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Public Awareness of CCS:
History, Research Findings and Strategy Implications

Simone Carr-Cornish & Peta Ashworth

Seminar on CCS Awareness & Networking of EPPM in the CCOP Region
16-17 November 2009, Bangkok, Thailand

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Aims

1. Introduce CSIRO
2. Why the “Social Licence” and Communication Matters
3. International Network for CCS Social Research
4. How the General Public are Responding to CCS
5. Communication Strategies
6. Global CCS Institute and Communication Projects
7. References and Suggested Readings

Commonwealth Scientific & Industrial Research Organisation (CSIRO) today: A Snapshot

- Australia's national science agency
- One of the largest and diverse in the world
- Ranked in top 1% in 13 research fields
- Internationally recognised staff
- Over 6000 employees
- Building national prosperity & wellbeing

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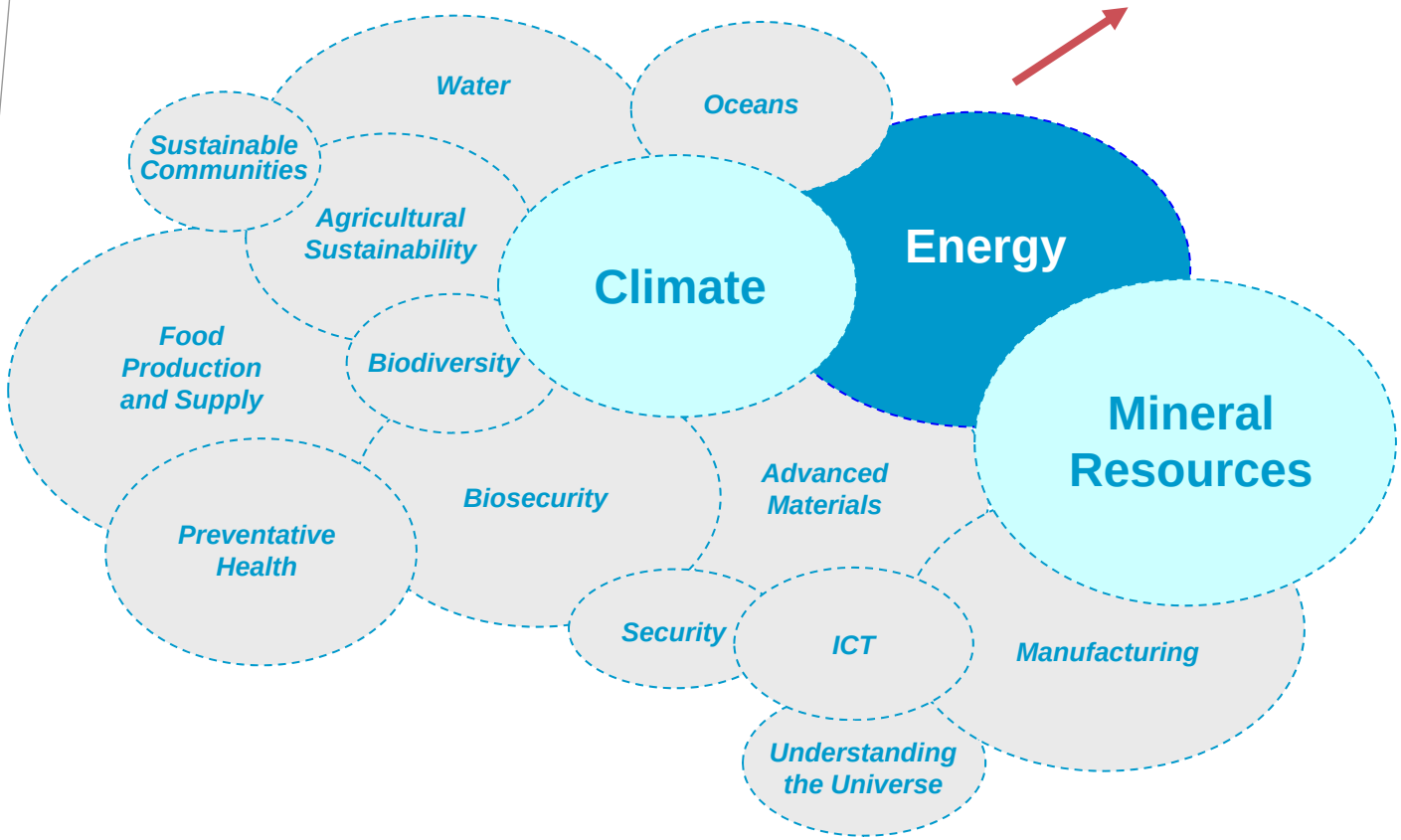
CSIRO's Outcome Domains

Social licence of technologies starting with CCS and partnering with Centre for Low Emission Technology



Why the "Social Licence" and Communication Matters

- Increasingly recognised as best practice – especially with relatively unknown technologies
- Proceeding without: A major risk to technology demonstration and adoption.
- Communication and social research can:
  - Increase the awareness of new technology development
  - Identify societal issues and suggest strategies for addressing them
  - Enhance outcomes, promote a win-win situation

Source: Nick Otter, CEO, GCCSI, April, 2009

Public attitudes to new technologies can change over time however, once formed they can be slow to change

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International Network of Social Researchers

