key role in achieving climate targets, while also offering Denmark an opportunity to once again lead in developing a new global market. Denmark must now decide if it wants to realize the potential of Danish CDR, or risk missing its window of opportunity to deliver on its 2035 and 2050 climate targets and to build a competitive CDR industry. We have done it before, and we should do it again, this time for CDR.

THE ROLE OF CARBON DIOXIDE REMOVAL IN GLOBAL DECARBONIZATION

CDR, as defined by the Intergovernmental Panel on Climate Change[1] refers to technologies and practices that remove and durably store CO_2 from the atmosphere. It is considered necessary to reach net-zero CO_2 and greenhouse gas targets and is included in all pathways limiting warming to 2°C or below by 2100. CDR cannot replace deep emissions reductions but must complement other mitigation efforts such as renewables. Key methods include afforestation, soil carbon sequestration, biochar, bioenergy with carbon capture and storage (BECCS), direct air capture with carbon capture and storage (DACCS), and enhanced rock weathering. CDR is essential because it removes CO_2 already in the atmosphere, enabling net-negative emissions and helping to reverse past emissions[1]. This makes it crucial for achieving net-zero and potentially reducing atmospheric CO_2 from the current level of around 410 ppm toward safer levels such as 350 ppm[2]. It also supports climate goals by addressing residual emissions that are difficult to eliminate, alongside rapid emissions reductions.

THE ROLE OF CCS AND CCU IN CDR AND EMISSIONS REDUCTION SYSTEMS

Carbon Capture and Storage (CCS) captures CO_2 at the point of emission, which can be from point sources with both fossil and biogenic emissions, such as from industrial facilities like cement plants, heat- and power generation and waste-to-energy facilities and stores it permanently underground[2]. When CCS is fitted to fossil-based point sources, it reduces emissions, i.e. making processes carbon-neutral and lowering their emissions footprint[3]. CCS is a key tool for hard-to-abate sectors where full electrification or substitution is not yet possible. CCS is a critical climate tool because it not only lowers emissions from hard-to-abate sectors, but it also enables durable carbon dioxide removal when fitted to point sources with biogenic emissions such as biomass heat- and power plants, biogas plants or waste-to-energy facilities. CCS technologies are a key component of some of the most mature and scalable methods for removing carbon from the atmosphere through CDR, including BECCS and DACCS, that capture biogenic emissions and store them permanently, making CCS an important enabler in addressing residual emissions from industry that cannot be reduced. In this publication, we use the term 'CCS' when carbon is captured from fossil-based point sources and 'CDR' for technologies that durably remove carbon from the atmosphere, including carbon capture and storage from biogenic point-sources.

CDR, CCS and CCU (carbon capture and utilization) differ in how they handle CO_2. CDR removes CO_2 from the atmosphere and stores it permanently, generating negative emissions[1]. CCS on

fossil-based point sources captures CO_2 at the source and stores it, avoiding new emissions[2]. CCU captures CO_2 and reuses it, but since the CO_2 is later re-released it is not permanent removal[2]. In short Fig 1 shows that CCS and CCU reduce emissions, while CDR removes CO_2.

