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Comparing CCS and Climate Engineering (CE): Governance of Technical Climate Fixes

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This talk

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Draws on work by Mads Dahl Gjefsen, and an ongoing collaboration with him and Jennie Stephens. All flaws are my fault though…

Tentative and somewhat subjective

First, what are 'climate engineering', 'technical fixes'?

Climate Engineering

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- New technology to counteract climate change

Carbon Dioxide Removal, CDR

biomass CCS,

biochar, forestry,

ocean fertilisation…

Met Office

Solar Radiation Management, SRM

white roofs, modified plants,

tropospheric & stratospheric clouds,

space mirrors…

Technical fixes

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Broadly: technological solutions to societal problems

- Promise: simpler than “social engineering”
- Critique: overly reductive understanding of problem, does not address root causes / just shifts the problem

Term often a slur, without much analytical content

Intuition that it is interesting to look at CCS and CE, as different but related examples in the context of CC

- *Comparison, Relationship*

Sarewitz, Nelson, Pielke Jr:

When appropriate?

1. embody the cause-effect relationship
2. effects assessable by unambiguous / uncontroversial criteria
3. based on improving an existing standardised technical 'core'

Pro *air capture*, con mitigation and SRM

Debatable criteria – not least since presuppose stable, agreed framing (effective black boxing achieved)

Technological promises

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Constructed futures relevant for current action

Promises and warnings alike

Technical and social dimensions

Promises matter for public perception and governance

Feasibility, Readability, Legitimacy

Comparable?

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Similarities and differences

1. Tech responses to CC
   - CE much more diverse
2. Down the pipe
   - CE “beyond pipe”
3. Unrealised
   - CE much less mature (or?)
4. Controversial
   - Fewer advocates for CE, and more ambivalence

Feasibility

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	CCS	CE
Performance	Known tech, slow and expensive	Unknown tech, fast and cheap
Social disruption	No	Potentially huge

CCS: *demonstrate, incentivise* (and calling the bluff)

CE: *develop, unpack/enrol* (and beware of who might be supporting it)

Readability

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Similar: scientific visual genres, depopulated images

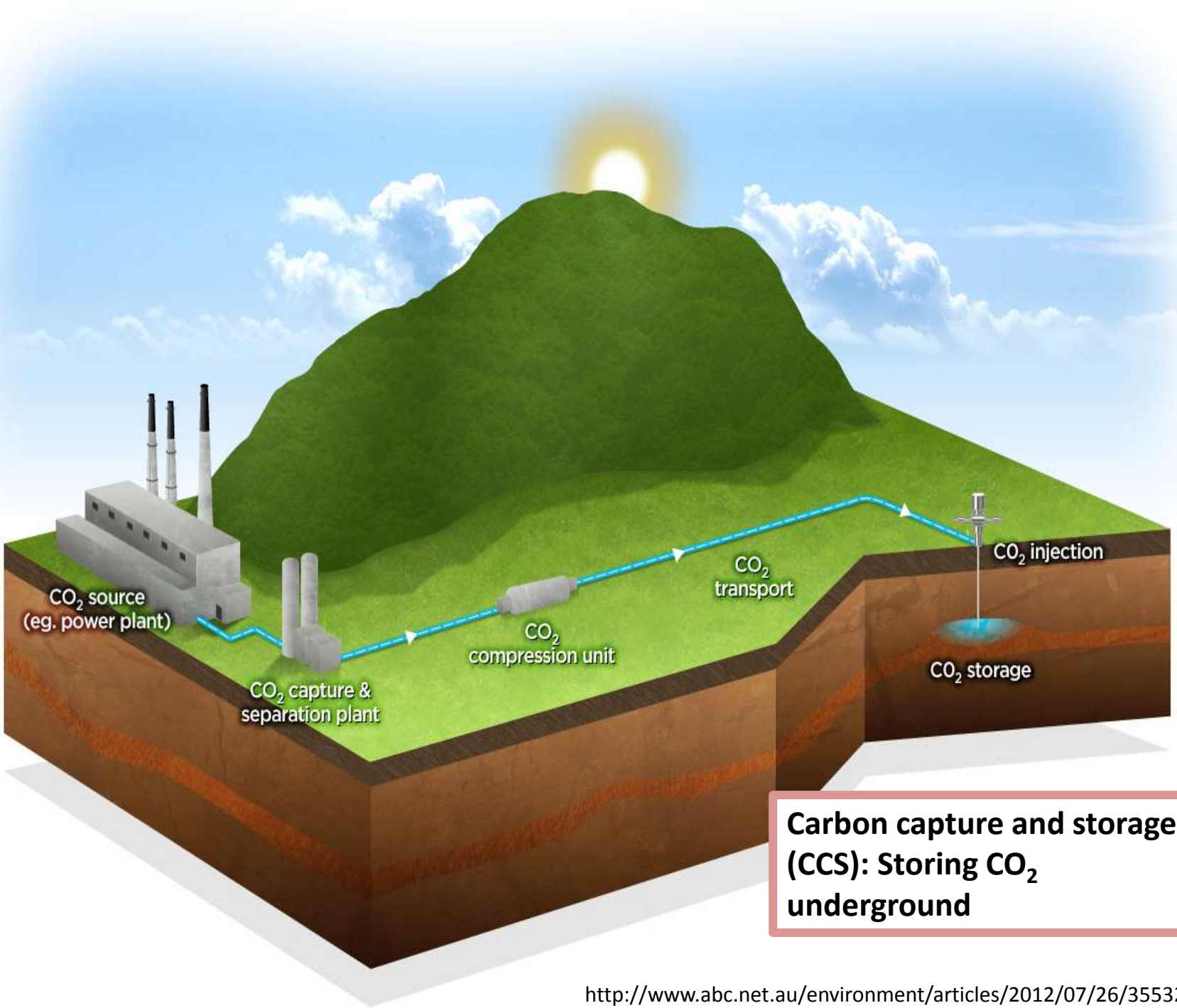
Difference: industry vs sci-fi (“thinner”)