- **First:** Carbon Dioxide Capture and Storage Social Research Network (C2S2RN)
  - Informal group of 15 researchers
  - Founded by Peta Ashworth, Sarah Wade US, & David Reiner UK
  - History:
    - 2006 support from UK Dep. Tourism and Industry, IEA, CCS Leadership Forum (CSLF)
    - 2007 communication workshop between Climate Change Central (NGO), Institute for Sustainable Energy, Environment and Economy (ISEEE) and the International Institute for Sustainable Development (IISD)
    - 2008, GHGT-8 Trondheim Norway
    - 2009, GHGT-9 Washington USA

- **Now:** IEA greenhouse gas research & development social research network
  - 2009, 44 researchers met in Paris
  - Formal group of 70 researchers
  - Chaired by Peta Ashworth
  - Focus:
    - Public perception of climate change and energy technology, narrowing down to CCS
    - General awareness and communication about demonstrations

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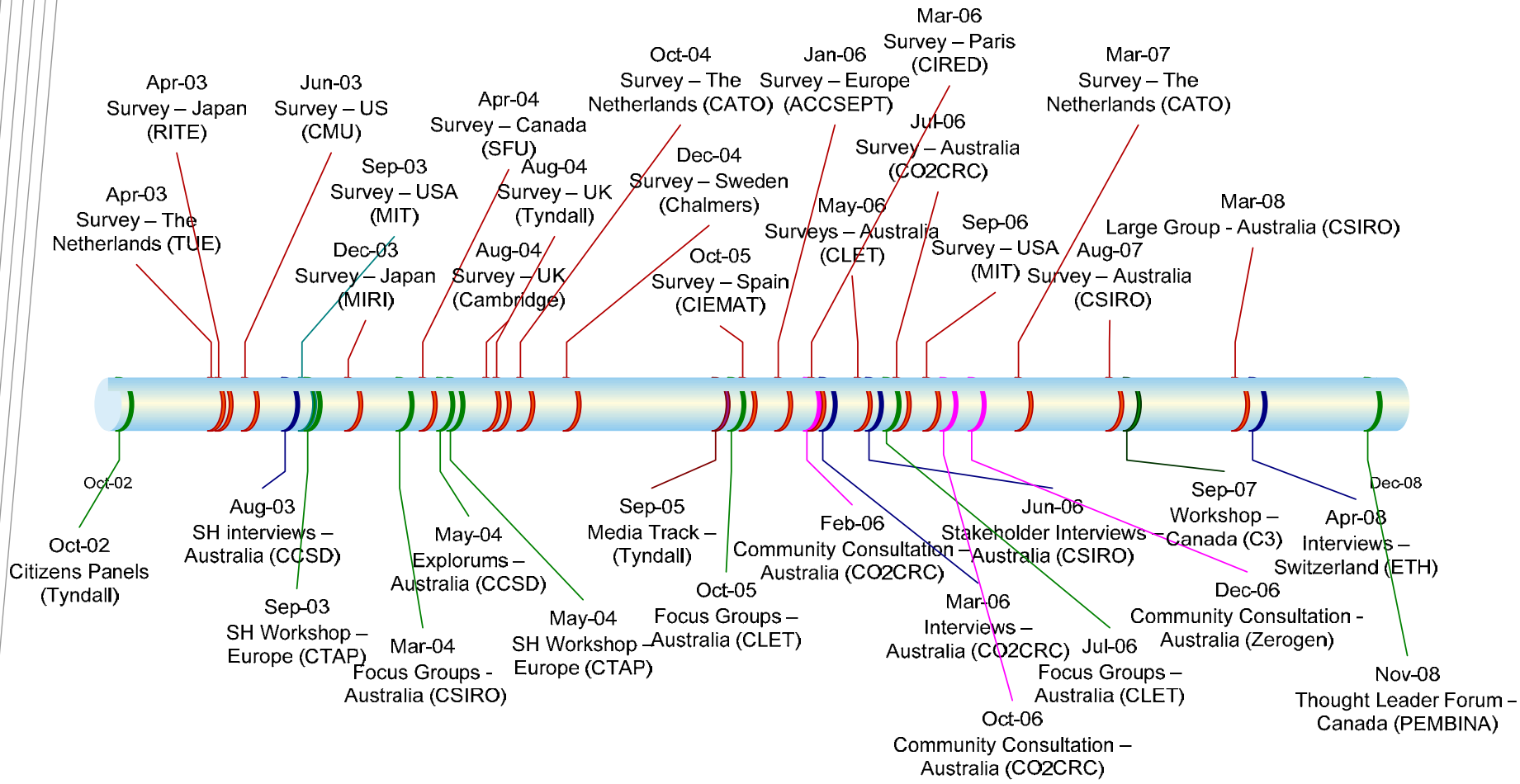
Timeline of Communication Research Activities 02-09

(Ashworth et al, in press)



