



# 5<sup>th</sup> Meeting of the Carbon Removals Expert Group

21 - 23 October 2024

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# Objectives

## DAY 1

### Permanent removals

- Update on policy developments
- DACCS and BioCCS
- Biochar

## DAY 2

### Carbon farming

- Update on policy developments
- Agriculture
- Peatlands
- Forestry

## DAY 3

### Carbon storage in buildings & verification rules

- Update on policy developments
- Long-lasting biogenic carbon storage in buildings
- Rules on third-party verification and certification schemes

# What's the state of play?

**Nov'22**

Adoption of Commission proposal for a Regulation on carbon removal certification

**April'23-  
May'23**

Call for input on carbon farming methodologies

**July'23-  
Sept'23**

Call for input on industrial carbon removal methodologies

**Nov'23  
- Jan'24**

Focus group sessions

**April'24**

4<sup>th</sup> Expert Group meeting

**March'23**

Kick-off of Carbon Removal Expert Group

**June'23**

Expert Group meeting on carbon farming methodologies

**Oct'23**

Expert Group meeting on industrial removals

**Feb'24**

Provisional agreement on the Regulation

**May'24-  
Oct'24**

Public workshops



# Permanent Carbon Removals

*21 October 2024*

# Agenda

**CRCF basics**



**FAQs**

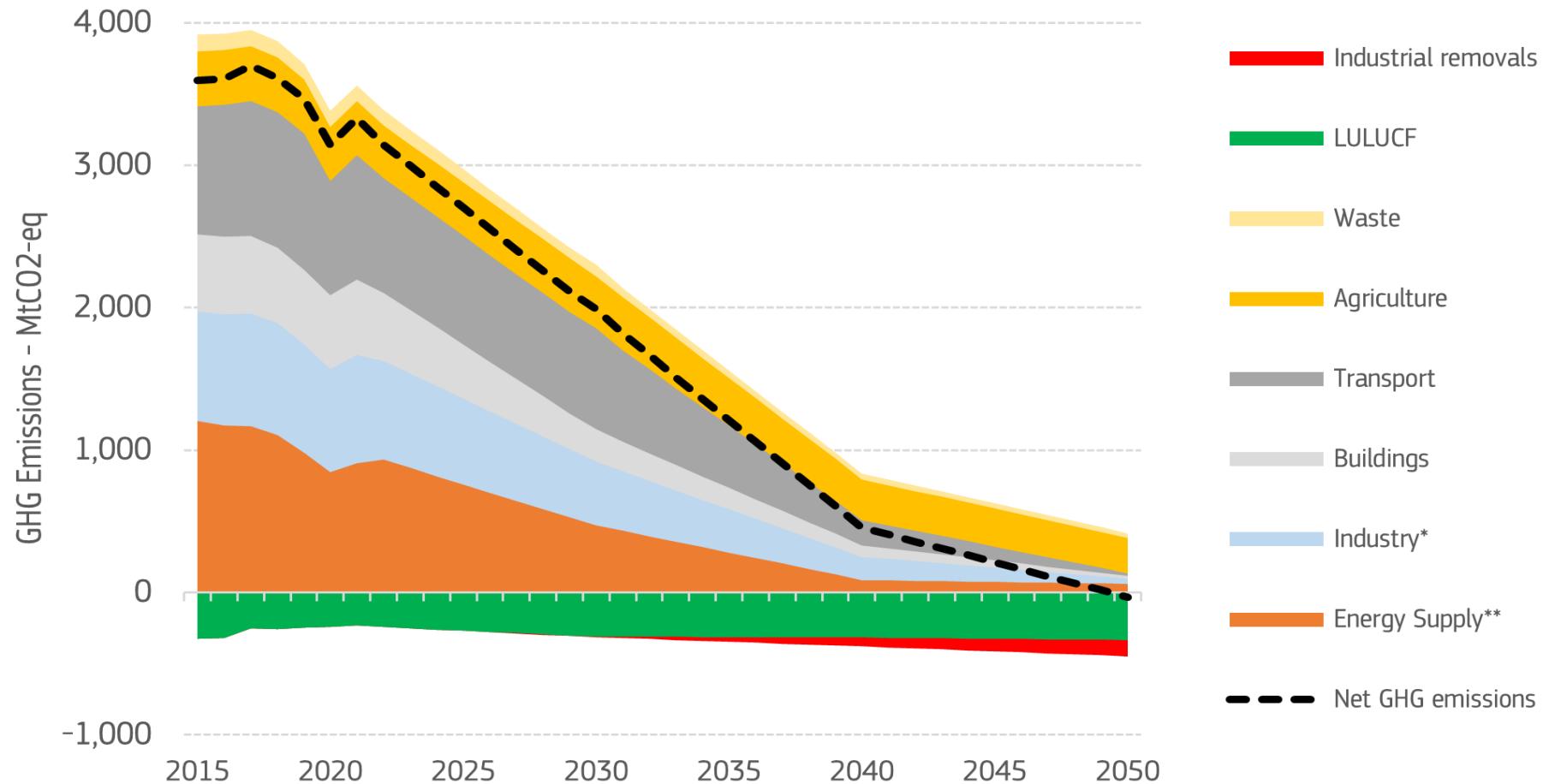


**Objective of this meeting and timeline**



# Pathway to climate neutrality

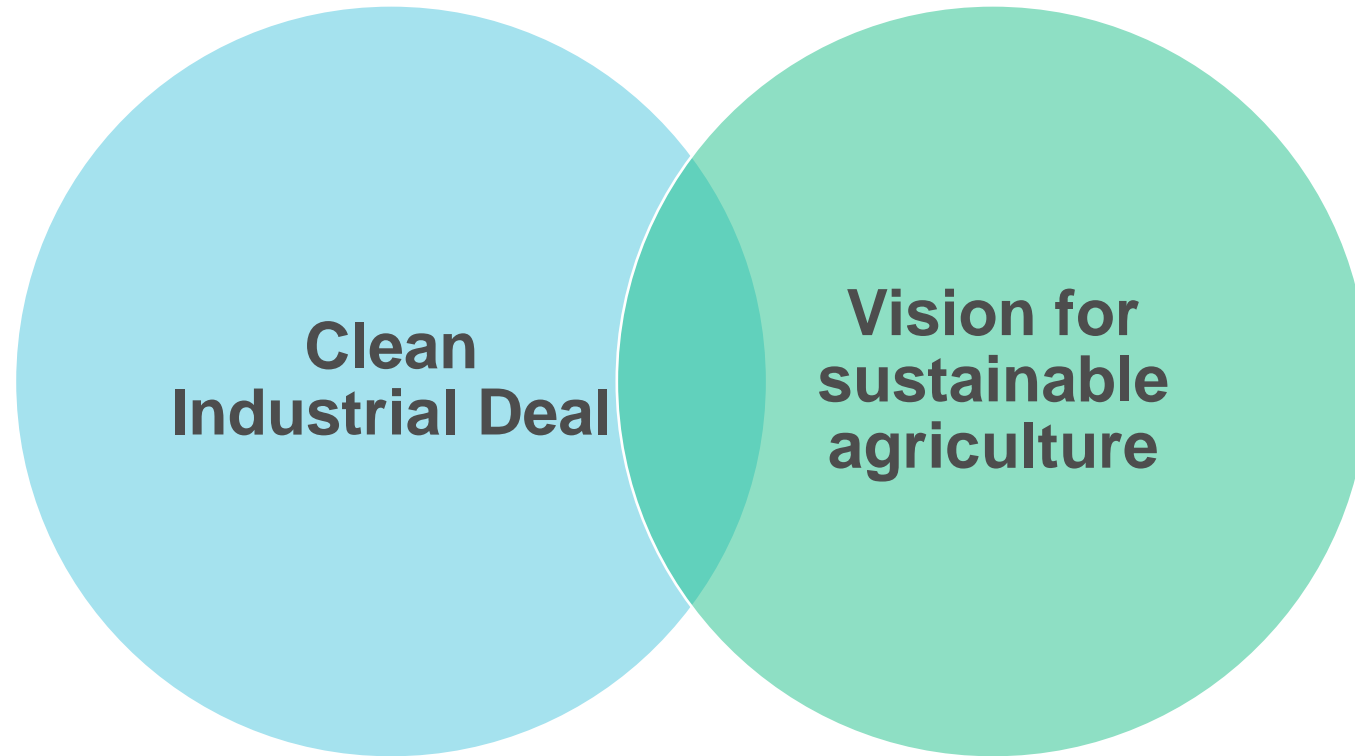
Historical and projected sectoral greenhouse gas emissions in the period 2015-2050



\*Excluding non-BECCS industrial removals

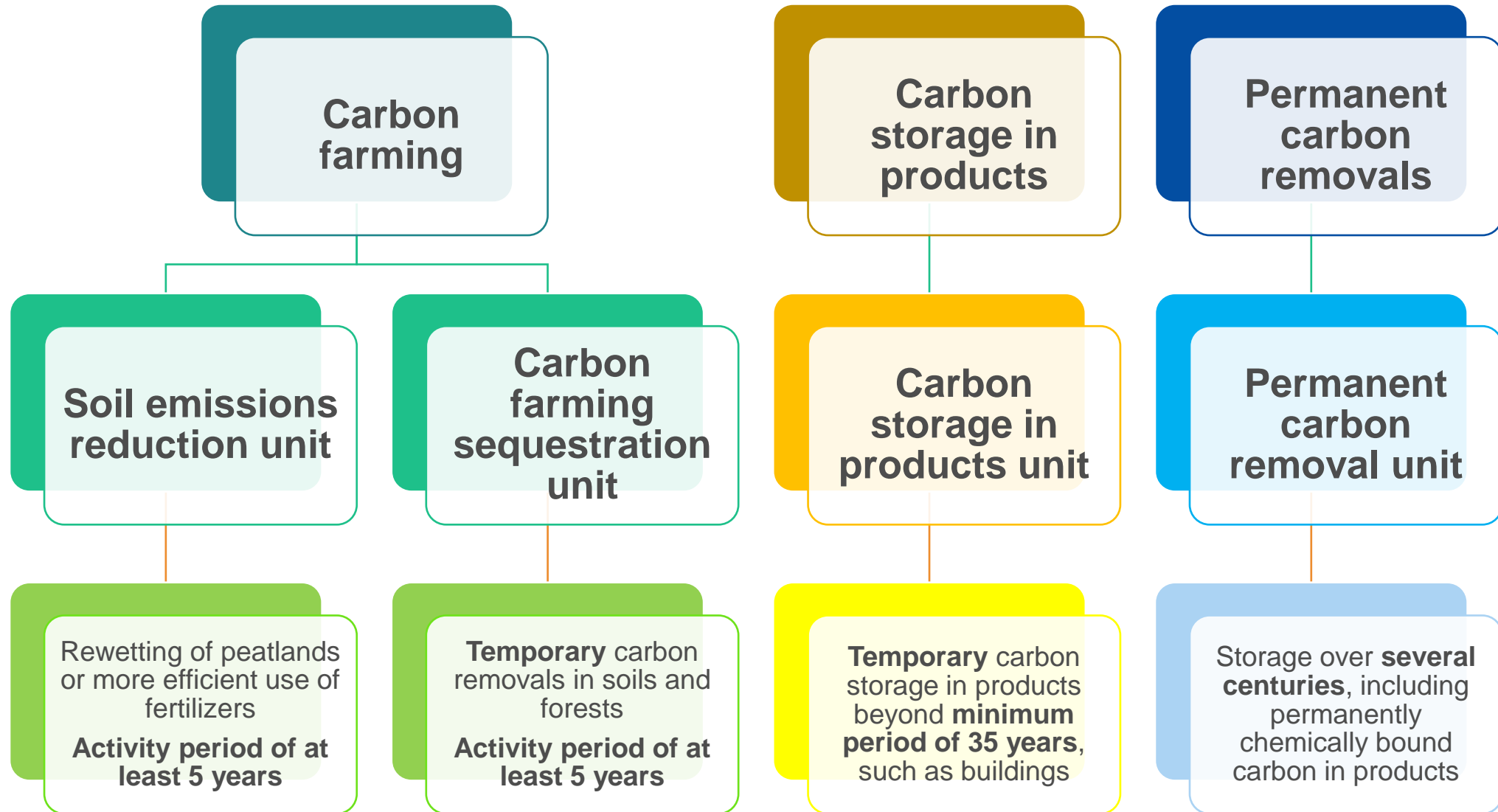
\*\*Including bioenergy with carbon capture and storage (BECCS)

