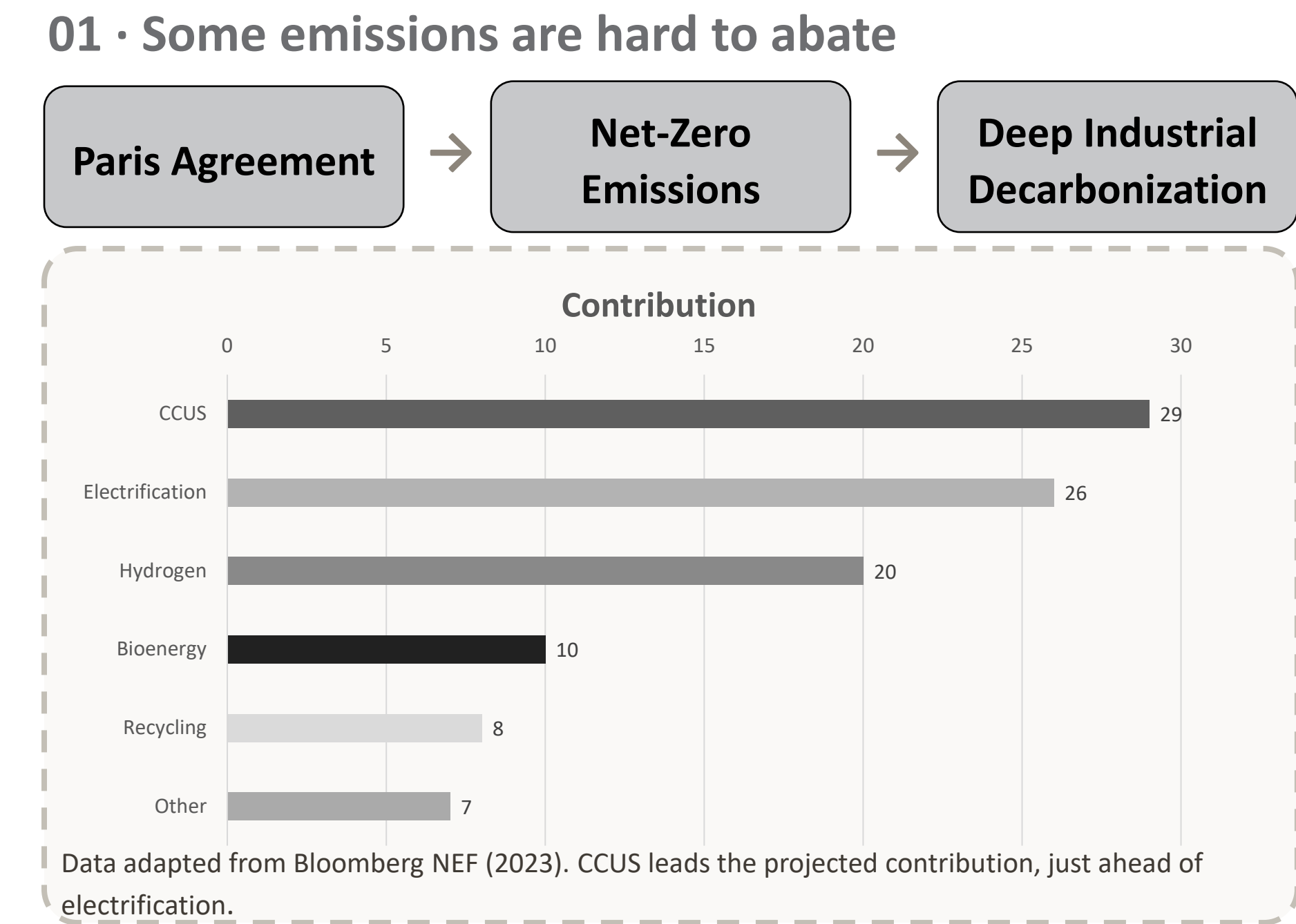


Transferability of Public Acceptance Drivers from Wind Energy and Electric Vehicles to Carbon Capture Technology

