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2020 Perspective

The European Green Deal: New opportunities to scale up carbon capture and storage

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Introduction

The recent reports of the Intergovernmental Panel on Climate Change (IPCC), and the Commission vision for a climate neutral Europe¹, have mobilised support for climate neutrality by 2050 by most EU Member States. Balancing sources and sinks by 2050, and from that point onwards achieving net negative emissions, can only be delivered through a major economy-wide transformation and by substantially stepping up the use of all climate change mitigation and carbon removal technologies. The European Green Deal as the new big European project is an enormous challenge but also an opportunity to lead by example and transform the European economy.

This overview takes a closer look at the European Green Deal with its extensive list of initiatives, and highlights what to watch out for in the coming days, months and years regarding low carbon technologies like carbon capture and storage (CCS). This paper explores how climate targets, governance, just transition, carbon border adjustment, industrial strategy, hydrogen, financing and infrastructure can support CCS technologies. The second part of the paper highlights the three main challenges for CCS in the existing legislation that need to be considered in the upcoming wave of revisions and new initiatives.

It's a snapshot of where we are as of February 2020, with a list of initiatives and processes to choose from when engaging with policymakers and stakeholders.

1. The European Green Deal

The Green Deal Communication² suggests an initial list of key policies and measures for achieving climate neutrality by 2050. It's not a static document and is expected to be updated "as needs evolve and the policy responses are formulated". Hence, it should be read as the first attempt at economy-wide decarbonisation that will keep evolving as more information and analysis, for example from the ongoing and upcoming impact assessments, becomes available.

While the Green Deal Communication is substantially more ambitious than would have been expected by stakeholders even a year before its publication, most of its content is a result of a progress in different policy fields over the last decade and beyond, and increased understanding about the links between climate change and different sectors. Circular economy, transport, industry, biodiversity, oceans, air quality, bio-economy are only a few examples where last years have brought along new understanding, momentum, potential new solutions and policy tools.

Most initiatives put forward in the Communication will materialise in one way or another, but there may also be some that will not be pursued as first described. And that there is still room for new elements to be brought in further down the line.

1.1. Climate law and the 2050 target

The Commission proposal for European Climate Law, enshrining 2050 climate neutrality objective into EU legislation, will be published in the beginning of March 2020. All EU countries save Poland have endorsed the 2050 climate neutrality target in December 2019³, and this headline target is already

¹ [A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy COM \(2018\) 773](#)

² [The European Green Deal. COM \(2019\) 640 final, 11 Dec. 2019](#)

³ [European Council meeting \(12 December 2019\) – Conclusions EUCO 29/19 CO EUR 31 CONCL 9](#)

taken for granted⁴. However, there are several key elements to watch out for in the climate law proposal, which are also relevant for the future of CCS in Europe:

- **Domestic target or not?** Will the target be met domestically in the EU, or will the EU be able to cooperate with other countries under the Paris Agreement rules? If yes, to what extent and under which conditions? A well-considered access to international carbon markets, be it via linking emissions trading systems or accessing certain types of carbon units, can deliver economies of scale.
- **Will every country need to be climate neutral by 2050?** Or will some countries do more and others less? If the latter approach is chosen, how will the contributions for each country be defined? Could that incentivise countries with access to CO₂ storage to step up CCS, including bioenergy with CCS (BECCS) and/or direct air capture with CCS (DACCS) activities?
- **How are the conditions for an effective and fair transition set out?**⁵ A responsible and just transition is at the core of the European Green Deal.
- **Will there be intermediate targets?**⁶ For which years? Intermediate targets could be added to the climate law through future amendments and define the expected emission trajectory. This would provide additional clarity and certainty to all stakeholders.
- **What will the governance mechanism look like?** How will the Member States be held accountable to deliver, and how will the Commission track progress towards the target(s)?
- **How is climate neutrality defined?**

There is one more topic to pay attention to in the 2050 climate neutrality target context. The Commission defines climate neutrality by 2050 in their Green Deal Communication as “*no net emissions of greenhouse gases (GHG)*”, and carbon neutrality is used for CO₂ only. This difference is sometimes forgotten in discussions among stakeholders when the two terms are used interchangeably. The Commission has claimed that to achieve climate neutrality by 2050, Europe needs to be carbon neutral already years before. The contribution of CCS to decarbonisation, considering that these technologies tackle overwhelmingly CO₂, should therefore be considered in the context of achieving carbon neutrality before 2050.