# Two keys for climate neutrality



# Scope of certification

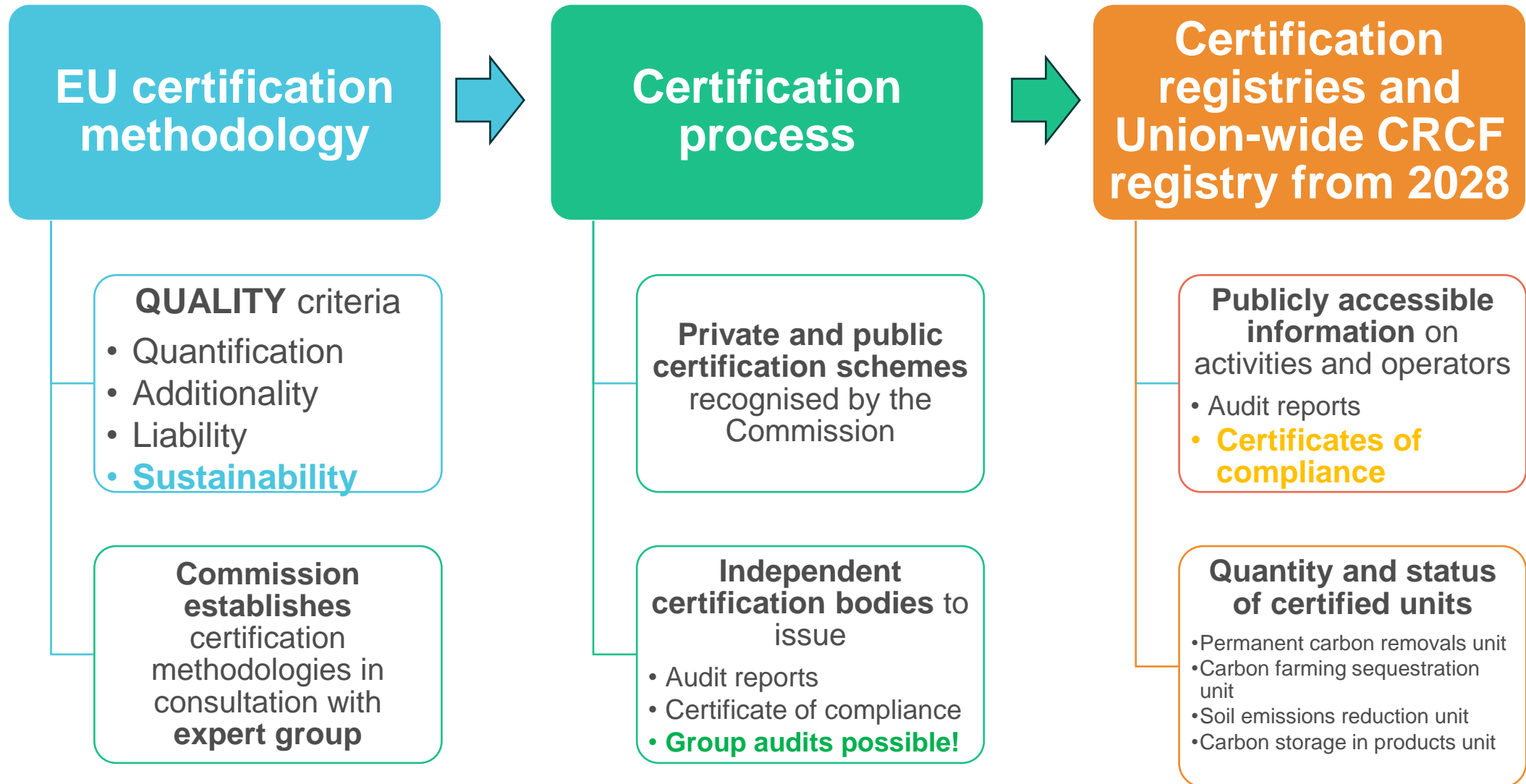
## Article 1 and 2 CRCF Regulation





# How does certification work?

## CRCF Regulation



# Role of CRCF Regulation in voluntary and regulated carbon markets

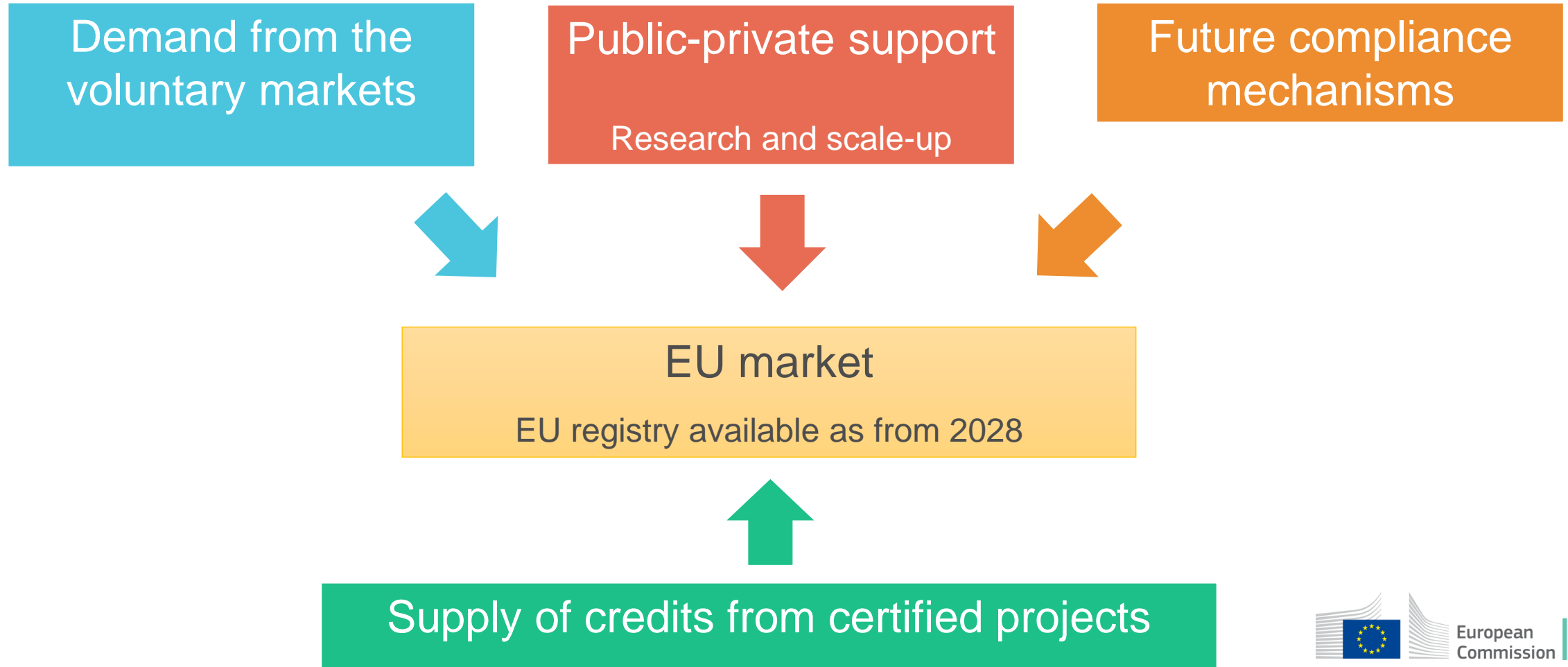
## Corporate claims and sustainable finance

- **Corporate Sustainability Reporting Directive**
  - [Sustainable Reporting Standards on Climate](#) for non-financial reporting
- **Green Claims**
  - [Commission proposal](#) from March 2023 in co-decision

## Post-2030 EU climate policy

- **EU ETS review in 2026**
  - Commission to assess the inclusion of permanent removals in EU ETS
- **Review of LULUCF and Effort-Sharing Regulation in 2026**

# Financing of permanent removals in the EU



# Financing Permanent Carbon Removals

## Ongoing Horizon Europe call for negative emissions

- 15 million EUR available for DACCS and BECCS for CO2 removal/negative emissions

## Workshop on EU funding for research and scale-up

- What are the funding options under EU programs – such as Horizon, Innovation Fund, LIFE and European Innovation Council?
- How to match public funding and private risk capital?
- January 2025 in Brussels (TBC)

## Workshop on public-private purchasing program

- Blueprint for an EU purchasing program
- Testing the interest with public or private buyers
- Q2 2025 in Brussels (TBC)

