

L-I | CCU – A Touchstone for Climate Protection and Emissions Trading Law

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The conceptual world of climate protection conventions and emissions trading law has been centered around the concept of “emissions”, equivalent to greenhouse gas (GHG) releases into the atmosphere. Carbon dioxide capture and utilisation (CCU) technologies will increasingly be employed to keep carbon within the technosphere and to prevent GHG releases, which begs the question how these technologies could be adequately accounted for in systems based essentially on the evaluation of GHG transfer between the technosphere and the atmosphere.

Climate protection with a historical focus on greenhouse gas emissions

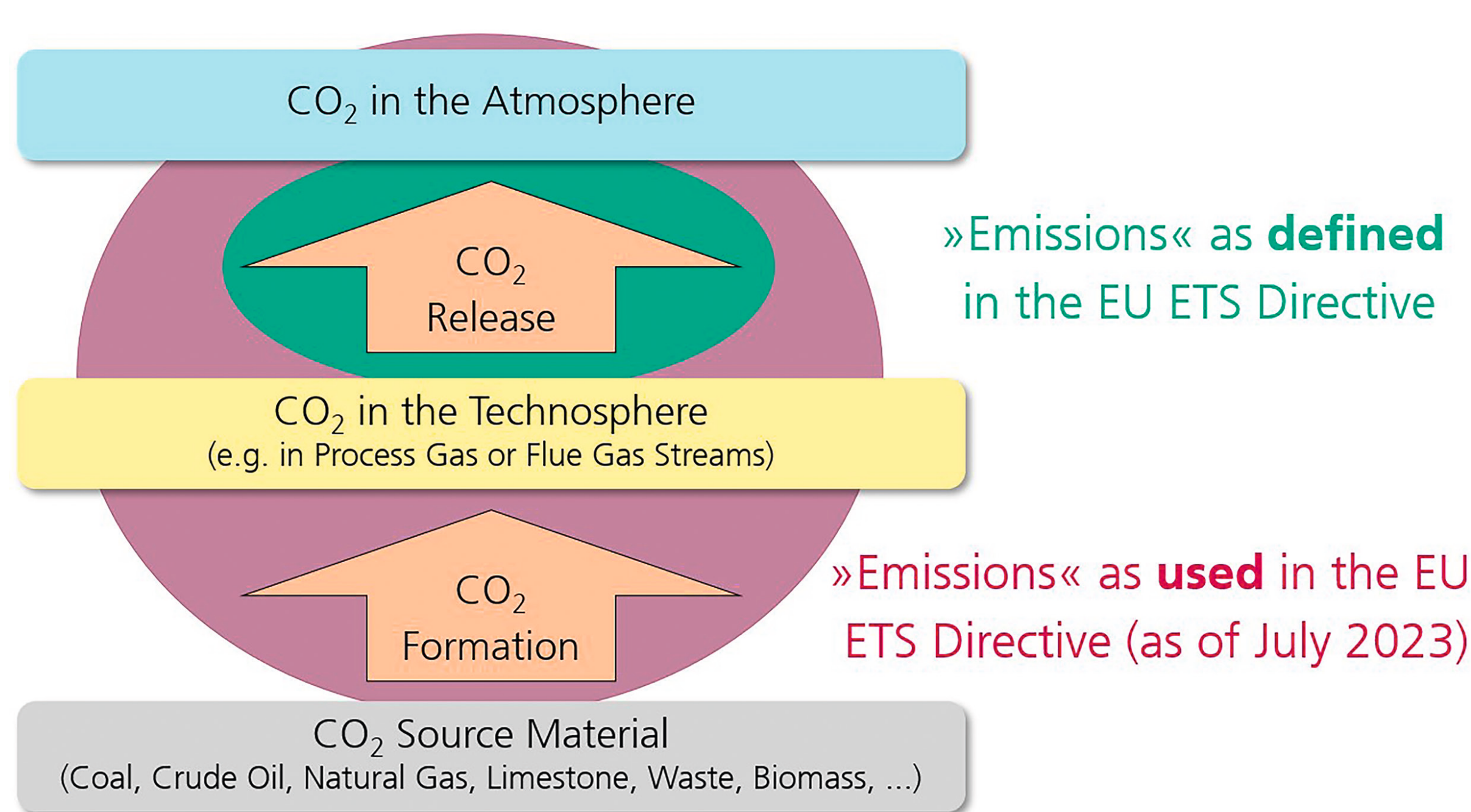
Ever since the establishment of the UN framework convention on climate change (UNFCCC) in 1992, the international legal framework for climate protection has employed the concept of “emissions” as a guiding principle. The European Emissions Trading System has adopted the same concept as a key parameter for reporting obligations and for a “carbon dioxide tax”.

Terms like “source”, “sink”, and “emissions” as defined in the UNFCCC are unsuitable, however, to describe processes that occur without any GHG transfer between the technosphere and the atmosphere. This is true in particular for CO₂ capture from process waste gases, which is a key element of CCU and CCS process chains.

