

Carbon Management in Germany

Recent Progress in the Development of a Carbon Management Strategy

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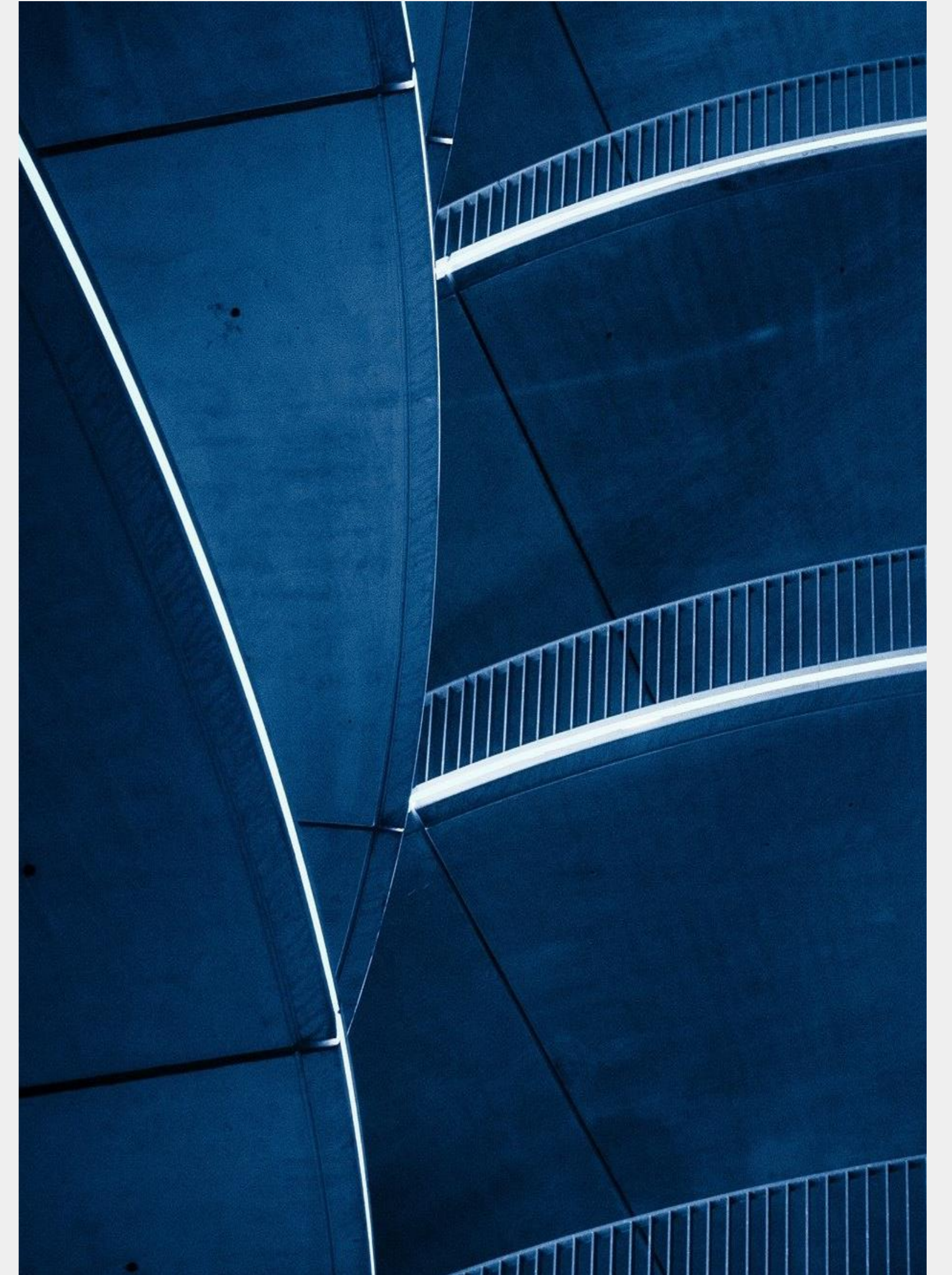
Project Coordinator CCS Forum

Bellona Deutschland

Baltic Carbon Forum, Vilnius

Agenda

1. About Bellona Germany
2. The Climate Value of CCS
3. A Brief History of CCS in Germany
4. Recent Progress in Germany's Carbon Management Strategy
5. Recommendations and Key Asks



