20 October 2023

Emily Lewis
Project Manager
Hydrogen and New Energies
Department of Jobs, Tourism, Science and Innovation
Level 11, 1 William Street
Perth WA 6000

Sent via email: hydrogen@jtsi.wa.gov.au

Dear Emily

WESTERN AUSTRALIA RENEWABLE HYDROGEN STRATEGY REFRESH: STAKEHOLDER CONSULTATION PAPER 2023

The Chamber of Minerals and Energy of Western Australia (CME) is the peak representative body for the resources sector in WA. CME is funded by member companies responsible for more than 86 per cent of the WA's mineral workforce employment.[1] Within this membership, interests in hydrogen development range from project proponents to major infrastructure providers (e.g. port, pipeline and network providers) to potential end-user customers (e.g. iron ore, bauxite-alumina, ammonia and other industrial producers)[2] and energy providers across both domestic applications and export opportunities.

With recent government packages on tax and regulation to encourage hydrogen investment overseas[3] and domestically,[4] CME welcomes the timely refreshing the 2019 WA Renewable Hydrogen Strategy (the Strategy) by the Department of Jobs, Tourism, Science and Innovation (JTSI). CME also appreciates JTSI's efforts to engage widely on the 2023 Stakeholder Consultation Paper with the recent industry roundtable and one-on-one meetings.

Overall, we support the proposed shift towards a four-pillar approach but caution against being too prescriptive on end uses. An industry-wide approach to the Strategy is vital for ensuring alignment of the WA opportunity with the rapidly evolving global landscape on energy and associated hydrogen value chain. Please see the remainder of this submission for our detailed responses to each pillar.

Background

Australia accounts for 50 per cent of hydrogen trade projects by export volume by 2030 and 20 per cent of all announced electrolytic hydrogen projects,[5] with almost a quarter of these industry projects in WA.[6] In WA, the State Government has also achieved a milestone in allocating land in the Oakajee Strategic Industrial Area (SIA) towards developing the Mid-West Hydrogen Hub. However, substantive policy and financial support from all levels of the government are still needed to ensure hydrogen projects can become commercially viable at scale to meet net zero targets by the timeframes required.[7]

[1] Government of Western Australia, *2022 Economic indicators resources data*, full-time equivalents onsite under State legislation, Department of Mines, Industry Regulation and Safety (DMIRS), 21 April 2023.
[2] Reflecting the opportunity of decarbonising iron and steel, aluminium, other metals, chemicals and liquefied natural gas. Australian Industry Energy Transitions Initiative (Australian Industry ETI), *Pathways to industrial decarbonisation: Positioning Australian industry to prosper in a net zero global economy*, phase 3 report, February 2023.
[3] Examples in the last year include the US Inflation Reduction Act of 2022, demand-side H2Hubs initiative, EU Net-Zero Industry Act and REPowerEU amongst several others.
[4] NSW awarded $109.3 million to the hydrogen hub initiative while SA committed $100 million to develop the Port Bonython Hydrogen Hub. NSW Government, *Hydrogen hubs in NSW*, 28 September 2023; Government of SA, *Port Bonython Hydrogen Hub to boost Australia's hydrogen industry*, 25 September 2023.
[5] International Energy Agency (IEA), *Global Hydrogen Review 2023*, 22 September 2023.
[6] 25 of 107 active projects, with an additional 9 projects archived. CSIRO, *Hydrogen projects spreadsheet*, derived from the HyResource Projects – Active webpage, last updated 4 October 2023.
[7] Global hydrogen production and use needs to grow more than 100-fold by 2030 for the normative Net Zero Emissions by 2050 Scenario. IEA, *Global Hydrogen Review 2023*, 22 September 2023.