# Agenda

CRCF basics



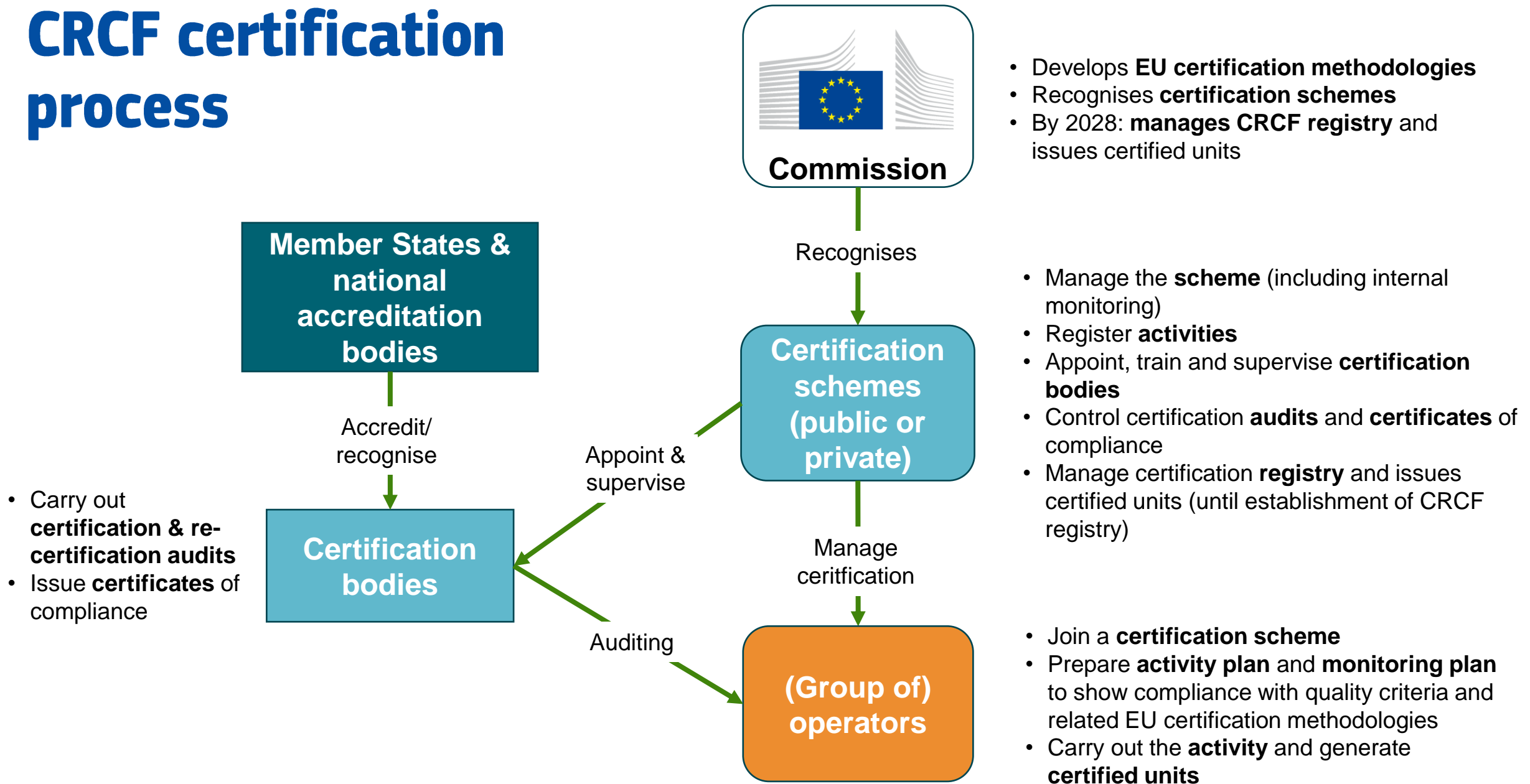
FAQs



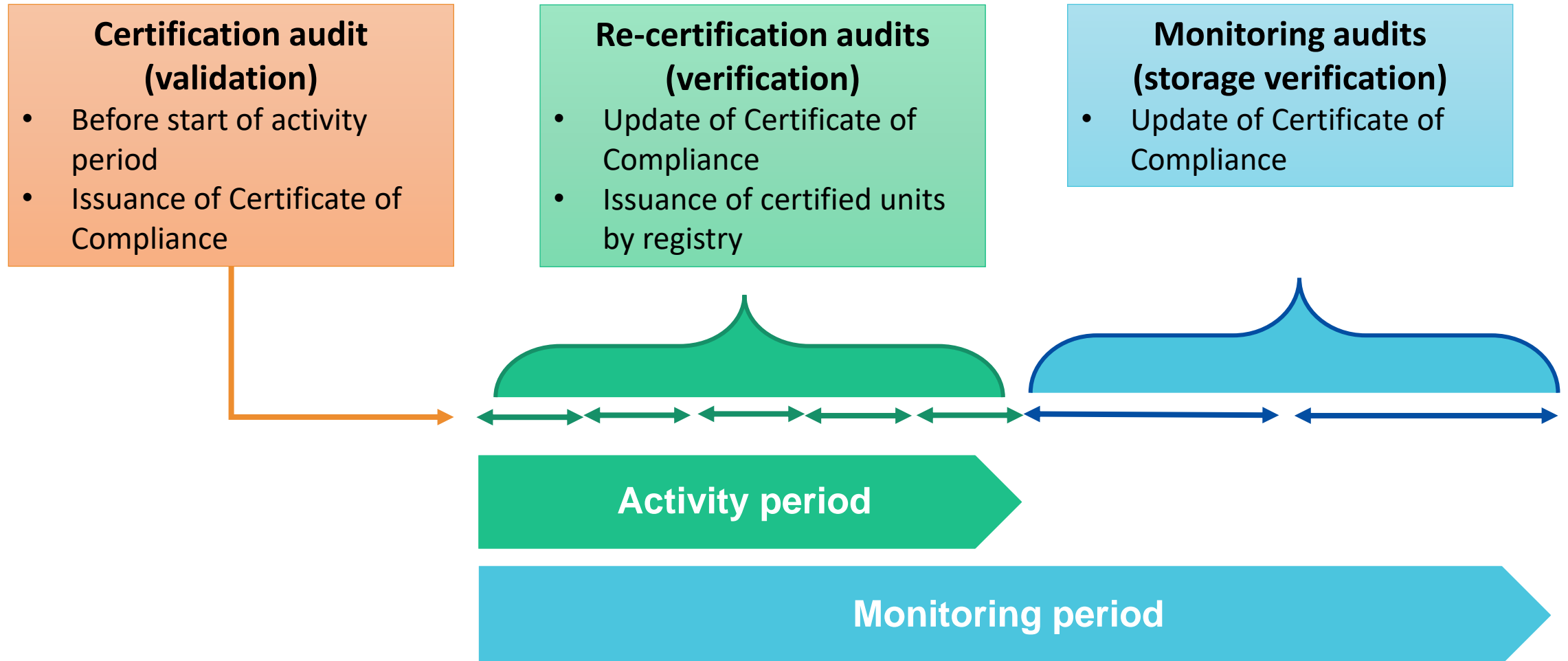
Objective of this meeting and timeline



# CRCF certification process



# Certification audit and regular re-certification audits during activity and monitoring periods



# FAQs

## Can existing certification schemes and operators join CRCF?

- Yes, all certification schemes can apply for EC recognition if they meet the CRCF verification requirements and apply the EU certification methodologies.
- Operators can join CRCF if their activity is covered by an EU methodology.