Survey
Interviews
Focus Groups & Workshops
Community Consultation
Media study

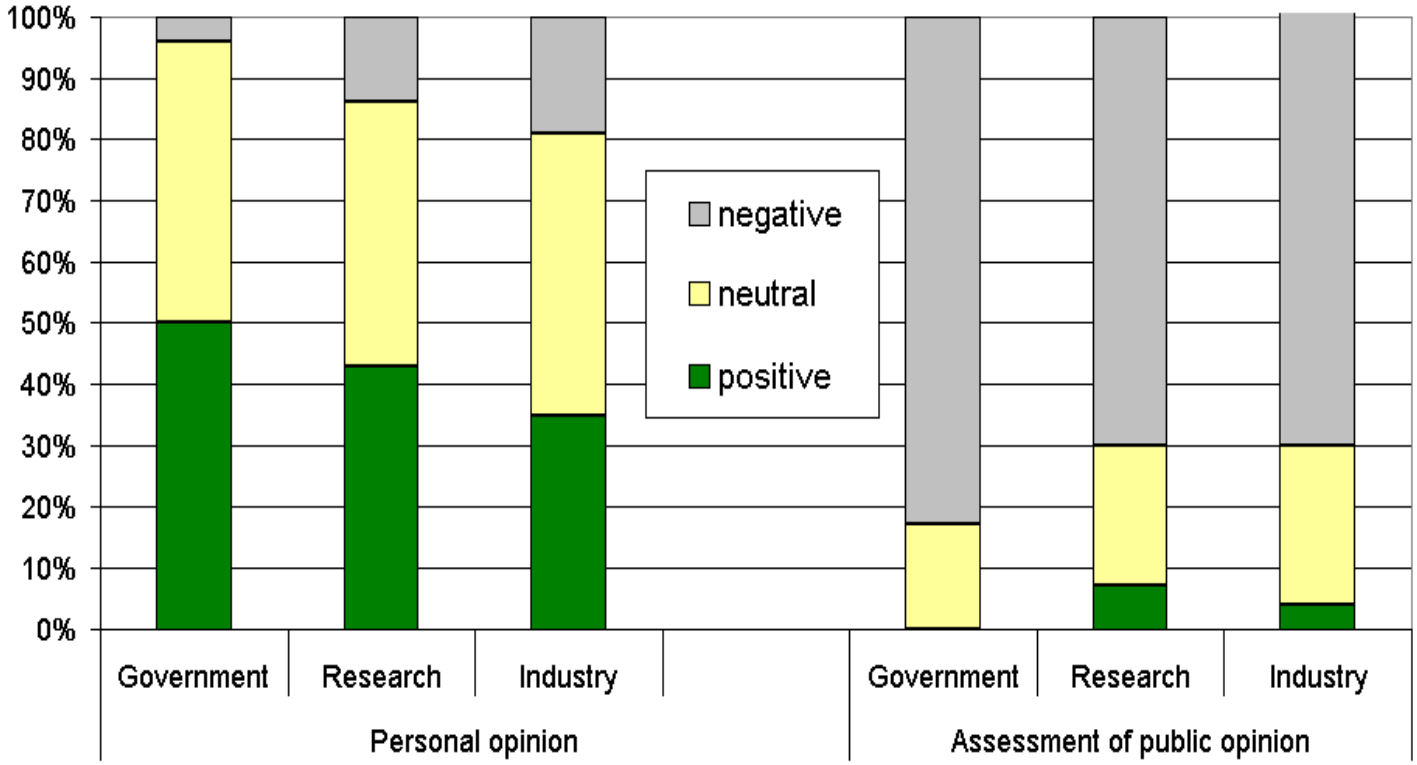
Source: Ashworth et al, (in press) International Journal of Greenhouse Gas Control

Findings – Informed Stakeholders

Responses from Informed Stakeholders

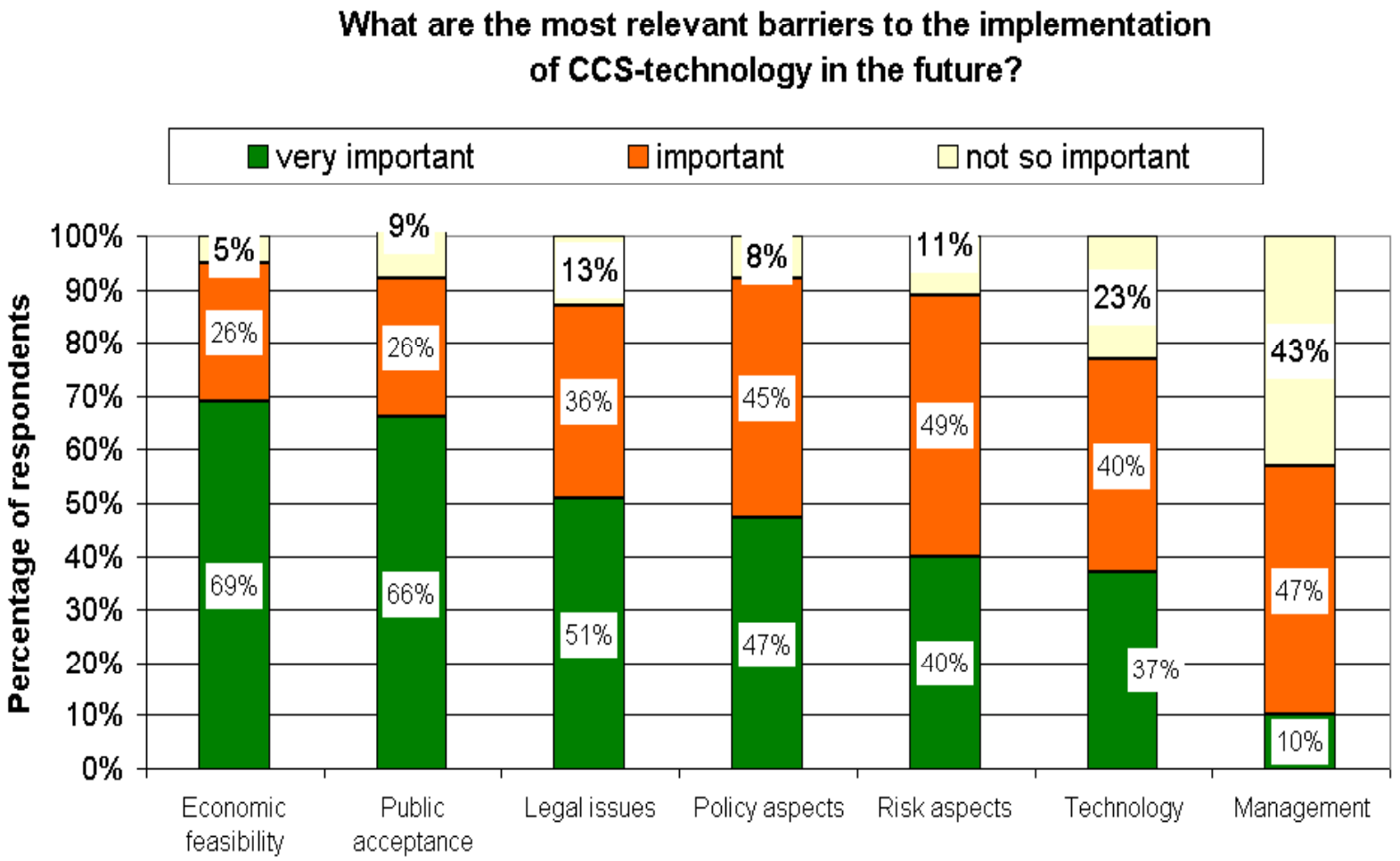
1. What is your personal opinion of CCS?
2. What do you think the general public's opinion is? Positive/ Neutral/Negative