In responding to JTSI's eight questions, this submission seeks to reiterate our existing hydrogen and energy recommendations since 2021.[8] While we agree with the consultation paper that there have been significant global policy shifts since 2019, the underlying policy, regulatory and structural challenges in the WA context are essentially the same, with no major projects of production scale past the feasibility stage.[9] As such, the remainder of this submission is underpinned by two key policy themes:

1. Genuine consultation and transparency with the full spectrum of industry is needed when developing policy, regulatory and financial levers that enable medium to longer-term scaling up of hydrogen production. Authentic industry engagement ensures policies and initiatives are well-informed, targeted and responsive to supply challenges and customer interests. We also acknowledge the State Government, through its government trading enterprises (GTEs),[10] will play a pivotal role in transitioning the energy system for the whole economy. Hydrogen is but one source. Any changes to the State's energy mix will need broad industry support and be market-driven to minimise adverse impacts.
2. Greater visibility and coordinated effort are needed to reduce the end-to-end regulatory complexity and burden of the interagency approvals process for getting new, large-scale projects such as hydrogen up and running. As a developing industry, hydrogen will have broader implications for land tenure,[11] native title, heritage, environment (i.e. native fauna, water consumption and emissions), dangerous goods safety, energy systems integration (i.e. grid stability and electrification), industrial land use planning and infrastructure, all of which are in the remit of the State. Although it is yet to be fully operational, the whole-of-government $31.8 million Green Energy Approvals initiative has the potential to play an important facilitation and streamlining role in addressing these issues, and the performance of the initiative should be monitored and measured.

To ensure longer term sustainability of the hydrogen industry, this submission primarily draws attention to and supports supply-side measures under the proposed production and export pillars. Low-emission, reliable and cost-competitive energy will underpin the resources industry's decarbonisation efforts and is a critical enabler of future green industry, including renewable hydrogen, critical and battery minerals and green manufacturing. As such, the state and federal governments must urgently act to deliver a low-emission, reliable and cost-competitive energy system by 2030. In addition, we strongly support mechanisms of an enduring nature that benefit the resilience of the hydrogen supply chain and bankability of projects such as hubs, shared infrastructure and manufactured componentry. However, noting some members have hard-to-abate tasks, the delivery of the use pillar alongside production will be important in the near to medium term.

Please note our member companies face different technical and commercial challenges and opportunities unique to their commodity, operations and transition pathway. This submission does not seek to comment on potential competition policy issues.

1. What are the most effective government actions in the current Strategy for stimulating the renewable hydrogen industry?

Government actions aimed at reducing commercial risk are expected to be the most effective action for stimulating the hydrogen industry. These actions could include co-investing in partnerships, seed funding, hubs and shared infrastructure (e.g. transmission, ports and water) to lower costs and provide greater certainty over access and inputs across a project's proposed life. On the demand side, the State Government should work alongside the Australian Government to help reduce commercial risk by facilitating long-term export offtake agreements from major trading partners.

If a strong business case exists, expanded eligibility criteria or additional funding could be committed under the Renewable Hydrogen Fund, Industrial Land Fund and Investment Attraction Fund to complement applications to the $2 billion Hydrogen Headstart Program, $15 billion National Reconstruction Fund and $1.9 billion Powering the Regions Fund. As discussed below on shared infrastructure, the State Government should also be open to new, workable investment models at the scale needed for de-risking hubs. However,

[8] CME, *Energy policy*, infrastructure position, published 28 September 2021; *Towards competitive clean hydrogen*, position paper, November 2021; *Renewable hydrogen target for electricity generation in the South West Interconnected System*, submission to DMIRS, 25 November 2022; *National Hydrogen Strategy Review: Consultation paper*, submission to the Department of Climate Change, Energy, the Environment and Water (DCCEEW), 22 August 2023.
[9] Please see footnote #6 on HyResource projects in WA.
[10] Foremost electricity utility providers, then port authorities and water utility providers.
[11] CME, *Proposed policy framework guiding the use of diversification leases on Crown land and related legislative reform,* submission to the Department of Planning, Lands and Heritage (DPLH), 19 August 2022; CME, *Land and Public Works Legislation Amendment Bill 2022 and related Act amendments,* submission to the Minister for Lands, 21 October 2022.

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financial commitment in this space should be upfront and included in the upcoming State Budget to provide a clear signal to the industry in their upcoming funding applications.

