



## EXECUTIVE SUMMARY

This report presents research conducted by the CSIRO on recent media coverage of ‘carbon dioxide capture and storage’ (CCS) technology. Recognising the significant impact of print, radio and television media in shaping public perceptions and attitudes, the purpose of the research was to inform the Carbon Storage Taskforce regarding the current media debate on CCS, and formulate communication strategies and recommendations. Specifically, the research aims were:

1. To collate a database of urban and regional media coverage on CCS that has occurred since September 2007 until April, 2009.
2. Content analyse media coverage to identify underlying knowledge and attitudes of the journalists towards CCS technology and where they are based.
3. Identify the key reference people for individual journalists and how well informed and influential these reference people are.
4. Identify the main arguments both for and against CCS.
5. Propose a targeted communication plan for Australian journalists (both regional and urban) covering CCS in Australia.

To achieve these aims, media articles were sourced from an indexing database (*ProQuest ANZ Newsstand*), coded according to several criteria, and content analysed according to emergent themes (arguments). The coding criteria included article length, media type (print, radio or television), focal topic, the extent to which CCS was a focus of the article (primary, secondary or incidental), terminology used to refer to CCS and associated technologies, technical explanation and accuracy, tone of the article in relation to CCS (positive, balanced, negative or neutral), and the names of cited experts and/or organisations used in the article.

The analyses were based on mainly newsprint articles (~90%) from urban sources. Findings revealed:

- Roughly three in 10 articles featured CCS as the primary topic;
- ‘Clean coal’ was the most common term used to refer to CCS and associated technologies;
- Slightly more than a third of articles portrayed CCS in a positive light and 27% were negative, 18% balanced and 21% neutral;
- Technical explanations were not often provided (only in 20% of articles); and
- That peaks in CCS coverage corresponded with key events and/or announcements relating to the technology, such as the Federal government’s announcement of the Global Carbon Capture and Storage Institute.

Key journalists and cited experts were identified in the analysis, along with their associated views, which were summarised into key themes. In all, six emergent themes were identified – three affirmative (themes one to three) and three negative (themes four to six) arguments. Themes one and two positions CCS in relation to coal, dealing with the significance of this energy source to Australia’s economy, and the continuing global reliance on coal as a major energy source, and therefore the importance of CCS to reduce emissions. Theme three covers the notion that CCS is technically possible but requires government support to make it commercially viable. Themes four and five puts forward the view that CCS investment diverts money from proven climate change mitigation strategies to an unproven technology, and that if proven viable, is likely to be made redundant by other more cost competitive energy sources (technologies) such as gas, nuclear, geothermal and other renewables. Finally, theme six outlines the suggestion that CCS should not be funded by taxpayers as this effectively subsidises already heavily subsidised and rich industries – industry should take full responsibility for making CCS viable.

The findings and discussion culminated to seven recommendations for the Carbon Storage Taskforce.

1. Proactively engage with all journalists, urban and regional alike, including those that write infrequently on CCS to insure they have the appropriate information base to write about the technology. Include latest peer review information on all low emission energy technologies, their potential and current limitations, as well as the state of play in research being undertaken to overcome such limitations. Could also include cost of electricity generation, life cycle analysis and energy security issues.
2. Drop the term “clean coal” in as many ways as possible and move to the term “low emission”.
3. Promote the alternative ways that CCS can assist in mitigating greenhouse gas emissions besides applications attached to coal. For example, oil and gas, heavy industry and biomass potential.
4. Target more mainstream media, such as women magazines and commercial television stations.
5. Enlist the wider use of trusted experts including scientists and NGO’s to ensure more balanced and positive arguments for the technology are promoted.
6. Proactively make announcements in relation to CCS as a way of raising awareness and attracting more media attention.
7. Conduct further research to investigate, how the public read and interpret CCS. Within this research, test the effects of the range of expert information and how that effects individual perceptions.

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# Contents

<b>Executive Summary .....</b>	<b>ii</b>
<b>1. Introduction .....</b>	<b>1</b>
<b>2. Methodology.....</b>	<b>2</b>
2.1 Gathering Australian media coverage on CCS.....	2
2.2 Analysis strategy.....	2
2.3 Coding of media articles .....	3
<b>3. Results.....</b>	<b>4</b>
3.1 Descriptive characteristics of the CCS media library.....	4
3.1.1 Media type and source .....	4
3.1.2 Article content.....	5
3.1.3 Article focus and tone .....	6
3.1.4 Tone of article headlines.....	8
3.1.5 Technical knowledge of CCS.....	9
3.1.6 Timing.....	9
3.2 The journalists .....	10
3.3 The referent experts .....	11
3.4 Main ‘for’ and ‘against’ CCS arguments .....	12
3.4.1 Australian economic considerations and social responsibility (affirmative) .....	13
3.4.2 Reliance on coal, and no renewable alternative for base-load power (affirmative) .....	14
3.4.3 CCS is possible but needs government support (affirmative).....	14
3.4.4 CCS is unproven and a diversion from climate action (negative) .....	15
3.4.5 CCS for coal-fired power is not viable (negative).....	15
3.4.6 CCS should not be taxpayer funded (negative) .....	16
<b>4. Discussion.....</b>	<b>17</b>
4.1 The need to inform journalists .....	17
4.2 The need to move away from “clean coal”.....	18
4.3 Position the contribution of CCS for coal-fired power in time .....	18
4.4 Alternative uses for CCS.....	19
4.5 Target audiences .....	19
4.6 Perceptions of key experts .....	20
4.7 Newsworthy announcements.....	20
4.8 Mixed messages from industry .....	20
<b>5. Communication strategy .....</b>	<b>21</b>
5.1 Top 9 journalists .....	21
5.2 Wider journalist community .....	21
5.3 Broader reach to wider publications.....	22
5.4 Referent experts .....	22

<b>6. Recommendations .....</b>	<b>23</b>
<b>Appendix A – List of ProQuest ANZ Newsstand publications .....</b>	<b>24</b>

## List of Figures

Figure 1: Frequency of common CCS terms.....	6
Figure 2: Tone and focus of articles .....	7
Figure 3: Percentage breakdown of urban and regional CCS articles by focus .....	8
Figure 4: Tone of primary CCS article headlines.....	8
Figure 5: Number of articles appearing in each month.....	9
Figure 6 Key themes arising from content analyses of news articles.....	13

## List of Tables

Table 1: Breakdown of media type .....	4
Table 2: News source and number of articles analysed.....	5
Table 3: Article focus .....	6
Table 4: Table of significant events/announcements .....	10
Table 5: Top nine journalists who write about CCS.....	10
Table 6: Dominant views expressed in the articles .....	11
Table 7: List of referent experts.....	12
Table 8 Suggested communication targets .....	22

## 1. INTRODUCTION

In Australia, public awareness and understanding of carbon dioxide capture and storage (CCS) is currently low (Ashworth et al., 2007). As most Australians access some form of media either through news, radio or television, the media's role in influencing the debate around CCS cannot be over stated. The Carbon Storage Taskforce - Community Working Group has a remit to *examine potential community concerns about carbon capture and storage issues and make recommendations on potential approaches for addressing them*. Therefore an analysis of how CCS is being portrayed by the range of journalists within Australia was deemed an essential precursor to developing a targeted engagement strategy for this key stakeholder group.

Earlier research commissioned by the International Energy Agency's Greenhouse Gas R & D Programme (IEA GHG) to monitor the impact of the release of the IPCC's 2006 "Special Report on CO<sub>2</sub> Capture and Storage" in the media included some coverage of the Australian media. The research conducted by the Tyndall Centre is of most relevance as its focus was on five English speaking countries, of which Australia was one. Articles were monitored from 1 September 2006 to 31 January 2006. Findings within the report included:

*The majority of articles on CCS present a positive or neutral view on the technology. The country with the highest level of reporting on CCS was Australia. The main negative aspects of CCS raised in the Australian press were costs (in six articles) and that the technology is unproven or untested (in five articles).*

(IEA GHG, 2006. p iv)

The Tyndall Centre researchers have continued their research and media analysis focusing on the UK but to date they have not conducted a more in depth analysis of the Australian context over more recent times. The CSIRO research team has established links to collaborate with them on their work and share findings and the methodologies used in Australia reflected the learning from the Tyndall Centre's earlier work to ensure compatibility between research outputs.