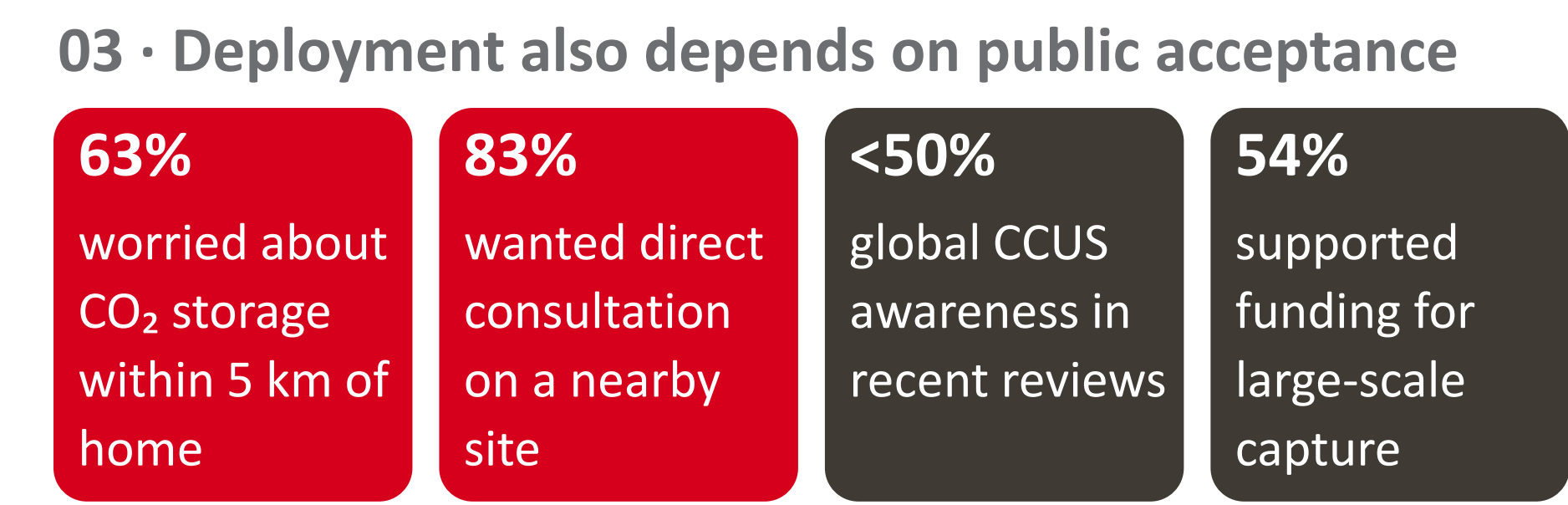
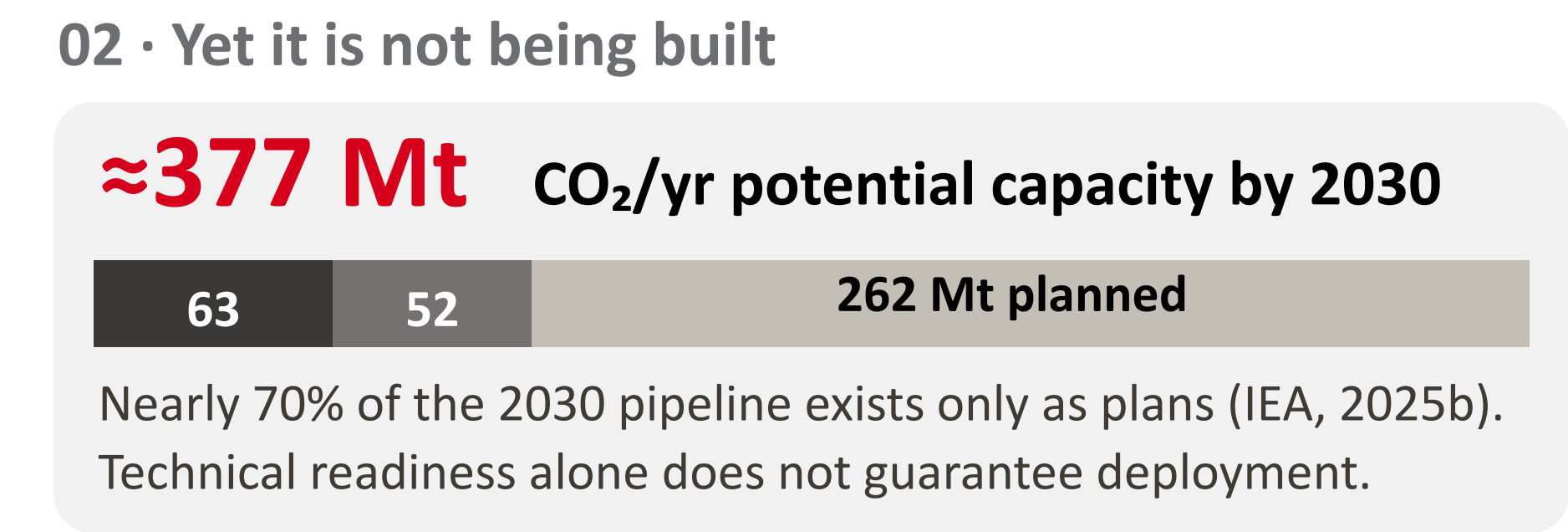
Jasmine Bhambra, MSc in Sustainable Energy Development, School of Public Policy
Supervised by Dr. Roberta Rice, Faculty of Arts | Symphony Huang and Travis Brookson, Svante



Background



CCUS complements electrification by addressing process emissions from cement, steel and chemicals that renewable electricity alone cannot eliminate (IPCC, 2022; IEA, 2025a).



