UK citizen views on Carbon Capture and Storage

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KEY FINDINGS

• **Negative views on CCS are dominant**, with concerns in particular around the risks, uncertainties and unintended consequences.
• People respond to unfamiliar things or technologies by drawing on existing ideas, notions, values and experiences. Simply providing more information will not necessarily result in more positive attitudes to CCS.
• CCS is seen in the context of the broader debate around energy use; negative parallels with nuclear power are often drawn.
• In order to be trustworthy and legitimate, **public policy on energy infrastructure should be formed as part of a larger dialogue about energy generation and use**
• Where appropriate, **public engagement and dialogue can be used to make policymakers aware of the wide range of stakeholder views** in this area.

Introduction

Current UK Government policy is firmly in support of carbon capture and storage (CCS). However, CCS remains controversial, with considerable debate over its effectiveness and the risks associated with the technology. Furthermore, there are concerns that the use of CCS means a continued reliance on fossil fuels.

Members of the public tend to view CCS with suspicion and distrust and while they often have little knowledge of the technology, these views are grounded in values and experience of other technologies and thus are unlikely to be changed solely by more information. A significant effort needs to be made to give opportunities to the public to participate in policy debate around CCS and its wider context.

WHAT IS CCS?

CCS technology involves capturing CO^2 emissions at the industrial combustion source, compressing it for transportation and transporting it (usually via pipelines) to an appropriate geological site into which it is injected for long-term storage.

Public participation in the CCS debate

The public's perception of CCS technology and of the way it is governed, managed and controlled has a significant role in policy development for CCS. A lack of genuine engagement with public perceptions will affect policy legitimacy as well as trust in government more broadly. Nevertheless, the actual space for the public to influence particular infrastructure projects is very limited.

Whilst awareness of CCS among non-specialist groups is limited, negative perceptions tend to dominate discussions (in contrast to the more optimistic view of decision-makers and CCS experts). There is a view among industry, government and technical experts that the public needs more information or education on CCS before real or substantial views can be informed.

Simply attempting to improve the public's understanding of CCS will not necessarily lead to greater public support, particularly because:

• lack of understanding is not necessarily the cause of negative reactions;

• publics often only collect as much information as they think is necessary to make a decision
• there appears to be little scope for the public to shape policies around CCS in the UK[1]; people are therefore likely to draw strongly upon their values, predispositions and previous experiences in forming views around CCS.
• existing cultural frames of references shape publics' views to a considerable extent; and
• within a democracy people are entitled to express an opinion even without being fully informed.

Citizens' views: focus group results

Focus groups can provide a useful way to understand how people form opinions on CCS despite having limited knowledge. Five key points emerged from four focus group discussions held in 2012 around energy policy in the UK, wind power, CCS and views on participation around such technologies.

• *Minimal awareness and negative views*

Participants were in general unaware of or had very little knowledge of CCS. However, they were instinctively hostile to the idea of CCS. (These negative reactions were similar to research with other focus groups where more information on CCS was provided.)

"Yeah. I've heard about it but I don't begin to understand the science behind it and I don't know if lay people can." [Focus group participant]

"It sounds dangerous" [Focus group participant]

"Do we think it would be safe?" [Focus group participant]

"But how long do you have to store it before it affects something?" [Focus group participant]

• *Risks and uncertainties were quickly identified*

Discussion of CCS rapidly focused on concerns around CCS deployment, including safety, how long the CO2 could be stored for and the potential effects of any escaped CO2 on marine wildlife and the environment. Notably, participants quickly articulated many of the key risk issues and uncertainties that have been identified by NGO groups and experts. There was considerable concern about unintended consequences.