Informed stakeholders: Opinion of CCS (Radgen et al, 2007)



- 171 scientists and engineering students working in CCS
- What is your personal opinion of CCS? What do you think general public's opinion is?
- Shows substantial variations between different nations.
- Personal opinion most positive in UK, NO and US.
- Perceived public opinion most positive in FR, NO and UK

Informed Stakeholders: Barriers to Implementation (Radgen et al, 2007)



Responses from the General Public

Findings – General Public

- Different understandings of climate change and how it relates to own behaviour
- Understanding of CCS is limited
  - Knowledge greater among more educated participants
  - Very little knowledge of the potential scale required
  - A technology most citizens are relatively less familiar with
  - Citizens that feel uninformed will still give an opinion
- Uncertainty about CCS and often considered less popular
  - CCS is less positively evaluated compared with other mitigation options
  - Depends on what technology it is being compared against
- Sources of information are not perceived equally
  - Trust can be influenced by history and context
  - Typically less trust in authority (industry and gov.) compared to scientists/research institutes
  - Perceived fairness of communication process is important

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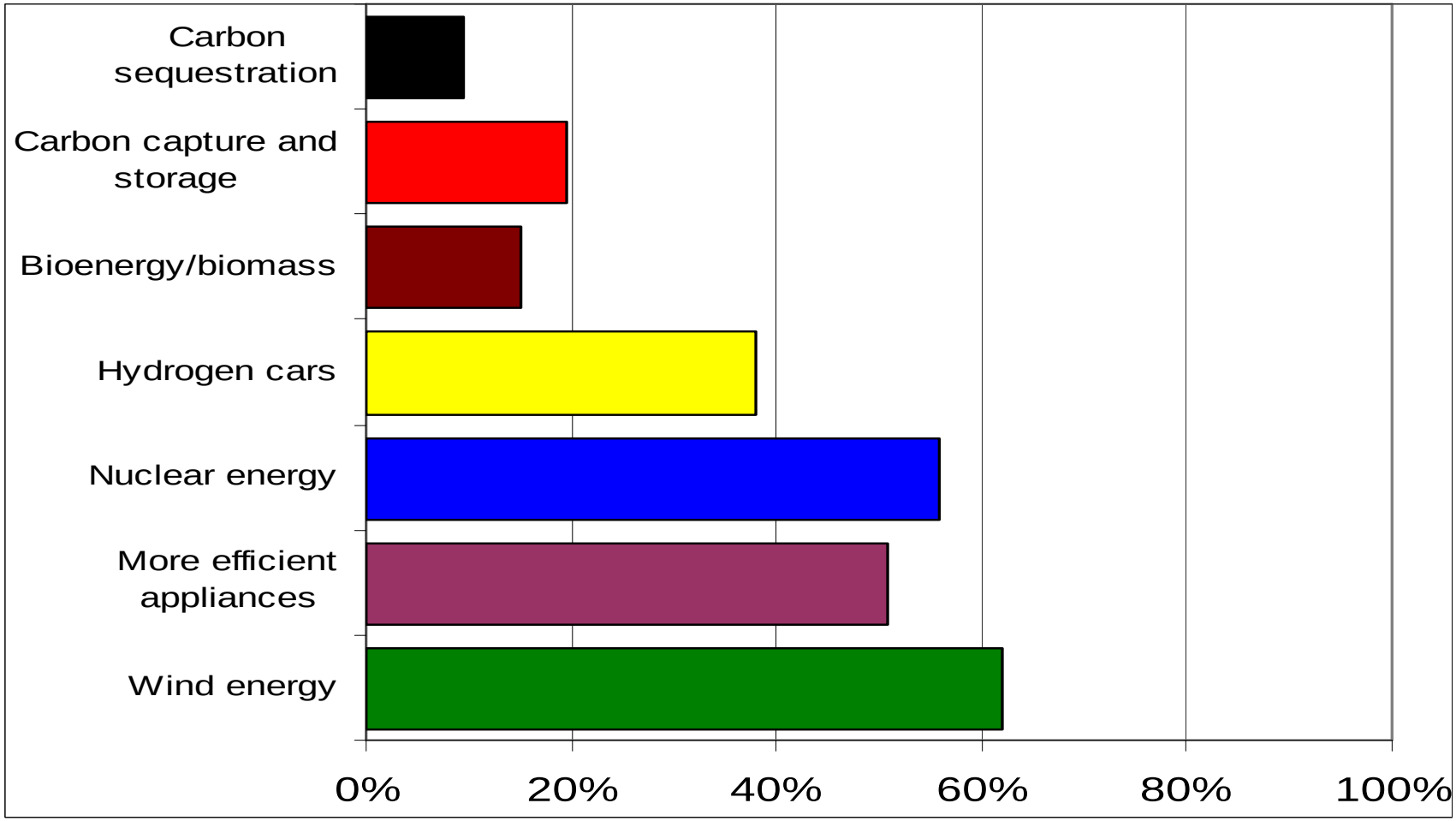
Awareness: Heard or read of the following in the past year?

