

## Low Emission Technology Australia

### Submission to the Department of Climate Change, Energy, the Environment and Water *Hydrogen Headstart Consultation Paper July 2023*

#### 1. Introduction

Low Emission Technology Australia (LETA) is a A\$700 million fund established in 2006 by the Australian black coal industry to invest in a range of technologies that significantly reduce greenhouse gas emissions and support the transition to a low emission global economy, in line with the Paris Agreement.

LETA partners with government, research institutions, universities and industry locally and internationally to develop projects that reduce and remove greenhouse gas emissions from large scale industrial processes such as power generation, steel and cement manufacturing, mining, and future energy sources such as low-carbon hydrogen.

LETA's submission addresses specific aspects of the Consultation Paper, focussing on those areas/questions that are particularly important for the development and implementation of low emission technology (such as clean (low carbon) hydrogen<sup>1</sup>) in Australia and the contribution they do now and can more significantly in the future make to reducing emissions in Australia and across the Asia-Pacific region.

#### 2. Proposed eligibility requirements

LETA notes that while the Consultation Paper states on page 3 that:

*... hydrogen produced using coal gasification or steam methane reforming (SMR) coupled with carbon capture and storage (CCS) technology will not be eligible under the Competitive Round ...*

no reasoning is provided for this narrowing of the eligibility criteria to focus exclusively on a renewables-based hydrogen production pathway.

#### **Question 2.1: Please provide any feedback on the proposed eligibility requirements. Are there any other eligibility requirements the Program should consider?**

LETA recommends the eligibility criteria – but not the funding – for the Hydrogen Headstart scheme be revised to take a technology neutral approach and include clean hydrogen (hydrogen from coal and natural gas with carbon capture and storage (CCS)), by including “clean hydrogen” in the eligibility requirements in the guidelines for the Hydrogen Headstart scheme.

To pursue a technology neutral pathway, LETA also recommends the definition of clean hydrogen (which can incorporate both coal and gas with CCS hydrogen production pathways) be agreed in consultation with industry stakeholders, but be based on the International Energy Agency (IEA) definition of clean hydrogen, which is hydrogen:

*... produced from renewables, nuclear [noting nuclear-based hydrogen is not an option in Australia] or coal and natural gas with CCUS.*

A technology neutral approach, which focusses on all possible pathways to hydrogen development (both domestically and for exports), is vitally important to Australia achieving the best outcomes from this technology.

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<sup>1</sup> Clean hydrogen, consistent with the definition outlined by the International Energy Agency (see, for example [www.iea.org/fuels-and-technologies/hydrogen](http://www.iea.org/fuels-and-technologies/hydrogen)) is produced from renewables, nuclear (noting nuclear-based hydrogen is not an option in Australia) or fossil fuels with CCUS.

Importantly, Australia’s global competitors and trading partners<sup>2</sup> remain neutral with regards to the type of technology used to produce hydrogen, and focus on the associated emissions. Australia needs to be exploring all potential pathways to build global hydrogen markets and to maximise opportunities for the emerging industry here.

This means that while the Hydrogen Headstart program announced in the 2023-24 Budget provided recognition of the importance of low emission technologies like hydrogen, the program as announced (to provide \$2 billion in “revenue support” for large scale renewable hydrogen projects through “competitive hydrogen production contracts”) and outlined in the Consultation Paper, is a missed opportunity to invest in technologies that will play a critical role in meeting Australian and global emissions reduction targets.

The program, as outlined in the Consultation Paper, risks failing to provide economically efficient and environmentally effective support for industry development in Australia. Rather, it focusses exclusively on a renewable-based hydrogen production pathway, and does not pursue a technology neutral approach that would focus on emission reduction outcomes rather than favouring particular technologies. Hydrogen Headstart’s focus, on renewable hydrogen only, misses an opportunity to focus on all hydrogen production pathways, including clean hydrogen using coal, gas or biomass with CCS.

It also stands in stark contrast with the approach taken internationally.

