NORSUS

Norsk institutt for bærekraftsforskning

Report no: OR 04.26

Methodology for documenting negative emissions and Carbon Dioxide Removals (CDRs) applied for different intended purposes

- Based on a Waste to Energy (WtE) BECCS case

Hanne Lerche Raadal and Ingunn Saur Modahl

Project: Development of LCA methodology for documentation of negative emissions and allocation of burdens and benefits in CCUS value chains

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Content

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1
Introduction

1.1 | Background

Carbon Dioxide Removal (CDR)

There is growing interest in carbon dioxide removal (CDR) within the voluntary carbon market (VCM), driven by the private sector's need to make credible claims of climate neutralisation.

IPCC's Sixth Assessment Report (IPCC, 2023) defines carbon dioxide removal (CDR) as: «*Anthropogenic activities removing carbon dioxide (CO_2) from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical CO_2 sinks and direct air carbon dioxide capture and storage (DACCS) but excludes natural CO_2 uptake not directly caused by human activities.*"

This definition leaves open the discussion of how removals should be measured, reported and verified (MRV).

EU Carbon Removals and Carbon Farming (CRCF) Regulation

The Carbon Removals and Carbon Farming (CRCF) Regulation (EU) 2024/3012 was published in the Official Journal of the EU on 6 December 2024. The regulation sets up a voluntary certification system across the European Union (EU) for permanent carbon removals (and soil emission reductions) generated by carbon farming, industrial technologies and long-lasting carbon storage in products.

The goal is to support the achievement of the EU and national climate targets for 2030 and of climate neutrality by 2050, while fighting greenwashing and fostering innovation[1,2].

1) https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en
2) https://eur-lex.europa.eu/EN/legal-content/summary/establishing-a-union-certification-framework-for-permanent-carbon-removals-carbon-farming-and-carbon-storage-in-products.html#keyterm_3

1.1 | Background, cont.

Negative and net negative emissions

IPCC's Special Report Global Warming of 1.5°C (IPCC, 2018) defines Negative emissions as: "Removal of greenhouse gases (GHGs) from the atmosphere by deliberate human activities, i.e., in addition to the removal that would occur via natural carbon cycle processes."

Net negative emissions are defined as: *"A situation of net negative emissions is achieved when, as result of human activities, more greenhouse gases are removed from the atmosphere than are emitted into it. Where multiple greenhouse gases are involved, the quantification of negative emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon)."*

CDR vs Net negative emissions

In accordance with IEAGHG (2024), the difference between Carbon Dioxide Removal (CDR) and net negative emissions is fundamentally a distinction between a process (the activity) and a state (the atmospheric result).

CDR refers to deliberate human activities designed to remove CO_2 from the atmosphere and store it durably in geological, terrestrial, or ocean reservoirs, or in products.

Net negative emissions describe a specific physical state where removals exceed anthropogenic emissions.

While CDR is the tool used to achieve this, "net negative" refers to the overall climate balance.

1.1 | Background, cont.

Mission Innovation

The project has been coordinated to reach synergies with Mission Innovation, a Global initiative (23 countries) with the aim of accelerating progress towards the Paris Agreement goals. The initiative includes seven Missions:

- Green powered future
- Zero-emission shipping
- Clean hydrogen
- Carbon Dioxide Removal (CDR)
- Urban transitions
- Net-zero industries
- Integrated biorefineries

Norway (Gassnova, on behalf of the Ministry of Energy) is member of the Carbon Dioxide Removal (CDR) Mission.

Norway's role in Mission Innovation

The CDR Mission is separated into three sub-missions:

- Direct Air Capture (DAC):
  - Any process or technology that captures CO_2 directly from the air
- **Biomass with Carbon Removal and Storage (BiCRS)**:
  - BiCRS uses biomass—which naturally takes CO_2 from the atmosphere while growing—in combustion or other conversion processes combined with carbon capture and storage (bioCCS), or uses it to create bio-based products for the purpose of permanently sequestering the CO_2.
- Enhanced Mineralisation:
  - Accelerates the natural reaction of CO_2 in ambient air with alkaline minerals to form stable carbonates (i.e., rocks) and stores the CO_2 in a manner intended to be permanent.

Norway (represented by Gassnova) has the co-lead together with Japan for the **BiCRS** sub-mission.

Carbon neutrality and net negative emissions

Carbon capture and storage (CCS) means capturing and subsequently storing carbon dioxide released from both fossil and biogenic sources. Carbon neutrality can be obtained for natural biogenic systems as well as for fossil-based systems with CCS, as shown by systems a) and b) in Figure 1:

- CO_2 is captured from the atmosphere when biomass is growing, and the same amount of CO_2 is released at end-of-life (a).
- CO_2 is captured from fossil point sources and CO_2 is sequestered (b).

Negative emissions can only occur for cases when CO_2 is taken from a biogenic point source (or by direct air capture) and sequestered, as shown in the figure's system c).

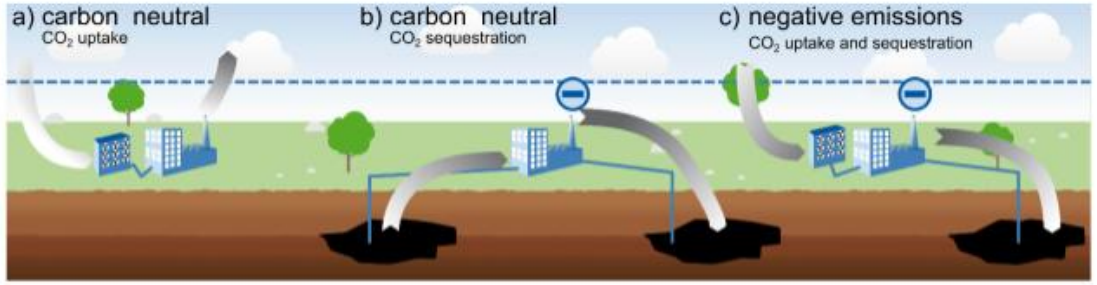


Figure 1: Principal flow diagrams for CO_2 neutrality and negative emissions (from Zimmermann et al. (2018))

1.3 | Goal of the study

The goal of the study was to assess and categorise methods for documenting negative emissions and CDRs applied for different intended purposes.

2
Life Cycle Assessment (LCA) methodology for documenting net negative emissions

Life Cycle Assessment (LCA)

LCA methodology is generally recommended for calculating CDRs (Malins, Pereira, Popstoyanova, & Riemer, 2023; Nordahl et al., 2024; Terlouw, Bauer, Rosa, & Mazzotti, 2021, Butnar et al., 2024) to assess whether the technology deliver net negative emissions over the defined value chain.

A standardized process for quantifying net CO_2 removal is important for the development of a trusted CDR industry (Nordahl et al., 2024).

The system boundaries, defining what is included and not in the analysis, are important. These can be spatial (e.g., considering only impacts within a specific country), temporal (for a defined time span), and technological (only certain infrastructure systems are included).

In accordance with Nordahl et al. (2024), net carbon removal (in kg CO_2-eq) is obtained when:

$S_t > E_{t,T}$

When;

S = CO_2 removed and stored from t years of operation (kg CO_2-eq)

E = direct process emissions during t years + indirect emissions from energy and material consumption during t years + reversal emissions (environmental leakage) during T years carbon removal (kg CO_2-eq)

t = time frame of operation being observed or assessed (years)

T = time frame on which carbon storage is required (years)

2.1 | State-of-the-art, cont.

Key criteria

Tanzer and Ramírez (2019) determined four key criteria as "minimum qualifications" for proving whether a technology results in net negative emissions:

1. Physical greenhouse gases are removed from the atmosphere.
2. The removed gases are stored out of the atmosphere in a manner intended to be permanent.
3. Upstream and downstream greenhouse gas emissions associated with the removal and storage process, such as biomass origin, energy use, gas fate, and co-product fate, are comprehensively estimated and included in the emission balance.
4. The total quantity of atmospheric greenhouse gases removed and permanently stored is greater than the total quantity of greenhouse gases emitted to the atmosphere.

Mission Innovation

The Mission Innovation initiative has published the report *Measurement, Reporting and Verification (MRV) for Carbon Dioxide Removal (CDR). Issues and Opportunities for International Harmonization of National Governments' CDR MRV Method* (Mission Innovation Carbon Dioxide Removals Mission, 2024).

The report reviews the current state of national Carbon Dioxide Removal (CDR) policies and their development in measurement (monitoring), reporting, and verification (MRV) methodologies across the spectrum of technologies considered in the CDR Mission. It provides criteria factors for high-quality MRV and how national governments' CDR MRV methodologies are handling each factor and proposes a strategy for the interoperability of CDR MRV protocols across platforms that could help enable global market development of cross-border carbon removal credits. The report is not intended to be an assessment of comparison of carbon removal effectiveness across various CDR methods nor comparison with methods for emissions avoidance.

2.2 | Two main approaches for handling biogenic CO_2 uptake and emissions

Figure 2 shows a typical BECCS value chain where waste resources are used as feedstock for a waste incineration plant (WtE) with CCS.

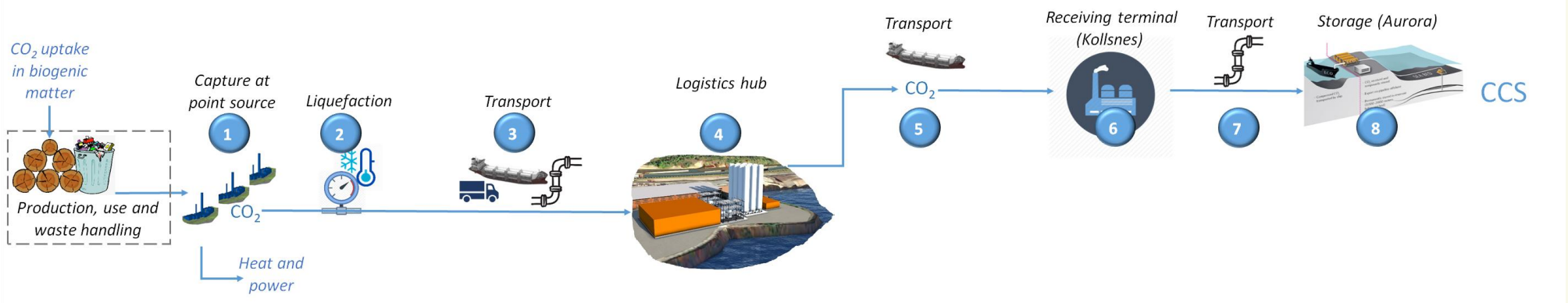


Figure 2: Principal sketch of a BECCS value chain using waste resources as feedstock for a waste incineration plant (WtE) and utilising the waste for heat and power production. Activities inside the grey, dotted line are not included in the system boundaries (Modahl and Radal 2024).

