



## Submission – Inquiry into Australia’s Transition to a Green Energy Superpower

November 2022

*Via online submission*

The Clean Energy Council (CEC) welcomes the opportunity to make a submission in response to the Joint Standing Committee on Trade and Investment Growth’s inquiry into Australia’s Transition to a Green Energy Superpower.

The CEC is the peak body for the clean energy industry in Australia. We represent and work with more than 1,000 businesses operating in Australia across solar, wind and hydro power, energy storage and renewable hydrogen.

### **An historic opportunity to support domestic economic growth and global decarbonisation**

This inquiry comes at a critical juncture for Australia in the global race to net zero emissions, and asks important questions which demand a national discussion and government response. The world is faced with an urgent challenge to slash emissions by almost half (43 per cent) by 2030 and reach net zero emissions by no later than 2050 in order to contain warming to 1.5°C, in which the worst impacts of climate change can be contained.

The task is immense and Australia can play an outsized role in both decarbonising its own economy, and assisting other countries to decarbonise, drawing on its abundant, low-cost renewable energy resources – unequalled in the developed world – paired with our significant mineral resource endowment.

Our low-cost, renewable electricity could be used to make green hydrogen, ammonia, steel, iron and aluminium for domestic use and exports. We are also in a position to export bulk green electrons directly undersea high voltage direct current cables (eg. Asia-Australia Power Link).

These renewable energy resources, supported by smart, efficient and long-term policy frameworks, can give rise to a new era of economic expansion and regional development, as has been outlined in substantial detail by Ross Garnaut, and followed up in part by other leading experts.

### **Australia needs a superpower masterplan to guide planning and investment**

The key challenges before Australia are now characterised by how we will exploit these opportunities. The scale of investment required in electricity generation, transmission networks, ports, pipelines and other common user infrastructure is very large, and Australia needs a masterplan to direct the allocation of effort and resources to our priority investment areas.

As just one example of the required investment, it is instructive to consider the necessary build for the electricity generation sector, which is the core market of the Clean Energy Council’s membership. According to the Australian Energy Market Operator’s (AEMO) ‘Step Change’ scenario within its 2022 Integrated System Plan – which experts believe most closely represents

our current trajectory of increasing electrification of fossil-based energy needs – the size of the NEM would need to increase from 180 TWh to 220 TWh by 2030, and then almost double in size by 2050 (320 TWh).

AEMO has also developed another scenario assuming strong electrification across the economy and major green hydrogen exports (the latter not having been included in the Step Change scenario), known as the ‘Hydrogen Superpower’ scenario. This demands a larger electricity system still – more than eight-fold increase in generating capacity (almost 1,000 TWh) by 2050.

AEMO’s assumptions do not however consider the full range of range of green manufacturing and processing opportunities available to Australia (eg. such as replacing our immense iron ore exports with iron metal exports, utilising our domestically produced green hydrogen). Ross Garnaut’s recently released book, *The Superpower Transformation*<sup>1</sup>, estimates that meeting the *full* Superpower opportunity (including the replacement of iron ore exports with ‘green’ iron, and many other opportunities) ‘*would require in the order of 10,000 TWh of annual power generation*’ – which represents more than 50-times the current capacity of the NEM. On Garnaut’s estimates (based on current technologies and costs), the cost of this investment in the electricity sector alone would be in the order of \$6 trillion.

Similarly, the Net Zero Australia study<sup>2</sup>, currently being undertaken by researchers at the University of Queensland, University of Melbourne, Princeton University and Nous Group), which is ‘*analysing net zero pathways that reflect the boundaries of the Australian debate, for both our domestic and export emissions*’ finds in its ‘Electrification+ scenario’ that electricity generation capacity would expand to 40-times the capacity of the NEM in 2050.

### **Current planning is centred on domestic needs rather than global opportunities**

These scenarios have enormous implications for policy makers. They demand strategic planning, investment and collaboration at federal, state and territory level in terms of land-use planning, transmission planning and investment, supply chain needs, workforce requirements, and building and maintaining social acceptance for these major infrastructure projects. Some of this work is already underway – eg. the Australian Government’s *Rewiring the Nation* plan, and the planning and development of renewable energy zones across NSW, Victoria and Queensland. However, to date, these efforts are primarily focused on meeting the needs of decarbonising our domestic electricity markets, and not on the much larger renewable energy superpower opportunities across all states and territories.

### **Australia must compete with other markets for the clean energy investment**

These superpower scenarios also demand very large amounts of capital investment, much of which will need to come from offshore. While there is no apparent shortage of clean energy finance – global finance and investment sectors have earmarked at least US\$130 trillion of private capital to help economies hit their net-zero emissions targets by 2050<sup>3</sup> – Australia is in a competition with other markets for these funds, and we need to take active steps to ensure that our mix of policy settings and incentives provide an internationally-competitive investment environment.

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<sup>1</sup> Garnaut, R., *The Superpower Transformation: Making Australia’s Zero-Carbon Future* (2022), Latrobe University Press

<sup>2</sup> <https://www.netzeroaustralia.net.au/>

<sup>3</sup> <https://www.bloomberg.com/news/articles/2021-11-02/carney-s-climate-alliance-crests-130-trillion-as-pledges-soar>

The renewable energy sector is particularly monitoring the implications of the US *Inflation Reduction Act* (IRA) which was legislated in August 2022, providing US\$369 billion in incentives and tax credits to private sector investment in renewable energy, electrification, hydrogen and green manufacturing. One of the measures included within the IRA is a production tax credit of up to US\$3 per kilogram of low-emissions (less than 0.45kg CO<sub>2</sub>-e/kg) hydrogen, which would effectively enable green hydrogen producers to produce their new green molecule fuel at negative costs. Other incentives include production tax credits for new wind and solar facilities commenced before 2025, investment tax credits for new or upgraded factories to build specified renewable energy components and \$6 billion for grants which support retrofits and upgrades that reduce industrial emissions.

This mammoth package of policies and incentives – which is a very positive development for the global decarbonization agenda – will help to bring forward new private sector investment in the American clean energy transition. It also raises urgent questions for Australia about how we remain internationally competitive as a destination for clean energy investment.

### **Australia must develop a national plan to guide the delivery of its superpower vision**

As a starting point, Australia needs to articulate its renewable energy superpower vision, and establish a holistic strategy for achieving it. The strategy should identify:

1. the key opportunities for Australia
2. the priority markets in which we believe Australia has a comparative advantage
3. the implications of pursuing these markets – for First Nations and regional communities, for land use, electricity generation and transmission build, mineral resources, water resources, domestic manufacturing and processing, supply chain planning, workforce requirements, and
4. a policy framework which can guide government agency planning and support, and incentivize private sector investment.

Given the urgency of the race for capital, materials, equipment and a skilled workforce, this national strategy must be prioritised for development in 2023, helping Australia to translate its enormous potential as a clean energy superpower into a reality over the decade ahead.

### **Conclusion**

Australia has a transformative opportunity before it, which should have wide-ranging ramifications for the nature and scale of the country's economic growth, trade and decarbonisation over the next three decades and beyond. But capturing this opportunity is not assured. Australia will need to proactively plan and invest in order to realise its vision as a clean energy superpower.

The Committee's inquiry provides a timely opportunity to promote an important national conversation about what role Australia wishes to play in the emerging green global economy, and to catalyse the development of a holistic and integrated strategy that can enable us to fulfil our potential.

Yours sincerely,



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