(Reiner et al, 2007)

Responses from Australia



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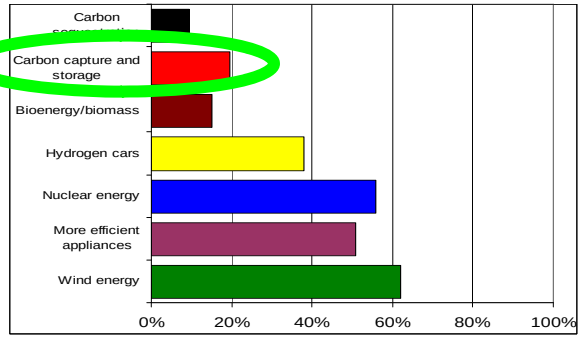
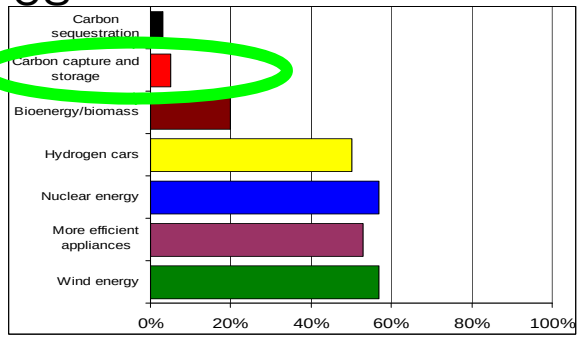
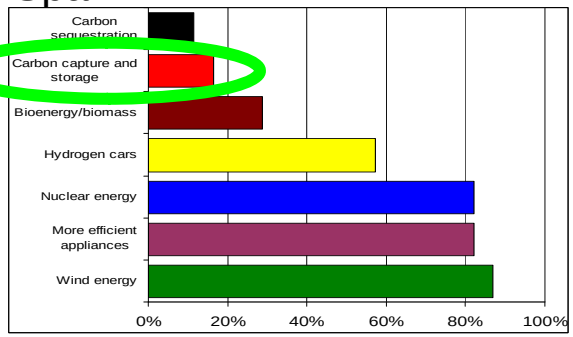
Australia



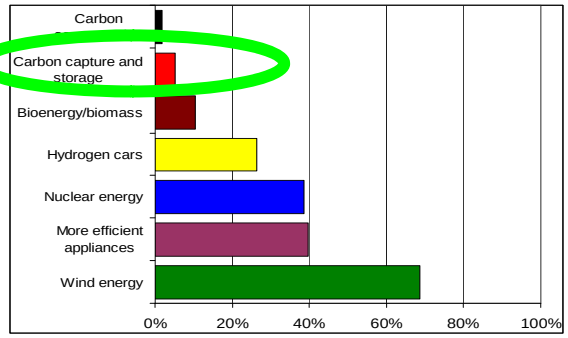
US



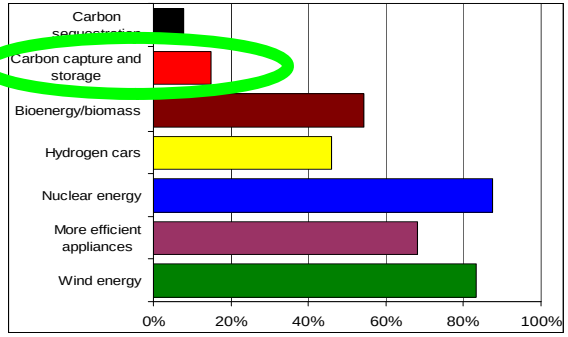
Spain



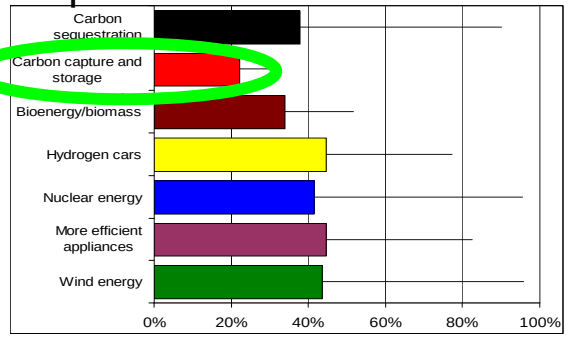
UK



Sweden



Japan



-know to some extent

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Pseudo Opinions (de Best-Waldhober et al, 2009)

Have you heard of large, modern coal fired power plants where CO_2 is captured and stored underground?

-no (not heard of)	68%
-a little	28%
-yes	4%

Can you give this technology a grade?