This research project has several aims which include:

1. To collate a database of urban and regional media coverage on CCS that has occurred since September 2007 until April, 2009.
2. Content analyse media coverage to identify underlying knowledge and attitudes of the journalists towards CCS technology and where they are based.
3. Identify the key reference people for individual journalists and how well informed and influential these reference people are.
4. Identify the main arguments both for and against CCS.
5. Propose a targeted communication plan for Australian journalists (both regional and urban) covering CCS in Australia.

## 2. METHODOLOGY

### 2.1 Gathering Australian media coverage on CCS

Australian media coverage of CCS was sourced from the *ProQuest ANZ Newstand* database, which consists of 73 urban and regional print news publications, and radio and television news programs<sup>1</sup> in Australia and New Zealand (see appendix A for full details). A thorough search was conducted using various CCS related search terms that appeared in the “citation and abstract” field. These terms included:

- Carbon capture and storage
- Carbon dioxide capture and storage
- Carbon capture and sequestration
- Carbon dioxide capture and sequestration
- Clean coal
- Low emission coal
- Geosequestration

The search was further defined by a specific date ranging from 1 June, 2007 to 30 April, 2009, tracking 23 months of media coverage on CCS. The search resulted in 1280 articles, which were subsequently imported in to EndNote X2, a citation/referencing tool. Currently there appears to be a limitation in the database used for searching as it appears to have excluded the Australian Financial Review and many of the mainstream television and radio stations. Researchers are investigating alternative means to access this information.

In addition, a search of the Australian Coal Association term “newgencoal” was also conducted within the above date range and in ‘article text’. The result yielded only four articles in late (Nov/Dec) 2008 (one in the Sydney Morning Herald, two in the Herald Sun, and one in The Age). In each case, the “newgencoal” term did not appear independent of the above search terms - typically clean coal and carbon capture and storage.

### 2.2 Analysis strategy

Initially the reference library was ‘cleaned’ of duplicate records, and records that were not sourced from Australian news print, radio or television. This included records from internet sources, media release and news wire (wire feed). Following this, articles were further scrutinised for their relevance to CCS, with unrelated articles being eliminated in the process. A total of 790 articles were removed, leaving 490 articles in the final CCS library.

The main analysis covered 390 articles from 1 September 2007 to 30 April 2009 (20 months). Each article was coded in Endnote according to the criteria below, with emergent themes being noted during the coding process.

It is important to note that the above qualitative analysis is subject to interpretation and therefore subject to the biases of the researchers. The impact of researcher bias was minimised by defining clear and unambiguous coding criteria. Notwithstanding the relative rigor of this

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<sup>1</sup> Note that radio and television titles appear limited to ABC (Australian Broadcasting Corporation) programs.



process, conclusions should be considered in relation to other research findings, and where appropriate, tested further with follow-up studies.

### 2.3 Coding of media articles

In all, nine areas of coding and analysis were completed for each article:

1. Article length – as measured by word count.
2. Media type – identifying whether the article was from news print sources, or transcribed from radio and television.
3. Focal topic – a short phrase summarising the article’s main area of discussion.
4. The extent to which CCS was a focus of the article was classified into 3 levels that included primary, secondary, or incidental/peripheral. Each level’s classification was based on the following criteria:
  - Primary – the focal subject clearly relates to CCS and associated technologies.
  - Secondary – the article is primarily focused on a related topic with substantial reference to CCS technology. For example, government energy policy, emissions trading scheme, future of the coal industry etc.
  - Incidental or peripheral – the article mentions CCS and related technologies only in passing, perhaps once or twice.
5. Listing of the terminology used to describe or refer to CCS technologies. For example terms such as geosequestration, clean coal and so on.
6. A broad assessment of the extent to which the author explained or defined the technology was broken into three levels - none, basic or detailed. Each level’s classification was based on the following criteria:
  - None – the article only refers to the technology through terms, such as ‘carbon capture and storage’ or ‘clean coal’ etcetera.
  - Basic – the articles outlines the technology briefly in 1-2 sentence(s).
  - Detailed – beyond the ‘basic’ outline, the author explains more of the technical and logistical aspects of the technology, including pre- versus post-combustion capture, the significance of geological structures for storage, transport options and so on.
7. An assessment of the technical accuracy of the explanation was made using three levels - limited, fair, accurate.
  - Limited – explanation was incomplete or inaccurate.
  - Fair – basic elements of the technology were present in the explanation. For example, CO<sub>2</sub> capture and its supercritical state, transportation/piping, and injection underground.
  - Accurate – extended the technical outline with further explanation of one or more aspects of the technology. For example, capture, transportation/piping, and discussion around the geology of sequestration etcetera.
8. The extent to which the article’s position was affirmative, balanced, negative or neutral toward CCS technology.
  - Positive – the article focuses on affirmative arguments for CCS

## RESULTS

- Negative – the article mainly discusses problems and criticisms of CCS technology or investment in CCS technology
  - Balanced – the article presents both sides of the debate
  - Neutral – the article is non-argumentative or is not concerned with identifying a position in relation to CCS, but is communicating factual information relating to the technology. For example, amount of government funding, number of current or proposed projects, industry activity etcetera.
9. Finally, the names and views of cited (referenced) experts, political figures and research organisations were noted for each article.

### 3. RESULTS

#### 3.1 Descriptive characteristics of the CCS media library

##### 3.1.1 Media type and source

Table 1 below shows the breakdown of the 390 articles analysed. As expected the majority of articles (n=354, 90.8%) were found in newspapers. For this analysis only 28 (7.2%) were radio and 10 (2.6%) were television. Currently this reflects a limitation in the database used for searching the topics as it appears to have excluded the Australian Financial Review and many of the mainstream television and radio stations. Researchers are undertaking to investigate these omissions and will update results accordingly. However, it is not expected that it will have an affect on the overall analysis as themes appear to be consistent across all media analysed to date.

Table 1: Breakdown of media type

	Frequency	%
Print	352	90.3
Radio	28	7.2
Television	10	2.6
Total	390	100.1 <sup>2</sup>



The following table shows the news source and the number of articles that were found in each. The highest number of articles featured in the Australian (n=98, 25%) and the Weekend Australian (n=36, 9.2%). These were closely followed by The Age and The Courier Mail which both featured 33 (8.5%) articles. This corresponds with states that are most proactive in pursuing CCS, which is Victoria and Queensland.

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<sup>2</sup> Total greater than 100% due to rounding error

Table 2: News source and number of articles analysed

News Source	Frequency	%
The Australian	98	25.1
Weekend Australian	36	9.2
The Age	33	8.5
The Courier – Mail	33	8.5
Herald Sun	30	7.7
Sydney Morning Herald	20	5.1
The Mercury	18	4.6
Herald	17	4.4
The Canberra Times	16	4.1
Townsville Bulletin	16	4.1
The World Today	12	3.1
The Advertiser	11	2.8
PM – Australian Broadcasting Corporation	10	2.6
The Daily Telegraph	7	1.8
AM – Australian Broadcasting Corporation	6	1.5
7:30 Report – Australian Broadcasting Corporation	5	1.3
The Gold Coast Bulletin	5	1.3
The Sunday Mail	5	1.3
Lateline – Australian Broadcasting Corporation	4	1
Sunday Tasmanian	2	0.5
The Sunday Times	2	0.5
Central Coast Express Advocate	1	0.3
Illawarra Mercury	1	0.3
Inside Business	1	0.3
Sunday Telegraph	1	0.3
	390	100

	Radio article
	Television article

Further analysis of the 390 articles found that the vast majority of print news articles were sourced from urban publications (n=312). This compared with only 40 articles from regional papers. ‘Urban’ publications were defined as those circulated in state and territory capital cities, while all other publications were defined as ‘regional.’

