Governing CCUS – Social, Political & Environmental Considerations

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Agenda

- What is CCUS?
- Where do we stand with CCUS governance in Europe?
- What governance dimensions should be considered?
- Implications
- Conclusions

What is CCUS?

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CCUS?

- Carbon Capture, Utilization & Storage
- Carbon/CO_2 Capture
  - At point sources
    - Industrial plants → process emissions
    - Power plants → emissions from e.g. fossil fuel combustion (emission reduction)
    - Waste incineration → emissions from burning waste, including (but not limited to) biogenic waste
    - …
  - From ambient air (or water)
    - Biosphere → agriculture, forests, blue carbon…
    - Technical → Direct Air Capture (DAC), Direct Ocean Capture (DOC)

CCUS

- Carbon Capture, Utilization & Storage
- Carbon/CO_2 Capture,
- Utilization
  - in products with short storage time
    - Beverages
    - biofuels, synth fuels, green hydrogen,
    - Greenhouses
  - in products with (potentially) durable storage
    - Cement + concrete
    - Timber
    - Enhanced oil recovery (EOI)
  - These lists are non-exhaustive!

CCUS

- Carbon Capture, Utilization & Storage
- Carbon/CO_2 Capture,
- Utilization,
- Storage
  - Gaseous
    - In deep saline aquifers
    - Depletedd oil and gas fields
    - Via mineralization
  - Solid
    - Biomass → e.g. biochar, timber

CCUS

- Carbon Capture, Utilization & Storage
- …and transport
  - train, road, ship
  - pipeline

CCUS governance is complex!

- CCUS governance combines various (competing)
  - steps on the value chain
  - industrial sectors
  - actors/power groups
  - Technologies
  - Objectives (carbon as resource; emission reduction, removal, delay)

Where do we stand with CCUS governance in Europe?

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International Law

Source: www.law.berkeley.edu

- International law with relevance for CCUS include:
  - London Protocoll and London Convention
  - Barcelona Convention (Mediterranean Sea)
  - Helsinki Convention (Baltic Sea)
  - UN Convention on the Law of the Sea (UNCLOS)

    → incl. UNCLOS on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (**BBNJ**)

EU legislation

Source: www.snl.no

- (Planned) Legislation in the EU with relevance for CCUS include:
  - Carbon Removal and Carbon Farming (CRCF) regulation
  - EU Industrial Carbon Management Strategy
  - Net Zero Industry Act
  - Carbon Capture and Storage (CCS) Directive
  - EU Emission Trading System (ETS) Directive
  - LULUCF Regulation

National level

Source: www.thecookandthewriter.com

- Heterogenous governance (developments) across states:
  - Swedish Reverse Auctioning Scheme for BECCS
  - Denmark, Netherlands, Norway and Iceland «pioneering the geological storage of CO2»
  - France, Germany and Austria developing carbon management strategies
  - Germany developing long term strategy for negative emissions
  - …

CCUS Governance in Europe

- Many regulations and targets relevant to CCUS are in place at various levels
- Policy progress and a clear recognition of the need for CCUS
- Ambitious targets by the Commission derived from EU mitigation ambition
- Next step: Incentivisation via targeted policy instruments

CCUS ZEN

What governance dimensions should be considered?

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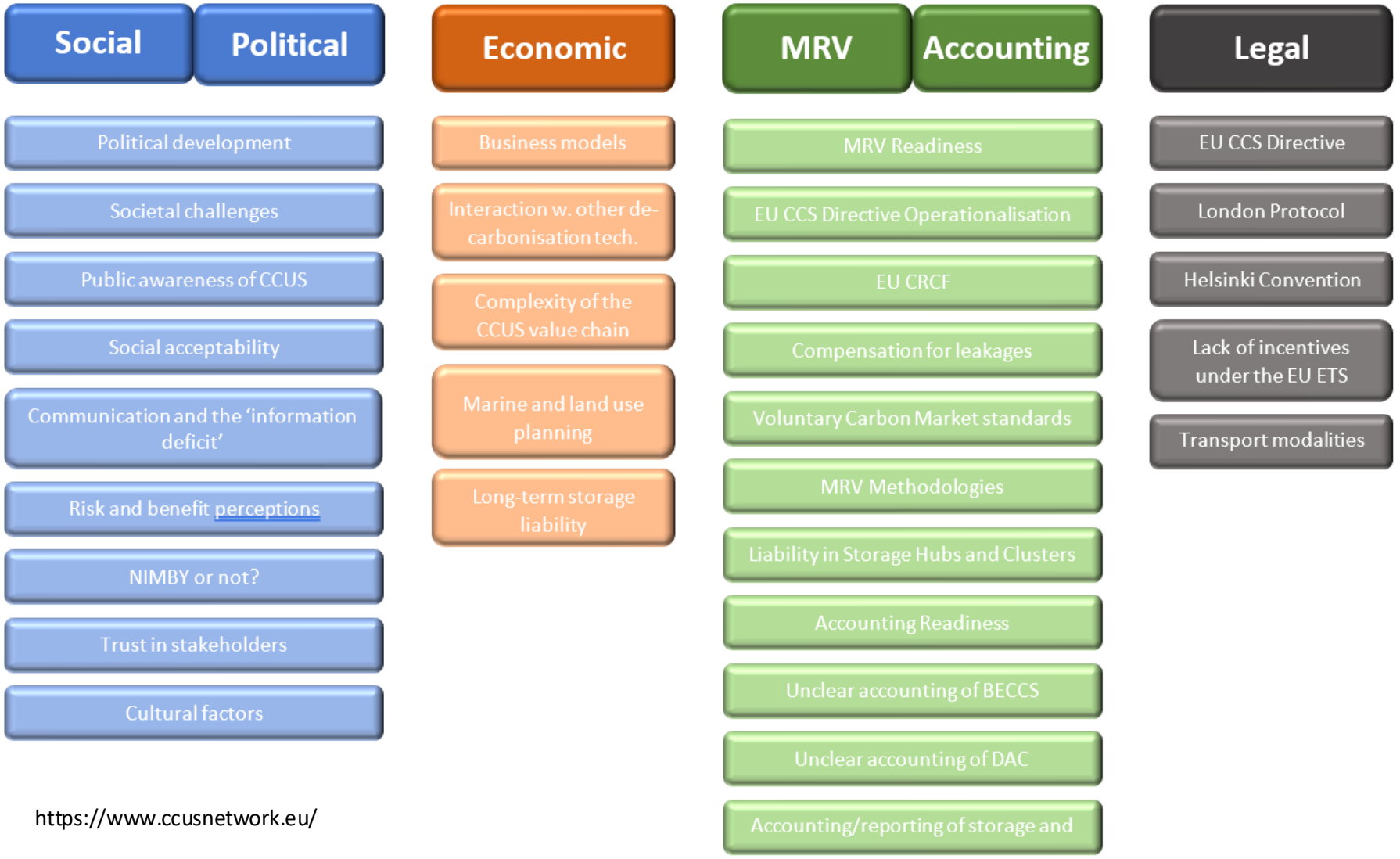
Governance Principles

