

LOW EMISSION TECHNOLOGY AUSTRALIA

COMMENTS TO THE DEPARTMENT OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT AND WATER (DCCEEW) ON THE EXPOSURE DRAFT OF THE *FUTURE MADE IN AUSTRALIA (GUARANTEE OF ORIGIN) LEGISLATION AMENDMENT (MEASURES NO. 1) INSTRUMENT 2026*

1. Introduction

Low Emission Technology Australia (LETA) is an investment 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. Further information about LETA, our work and our investment portfolio, can be found on our website, at www.letaaustralia.com.au.

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 emerging energy sources such as low-carbon hydrogen.

LETA's submission addresses specific aspects of the Exposure Draft of the *Future Made in Australia (Guarantee of Origin) Legislation Amendment (Measures No. 1) Instrument 2026* (the Exposure Draft), focussing on those areas that are particularly important for LETA's members and the unique perspectives they bring to these issues. These comments build on LETA's involvement in the broader Guarantee of Origin scheme design and on consultations conducted during 2023, 2024 and 2025.

2. Background: the importance of a comprehensive and technology-neutral approach

LETA welcomes the approach taken in the Exposure Draft to amend the *Future Made in Australia (Guarantee of Origin) Methodology Determination 2025* (the GO Methodology Determination) and the *Future Made in Australia (Guarantee of Origin) Rules 2025* (the GO Rules) to incorporate two additional hydrogen production pathways: gas reforming; and solid gasification and pyrolysis.

LETA has long supported the adoption of a technology-neutral approach to hydrogen policy in Australia, including the operation of the GO scheme. Providing for the generation of PGO certificates from these additional pathways moves the scheme closer to such an approach.

A technology-neutral approach will encourage innovation by supporting a range of hydrogen production methods, including renewable hydrogen and low-carbon hydrogen produced from coal or natural gas with carbon capture and storage (CCS). This will allow the most efficient, scalable and cost-effective technologies to emerge, fostering a globally competitive Australian hydrogen sector.

This approach enhances competitiveness by creating a level playing field that can accelerate the deployment of commercially viable hydrogen projects across a range of production methods. Ensuring flexibility within the hydrogen industry is vital for its resilience and ability to adapt to future technological advancements. A technology-neutral policy framework will help build a more robust industry that is capable of responding to market demands and technological innovation.

3. Comments on specific areas of the Exposure Draft of the *Future Made in Australia (Guarantee of Origin) Legislation Amendment (Measures No. 1) Instrument 2026*

Transparent and complete and Practical with minimum regulatory burden

LETA agrees that aligning the Exposure Draft with the approaches taken through the draft amendment – as outlined on page 7 of the Explanatory Document – to include emissions-accounting processes consistent with the NGER Measurement Determination, with updates where necessary to enable batch-based emissions accounting, is appropriate. LETA also agrees that aligning with the National Greenhouse and Energy Reporting Scheme (NGERS) will increase the transparency of the GO Methodology Determination.

LETA recommends minimising deviations from the approach taken under NGERs to reduce the regulatory and compliance burden and to draw on stakeholders' nearly 20 years of NGERs-related measurement and reporting experience.

Comparable with internationally agreed standards

LETA endorses the approach outlined on page 7 of the Explanatory Document to align the amendments with key international standards. In doing so, LETA also acknowledges that these international standards vary in their approaches.

LETA recommends that the approach taken align closely with Australia's key trading partners and the likely destinations for Australian hydrogen exports – that is, our key customers for existing energy exports such as coal and natural gas.

With that in mind, the approach taken in the global certification framework under the International Partnership for Hydrogen and Fuel Cells in the Economy and the Japan Organization for Metals and Energy Security (JOGMEC) guidelines for hydrogen will be particularly important.

Also relevant is the US Department of Energy (DOE) GREET¹ model (Greenhouse gases, Regulated Emissions, and Energy use in Technologies) a life-cycle analysis tool that evaluates environmental impacts of technologies, fuels, products and energy systems across the supply chain. For any energy or transport system – including hydrogen – GREET can calculate total energy consumption (non-renewable and renewable); energy use by fuel (petroleum, natural gas, coal); greenhouse gas emissions; air-pollutant emissions; and water consumption. Developed by DOE's Argonne National Laboratory, GREET's 45VH2-GREET variant is the model adopted by the US Department of the Treasury to determine emissions rates for the Clean Hydrogen Production Tax Credit under Title 26 of the US Code, Section 45V.

Chapter 3 – hydrogen production pathway

LETA endorses the approach in Chapter 3 of the Exposure Draft (see Explanatory Document, page 20) to include gasification and pyrolysis of solid feedstocks and to adopt a technology-neutral, non-prescriptive framework. The pathway should accommodate a wide range of existing and emerging technologies, including, but not limited to, fixed-bed, fluidised-bed, entrained-flow and plasma-assisted gasification configurations. LETA also supports enabling a variety of syngas-conditioning and hydrogen-refining routes to qualify under this pathway.