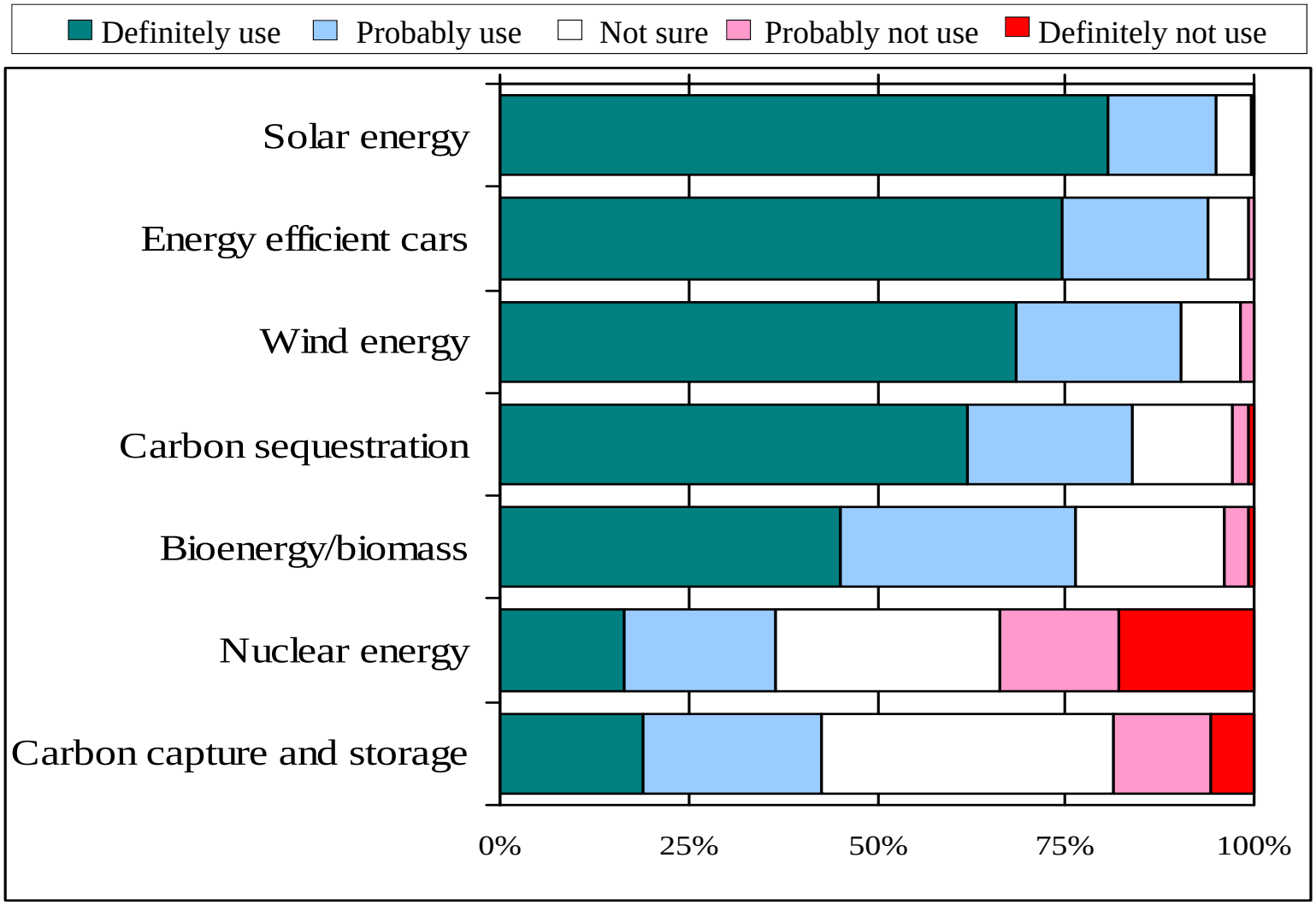
"No opinion"	27%
gives a grade	73%

40 to 56% combines "no (awareness)" regarding CCS technology with a grade (=pseudo-opinion).