https://www.frontiersin.org/articles/10.3389/fclim.2022.884163/abstract

- When designing (any) policies, a multitude of social, economic, political, and legal dimensions should be considered
- Given the complexity of CCUS, this is particularly important
- Some dimensions are specific to (some) CCUS (e.g. dimensions related to permanence, mitigation deterrence)

Discursive context	Mentioned Governance Principles
Mitigation ambition	a. CDR should be considered in NDCs. b. CDR policies should not weaken other mitigation efforts. c. CDR policies efforts should commensurate with the long-term collective mitigation ambition.
International support and cooperation on mitigation and adaptation	d. CDR policies should include some kind of technology-transfer to help strengthen capacities for CDR. e. CDR policies should include international cooperation to improve CDR efficiency. f. CDR policies should include the provision climate finance to mobilize CDR.
Environmental integrity	g. CDR results should be accounted consistently applying conservative baselines and including leakage. h. CDR policies should include robust MRV methodologies including on leakage.
Equity and fair-share efforts	i. CDR policies should fulfill certain principles of inter- and intragenerational equity like Polluter Pays or Ability to Pay for example. j. CDR policies should fulfill the principle of Common-but-differentiated responsibilities. k. CDR policies should differente the requested contributions by capacities and (national) circumstances.
National appropriateness of policy and metrics	l. CDR policies should determine clear objectives and metrics for CDR. m. CDR policies should considerate short- and long-term effectiveness and efficiency of CDR methods.
Public deliberation and participation	n. Decision processes regarding CDR policies should fulfill principles of procedural justice like inclusion and transparency. o. Decision processes regarding CDR policies should include public participation and stakeholder involvement (transparent policy deliberation and design process).
Sustainable Development Goals	p. CDR policies should contribute to sustainable development.
Duty to prevent transboundary harm and preference for rectifying damage at source	q. CDR policies should prevent transboundary harm. r. CDR policies should preference rectifying damage at source.
Precaution	s. CDR policies should considerate multi-risk trade-offs including policy or technology failure risks as well as countervailing risks of omitting policy steps.
Long-term CDR needs for net-zero targets	t. CDR policies should anticipate of longer-term CDR needs incl. toward net-zero or net-negative emissions targets.
Avoidance of over-promise and under-delivery	u. CDR policies should include a strategy for preventing over-promise and under-delivery. v. CDR policies should deal with intermittent targets and policy objectives. w. CDR policies should be adapted upon missing of intermittent targets and objectives.
Specific (separate) targets	x. CDR policies should include increasingly specific targets for various CDR and emission reduction methods.
Specificity of CDR cases	y. CDR policies should considerate CDR methods' specificities. z. CDR policies should pursuit a policy ensemble that meets the needs of the targeted methods.

Non-technical issues related to CCUS



https://www.ccusnetwork.eu/

Implications

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Developing CCUS Governance in Europe

- CCUS incentivisation does not happen in a vacuum!
- Questions to be asked (non-exhaustive!):
  - What role should CCUS play in climate policy?
    - Emission reduction vs. removal
    - Short- vs. long-term effects
    - Mitigation vs. utilization
  - What value chains/technologies to focus on? What interfaces to consider?
    - Specific vs. CCSU “in general”
    - national vs. EU vs. international
  - How should governance dimensions be weighted?
    - Inter- vs. intragenerational justice
    - Efficiency vs. environmental impacts

Developing CCUS Governance in Europe

- Which (mix of) policy instruments should be used for incentivisation?
  - Market based (ETS & voluntary carbon markets)
  - Regulation and standards
  - Subsidies
  - Taxes
  - Voluntary agreements
  - Information
- Each instrument has its own characteristics and may cater different dimensions worse/better
- There is no “silver-bullet” solution

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Conclusions

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Take-Home Messages

- CCUS is complex in terms of non-technical issues
- CCUS regulatory framework in the EU consists of national, regional, and international components
- Governance in EU and member states is developing. Next step: Targetted incentivisation
- Governance dimensions must be weighted - which objectives, targets, value chains, technologies, risks…?
- Portfolio of policy instruments will be required

Thank you!

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