The value chain starts with biogenic carbon being absorbed from the air, followed by the various activities for capturing, transporting and storing the CO_2.

IPCC has published two approaches for handling biogenic CO_2 uptake and emissions when calculating climate change:

1. The IOBC (instantaneous oxidation of biogenic carbon) approach (IPCC 2021 GWP100), which is a so-called 0/0 method, and
2. The -1/+1 approach (IPCC 2021 GWP100 (incl. CO_2 uptake)).

2.2 | Two main approaches for handling biogenic CO_2 uptake and emissions, cont.

IOBC (0/0) approach

The IOBC approach excludes both uptake and emissions of biogenic CO_2 as it is assumed that all the carbon in the biomass is oxidized and emitted as CO_2 to the atmosphere at the same time as the biomass is harvested and removed from its origin, hence 'instantaneous oxidation'. It is assumed that uptake and emissions of biogenic CO_2 cancels each other out.

The GWP characterisation factor for biogenic CO_2 (GWP_{bio}) is hence set to zero. Durable storage of biogenic CO_2, on the other hand, is treated as a negative emission. For this approach, the net negative emissions are calculated by withdrawing the total amount of stored biogenic CO_2 from the total non-biogenic GHG emissions arising from the activities throughout the defined system boundaries.

Results are presented in Figure 3 for the typical BECCS value chain presented in Figure 2. The share of waste with biogenic origin is 31%. Net negative GHG emissions from this value chain are **-178 kg CO_2-eq per tonne captured CO_2**.

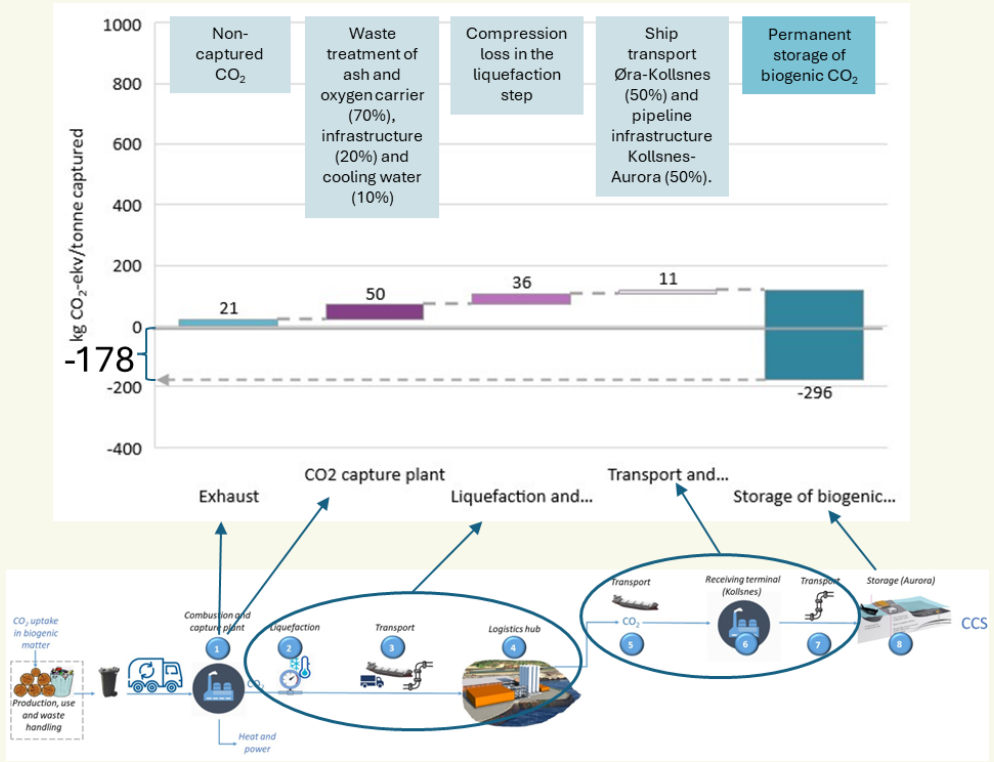


Figure 3: Climate change results using the 0/0, also called IOBC, approach (IPCC2021 GWP100), calculated for the LOUISE CCS system (Modahl and Raadal 2024).

2.2 | Two main approaches for handling biogenic CO_2 uptake and emissions, cont.

-1/+1 approach

The -1/+1 approach states that the CO_2 corresponding to the biogenic carbon entering a system is considered as reduction in emissions ('CO_2 uptake') and is characterized with a factor of -1. It includes uptake of CO_2 as carbon in biomass as being an inherent property of the material. Burning or decomposition of the material leads to release of the same amount of CO_2 into the atmosphere and is characterized with a factor of +1. Hence, biogenic carbon is accounted as a negative value when entering a system and as a positive value when leaving a system. When using the -1/+1 approach, the net negative emissions are calculated by adding the total amount of GHG emissions (both fossil and biogenic) arising from the activities throughout the defined system boundaries to the negative value from uptake of CO_2 in the biogenic material (when the biomass is growing).

Results are presented in Figure 4 for the same BECCS system, showing the same net negative GHG emissions results as for the IOBC approach (-178 kg CO_2-eq per tonne captured CO_2).

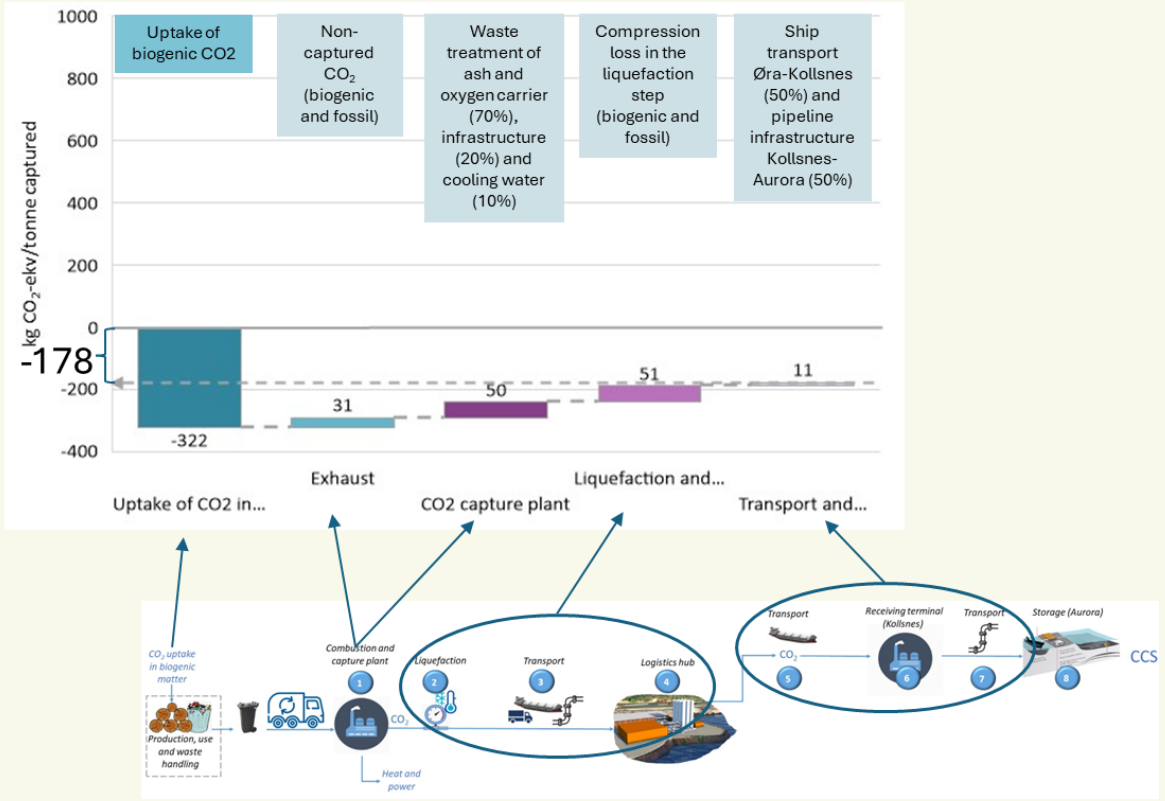


Figure 4: Climate change results using the -1/+1 approach calculated for the LOUISE CCS system (Modahl and Raadal 2024).

2.3 | Emission reduction potential, avoided and negative emissions in LCA

Using standard LCA approaches can result in a system achieving lower net life cycle GHG emissions relative to the defined counterfactual. This refers to an emission reduction potential of the analysed system in comparison to another and does not necessarily equate to achieving net removal of CO_2 (Nordahl et al., 2024., Tanzer and Ramirez, 2019). Net negative accounting, on the other hand, addresses the question: Does a given process or project result in a net flux of CO_2 from the atmosphere when all relevant emissions over the defined value chain are accounted for?

LCA best practices are generally not structured to distinguish between emissions mitigation and emission removal.

An emission reduction potential can typically be calculated to compare a baseline scenario without CCS with a CCS scenario. The potential reduction in emissions when implementing CCS, compared to no CCS, is then presented.