As an example of how a coal gasification project combined with CCS can operate, LETA worked with the Electric Power Research Institute (EPRI) in 2025 to evaluate the production of low-carbon hydrogen in Japan from imported Australian black coal, incorporating a high CO₂ capture rate at a representative Japanese site. The captured CO₂ is conditioned for transport by ship and for offshore geological storage in Malaysia. The methods are data-driven and traceable to a documented assumptions register, established reference designs and public data sources.

The EPRI Technical Update, *Powering Japan's Hydrogen Future: Australia's Coal Advantage with CCS*², presents a techno-economic analysis of coal-gasification³ plant performance and cost with parallel US\$ and ¥ reporting; a life-cycle assessment of well-to-hydrogen greenhouse-gas intensity across defined temporal snapshots (using the DOE's GREET life-cycle analysis system); and a market and delivery review for Japan. Marine logistics are modelled with baseline and future-state fuels for both coal delivery and CO₂ shipping. The report also considers port-interface requirements, long-lead equipment considerations, and the cross-border CO₂ transport framework under the London Protocol.

¹ See www.energy.gov/cmei/greet for more information.

² See letaaustralia.com.au/media-releases/australian-coal-with-ccs-could-deliver-clean-hydrogen-to-japan-securing-thousands-of-mining-jobs for more information and www.epri.com/research/programs/115842/results/3002033833 for a copy of the report.

³ The scenario uses an oxygen-blown, entrained-flow, quench coal gasification configuration, modelled as slurry-fed Air Products gasifiers (quench type).

The report finds that Australia's high-quality black coal, paired with CCS, could underpin Japan's hydrogen transition. Coal-to-hydrogen with CCS offers a clean, reliable and cost-competitive pathway to help meet Japan's hydrogen supply targets.

In the reference case, hydrogen is produced in Japan from imported high-quality Australian black coal; 92.5 per cent of the associated CO₂ is captured and conditioned for transport by ship for offshore geological storage in Malaysia. The resulting carbon intensity meets relevant Japanese guidelines for low carbon (clean) hydrogen⁴.

Hydrogen produced via this pathway is estimated to cost under US\$4 per kilogram, inclusive of CO₂ capture, transport and storage, making it competitive with other emerging supply options, including renewables-based hydrogen and natural gas reforming with CCS.

The report shows that coal – one of Australia's most valuable exports – can be converted into a clean fuel supporting domestic jobs and regional emissions reduction. Enabling coal to play a role in Australia's net zero future strengthens Australia's trading relationship with Japan and reinforces its role as a supplier of reliable, low emissions energy.

Ultimately, the report's findings – relevant to Australia's hydrogen policy development – show that coal-to-hydrogen with CCS complements, rather than competes with, renewables. It offers a credible route to scale hydrogen supply quickly, with costs within global benchmark ranges and emissions performance that qualifies as low carbon hydrogen under Japanese policy settings. For decision-makers in both countries, this is a practical, politically durable pathway that secures trade, delivers jobs and accelerates emissions reductions in heavy industry.

Recognising this is an international example, LETA would welcome the opportunity to work with the Department to assess how the EPRI scenario would be evaluated under the proposed approach in the Exposure Draft. This could be a useful way to "road test" the arrangements proposed under the Instrument.

4. Other issues: matters requiring priority action

Inclusion of carbon capture and storage should be a priority

It is unlikely that new hydrogen projects in Australia – whether based on natural gas reforming or on solid-feedstock gasification and pyrolysis pathways – will be developed without carbon capture and storage (CCS) or carbon capture, utilisation and storage (CCUS) integrated into the production facility. Similarly, existing gas-reforming projects are likely to consider a CCS retrofit to their facilities. Given this, LETA was surprised to find that CCS and CCUS have not been included as optional factors for either gas reforming or solid-feedstock gasification and pyrolysis under the Exposure Draft.

LETA recommends including CCS, CCUS and other carbon-management technologies as optional factors for both natural-gas reforming and solid gasification and pyrolysis, as a priority.

Calculating mixed production pathways

In addition, as some facilities may phase their emissions reduction technologies and processes – including for hydrogen production – some facilities may produce hydrogen from mixed production pathways (that could include gas reforming, solid gasification and pyrolysis, and electrolysis).

LETA recognises the PGO Scheme's relatively early rollout and forthcoming methodologies but recommends that calculating mixed batches be clarified.

⁴ Japan's Hydrogen Society Promotion Act (the *Act on Promotion of Supply and Utilization of Low Carbon Hydrogen and its Derivatives*) defines "low-carbon (clean) hydrogen" as hydrogen with ≤ 3.4 kg CO₂-e per kg H₂ on a well-to-gate basis. Hydrogen that meets this threshold is eligible for Japan's low-carbon hydrogen subsidy – a contract-for-difference mechanism established in 2024 by the Japanese Government (and administered by the Ministry of Economy, Trade and Industry (METI) and JOGMEC) to catalyse investment in robust international supply chains for low-carbon hydrogen. See also www.jogmec.go.jp/english/news/release/news_10_00079.html, www.enecho.meti.go.jp/en/category/special/article/detail_204.html and www.oecd.org/content/dam/oecd/en/about/programmes/cefilm/green-hydrogen/2024-case-studies/Subsidy-scheme-Japan-case-study-2024.pdf for more information.