DEFINING REAL AND CREDIBLE CARBON REMOVALS

Welcome – Keith Whiriskey, Bellona Europa

Opening Remarks – Terhi Lehtonen, Secretary of State for Environment, Finland

Panel 1- Removal from the atmosphere

- Christoph Beuttler, ClimeWorks
- Lorie Hamelin, University of Toulouse
- Heidi Sorensen, Head of Oslo Climate Agency

Panel 2 – Storage in a manner intended to be permanent

- Graeme Sweeney, Zero Emissions Platform
- Kelsey Perlman, Fern

Panel 3 – Accounting and governance

- Peter Zapfel, European Commission (DG Clima)
- Andrea Ramirez, TU Delft

Closing remarks by Wijnand Stoefs, Carbon Market Watch

#CredibleCDR

Hosted by:

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NEGEM - QUANTIFYING AND DEPLOYING RESPONSIBLE NEGATIVE EMISSIONS IN CLIMATE RESILIENT PATHWAYS

Negative emission technologies and practices (NETPs) are not well understood, although they are featured in all major climate models that comply with achieving 1.5°C and 2°C targets.

Our approach has two phases:

1. Quantitatively assess the real-world potential of CDR
2. Create NETP-containing pathways that support EU's implementation of Paris Agreement's targets

NEGEM partners: VTT (coordinator), Potsdam Institute for Climate Impact Research, University of Cambridge, University of Oxford, ETH Zurich, Imperial College, University of Groningen, INSA, NIVA, Carbon Market Watch, Bellona, ETA, Stockholm Exergi, St1, Drax, Sappi

DEFINING REAL AND CREDIBLE CARBON DIOXIDE REMOVALS (CDR)

Principles to be met when removing CO2 from the atmosphere (CDR)

1. ***Carbon dioxide is physically removed from the atmosphere***
2. ***The removed carbon dioxide is 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, are comprehensively estimated and included in the emission balance***
4. ***The total quantity of atmospheric carbon dioxide removed and permanently stored is greater than the total quantity of carbon dioxide equivalent emitted to the atmosphere***

Reference: When are negative emissions negative emissions? (Tanzer & Ramírez, 2019)