1.2. Intermediate targets: 2030 and 2040

The Commission is currently carrying out a major impact assessment to analyse how to increase the EU 2030 GHG emission reduction target from 40% to 50-55%. The 2030 Climate Target Plan is expected to be published in the summer or early autumn and should indicate how the current climate policy instruments (EU Emission Trading System (EU ETS)⁸, Effort Sharing Regulation (ESR)⁹, Land Use, Land Use Change and Forestry (LULUCF) Regulation¹⁰) should be changed. This impact assessment will be a key source of data and analysis to draw upon during the next phase of

⁴ The Climate Law will go through the co-decision process under qualified majority procedure. <https://www.consilium.europa.eu/en/council-eu/voting-system/qualified-majority/>

⁵ As indicated in the European climate law roadmap https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2020-119545_en

⁶ The European climate law roadmap indicates that the initiative could set the principle of having intermediate targets https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2020-119545_en

⁷ Greenhouse gases: carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, nitrogen trifluoride, hydrofluorocarbons, perfluorocarbons.

[Regulation \(EU\) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC Text with EEA relevance](#)

⁸ [Sitra, 2019, The role of the EU ETS in increasing EU climate ambition: Assessment of policy options](#)

⁹ [Regulation \(EU\) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation \(EU\) No 525/2013 \(Text with EEA relevance\)](#)

¹⁰ [Regulation \(EU\) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation \(EU\) No 525/2013 and Decision No 529/2013/EU \(Text with EEA relevance\)](#)

negotiations over 2030 target. An increased 2030 target will most likely mean more action across all mitigation-related policies and measures, driving additional interest in low carbon technologies.

One would expect that this impact assessment will also indicate how much (more?) CCS will be needed by 2030 to achieve the new EU ETS targets but possibly also under the ESR. The first CCS projects, expected to be operational from mid-2020s, will deliver emission reductions for some of the facilities covered by the EU ETS. Under the ESR, the carbon costs from 2021 onwards can be higher than under the ETS even with the current targets. BECCS and its subset, waste to energy with CCS, could become an increasingly interesting option for countries that have large waste incineration capacity and are struggling with their emission targets.

Yet another question is whether the Commission will also suggest an intermediate target for 2040. As mentioned under the climate law paragraph above, intermediate targets would help to provide certainty by clarifying the emission reduction pathway.

Possible incentives to reward carbon removal via natural and technological sinks, including BECCS and DACCS, are yet to be elaborated. This is now raised in the light of steeper emission cuts expected sooner by the intermediate targets, where more natural and technological sinks will be needed to balance out residual GHG emissions by 2050 (more on this below in chapter Incentives for BECCS and DACCS).

1.3. Governance

The climate neutrality target enshrined in the climate law will only be credible with a robust governance framework to support it. This needs trust between the Member States and the Commission, transparent reporting and a credible follow-up process that holds everyone accountable.

With this several questions come to mind: How to make sure that Europe will become climate neutral by 2050? How will Member States be held accountable for meeting the targets? What happens if some of them are not on track to meet their targets or miss one? How will the progress towards climate neutrality by 2050 be tracked at EU level?

The current governance of the Energy Union and Climate Action (Governance regulation)¹¹ was designed to help deliver the 2030 climate and energy targets and align the reporting with Paris Agreement. The European Green Deal takes a major step forward and expands the scope from energy and climate to an economy-wide framework. As a result, tracking the progress of a wider scope of activities will be necessary. The blueprint established in the Governance Regulation can be used as a basis. Another expected feature in the climate law governance framework would be the European Semester¹², an annual cycle of coordination and surveillance of the EU's economic policies, which is to be refocused to United Nations' Sustainable Development Goals. The first references to the European Green Deal are already present in the latest country reports issued under the European Semester¹³, where the Commission suggests regions for Just Transition investments.