1. About Bellona Germany

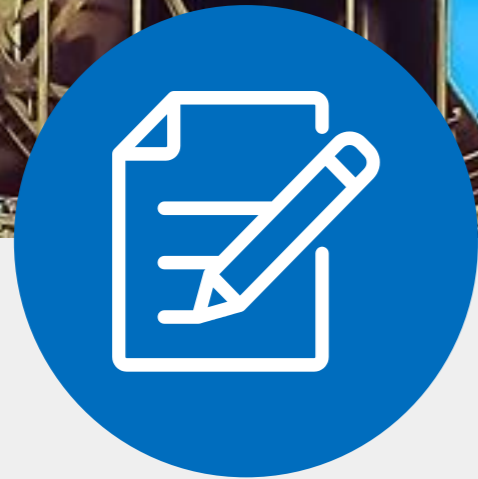


About Bellona

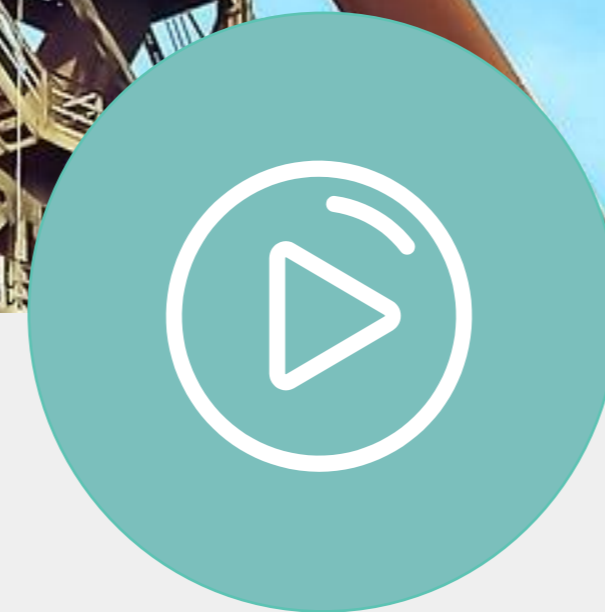
- International, independent climate and environmental protection NGO
- Founded in 1986 in Oslo
- In Brussels since 1994 with a focus on EU policy
- Bellona Germany in Berlin since 2021 to promote industrial transformation



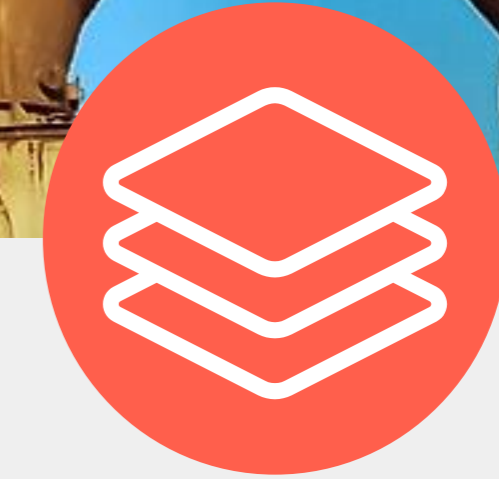
Climate protection in industry



Integrating **science-based, systemic thinking** and **forward-looking policy-making**



Accelerate credible climate solutions and the availability of **climate infrastructure** for decarbonization



