

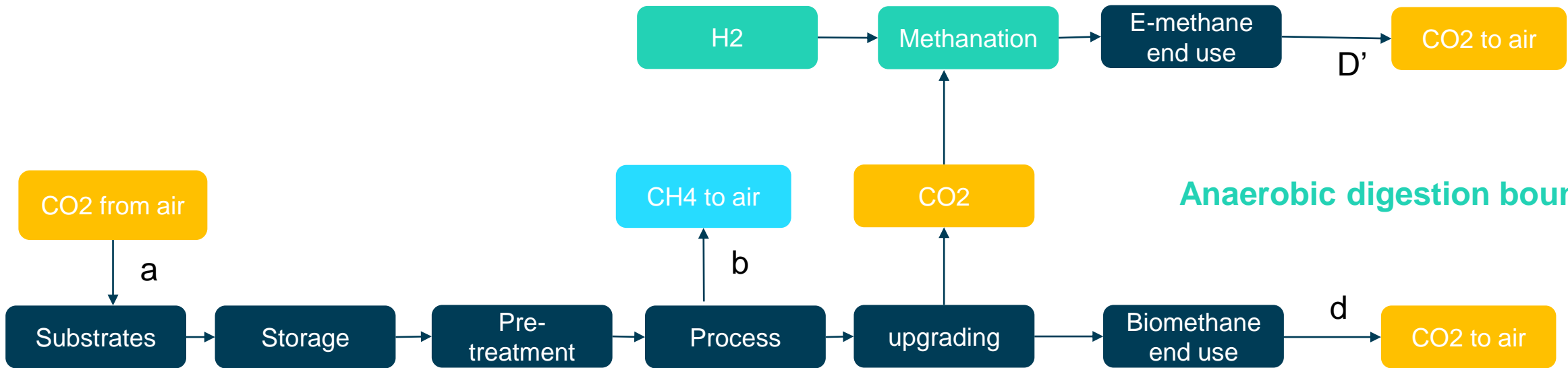
Biogenic carbon accounting – a case study with a CCU between an anaerobic digestion system and a methanation system

Benjamin METAYER for ENGIE Lab Crigen
ScoreLCA seminar, 25/09/2024

How to account the traded biogenic CO₂ ?