## Can public funding be combined with CRCF revenues?

- Issues related to double funding and overcompensation fall within the remits of the competition policy for State aid. Therefore, the relevant cumulation rules apply.
- In order to ensure transparency, any public subsidy will be included in the certificate of compliance.



# Agenda

CRCF basics



FAQs



**Objective of this meeting and timeline**

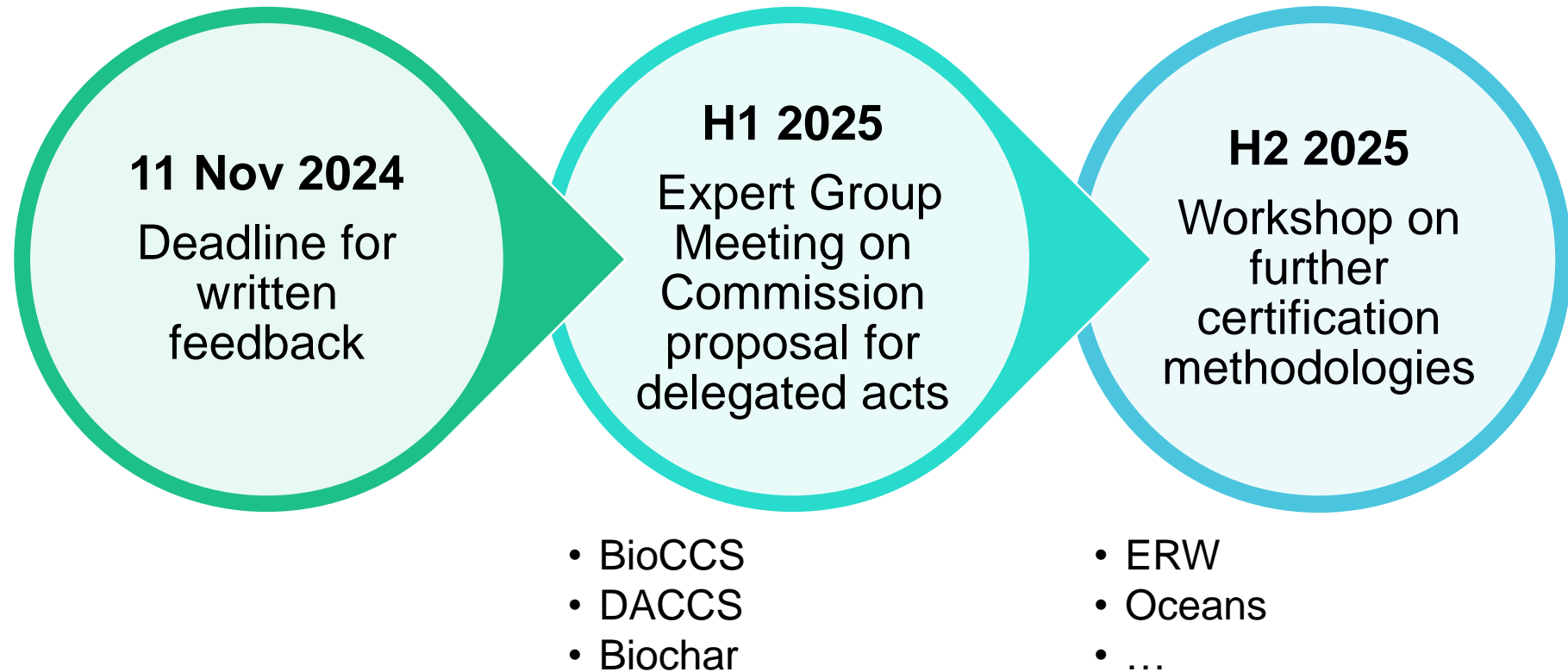


# First draft methodologies as launchpad for your inputs

**BioCCS and DACCS**

**Biochar**

# Next steps on certification methodologies for permanent removals (tentative)



# Next steps on verification rules (tentative)



- Vote in Climate Change Committee

# Next steps towards certification

December  
**2024**

Publication of CRCF in Official Journal

CRCF Regulation (linguist lawyer version): [CO\\_TA \(europa.eu\)](#)

**2025**

Proposal of delegated acts on certification methodologies

Permanent removals

Carbon farming

Carbon storage in long-lasting buildings

Proposal of implementing act on verification and registries

**2026**

Start of certification

EC recognition of certification schemes

First issuance of certified units

**2028**

Start of EU registry

## More information:

- [DG CLIMA website on Carbon Removals and Carbon Farming](#)
- CRCF Regulation (linguist lawyer version): [CO\\_TA \(europa.eu\)](#)
- FAQ: [a8abe1c4-a3c6-4c94-be0e-4b76f7fd0308\\_en \(europa.eu\)](#)
- [EU carbon removals newsletter](#)

## OVERVIEW

# DACCS & BioCCS Part I

1. Presentation of draft elements of the EU certification methodology, Chris Malins, Cerulogy
2. Open discussion



**Support to the development of methodologies for the certification of industrial carbon removals with permanent storage – draft technical specifications DACCS, BioCCS, BCR**