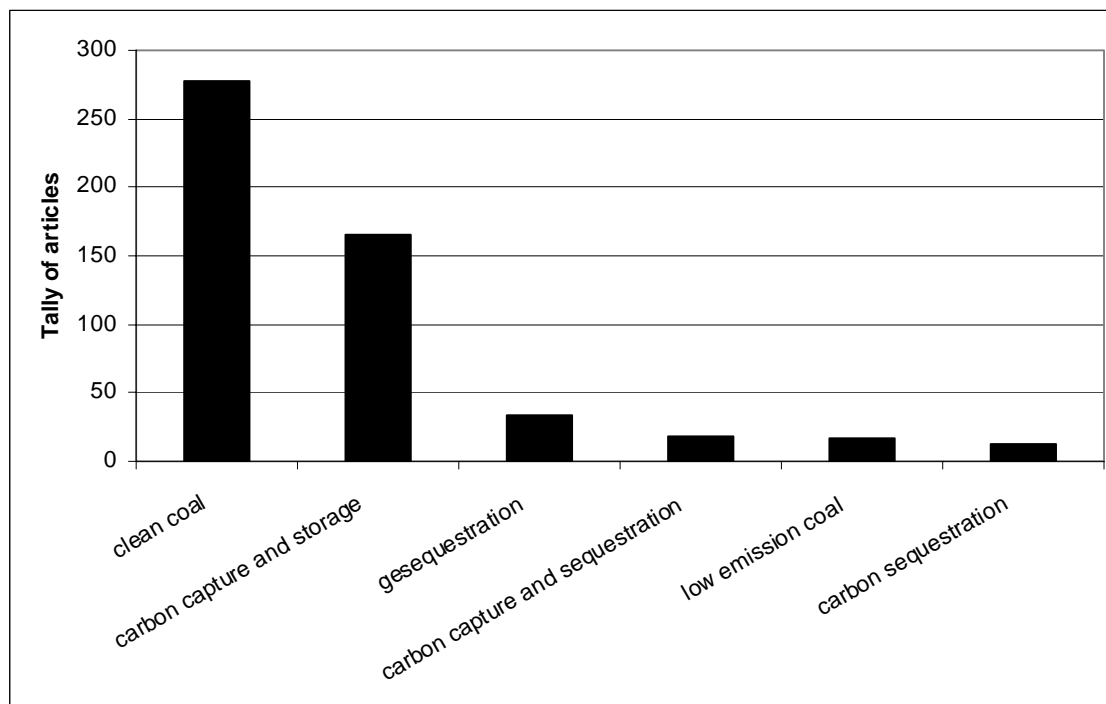
### 3.1.2 Article content

Figure 1 below shows the frequency of the search terms found in each of the articles. The most frequently occurring term was “clean coal” which occurred in 277 articles, followed by “carbon capture and storage” (n=165). The other terms, geosequestration, carbon capture and sequestration, low emission coal and carbon sequestration were much less frequently occurring.

## RESULTS

It is interesting to note the link between carbon capture and storage and “clean coal”. Coal often has negative connotations and therefore the direct association of carbon storage to coal may not always be helpful in progressing the technology’s acceptance. As part of its communication strategy, the Carbon Storage Taskforce may need to consider raising awareness of the alternative opportunities carbon storage can play in carbon mitigation across various industries, not just coal fired power stations.

Figure 1: Frequency of common CCS terms



### 3.1.3 Article focus and tone

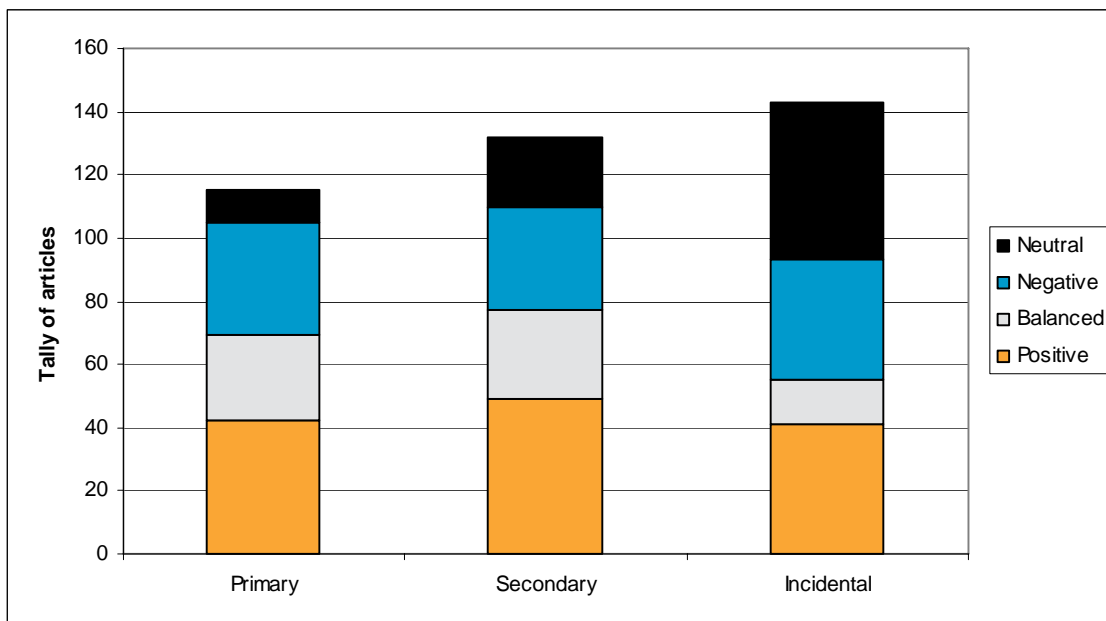
Examination of each article to understand the extent to which CCS was a focus, revealed that of the 390 there was a fairly even split across the three categories primary, secondary, and incidental. Overall, in 143 (36.7%) articles CCS was only mentioned once or twice and these were classified as being an incidental focus. One hundred and thirty two (132, 33.8%) were of a secondary focus where the article primarily focused on a related topic with substantial reference to CCS. While 115 (29.5%) had CCS as the primary focus of the article (Table 3).

Table 3: Article focus

Focus	Frequency	%
Incidental	143	36.7
Secondary	132	33.8
Primary	115	29.5
Total	390	100

Secondly, the articles were assessed for the tone, that is, were they balanced, negative, neutral or positive. Eighteen percent (18%, n=69) appeared to be balanced in their reporting, and a further 21% (n=82) were neutral where the author was less concerned with identifying a position and mainly focused on communicating factual information about the technology. Twenty seven percent (27%, n=107) were negative towards CCS while 34% (n=132) were positive about CCS. Figure 2 below shows the breakdown of the tone of each article within each level of focus of the article. These are fairly well spread across each of the categories.

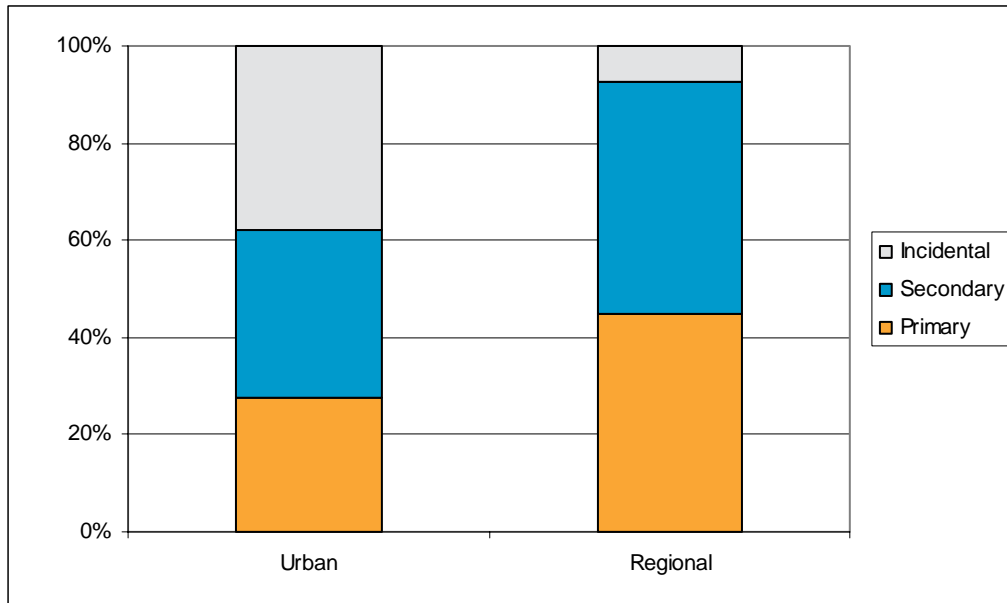
Figure 2: Tone and focus of articles



This was slightly different for urban papers. Our analysis showed that when CCS is mentioned in regional papers, the story is more likely to feature CCS as a primary or secondary focus (Figure 3).

