



Leverhulme
Centre for Climate Change
Mitigation



Public perceptions of fracking and implications for other technologies

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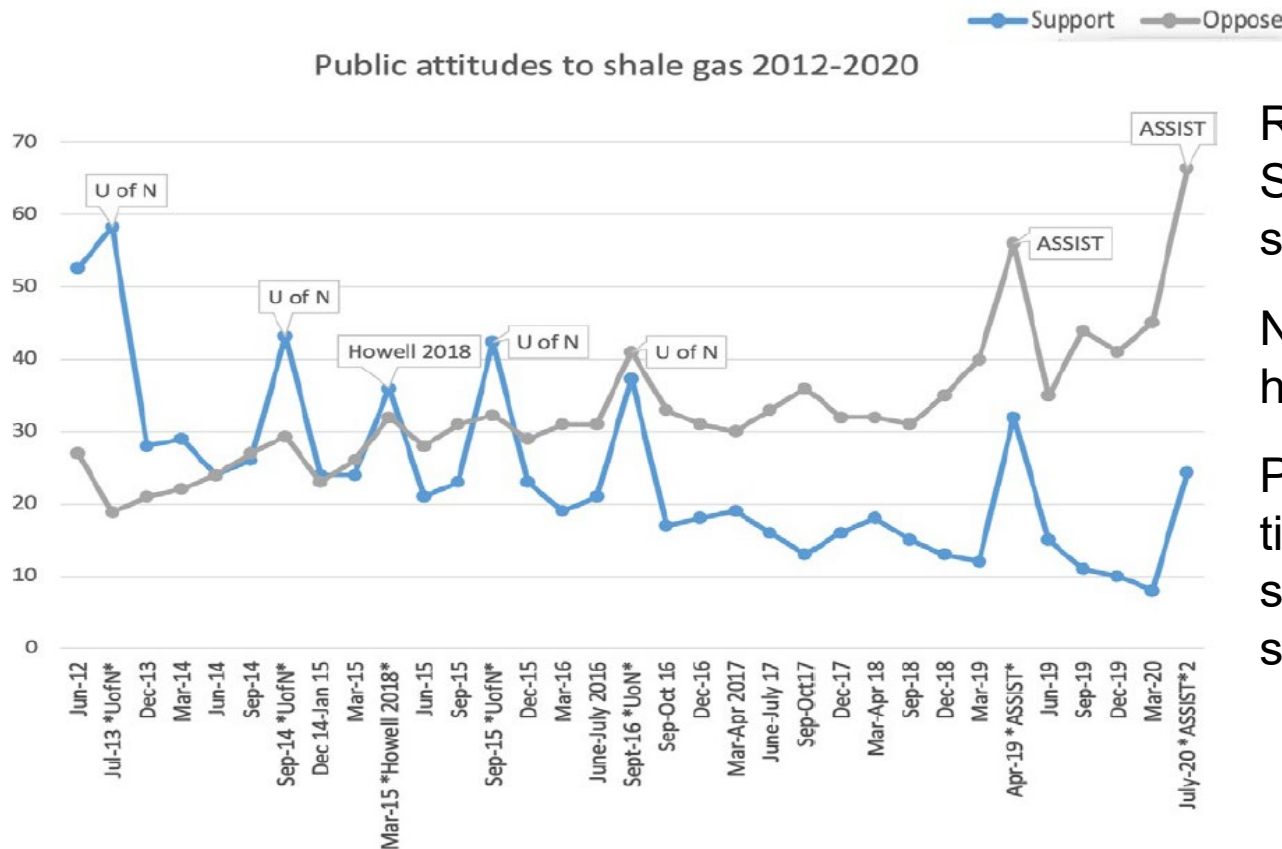
Public perceptions and opposition

- Fracking generally failed to build a social license to operate (Bradshaw & Waite 2017; Gough et al 2018; Williams et al 2017)
- UK issued a moratorium against fracking in 2019, citing earthquake risk



Whether the moratorium was politically expedient depends on who you ask...

