Carbonfuture

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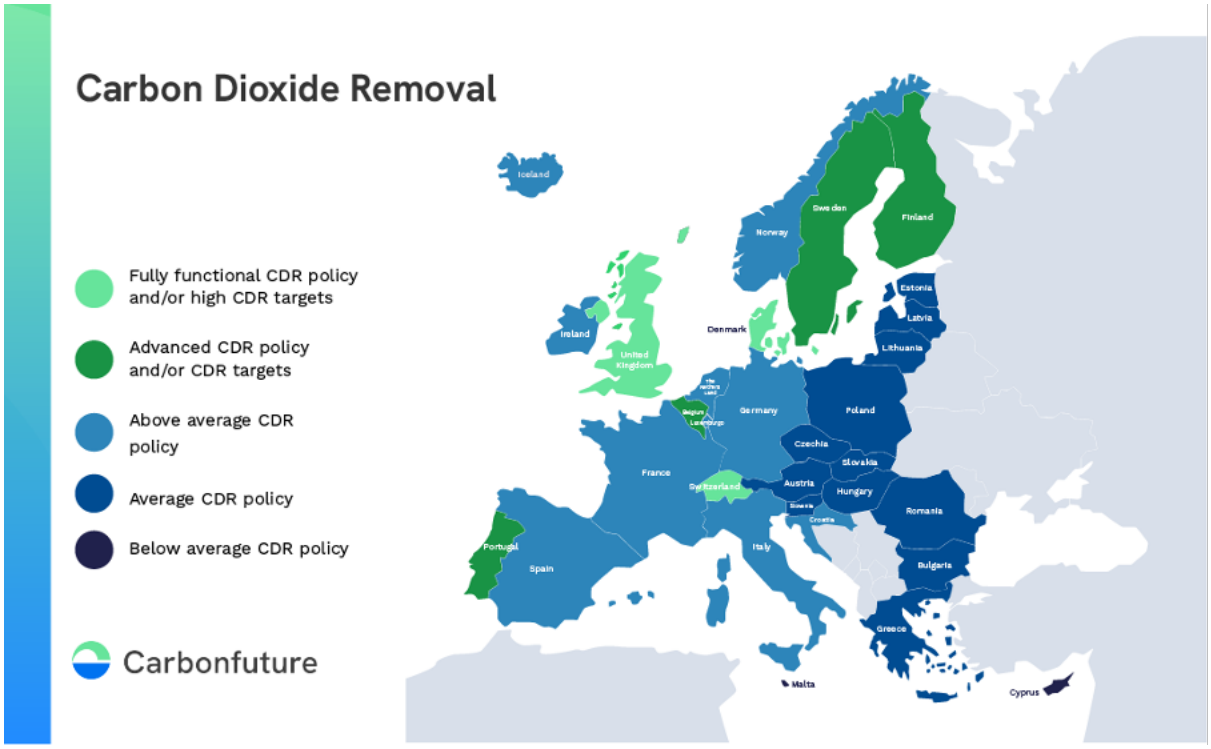
By Sebastian Manhart, Senior Policy Advisor at Carbonfuture

Understanding Carbon Removal Policy Across Europe: An Exclusive Analysis

Across Europe, significant progress is being made to tackle climate change. Policymakers are increasingly responding to the need for carbon dioxide removal (CDR) alongside emissions reductions to limit warming. While the EU plays an important role in European decision-making, the national climate policy of individual countries offers useful insights into the future of carbon removal on the continent.

Over the past few months, we have been sharing our analysis of the current state of play of carbon dioxide removal (CDR) in the form of 'spotlights'. We have been asked many times to create a centralized repository for this data and are sharing it here after the excellent reception of our US analysis from the CDR community.

Carbon Dioxide Removal Policy



When it comes to overall carbon dioxide removal policy, the United Kingdom, Switzerland, and Denmark are clearly leading the way with advanced policy frameworks to support the development of CDR. The UK's legally binding Net Zero Strategy was one of the first to establish an engineered

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Greenhouse Gas Removal (#GGR) target of 5Mt by 2030. Similarly, Switzerland's long-term climate strategy has a clear vision of what needs to be done and sets clear numeric goals for CDR.