Concern concentrates on leakage, groundwater, and whether public money subsidizes profitable operators. At Weyburn-Midale, independent noble-gas testing found no conclusive evidence of injected CO₂ in the groundwater, yet perceived risk persisted (Gilfillan et al., 2017). At Ravenna, the fight was over who benefits (ReCommon, 2024). Neither dispute was settled by better science.

The acceptance challenge extends beyond awareness to trust, governance, fairness and visible benefits.

Research Question and Objectives

To what extent, and in what form, can the drivers of public acceptance for wind energy and electric vehicles inform efforts to strengthen public acceptance of CCUS in North America and Europe?

- Objectives
- Identify the key drivers of public acceptance for wind energy and electric vehicle deployment in selected North American and European cases.
 - Examine the current state of public acceptance of CCUS and the determinants that shape it.
 - Assess whether, and how, the acceptance drivers from wind energy and electric vehicle deployment transfer to CCUS, distinguishing the broad drivers from the specific instruments used to deliver them.
 - Develop evidence-informed recommendations for policymakers and industry actors seeking to strengthen public acceptance of CCUS.

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Scan for the complete reference list.

Interdisciplinary Scope



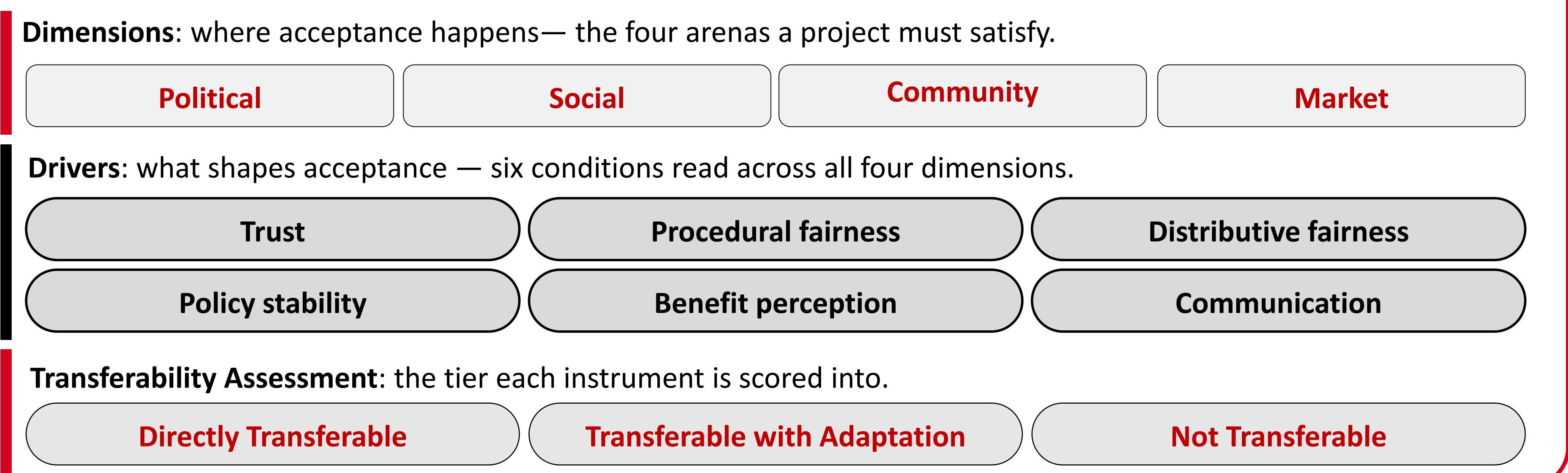
Methodology

Qualitative comparative case study: document analysis with deductive thematic analysis across four comparator cases.

