

Societal Acceptance of Geothermal Energy Technology in Australia: Media Portrayals and Public Perceptions

Lygia Romanach and Simone Carr-Cornish

CSIRO Earth Sciences and Resource Engineering, CSIRO Energy Flagship

PO Box 883, Kenmore, QLD 4069, Australia

lygia.romanach@csiro.au

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ABSTRACT

Geothermal energy technology is in an early stage of research and development in Australia and it is unclear how the public are likely to respond to deployment or future investment on this technology in Australia. In order to investigate the likely societal acceptance of geothermal energy technology in Australia, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) has undertaken an analysis of news articles about geothermal energy technology published in Australia, along with focus group research, which was conducted face-to-face and online, Australia wide. In combination, this research suggests that geothermal energy technology is currently relatively well received by the Australian media and public. The media analysis results showed that the reported benefits and risks of geothermal energy are consistent with a technology in its early stage of development with the technology's economic feasibility and technical uncertainties the most commonly cited risks. Similarly, the most cited benefits of geothermal energy technology in the media included geothermal being a renewable energy with baseload capacity. However, as geothermal technology progresses through to large-scale demonstrations, there is the potential for both public perceptions and media reporting of the technology to change. Acknowledging this potential for change in media reporting and public opinion of geothermal energy technology will be critical to the industry maintaining effective communication strategies.

1. INTRODUCTION

Over the last two decades, there has been increasing interest in the mitigation of climate change through the use of low-emission energy technologies. However like many other emerging technologies, there has been considerable public opposition to low-emission energy technologies, such as nuclear power plants (Pickett, 2002), wind farms (Kaldellis, 2005), carbon capture and storage technology (van Alphen et al., 2007), and geothermal energy technology (Gherang Community & Environment Group, 2010; Popovski, 2003). This opposition has been accompanied by an increasing recognition by policy-makers and technology developers that it is not only a lack of opposition but societal acceptance and support at the local level which is essential for the successful deployment of low emission energy technologies (Wüstenhagen, Wolsink & Baurer, 2007).

This research aimed to investigate the likely societal acceptance of geothermal energy technology in Australia. The study included two aspects. First, the study explored how geothermal energy technology is portrayed in the Australian media to identify what are the benefits and risks of the geothermal industry and the social actors represented in such news articles. Second, the study conducted focus group meetings to investigate Australian's current knowledge and perceptions of geothermal energy technology, to explore how factors such as project location affect public support for geothermal energy technology.

2. METHODOLOGY

A media analysis was conducted as previous research has demonstrated that the media has an influential role to play in transferring knowledge of emerging science and technology, such as nanotechnology (Kjærsgaard, 2010), biotechnology (Listerman, 2010) and climate change (Nisbet, 2009). This is because the majority of the public have limited direct-experience with emerging scientific and technological issues and by determining which stories are reported and how they are framed, the media determines which issues and viewpoints enter the public debate (Heras-Saizarbitoria et al., 2011). News media about geothermal energy technology in Australia, including newspaper reports as well as transcripts from radio and TV programs, were sourced through the ProQuest Australia New Zealand Newsstand database. More specifically, a search was done for 'News' items published in Australia that contained the word 'geothermal' excluding 'News wire'. The media analysis involved analysing 451 news articles published in

Australia between July 1st 2011 and June 30th 2012. The analysis explored how the benefits and risks of geothermal technology have been portrayed in the media and the social actors that have been represented.

In addition, a series of online (n=136) and face-to-face (n=32) focus groups were also conducted between September 2012 and May 2013 that explored community views towards the development of geothermal energy technology in Australia. This research involved the analysis of both qualitative and quantitative data. Qualitative data was analysed using NVivo 9, a form of Computer Assisted Data Analysis Software (CAQDAS) which was used to code and analyse the news articles and the focus groups discussions. Quantitative data was collected through questionnaire surveys during the focus groups meetings and analysed using Stata MP12 statistical software. Statistical analyses were undertaken and include both descriptive and inferential statistics such as Pearson chi-squares and ANOVAs.

3. RESULTS AND DISCUSSION

The media analysis results showed that media reporting of geothermal technology in Australia during July 1st 2011 and June 30th 2012 reported benefits and risks which are consistent with a technology in its early stage of development. For example, the most commonly cited risks were the technology's economic feasibility and technical uncertainties, rather than potentially more controversial concerns identified in the literature such as seismicity, electricity costs, water and noise pollution (Dowd et al., 2011). This was consistent with Lee et al. (2005), who found that at the research and development stage of a technology, the media tend to report benefits that are more economic and scientific in nature.

Renewable energy and baseload capacity were the most frequently reported benefits of geothermal technology in the Australian media. These benefits were closely related to the climate change discourse and the scientific notion that moving to a low-carbon society is essential to reduce greenhouse gas emissions. Similar to Dowd et al. (2011) findings, these benefits were general and global in nature which is also in line with previous research on public acceptance of low-emission energy technologies such as carbon capture and storage (Ashworth et al., 2012). The results were also consistent with a media analysis about geothermal energy in Germany which indicated that renewable energy and baseload capacity are the most frequently reported benefits of geothermal energy in the media (Reith et al., 2013).

The focus group research conducted with members of the Australian public showed that despite participants' low levels of knowledge about geothermal technology, the majority of focus group participants were receptive to the idea of geothermal technologies and projects being developed in Australia. Focus group findings showed that the benefits of geothermal energy technology perceived by the public are in line with those reported in the media, such as geothermal being a renewable and low-emission energy technology. However, while not so prevalent in the media analysis, the focus results also suggested that participants will require reassurances of the safety aspects of the technology, especially in regard to water pollution and potential seismic activity. While geothermal plants are still in the early stages of development in Australia, results from the focus groups indicated that the majority of focus groups participants prefer for geothermal projects to be located away from their communities, suggesting that the location of these projects will be critical for societal acceptance.

4. CONCLUSION

In combination, this research suggests that geothermal energy technology is currently relatively well received by the Australian media and public. However, as geothermal technology progresses through to large-scale demonstrations, there is the potential for both public perceptions and media reporting of the technology to change. There are at least two factors that may shape this change. One factor is the direct experience of the public when large scale geothermal plants are developed, especially if they are developed close to communities. A second factor is that large scale demonstrations might also see additional interest groups and social actors joining the discourse and bringing alternate perspectives on the technology's benefits and risks to the Australian public and the media. Acknowledging this potential for change in media reporting and public opinion of geothermal energy technology will be critical to the industry maintaining effective communication strategies.

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