## RESULTS

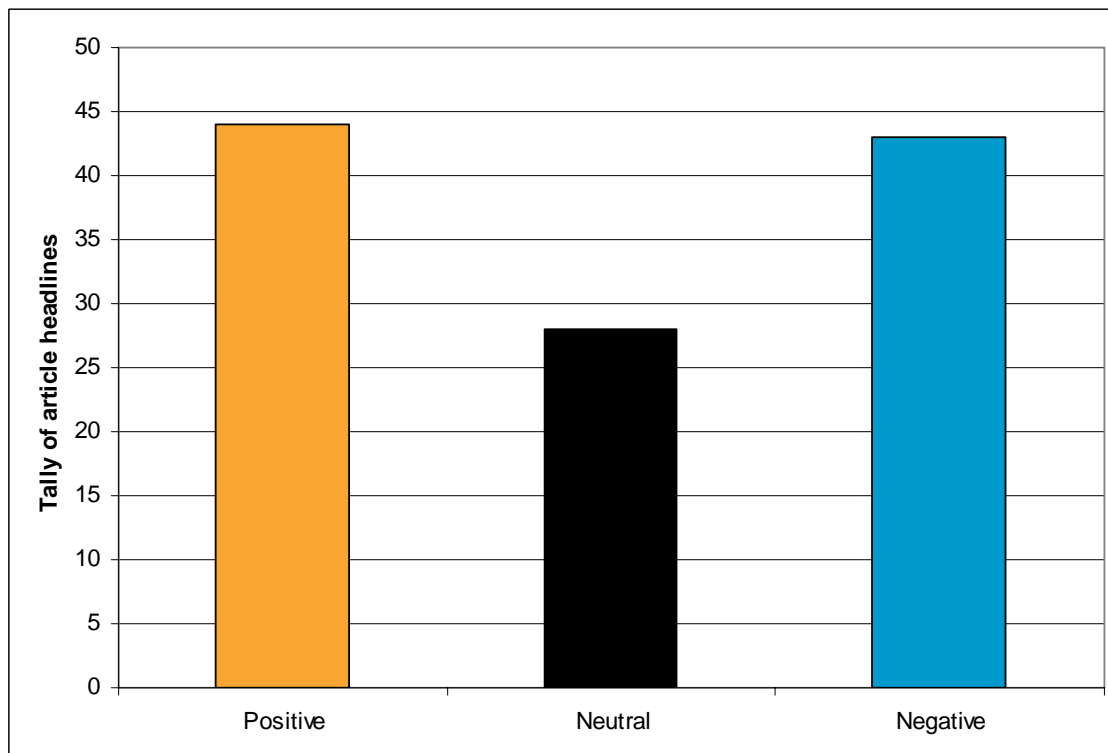
Figure 3: Percentage breakdown of urban and regional CCS articles by focus



### 3.1.4 Tone of article headlines

Further analysis was undertaken of articles which had CCS as a primary focus. This analysis revealed a relatively even split between headlines that were either positive or negative about CCS (see Figure 4).

Figure 4: Tone of primary CCS article headlines



### 3.1.5 Technical knowledge of CCS

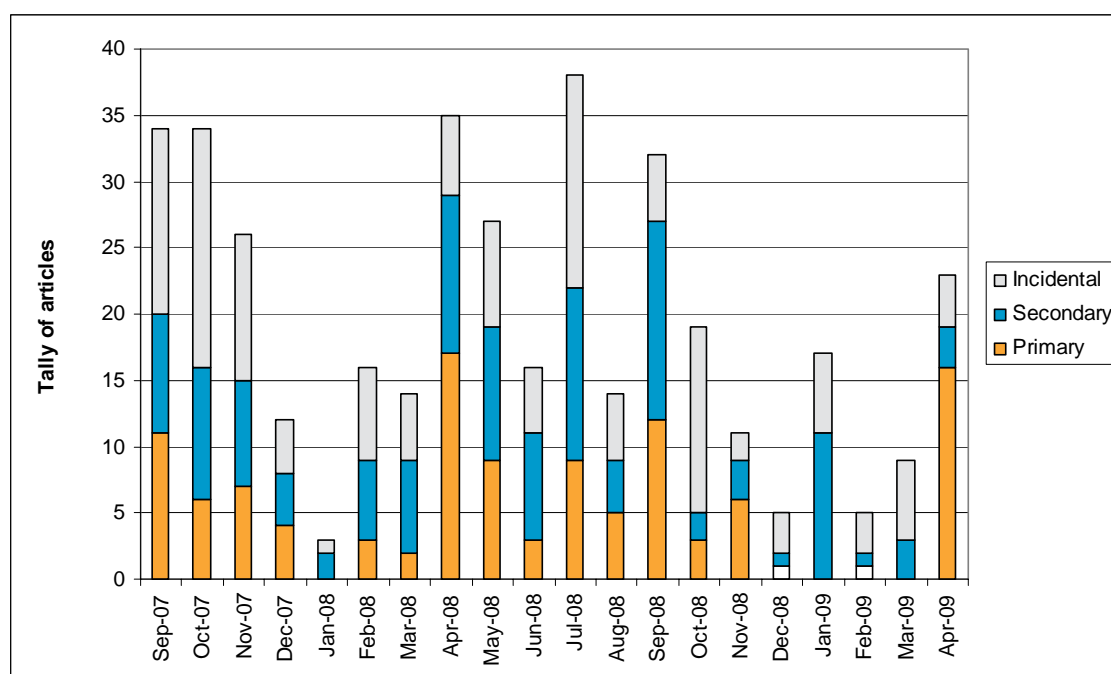
In terms of conveying accurate technical knowledge of CCS, only about one in five articles (n=77) attempted to define or outline CCS for the reader. Of these 77 articles, the majority provided only a brief outline (n=64), while 13 articles explored CCS and related technologies in more depth. The more detailed articles were more likely to present accurate technical information about the technology compared with articles that only gave an outline.

It is currently unclear as to which articles about CCS, readers are likely to be attracted to read. Not to mention what it was that attracted them to the article in the first place. A more detailed study of what motivates individuals to engage with the topic and to assess their levels of interest would be beneficial.

### 3.1.6 Timing

The graph below shows the spread of newspaper articles over the twenty months included in this media analysis as well as their focus. In each of the years, there is less coverage over the December/January holiday period when most Australians take leave. Figure 5 below shows there are a few peaks in media coverage that were identified across the time span. The majority of these appeared to relate to a significant event or announcement that occurred at the same time. Not surprisingly when these peaks occurred CCS was more likely to be mentioned as the primary or secondary focus.

Figure 5: Number of articles appearing in each month



Significant events which seemed to promote the clustering of more articles are detailed in the table below. The majority of these relate to government announcements or releases of particular reports. It is interesting to note the increased coverage around the US government withdrawal

## RESULTS

of funding for the FutureGen project. This reinforces the international focus around the technology and therefore why it is important to ensure all demonstration projects, regardless of country are well managed and communicated successfully. Because the world is so well connected through the internet and media - that is news travels fast - any negative experiences surrounding CCS are likely to have a negative effect in Australia as well.

Table 4: Table of significant events/announcements

Date	Event/Announcement
24 – Sept 07	John Howard announces Clean Energy Target policy
1 – Nov 07	Dr Karl’s comments on CCS
22 – Nov 07	Federal election
29 – Jan 08	US government ‘withdrawal’ from FutureGen
2 – Apr 08	Otway opening
5 – May 08	Release of Greenpeace report on CCS entitled “False Hope”
May 08	Federal budget announcement (mention of alternative energy)
4 – July 08	Draft Garnaut review
4 – July 08	CPRS Green paper
July 08	Announcement of new brown coal-fired power plant in the Latrobe Valley
19 – Sept 08	Announcement of GCCSI
30 – Sept 08	Final Garnaut Report
Dec 08	CPRS White Paper
16 April 09	GCCSI official launch

### 3.2 The journalists

In total 176 journalists, or journalists pairs, were found to have written about CCS in some form. Table 5 presents a de-identified list of journalists who wrote most frequently about CCS (minimum of six articles). The table also highlights whether their articles had CCS as the primary, secondary or incidental focus and also the tone of their articles.