Building **bridges** and promoting **knowledge exchange**

CCS

CDR

Hydrogen

Green Lead Markets

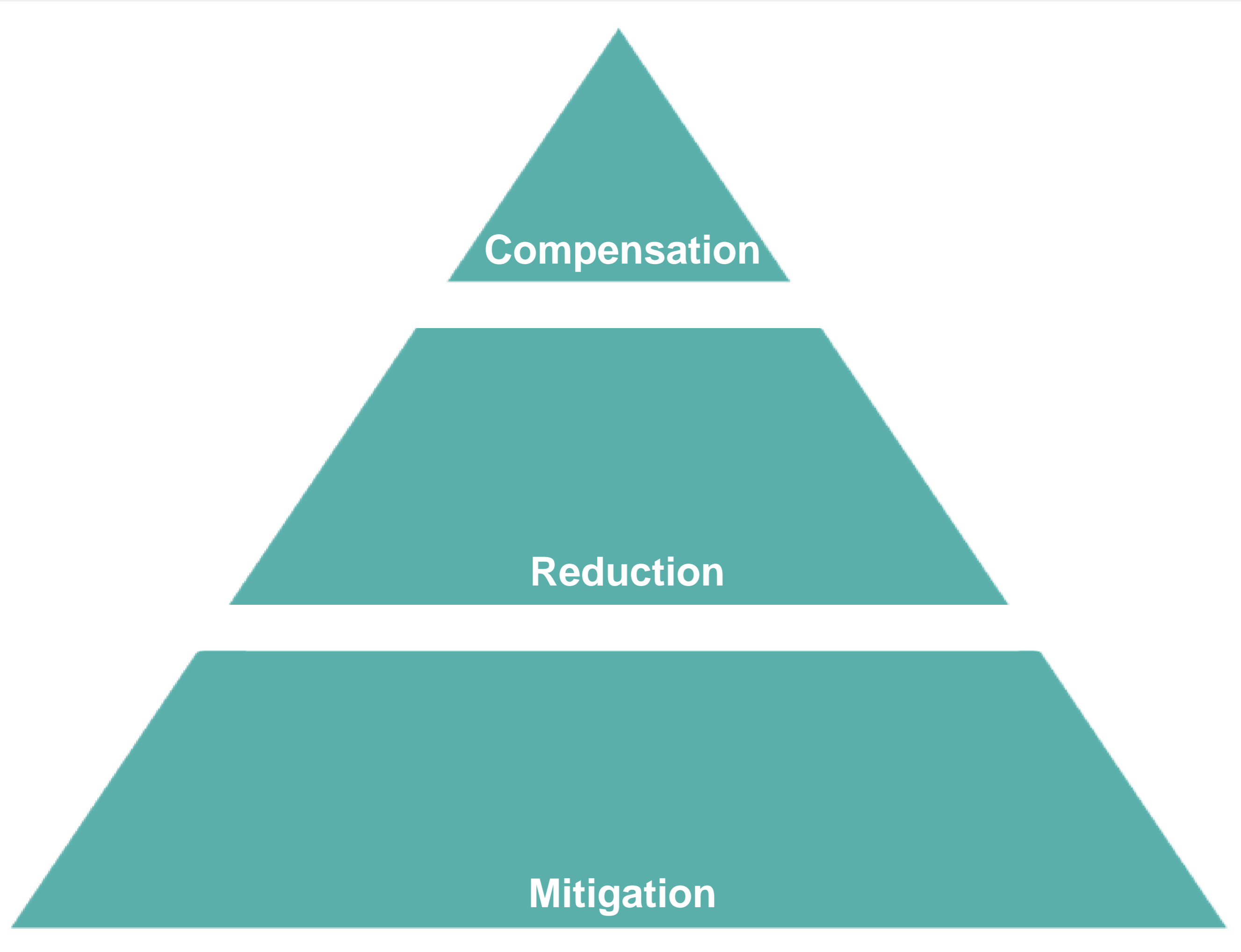


Green cement

Green steel

2.

The Climate Value of CCS



Absolute **priority** is given to

- Renewable energy
- Grid expansion

But:

All effective climate measures must be prepared and implemented as quickly as possible.

We have no more time for delays.

CCS is a necessary but not sufficient solution in the area of industry decarbonisation.

DISCLAIMER – the do's and don'ts of the CCS ladder

The CCS Ladder proposes a methodology / tool to policymakers and stakeholders to assess the value of CCS. Its aim is to **bring nuance into the debate** and help break the dichotomy between CCS opponents and proponents.

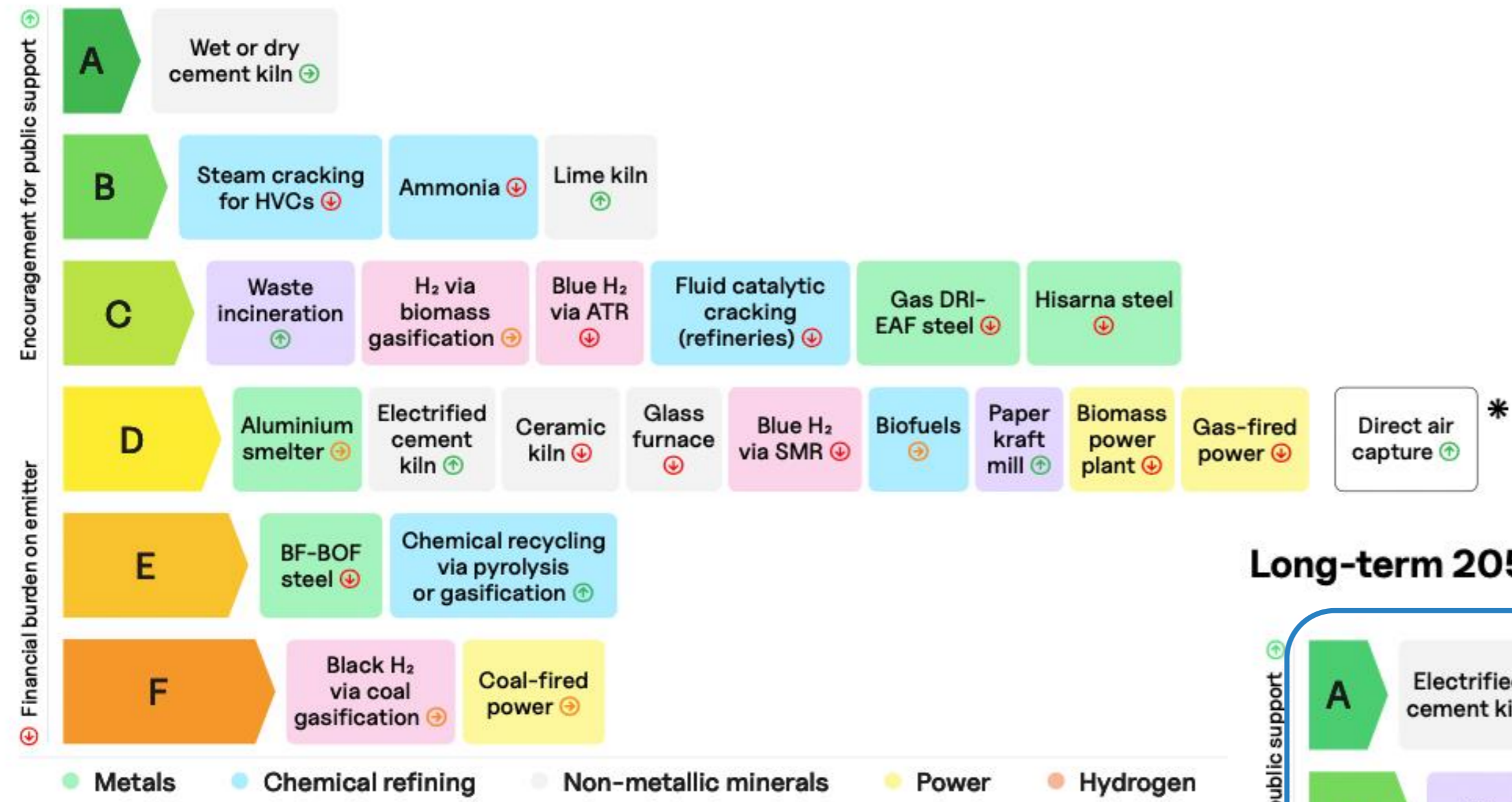
It can be used to inform debate and support the creation of regulatory frameworks. This can help facilitate the deployment of CCS where it is most needed, while limiting it where it is not.