With the current rate of technological advancement and industrialisation in competing jurisdictions globally, government action must be well-directed in parts of the value chain where there is an existing competitive advantage in WA. We note domestically, WA competes with interstate initiatives such as concessions and shared infrastructure.

2. Will the transition from the strategic focus areas to the four pillars and enablers positively impact the renewable hydrogen industry?

As it maintains flexibility, CME supports transitioning from the 2019 strategic focus areas to the proposed four pillars and enablers. A pillar approach must be market-led and reflect the emerging global value chain, noting there may be potential for bias and unsustainable outcomes if one pillar is unreasonably pursued at the expense of another. For example, several members highlighted focusing on the entire value chain instead of prescriptive, specific end use cases.[12]

3. Are the vision and mission for the Strategy refresh relevant and appropriate for WA?

As the Minister for Energy noted at the industry roundtable, we understand the focus of this Strategy refresh is limited to building and scaling up renewable (green) hydrogen production. However, CME would welcome the expansion of the Strategy to other colours, i.e. low-carbon hydrogen, in line with our 2021 policy statements on climate and energy.[13] We believe it is a missed opportunity and may result in less informed decisions during this challenging phase of WA's energy transition.

Successfully meeting the Strategy's 2022 goals is a good start, but much more needs to be done if WA is to become a significant producer, exporter or user of hydrogen. Broadening the Strategy to include low-carbon hydrogen will assist WA in attracting global investment flows, enable participation in international partnerships and encourage co-location of hubs closer to existing infrastructure. Moreover, it will allow the State Government to leverage its world-class liquefied natural gas (LNG) industry via the JTSI LNG Jobs Taskforce. The federal peak body on hydrogen also has similar views.[14]

Acknowledging the above, we believe the vision and mission for the Strategy are broadly relevant and appropriate for WA in the near term. Once the Sectoral Emission Reduction Strategies (SERS) are finalised and consultation on the proposed WA Climate Change Bill 2023 finishes, it may be appropriate to directly link net zero goals in the next iteration of the Strategy.

As discussed below under production, it may be relevant to use the Strategy refresh to highlight the importance of a timely and orderly energy transition in WA, particularly on system reliability and noting increasing long-term supply costs in the Wholesale Electricity Market (WEM).[15] Decarbonising the State's two main electricity grids is critical for the economy's decarbonisation and enabling the development of the renewable hydrogen industry.

4. Is 'production' an appropriate pillar, and if so, what are its most pressing opportunities and challenges, and most important actions WA government can take to support production of renewable hydrogen in WA?

Energy

Production is an appropriate pillar. Modelling by the Australian Industry Energy Transitions Initiative (ETI) indicates that between 15 and 40 petajoules of hydrogen could be produced in the South West

[12] Please refer to footnote #5. IEA recommends governments need 'stronger policy action on multiple fronts… act across the whole value chain, or progress will be disjointed and lead to cancellations and setbacks'.
[13] CME, *Climate Policy*, published 5 October 2021 and CME, *Energy Policy*
[14] Australian Hydrogen Council, *A fit-for-purpose refreshed NHS: Next steps for building Australia's hydrogen industry*, submission to DCCEEW, August 2023, pp 71-72.
[15] Economic Regulation Authority, *Triennial review of the effectiveness of the Wholesale Electricity Market 2022*, report to the Minister for Energy, tabled 30 November 2022.

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Interconnected System (SWIS) by gas or electricity by 2040.[16] Reinforcing our 2022 position paper, we recommend the State Government be technology-neutral to different colours of hydrogen production.

We would also like to take this opportunity to echo the Australian Industry ETI's recommendation that the next iteration of the Whole of System Plan or equivalent should more explicitly consider hydrogen and expand scenario planning to include existing pipeline infrastructure. This would help incorporate the potentially large increase in electricity demand from hydrogen projects post-2030 as envisaged under the SWIS Demand Assessment (SWIS DA).[17] Similarly, the 2023 WEM Electricity Statement of Opportunities (ESOO) forecasts underlying electricity consumption will triple by 2032-33[18] under a high-demand growth scenario, influenced mainly by renewable hydrogen export opportunities rather than the domestic use of hydrogen complementing existing gas use.[19]

Land

In addition to the $50 million Industrial Land Fund, the State Government should proactively ensure SIAs and General Industrial Areas (GIA) are 'project' ready for infrastructure and industrial development. With the large area of land required for hydrogen, this project ready focus will also need to extend past non-SIA, non-GIA and non-industrial land of high prospectivity.