Methanation boundaries

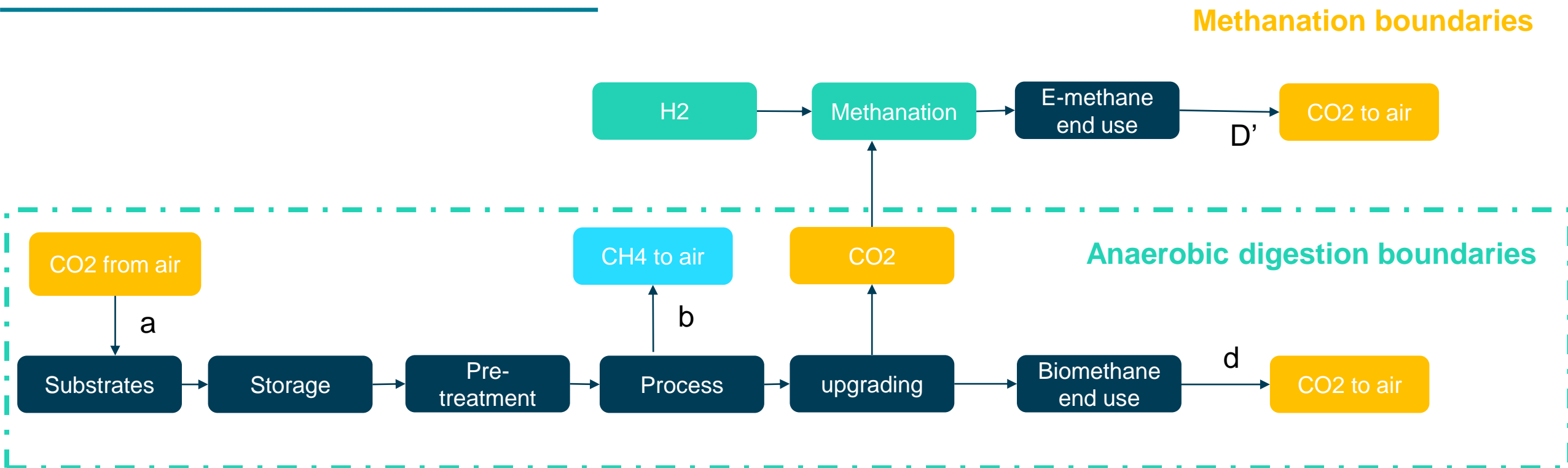
Anaerobic digestion boundaries



Case 0/0 :
CF of biogenic carbon flux = 0

Case -1/+1 :
CF of biogenic carbon flux equivalent to fossil (negative for photosynthesis)