1.3.1. National Energy and Climate Plans

The National Energy and Climate Plans (NECPs) are reports where the Member States detail how they intend to achieve their 2030 energy and climate targets. Every country is in a unique position due to their energy mix, emissions profile and other characteristics, and can decide on which policies and

¹¹ [Regulation \(EU\) 2018/1999 on the Governance of the Energy Union and Climate Action](#)

¹² https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester_en

¹³ [2020 European Semester: Country Reports](#)

measures to use to achieve the targets. The first draft NECPs were due by end of 2018, followed by Commission's recommendations in the summer of 2019. Following the Commission's input, the final first NECPs were due by the end of 2019, although there are still several plans that have not yet been sent in by Member States. The NECPs are submitted every 10 years.

While the ongoing NECP process is valuable for the experience that the process provides for everyone involved, the challenge is that the current NECPs are built around the current 2030 targets which are expected to be updated soon (see above, intermediate targets). The update of the NECPs is currently still three and a half years away.

With this in mind, it's useful to highlight countries which have included CCS in their draft NECPs (final plans are not all available and/or translated to English). A total of 11 countries have mentioned CCS in their plans¹⁴, referring to the technology's role in reducing emissions from industrial processes, producing clean hydrogen from natural gas with CCS and removing carbon with BECCS. These countries are Belgium, Croatia, Czechia, Germany, Spain, France, Greece, Ireland, Netherlands and the UK.

With steeper emission cuts expected by 2030, more countries could become interested in using CCS as one of the technologies in their climate mitigation solutions portfolio, and those already looking into it, might seek to scale-up the deployment. One will need to wait after the 30 June 2023 to understand how the NECPs will be updated in the light of the new 2030 target, unless policy initiatives deriving from the Green Deal bring that date forward.

1.4. Mainstreaming the Just Transition

The Green Deal Communication is anchored around a just transition where no one is left behind. The narrative in the Green Deal delivers a clear message – the transition must be just, inclusive, fair, prosperous and responsible.

The proposed Just Transition Mechanism (details below in the Finance section) will focus on regions and sectors most affected by the transition. Part of this Mechanism is a Just Transition Fund, and its leaked draft regulation included a possibility for facilities covered by the ETS (for example steel, cement producers) to be able to receive support for substantial emission reduction, for example through CCS. All this provided that the facilities are in the most affected regions covered by the just transition plan prepared by the Member State.

The Commission has suggested specific regions to focus on, and which measures to consider, in their 2020 European Semester country reports¹⁵.

CCS is one of the technologies that can help to decarbonise industry and maintain high quality jobs in Europe's industrial regions where there are currently no other deep decarbonisation alternatives.

1.5. Carbon border adjustment

Carbon border adjustment (CBA) as a concept has a long history in Europe. It has featured in climate policy discussions several times in the past but so far it hasn't made it to the policy toolbox. Representatives from the Commission have said "*this time it's different*" at several events in Brussels. The current high-level political support for the (World Trade Organisation (WTO)-compatible) CBA is a novel approach. CBA is now part of political guidelines of the new Commission President¹⁶, noted

¹⁴ [IOGP. 2019. IOGP assessment of draft National Energy and Climate Plans](#)

¹⁵ [2020 European Semester: Country Reports](#)

¹⁶ [Political Guidelines of President elect Ursula von der Leyen: Political guidelines for the next Commission \(2019-2024\) – "A Union that strives for more: My agenda for Europe"](#)

in the European Council conclusions¹⁷, included in the joint declaration¹⁸ of France, Germany and Poland.

The Commission is expected to finalise their assessment on CBA mechanism next year. Proposing solutions that would be WTO compatible, and not cause trade tensions, will be a challenging task. The type and scope of possible options put forward, if any, will be the outcome of that assessment. The Green Deal Communication promises CBA mechanism for selected sectors, to reduce the risk of carbon leakage. Both steel and cement industries have been highlighted. As these are key sectors where decarbonisation solutions can include CCS technologies, it will be a space to watch for the CCS community.

1.6. Transforming industry: A New Industrial strategy

The Commission will publish a new industrial strategy on March 10th. There have been several in the past, and the latest industrial policy strategy dates back to 2017¹⁹. The focus then was on innovation, digitisation and decarbonisation. Fast forward three years, the new strategy is expected to deliver broadly on the same elements. With the economy-wide climate neutrality target for 2050 as the long-term goal, we are in an uncharted territory when it comes to the expected industrial transition and its pace.