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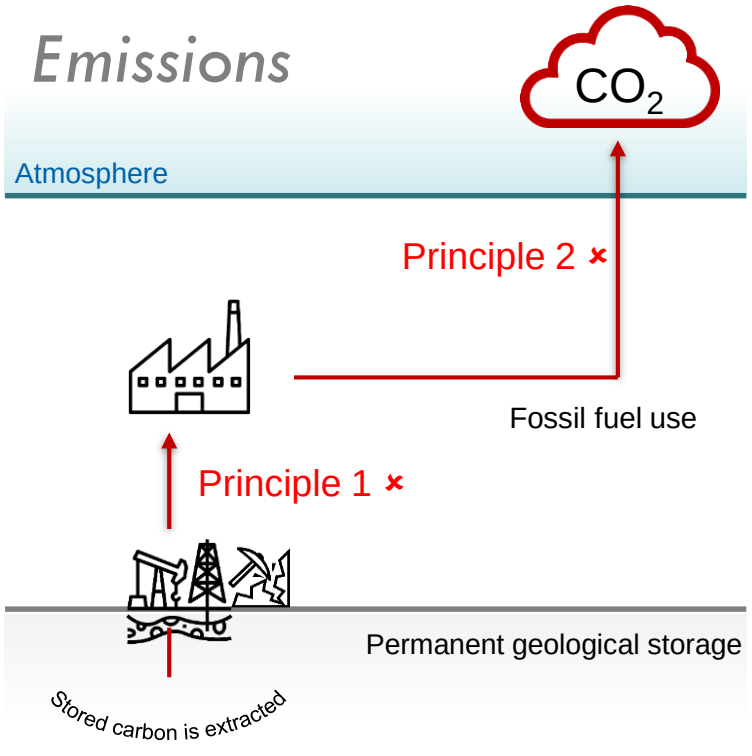
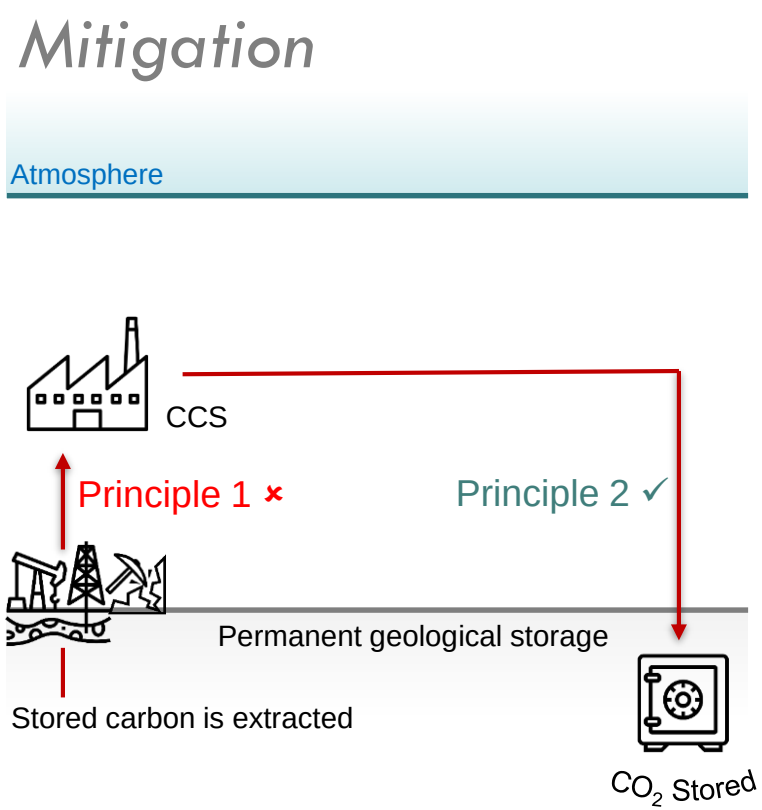
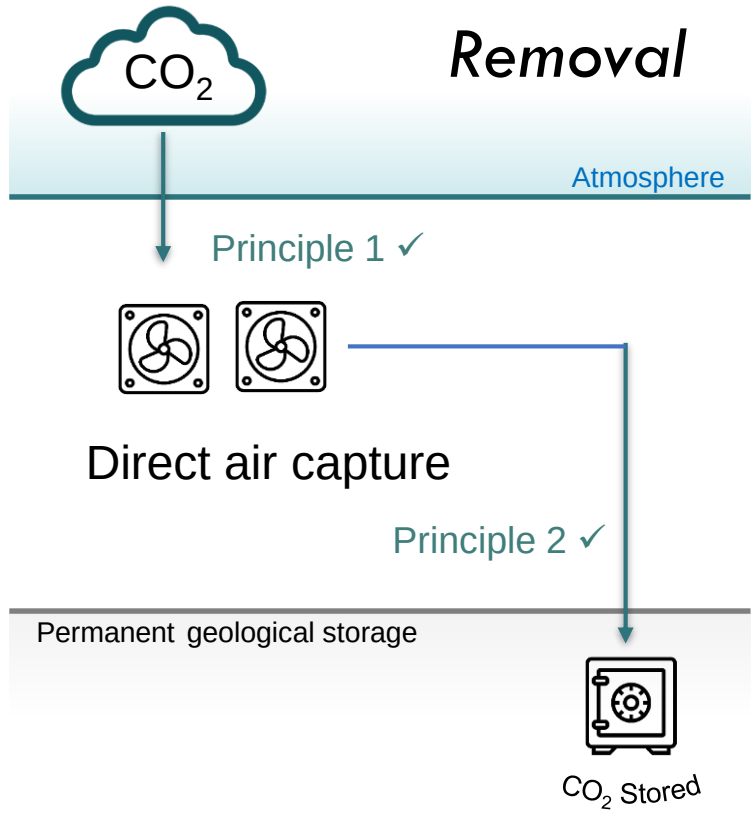
CARBON DIOXIDE REMOVAL (CDR)