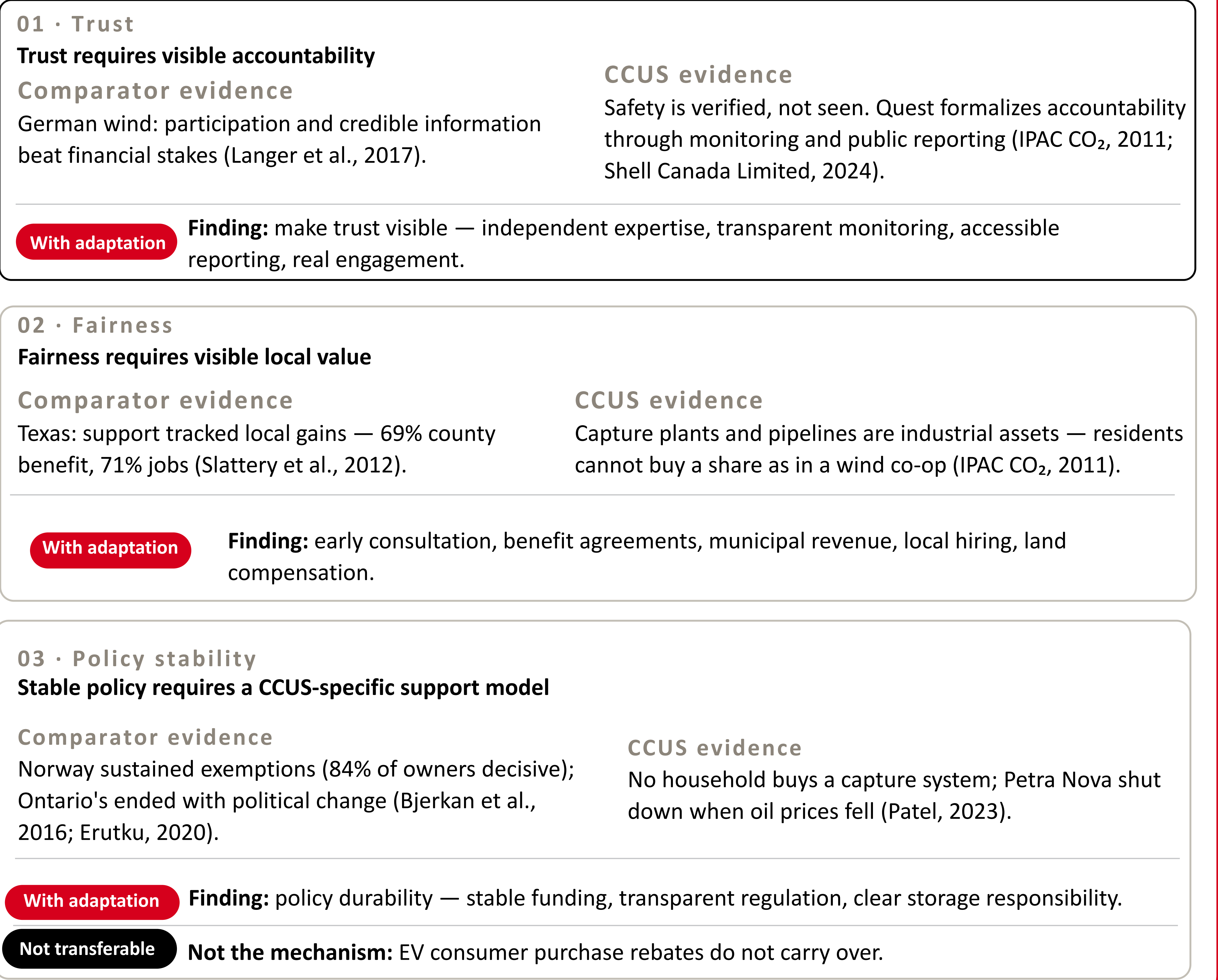


Quest and Petra Nova ground the analysis as real CCUS projects, not acceptance cases.

Analytical Framework



Findings



Results: Cross-Case Transferability

Finding	Mechanism	Driver level	Instrument tier
1 · Trust	Engagement and communication for trust	Highly relevant	With adaptation
2 · Fairness	Community ownership	Highly relevant	With adaptation
2 · Fairness	Shared local value and benefit-sharing	Highly relevant	With adaptation
2 · Fairness	Lease and land compensation	Highly relevant	With adaptation
3 · Stability	EV consumer incentives	Highly relevant	Not transferable
3 · Stability	Predictable long-term policy support	Highly relevant	With adaptation

Directly transferable (top tier): no mechanism qualified.

Acceptance drivers transfer. The instruments require adaptation.

Recommendations in Priority Order

- 1 · Make accountability visible**
Plain-language monitoring · independent review · emergency planning · annual CO₂ reporting
- 2 · Stabilize policy and funding**
Durable, performance-based support · verified emissions reductions · clear long-term storage responsibility
- 3 · Create visible local value**
Benefit agreements · municipal revenue · local hiring and procurement · land compensation

Conclusion

Wind and EV mechanisms depend on conditions CCUS does not share

Industrial	Less-visible benefits	Verified safety
Not community- or household-owned	Harder for the host community to see	Technically confirmed, not directly observable

Carbon capture can play its net-zero role only if the public trust required for deployment is built deliberately.

Limitations and Future Research

- | Limitations | Future research |
|--|---|
| • Secondary sources only; no primary interviews. | • Refresh Canadian awareness and trust data. |
| • Canadian opinion data dates to 2011. | • Interviews near operating projects. |
| • Recommendations are strategic, not empirically tested. | • Test which instruments move trust and fairness. |