Growing opposition



Ryder et al (2020)
Summary of research on shale gas perceptions

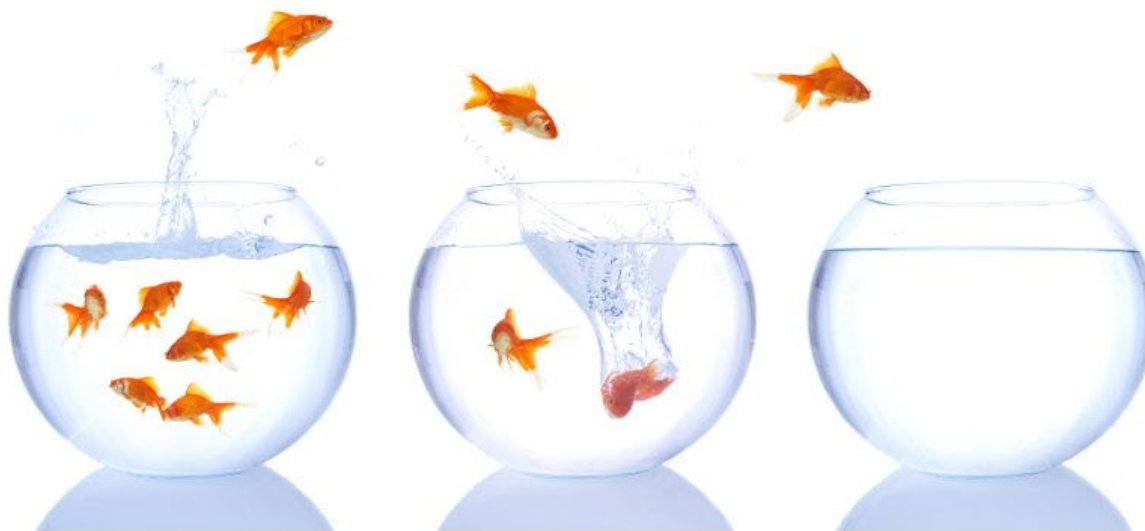
Non-BEIS surveys highlighted

Peaks and troughs reflect timings of different surveys, which asked slightly different questions

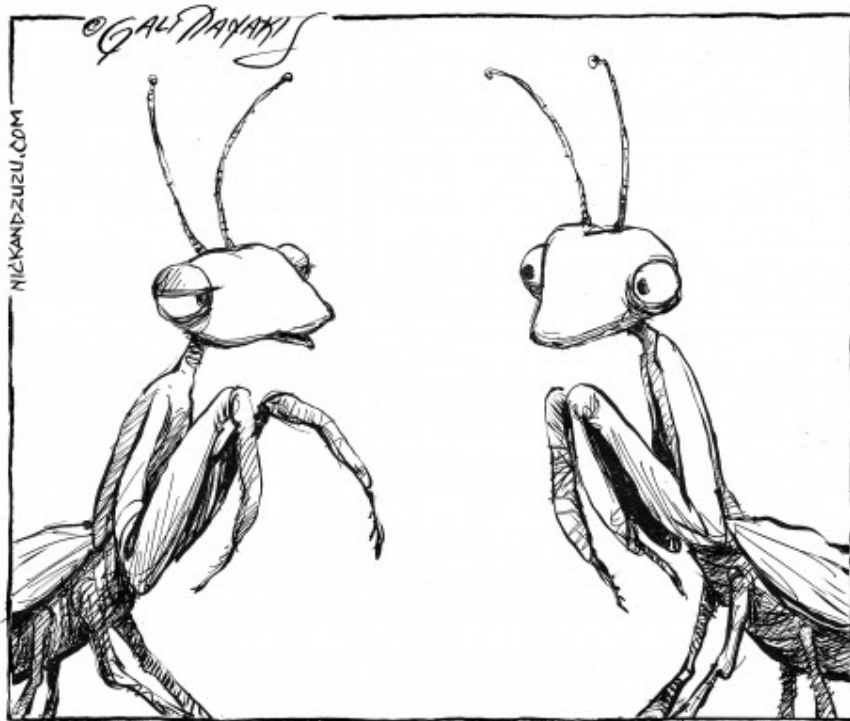
So, is the fracking story over in the UK? What can we learn, and what might the knock-on consequences be?