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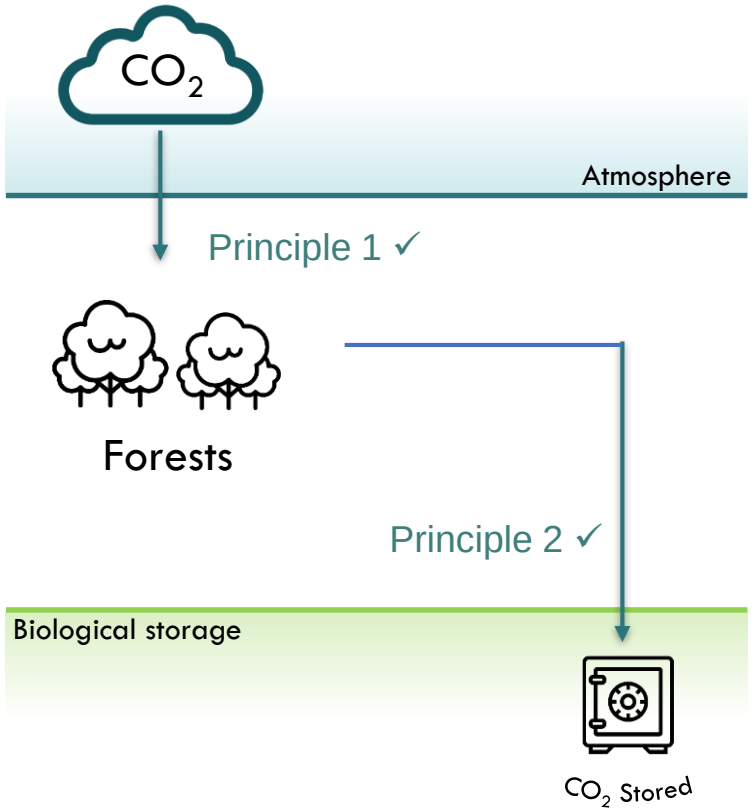