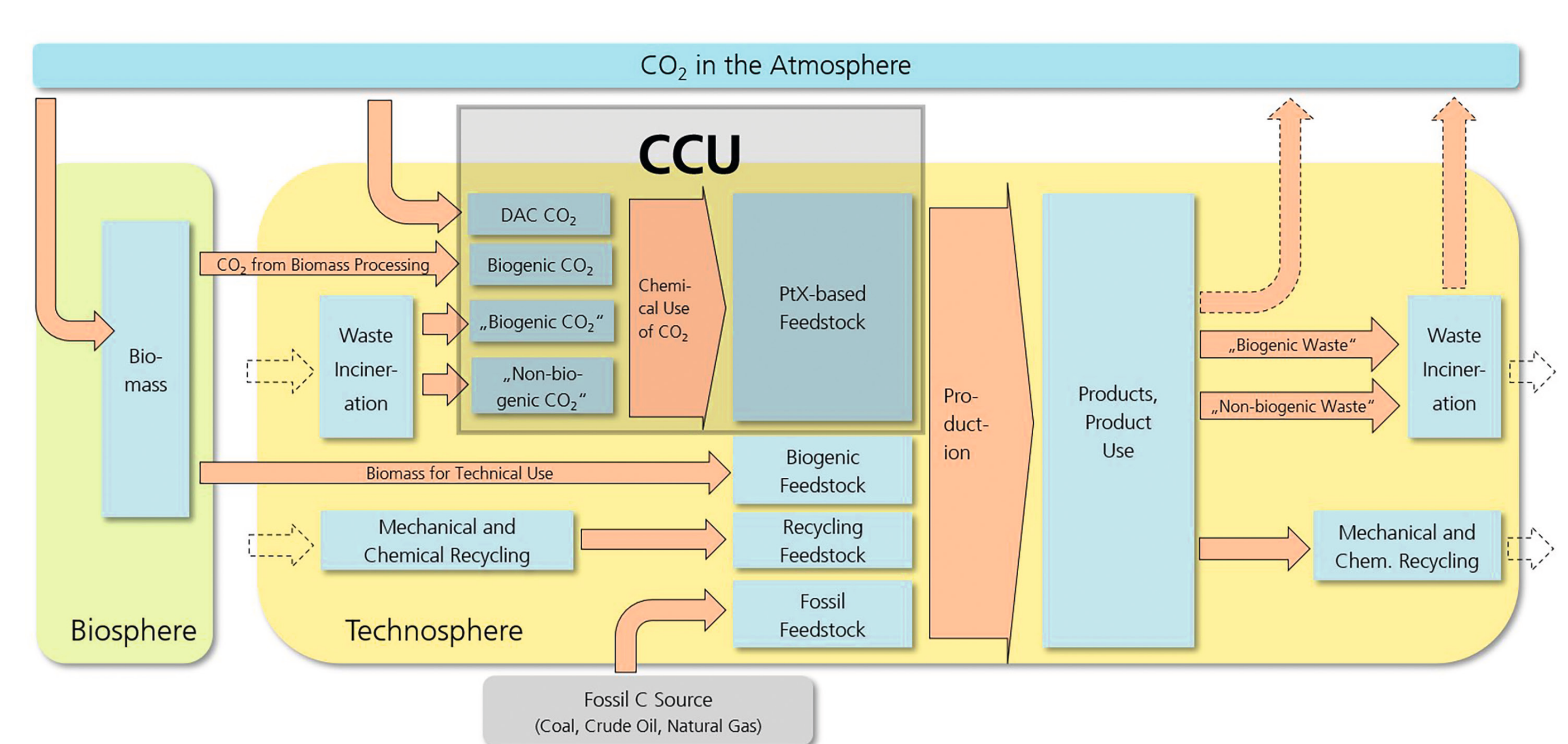
New developments invalidate the old equation “created = released” for greenhouse gases, calling for a reexamination of the term “emissions” and its application. Equally, the assumption that only permanent storage can avoid a re-release of GHG is no longer tenable given the importance of CCU technologies for true carbon recycling within the technosphere.

Emission prevention using carbon capture technologies as a game changer

The concept of “emissions”, by definition, implies a release into the atmosphere. The legal term “emissions” is more and more often used for situations where actually no release takes place. Apparently, this can be attributed to the current lack of a specific legal term, both in the regulatory system for the EU ETS and for Sustainable Carbon Cycles, to describe activities that generate CO₂ without releasing it to atmosphere. Without a specific and clearly defined legal term for CO₂ formation in industrial activities without release, the description of the purpose of CCU and CCS proves difficult and even contradictory. This becomes apparent in the ETS Directive 2003/87/EC, amended by Directive (EU) 2023/959, with phrases like “unavoidable process emissions” for activities combined with CCUS technologies: It is the formation of CO₂ in the underlying activities that is unavoidable, whereas the CO₂ emissions (= release) can obviously be avoided using carbon capture technologies. The paradox (“avoiding the unavoidable”) could be eliminated by employing the term “unavoidable CO₂ formation”.



Conceptual problems in the current EU ETS regulatory framework.



CCU as a new enabler for carbon recycling in the technosphere.

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CO₂ reduction by cooperation of process industrial sectors