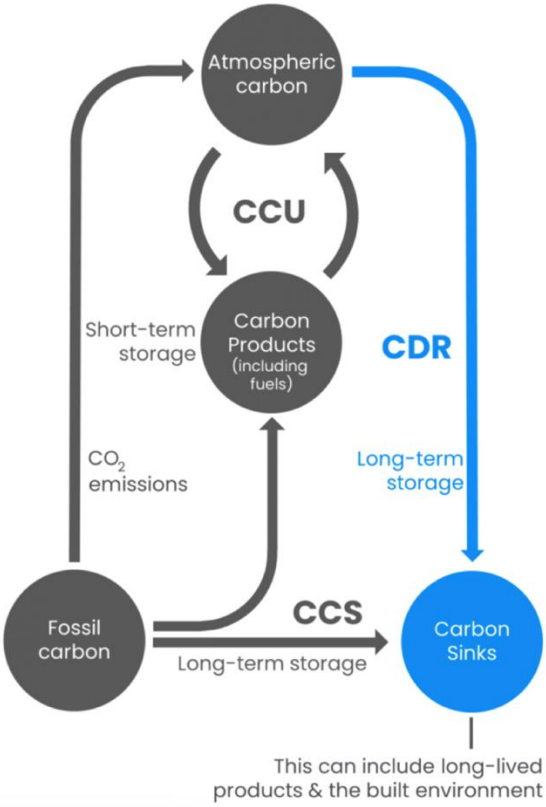
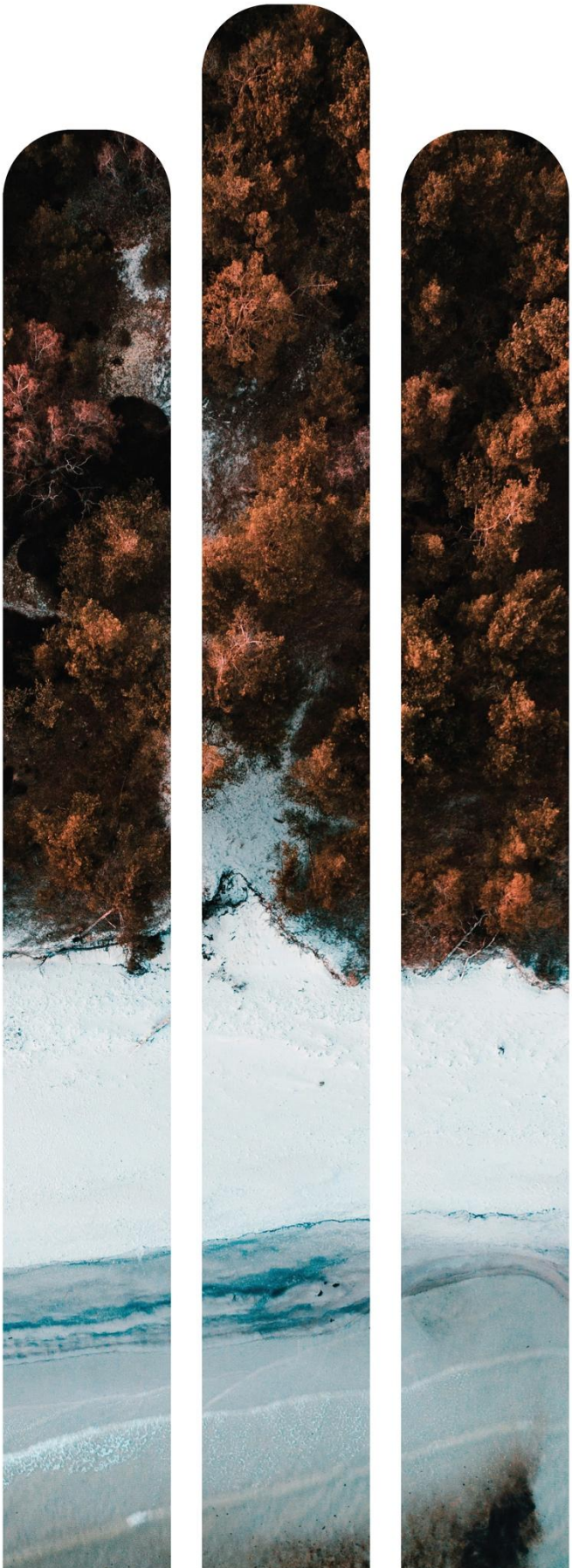


Fig. 1 Visual overview of the difference between CCU, CCS and CDR[3]. CDR also includes bio-CCS.

All three types of climate interventions (CCS, CDR, and CCU) will be needed to reach the 2035 climate target of 85% net emission reductions agreed by the new Danish government. Fig. 2 shows that CCS, including CCS on biogenic point sources (grey bar) contributes significantly towards reaching the target. This underscores the importance of CDR projects to achieve cost-reductions, de-risking and deployment of CCS by capturing fossil or biogenic CO_2. Analysis by the Danish Energy Agency estimates that more than 70 % of the Danish CCS potential is from biogenic sources, capturing between 3.5-6 $MtCO_2$ per year in 2040, including emissions from waste-to-energy, biomass heat-and power plants and biogas plants[4].