Table 5: Top nine journalists who write about CCS

Journalist	No.	CCS Focus			CCS Tone				Most cited expert/reference
		Prim.	Sec.	Inc.	+ve	Bal.	-ve	Neut.	
Journalist 1	16	3	6	7	2	7	1	6	Al Gore, Nicholas Stern
Journalist 2	11	2	6	3	5	3	0	3	Kevin Rudd
Journalist 3	10	5	3	2	0	1	8	1	Harry Schaap, Ralph Hillman
Journalist 4	10	7	3	0	2	4	4	0	Ross Garnaut, Martin Ferguson, Greenpeace
Journalist 5	9	0	3	6	5	0	3	1	Kevin Rudd, Bob Brown (Greens)
Journalist 6	9	4	3	2	1	4	3	1	Dr Peter Cook, Ben Pearson (Greenpeace)
Journalist 7	8	2	3	3	3	3	2	0	Ian Macfarlane
Journalist 8	7	2	0	4	3	0	2	2	No prominent source
Journalist 9	6	2	2	2	0	0	4	2	None



Examining in more detail the content of these authors' articles (Table 6) reveals a number of key arguments which provide some insight into what a communication strategy for CCS may need to focus on. Arguments raised within the articles would tend to focus on the cost of CCS, the infrastructure required. The fact that CCS is still a relatively unproven technology and therefore it will not be ready in time to mitigate the large amounts of carbon dioxide required. For those who seem opposed to the technology, there was also a strong feeling that CCS should not be publicly funded. This in many ways relates to Governments not being seen to be unnecessarily supporting the fossil fuel industry – therefore picking winners.

Table 6: Dominant views expressed in the articles

<b>Journalist</b>	<b>Most published in</b>	<b>Dominant views expressed within articles (not necessarily by the journalist)</b>
Journalist 1	The Australian	Clean coal backed by reputable people, including climate change experts; cost and energy required for CCS is a challenge; the technology won't fail, but biggest risk is it may be too expensive
Journalist 2	The Australian	Clear Federal Government support for CCS; clean coal important for Australian economy (exports); challenge of making it viable
Journalist 3	Herald Sun	CCS unproven, uneconomic; requires expensive infrastructure; won't be commercial soon enough to cut emissions; coal industry going too slow
Journalist 4	The Age	CCS may be technically viable by 2020, but unlikely to be economic; clean coal could make a contribution Australia's prosperity and tackling climate change
Journalist 5	The Australian	Rudd Government behind CCS; clean coal vital to Australia's economy; too much spent on CCS – it's a big punt
Journalist 6	The Sydney Morning Herald	Australia ahead of US on commercialisation; politics undermined FutureGen; clean coal is industry spin, expensive and development slow; public money should not fund it
Journalist 7	The Australian	CPRS a significant barrier for clean coal (need high CO <sub>2</sub> price)
Journalist 8	Weekend Australian	Australia should be exploring all options, including clean coal; challenges for clean coal/CCS including cost and competition with gas
Journalist 9	The Mercury	Clean coal challenges – costs, infrastructure, won't be commercial until after 2020, research (investment) has not yielded much

### 3.3 The referent experts

To understand who the sources of information are that journalists default to for opinions, an analysis was undertaken to identify those individuals/experts commonly cited. Of the 390 articles analysed 108 articles did not cite any expert. Table 7 lists the ten major experts found across the articles; many of these are politicians or industry representatives. Given the literature on trust in sources of information this may be an area of focus for the Carbon Storage Taskforce in their communication strategy. When making announcements or interacting with journalists it may be beneficial to list a number of key scientists and environmental

## RESULTS

representatives who could be contacted for comments as these are more likely to have a more positive impact on the lay public reader.

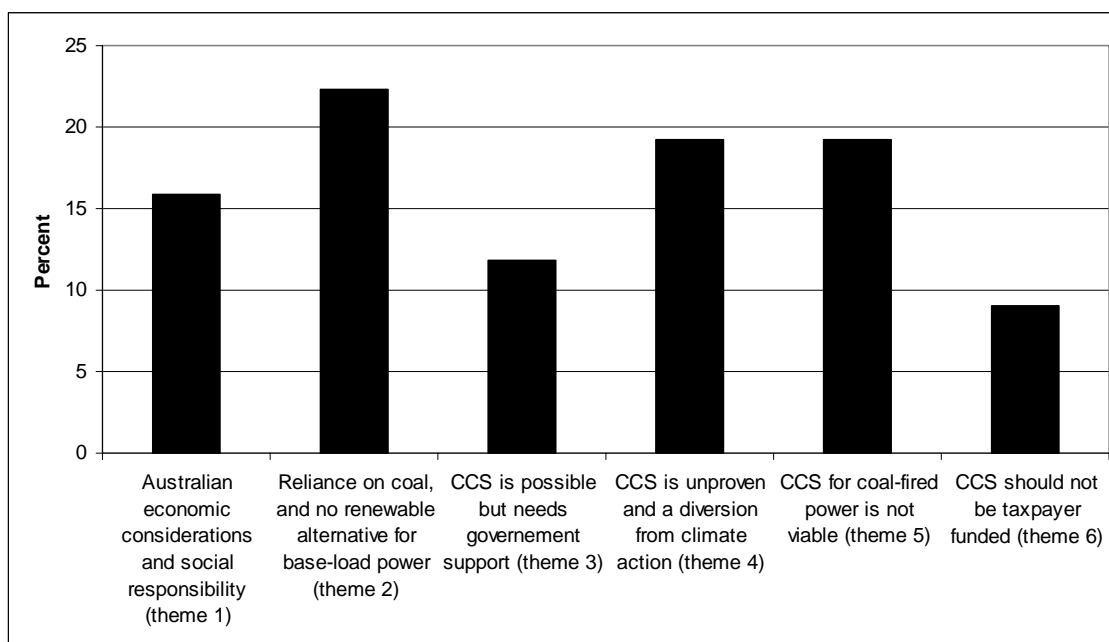
Table 7: List of referent experts

<b>Expert (# articles cited)</b>	<b>No:</b>	<b>Dominant view</b>
Professor Ross Garnaut	24	Australia uniquely placed to take leadership role in development and deployment of CCS; clean coal commercially viable by 2020
Kevin Rudd (Prime Minister)	23	CCS firm on government agenda with significant funding; comments on industry not doing enough to progress CCS
Dr Peter Cooke (CO2CRC)	22	CCS technically possible and storage safe; will be expensive
Martin Ferguson (Federal Resources & Energy Minister)	16	Coal is a key export and we rely on coal for energy; CCS makes sense environmentally and economically; clean coal is the bread and butter of Australia's future
Malcolm Turnbull (Federal Opposition Leader)	15	May not need nuclear if clean coal proves to be the cheaper option; personal view that nuclear a better option for Australia
Tony Maher (CFMEU President)	15	Workers want more action (and funding) from industry and government – industry needs to commit more money, and government needs to make a mandatory target for coal-fired power using CCS
Christine Milne (Greens Senator)	14	The technology is unproven and expensive; government funding should go toward renewable energy and mitigation and not rich coal companies
Nicholas Stern (14)	14	Australia behind on reducing emissions; Australia could lead CCS development and help developing countries
International Energy Agency	14	Demand for energy (and coal) set to increase over coming decades – CCS and efficiency are most viable options for cutting emissions; concerns over current level of funding and legal/regulatory framework
Ralph Hillman (ACA Chief)	14	Coal industry committed to CCS – have a credible portfolio of CCS projects; coal important to Australian economy and tackling climate change; CPRS carbon price not high enough to drive CCS

### 3.4 Main 'for' and 'against' CCS arguments

Content analysis of the articles identified six emergent themes or arguments in the CCS debate. They included three affirmative and three negative arguments which are described in more detail below. Together, these themes covered over two-thirds (n=273, 70%) of the analysed articles (see Figure 6). The other 30% covered a subset of less dominant themes, typically issues relating to safety, specific technological issues, facts and political debate. It is important to note that the content analysis process counted articles into a given theme if they presented with one or more aspects of that theme. The themes therefore represent 'broad' categories of arguments for the purpose of synthesising the CCS debate in to concise messages.

Figure 6 Key themes arising from content analyses of news articles



### 3.4.1 Australian economic considerations and social responsibility (affirmative)

This theme focused on the significant role the coal industry plays in the Australian economy. It suggests that as the world's largest coal exporter, it is our responsibility to invest in this technology to reduce coal's impact on climate change. The other argument is that such investment also positions Australia to earn export dollars from the technology. This theme was present in 15.9% of articles (n=62).