The EU powerhouses Germany, France, Spain, and Italy are all squarely in midfield, with some early considerations of CDR but still a lot of room for growth. Leadership by one of these will be critical to move the needle in the EU. Germany seems the most likely - given recent developments, including a partnership with Norway on CCS storage projects and CO2 export infrastructure - and is a country I will personally be spending a lot of time on as the Chair of the newly founded CDR association for Germany, the Deutscher Verband für negative Emissionen e.V..

The countries to watch within the EU - beyond trailblazer Denmark - are Sweden, Finland, Belgium, and Portugal, all of whom have recognized the huge potential of CDR and have advanced ambitious CDR policies to foster the growth of the industry. Belgium, for example, states in its national long-term strategy that the country can achieve almost 95% of emission reductions by 2050 and reach climate neutrality through carbon absorption by natural sinks and CDR.

There seems to be a clear West/East divide on CDR. With the exception of Croatia, Eastern European states have almost all not gone beyond putting in place the bare minimum policy frameworks. This represents a huge opportunity, given the economic benefits that the development of CDR could bring to these countries.

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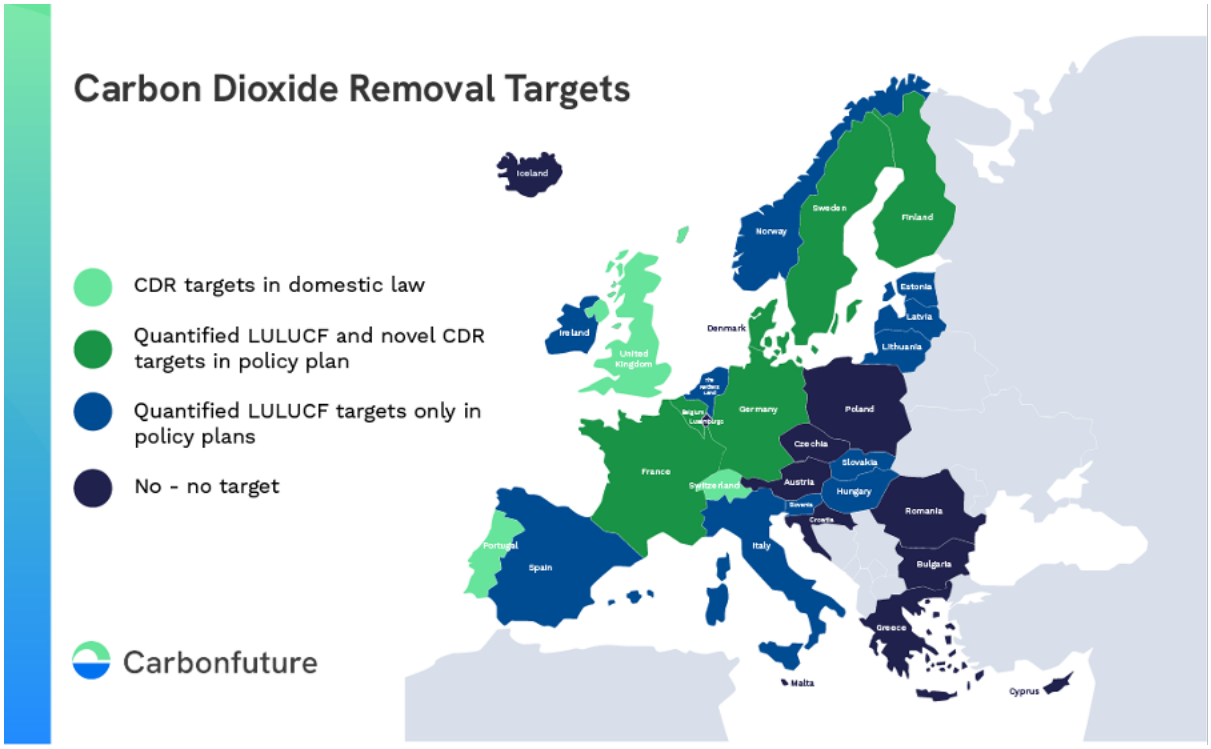
Carbon Dioxide Removal Targets



Eleven countries have no CDR targets whatsoever. Another eleven only have targets for land-use, land-use change, and forestry (LULUCF). This highlights the current lack of awareness of, and knowledge in, novel and high-quality CDR among policymakers in Europe.