Balancing assessment decision-making on the 'highest and best use' criteria for diversification leases will be challenging. It is uncertain if other prospective uses will be inadvertently precluded (i.e., sterilised) because of a preference for renewable hydrogen. The practical interaction of different legislation, agencies and ministerial powers relevant to different projects and locations is also currently unclear.[20] For existing and new projects, we recommend greater clarity upfront on the interagency assessment processes for interpreting the Policy Framework's application[21] and its associated policy and guidance materials.[22] With limited availability of unconstrained land and other resources (e.g. renewable energy, water and infrastructure proximity), criteria assessment of foregone economic value and opportunity to the State in the long term needs to be transparent and comprehensive.

Related to the challenge of land and project readiness, the State Government also needs to adopt a strategic whole-of-government approach to offsets (both biodiversity and carbon), including consideration of how the development of the hydrogen industry will impact offset demand and project execution. Irrespective of the type of industry and project, the execution of offset projects in WA is affected by land tenure and land competition issues, inconsistent offset conditioning and processing delays within and between state and federal agencies. For biodiversity offsets, there is an opportunity to investigate alternate approaches to achieve landscape scale biodiversity outcomes to meet offset demand associated with project development, including hydrogen projects.

When the Green Energy Approvals initiative is operational, there is an opportunity to align project facilitation services to ensure that State and Federal assessment processes, including the changes proposed under the Federal Government's Nature Positive Regime, can be conducted by one agency. This action would reduce administrative burden and costs, ensure consistency in conditioning and shorten the end-to-end approvals processing timeframe. Addressing these ongoing approvals processing issues is an enabler to all types of project development in WA.

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[16] Australian Industry ETI, *Pathways to industrial decarbonisation: Positioning Australian industry to prosper in a net zero global economy*, phase 3 report, February 2023, pp 43-44.
[17] 'Future Ready' and 'Extreme Growth' demand scenarios assumes additional growth is not SWIS-connected. Government of Western Australia, *SWIS Demand Assessment 2023 to 2042: A future ready grid*, Energy Policy WA, DMIRS, 9 May 2023, pp 14-15.
[18] Australian Energy Market Operator, *2023 Wholesale Electricity Market Electricity Statement of Opportunities*, 17 August 2023.
[19] Reedman L, Gordon J, Murugesan M, Croser L, Li M, Hayward J, Khandoker T, Brinsmead T and Havas L, *Multi-sector energy modelling 2022: Methodology and results*, CSIRO, final report EP2022-5553, 2 December 2022.
[20] Specifically, the role of the Minister for Mines in exercising powers under the Section 16 (3) of the *Mining Act 1978* (WA), and the point in time at which this occurs, either on application for a Section 88, Section 91 or on application for the diversification lease itself. The Policy Framework itself is also unclear and compounds this uncertainty.
[21] Government of Western Australia, *Policy Framework: Guiding the use of Diversification Leases on Crown land under the Land Administration Act 1997*, DPLH, v2.3, published 10 August 2023.
[22] Government of Western Australia, *Renewable Hydrogen Policy: Consideration of highest and best use*; *Renewable Hydrogen Guidance: Land tenure for large scale renewable hydrogen projects*, JTSI, 6 December 2022.