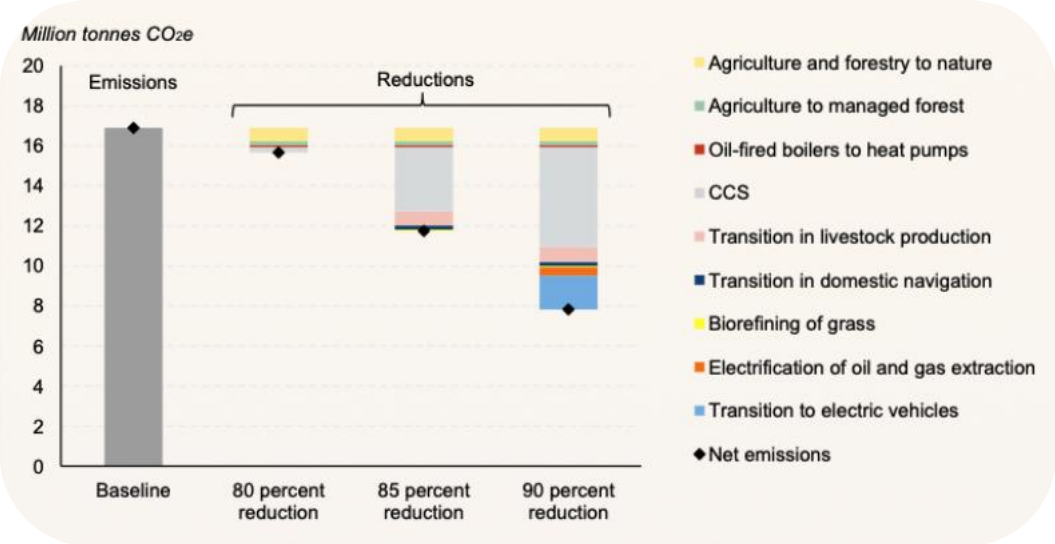


Fig. 2 Measures and technologies to reduce carbon emissions by 80, 85 or 90% by 2035 in the DCCC scenario outlines. CCS (shown in grey) is expected to become the main contributor to future climate goals[5].

DENMARK'S LONG TERM CLIMATE TRAJECTORY TOWARD NET NEGATIVITY

The global climate goal is to limit temperature rise to 2°C, which requires achieving net-zero emissions worldwide[6]. In this context, CDR represents the "net" in net-zero, by balancing residual emissions that cannot be fully avoided. Denmark aims to reach net-zero by 2045 and become net-negative by 2050 (respectively -100% and -110% compared to 1990 levels), highlighting the need for immediate action today to meet these future targets[7].

THE 2035 IMPLEMENTATION WINDOW FOR CARBON REMOVAL DEPLOYMENT

Denmark's new 2035 climate target of 85% net emissions reductions is a crucial milestone toward climate neutrality in 2045 and net-negative emissions by 2050[7]. Reaching this level of ambition requires both continued deep emissions reductions and early deployment of CDR well before 2035 to build infrastructure, experience, and scaling capacity. This period represents the implementation window for scaling CDR in Denmark. The years leading up to 2035 is a crucial period, where infrastructure, markets, and governance structures must be established to enable long-term climate neutrality and net-negative emissions.

By 2035, CDR will increasingly be needed to offset residual emissions from hard-to-abate sectors such as cement production, aviation, shipping, and heavy industry as well as remaining emissions from the agricultural sector. While emissions reductions remain the priority, CDR must be deployed as a complement to these efforts, alongside continued expansion of renewable and green energy systems, to ensure a full decarbonization pathway. The emissions from these sectors cannot be fully eliminated in time, making CDR essential to close the gap toward net-zero. A clear strategy for these sectors in Denmark is needed and should combine electrification where possible, targeted CCS, and scalable negative emissions solutions such as BECCS.