CCS

- less “sexy”, but a safer option
- can rely less on allure of science
- need to rely more on non-visual means?

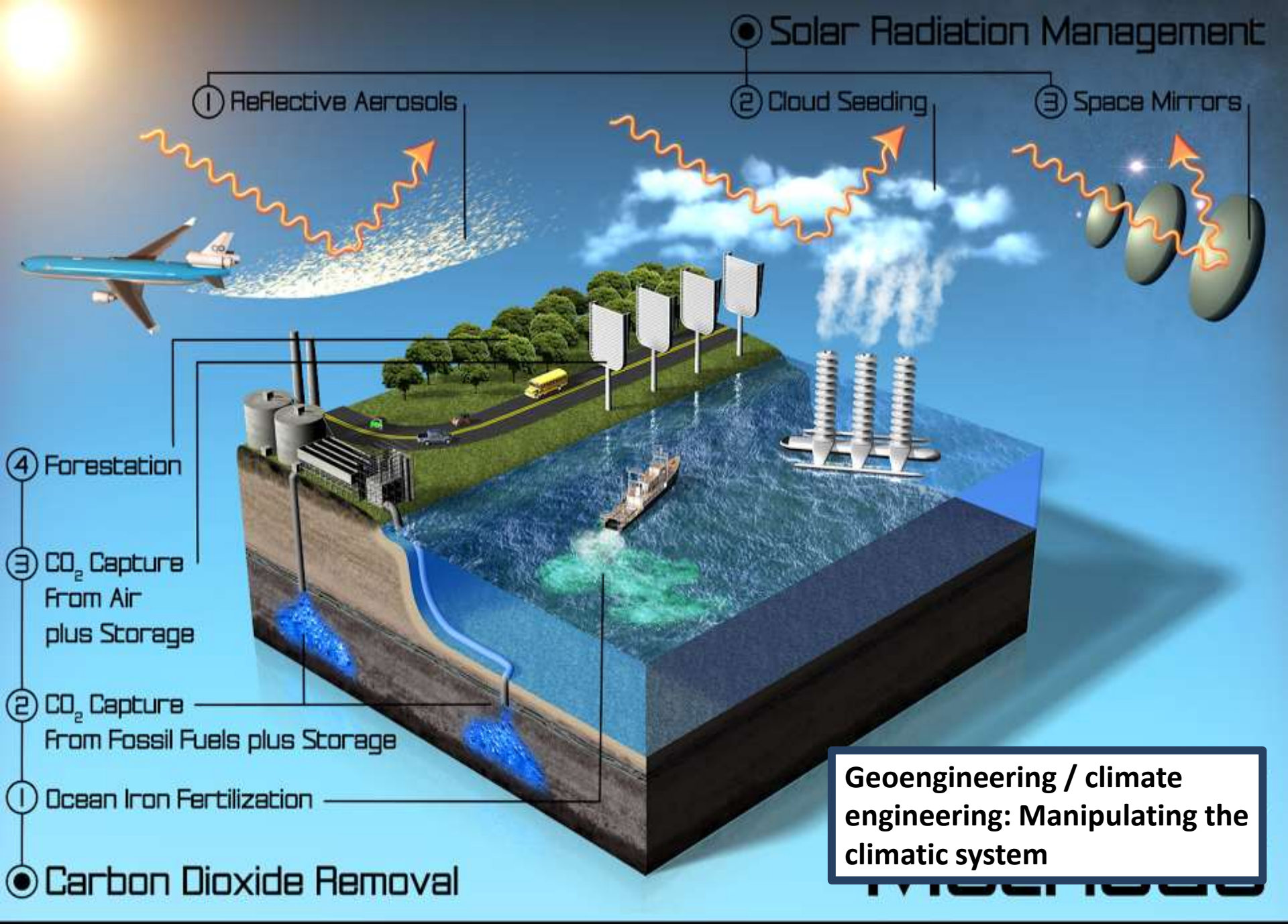
CE

- high-tech allure, but also easy to mobilise mad scientist type arguments



Carbon capture and storage (CCS): Storing CO_2 underground

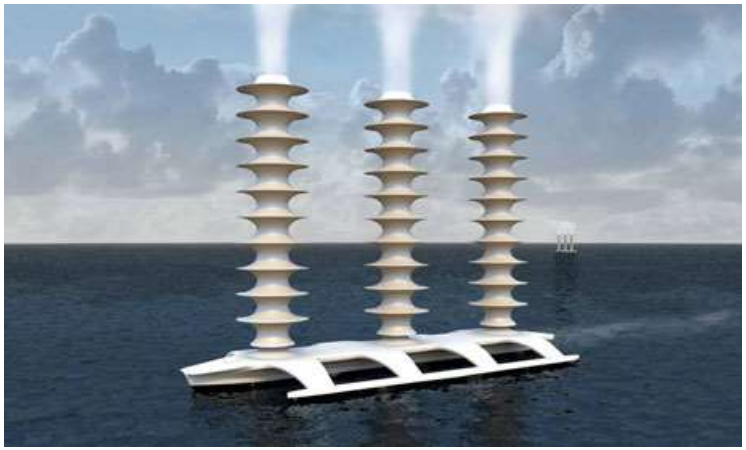
http://www.abc.net.au/environment/articles/2012/07/26/3553255.htm

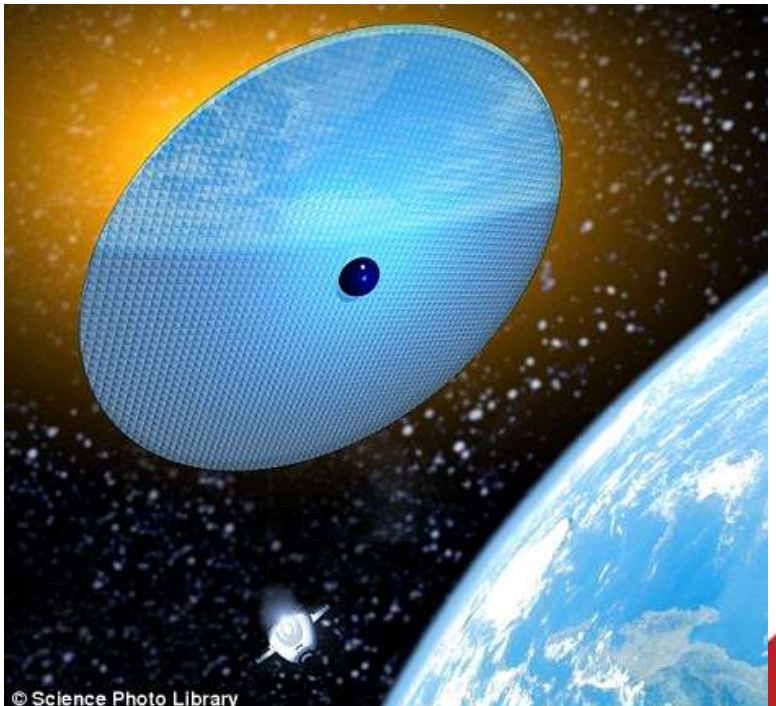


Geoengineering / climate engineering: Manipulating the climatic system

Sources: IPCC / Royal Society | More info: www.get2.cc/5e

climatecentral.org

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Legitimacy

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Advocates:

CCS: experts, industry, policy makers, NGOs

CE: small group of experts, think tanks, no NGOs

CCS: some social science / some NGOs

CE: lots of humanities and social science research re ethics, acceptability, governance

In comparison, CCS seems very reasonable *and/or* has escaped lightly in terms of ethical/political critique

Relations between the technologies: discursive

Moral hazard:

- CCS and renewables (efficiency, demand reduction)
- CE and mitigation

Reverse moral hazard:

- CCS made CC seem more tractable
- CE makes CC seem more serious (and tractable?)

CE makes CCS seem sensible and more attractive?

Material relations

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- Not just promises: Also flow/shift of resources
  - People, research funding, policy attention
  - Timing