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Other challenges

Our recent submission to the Department of Climate Change, Energy the Environment and Water (DCCEEW) describes other barriers and opportunities to the production and use of hydrogen, including but not limited to:

- Infrastructure investment – Public-private partnerships and innovative commercial models[23] to share risk will help improve the reaching of final investment decisions on production, storage, transportation and distribution facilities. This will require significant coordination beyond JTSI's focus on SIAs, including GTEs, state agencies across planning, industrial lands, transport, and multiple local governments.
- High costs – Despite the reduced costs of renewables, a more technology-agnostic approach to improve the economic viability of large-scale hydrogen production may be warranted.
- Technology readiness – Continued assistance from the government is needed to improve performance and commercialise new end-use technologies such as advanced fuel cells and storage. The State Government's $15 million investment this year into the Future Energy Exports Cooperative Research Centre's flagship project[24] is thus welcome. In the long term, we envision hydrogen may help smooth the duck curve effect in the SWIS.
- Supply chain capability – To assist in building scale and address the risk of long lead times on componentry, we support the State Government's $10 million to progress the Wind Turbine Manufacturing Initiative's full feasibility study. A robust business case should support future investment into local capability to ensure a comparative advantage can be sustained in the longer term. To capitalise on the broader manufacturing opportunities, such as critical material inputs to the energy transition,[25] CME encourages the State Government to coordinate efforts with the Federal Government to establish a framework for open, ongoing dialogue that supports the development of the wider supply chain and associated trading relationships. Sizeable and stable levers across all levels of government will be needed for original equipment manufacturers to shift capital to WA.

5. Is 'use' an appropriate pillar, and if so, what are its most pressing opportunities and challenges, and most important actions WA government can take to support use of renewable hydrogen in WA?

We agree that at a high level, use is an appropriate pillar. Reinforcing our recent submission to DCCEEW, appropriate uses include those of existing utility and highest potential, such as ammonia, decarbonising industrial processes,[26] biofuels or repurposing existing infrastructure. However, we encourage ongoing consultation with industry, particularly existing and potential hydrogen end-users, to ensure the highest and best end-use cases remain current. CME members note that the feasibility of using hydrogen in high-temperature industrial processes varies significantly between industries and, in some cases, between individual assets within the same industry.

While renewable hydrogen is commercially unviable in the near term, CME supports continued research by the Minerals Research Institute of WA into potential pathways for producing green iron and steel, acknowledging our access to natural gas may be a crucial interim enabler.

Further to our policy statements on climate[27] and energy, CME supports a technology-agnostic and least-cost approach to the use and production pillars. Each company and industry will adopt their technology-led trajectory to decarbonisation and electrification, affecting how the use pillar presents in practice. For some sectors, we acknowledge abatement will be cost-prohibitive or technically impossible (e.g., high-temperature heat). We hope the forthcoming SERS will highlight the important role hydrogen may play for these hard-to-abate sectors, and we support continued, targeted government assistance to these identified uses. Practical government assistance can include clearer policies and frameworks that interface with existing initiatives.

We also caution against mandatory renewable hydrogen targets for electricity generation in the SWIS as this could introduce misalignment and penalise energy transition plans via other pathways. Hydrogen's cost profile is relatively high compared to available generation and firming technologies; mandating its use in electricity generation will be complex and should not be explored in the near to medium term. It undermines

[23] 'Recommendations: The path forward' conclusion. DevelopmentWA, *10-year Industrial Land Strategy*, Industrial Land Steering Committee, June 2021, pp 55-57; Climateworks, *Renewable energy industrial precincts: Scaling up industrial decarbonisation through a coordinated approach*, a brief for policy-makers, May 2023.
[24] Future Energy Exports Cooperative Research Centre, *WA Government awards Investment Attraction Fund grant to unique clean energy demonstration and training facility in Kwinana*, media release,18 July 2023.
[25] CME, *Accelerating opportunities in WA's critical minerals sector*, position paper, 17 June 2023.
[26] Please see footnote #2 on the Australian Industry ETI report.
[27] CME, *Climate policy*, published 5 October 2021.

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the global cost competitiveness of the economy. It also does not support a one-systems approach to energy, nor does it align with the State's recently introduced electricity objective of reliability and price.

6. Is 'export' an appropriate pillar, and if so, what are its most pressing export opportunities and challenges, and most important actions WA government can take to support export of renewable hydrogen from WA?

