



## REQUEST FOR INFORMATION

Development of new, scalable export value chains in renewable hydrogen and related materials.

## APPLICANT INFORMATION

**Purpose:** The Australian Renewable Energy Agency (ARENA) seeks information on the opportunities and capability of Australia in developing capacity to export renewable hydrogen.

**Key dates:**

Release Date: 13 September 2017.

Response Date: 5pm, 18 October 2017 (5 weeks from release).

**Background:**

Australia has vast renewable energy resources, good export capabilities and strong relationships with key international energy markets. As the global economy transitions to low emission energy alternatives, Australia is well positioned to export renewable energy to meet the energy needs of other nations (for example, in the form of hydrogen).

We are seeking input from industry, research institutions and governments in order to further the development of sustainable, renewable energy export supply chains. Depending on information received, ARENA may elect to develop a dedicated funding round or process with regards to research and development or project-related activities.

The RFI subject area includes:

- The production of renewable hydrogen.
- The conversion of gaseous hydrogen to a substance or form suitable for export e.g. ammonia, liquid hydrogen, hydrogen adsorbed in other materials, or the direct, renewable production of such substance.
- The (re)conversion of an exportable substance to hydrogen or some other form and its use as an energy source.

The RFI subject area specifically excludes:

- Renewable energy embodied in processed raw materials such as minerals and fuels derived from biomass or waste sources or direct export of electricity for example via DC cable.

These investment areas are currently being considered under the ARENA Advancing Renewables Program (ARP) and we would welcome your submission.

At this stage ARENA expects its focus will be more on the research and development or small scale pilot project. Responses associated with projects at later developmental stages are welcome. These may be eligible for funding through ARENA's [Advancing Renewables Programme](#).

## REQUEST FOR INFORMATION

ARENA is seeking information from relevant stakeholders who have previously or are considering undertaking research, project development, or any other activity in Australia associated with the RFI Subject Area. The purpose is to inform ARENA's approach to investment under our Investment Priority: Exporting Renewable Energy.

Respondents should provide answers to the specified questions and are invited to include any additional information (including attachments) that may further inform ARENA.

Responses should be submitted to [hydrogenrfi@arena.gov.au](mailto:hydrogenrfi@arena.gov.au) by **5pm, 18 October 2017**.

**Use of information:** ARENA may utilise information received as part of this RFI to inform and define its approach to investment under the ARENA Investment Priority: Exporting Renewable Energy.

Following the conclusion of the RFI process, ARENA may consider the development of a specific or targeted funding round under the [Advancing Renewables Programme](#).

ARENA may contact respondents with an invitation to participate in additional scoping sessions on this subject matter.

**Further information:** Responses and enquiries should be emailed to [hydrogenrfi@arena.gov.au](mailto:hydrogenrfi@arena.gov.au).

**Disclaimer:** Information will be treated in accordance with ARENA's Advancing Renewables Program Guidelines. Under the Guidelines, information of a confidential nature provided by you as part of or in connection with this Request for Information will be treated as commercial-in-confidence by ARENA. The Guidelines provide that ARENA may disclose such commercial-in-confidence information in certain circumstances, including to its advisers. It is important that respondents are clear that any commercial-in-confidence information that you provide as part of this process may be shared with ARENA advisers. In addition, ARENA reserves the right to publicly disclose any information received after aggregation and anonymisation.

Respondents should specify any parts of their response that are specifically confidential.

This RFI, and any subsequent scoping activities, does not indicate or guarantee ARENA's intention to invest in the RFI Subject Area or any specific project.

## RFI QUESTIONS

Respondents may provide a response to all or some of the below question areas. It is requested that Respondents limit their responses to a maximum of 10 pages (excluding any attachments).

### General Questions

1. Detail of your institution/company and its interest in this RFI.
2. Description of the development stage (e.g. research, deployment) and area of supply chain (e.g. production, transport) which best describes your interest in the RFI Subject Area.
3. Which value chain is your work related to (e.g. methane, ammonia, hydrogen, etc)?
4. Would you see benefit in the development of an industry roadmap? If so, provide your view and context on terms, subject matter and limitations.

### Specific Research and Development Questions

These questions have been developed to be specific to respondents that are focused on research and development activities.

5. Briefly describe your area of research.
6. What problem will the successful completion of your research solve?
7. How does your work compare internationally in terms of innovation and technological advancement?
8. What are the current barriers to the commercialisation of the renewable energy supply chain that you are working in? These might include technological, economical, efficiency barriers etc.
9. What Australian or international collaborations (either formal or informal) do you have that work within the same renewable supply chain as your own project?

10. What are the top similar/competing research groups to your own that are currently working in the RFI Subject Area, both in Australia and internationally?
11. What technology readiness level (TRL) does your current project begin at, and where does it aim to finish? (See ARENA's [Advancing Renewables Programme](#) Guidelines for how this can be determined.)
12. How does your project aim to reduce costs and increase efficiency?
13. What is the anticipated timeline and cost required to meet the aims of your project?
14. If the project was to meet its current objectives, what would be the next step towards commercialisation?
15. Do you have any current funding for your project, and are you likely to apply for more within the next 6 months?
16. Do you have any industry partners, or interest in partnering with such? What is/would be the approach with such a partner, for example, plans to commercialise the technology involved?
17. If ARENA were to run a targeted research and development funding round for the RFI Subject Area, which part of the value chain should be targeted, and where should the focus lie in terms of the development scale (e.g. research and development, demonstration, pre-commercial deployment)?

## Project Demonstration and Development Questions

These questions have been developed to be specific to respondents that are focused on commercial project development and other non-research and development activities.

18. Briefly describe your project development interest and its relevance to the RFI Subject Area.
19. Describe the development status of your project development (including assessed TRL and commercialisation readiness level, see ARENA's [Advancing Renewables Programme](#) Guidelines for how this can be determined) and pathway to commercial delivery.
20. If relevant, what is your targeted cost of production?
21. What are the barriers to the development of your project or concept (e.g. financing, technology, regulatory, market, and infrastructure)?
22. What role could ARENA play to encourage investment in the RFI Subject Area, at both an industry and project level?
23. What market research or development activities have you undertaken and what are your expected levels of demand for export renewable energy in your target market?
24. What is your understanding of the future of relevant markets for the fuel involved, and the macro drivers and issues that will determine this?

Please send your response and enquiries to [hydrogenrfi@arena.gov.au](mailto:hydrogenrfi@arena.gov.au), by **5pm, 18 October 2017**.