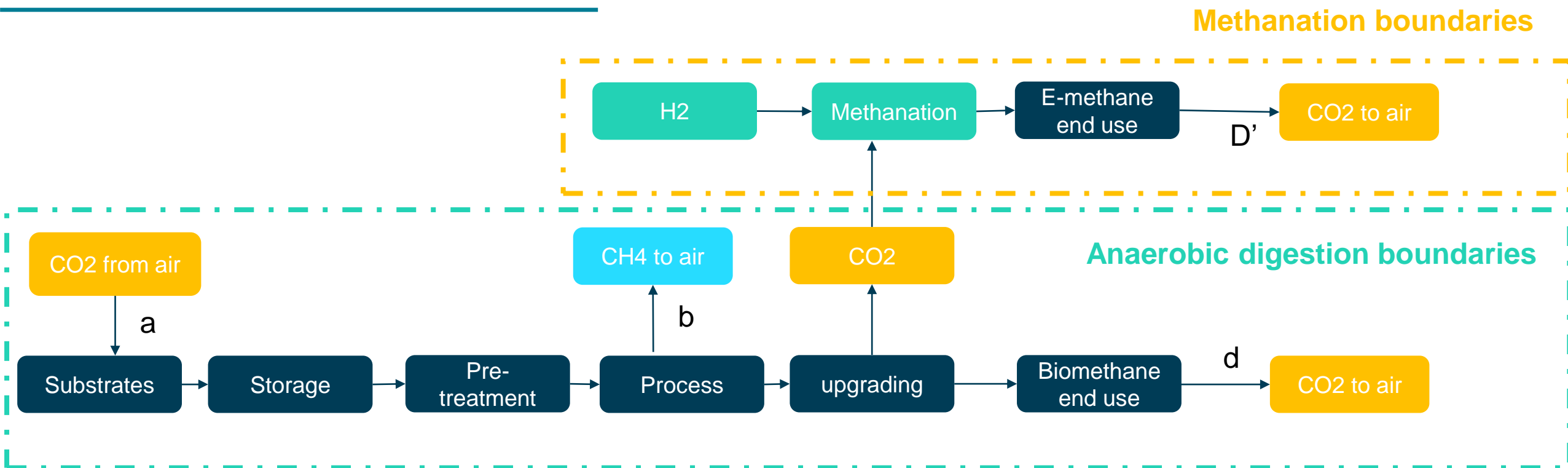
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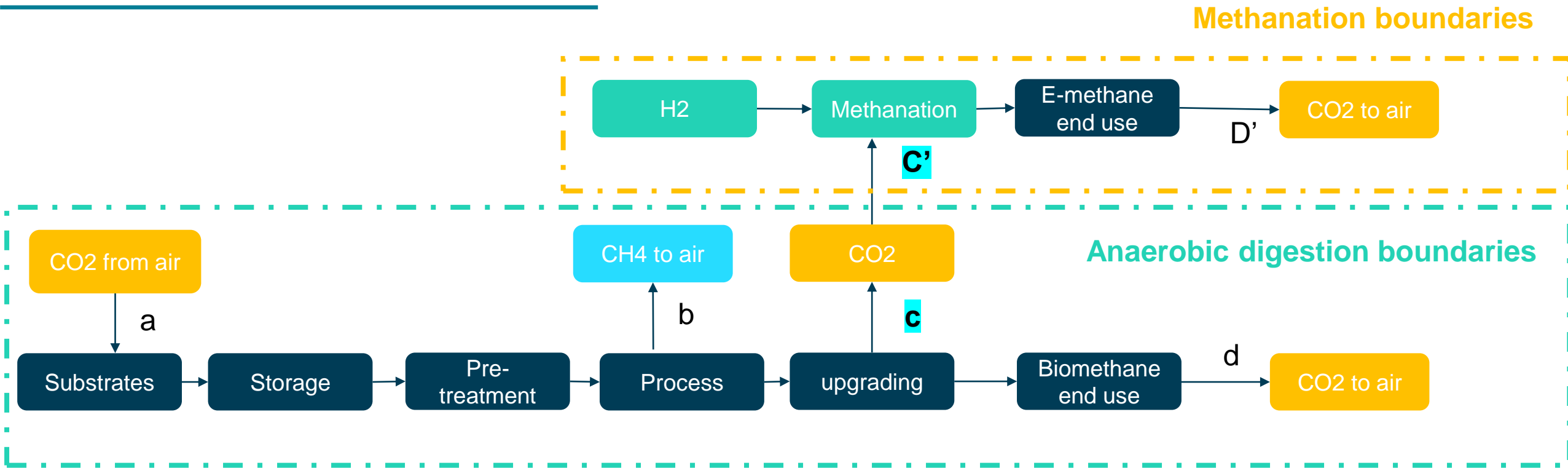
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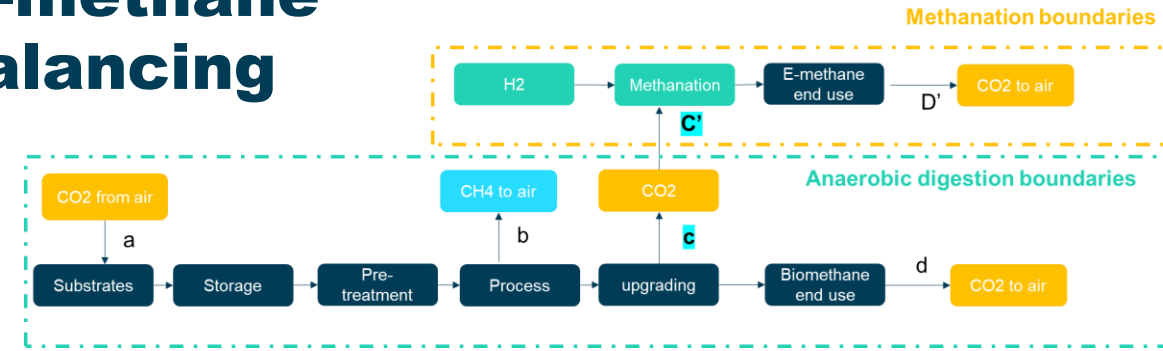
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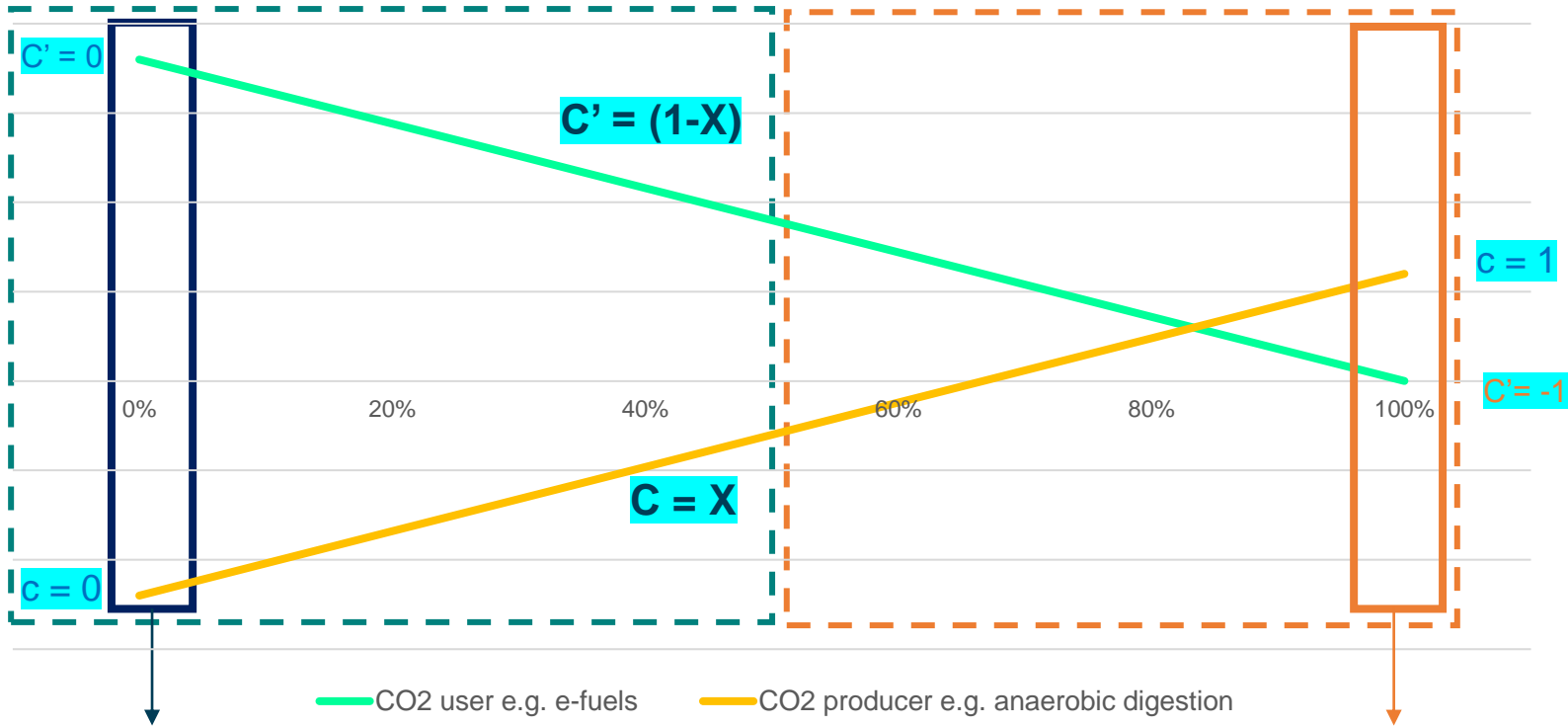
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Carbon footprints of biomethane and e-methane depending on a market factor (X) for balancing biogenic CO₂ accounting



Market promoting CO₂ capture

Market promoting CO₂ use





The +1/-1 accounting asks for an allocation of the absorption and emission flows of the traded CO₂ between the CO₂ user (e-methane) and the CO₂ producer (biomethane)

All benefits to CO₂ producer

All benefits to CO₂ user

Conclusion

➤ Handover to the e-fuels study !

	FC = 0/0 (recommended by PEF)	FC = -1/+1 (likely to be recommended in the future)	FC = -1/+1 with allocation (Not recommended yet)
	CCU : always respects the global balance	More scientifically reliable	Allows an adjustable allocation of the benefits
	Benefits for the use of biogenic e-fuel	Allows a market allocation	
	CCS : sequestration benefits taken into account		
	Factors of emissions (FE) to adjust	With a CCU : complex to balance	Market factors are volatile
	No benefits for the anaerobic digestion to capture its CO ₂ emissions		
	CCS : sequestration benefits not taken into account	Involves a rigorous modelling	Not recommended by any official guideline today