THE SCALE OF CARBON REMOVAL NEEDED FOR DENMARK'S 2035 TARGET

In 1990, Denmark's emissions were around 69 Mt CO_2 per year[8]. With the 2035 target of an 85% net emissions reduction[7], this leaves roughly 12–13 Mt CO_2 annually in residual emissions. These mainly come from hard-to-abate sectors such as aviation, shipping, parts of heavy industry (cement, waste, bio-methane) and agriculture. These emissions cannot be fully eliminated through reductions alone, meaning carbon dioxide removal will be needed to help balance them[9]. For many of these industries, retrofitting existing installations with CCS can help address their residual emissions, and potentially generate carbon removal. In 2035, this implies a need for roughly 10–12 Mt CO_2 of removals per year to support Denmark's climate pathway toward net-zero according to Carbon Gap[10].

DENMARK AS A HUB FOR EUROPEAN CARBON REMOVAL SYSTEMS

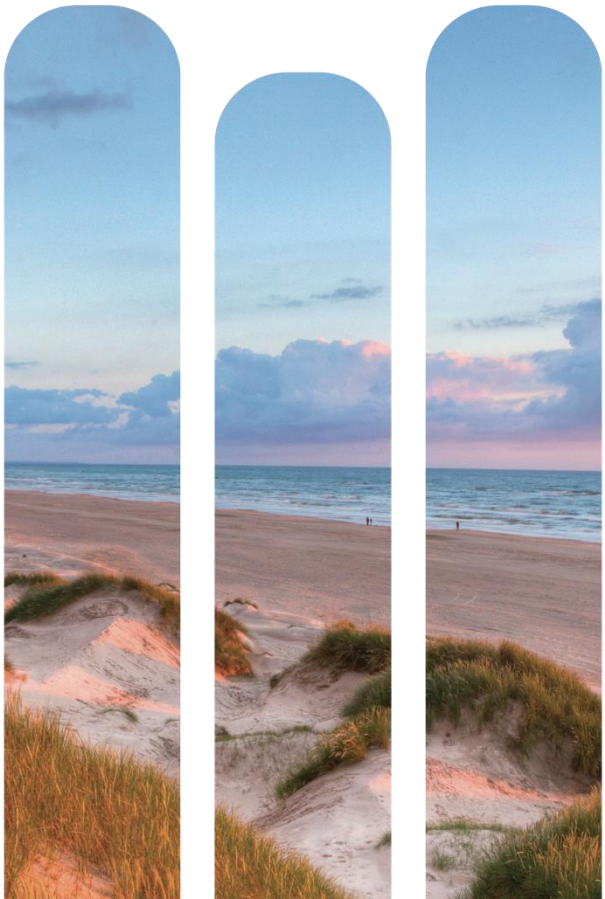
Denmark has a narrow window to secure a first-mover advantage in a global trillion-euro carbon removal market and become a leading hub for CDR, given its favorable geography and strong technological base[11]. The country offers both onshore and offshore CO_2 storage potential, widely distributed emission sources, and agricultural land suitable for pathways such as enhanced rock weathering and biochar, alongside significant potential for biogenic CO_2 capture[10]. Combined with advanced technology developers and a stable, innovation-driven economy, this creates strong conditions for building a full CDR ecosystem.

This potential supports not only Denmark's climate targets, but also wider Nordic and European goals, positioning the region as a global frontrunner in carbon removal. Regional cooperation across the value chain can unlock scale and cost efficiency, although a key challenge remains the imbalance between high supply potential and lower demand for CDR.

CARBON REMOVAL AS A STRATEGIC INVESTMENT IN FUTURE GROWTH

CDR offers a major economic opportunity for Denmark, combining job creation with GDP growth and long-term industrial development[11]. Expanding the sector could contribute to around 12,000–23,000 jobs annually, with many in innovation and science[11], while also enabling a green transition of workers from sectors such as agriculture, energy, and industry into new CDR value chains. At a macro level, CDR could add billions annually to Denmark's GDP and position the country within a rapidly growing global market expected to reach hundreds of billions to over a trillion euros per year[11].

There is also a clear cost of inaction. Failing to scale CDR means missed climate targets, EU compliance pressure, and loss of international credibility. Accordingly, investing in CDR is not only a climate necessity, but a strategic investment in competitiveness, the industrial transition, and Denmark's role in the global green economy.