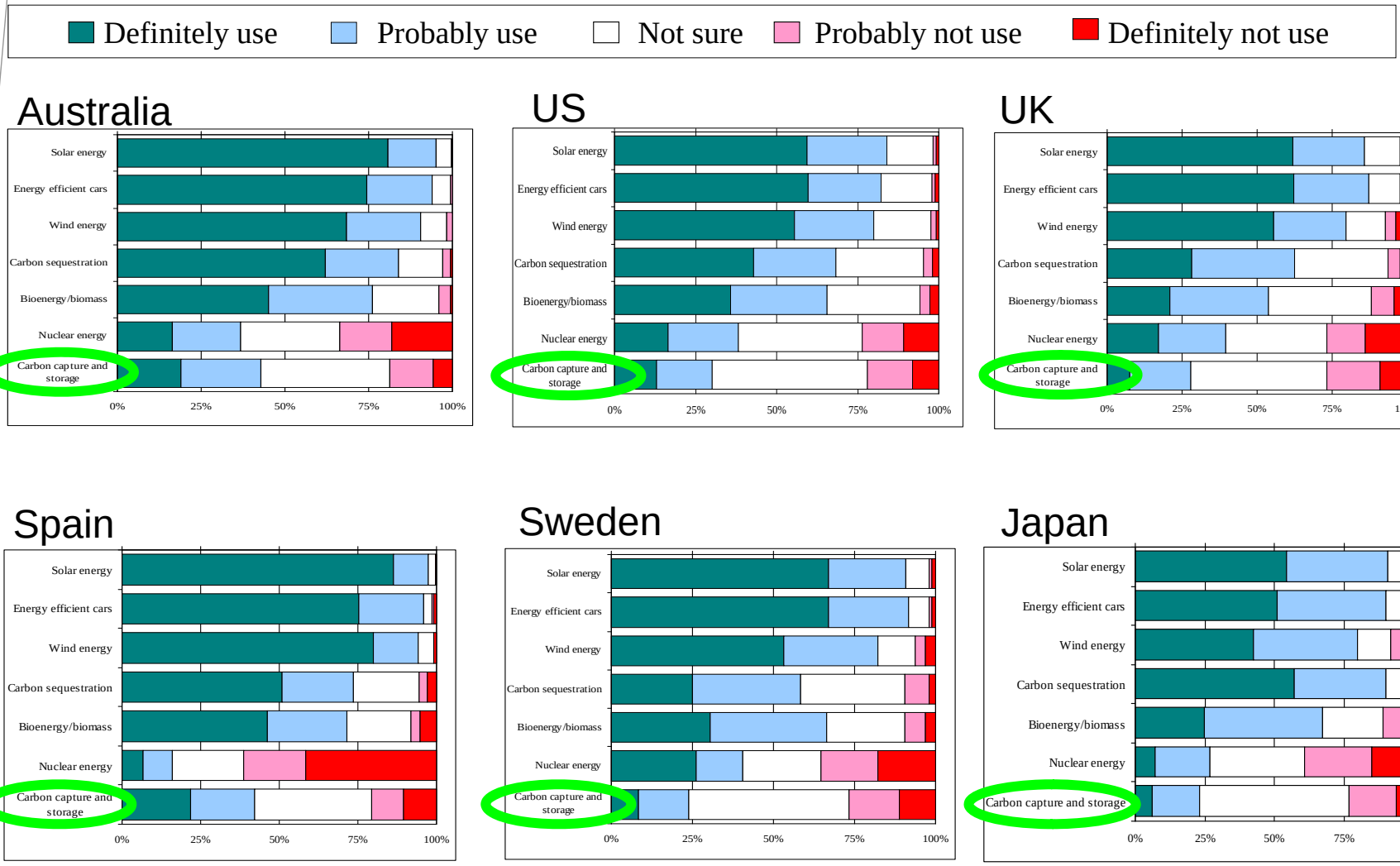
-highly unstable (changes in 12 minutes)
-worthless for predicting future public support of CCS

Preferred Technology to address global warming? (Reiner et al, 2007)

Responses from Australia



Preferred Technology to address global warming? (Reiner et al, 2007)



Common Questions

- *Have any studies been done on ways to use CO_2 emissions for practical uses thereby creating a recycling effect rather than just bury it?*
- *We need to know more about it before widespread application - Is it safe? What are the long-term effects? Is it a cover-up operation – will it give companies that invest in this technology the appearance of looking green without actually doing anything?*
- *CCS is not an answer but can be a bridge for other technologies. I thought it was bad but now I have changed my opinion.*
- *What is payback period for building CO_2 sequestration, brings jobs and progress but how many emissions?*
- *CCS is a pipedream; there is not concrete evidence of it working*
- *How far down the track is carbon sequestration? How soon can we implement? How long can we use the special sequestration spots?*

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Recent Case of Social Opposition – Dutch Shell Project

News segment: http://english.ntdtv.com/ntdtv_en/ns_europe/2009-08-25/012357126432.html

- Barendrecht, suburb of Rotterdam, Netherlands
- Dutch Shell project – early mover
- Currently halted for an independent commission. Company are confident due to assessments and government support.
- Opposition from locals who say it's unsafe – influential locals

Some 1,300 locals raised objections to the plan.

Last month, the town council came out against it, citing "numerous reservations."…

Locals say CO_2 should be stored in offshore fields in the North Sea rather than on land.

(http://online.wsj.com/article/SB124024483430835389.html)

Temporary delay – proceeds with some local opposition?

Or

More permanent delay?

Why?

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Communication Strategies

- **Why:**
  - Without increase risk of opposition and potential delays
  - Awareness increases likelihood of acceptance and concerns being addressed
  - Opinions associated with low awareness have limited implications for planning

- **Communication takes place in a context:**
  - Climate change, mitigation technology, there is no silver bullet
  - General awareness and/or project specific outreach
  - Start early

- **Audience needs to be identified:**
  - General public
  - Influential stakeholders
  - Relevant processes for each
  - Consistent messaging to each audience

- **Quality of information matters**
  - Balanced, science based information
  - Trusted experts

- **The communication process will be judged by participants**
  - How participants perceive the process has implications overtime
  - A process – not a one way activity

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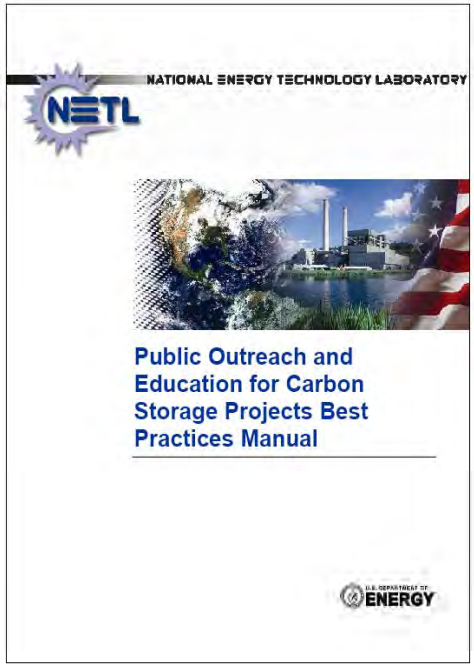
Public Outreach and Education for Carbon Storage Projects Best Practices Manual (Wade forthcoming)

1. Integrate Public Outreach with Project Management
2. Establish a Strong Outreach Team
3. Identify Key Stakeholders
4. Conduct and Apply Social Characterization
5. Develop an Outreach Strategy and Communication Plan
6. Develop Key Messages
7. Develop Outreach Materials Tailored to the Audiences
8. Actively Oversee and Manage the Outreach Program Throughout the Life of the CO2 Storage Project (Seek Opportunities for Interaction)
9. Monitor the Performance of the Outreach Program and Changes in Public Perceptions and Concerns
10. Be Flexible – Monitor Public Opinions and Awareness; Refine the Public Outreach Program as Warranted



Manual will be available soon:

http://www.netl.doe.gov/technologies/carbon_seq.html

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Communication Strategies

Awareness versus Acceptance: Do we need both?