Example comments/quotes:

*We have more than just a passing interest in this, not just in terms of our domestic reliance on coal-fired electricity generation but, beyond that, in the critical role of coal exports for this country. We are the largest coal-exporting country in the world.*

*We therefore have a particular responsibility given our national energy requirements ... to deal with this challenge of ensuring that coal-fired power stations in the future are as clean as possible.*

PM Kevin Rudd cited in Phillip Coorey. Sydney Morning Herald. Sydney, N.S.W.: Sep 19, 2008. pg. 6

*These projects are not just important for Australia's CO<sub>2</sub> capture and storage, they are demonstrating technologies which Australia will be able to export to developing nations like China -- now the world's largest greenhouse gas emitter.*

Nicole Williams (CEO, NSW Minerals Council) cited in The Courier - Mail. Brisbane, Qld.: Nov 6, 2007. pg. 79

### 3.4.2 Reliance on coal, and no renewable alternative for base-load power (affirmative)

This theme underlined our reliance on coal (nationally and globally) as the cheapest source of base-load power, and that this is unlikely to cease in the foreseeable future. The world's emerging economies are investing heavily in coal-fired power, therefore cleaning this energy source is vital to a global climate change response. Another aspect of this argument is the suggestion that there are currently no renewable energy sources that can supply the world with base-load power. This theme was present in 22.3% (n=87) of articles.

Example comments/quotes:

*The world is going to need coal, particularly places like China and India ... that have vast amounts of new coal-fired power plants. China's been building a brand new coal-fired power plant about as big as Australia's biggest one every week for the past decade or so and that's going to need coal. What we need really is a way of burning coal that doesn't cause the pollution and you know that's called clean coal technologies or carbon capture and storage or whatever.*

Tim Flannery on Enough Rope, Sep 22, 2008 cited in Tim Flannery. The Australian. Canberra, A.C.T. Sep 24, 2008. pg 15

*If you look at global electricity generation into the future, it follows that after about 2050, we can still see the global economy dependent 40 per cent-plus on coal-fired electricity generation.*

PM Kevin Rudd cited in Dennis Shanahan. The Australian. Canberra, A.C.T.: Sep 26, 2008. pg. 1

### 3.4.3 CCS is possible but needs government support (affirmative)

This theme states that clean coal will not develop without broader government support, including more funding/concessions, an emissions trading scheme with a high carbon price, a mandatory energy target, and other legal/regulatory frameworks. Many articles representing this theme raise the issue of the proposed Carbon Pollution Reduction Scheme (CPRS) disadvantaging CCS in the current regime. This theme was present in 11.8% (n=46) of articles.

*Act in your own interests . . . push the Government on clean energy targets so the required technology can push through.*

Tony Maher (CFMEU President) cited in Tony Grant-Taylor & Olga Galacho. The Courier - Mail. Brisbane, Qld.: Sep 25, 2007. pg. 66

*Costs of projects have risen significantly in recent years, and instead of stepping up their efforts, public and private investors have pulled back, while no country has produced the comprehensive legal and regulatory framework needed to make carbon capture and storage commercially viable.*

Tim Colebatch, Economics Editor, Canberra. The Age. Melbourne, Vic.: Oct 23, 2008. pg. 2

*Labor has refused to provide ZeroGen, Australia's only commercial clean coal project, with a level playing field on emissions permits, driving the central Queensland venture to the brink of collapse.*

Malcolm Turnbull cited in John McCarthy. The Courier - Mail. Brisbane, Qld.: Jan 20, 2009. pg. 24

#### **3.4.4 CCS is unproven and a diversion from climate action (negative)**

This theme highlights the fact that the technology has not been proven, and is not expected to be deployed at scale for 10-15 years at least; adding that scientists tell us CO<sub>2</sub> emissions must peak by 2015, and then decline to avoid dangerous climate change. Supporters of this concept argued that any investment in CCS is diverting funds from urgent climate change mitigation. This theme was present in 19.2% (n=75) of articles.

Example comments/quotes:

*If it ever proves a realistic solution, carbon capture and storage still won't be functioning commercially for another decade. But today's emission trajectory gives us less than half that time to stop the coal industry's greenhouse pollution.*

Peter Boyer. The Mercury. Hobart, Tas.: Apr 8, 2008. pg. 33

*We are being sold a pup here, and if you look at Treasury's modelling they're telling us this technology won't be commercially viable until 2033. And yet we've got scientists like James Hansen from NASA's Goddard Institute telling us the world simply cannot afford to burn coal the way we are for another ten years.*

Guy Pearse (Author of 'High and Dry') cited in Margot O'Neill. Lateline - Australian Broadcasting Corporation. Sydney: Apr 16, 2009.

*While there are many unresolved questions about so-called "clean coal", we do know one thing for sure.*

*Clean coal, if it works, will not be able to reduce greenhouse pollution this side of 2050. On the other hand, scientists tell us that we have less than 10 years to turn global growth in greenhouse pollution around, if we want to avoid catastrophic impacts on the earth's climate.*

Steve Phillips. Herald. Newcastle, N.S.W.: Sep 11, 2007. pg. 9

#### **3.4.5 CCS for coal-fired power is not viable (negative)**

This theme deals with the assertion that even if proven viable by 2020 (best case scenario), CCS technology requires extreme investment in infrastructure and is energy intensive. Therefore, it is argued that CCS is likely to be superseded by other more cost competitive energy sources, such as gas, nuclear, geothermal and other renewable sources. This theme was present in 19.2% (n=75) of articles.

## RESULTS

Example comments/quotes:

*Right now clean coal, carbon capture and sequestration, whatever you want to call it, is not a viable technology to introduce right now. At best they can build a power station that may in the future be able to use that technology. And there's no clear evidence that it will actually be cost competitive with renewables by the time it's actually implemented. So that as well is actually just a furphy.*

Dr Barry Brook (Prof. of Climate Change, University of Adelaide) cited in Jane Cowan. The World Today. Sydney: Jul 3, 2008.

*I don't believe that carbon capture and storage will ever be economically viable. I think renewables will leapfrog that technology in the timeframe. It is no surprise that the United States and China are working heavily on the renewables and the efficiencies, and allowing Australia to pour its money into carbon capture and storage.*

Sen. Christine Milne cited in Sabra Lane. The World Today. Sydney: Apr 16, 2009

*They are going to sneak up in the middle between other renewables and clean coal to prove that geothermal energy can be deployed sooner and at lowest cost.*

Susan Jeanes (former Chief Executive, Renewable Energy Group of Australia) cited in Olga Galacho. The Courier - Mail. Brisbane, Qld.: Nov 5, 2007. pg. 30

*Greenfields clean coal technology is still at least a decade away and won't be cheap. It will find itself competing with gas-fired power stations which can also store emissions, and the growing mix of new technologies, possibly including nuclear energy.*

Matthew Warren. The Australian. Canberra, A.C.T.: Dec 10, 2007. pg. 40

### 3.4.6 CCS should not be taxpayer funded (negative)

This theme deals with the idea that Government funding of CCS means taxpayers are propping up the coal industry, which is already seen as an industry that is wealthy and heavily subsidized, therefore not requiring any further government support. In particular it is noted by these proponents that the coal industry has profited significantly in recent years. Therefore, is it argued that it is only fair that the coal industry should shoulder the full costs of developing this technology – its current investment commitment amounts to very little in proportion to the profits from the sale of coal. This theme was present in 9% (n=35) of articles.

Example comments/quotes:

*The Cancer Council did not push for government funding to tobacco giants to see if low-tar cigarettes caused less cancer. Neither should WWF, the Climate Institute and the CFMEU be pushing the Government to help the equally rich coal*

*companies see if they can bring down emissions to levels which, as they know, will still be dangerously high.*

Sen. Christine Milne cited in Christian Kerr. *The Australian*. Canberra, A.C.T.: Apr 17, 2008. pg. 8

*Playing for time, the fossil fuel industry has put only a small proportion of its record profits into research into clean coal technology while gladly accepting significant government support for this research. Who are the suckers?*

Peter Boyer. *The Mercury*. Hobart Town, Tas.: Oct 9, 2007. pg. 29

## 4. DISCUSSION

### 4.1 The need to inform journalists

The results of the overall media analysis on CCS raise a number of considerations for the Carbon Storage Taskforce. The media analysis identified there were 176 journalists, or journalist pairs, who discussed CCS in their article in some form. The analysis demonstrated that an obvious issue is the apparent lack of knowledge or interest of the majority of journalists about energy and CCS, in Australia. This is possibly indicative of the Australian public who have a general acceptance that a secure energy supply is a given in the Australian economy.

Given the level of influence of this important stakeholder group, there is an opportunity and a need to proactively engage with a range of journalists on the topic. Although the Taskforce is focused on the issue of carbon storage and its links to capture – there is a need for journalists to develop a much broader understanding of the energy debate and the gamut of energy technology options for greenhouse gas mitigation. Earlier research has demonstrated the best way to inform stakeholders about CCS is to set any discussion in the context of climate change and other low emission energy technologies and this is likely to hold true for journalists, if not more so. It should become a priority to actively engage journalists, both urban and rural, on the topic of climate and energy. This could be done through a series of breakfast or lunch meetings where information is shared and opportunity is provided for journalists to ask questions. It would also be wise to target the more influential writers with a dedicated small group discussion or one-on-one session to share information and answer questions they have.