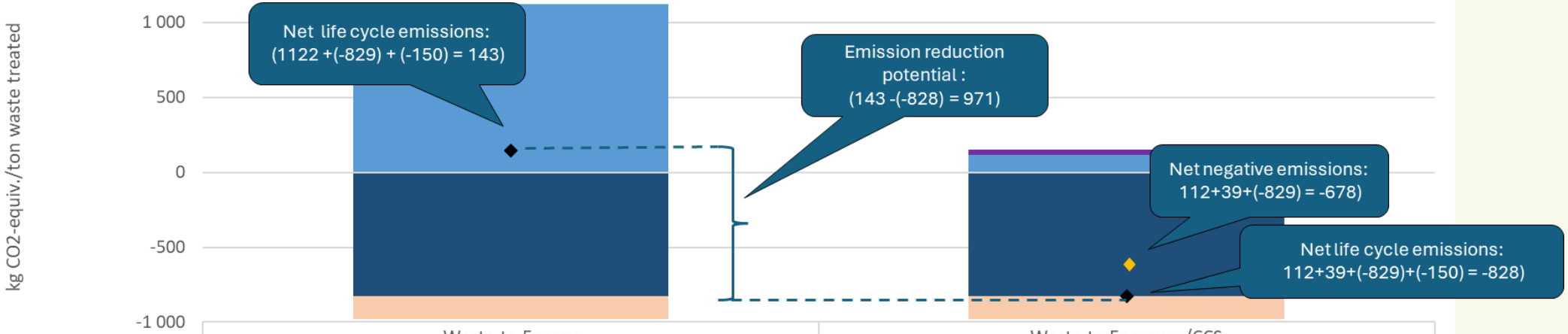
Avoided emissions can also be calculated in LCAs. These emerge by using system expansion. This method allows you to account for the emission-reduction potential related to multifunctions and co-products of the analysed system.

For waste to energy (WtE) facilities this can typically include emissions that can be avoided due the utilisation of the waste energy which is transformed into heat and electricity. Hence, the study might assume that the waste-generated heat and electricity substitute fossil-based heat and electricity. It then follows that the substituted fossil-based heat and electricity do not have to be produced, and the related emissions are subtracted as they are assumed to be "avoided". The resulting total (net life cycle emissions) might be a negative number but does not mean that the system deliver net negative emissions.

This case can further be compared with a case without utilisation of the waste energy; hence no energy is replaced. This will show the potential reduction in emissions when utilising the waste heat compared to no utilisation.

Figure 5 presents the terms net life cycle emissions, avoided emission, emission reduction potential and net negative emissions, demonstrated for Waste to Energy without and with CCS. The -1/+1 approach is applied by determining the uptake of biogenic CO_2 according to the share of biogenic content in the waste under study (74%).

2.3 | Emission reduction potential, avoided and negative emissions in LCA, cont.



	Waste to Energy	Waste to Energy w/CCS
Substutited energy (avoided emissions)	-150	-150
Capture and storage		39
Combustion waste	1122	112
Biogenic CO2	-829	-829
Net result	143	-828

Figure 5: Net life-cycle emissions, avoided emissions, emission reduction potential and net negative emissions exemplified for Waste to Energy with and without CCS (based on Raadal & Modahl (2024)).

Waste to Energy-scenarios without and with CCS are presented, both with avoided emissions from energy substituted by the waste-based energy included. **Net life cycle emissions** are 143 and -828 CO_2-eq per tonne waste for the respective scenarios. **Avoided emissions from substituted energy** is calculated to -150 kg CO_2-eq per tonne waste and included in both scenarios. The **emission reduction potential** of implementing CCS is calculated to 971 kg CO_2-eq per tonne waste.

Net negative emissions are -678 kg CO_2-eq per tonne waste and is only relevant for the CCS scenario (avoided emissions not included).

3
Methodologies and system boundaries

3.1 | Purposes for documenting negative emissions

Voluntary Carbon Market a driver

There is currently a large focus on carbon dioxide removal (CDR) as a means for achieving ambitious climate mitigation goals, i.e net zero emission. CDRs can be applied to offset hard-to-abate GHG emission sources to achieve net zero (IPCC, 2023).

The voluntary carbon market (VCM) has been the main driver of the development of measurement, reporting and verification (MRV) of removals from CDR methodologies. The reason for this is that entities voluntarily can acquire removals to be counted as neutralisation claims against their own reported GHG emissions (IEAGHG, 2024).

As the Paris Agreement included net zero terminology, the emphasis on carbon dioxide removals (CDR) and their role in meeting ambitious climate mitigation goals increased also for countries.

Purposes for documenting negative emissions

Three different purposes are all relevant for negative emissions documentation:

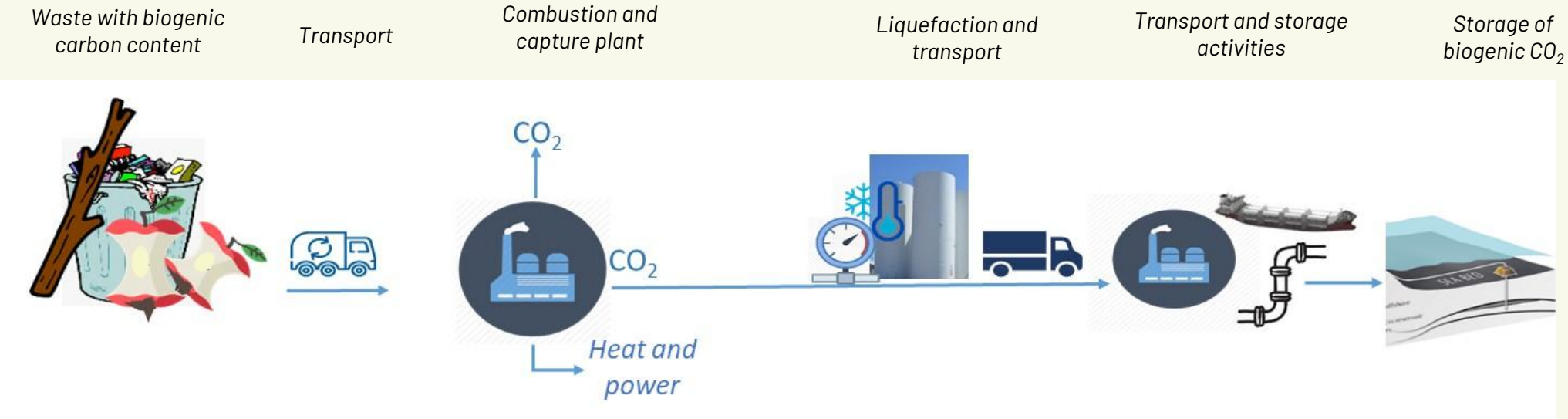
1.a Document whether the technology delivers net negative emissions over the defined value chain (Tanzer and Ramírez, 2019).

1.b Claim net CDR in the voluntary carbon market (VCM), in accordance with relevant standards (Puro.earth, VERRA, Isometric).

2. Report negative emissions into National Greenhouse Gas Inventories (NGHGI)(IEAGHG, 2024).

Life Cycle Assessment (LCA) methodology is required for purpose 1.a and 1.b but this is not relevant for purpose 2. This is further described in the next pages.

3.2 | The purpose defines the system boundaries



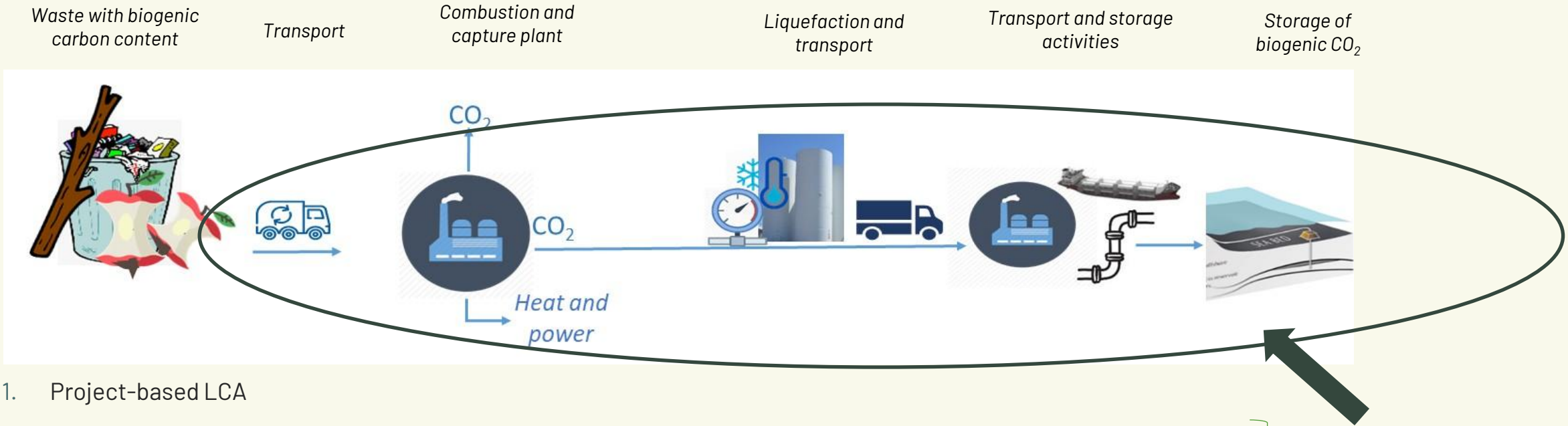
1. Project-based LCA
   a. Document whether the technology delivers net negative emissions over the defined value chain (Tanzer and Ramírez, 2019).
   b. Claim net CDR in the voluntary carbon market (VCM), in accordance with relevant standards (Puro.earth, VERRA, Isometric).

   ⟩ LCA based approach

2. Sector-based: Report negative emissions into National Greenhouse Gas Inventories (NGHGI) (IEAGHG, 2024).

   ⟩ Non-LCA based approach

3.2 | The purpose defines the system boundaries, cont.