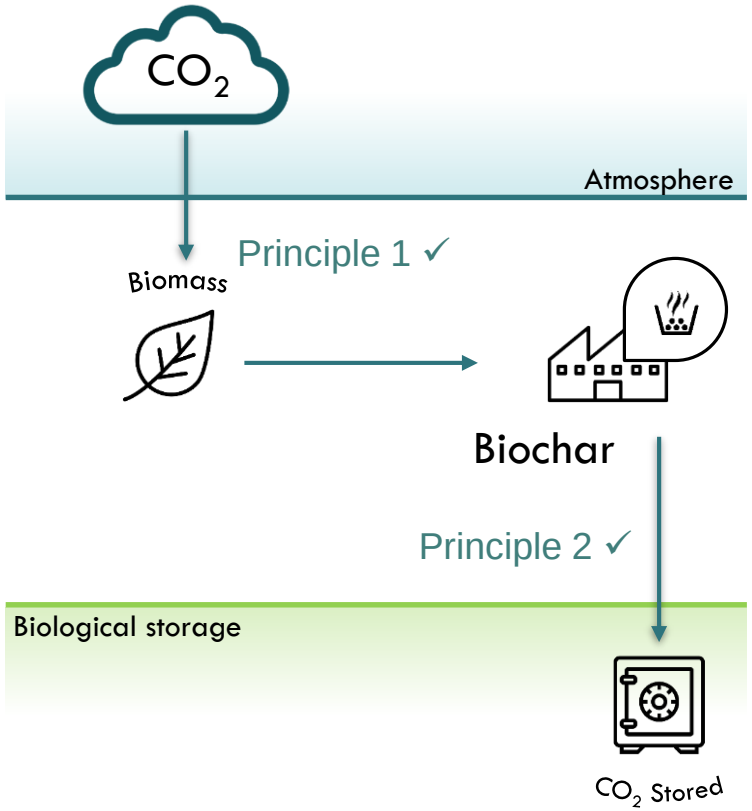

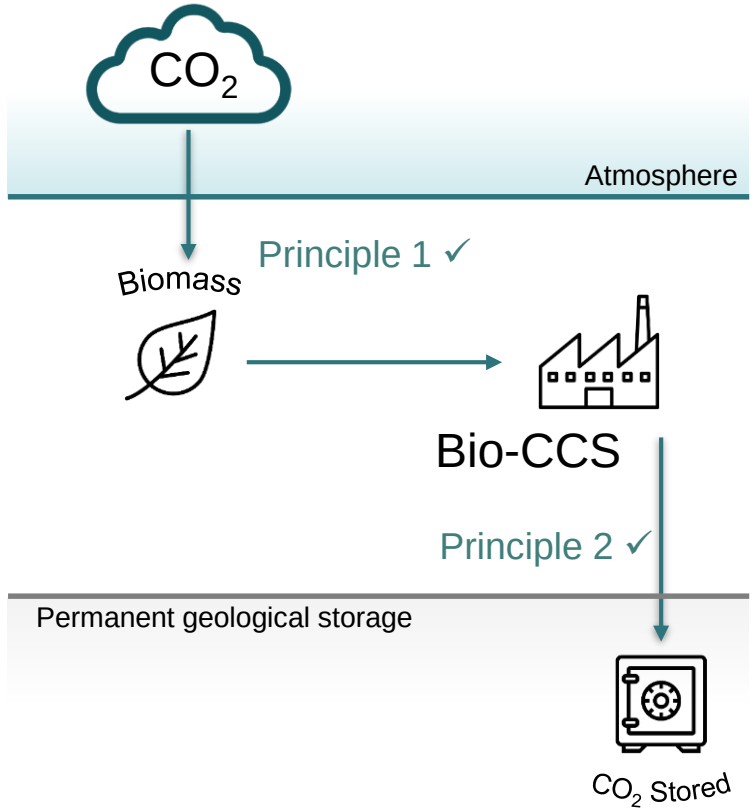

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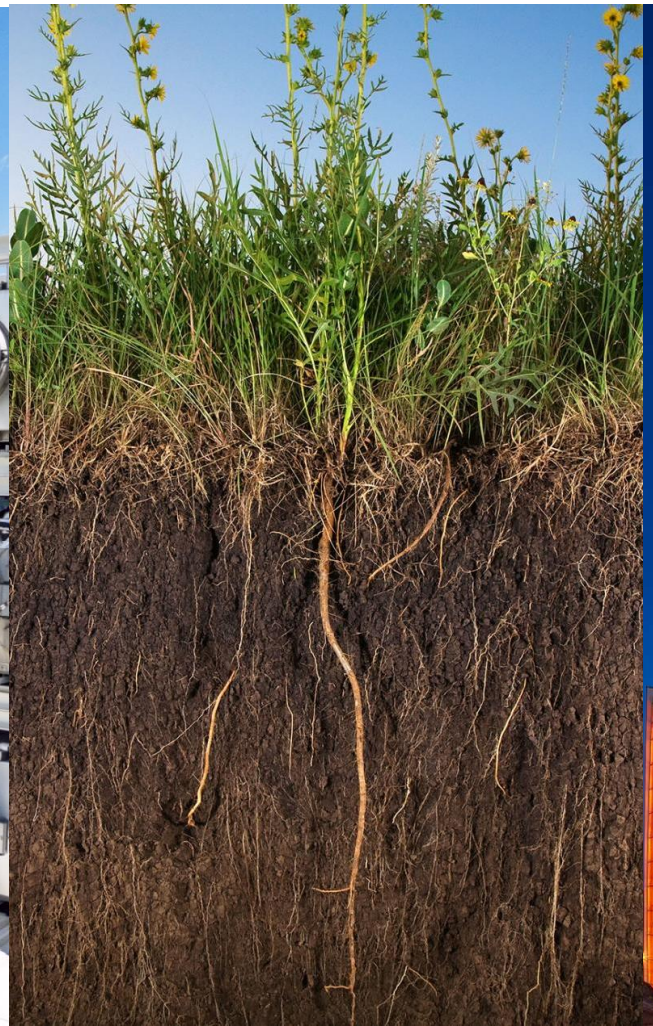
1. CARBON DIOXIDE IS PHYSICALLY REMOVED FROM THE ATMOSPHERE

Panel 1- Removal from the atmosphere

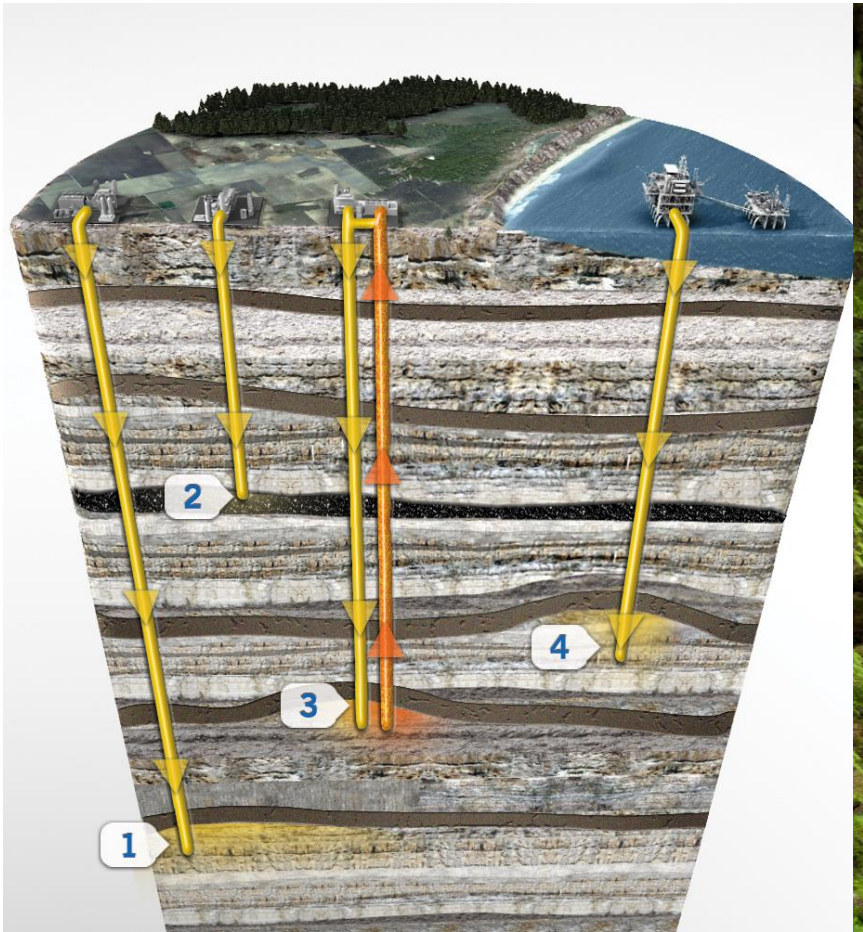
- **Christoph Buettler,** ClimeWorks
- **Lorie Hamelin,** Insa Toulouse
- **Heidi Sorensen,** Head of Oslo Climate Agency