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So what? Research topics

- Impact of CE on public perception of CCS?

- Can we make 'technical fixes' concept a bit more precise and analytical?
  - Answer will have something to do with framing and black-boxing
  - Seem to come in different flavours: high tech – "mid tech", with consequences for feasibility, but also readability and legitimacy, and hence support/ acceptance and governance

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So what? Research topics

- CCS not just in the portfolio, but “in the sequence” of climate policy solutions! Understanding the process (of uptake of new technology options, of increasingly “fix-ey” character) and the conditions driving it (beyond just growing desperation)

- Beyond mono-technology studies: discursive interactions, comparisons, orderings… What metaphors are used? What numbers, stories, diagrams etc.?

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Thank you!

References

- Sarewitz, D., & Nelson, R. (2008). Three rules for technological fixes. *Nature*, 456(7224), 871-872.
- Pielke, Jr, R. (2009?) *A perspective paper on climate engineering: Including an analysis of carbon capture as a response to climate change*, Copenhagen Consensus Center
- Sarewitz, D. (2011). "Looking for quality in all the wrong places, or: the technological origins of quality in scientific policy advice." In: Lentsch, J., & Weingart, P. (Eds.). *The politics of scientific advice: Institutional design for quality assurance*. Cambridge University Press, Cambridge, 54-70.