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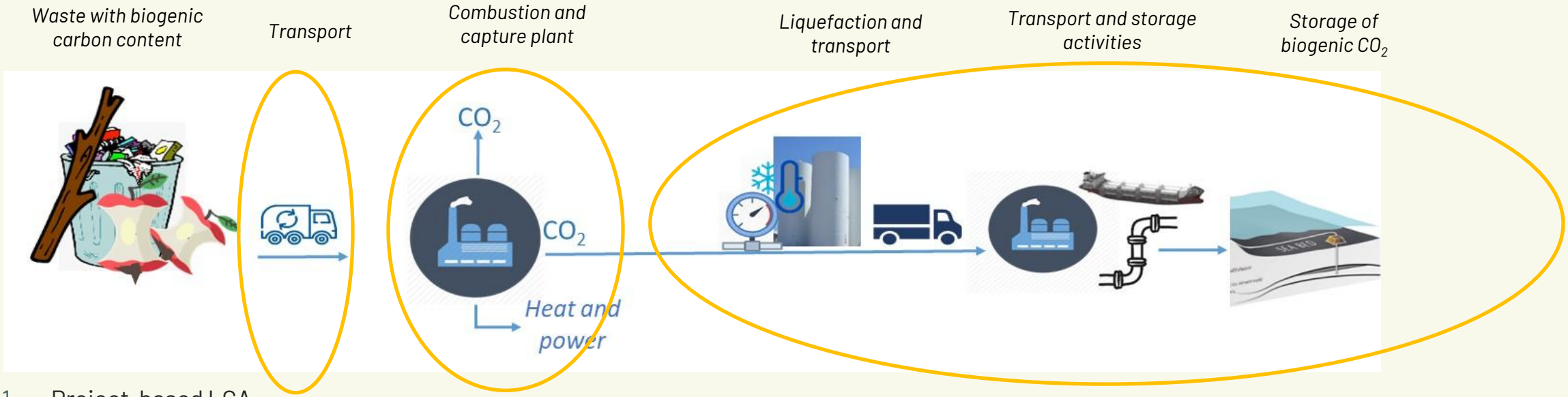
LCA based approach

3.2 | The purpose defines the system boundaries, cont.



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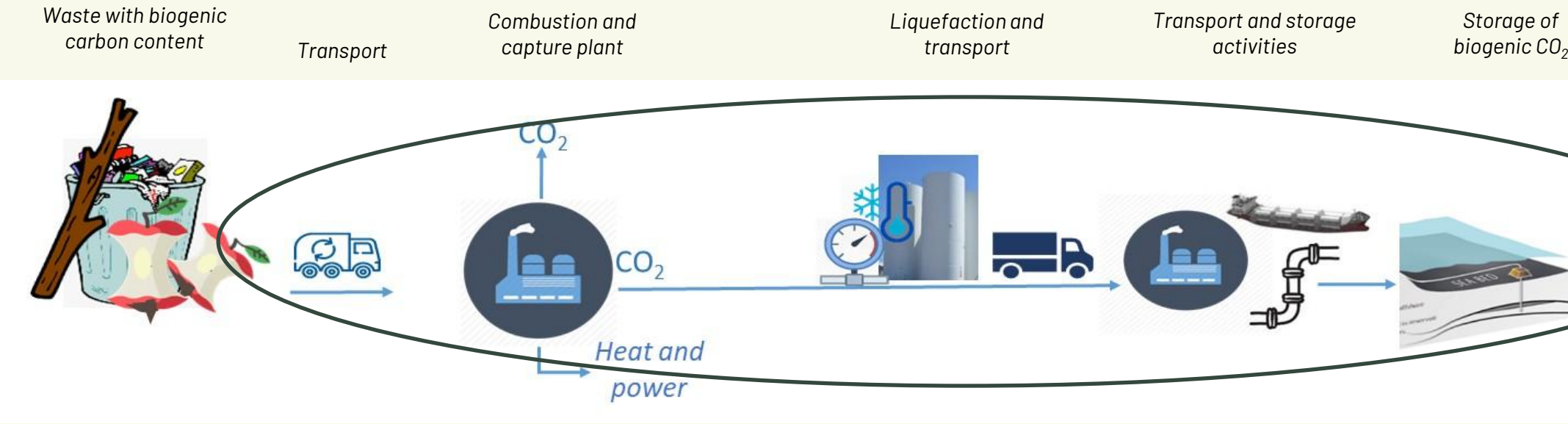
2. Sector-based: Report negative emissions into National Greenhouse Gas Inventories (NGHGI) (IEAGHG, 2024).

Non-LCA based approach

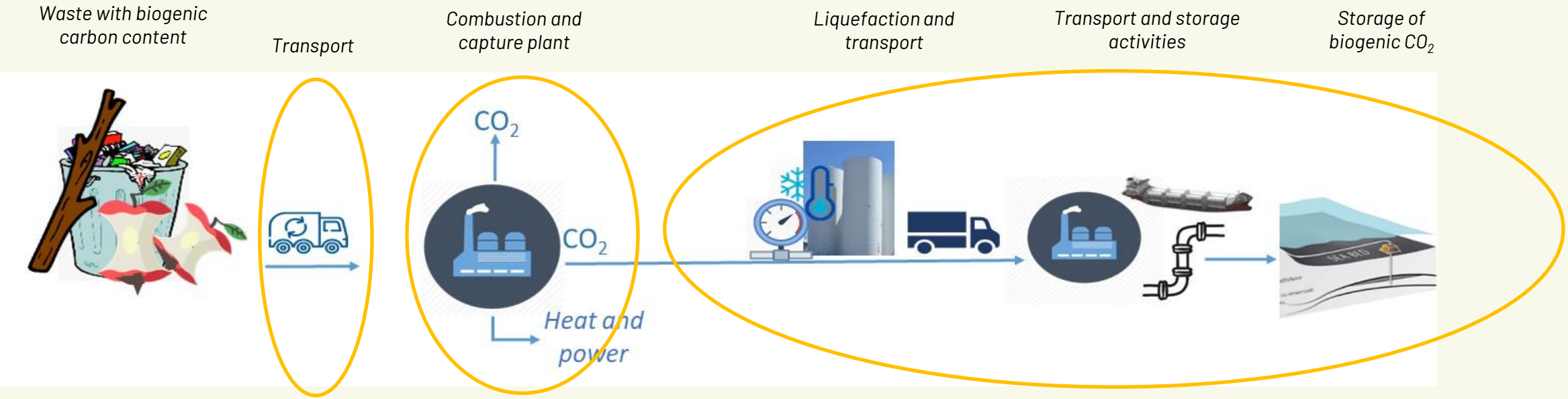
3.2 | The purpose defines the system boundaries, cont.

Project-based (LCA): Calculate net removals over the CDR value chain



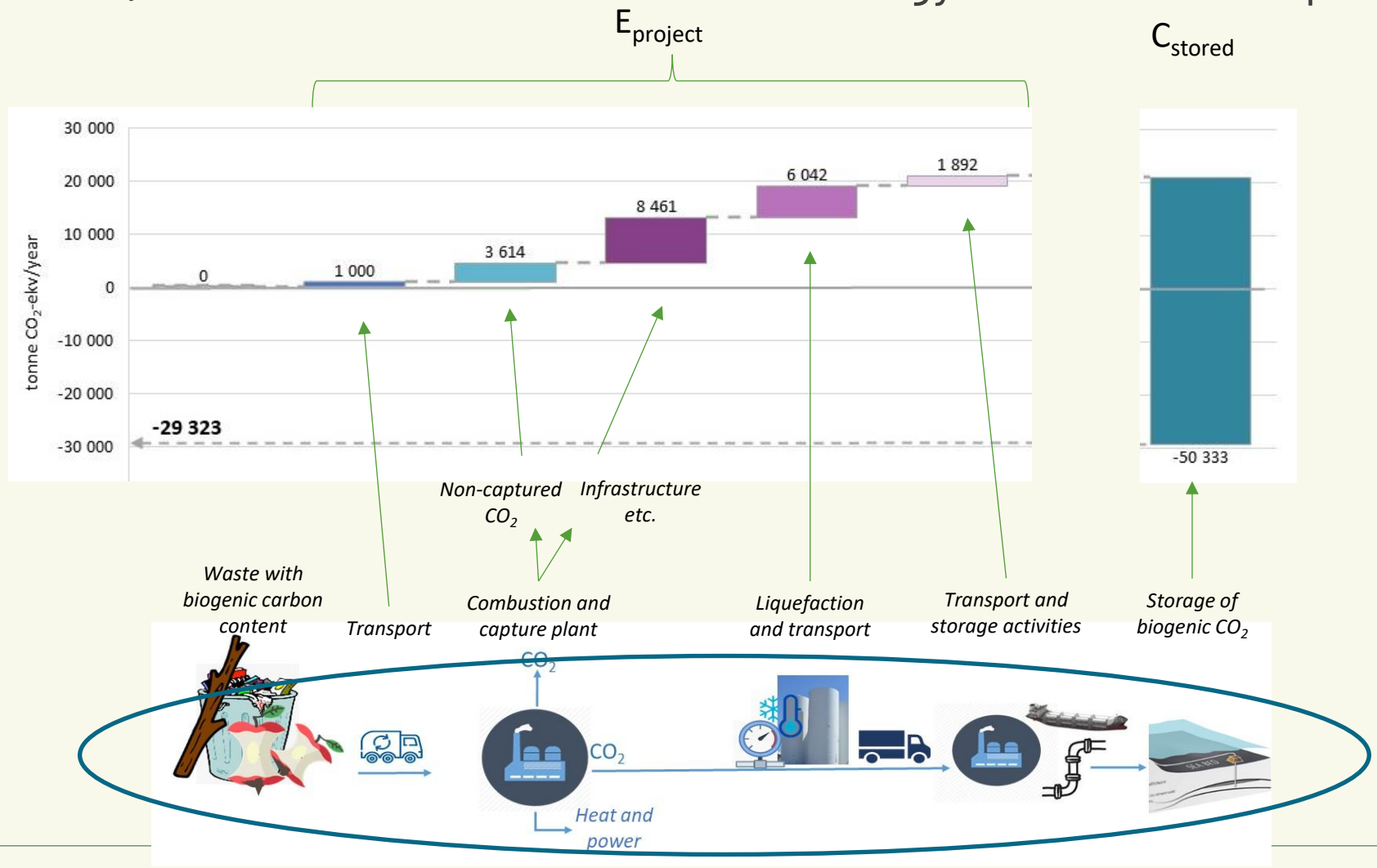
3.2 | The purpose defines the system boundaries, cont.