2. THE REMOVED CARBON DIOXIDE IS STORED OUT OF THE ATMOSPHERE IN A MANNER INTENDED TO BE PERMANENT

Panel 2 – Storage in a manner intended to be permanent

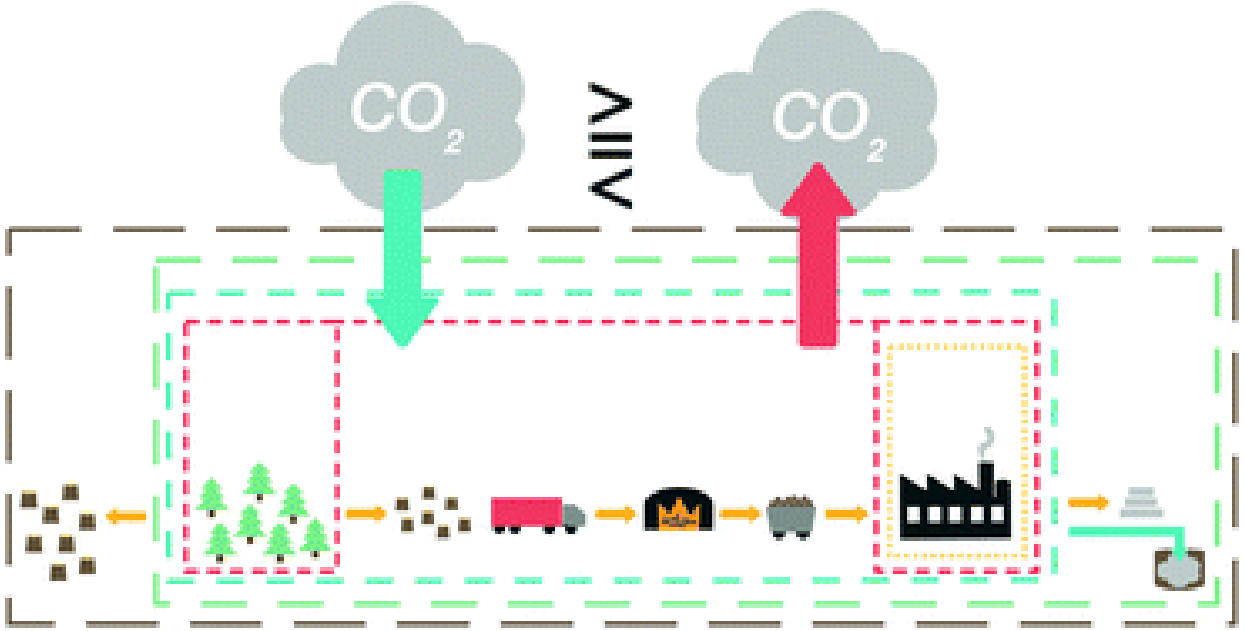
- **Graeme Sweeney,** Zero Emissions Platform
- **Kelsey Perlman,** Fern



3. ACCOUNTING AND GOVERNANCE

Panel 3 – Accounting and governance

- Peter Zapfel, European Commission (DG Clima)
- Andrea Ramirez, TU Delft



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Carbon Dioxide Removal is supplementary to mitigation / not a replacement for it

- Not making a mess in the first place is easier then cleaning it up after the event

Carbon Dioxide Removal is distinct from Mitigation

- Removing CO_2 from the atmosphere
- Reversing the changes we have made to the atmosphere is distinct from mitigation

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