Expert group on carbon removals, 21-23 October 2024

ICF in collaboration with Cerulogy and Fraunhofer ISI



Cerulogy



Fraunhofer  
ISI





# Permanent carbon removals – status

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- Two draft technical specification documents shared prior to the meeting
  - DACCS & BioCCS
  - Biochar
- Written feedback requested by 11 Nov
- This meeting:
  - Opportunity to discuss general points about the framing, structuring and level of detail in the draft specifications
  - Opportunity to discuss specific points about the content of the specifications
  - Opportunity to raise anything you see as gaps in the specifications



**DACCS and BioCCS**

# Overview: DACCS & BioCCS

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- Applies to activities capturing atmospheric or biogenic carbon and transferring it for permanent storage
- Is non-prescriptive about technology approaches used for direct air capture
- Seeks to be broad in covering biogenic CO<sub>2</sub> sources, including partially biogenic sources
- Builds on the governance of CO<sub>2</sub> storage provided by the CCS Directive and MRR
  - Liability is imposed via the requirement on the storage site operator to surrender ETS allowances in the event of leakage

# Timescales

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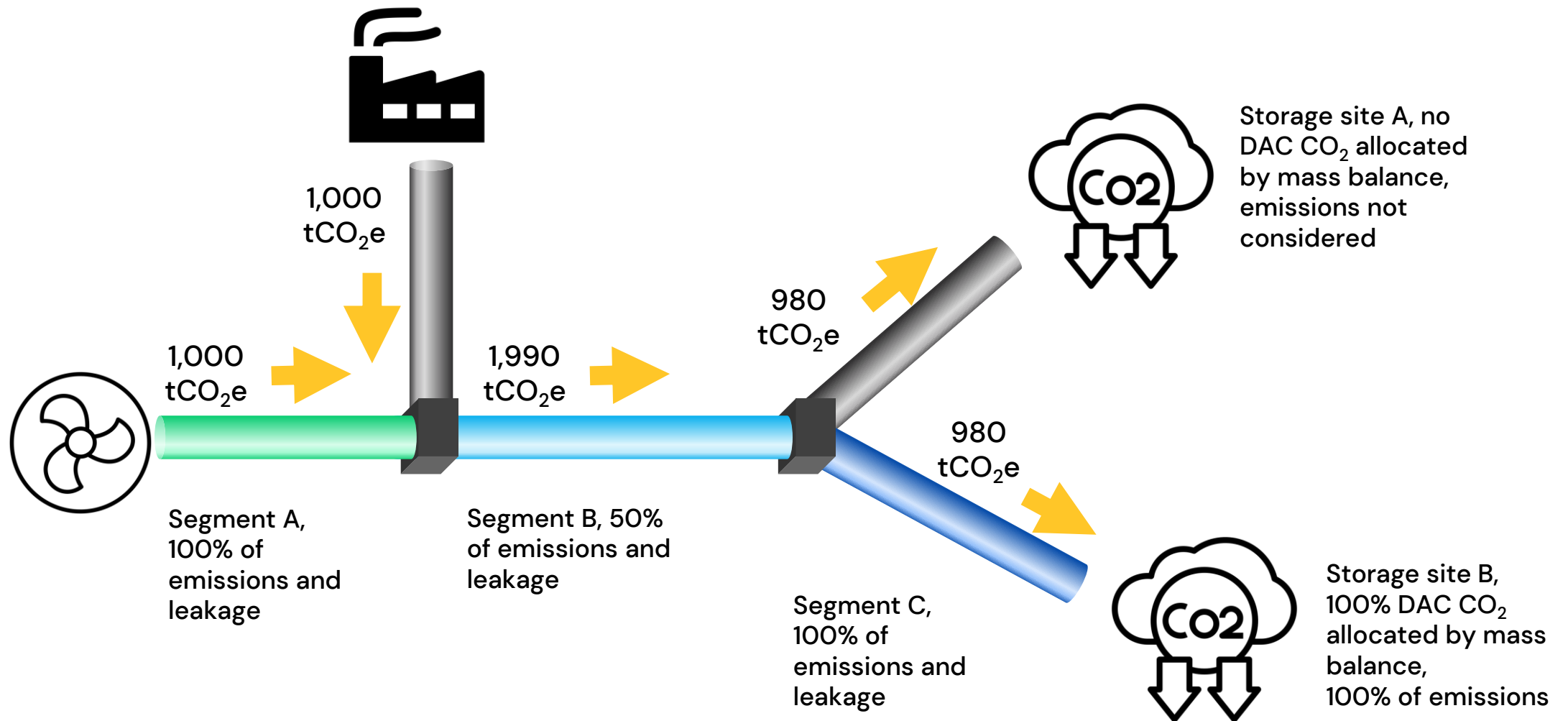
- The draft specifications define certification, activity and monitoring periods:
  - Certification period is the period after which carbon removal units are to be issued, and is prescribed as one year
  - Activity period is the maximum period that a project can generate units before recertification under the current methodology, and is 10 years
  - The monitoring period is the period until responsibility of the storage site(s) is transferred to competent national authorities
- Distinguishes certification audit from recertification audit
  - Certification occurs prior to any removal units being generated and is based on project design documents and expected outcomes
  - Recertification occurs annually based on actual performance in the previous certification period (year)
- No limit proposed on project renewal

# Shared infrastructure

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- The specifications are written to allow the use of shared CO<sub>2</sub> transport and storage infrastructure
  - CO<sub>2</sub> from multiple sources travelling through the same pipelines/in same trucks/etc.
  - CO<sub>2</sub> from multiple sources stored at the same site
- Assumes the use of mass balance rules to link capture site to storage site on contractual basis
- Requires protocols to 'allocate' losses in transit and in storage between activity CO<sub>2</sub> and other CO<sub>2</sub>
  - We have introduced the idea of transport infrastructure 'segments' to facilitate this allocation

