November 14th, 2023
Brussels, Belgium

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PUBLIC PERCEPTION AND BUSINESS MODELS JOINT EVENT

Organised by the Carbon Capture, Utilisation and Storage (CCUS) & Alternative Fuels Horizon 2020/ Horizon Europe CLUSTER projects

Supported by CINEA - European Climate, Infrastructure and Environment Executive Agency

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Calcium looping to capture CO2 from industrial processes by 2030

Case study: CaLby2030

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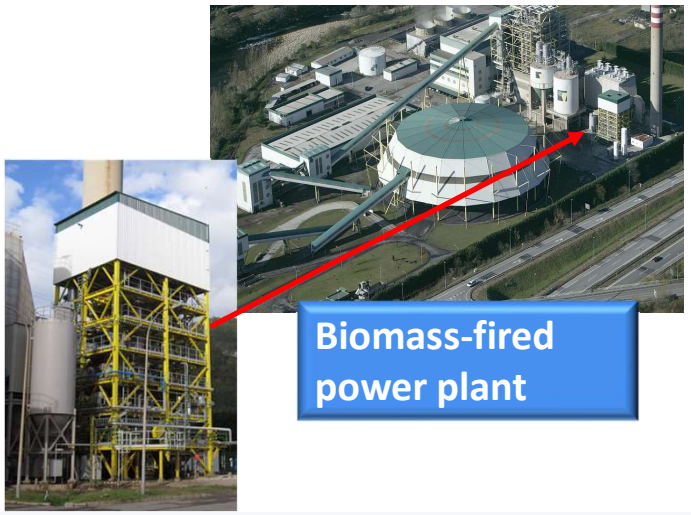
Baseline

- **CaLby2030 project**: large-scale commercial deployment of Calcium Looping (CaL) CO2 capture systems in key high-emitting industries by 2030
- Social preferences for CCUS project implementation (case study)

La Pereda plant (Asturias) case study

- ✓ Transition from a coal power plant to a biomass-fired power plant with up to 25% of Solid Recovered Fuels (SFR)
- ✓ Calcium Looping (CaL) pilot facility that expects to abate 99% of the emissions from the power plant
- ✓ Increase in employment related to the forestry sector (forest biomass production)
- ✓ Social rejection of SFR use



Methodology: Choice experiments

- Survey-based technique that presents a **hypothetical** scenario to a sample of individuals who have to **choose** among pre-defined **alternatives** characterized by multiple **attributes**
- Stated choices reveal attribute preferences (trade-offs among attributes)
- Minimize bias associated with open-ended questions (extensive previous research)
- Inclusion of a monetary attribute allow estimating welfare changes of policy alternatives in economic terms

Attributes	**CCUS Project A**	**CCUS Project B**	**No CCUS project**
Storage destination	*Products*	*Geological formations*	No CCUS technology is implemented
Transport	*Trucks*	*Pipelines*	
Increase in employment in the area	*20 permanent employees*	*40 permanent employees*	
Presence of solid recovered fuels	*Up to 10% of biomass*	*Up to 25% of biomass*	
Increase in monthly electricity bill for 5 years	*5 euros*	*30 euros*	
Tons of CO2 reduce annually	*10.000 tons of CO2 reduced annually*	*15.000 tons of CO2 reduced annually*	0 tons of CO2 reduced annually
Choose the project that you would prefer	○	○	○

Summary

- Social preferences for the large scale deployment of a CCUS project based on the case study of the CaL-based pilot facility of La Pereda power plant (Asturias).
  - To identify social drivers and barriers for CCUS acceptability.
  - To identify trade-offs between drivers and barriers.
  - To analyze trade-offs between global benefits and local risks: would global benefits compensate local losses?
- Target population: Spanish adults (global benefits of CO2 emission reduction) and local inhabitants (compensations for local risks).
- Survey method: focus groups (piloting) + online panels.
- Screening to discard survey-hunters, inattention, careless response.
- Expected date: Fall 2024.

Policy impact

- Role of relevant drivers and barriers in social acceptability, e.g., is the technology used relevant for CCUS acceptability?
- Role of information on CCUS acceptance: assessing how acceptability changes when adding extra information about, e.g., transport, CO2 source, storage…
- Global acceptability (public support for CO2 emission reduction) versus local damages (opposition to technology implementation, e.g., NIMBY or NUMBY effects).
- Social acceptability of the technology or social acceptability of the context in which the technology is implemented?
- Test-retest: would acceptability change if respondents are given time to get informed? Could CCUS acceptability change over time?

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Thank You

For Your Attention

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