Sector-based (non-LCA): Calculate emissions and removals for reporting in national greenhouse gas (NGHG) inventories and ETS



3.2.1 | Project-based: LCA based approach

a) Document whether the technology reduces atmospheric greenhouse gases

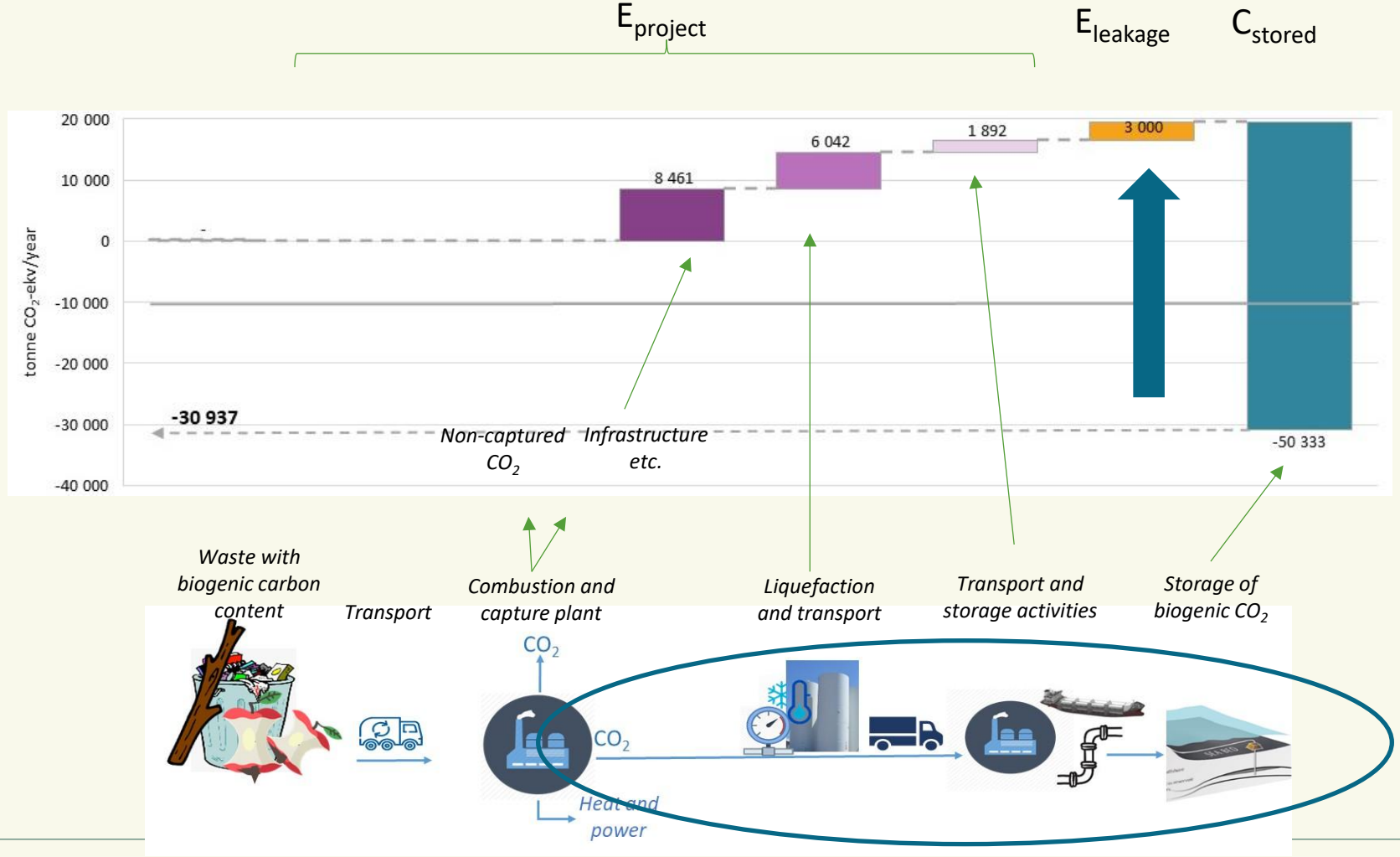


- $E_{project}$: Life cycle fossil* GHG emissions over the value chain
- C_{stored}: Stored biogenic CO_2

* Using the IOBC 0/0 approach

3.2.1 | Project-based: LCA based approach, cont.

b) Claim net CDR in the voluntary carbon market (VCM)



Preconditions affected by a base-line scenario (what would likely have happened without the CDR)

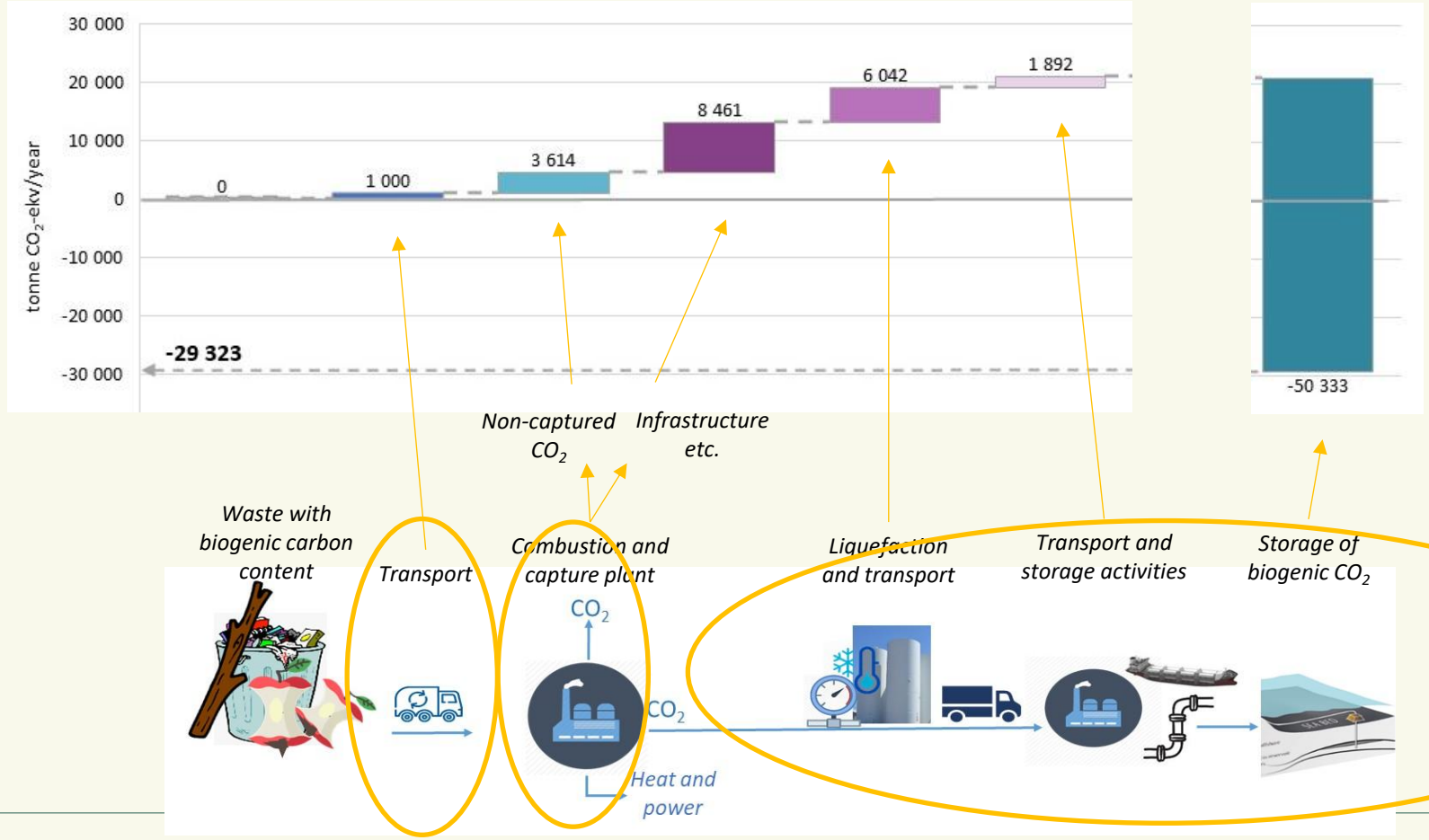
⇨ affects determination of additionality, leakage, certain supply-chain emissions

- $E_{project}$: Life cycle fossil* GHG emissions over the value chain
- $E_{leakage}$: GHG emissions due to unmitigated negative ecological, market and activity shifting leakage
- C_{stored}: Stored biogenic CO_2

* Using the IOBC 0/0 approach

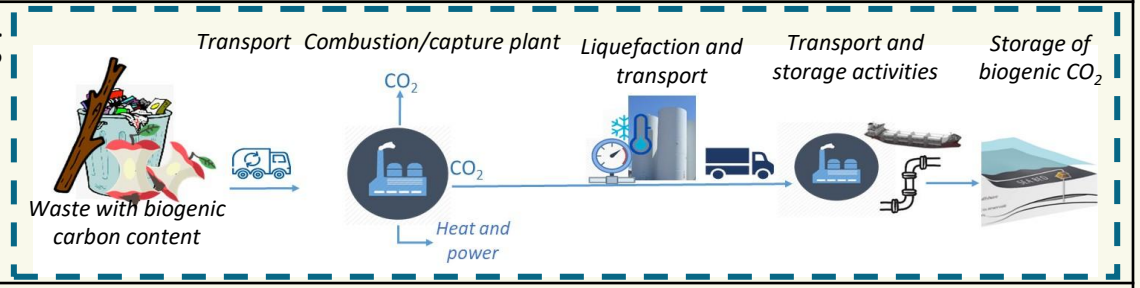
3.2.2 | Sector-based accounting: Non-LCA based approach