The strategy is expected to use very general language and not go into detail into specific technologies. However, the technology roadmaps that contributed to the process²⁰ do cover the need to scale up the deployment of CCS. This new strategy could support CCS by building strategic value chains, fostering investment in smart and shared infrastructure and in innovation. For CCS, this strategy could present an opportunity to bring down costs per unit in the value chain and attract investment to accelerate deployment and scale it up.

To deliver results, this latest strategy must lead to a suite of policies and measures that will increase the competitiveness of European industry, all the while supporting its sustainable transformation and deep decarbonisation.

1.7. Green Public Procurement

The Green Deal Communication promises further legislation and guidance on green public purchasing. This measure to drive demand for sustainable products is widely suggested as a solution to help mainstreaming these products. The role of public procurement has received a lot of attention, for example in the context of circular economy. Getting rid of single-use plastic bottles and replacing them with either reusable glass bottles or other alternatives in the EU institutions did cross the news barrier some time ago.

An economy-wide approach to green public procurement could also include incentivising the use of low-carbon cement produced with CCS. As an example, while producing cement with CCS is expected to increase the cement price for the producer by 50%, the price of an average one family house built using that low-carbon cement would increase by 1%²¹.

¹⁷ [European Council meeting \(12 December 2019\) – Conclusions EUCO 29/19 CO EUR 31 CONCL 9](#)

¹⁸ [Joint statement of the Ministers for European Affairs of the Weimar Triangle \(France, Germany and Poland\) - Amélie de Montchalin, Michael Roth and Konrad Szymański \(Lens, 2020\)](#)

¹⁹ [Investing in a smart, innovative and sustainable Industry. A renewed EU Industrial Policy Strategy. COM\(2017\) 479 final](#)

²⁰ [Masterplan for a Competitive Transformation of EU Energy-intensive Industries Enabling a Climate-neutral, Circular Economy by 2050 - Report](#)

²¹ <https://bellona.org/news/ccs/2018-04-building-with-low-carbon-cement-is-affordable>

1.8. Smart Infrastructure and Trans-European Networks

The regulatory framework for energy infrastructure, including the TEN-E Regulation²², will be reviewed to ensure consistency with the climate neutrality objective. The Green Deal Communication guidance is for this framework to “*foster the deployment of innovative technologies and infrastructure, such as smart grids, hydrogen networks or carbon capture, storage and utilisation, energy storage, also enabling sector integration*”.

Compared to a decade ago, the new wave of CCS projects planned in Europe are developed as hubs and clusters. This means that CO₂ is captured from clusters of industrial installations and then transported and stored using shared infrastructure. Five CCS projects have been approved in the fourth list of Projects of Common Interest²³ as cross-border CO₂ network projects and will have now, among other advantages, access to Connecting Europe Facility funding.

The TEN-E Regulation establishes the criteria for the Projects of Common Interest. Hence, the ongoing review of this piece of legislation is important for the build-out of European CO₂ transport and storage networks, and for hydrogen infrastructure. Aligning this regulation with the 2050 climate neutrality goal should facilitate the access of CO₂ network projects to the European funds. The Commission proposal based on the review of the TEN-E Regulation will come out by the end of the year.

1.9. Financing the transition

The Commission has proposed European Green Deal Investment Plan as an investment pillar of the Green Deal. It is poised to mobilise at least €1 trillion in sustainable investments over the next decade by funding the transition and triggering public and private investments. This includes the EU Budget, EU ETS funds, Just Transition Mechanism, InvestEU instrument (including contribution from European Investment Bank) and co-financing from Member States under different programs and instruments.

The CCS-relevant financing streams are the following:

- **Sustainable Finance Taxonomy** – a harmonized, EU-wide criteria to determine whether an economic activity is environmentally sustainable. CCS is included as an activity contributing to climate change mitigation in Article 6 of the draft regulation²⁴ that has been agreed between the EU institutions but is yet to enter into force. This taxonomy can be a major driver of private capital from institutional investors for CCS, provided that the financial community will know more about CCS technologies and the policy developments help to create new business models. More detailed rules will be established by the European Commission in the secondary legislation, where recommendations by the Technical Expert Group²⁵ will be used as an input.
- **European Investment Bank (EIB)** – CCS is eligible for support in EIB’s lending policy²⁶.
- **Horizon 2020 → Horizon Europe** – CCS is eligible for funding.
- **Connecting Europe Facility** – Funds transnational infrastructure projects, including CO₂ infrastructure projects.

