Initial public reactions to CCS:
Differentiating general and local views

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Explaining local opposition

- Anti-CCS sentiments (e.g., tampering with nature)
- Anti-process sentiments (e.g., perceived procedural unfairness)
- “Not in my back yard” (NIMBY) sentiments

- When people have a negative attitude towards a certain activity proposed for their own (local) residential area that they would support (or not object to) if it were situated somewhere else
How to determine NIMBY sentiments?

- “within-subjects” comparisons
  - How do you feel about CO$_2$ storage in your residential area?
  - How do you feel about CO$_2$ storage somewhere else?
  - Limitation: Possible contrast effects causing different responses in the NIMBY direction
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- “between-subjects” comparisons
  - Compare “onsite” and “offsite” residents’ reactions to plans for a CO$_2$ storage project
  - If NIMBY sentiments play a role, onsite residents should be more inclined to protest than offsite residents
Our “between-subjects” approach

- **Background information**
  - Climate change, CO₂ emission reduction targets, options to reduce CO₂ emissions (including CCS)
  - Government believes that CCS is necessary to meet climate targets

- **2 experimental conditions:**
  - *Condition 1:* “Underneath your municipality, a practically depleted natural gas field is located that is **suitable** for CO₂ storage. Therefore, **plans exist** to store CO₂ in this field and in a practically depleted natural gas field at another location in the Netherlands”
  - *Condition 2:* “Underneath your municipality, a practically depleted natural gas field is located that is **not suitable** for CO₂ storage. Therefore, **no plans** exist to store CO₂ in this field, but plans do exist to store CO₂ in two practically depleted natural gas fields at other locations in the Netherlands”
➢ Inclination to protest
   ➢ To what extent are you inclined to protest against the CO₂ storage plans (1 = not at all; 7 = very much)

➢ Perceived societal risks and benefits
   ➢ e.g., To what extent do you think CO₂ storage yields important risks [benefits] to our society? (1 = not at all; 7 = very much)

➢ Perceived local safety risks
   ➢ To what extent do you think CO₂ storage yields important risks to the safety of people living in the vicinity of the CO₂ storage location? (1 = not at all; 7 = very much)

➢ Trust in the government
   ➢ e.g., To what extent are you confident about the government’s ability to make an accurate assessment of the risks and benefits of CO₂ storage? (1 = not at all; 7 = very much)

➢ Concern about climate change
   ➢ e.g., I am worried about climate change (1 = not at all; 7 = very much)
Inclination to protest against CO$_2$ storage plans

Thus, it seems that people do not automatically and instantly display NIMBY sentiments at the very first moment they learn about local CCS plans.
### Correlations with inclination to protest

<table>
<thead>
<tr>
<th></th>
<th>onsite</th>
<th>offsite</th>
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<tbody>
<tr>
<td>Concern about climate change</td>
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<td>-.11</td>
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<tr>
<td>Perceived societal risks-benefits</td>
<td>.30**</td>
<td>.29**</td>
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<td>Perceived local safety risks</td>
<td>.32**</td>
<td>.13</td>
</tr>
<tr>
<td>Trust in the government</td>
<td>-.24*</td>
<td>-.32**</td>
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Causal model (1)

Onsite residents

Trust in government

β = -0.46**

β = -0.24*/β = -0.13ns

Societal risks/benefits

β = 0.24†

β = -0.32**/β = -0.24*

Inclination to protest

β = 0.20†

Offsite residents

Societal risks/benefits
Causal model (2)

Onsite residents

Risk to safety of onsite residents

β = -0.33**

β = -0.24*/β = -0.16

β = -0.32**/β = -0.31**

Trust in government

Risk to safety of onsite residents

β = 0.27*

β = 0.03ns

Inclination to protest

Offsite residents
Conclusions and discussion

Initial reactions to local CO\textsubscript{2} storage plans are not necessarily dominated by NIMBY sentiments in the population: “Onsite” and “offsite” residents are equally inclined not to protest against such plans.

- NIMBY sentiments (and public opposition in general) may develop in the course of a project.
- Focusing on protest intentions (rather than on public acceptance) is relevant, but quite extreme in relation to initial public reactions.
Conclusions and discussion

- Initial reactions to local CO$_2$ storage plans are not necessarily dominated by NIMBY sentiments in the population: “Onsite” and offsite residents are equally inclined not to protest against such plans.

- The “psychological structure” of initial attitudes toward CO$_2$ storage plans is quite similar for onsite residents and offsite residents, with the exception that onsite residents put considerable weight on the risk of CO$_2$ storage to the safety of people living near the proposed storage location.
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Initial public reactions to CO₂ storage appear unrelated to concern about climate change, even if people learn that many scientists and policymakers regard it as an important strategy to meet CO₂ emission reduction targets.
Thank you for your attention!