GOVERNANCE, FINANCE, AND PUBLIC ACCEPTANCE OF CDR DEPLOYMENT

Both more mature large-scale technologies as well as novel CDR technologies and methods are needed to reach Denmark's ambition of net-negative emissions by 2050. This requires strong financial support, including public funding for research and development, as well as mechanisms that stimulate private demand, for example through tax incentives for CDR credit purchases. However, current financing is still largely dependent on a limited number of actors and voluntary corporate goodwill. To enable real scale-up, demand for CDR must be broadened and stabilized through a more regulated market, including stronger policy mechanisms and a gradual integration of CDR into the EU ETS.

This shift is essential to move from fragmented funding toward a functioning long-term carbon removal market.

However, financial mechanisms alone are not sufficient. CDR also requires public acceptance and trust[12]. Citizens and stakeholders must understand it as a necessary part of the climate solution, not as greenwashing or a substitute for emissions reductions. Without this social legitimacy, even well-designed financial and technological systems will face barriers to implementation. Denmark's strategy must therefore combine strong market development with transparency and efforts to build public confidence in carbon removal.

COORDINATED AND TARGETED SUPPORT AS PART OF A NATIONAL CARBON REMOVAL STRATEGY

Right now, Denmark does not have a dedicated national strategy for the scaling, development, and commercialization of CDR. Existing support is mainly limited to isolated funding schemes for specific technologies such as CCS and biochar, without a coordinated long-term framework[13]. To meet both the 2035 climate target and the 2050 ambition, Denmark must continue its targeted support for specific methods as part of a larger structured approach that also considers the demand-side and the long-term needs of the sector to enable full-scale CDR deployment.

A national strategy should therefore take a system-level perspective, covering the entire CDR value chain, from CO_2 capture, transport, utilization and storage, to monitoring, verification and market integration. Only by planning these elements together can Denmark ensure that technologies, infrastructure and policy frameworks develop in a coordinated and scalable way.

To enable large-scale deployment of CDR in Denmark, this report proposes a structured policy framework built around three interconnected pillars:

I. market creation
II. infrastructure scale-up
III. societal legitimacy

Together, these pillars address the full system required for CDR deployment, from demand formation and regulatory design to physical CO_2 handling systems, and finally to public trust and long-term acceptance. Within this framework, we identify **eight policy recommendations** that form the basis of a coherent national CDR strategy toward 2035, and three priorities for immediate action from the new Danish government.

THREE PRIORITIES FOR IMMEDIATE ACTION

The new Danish government inherits both an opportunity and an obligation on carbon removal. Denmark already has the makings of a world-class CDR ecosystem: advanced BECCS projects, geological storage potential in the North Sea, and a position at the centre of Nordic energy infrastructure. What is missing is a strategic framework to connect these assets into a coherent national effort. The following three actions can be taken immediately, without waiting for the full policy architecture to be designed and will set the conditions for everything that follows.

Priority 1: Commission a national CDR strategy with binding targets

Mandate the Ministry of Climate, Energy and Utilities to develop Denmark's first dedicated national CDR strategy within twelve months, covering the period to 2050 and including binding interim targets for permanent carbon removal in 2030, 2035 and 2040. The strategy should define Denmark's ambition, map the policy tools needed to achieve it, and clarify how national efforts connect to EU frameworks including the CRCF and the ETS. Without a strategy, every subsequent policy decision on CDR is made in a vacuum. With one, Denmark sends a clear signal to investors, project developers, and international partners that it is serious.

Priority 2: Launch a consultation on incentives for scaling CDR demand

Initiate a formal public consultation on incentives for scaling CDR demand including with a view to realizing the Danish CCS and CDR potential. This could include e.g. tax-based demand incentives for permanent CDR, such as a reverse fee, a CDR tax credit, and preferential treatment of CDR purchases in corporate tax reporting. This can be launched before the end of 2026, sending a political signal that can be complemented by new legislation over time.

Priority 3: Initiate a Nordic infrastructure dialogue on shared CO_2 transport and storage

Instruct the relevant ministry to formally initiate a bilateral and multilateral dialogue with Norway, Sweden, Finland, and Iceland on shared CO_2 transport corridors, storage access frameworks, and carbon hub development, building on the Nordic Council of Ministers CCUS programme. Denmark's North Sea position, its port infrastructure, and its existing relationships with Norwegian storage operators make it a natural hub nation in the Nordic CDR value chain. This dialogue costs nothing to initiate and positions Denmark as a regional leader from day one.