For example, the US through the *Inflation Reduction Act 2022*<sup>3</sup> provides significant support for all forms of clean hydrogen production and for CCS. The Section 45V Hydrogen Production Tax Credit is designed to support the domestic (United States) production of clean hydrogen. The Tax Credit is available for all types of hydrogen production, regardless of the production technology, and focus on the emissions profile of the hydrogen produced.

Similarly, the UK Government’s Hydrogen Strategy<sup>4</sup> pursues a

*... twin-track approach to supporting both electrolytic ‘green’ and carbon capture (CCUS) enabled ‘blue’ hydrogen production, alongside other potential production routes, which will enable the rapid growth of the sector while bringing down costs ...*

and highlights

*The UK has the opportunity to deploy blue hydrogen projects, linked closely to the development of CCUS supply chains, as set out in the CCUS roadmap, taking advantage of UK CO<sub>2</sub> storage potential.*

As LETA’s forthcoming submission to the 2023 National Hydrogen Strategy will highlight, production of clean hydrogen, reflecting: Australia’s large energy resource base; our established and long-standing commercial relationships with both domestic customers and trading partners (Australia is the world’s largest metallurgical coal exporter, second largest thermal coal exporter, and largest exporter of natural gas<sup>5</sup>); significant onshore and offshore CO<sub>2</sub> storage potential; and technical expertise and experience mean that Australia is well placed to see its comparative advantage and energy and resource production utilised to develop a competitive clean hydrogen industry.

**To maintain a technology neutral approach to hydrogen production and development, and to stand alongside the approach taken in countries like the US and the UK, LETA recommends the eligibility criteria – but not the funding – for the Hydrogen Headstart scheme be revised to include clean hydrogen (hydrogen from coal, natural gas and biomass with CCS), by including clean hydrogen in the eligibility requirements.**

<sup>2</sup> For example, both Japan and Korea have engaged extensively with Australian industry to pursue opportunities to build on Australia’s longstanding energy and resources trading relationships to explore clean hydrogen export pathways.

<sup>3</sup> See [www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook](https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook) for more information.

<sup>4</sup> See [www.gov.uk/government/publications/uk-hydrogen-strategy](https://www.gov.uk/government/publications/uk-hydrogen-strategy) for more information.

<sup>5</sup> See [www.industry.gov.au/sites/default/files/2023-07/resources-and-energy-quarterly-june-2023.pdf](https://www.industry.gov.au/sites/default/files/2023-07/resources-and-energy-quarterly-june-2023.pdf) for more information.

### 3. Other issues

LETA offers the following comments on some of the other issues raised in the Consultation Paper.

#### **Question 2.2: Is a minimum deployment size of 50MW appropriate for the Program?**

The joint media release by the Hon Jim Chalmers MP, Treasurer, the Hon Chris Bowen MP, Minister for Climate Change and Energy and Senator the Hon Jenny McAllister, Assistant Minister for Climate Change and Energy<sup>6</sup>, commencing this consultation process, stated the Hydrogen Headstart Program will target two to three “flagship” projects.

The Consultation Paper itself on pages 3 and 4 states a proposed minimum electrolysis deployment of 50MW and at least two large scale projects.

With that in mind, LETA recommends the Hydrogen Headstart design should target a total installed capacity for production so that the Hydrogen Production Credits (HPCs) are not overly generous for only two or three project developers (with total funding of \$2 billion, focussing on only two or three projects implies direct subsidy support could be over \$1 billion for a single project developer). To facilitate this more effective and equitable approach, the Program should have no cap on the number of projects supported to reach the total installed capacity target, provided they are economically viable and at a commercial scale.

Such an approach could be implemented in a number of ways. For example:

- 1,000MW of total installed capacity across all projects, with a minimum deployment size of 50MW per project; or
- 50,000 tonnes per annum of clean hydrogen production, across all projects, with each project requiring production greater than 5,000 tonnes per annum (this would support a more technology neutral approach).

#### **Question 4.1: Please provide any feedback on the proposed funding mechanism.**

Linked to the answer to Question 2.2 above, LETA recommends an upper threshold on any HPC (for example, \$A3/kg) as part of the Program, to limit the risk of providing overly generous and significantly inefficient levels of subsidy to only two or three project developers.

