

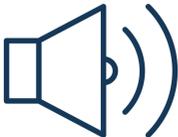
Using big data and strategic communication to support the hydrogen export industry's evolution in Australia

Project Overview

Securing the Australian public's support has been identified as a crucial step in the development of the hydrogen economy. While some initial research has sought to understand support levels for hydrogen in general (see Ashworth et al., 2019; Martin et al., 2021) there has been limited exploration of the acceptance of hydrogen in the context of exports. In addition, very few studies have explored the power and influence of strategic communication on perceptions of hydrogen beyond the testing of educational messages.

Addressing these gaps, this project intersects research methods to create an evidence base for strategic communication to address ongoing challenges and opportunities around the hydrogen export industry's evolution in Australia. The outcomes of this study will provide guidance to key stakeholders on how to communicate to achieve a sustained social license for hydrogen exports, assure trust in the industry and avoid misinformation.

Research Aims

-  Explore existing news coverage and social media narratives about hydrogen energy exports to identify trends and megatrends
-  Understand the Australian public's perceptions of and opinions about energy exports (i.e., hydrogen, LNG, and coal)
-  Test the impact of different message framing techniques on the Australian public's acceptance and perceptions of energy exports

FEnEx CRC Alignment

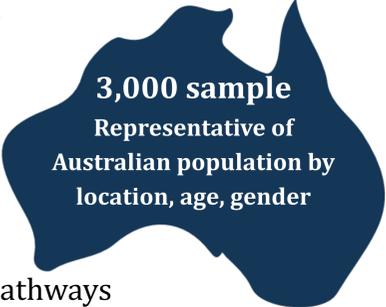
This project aligns to one of the FEnEx CRC's primary objectives, to advance the hydrogen industry. The outcomes from this research will contribute to milestone deliverables in the **Market & Sector Development theme**, and will also support the **Hydrogen Export and Value Chains theme**.

Method

This study employs two research methods, a **quasi-experimental survey** to test how strategic communications impact public perceptions of energy exports and **big data horizon scanning** to rapidly explore media reporting and conversations about hydrogen exports in the Australian context.

Quasi-experimental Survey

The quasi-experimental survey will deeply explore the Australian public's perceptions of hydrogen exports, and wider energy export sector.



Including areas such as::

- . Knowledge of hydrogen production pathways
- . Knowledge of energy industry job numbers
- . Perceptions of carbon capture and storage
- . Legitimacy of the hydrogen export industry
- . Trust / distrust of the energy export industry
- . Support and acceptance of energy exports
- . Timelines to build-up a hydrogen export industry

After baseline perceptions are ascertained, participants will then be presented with a series of stimuli. These stimuli have been designed to reflect real-world news stories that are both supportive and unsupportive of the hydrogen export industry. Example headlines include:

- Loss of fossil fuel exports a threat to economic stability**
- Brown hydrogen is dirty energy with no environmental benefit**
- Thousands of new jobs the benefit from hydrogen industry**

In addition, participants will then be exposed to positive messages about the hydrogen export industry framing either the environmental or economic benefits, with two messages presenting a positive valence only and two messages presenting a more balanced view.

Big Data Horizon Scanning

Horizon scanning and megatrend reporting technology will be used to mine a targeted range of media sources to identify key trends and potential inconsistencies in media reporting and social media conversations around hydrogen exports in Australia.

Media sources will be mined from 1st of January 2019 until now, and will include:

-  **100 Twitter Profiles**
Australian politicians, influencers, corporates, media, Governments and associations
-  **News Sources**
National and state-based news, industry news and magazines, online news

Impact

This project will have real-world impact for stakeholders needing to communicate about the emerging hydrogen export industry by providing an academic-led evidence base to support strategic communication decision-making.



This research is one of the first to study public perceptions of energy exports, **specifically hydrogen exports**, and will therefore provide new insights in this field and address a significant gap in the current knowledge base.

In addition this study will examine **perceptions of coal, LNG, blue, green and brown hydrogen exports**, allowing for comparison between perceptions of hydrogen (including different production pathways) and existing energy exports.

This study has the potential to become the **first of a series of studies** with opportunity to adapt the methodologies used to suit the evolving nature of the hydrogen export industry.

Project Team

- . Dr Ellen Tyquin (Project Lead), QUT, School of Advertising, Marketing and Public Relations
- . Associate Professor Clinton Weeks, QUT, School of Advertising, Marketing and Public Relations
- . Professor Richi Nayak, QUT, School of Computer Science
- . Professor Amisha Mehta, QUT, School of Advertising, Marketing and Public Relations
- . Professor Cameron Newton, QUT, School of Management
- . Dr Sangeetha Kutty, QUT, School of Computer Science
- . Dr Nick Burke, Victoria State Government, Department of Jobs, Precincts and Regions

To find out more about this project and its findings, please contact Dr Ellen Tyquin at e.tyquin@qut.edu.au

References
Ashworth, P., Witt, K., Ferguson, M., & Sehic, S. (2019). *Developing Community Trust in Hydrogen*. University of Queensland: Brisbane.
Martin, V., Ashworth, P., Petrova, S., Wade, B., & Witt, K. (2021). *Public Perceptions of Hydrogen: 2021 National Survey Results*. Future Fuels CRC. https://www.futurefuelscrc.com/wp-content/uploads/FFCRC_RP2.1-02_Public-perceptions-of-hydrogen_National-survey-report_June2021Final.pdf