"I think it vital to continuously underline that the communication work that takes place at a local level is the tip of the communications pyramid, and that a wider lack of activity makes the job that much harder when attempting to dialogue with locals regarding a potential CCS project."

Industry Communications Representative

"So, I don't know whether for successful implementation of CCS an informed and positive constituency and acceptance of CCS is needed. I guess that for the general public it goes that the majority is not motivated to process any information on CCS (and why should they?). For people living near CCS activities it might be that they are attentive at first (Is this safe?) and when they perceive reassuring cues (e.g. a highly credible source guarantees it is safe) they lose interest and don't oppose (note: this is not acceptance). However, when those cues are not reassuring (e.g. a source that is not trustworthy provides the same guarantee) residents perhaps search for more information and are probably susceptible for (also invalid) information on risks and this may result in opposition."

Leading Psychologist researching CCS Perceptions

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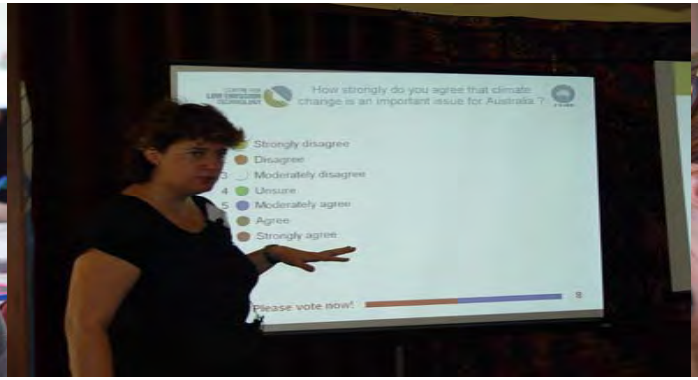
Communication Strategies: Match audiences, outreach and messages

Scope	Audience	Outreach
General	Influential Stakeholders	Inform and engage by investing resources and building relationships
	Community SME's	Small group discussions
	Education	Universities, Schools
Project Specific	•Influential •Community •Education	Working with local industry partners



Global Carbon Capture and Storage Institute (Global CCS Institute)

Central objective is to **accelerate the commercial deployment** of carbon capture and storage (CCS) projects to ensure their valuable contribution in reducing carbon dioxide emissions**.**

- Independent legal body established July 2009
- $100m annual funding commitment by Australian government for 5 years
- Will work in a cooperative manner with all CCS stakeholders

INSTITUTE'S ENGAGMENT STRATEGY

Resource commitment

Support CCS community

Project specific

http://www.globalccsinstitute.com

Global CCS Institute: Communication Projects

- Conference on Social Research/Communication Industry Representatives
- **Findings from existing CCS projects**
- **Synthesise existing materials and research on public awareness and communication**
- **Social site characterisation tool**
- **Communicating results of risk assessment work and evaluation of project design, IEA risk assessment**
- Extension of FENCO Project - Australia, Japan, USA
- Extension of Near CO2 Project
- Understanding how people perceive carbon dioxide
- Hosting a large group process* (500 in a room)
- Identify public perceptions to CCS using the ICQ* methodology

- Identifying key stakeholder attitudes to CCS:
  - Opponents
  - Media study
- **Analysis and development of education materials.**
- **Identifying training needs for communicating CCS**

References and Suggested Reading

- Ashworth, P., Boughen,N., Mayhewa, N. & Millara, F. (in press). From research to action: Now we have to move on CCS communication, ***International Journal of Greenhouse Gas Control.***
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- Simpson, P. & Ashworth, P., (2008) Zerogen new generation power – a framework for engaging stakeholders. **Energy Procedia GHGT9 Conference** Washington.
- Wade, S. & Greenberg, S. (2008) Afraid to Start Because the Outcome is Uncertain?: Social Site Characterization as a Tool for Informing Public Engagement Efforts. **Energy Procedia GHGT9 Conference** Washington.

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References and Suggested Reading cont.

- Eurobarometer – Public Opinion of Climate Change and Energy Technology

  http://ec.europa.eu/public_opinion/archives/ebs/ebs_262_en.pdf

- Carbon Dioxide Capture and Geological Storage: Australian Regulatory Guiding Principles

  (http://www.ret.gov.au/resources/Documents/ccs/CCS_Aust_Regulatory_Guiding_Principles.pdf)

- Global Carbon Capture and Storage Institute (Global CCS Institute)

  http://www.globalccsinstitute.com/general_information/reports_papers_documents.html

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Simone Carr-Cornish
Social Research Officer

Phone: +61 7 3327 4077
Email: simone.carr-cornish@csiro.au
Web: www.csiro.au

www.csiro.au

Thank you

Contact Us
Phone: 1300 363 400 or +61 3 9545 2176
Email: enquiries@csiro.au Web: www.csiro.au

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