What the CCS ladder is **NOT** meant to do:

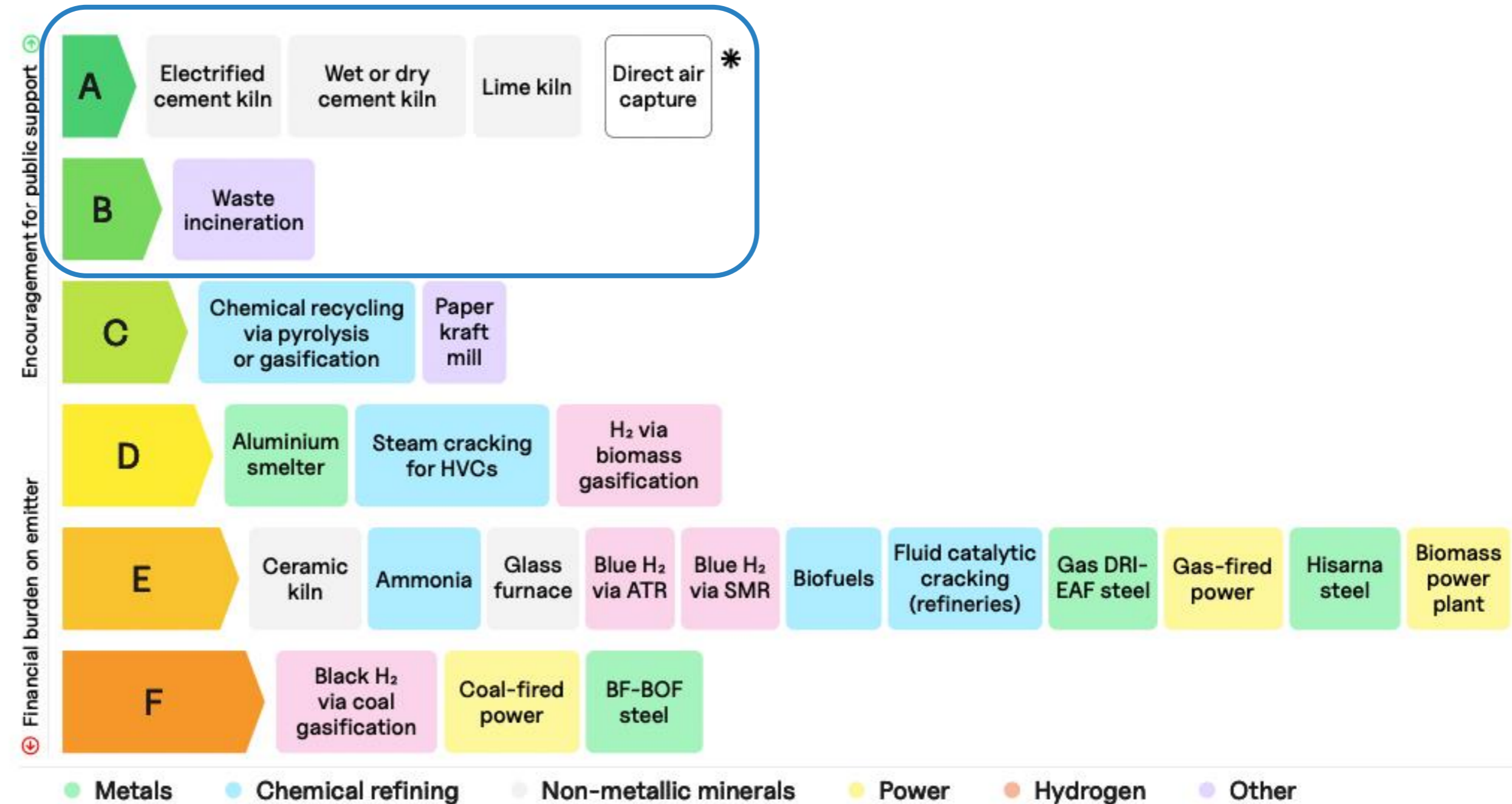
1. **Be conclusive** – value propositions vary and criteria, and their underlying assumptions, may change over time.
2. **Denounce the use of CCS anywhere** – from a pure climate action perspective, capturing and storing emissions is always better than emitting them.
3. **Judge whether CCS should or should not be applied** on a project-by-project basis.
 - The ladder looks at applications in the broad sense.
 - The actual value of CCS for individual plants is dependent on plants' characteristics (*age, fuel use, geography, etc.*).