²² [Trans-European Networks - Energy \(TEN-E\) Regulation \(Regulation \(EU\) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations \(EC\) No 713/2009, \(EC\) No 714/2009 and \(EC\) No 715/2009 \(Text with EEA relevance\)Text with EEA relevance\)](#)

²³ [Commission Delegated Regulation \(EU\) amending Regulation \(EU\) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest. C\(2019\) 7772 final, 31.10.2019](#)

²⁴ [Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a framework to facilitate sustainable investment - Political agreement ST 5830 2020 ADD 1](#)

²⁵ https://ec.europa.eu/info/publications/sustainable-finance-technical-expert-group_en

²⁶ https://www.eib.org/attachments/strategies/eib_energy_lending_policy_en.pdf

- **EU ETS Innovation Fund** – built on the lessons learned from previous NER300 fund and tailored to fund innovative technologies. CCS is one of the four focus areas of the fund and the first call is expected in the summer of 2020.
- **Just Transition Mechanism** – comprising of Just Transition Fund which provides primarily grants, combined with InvestEU dedicated Just Transition Scheme attracting private investment and Public sector loan Facility with the EIB leveraging public financing. As explained above in the Just Transition chapter, industrial CCS could receive financing from Just Transition Fund depending on the region and Member State priorities.

There might also be opportunities to use cohesion policy funds for regional development and the LIFE program.

1.10. Other initiatives

There are many other policy initiatives or measures that could be relevant for CCS. The new circular economy action plan is unlikely to mention waste to energy with CCS, but this solution is one of the decarbonisation options countries, and cities²⁷, are looking at. A leaked draft of the action plan included a language on a possible open methodology that would measure the impact of materials management to climate neutrality, linking it also to the EU GHG accounting and modelling frameworks. This is something to watch out for from carbon capture and utilisation perspective and should logically be linked with the overall context of emission reduction and carbon removal accounting.

The Climate Pact, another initiative to be launched in March, will focus on different ways to engage with public on climate action. The planned events in Member States, based on the model of Commission's ongoing citizens' dialogues, could offer another platform to do capacity building on low carbon technologies like CCS.

2. Challenges to be addressed in current legislation

2.1. Non-pipeline transport of CO₂ under the EU ETS

The EU ETS Directive²⁸ includes CO₂ capture, transport by pipelines and geological storage of CO₂ in its scope of activities. This means that the installations that are covered by the EU ETS don't need to surrender credits for the CO₂ they have captured for subsequent transportation by pipelines and geological storage.

Only the projects where the CO₂ is transported by pipelines can benefit from the EU ETS carbon price. Facilities that plan to transport CO₂ by other means than pipelines, for example by ships or trucks, would still need to pay for captured CO₂ emissions. The CCS Directive²⁹ defines transport network as "*the network of pipelines, including associated booster stations, for the transport of CO₂ to the storage site*". This language is also used in the EU ETS Directive where all references of CO₂ transport are "*transport by pipelines*".

While several of the planned CCS projects in Europe rely on pipeline transport, there are those that will use other types of transportation. Norwegian full-scale project plans for CO₂ transport by ship for

²⁷ [Bellona Foundation, 2020. Cities Aim at Zero Emissions. How carbon capture, storage and utilisation can help cities go carbon neutral](#)

²⁸ [Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC](#)

²⁹ [Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation \(EC\) No 1013/2006](#)

example. Other planned CO₂ storage projects might consider receiving CO₂ from nearby industries via non-pipeline transport, this to make the most of economies of scale of an industrial cluster.

There are various solutions to this, starting with expanding the scope of CCS activities covered by the ETS Directive, using Article 24 of the ETS Directive to opt in a specific CO₂ transport container (on ship, train, truck), or exploring some other type of solutions that would be compatible with the current legal framework. The process of aligning existing policies with the European Green Deal would be a new opportunity to try and solve the issue.