Spillover effects

- Knock-on consequences: Important not to look at policies or technologies in isolation (Cox, Royston & Selby 2019)
- Behavioural spillover = the idea that pro-environmental behaviour can spill over from one behaviour to another (Verfeurth & Gregory-Smith 2018, Nash et al 2017)
- But what about *perception* spillover?



Spillover examples



AFTER WHAT YOUR MOM DID TO YOUR DAD, OF COURSE YOU'RE FREAKED OUT. BUT I'M NOTHING LIKE HER.

- People use heuristics to make sense of unfamiliar issues
- Risk associations play a prominent role in forming risk perceptions (Visschers et al 2007)
- Fracking used to understand Carbon Capture and Storage (Gough et al 2018; Cox et al 2021)
- Controversies can spill over from one product to another (Janakiraman et al 2009; Roehm & Tybout 2006)

Similar technologies?

- Marketing literature = spillover depends on whether a product or brand is seen to be ‘similar’
- Does this hold in the energy/climate space?
- Impact of fracking on perceptions of deep geothermal and green hydrogen
- How about cross-cutting themes such as trust, justice etc.
- “Social parameters of similarity”
 - Trust in scientists; fracking associated with scepticism about assurances of safety
 - Sense that public concerns will be ignored or overridden?
- Dissimilarity? E.g. fracking ‘non-transition’

Whatever we say, are they gonna do that anyhow? They’ve done a similar sort of thing with fracking. You know, people were campaigning against it, they still went ahead and done it.

References

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Thank you for listening

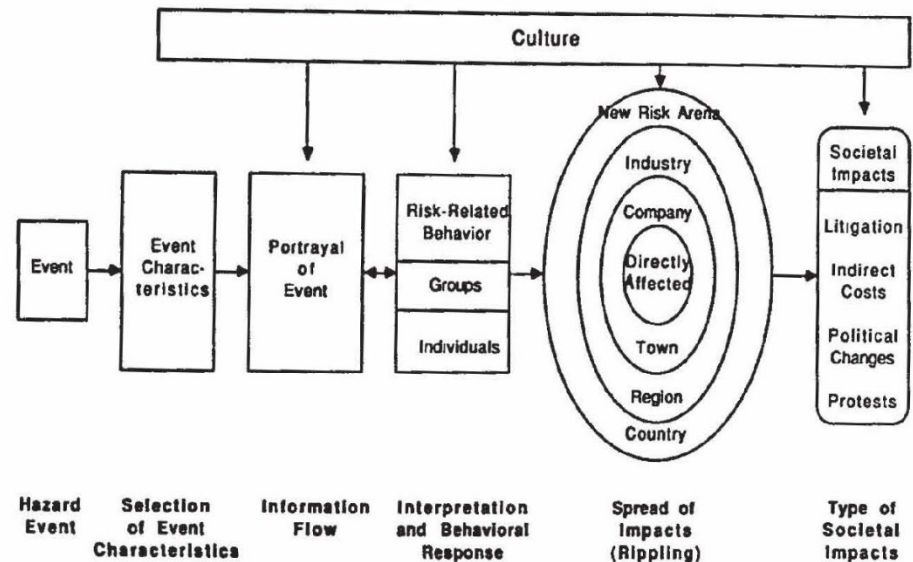
Questions and comments please!

Next steps

- We will be looking at the impacts of fracking on two novel energy technologies: deep geothermal (kinda similar?) and green hydrogen (less similar?)
- How do we elicit information about causal spillovers?
- How do we ensure that lessons are learnt for other technologies? Has fracking taught us much about social license?