1. Criterion: Competition from **alternative technologies**
 2. Criterion: **Mitigation potential**
 3. Criterion: **Feasibility** of carbon capture
 4. Criterion: CO2 **source**
- **The deployment of CCS with a focus on climate value is possible if it is done properly.**

Near-term 2030



Long-term 2050

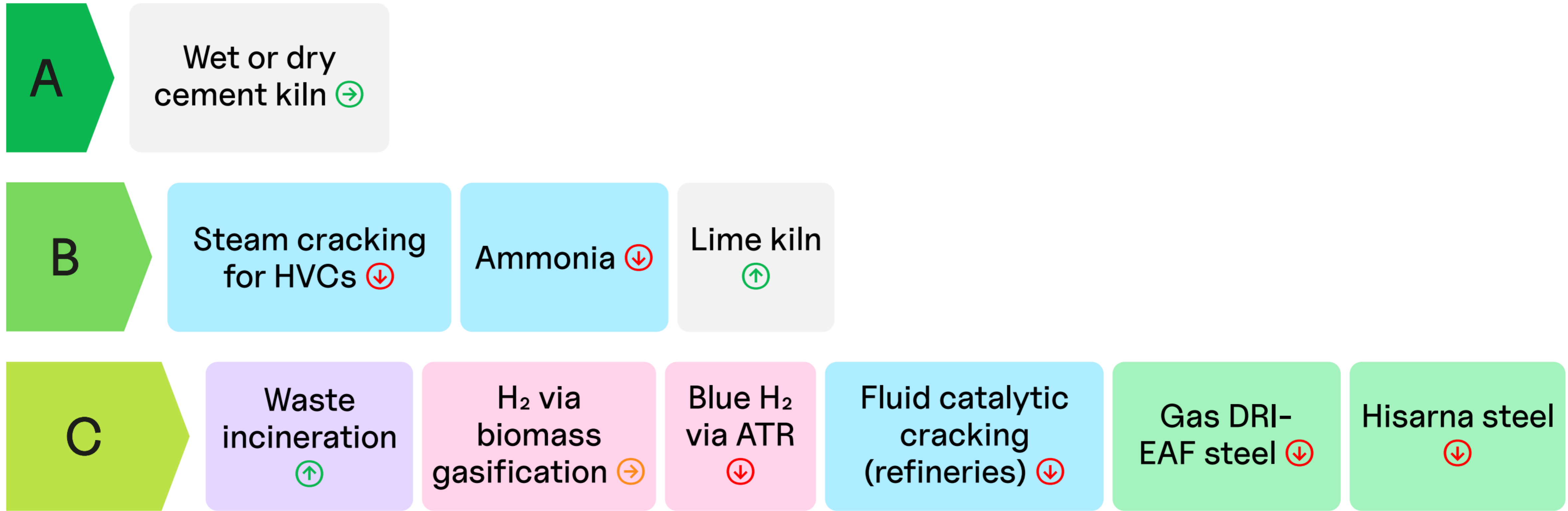


CCS Ladder by E3G and Bellona:

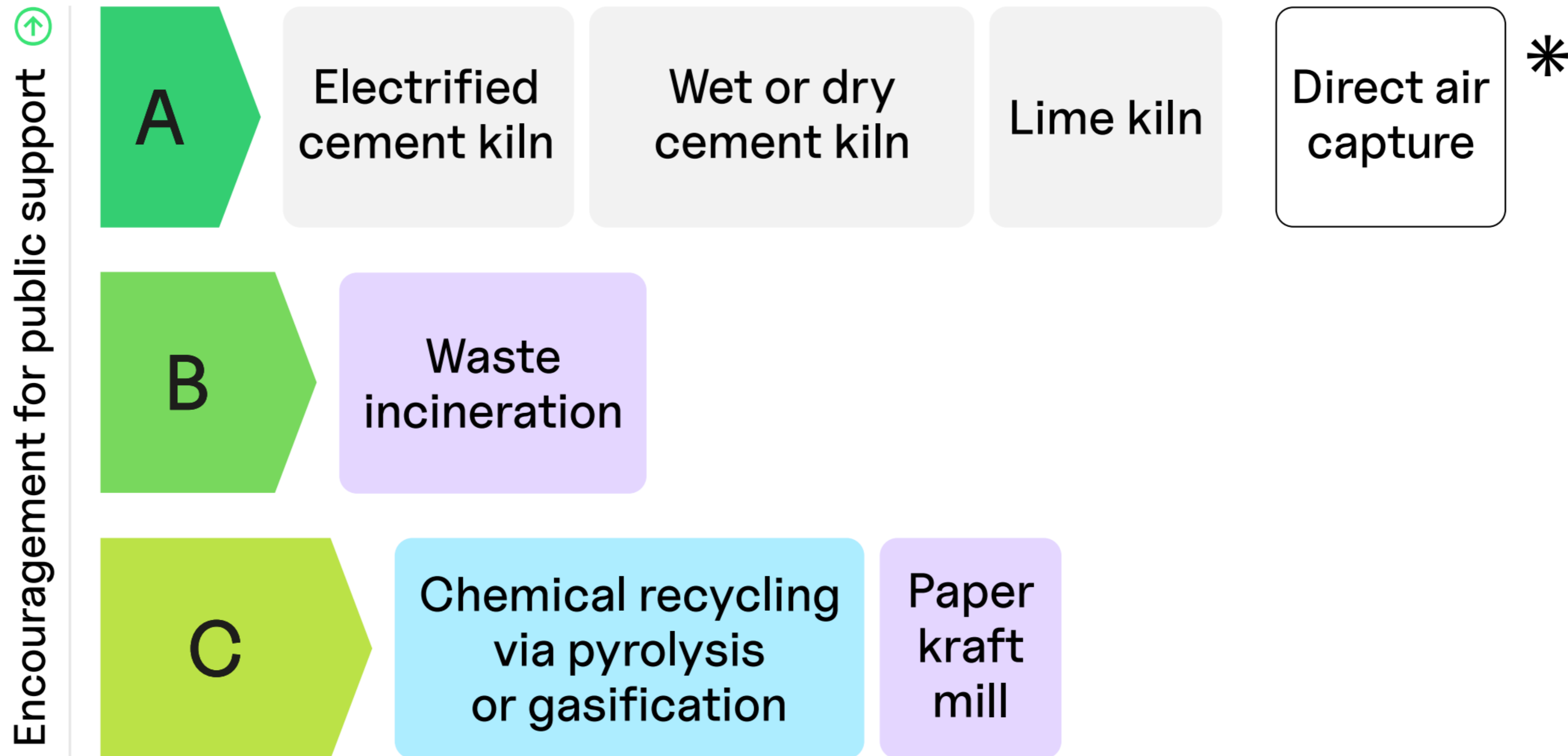
<https://bellona.org/news/industry/2023-07-carbon-capture-and-storage-ladder-assessing-the-climate-value-of-ccs-applications-in-europe>