#### **Question 5.1: Other international schemes have varying upside sharing arrangements such as the UK scheme which requires projects to share 90% of upside back to the Government. Please provide your views on the proposed upside sharing arrangements for the Program, including with reference to the methodology for sharing upside (a reduction in the HPC) and Question 5.2: Please provide any additional feedback on the proposal for recipients to repay Government support in the event the sales price increases materially during the 10-year period.**

LETA notes the Consultation Paper proposes on page 5 that upside arising from decreased operating costs; and/or increased sales prices is proposed to be shared 50/50 between Government and the project proponent. This appears generous, and LETA recommends the Government retain to ability to recoup all of the upside (up to a threshold on the HPCs that have been granted, less any applicable administrative costs for the project proponent).

#### **Question 6.1: Do you think the Program should include volume risk support? If so, why?**

The Consultation Paper on page 6 outlines a potential approach to volume risk support that would provide

*... a top-up payment on qualifying volumes when total volumes sold are less than a certain percentage of forecast volumes from offtake customers.*

<sup>6</sup> See [ministers.treasury.gov.au/ministers/jim-chalmers-2022/media-releases/hydrogen-headstart-power-new-jobs-industry](https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/media-releases/hydrogen-headstart-power-new-jobs-industry) for more information.

This approach appears overly generous. Volume risk is a risk for project proponents, and support of this kind should not be considered.

### **Threshold on emissions intensity**

As noted above, LETA supports a technology neutral approach that focusses on emissions outcomes rather than significant and exclusive subsidy support for particular hydrogen production pathways. To support this, LETA recommends the definition of clean hydrogen outlined above could incorporate a threshold on emissions intensity for low carbon hydrogen production that considers all production pathways.

The program design as outlined in the Consultation Paper appears to imply that grid electricity where large-scale generation certificates (LGCs) or other certificates eligible under the Guarantee of Origin (GO) scheme are surrendered to match 100 per cent of electricity use, or electricity from a renewable generation power purchase agreement (PPA) with associated retirement of LGCs will be eligible to be classified as “renewable hydrogen”.

The FAQ document available on the Department’s website<sup>7</sup> states on page 5 that the Consultation Paper currently proposes that there would be no requirement for time matching or location matching. This may lead to “renewable hydrogen” being produced using electrons derived from grid-based electricity (with potentially significant levels of emissions) and HPCs subsidising the production for the project proponents.

For example, the approach taken in the United States through the *Inflation Reduction Act 2022* (IRA), provides support for all forms of clean hydrogen production. The Section 45V tax credits<sup>8</sup> available for hydrogen production in the United States are available for all types of hydrogen production, regardless of the production technology, and focus on the emissions profile of the hydrogen produced. The IRA applies thresholds associated with emissions intensity which alters the amount of production credits received through that Act.

A similar approach could be applied through Hydrogen Headstart, with the thresholds utilised in the IRA (subject to further consultation with stakeholders to ensure thresholds are fit-for-purpose for Australian conditions) considered for the Hydrogen Headstart program. Under such an approach, the HPC that a project developer receives could be based on these emission intensity thresholds.

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<sup>7</sup> See [storage.googleapis.com/files-au-climate/climate-au/p/ri27af6536dd899f2b71359/public\\_assets/Hydrogen%20Headstart%20FAQs.pdf](https://storage.googleapis.com/files-au-climate/climate-au/p/ri27af6536dd899f2b71359/public_assets/Hydrogen%20Headstart%20FAQs.pdf).

<sup>8</sup> The US tax code Section 45V production tax credit provides an income tax credit for every kilogram of qualified clean hydrogen produced (an approach that encompasses all forms of clean hydrogen production). The tiered tax credit approach means lower carbon-intensity hydrogen receives a higher tax credit amount. The tax credit applies for 10 years following the date a project begins operation (project must commence construction by 2033). See [www.energy.gov/sites/default/files/2022-10/IRA-Energy-Summary\\_web.pdf](https://www.energy.gov/sites/default/files/2022-10/IRA-Energy-Summary_web.pdf) for more information.