Social amplification of risk

- Findings in accordance with theories on the Social Amplification of Risk (Kasperson 1988)
- Initial events lead to amplified risk perceptions and stigmatisation, as seen with fracking (Graham et al 2015; Thomson 2015)
- This literature is quiet about ripple effects *across technologies*
- Gough et al (2018) find fracking mentioned in workshops about Carbon Capture and Storage



where

do we go

from

here?

- Trust, once lost, is not easily regained (Lofstedt 2015)
- Planning procedures must be fair and transparent; people's concerns listened to
- Avoid the temptation to downplay or obscure risks, even in a context of scientific uncertainty (Leiss 2003)
- Engage early and continuously; go in with the assumption that plans may have to change (Stilgoe et al 2013)
- Are social science insights having a tangible impact on research or policy?

Conclusions

- Ripple effects *across technologies* and *across spatial scales*
- “But they told us it was safe”: fracking sparks scepticism about safety assurances and perceived shortcomings in the way risk is handled
- “They” not clearly defined by participants; but reflects a power imbalance. Power dynamics have often been underexplored in research on risk perceptions (Pidgeon et al 2006)
- Political processes left people feeling their concerns had been ignored or overridden
- This has big political implications, and could undermine the social license for NETs and other low-carbon technologies

An unexpected finding

- Fracking mentioned unprompted in all groups. Used to draw generally negative connotations of the Negative Emissions Technologies
- We carried out a secondary analysis of the transcripts, using keyword searching ('frack', 'shale' and 'unconventional')
- Fracking topic brought up by 11 participants, and a further 11 joined in the ensuing discussions
- Thematic analysis of resulting excerpts; plus discourse analysis to understand interactions between participants

Ecosystems and the underground

- Fracking connected to specific risks around ecosystems and the underground
- Risks to water supplies; risks to wildlife
- Earth system seen as inherently interconnected
- Fracking “terrifying”; risks uncontrollable and unknowable

Every new technology at the time it's created is fine. We only start to find out retrospectively about the impact it has...

And the terrifying thing is, with technology, we can't control it. We recall products, we put new ones out. This is just uncontrollable.

- Peter: You've got things like with... is it with fracking now and all sorts of things where you... how will that disrupt the ground? Not so much earthquakes, but will it poison water? Will it be able to seep out? Will it be detrimental to the...
- Ruby: Sea life and...
- Peter: Yeah, anything. Yeah.
- Tom: It's kind of, another just sweeping something under the carpet, isn't it?
- Emma: We don't really know the damage we could do by doing this, 'cos it's... to my knowledge we've never done anything like this before with anything, so... it does bring fracking back to mind and thinking, you know, that it can cause all sorts of issues in the Earth's make-up in that we might be storing problems for future. [Cardiff 2]

- Peter's use of a series of questions conveys a sense of unresolved uncertainty
- Ruby's interruption conveys rapport with what Peter is saying, demonstrating her active involvement in the discourse (Goldberg 1990)
- Emma brings the discussion back round to fracking, demonstrating the ripple effect

Scientific assurances

- Trust in scientists is generally high in the UK; but fracking associated with scepticism about assurances of safety
- When asked directly how they'd respond to assurances of NETs safety, one participant said simply, "fracking"
- Sense of betrayal; strong anti-elites discourse

But we're supposed to trust experts, aren't we? We're supposed to be able to trust in them, aren't we?

The things, like the big fans [Direct Air Capture], whatever we say, are they gonna do that anyhow? They've done a similar sort of thing with fracking. You know, people were campaigning against it, they still went ahead and done it.

Non-underground technologies?

- Do ripple effects extend to technologies without an underground component?
- Majority of fracking comments made in relation to BECCS and Direct Air Capture, which store the CO₂ underground
- However, fracking also mentioned unprompted in relation to Enhanced Weathering (no underground component)
- References to public opposition used to imply that NETs could encounter similar opposition, and that this may be overridden in the same way as for fracking

I think the giveaway for me was the heavy machinery and the rocks and that put me in mind of fracking process, which nobody wants.