Near-term 2030

Encouragement for public support 



Long-term 2050



3. A Brief History of CCS in Germany

A Brief History of CCS in Germany



Old poster of a German citizens' initiative; "Endlager" is a term exclusively used for the permanent storage of nuclear waste

- **Historical burden:** Discussion about CCS as an option for extending coal-fired power generation in the 00s; connection to extending the use of fossil fuels
- Safety concerns
- **Very low rate of public acceptance;** well organized citizens' initiatives → quick death of CCS Political consensus at the time: **No CCS in Germany**
- 2012: KSpG initially only enabled trial and test applications
- Unviability of the previous (political) consensus in view of the goal of **climate neutrality by 2045**
- Strategic focus for the use of CCS on **hard- or impossible-to-abate emissions**

A Brief History of CCS in Germany – The Restart



Federal Minister of Economic Affairs and Climate Protection Dr. Robert Habeck (Alliance 90/The Greens) presenting the Key Points Paper on the Carbon Management Strategy (February 2024)

- New **focus**: Industry CCS → hard to abate industries
- Climate value + value creation
- Extensive **stakeholder process** with participation of environmental NGOs, Think Tanks as well as industry representatives
- Results:
 - Key Points Paper in February 2024; second iteration in May 2024
 - New KSp(T)G – CO₂-Transport and -Storage Law
 - Parliamentary process of the KSp(T)G started last week: Lively debate in the German parliament; less heated than in the past

4.

Recent Progress in Germany's Carbon Management Strategy

Features of the CMS / KSpTG – Overview

CCS/CCU is to be made possible in future by means of multimodal transport (preference for pipeline-based transport) and offshore storage in narrowly defined marine areas.

- **Objective** of the new KSpTG / CMS: Enable the development of CO₂ infrastructure for CCU/S
- **Focus areas** mentioned: cement, lime, waste incineration, parts of the chemical industry (HVCs)
- No longer limited to testing and demonstration; no time limit
- Enabling **the export of CO₂** via pipelines and to offshore storage sites & transit of CO₂ across German territory; key decision **private build-up**
- **Expansion of storage capacity** is considered a bottleneck; law enables storage development "within" Germany (EEZ); onshore opt-in possible for federal states (Länder)
- **Harmonisation of the regulatory/authorisation framework**; equal treatment of pipelines for CCU and CCS; now all regulated in the extended KSpTG
- Allowed: **all CO₂ quantities that do not originate from domestic coal-fired power plants** (incl. gas-fired CHP, process heat and CHP)

Features of the CMS / KSpTG – Funding

Technology neutral transition with funding concentrated on applications with the highest climate value.

- Power generation facilities using gaseous fuels or biomass: application of CCS/CCU will continue to be legally possible with a view to a **technology-neutral transition to a climate-neutral electricity system**; but: **no funding** – no business case (?)
- Federal funding for industry and climate protection (**BIK**) [small and medium-sized companies]:
 - Admission criteria: Sectors with predominantly unavoidable CO2 emissions
 - More detailed discussion in the CMS
 - Cover the entire process chain from capture to utilisation or storage
 - Selection criteria: Funding efficiency: CO2 savings achieved by 2035 compared to the funding + further CCU/S-specific selection criteria
- **CCfDs** [large companies]:
 - First round without CCU/S
 - Second round with CCU/S (incl. "eligible under certain conditions": "installations with otherwise unavoidable process emissions in which the GHG reductions are significantly achieved by CCS/CCU")

Features of the CMS / KSpTG – Funding

Technology neutral transition with funding concentrated on applications with the highest climate value.

Funding for:

1. Sectors or facilities with **predominantly unavoidable emissions** → cement plants with clinker production and lime kilns; thermal waste treatment plants (only BIK); other Industrial plants whose emissions have been reduced by other measures...
2. Sectors or installations with **predominantly hard to abate emissions** → steamcrackers
3. Other sectors or installations with a **predominant share of emissions that are hard to abate (BIK)** → e.g. glass / ceramics, especially in R&D settings

Outlook

- Some **environmental NGOs** are concerned because they think the already overused German North Sea is not suitable to storing CO₂; “CCS on gas” remains an important issue – **trusterosion**
- Current public opinion on CCS is difficult to assess – **fragile status of the whole project**
- Government intends to move quickly through the **legislative process** (“eilwürdig” = urgent); have the KSpTG in place by the end of the year - an ambitious plan
- Currently about 15 dissenters anticipated; significant number of **sceptics** in the Green Party and SPD
- **Second phase of CCfDs starting**: unresolved legal question of how much of CMS / KSpTG must be passed before (legal prerequisite for CCfDs?)
 - Will the funding be sufficient?
 - How many companies will be able to file an application?