DETAILED RECOMMENDATIONS FOR SCALING CARBON REMOVAL IN DENMARK

1. Market creation

A functioning CDR market is a precondition for scaling investment, innovation, and deployment. This pillar focuses on creating stable demand, integrating CDR into policy frameworks, and enabling commercialization of diverse removal pathways.

1. Develop a national permanent CDR strategy with clear short- and long-term targets for CDR volumes, including a phased roadmap (2025–2030 pilot phase, 2030–2035 scale-up, post-2035 expansion) and dedicated national targets for permanent carbon removal, positioning CDR as a strategic climate and economic investment. Based on existing data and the current climate target trajectories, indicative targets could be 2-3 MT of CO_2 removed annually by 2030, and 3-5 MT of CO_2 removed every year by 2035. This would represent a very ambitious, but necessary, scale-up of current Danish CDR volumes, with existing funding schemes for CCS-based CDR supporting removals of around 1 MT in total to date.

2. Develop a functioning carbon removal market by integrating CDR into European frameworks and scaling private demand. Align Denmark's CDR strategy with the EU Carbon Removal and Carbon Farming certification and support gradual integration into the EU ETS. Evaluate possibilities for stimulating private demand through tax incentives and recognition of high-quality CDR credits in corporate net-zero strategies. This will shift CDR from voluntary funding to a stable, regulated market aligned with EU and national climate goals. Mechanisms to consider should include a Nordic Buyer's Club aligned with ongoing EU efforts to drive private demand by de-risking purchases, a carbon contracts-for-difference (CCfD) scheme for CDR suppliers, and possible tax rebates for companies purchasing permanent CRCF credits.

3. Strengthen public support for research, innovation, demonstration, and commercialization of permanent CDR solutions. This includes dedicated funding mechanisms for early-stage technologies and deployment support to enable long-term scale, expand supply, and reduce dependence on voluntary corporate demand.

2. Infrastructure scale-up

CDR deployment depends on the development of physical and institutional infrastructure for CO_2 transport, storage, monitoring, and cross-border coordination.

4. Ensure stable public funding for CDR deployment and CO_2 infrastructure, reducing reliance on fragmented pilot projects and enabling predictable long-term scaling, for instance through possible government guarantees or reservations of storage capacity.

5. Establish a clear analysis and planning framework for Denmark's CDR potential and CO_2 infrastructure, including transport and storage systems, and Denmark's role in the international carbon removal ecosystem.

6. Develop Nordic cooperation on shared CO_2 infrastructure and value chains, including transport and storage, to reduce costs and accelerate deployment. Policies to consider include a Nordic platform for joint development of transport and storage.

3. Societal legitimacy

Long-term success of CDR depends on public trust, transparency, and alignment with broader societal and economic transitions.

7. Ensure CDR is developed in parallel with deep emissions reductions and a just transition strategy, actively engaging industries, labour unions, and affected sectors to avoid carbon lock-in and support workforce transformation

8. Strengthen public trust, transparency, and societal acceptance of CDR, through clear communication, education, stakeholder engagement, and transparent reporting systems, ensuring that CDR is understood as a complement to emissions reductions and not a replacement for decarbonisation efforts.

In parallel, CDR deployment should be embedded in a broader industrial transition framework, ensuring alignment with industrial decarbonization pathways and active engagement with workers, agriculture, and energy-intensive sectors.

Conclusion

This is the moment where Denmark decides not only what it wants to achieve, but what kind of leader it wants to be. The 2035 climate target and the path to 2050 are not distant ambitions; their successful achievement relies solely on decisions made today, by what we choose to build, invest in, and prioritize now. Delaying deployment risks both climate targets and industrial competitiveness. The decisions taken in the next political cycle will determine whether Denmark becomes a global leader in carbon removal, or a follower in a market it helped shape. If Denmark acts now; early, decisively, and with ambition, it can once again turn climate challenge into climate leadership. Carbon dioxide removal is not a burden to carry, but a chance to build something new: industries, jobs, and solutions the world will depend on.

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