Report emissions and removals into NGHGI and ETS

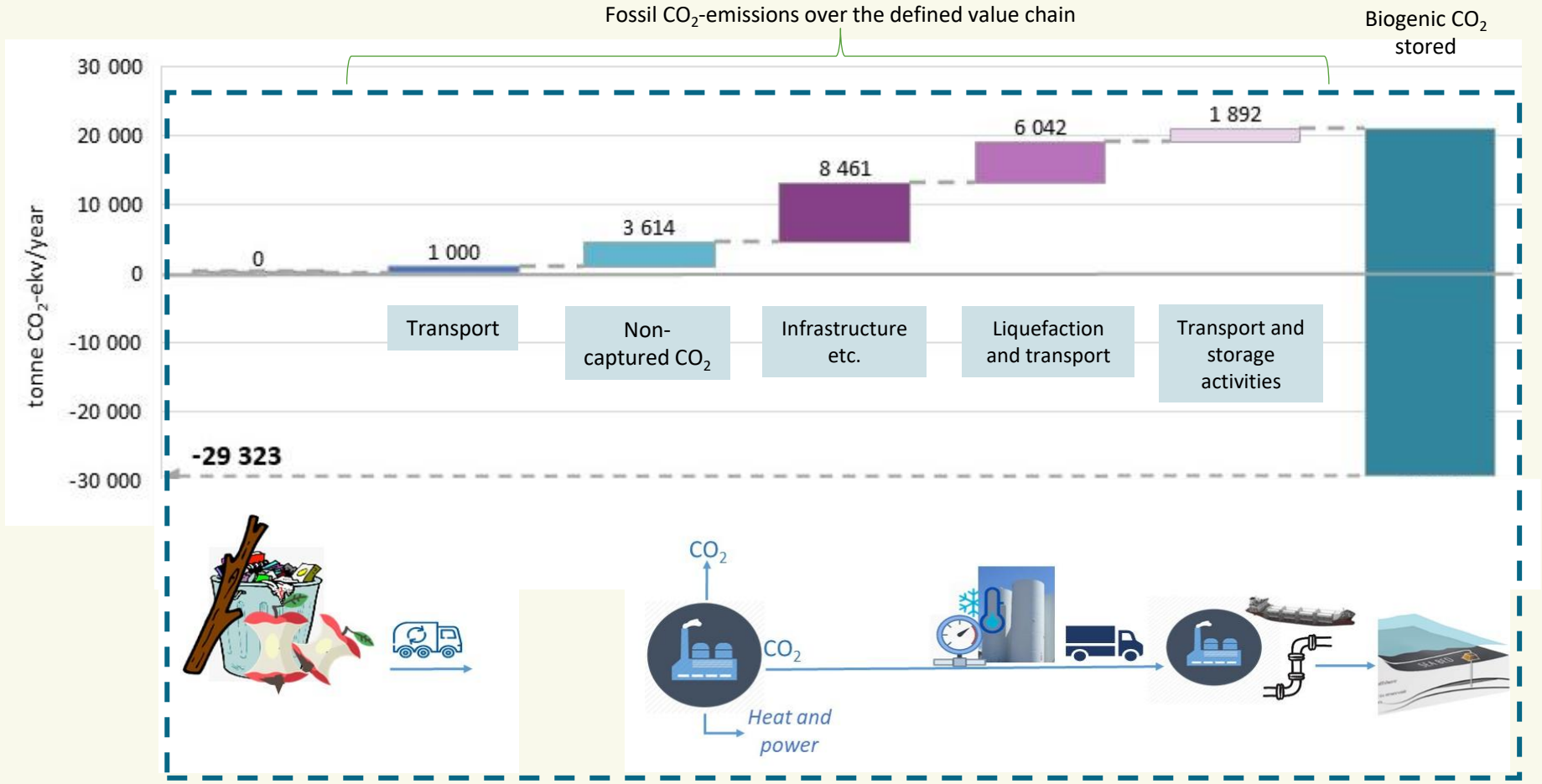


- Non-LCA based approach (direct emissions)

3.3 | Summary: purpose and system boundaries

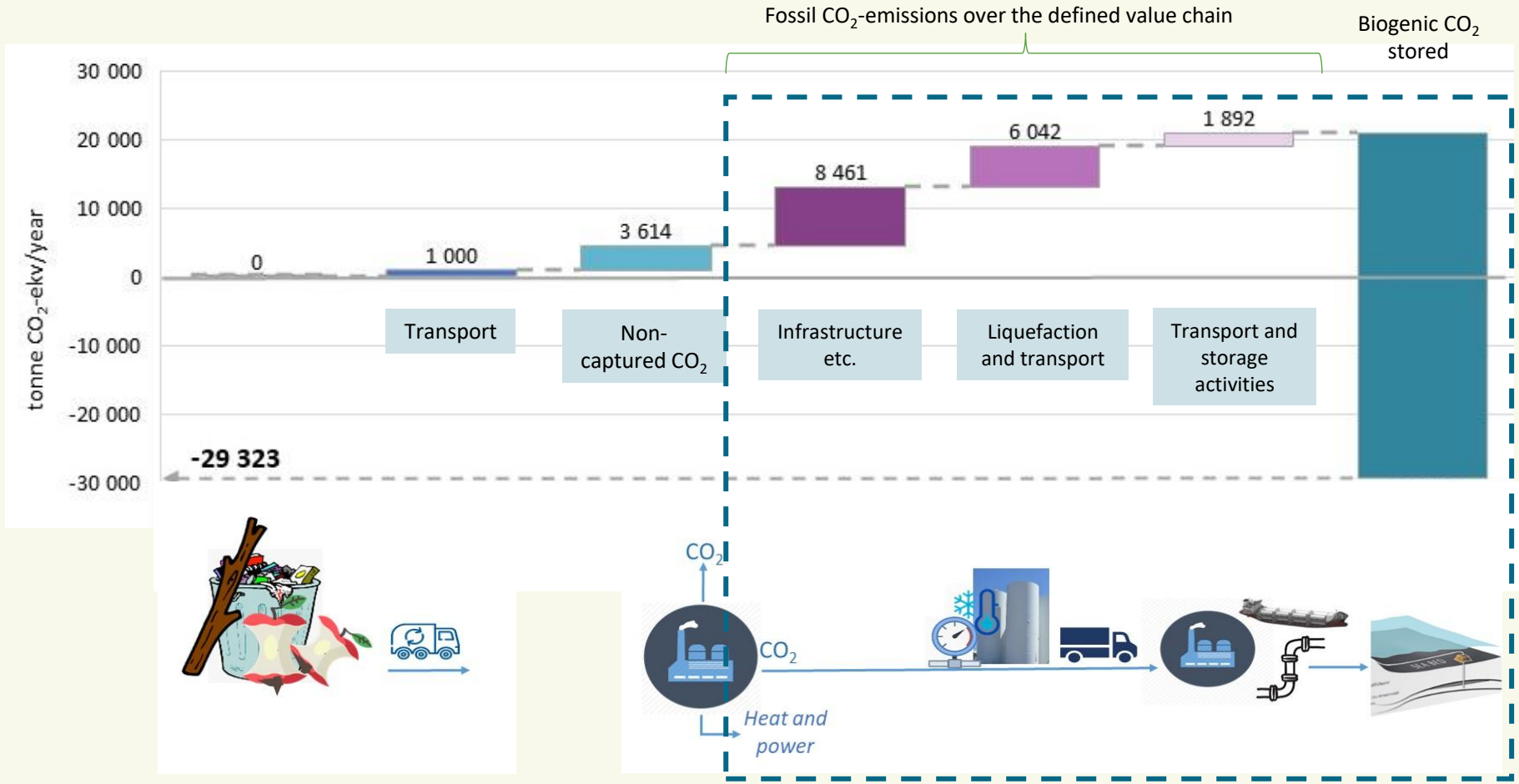
Purpose of study		Scope of calculation	System boundaries
1.a Document whether the technology reduces atmospheric greenhouse gases		Project-based accounting ⇨ LCA based approach	
1.b Claim net CDR in the voluntary carbon market (VCM)		Project-based accounting ⇨ LCA based approach	
2. Report CDR into NGHGI and ETS		Sector-based accounting ⇨ Non-LCA based approach	

3.2 | Summary: purpose and system boundaries, cont.