For those that have set goals, we see two very different approaches: setting a proportion of total emissions versus setting a specific amount in tonnes removed. Both can work, although a proportion seems to make more sense to me personally.

When a proportion of emissions is set, it seems to fall between 5-15%. Portugal - the only country in the EU with a CDR target enshrined into law - goes so far as to cap it at a maximum of 10%, a potentially smart move to prevent CDR from being used to avoid decarbonization.

Switzerland has the most advanced CDR legislation in Europe. The Swiss CDR and CCS Roadmap outlines policy measures to take until 2050 to reach its CDR goals. Switzerland even goes as far as stating that it will need 5Mt of additional CDR from abroad, a sign that it does not expect to be able to achieve net zero with purely domestic measures.

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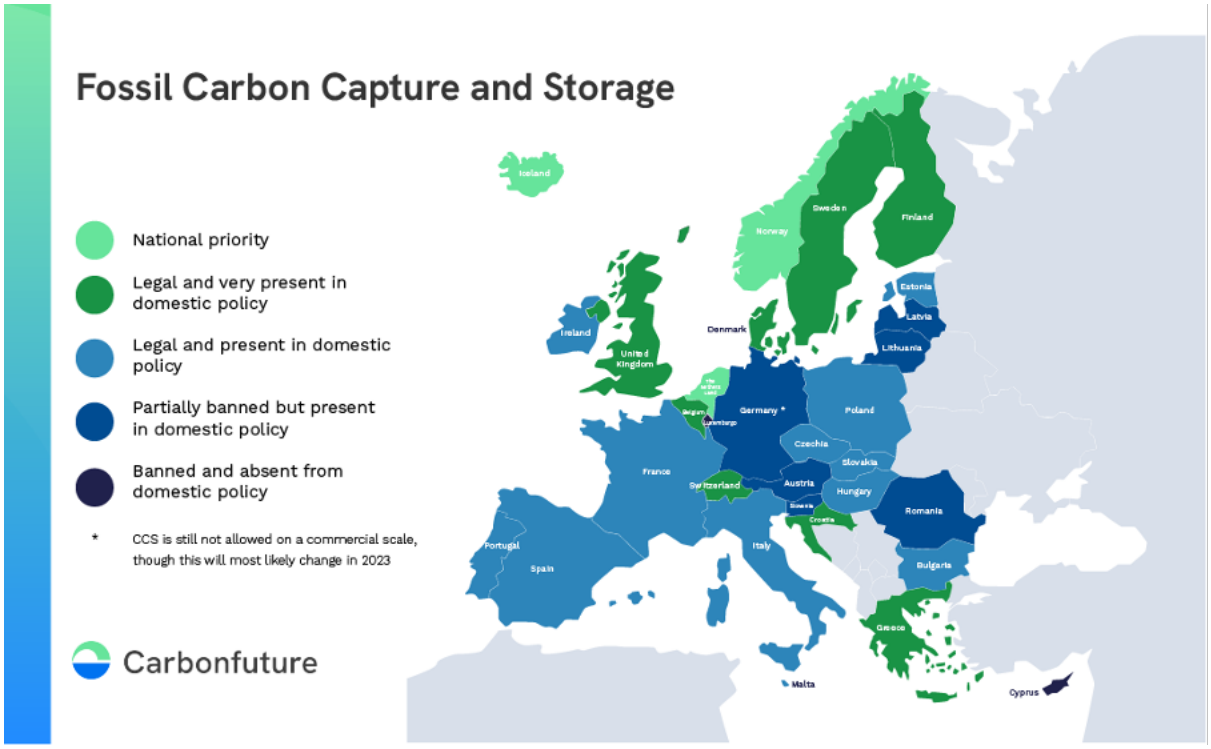
In the Nordics, Denmark (with at least 2Mt/y through biochar in the agriculture sector) and Sweden (up to 15% of total emissions, including non-CDR offsets) keep leading the way with very specific targets, but have no target for CDR as a whole (but this is likely to change soon).