CME considers export an appropriate pillar, provided it enables opportunities for renewable and low-carbon hydrogen export. Leveraging existing LNG export infrastructure and trade relationships should be considered under the Strategy, noting early access to these markets may directly support aspirations to become a significant exporter of renewable hydrogen in the longer term. Given the global hydrogen market will be far larger than the domestic market, exports will enable scale and drive down costs faster than domestic use alone. The ability to compete internationally will also ensure the longevity of the industry. Please see our comments above on export's role in building scale.

7. Is 'enabling' development an appropriate pillar, and if so, what are the most pressing opportunities and challenges, and most important actions WA government can take to enable development of renewable hydrogen in Western Australia?

We strongly support enabling development as a pillar, which ties in with our two underlying policy themes and crosscuts the above three pillars. Work under this pillar could better connect the different but similar strategic objectives of existing interagency units such as StreamlineWA, Green Energy Approvals and WA Treasury's Infrastructure Strategy and Policy Directorate.

We recommend the JTSI Renewable Hydrogen Unit work closely with other government entities[28] on the way forward identified by the SWIS DA, i.e., ensuring legal, commercial and regulatory issues of co-locating hydrogen in hubs can be resolved and the associated infrastructure build is coordinated in a timely manner.[29] We believe this is an effective government action that would also benefit other value-adding industries in WA.

Although the 2021 WA Gas and Downstream Opportunities Study[30] excluded hydrogen, the study's findings and policy recommendations (including recommendations numbered 4 to 7) are relevant to this pillar. Where applicable, reference to these has been weaved into the above recommendations. In refreshing the Strategy, CME recommends the State Government revisit the stakeholder feedback received from this consultation. There is also an opportunity to build on this study and consider hydrogen production in the context of gas processing.

8. What goals should WA set for the renewable hydrogen industry for 2030 and how should these be measured?

We support clear, tangible goals that focus on achieving broader commercial outcomes regardless of the use case. With the hydrogen industry yet to mature, we believe it is inappropriate to choose 'winners', and this neutrality should be reflected in the goals.

As part of the 'enabling' pillar, CME supports setting a goal of streamlining end-to-end approvals on hydrogen projects. Like battery and critical minerals, hydrogen is an emerging industry navigating a lack of transparency and predictability on approval timeframes.[31] While the intention of recent guidance on land tenure is welcome, there is currently a disconnect between the aims of the Strategy and its day-to-day implementation (both between and within agencies). Clear measurement of performance and accountability against a goal on processing timeframes will encourage regulators to move past a business-as-usual siloed approach.

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[28] JTSI Green Energy Major Projects Group, Energy Policy WA, DMIRS, Western Power, Australian Energy Market Operator, Economic Regulation Authority, DPLH, WA Planning Commission, DevelopmentWA's Industrial Lands Authority, JTSI LNG Taskforce, relevant port authorities, Department of Water and Environmental Regulation and the Environmental Protection Authority's Green Energy Expert Panel.

[29] Government of Western Australia, *New green energy approvals pathway open for business*, joint media statement by the Premier, Minister for Environment and Minister for Energy, 3 July 2023.

[30] ACIL Allen, *WA Gas and Downstream Opportunities Study*, report to JTSI, July 2021.

[31] A common barrier to energy projects worldwide. Planning for Climate Commission, *Tackling climate change through fast and fair permitting for renewable energy and hydrogen*, Green Hydrogen Organisation, 18 September 2023.

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Conclusion

In summary, CME supports the sustainable development of a domestic hydrogen value chain that does not inadvertently impact other industries.

Should you have questions regarding this submission, please contact Adrienne LaBombard, Director – Policy and Advocacy, on 0400 912 525 or at A.LaBombard@cmewa.com.

Yours sincerely

Rebecca Tomkinson
Chief Executive Officer

The Chamber of Minerals & Energy of Western Australia Level 10, 2 Mill Street Perth WA 6000
Locked Bag N984 Perth WA 6844 p +61 8 9220 8500 e chamber@cmewa.com w cmewa.com