It would be essential to provide the latest peer review information on all of the technologies, what their potential and current limitations are as well as the state of play in research being undertaken to overcome such limitations. Cost of electricity generation, life cycle analysis and energy security issues would also be worthy topics to include in the discussion at a strategic level.

## 4.2 The need to move away from “clean coal”

An issue for many in Australian society and internationally is the use of the term “clean coal” and how this is then translated in more general terms to “clean energy”. Both of these terms, used in relation to coal, are considered a misnomer and therefore misleading. This particularly holds true for environmental groups and individuals who demonstrate strong environmental values and beliefs. The anti “clean coal” campaign recently run in the United States of America highlights the exception most people take to the term – often referred to as an oxymoron or a furphy. A highlight of the campaign which demonstrates the issue is best represented in the short you tube videos by the Coen brothers.

[http://www.youtube.com/watch?v=uFJVbdiMgfM&eurl=http%3A%2F%2Fgreeninc%2Eblogs%2Enytimes%2Ecom%2F2009%2F02%2F26%2Fthe%2Dcoen%2Dbrothers%2Ddo%2Dclean%2Dcoal%2F&feature=player\\_embedded](http://www.youtube.com/watch?v=uFJVbdiMgfM&eurl=http%3A%2F%2Fgreeninc%2Eblogs%2Enytimes%2Ecom%2F2009%2F02%2F26%2Fthe%2Dcoen%2Dbrothers%2Ddo%2Dclean%2Dcoal%2F&feature=player_embedded)

<http://www.youtube.com/watch?v=pKC5YV2yrFk&feature=relatedhttp://www.funnyordie.com/videos/e6ca6d1161/clean-coal-air-freshener>

Within the media analysis “clean coal” was the predominant term and occurred in 277 of the articles. There has been a request at the international level from many working in the CCS area, for all CCS proponents to move away from the term, best illustrated by the recent words of Paal Frisvold, from Bellona, Norway’s leading environmental non government organisation responsible for advocating for CCS across all levels of society:

*“...let us once and for all stop using the term ‘clean coal’. It took Europe five months to stop using the word ‘sequestration’ as it is a festicious word. Let’s give ourselves five months to clean out clean coal from our dictionaries.”*

Email correspondence Paal Frisvold, 17<sup>th</sup> May, 2009

In its ongoing messaging the Carbon Storage Taskforce may need to consider it’s messaging in relation to clean coal and move towards more acceptable terms such as low emission coal, particularly in relation to the promotion of CCS as a method for cleaning up greenhouse gas emissions from coal fired power stations.

## 4.3 Position the contribution of CCS for coal-fired power in time

The delayed timing and cost of CCS, and the pressing need for mitigation are key arguments against investment. Therefore, there is a need for the Carbon Storage Taskforce to consider messages about how the technology is positioned in terms of a timeline for climate change action. For example, the message might follow the logic that while CCS for coal-fired power will not be widely deployed in the next 15 years, the technology will make a pivotal contribution to the deep global cuts required by 2050. Consider specifying this contribution with projected technology uptake rates along with data from the International Energy Agency on current and projected global coal consumption. The Taskforce could consider dealing



openly with the issue of cost as a key challenge that needs to be met given global reliance on coal as an energy source, as well as the likelihood of meeting reductions targets by 2050 without CCS. Quantifying the need along with a transparent and credible plan for deployment and likely contribution to mitigation will help progress the debate beyond the polarised coal (with CCS) versus renewables frame.

#### 4.4 Alternative uses for CCS

An extension to the “clean coal” discussion is the direct linking of carbon capture and storage to coal. While this created some positive arguments for CCS within the media content analysis, and is of course an essential component to mitigate greenhouse emissions from coal fired power generation, it can have a negative effect on progressing the technology. This is perhaps best evidenced in a recent online debate between journalist David Roberts and Joe Lucas spokesperson for the American Coalition for Clean Coal Electricity (ACCCE) and found at <http://www.grist.org/article/2009-05-14-roberts-v.-clean-coal-flack>. The debate arose from a PBS television NOW program titled “Can coal be earth friendly?”. The show can be accessed from the PBS website at <http://www.pbs.org/now/shows/515/index.html>

It is recommended that in addition to lowering emissions from coal, the carbon storage taskforce raise awareness of the variety of uses for CCS. For example, CCS is already being used by the oil and gas industry and is likely to be used with other heavy industries. There is also the possibility of co-firing with biomass, including algae, that has the potential to remove large amounts of CO<sub>2</sub> from the atmosphere. Enabling carbon negative – this in itself can be a positive argument to reinforce the need for using the coal industry’s technology and infrastructure in the future.

#### 4.5 Target audiences

One missing link in the analysis is to understand how the general public, the target audience, perceive the information presented in the various media. Earlier work by the Tyndall Centre suggests that the majority of individuals who read articles on CCS from beginning to end normally have an established interest in the topic. Research to analyse how individuals read and interpret articles about CCS in various newspapers would also be helpful in deciding the most appropriate way to position CCS in the media. This should also be extended to an analysis of reactions to radio and television programs. Based on the media analysis so far it appears that the majority of reporting is done via the mainstream large newspapers and more conservative radio and television stations such as the ABC.

As part of the communications strategy the CS Taskforce could consider targeting more mainstream publications, particularly women’s magazines. The risk communication literature often points to women as the most likely to be concerned about risks to their family and so educating this group of people through media articles may help to dispel myths associated with the uncertainties of CCS.

## 4.6 Perceptions of key experts

Examining the experts used by journalists – their referent others is also revealing. Those that are used to present the positive argument for CCS tend to be proponents of CCS – that is either industry or government representatives. Conversely, more often environmental non-governmental organisations (ENGO's) and some scientists are used to reinforce the negative arguments. It is well known that government and industry tend to be least trusted by most of the general public of Australia, while scientists and NGO's hold higher trust (Ashworth et al., 2006). Therefore, while a journalist may attempt to present a balanced article – there is a likelihood that the 'against' argument gains more traction in the public psyche. Such a hypothesis could be investigated as part of the research suggested above. However, in lieu of any research findings, it is recommended that any further announcements to the media, ensure scientists and more 'trusted' sources are recommended and made accessible to the media.

## 4.7 Newsworthy announcements

If one believes that 'all press is good press' from the analysis it is obvious that whenever there is a major announcement, either through government or project initiatives, there is likely to be more articles focusing on CCS. While not surprising, strategically, the Carbon Storage Taskforce should consider in conjunction with other partners to find opportunities for specific announcements that relate to CCS. From this research, it appears that announcement can be either national or international, as long as there is some relevance back to Australia. In keeping with the recommendation above, to ensure trusted experts are available for the press to consult with, strategically providing information and announcements to the media will help to ensure ongoing focus within the media about CCS.

This could be applied with the final launch of the Carbon Storage Taskforce report. Ensuring a number of press briefings and media packs will help to ensure maximum coverage of the recommendations of the report to the Minister.

## 4.8 Mixed messages from industry

A key message emerging from industry groups, particularly the Australian Coal Association, deals with the economic importance of coal (jobs and export dollars), the opportunity to export CCS technology, and the need for a higher carbon price under the CPRS to drive development and commercialisation. Concurrently, there is a prominent message emerging from the Minerals Council of Australia about the negative consequence of the CPRS on mining jobs. (See recent article in *The Australian* by Mitch Hooke entitled "Carbon plan will cause jobs carnage", dated May 22.) This conflict in messages from the mining sector has the potential to confuse people and cast further doubt over CCS technology and the sincerity of industry in dealing with greenhouse gas emissions. The Carbon Storage Taskforce may need to consider addressing this issue in future communication campaigns.

## 5. COMMUNICATION STRATEGY

Based on the media analysis there are clearly a number of strategic communication options that can be undertaken with a range of journalists and others key individuals who are often cited within the articles. The targeted communication, recommended below, is possibly best coordinated through the Department of Resources, Energy and Tourism. This would fit nicely with the briefings required for the Energy White Paper and holding consultations on the range of low emission technologies will help to promote the portfolio approach to addressing climate change. It is also recognised that various CCS proponents will undertake their own engagement with various journalists to ensure they have the latest information on technology and project development.