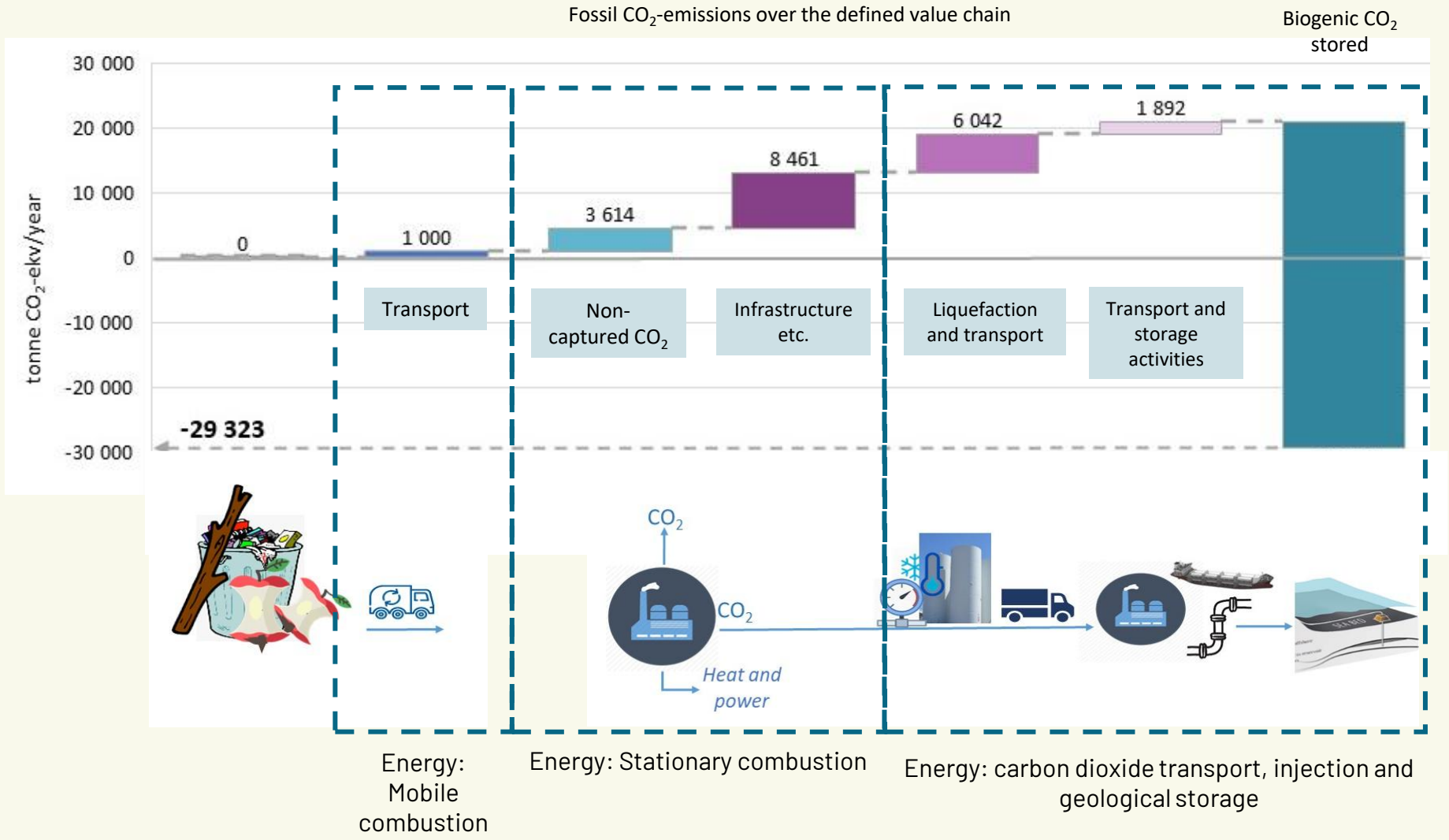
Project-based LCA

3.3 | Summary: purpose and system boundaries, cont.



Project-based LCA for the VCM

3.3 | Summary: purpose and system boundaries, cont.



Sector-based (non-LCA) for NGHGI

∑ GHG transport

∑ GHG combustion

∑ GHG transport and storage

4
Related initiatives

Certification for carbon removals and carbon farming (CRCF)

The Carbon Removals and Carbon Farming (CRCF) Regulation (EU) 2024/3012 was published in the Official Journal of the EU on 6 December 2024. The regulation sets up a voluntary certification system across the European Union (EU) for permanent carbon removals (and soil emission reductions) generated by carbon farming, industrial technologies and long-lasting carbon storage in products.

The **goal** is to support the achievement of the EU and national climate targets for 2030 and of climate neutrality by 2050, while fighting greenwashing and fostering innovation[1, 2].

1) https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en
2) https://eur-lex.europa.eu/EN/legal-content/summary/establishing-a-union-certification-framework-for-permanent-carbon-removals-carbon-farming-and-carbon-storage-in-products.html#keyterm_3

4.1 | EU's CRCF framework, cont.

Certification for carbon removals and carbon farming (CRCF)

Figure developed with the help of AI

Status per December 2025

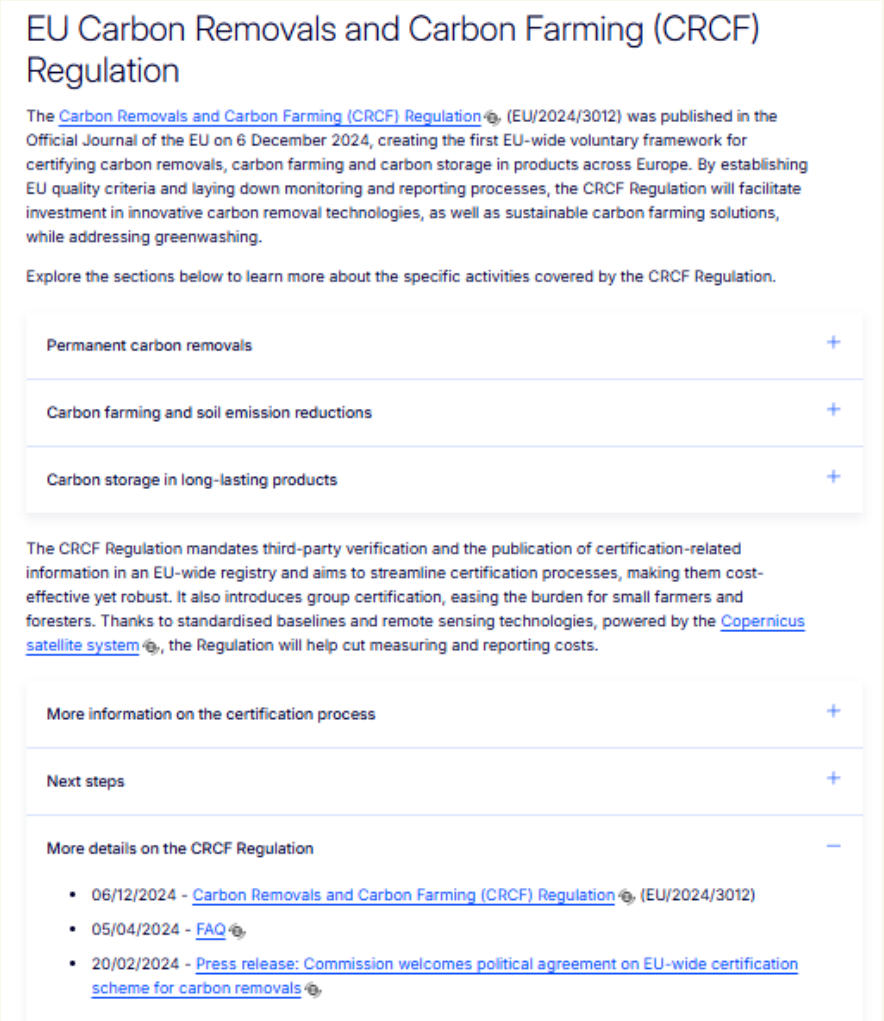
1. **Regulation (EU) 2024/3012 – CRCF Framework**
   - Published: December 6, 2025
   - Purpose: Establishes the legal framework for certifying carbon removals, carbon storage in products, and carbon farming.
2. **Commission Implementing Regulation (EU) 2025/2358**
   - Adopted: November 20, 2025
   - Purpose: Operational rules for certification schemes, certification bodies, and audits under CRCF.
3. **Draft Delegated Acts (Methodologies)**
   - Draft published: July 2025 Public feedback period: 17 July – 22 September 2025, Expected adoption: 2026
   - Purpose: Define detailed methodologies for different types of carbon removal (e.g., BECCS, DACCS, biochar).

4.1 | EU's CRCF framework, cont.

- The Regulation does not regulate the end-use of the certified units, to avoid double regulation with horizontal EU legislation dealing with climate-related reporting
  - Aims to help public and private organisations to back their voluntary claims on carbon removals, while increasing transparency-> avoiding the risk of greenwashing.
  - Enables new income opportunities for industries deploying carbon removal technologies.

https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en

More details on the CRCF Regulation/05/04/2024 - FAQ (8. How can the CRCF certified units be used?)



EU Carbon Removals and Carbon Farming (CRCF) Regulation

The Carbon Removals and Carbon Farming (CRCF) Regulation (EU/2024/3012) was published in the Official Journal of the EU on 6 December 2024, creating the first EU-wide voluntary framework for certifying carbon removals, carbon farming and carbon storage in products across Europe. By establishing EU quality criteria and laying down monitoring and reporting processes, the CRCF Regulation will facilitate investment in innovative carbon removal technologies, as well as sustainable carbon farming solutions, while addressing greenwashing.

Explore the sections below to learn more about the specific activities covered by the CRCF Regulation.

Permanent carbon removals +

Carbon farming and soil emission reductions +

Carbon storage in long-lasting products +

The CRCF Regulation mandates third-party verification and the publication of certification-related information in an EU-wide registry and aims to streamline certification processes, making them cost-effective yet robust. It also introduces group certification, easing the burden for small farmers and foresters. Thanks to standardised baselines and remote sensing technologies, powered by the Copernicus satellite system, the Regulation will help cut measuring and reporting costs.

More information on the certification process +

Next steps +

More details on the CRCF Regulation −

- 06/12/2024 - Carbon Removals and Carbon Farming (CRCF) Regulation (EU/2024/3012)
- 05/04/2024 - FAQ
- 20/02/2024 - Press release: Commission welcomes political agreement on EU-wide certification scheme for carbon removals

4.1 | EU's CRCF framework, cont.

Next steps

Certification schemes seeking recognition under the CRCF Regulation must comply with two sets of requirements:

- The new Implementing Regulation (EU) 2025/2358
- The upcoming Delegated Acts (tailored certification methodologies for a wide array of carbon removal activities)

To ensure a smooth start, the Commission will start accepting applications for certification scheme recognition, as established by the Implementing Regulation, in early 2026. Following the adoption of the Delegated Acts, each scheme will be assessed based on specific certification methodologies. If all requirements are met, the Commission will issue a recognition decision for a validity period of five years. In addition, in the first half of 2026, the Commission will host several workshops to further develop the EU Buyer's Club[1, 2]. It is expected that Puro.earth and similar organisations will seek to become recognised as a certification scheme by the EU Commission[3].

