

October 4th, 2023

Public perception of CCUS and carbon removals

ERCST event

October 4th, 2023

Andrei Marcu, ERCST

Elena Bonfiglio, ERCST

ERCST

Roundtable on
Climate Change and
Sustainable Transition

What is public perception of CCUS&CDR?

When talking about public perception, it is necessary to distinguish between:

- **Public perception** of CCUS&CDR technologies
→ It refers to the beliefs and opinions about CCUS&CDR technologies that exist among the public.
- **Public engagement** with CCUS&CDR technologies
→ It refers to the involvement of the public in activities relevant to CCUS&CDR.
- **Public acceptance** of CCUS&CDR technologies
→ It refers to the degree to which the public accepts CCUS&CDR technologies.

Why public perception is important for CCUS&CDR?

CCUS and removals are technologies that require a social license to operate for various reasons:

- CCUS&CDR are needed to **achieve net zero neutrality**
 - Paris Agreement's goal: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels [...]" – Paris Agreement, Art. 2.1(a);
 - How: by "[...] achiev[ing] a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, [...]" – Paris Agreement, Art. 4.1.
- Concern that CCUS&CDR technologies may **hinder decarbonisation** by diverting attention away from emission reductions
 - Member states' approaches to CCUS&CDR are fragmented (NECPs; UNFCCC long-term strategies; ...)
 - However, CCUS&CDR can address residual and life cycle emissions of clean energy and other non-direct emitting solutions.

Why public perception is important for CCUS&CDR?

CCUS and removals are technologies that require a social license to operate for various reasons:

- **Technology neutrality principle**
 - All solutions should be part of the climate portfolio and should be deployed following a market-based approach
- CCUS&CDR are associated with **safety concerns**
 - E.g., CO₂ leakage, seismicity,
- CCUS&CDR projects are **large infrastructure projects**
 - They need public funding at least until a business model is available
- CCUS&CDR are **enablers** of other technologies and solutions needed for the transition
 - E.g., carbon-intensive sectors, low-carbon H₂, retrofitting of power plants

Factors influencing public perception of CCUS&CDR?

- Presence/absence of political support
 - It can be interpreted as a manifestation of socio-political acceptance, but at the same time can also influence public perception
- Geological and natural resources endowment, energy matrix, economic activities
 - Availability of storage sites; availability of renewable energy sources; exposure to carbon-intensive industries and power generation; reliance on fossil fuel production and carbon-intensive products; ...
- Associated risks and proximity to projects
 - NUMBY effect
- Level of engagement and participation at regional and local level
- Exogenous effects
 - E.g., energy costs, economic and financial crises, energy crises,
- Type of communication and level of trust

Creating a social license is shared effort among a variety of stakeholders.

Other technologies that need a social license

- Carbon dioxide removals
 - Long terms liability for removals (e.g., carbon central bank), permanence and risk of reversals, additionality, ...
- Transmission lines
 - Visual impacts, property values, and potential health impacts and safety risks, ...
- Nuclear energy
 - Proliferation, waste management, health impacts, safety, ...
- Large hydropower projects
 - Environmental impacts (disruptions to natural scenery and habitats), safety, population relocation, noise, ...
- Environmental products market
 - Greenwashing, transparency, accountability, integrity, ...
- Fracking
 - Environmental impacts (water supply impacts, GHG emissions, intrusion into the underground environment), ...
- Mining
 - Environmental impacts, health concerns, noise and air pollution, ...