KSpTG has entered a potentially difficult parliamentary process. CMS release pending.

CO2 Storage – A few dilemmas and trade-offs

Marine spatial planning: BSH - Meeresraumplanung

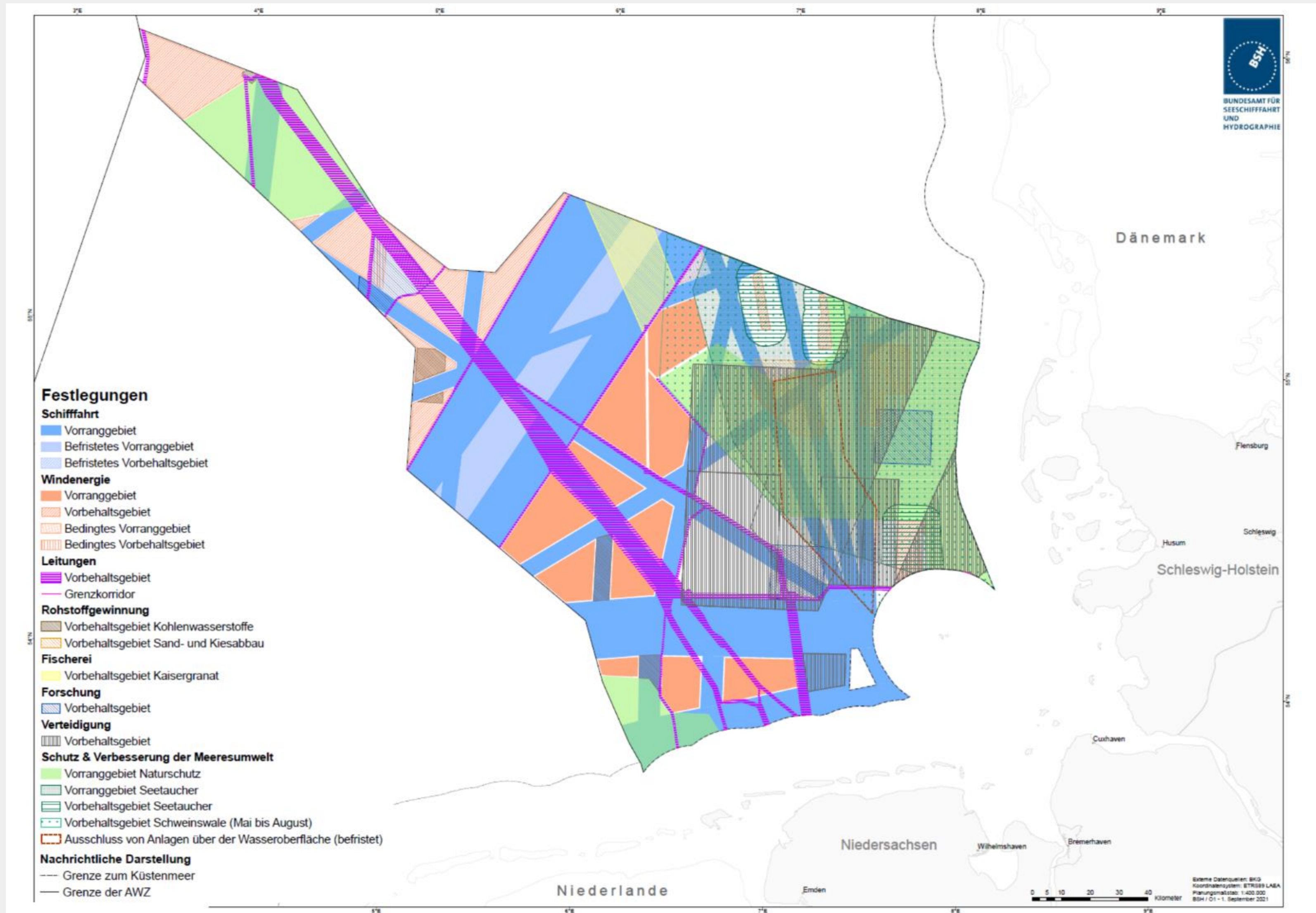
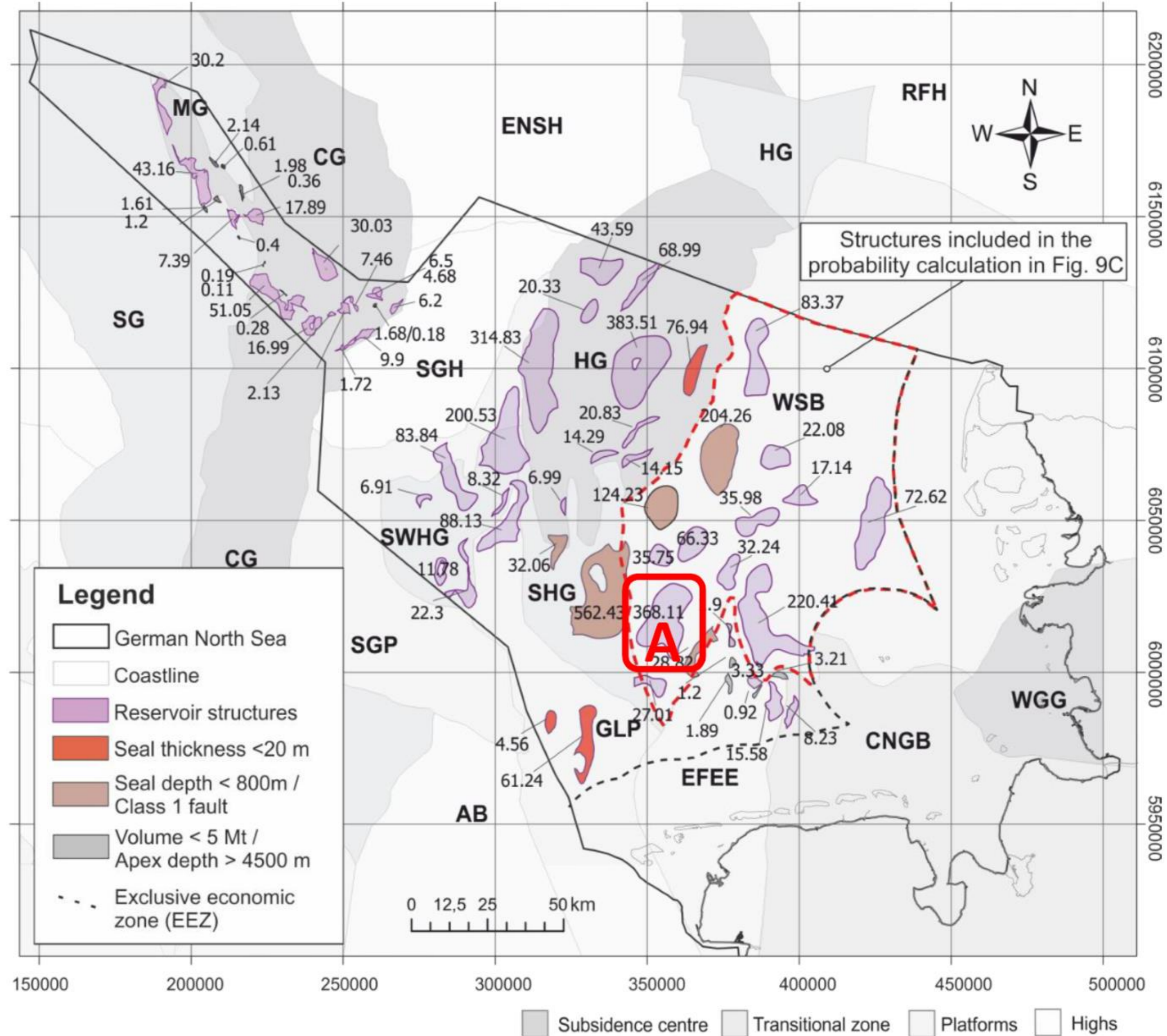