### 5.1 Top 9 journalists

The journalists who frequently write about CCS are a critical stakeholder for the carbon storage taskforce. These individuals could be considered the ‘elite’ journalists for progressing CCS and as such, require a sophisticated engagement plan. This will ensure the journalists are continually kept up to date with developments taking place around CCS both in Australia and internationally. The engagement could be in the form of one-on-one briefings or special lunches. It would be advisable not to have more than four or five of the journalists in the room a time and given their locations is probably not likely.

Prioritising this handful of journalists in this way is an investment for CCS and should help to build a positive relationship with the journalists. For those that are more negative about CCS the discussions should focus on the facts but also acknowledging their concerns as valid. Use of scientists at these meetings would help to ensure the information is seen as objective and based on the latest science of the technology.

### 5.2 Wider journalist community

The media analysis provides a list of journalists and the media they report in. These journalists can be easily divided into locations across states and invited to press events to update them with information about CCS. Because the journalists appear to have a low information base for CCS, the focus of the press briefings should focus predominantly on the basic facts about the technology and the contribution it is hoped it will make to reducing greenhouse gas emissions. This media analysis can provide the link between those that tend to present the technology as positive or negative and this will be a useful starting point for the briefings.

Depending on the pace of CCS development these briefings should be taken on a six monthly basis. Establishing strong links with the journalists and their organisations through the communications officers of the Department Resources, Energy and Tourism, will ensure that positive relationships are established. This should make it easier for journalists to contact the department or other links with any questions they may have as their interest in the technology grows. Media packs with latest research findings will assist this target group gain the

understanding they need to develop and also provide them with access to a number of key reference materials.

### 5.3 Broader reach to wider publications

Extending the focus to more mainstream media, beyond the broadsheet newspapers and conservative radio stations, is also a worthwhile consideration within this communication strategy. Although beyond the normal journalist briefings it is worthwhile hosting some targeted press events with media packs and briefings for mainstream magazines and commercial television stations. Furthermore, the growing interest in energy security and supply presents an opportunity to grow the information base on CCS among a range of alternative media. The journalists operating in this space may not have considered learning more about this topic, however, if the information is made readily available to them and they are offered the opportunity to ask questions and improve their understanding, then they are more likely to focus a special feature on the topic.

### 5.4 Referent experts

There have been a number of experts identified in this analysis as the key reference point for journalists. Many of these are politicians, or industry representatives. As part of this communication strategy, the Carbon Storage Taskforce should consider identifying a broader range of experts that can be promoted to journalists. Time should be spent enlisting the help of these professionals as well as ensuring that they have the latest information and position on CCS. It will also be important to ensure that they are happy to make themselves available to the media as it is often accessibility which ends up influencing who is quoted within an article.

Table 8 Suggested communication targets

<b>Target</b>	<b>How</b>	<b>Responsible</b>	<b>Frequency</b>
Nine key journalists	One-on-one or small group lunch & breakfast briefings	DRET	Every quarter or when new projects, events are to take place.
Wider journalist community	Press briefings, workshops in regional locations	DRET in conjunction with scientists; peak bodies	Every six months
Broader publications	Press events	DRET in conjunction with scientists	Once a year
Referent experts	Individual enlistment	DRET; peak bodies	Ad hoc, ongoing to coincide with announcements.

## 6. RECOMMENDATIONS

Within this report there have been a number of recommendations made in addition to the targeted communication strategy outlined in section five. To ensure these are not overlooked the recommendations are summarised below in no order of priority.

1. Proactively engage with all journalists, urban and regional alike, including those that write infrequently on CCS to insure they have the appropriate information base to write about the technology. Include latest peer review information on all low emission energy technologies, their potential and current limitations, as well as the state of play in research being undertaken to overcome such limitations. Could also include cost of electricity generation, life cycle analysis and energy security issues.
2. Drop the term “clean coal” in as many ways as possible and move to the term “low emission”.
3. Promote the alternative ways that CCS can assist in mitigating greenhouse gas emissions besides applications attached to coal. For example, oil and gas, heavy industry and biomass potential.
4. Target more mainstream media, such as women magazines and commercial television stations.
5. Enlist the wider use of trusted experts including scientists and NGO’s to ensure more balanced and positive arguments for the technology are promoted.
6. Proactively make announcements in relation to CCS as a way of raising awareness and attracting more media attention.
7. Conduct further research to investigate, how the public read and interpret CCS. Within this research, test the effects of the range of expert information and how that effects individual perceptions.

## APPENDIX A – LIST OF PROQUEST ANZ NEWSSTAND PUBLICATIONS

Titles[73]	ISSN[20]	Pub. Type
7:30 Report - Australian Broadcasting Corporation		
AAP Bulletin Wire		
AAP Finance News Wire		
AAP General News Wire		
AAP Sports News Wire		
ABC Premium News		
ABC Regional News		
ABC Rural News		
AFX News		
AM - Australian Broadcasting Corporation		
Advertiser, The; Adelaide, S. Aust.	1039-4192	Newspapers
Age, The; Melbourne, Vic.		Newspapers
Australian, The	1038-8761	Newspapers
BBC Monitoring Asia Pacific		
BBC Monitoring Asia Pacific - Economic		
BBC Monitoring Asia Pacific - Political		
BBC Monitoring Media		
BBC Monitoring Newsfile		
Bay of Plenty Times; Tauranga, New Zealand	1170-0068	Newspapers
Business Breakfast		
Cairns Post, The	1322-8587	Newspapers
Canberra Times, The		Newspapers
Central Coast Express Advocate		Newspapers
Central Coast Herald	1447-7602	Newspapers
Centralian Advocate, The		Newspapers
Courier - Mail, The; Brisbane, Qld.	1322-5235	Newspapers
Daily Post, The; Rotorua, New Zealand	1170-0254	Newspapers
Daily Telegraph, The; Surry Hills, N.S.W.		Newspapers
Dominion		Newspapers
Dominion Post; Wellington, New Zealand		Newspapers
Evening Post; Wellington, New Zealand		Newspapers
Fiji Times, The		Newspapers
Gold Coast Bulletin, The	1321-3830	Newspapers
Hawkes Bay Today; Hastings, New Zealand	1174-9792	Newspapers
Herald Sun; Melbourne, Vic.	1038-3433	Newspapers
Herald on Sunday; Auckland, New Zealand	1176-7405	Newspapers
Herald; Newcastle, N.S.W.		Newspapers
Host Reporting Company Announcements Service		
Illawarra Mercury		Newspapers
Inside Business		
Insiders - Australian Broadcasting Corporation		
Lateline - Australian Broadcasting Corporation		
Manawatu Standard; Palmerston North, New Zealand	1176-3558	Newspapers
MediaNet Press Release Wire		

APPENDIX A – LIST OF PROQUEST ANZ NEWSSTAND PUBLICATIONS

Mercury, The; Hobart Town, Tas.	1039-9992	Newspapers
NT Business Review		
Nelson Mail, The		Newspapers
New Zealand Herald, The; Auckland, New Zealand	1170-0777	Newspapers
New Zealand Truth		Newspapers
Northern Advocate, The; Whangarei, New Zealand	1170-0769	Newspapers
PM - Australian Broadcasting Corporation		
Papua - New Guinea Post - Courier		Newspapers
Press, The; Christchurch, New Zealand		Newspapers
RWE Equity Business News Service		
Southland Times, The		Newspapers
Sun Herald; Sydney, N.S.W.		Newspapers
Sunday Age; Melbourne, Vic.		Newspapers
Sunday Herald - Sun; Melbourne, Vic.		Newspapers
Sunday Mail, The; Adelaide, S. Aust.	1039-4184	Newspapers
Sunday Mail, The; Brisbane, Qld.	1322-5243	Newspapers
Sunday Star - Times; Wellington, New Zealand		Newspapers
Sunday Tasmanian; Hobart Town, Tas.		Newspapers
Sunday Telegraph; Surry Hills, N.S.W.		Newspapers
Sunday Territorian; Darwin, N.T.	0815-9572	Newspapers
Sunday Times, The; Perth, Western Australia	1442-9527	Newspapers
Sunday Times; Suva, Fiji		Newspapers
Sydney Morning Herald		Newspapers
Taranaki Daily News; New Plymouth, New Zealand		Newspapers
Timaru Herald		Newspapers
Townsville Bulletin	1327-4317	Newspapers
Waikato Times		Newspapers
Weekend Australian		Newspapers
World Today, The		



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