European powerhouses Germany and France look promising. Germany has a target in the Coalition Agreement (5%), but not yet enshrined in law and is working on targets for 2035, 2040, and 2045. France forecasts 10Mt/year by 2050 in its long-term strategy. More movement can be expected here soon.

This all paints an interesting picture. It highlights that a lot more advocacy work is needed to get clear CDR targets - alongside dedicated emission reduction targets - enshrined into law across Europe.

Fossil Carbon Capture and Storage (CCS)



First, a reminder on terminology. Fossil CCS is not carbon dioxide removal (CDR). CCS is the separation and durable storage of carbon dioxide from industrial exhausts, whereas CDR removes carbon dioxide from the atmosphere and durably stores it. In this way, CCS is carbon neutral at best while CDR leads to negative emissions.

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Fossil CCS will play a big role in European (and global) climate policy, particularly for sectors with hard-to-abate emissions such as chemicals, concrete, or steel production. It will also build some of the infrastructure needed for engineered CDR methodologies such as bioenergy carbon capture and storage (BECCS) and direct air carbon capture and storage (DACCS).

Fossil CCS is present across policies in almost all of Europe. It enjoys widespread support and awareness across most political parties.

Countries with a history of fossil fuel production, including the UK, Norway, and Greece, have clearly seized the opportunity to create fossil CCS industries. The UK recently announced that it would invest £20bn over 10 years in CCS and CDR initiatives, with fund allocation details for CDR projects to be revealed in a business model consultation. Nordic countries are the regional block leading the way, with Norway, Denmark, Finland, and Sweden all making CCS a national priority.

Within the EU, Denmark and the Netherlands are likely to be the powerhouses of CCS. Both are investing billions into infrastructure and signing bilateral agreements for the storage of CO2 with various other European governments. Germany is currently in the process of legalizing the geological storage of CO2 at commercial scale. In France, president Emmanuel Macron recently highlighted CCS as one of three key pillars to decarbonize industry and a CCS plan is to be integrated this year to the Multiannual energy plans (PPE).

CCS could present a huge opportunity for growth and jobs. Croatia and Greece seem to be leading the way in Southern and Eastern Europe, fitting CCS into their Resilience and Recovery Plans.

Based on our analysis, we draw five main takeaways:

1. Switzerland, the United Kingdom, and Denmark are leading the way with advanced policy frameworks and legislation to support the development of CDR.
2. Planned targets and long-term strategies look promising across the continent, but in most cases, this has not yet translated into legislation.
3. Currently, Portugal is the only country in the EU with a CDR target enshrined into law. Setting a maximum target for the proportion of emissions to be removed sets a good precedent for preventing CDR from being used to avoid decarbonization.

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4. Fossil CCS enjoys widespread support and awareness across most political parties. The Nordic countries and those with a history of fossil fuel production are leading the way here.
5. There seems to be a clear West/East divide on CDR. This represents a huge opportunity, given the economic benefits that the development of CDR could bring to Eastern European countries (as we are seeing in Croatia).

We hope you enjoyed this brief snapshot of CDR policy across Europe. Please note: This analysis is far from exhaustive and will hopefully become outdated quickly, given progress in the CDR space.

To stay up to date on current and future CDR policy in Europe check out my LinkedIn where I share regular policy updates from the EU and CarbonGap's carbon removal policy tracker.

Are we missing a variable? Did we overlook a specific policy in your country? Let us know via sebastian@carbonfuture.earth

And here is the full list of spotlights:

— Belgium
— Denmark
— Finland
— France
— Germany
— Iceland
— Italy
— Luxembourg
— The Netherlands
— Norway
— Portugal
— Spain
— Sweden
— Switzerland
— United Kingdom