2.2. Incentives for BECCS and DACCS

Achieving Europe's climate neutrality goal by 2050 needs scaled up carbon removal activities. Based on most scenarios, carbon removal exclusively by natural sinks will not be enough³⁰, and both natural and technological sinks will need to be strongly incentivised. Furthermore, provided that the climate neutrality is achieved by 2050, the emission trajectory moves further down, and the role of carbon removal increases even more.

Under the 2030 climate and energy framework, the GHG emission reduction targets are implemented through the EU ETS and the ESR. The EU ETS is built to deliver emission reductions and the concept of carbon removal is not compatible with the current system. The ESR, which replaces the current Effort Sharing Decision from 2021, applies to all sectors that are not covered by the EU ETS and LULUCF. ESR is already linked with carbon removal activities because it allows countries to use up to 280 million net removals from LULUCF, under certain conditions, for their compliance with emission reduction targets.

When looking at the technological sinks, the key solutions to scale up are BECCS and DACCS. There are currently five BECCS facilities operating around the world³¹. In Europe, two projects are in the pipeline - Drax Power Plant in the UK, and Norwegian full-chain CCS project where BECCS is planned to be integrated into waste-to-energy and a cement plant.

While the Commission is likely looking at updated scenarios for achieving climate neutrality in 2050, which include updated targets for 2030 and possibly also for 2040, their Clean Planet for All communication already made a strong case for the need of carbon removal to balance the remaining emissions. The question now is how best to incentivise carbon removal in a responsible way that is compatible with the GHG accounting framework will be a topic to look out for in the next years.

2.3. Liability rules under the CCS Directive

The CCS Directive³² remains the key piece of legislation for CCS liabilities in the EU. Member States have transposed its provisions into national frameworks, resulting in a largely harmonised European approach to liability. Whilst the European Commission's review of the Directive in 2015 concluded that the directive was "fit for purpose" in ensuring the safe capture, transport and storage of CO₂, stakeholders continue to struggle with some of the provisions in practice, including when mobilising finance. The application of these liability rules, especially uncertainty regarding causation and the potential for uncapped CO₂ leakage liabilities, associated with an unpredictable carbon price, have all

³⁰ [A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy COM \(2018\) 773](#)

³¹ https://www.globalccsinstitute.com/wp-content/uploads/2019/03/BECCS-Perspective_FINAL_18-March.pdf

³² [Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation \(EC\) No 1013/2006 \(Text with EEA relevance\)](#)

been highlighted as potentially problematic³³. There are examples from other parts of the world that could serve as an inspiration when revisiting these discussions.

There is currently no intention to revise the CCS Directive in the immediate future, and hence the uncapped leakage liabilities might continue to be a challenge for the deployment of these technologies.

Conclusion

The large wave of new policy initiatives and measures suggested in the Green Deal Communication provides many opportunities to support the deployment of CCS in Europe. New, more ambitious climate targets will likely require earlier and faster build-out of CCS projects and infrastructure among a vast range of proven technologies and solutions like renewables and energy efficiency. The development of hydrogen economy will require the large-scale production of the clean hydrogen, from renewables and natural gas with CCS. The need to balance residual emissions with removals keeps drawing attention to carbon removal by natural and technological sinks. The climate neutrality goal by 2050 means net negative GHG emissions from that point onwards. There is an increasing demand for measures to incentivise carbon removal.

Alongside this range of new initiatives, the European Green Deal project provides a chance to go through the existing legislation and make it fit for achieving climate neutrality by 2050. Tackling the non-pipeline CO₂ transport is one of the blind spots for CCS that needs to be addressed in order to make the most of economies of scale offered by hubs and clusters model.

Economy-wide decarbonisation in three decades is an undertaking at a scale not seen before in Europe. The start of the process has been encouraging, and some of the key deliverables like climate law and industrial strategy are due to be published soon. There is a vast range of processes to follow and feed into, which makes it a promising and busy year for industry and the CCS community.

³³ [Havercroft, I., 2019. Lessons and perceptions: Adopting a commercial approach to CCS liability. Global CCS Institute](#)

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