1. https://climate.ec.europa.eu/document/download/9978e2e0-bfb8-417d-a407-2a116ca894e8_en?filename=event_20251110_minutes_en.pdf
2. https://climate.ec.europa.eu/news-other-reads/news/commission-adopts-rules-and-launches-initiatives-boost-carbon-removals-and-carbon-farming-eu-2025-12-01_en
3. https://connect.puro.earth/hubfs/Policy%20Briefs/Puro.earth%20Policy%20Brief%20EU%20Carbon%20Removal%20Certification%20Framework.pdf?hsLang=en

4.2 | Chain of Custody and Life Cycle Assessment

Status for relevant standards*

ISO/TC 308
ISO 22095
CoC – Mass balance

General description and definitions of CoC.

- 22095:2020. Chain of Custody - Part 1: General terminology and models
- ISO 220095-2. Chain of Custody: Requirements and guidelines for mass balance (expected to be approved March 2026).
- ISO 22095-3:2026. Chain of Custody. Part 3: Requirements and guidelines for book and claim (published January 2026)

ISO/WD 14067
Carbon footprint of products

Under revision, will be updated for CoC. Comment period has closed and a working document has been approved for the preporatory stage. Finalisation date is not yet determined.

ISO/TC 207
-> ISO/WD 14077
Environmental management - LCA

General guidance on use of CoC in LCA. Revision started early 2025.
- Expected finalised 2027

CEN/TC 350/WG3
EN 15804 'Products level'
EPDs for construction works

Is CoC in accordance with EN15804, and how to include it? Focus: recycled material, biogenic carbon and double counting.
- Mass balance credit method - > no consensus.
- Book and claim not considered yet.

* As per 29/01-2026

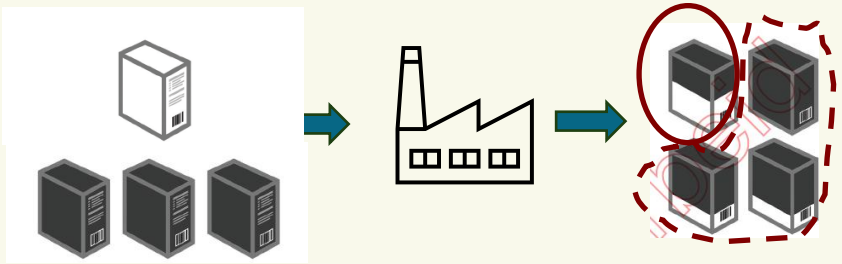
4.4 | Chain of Custody and Life Cycle Assessment, cont.

More on CEN/TC350/WG3

CEN/TC 350/WG3
EN 15804 'Products level
EPDs for construction works

Is CoC/Mass balance credit method in accordance with EN15804?

- Two separate documents Technical Report (TR) and Technical Specifications (TS) will be made, with no requirements or recommendations.
- Probably finalised late 2026/early 2027.
- **Until further, ECO PLATFORM will not allow CoC (mass balance credit method or Book and claim) in EPDs, except for electricity and biogas for energy.**



Mass balancing credit method (ISO 22095)

4.4 | Chain of Custody and Life Cycle Assessment, cont.

Summary on CoC: two systems

ISO/TC 207 -> ISO/WD 14077: on CoC in LCA

- Environmental management — Life cycle assessment — Requirements and guidelines for application of Chain of Custody (CoC) approaches in Life Cycle Assessment (LCA)

CEN/TC 350/WG3 for use of CoC in EN 15804 (EPDs): Requirements for the use of chain of custody models in Environmental Product Declarations for construction products

- NORSUS/Anne Rønning follows the international process; she reports to:
- The Norwegian mirror comittee SN/K223 (bl.a. Cecilie Nødtvedt, HeidelbergMaterials, Trine Dyrstad Pettersen, Byggevareindustrien)

5
Conclusions

5.1 | Main messages from the project

Consistent reporting

- The purpose of CDR is decisive for how they are calculated and reported
  - ⇨ Defines the system boundaries
- Clear, comprehensive and consistent accounting rules would enable the voluntary carbon market (VCM) to play a vital role in funding projects that support countries in meeting their Net-Zero Emissions targets.

Synergies CDR and national GHG inventories

- The same CDR activity can be reported for different frameworks, e.g. in the voluntary carbon market (VCM) and for national GHG accounting
  - Project-based CDR calculations (LCA-based) contain relevant information, such as amounts of total removals, which can be used in national GHG accounting.

6
Dissemination

6.1 | Dissemination activities

- CLIMIT Summit, CDR Conference (25.02.25)

  Breakout session: What is going on in BiCRS?

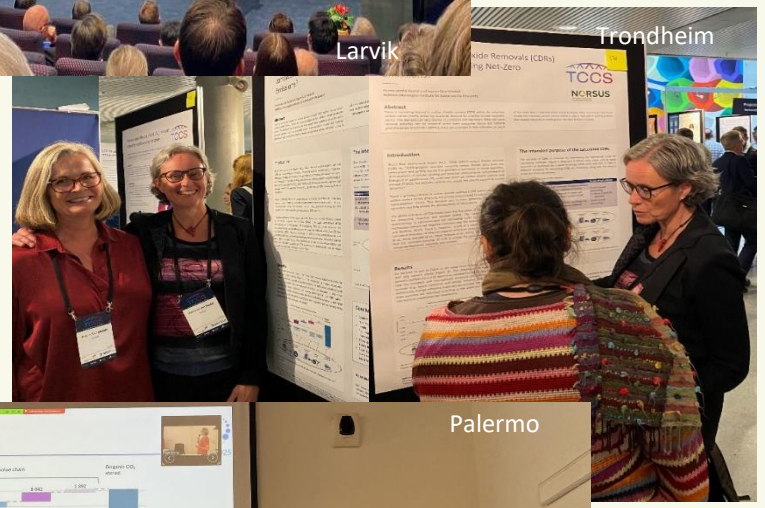
  - "Perspectives for calculating CDR for BECCS"
- TCCS-13 Trondheim CCS Conference (18.06.25)

  CO2-removal (CDR)

  - How can Carbon Dioxide Removals (CDRs) contribute to achieving Net-Zero Emissions?
- LCM (Life Cycle Management) 2025 Palermo (10/9-25), Pathways to Net-Zero

  - "How can Carbon Dioxide Removals (CDRs) contribute to achieving Net-Zero Emissions. Proceedings"
- Mission Innovation BiCRS LCA Webinar (08.12.25)

  - BiCRS LCA Case studies. Norway: Waste-to-Energy with CCSC



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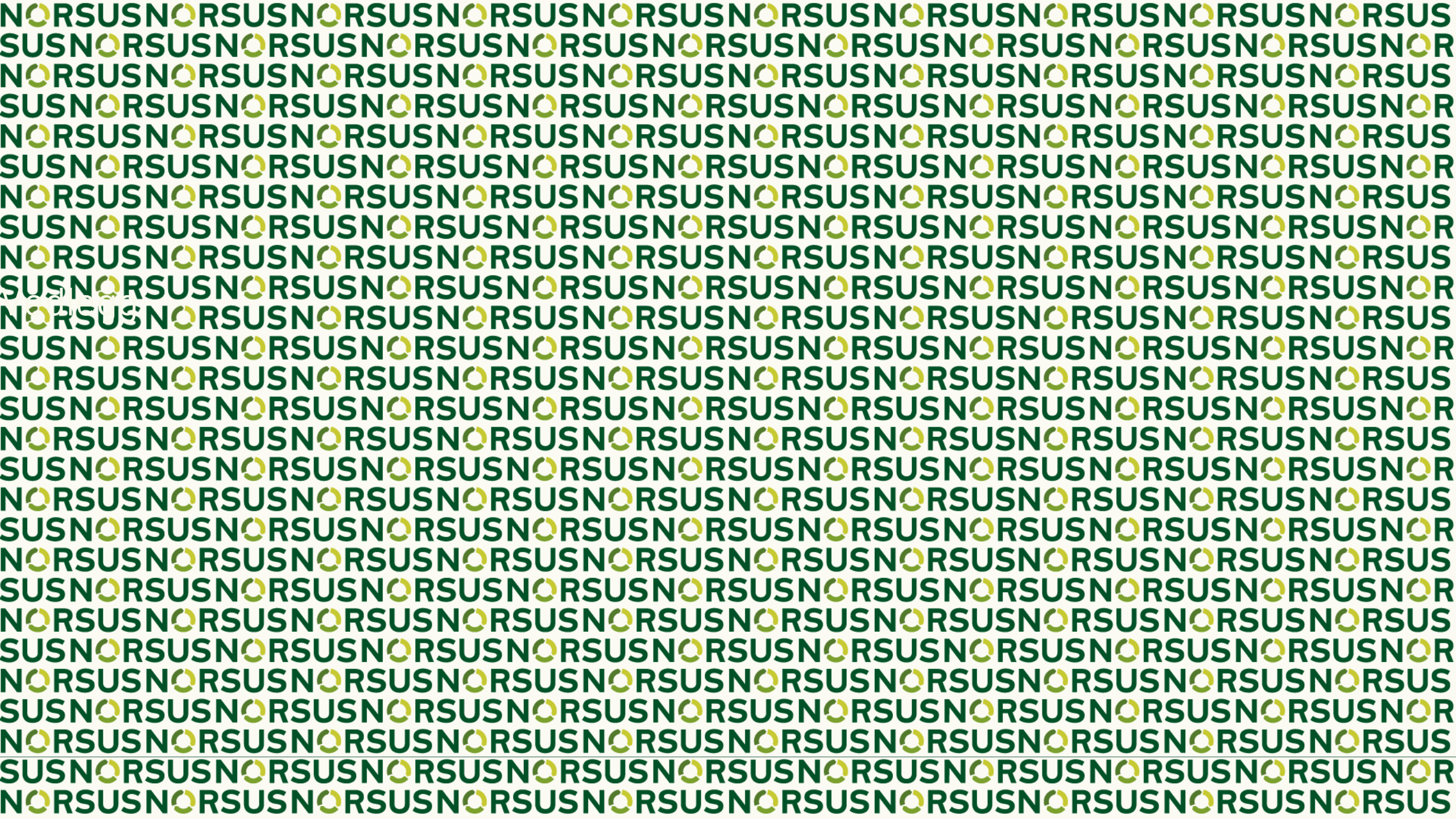
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