# Schematic example of transport infrastructure segments



# Attribution in BioCCS

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- The specifications treat a carbon capture unit as an add-on to a CO<sub>2</sub>-generating facility
- The emissions and biomass consumption for the underlying facility are attributed to the primary product:
  - Energy
  - Ethanol
  - Whiskey
  - Paper
  - Etc.
- Only the additional energy/additional biomass required to operate the CC process is attributed to the BioCCS project
  - No biomass supply emissions are attributed to the BioCCS activity unless additional biomass consumption is required in order to operate the carbon capture unit

# Baseline and additionality

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- A standardised baseline of 0 tCO<sub>2</sub>e/yr is proposed for both the DACCS and BioCCS activities
- Informed by the expectation that:
  - The ETS does not currently provide a driver to implement BioCCS projects
  - DACCS and BioCCS can be enabled by the market for carbon removal units



# Biomass sustainability

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- All biomass used to generate the CO<sub>2</sub> captured by the activity must meet the RED III Article 29 sustainability criteria
- Additional sustainability requirements in relation to climate change adaptation, water resources, circular economy, pollution prevention, and biodiversity and ecosystems based on the sustainable finance taxonomy DNSH criteria
- Facilities not permitted to claim carbon removal units if biomass consumption rises by more than [25%] compared to the period before the activity is implemented

# Other quantification specifications

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- Capital emissions for the capture facility and storage site must be subjected to a materiality assessment and included if above 2% of gross carbon removals for an activity
  - Capital emissions for transport infrastructure do not need to be assessed or included
- GHG intensity of consumed electricity to be identified following the RED rules for electricity consumed in RFNBO production
  - Allows the assumption of grid average electricity or demonstration of the use of additional renewable electricity
- Uncertainty associated with measured data to be quantified following IPCC good practice guidance

# Open discussion

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- It would be helpful to start by going round the room to identify the issues that are of most interest to the group.
- We will then have an open discussion.
- We also look forward to receiving your written feedback.

## OVERVIEW

# Biochar

1. Presentation of draft elements of the EU certification methodology, Chris Malins, Cerulogy
2. Open discussion



**BCR (biochar carbon removal)**

# Overview: BCR

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- Applies to activities applying biochar to soils or incorporating biochar in cement, concrete or asphalt
  - Other storage approaches such as underground biochar storage in disused mines or biochar incorporation in other products may still be considered if evidence of permanence and sustainability can be provided
- Is non-prescriptive about the biochar production process, but anticipates pyrolysis or gasification
  - Biochar applied for soils must meet the specification of pyrolysis and gasification materials from the Fertilising Products Regulation

# Permanence

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- Two options are offered for permanence assessment:
  - Inertinite evaluation through  $R_o$  random reflectance analysis of biochar samples
  - Use of a decay function for 200 year permanence based on Woolf et al. (2021) and informed by the IPCC draft method for national inventories, parameterised by  $H/C_{org}$  ratio and average ambient temperature
  - We believe that this decay function is likely to be conservative over 200 years, but acknowledge that there is not scientific consensus on this point
- No distinction is made between soil application and material incorporation
  - We expect permanence to be higher in the allowed material incorporations
  - The decay function is based on incubation data for soil application
- We have previously discussed alternatives to the Woolf et al. (2021) decay functions
  - We are open to hearing arguments in favour of adopting a specific alternative default decay function

# Monitoring

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- The draft does not include any requirement for sampling/monitoring of biochar in soils past the point of application
  - It is our understanding that it is not practically possible to accurately monitor biochar in soil after the point of application
  - Carbon losses through degradation after application are accounted through the  $F_{perm}$  factor in the permanence calculation
- The draft does not include any requirement for monitoring materials in which biochar is incorporated to end of life
  - Monitoring of materials on decadal or centurial timescales would be somewhat burdensome
  - The likelihood of biochar loss at end of life is considered limited (only likely in the case of thermal treatment)
  - It is noted in the draft that it would be appropriate for the Commission to continue to monitor developments in e.g. cement recycling and their implications for biochar permanence in these materials



# Requirements on biochar production and use

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- $H/C_{org}$  ratio  $\leq 0.7$ 
  - We considered 0.4, but propose not to exclude biochars with  $H/C_{org}$  ratio in the range from 0.4 to 0.7
  - Lower permanence for higher  $H/C_{org}$  ratio biochars will be quantified in the  $F_{perm}$  factor
- Sustainability requirements on feedstock as for BioCCS
- Limit feedstocks to wastes and residues for facilities that are primarily focused on biochar production (i.e. not a secondary co-product to electricity/heat/syngas/pyrolysis oil etc.)
- Proposes a minimum thermal efficiency requirement for the facility
- For soils:
  - Requires that risk of albedo increase is managed
  - Requires biochar to conform to limit values on heavy metals and organic contaminants from the EBC Guidelines for a sustainable production of biochar
- For materials:
  - Meet the requirements for EBC-BasicMaterials

# Baseline and additionality

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- A standardised baseline of 0 tCO<sub>2</sub>e/yr is proposed for the BCR activity
- Informed by the understanding that:
  - There is an existing but limited market for biochar as a soil additive only
  - It is understood that a market for carbon removal units may enable significant growth in biochar production and use
  - It was not seen as necessary to set an activity-specific baseline for existing producers, partly to avoid being seen to penalise early movers

# Other quantification specifications

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- Emissions from biomass supply and biochar production process to be allocated between biochar and other co-products by energy
  - Processes with a low biochar yield to treat it as a residue with no emissions allocated
- A requirement to include methane emissions from feedstock decomposition unless the storage follows good practices

# Open discussion

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- We will again go round the room to identify the issues that are of most interest to the group.
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