Abb. 5: Raumordnungsplan für die deutsche Ausschließliche Wirtschaftszone (2021) – Kartendarstellung, Teil Nordsee (Quelle: [BSH 2021](#))

Potential storage formations



Potentielle Speicherformationen in der Deutschen AWZ (BGR, 2024)

5. Recommendations and Key Asks

Recommendations and Key Asks for the ongoing Political Process

1. More **concrete figures** on land consumption; clear rules for environmentally compatible land management and ways of compensating for adverse effects needed (for example **marine spatial planning**)
2. Clear **rules for CCS use cases** and **reflection of the systemic conditions** of these application scenarios, including the availability of alternatives; make sure alternative solutions are funded
3. Concrete governance solutions must be developed for **complex economic problems**; state has an important role to play for the preparation of the market
4. Clear **organisational structures** for the effective and transparent coordination of infrastructure development
5. Meaningful links to the **negative emissions strategy** and **circular economy strategy**

1. The early-stage regulatory framework **shows the government's understanding of targeted CCS applications**
2. The devil is in the detail: The future of climate-positive CCS will be determined by the **financing scheme** and accompanying **governance mechanisms**.
3. Keep it **simple** and try to build a **societal consensus!**
4. Rapid **ramp-up of CCS is crucial for climate protection** (Hierarchy ≠ Chronology)

- Bellona / E3G **Carbon Capture and Storage Ladder**:
<https://bellona.org/news/industry/2023-07-carbon-capture-and-storage-ladder-assessing-the-climate-value-of-ccs-applications-in-europe>
- Discussion paper on the **status of the CCS discourse in Germany** (in German): <https://de.bellona.org/publication/die-rolle-von-ccs-als-ein-baustein-fuer-den-klimaschutz-in-deutschland/>
- Introductory **Conflation of Terms** paper in the field of “Carbon Capture Technologies”: <https://eu.bellona.org/publication/clearing-conflations-on-carbon-capture-terminologies/>
- Detailed **statement by Bellona Germany on the key points of the CMS / draft KSp(T)G** (in German):
<https://de.bellona.org/publication/verbaendeanhoerung-cms/>
- The challenges of “**first-mover projects**” in the CCS sector : [First foot forward: The importance of CCS first-mover projects for accelerating the industrial green transition - Bellona EU](#)
- Upcoming: Discussion paper on concerns about the impact of CCS on the transformation of industry + extended commentary on the Carbon Management Strategy (in German)



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Thank you!



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