"Basically we don't have any idea what the negative unintended consequences of that will be. It does sound like when you're using such a potentially volatile...That sounds potentially risky to me." [Focus group participant]

"In theory it sounds a fine idea, in practice it's probably not the solution to the problem it's held up to be in the first place." [Focus group participant]

"Do we think it would be safe?" [Focus group participant]

• *CCS was seen in the broader context of energy use*

CCS was not discussed in isolation from wider debates about energy use and generation but rather was quickly located within these. Participants frequently constructed a trade off between CCS and renewables and considered CCS to be problematic if its development was at the expense of investment in renewables

"If you believe that the problem here is climate change and too much carbon in the atmosphere, then I guess that would be a feasible solution maybe, but if you believe, like I do, that the problem is more than that, it's the whole cycle, how we develop, how we define growth or use our limited resources, possibly over population, then that is a small drop in the bucket of fixes that we need." [Focus group participant]

"…if it helps to reduce the environmental impact system, it's definitely worth pursuing, but not at the expenses of developing renewables and energy efficiency" [Focus group participant]

• *Groups drew parallels between CCS and nuclear power*

Participants drew strong parallels to nuclear power, about which they had negative views. As well as obvious comparisons around storage, groups made more abstract comparisons in which nuclear and CCS were presented as technological and 'unnatural' fixes to energy and climate problems, in contrast to wind and solar power and energy demand management, which were framed as cheaper, easier and more 'natural'.

"…comparisons can be drawn between nuclear power and carbon capture and storage because of its technological basis, it's kind of complicated it's foreign to us. Wind, solar on the other hand [are] both very simple…generally these are the things we're familiar with because it's natural, so for those reasons the wind power is something that most people would be comfortable with." [Focus group participant]

"Wind and solar would be much more sensible and cheaper. We need cleaner and cheaper ways to produce electricity" [Focus group participant]

• *There is minimal trust in government regarding CCS*

There was a strong feeling that CCS was something 'being done to us' and that there was no public agency or opportunity for public participation and input. Additionally, there was a sense that government was being underhand in its approach to CCS, which represented a way of escaping dealing with problems of energy use and supply.

"And we haven't been given the opportunity to give an opinion to say yes or no or whatever. To me personally I think it's something that we need to be informed properly how will it work." [Focus group participant]

"Isn't it just an excuse to keep using coal and oil that is running out anyway?" [Focus group participant]

1 See previous policy briefing: www.ucl.ac.uk/public-policy/public-policy-briefings/Public_Participation_and_Climate_Change_Infrastrucutre.pdf

Conclusions

• There is no minimal knowledge requirement within a democracy. If CCS is rolled out it will be in **various levels of engagement and knowledge**.

• Despite very minimal levels of knowledge, members of the public are able to form coherent views about CCS and to articulate clear justifications for these views. The **concerns and questions expressed have strong resemblances to those being considered by experts**.

• There was little difference in the views of lay participants who had had some engagement with energy policy and those with none. The views of all groups was more similar to each other and those of environmental groups than of industry and UK Government.

• There is no reason to think that providing more information will result in the public becoming better informed or becoming more positive towards CCS. Instead of the public having unformed views waiting to be made positive, they may have latently negative views waiting to be expressed

• Nuclear power is used as a frame to articulate concerns and reservations about CCS, both technically and symbolically. There is an apparent dichotomy between good, natural, and common-sense technologies (such as wind and solar) and bad, unnatural, and industrial technologies (such as nuclear power and CCS)

• There is a wider question around **the involvement of the public in discussions about the UK's energy future.** Publics need to feel that they have an **input in high-level decisions**. If publics are given opportunity to engage on CCS it should be as part of a much wider conversation about energy supply and demand as a whole.

BACKGROUND

This research was carried out as part of a UCL project exploring the governance of climate change technologies, jointly funded by UCL Public Policy, the Grand Challenge of Sustainable Cities, and UCL Laws.

The full article is available at: www.sciencedirect.com/science/article/pii/S0301421513011312#

A previous article is available at: http://jel.oxfordjournals.org/content/25/1/33.abstract?keytype=ref&ijkey=ortzUydRqTP4idQ

Previous policy briefings are available at: www.ucl.ac.uk/public-policy/Policy_Commissions/Governance_climate_change_technologies

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