



Joint Standing Committee on Trade and Investment Growth

Inquiry into Australia's transition to a green energy superpower

Smart Energy Council submission - 30 November 2022

Forward

The Smart Energy Council is grateful for the opportunity to provide a submission to the Joint Standing Committee on Trade and Investment Growth - Inquiry into Australia's transition to a green energy superpower.

The Smart Energy Council is Australia's peak independent body for renewables including solar, batteries, and green hydrogen. The council has over 950 members and 65 years of experience in the sector having been established by the photovoltaic pioneers in the 1950 and 60s who designed and built some of the world's first solar panels and solar hot water systems.

The Council understands Australia's transition to a net-zero emissions economy will deliver massive business and economic benefits; it will deliver jobs, attract investment, innovate, and make our economy more productive and competitive, all while delivering a safer climate. Achieving a strong economy and a safe climate is not just possible, it is critical if we are to confront the challenges of the future.

We actively connect the smart energy industry across Australia, building momentum and unlocking the barriers that hold us back from embracing a smart energy future.

The SEC's 950+ members provide us with real-world, empirical insights via thematic working groups which assist the SEC with drafting, testing and advocating for fit-for-purpose smart energy policy. The discussion and outputs of the SEC working groups provides the basis of the evidence provided in this submission

THE INDEPENDENT BODY FOR THE SMART ENERGY INDUSTRY IN AUSTRALIA

PO BOX 231, MAWSON ACT 2607
INFO@SMARTENERGY.ORG.AU
SMARTENERGY.ORG.AU
ABN 32 006 824 148

**PUTTING ENERGY
INTO ACTION**

With the world's best renewable energy resources, and innovative people and businesses, Australia has the opportunity to be a smart energy leader. As such the Smart Energy Council offers a range of initiatives for consideration.

Summary

Australia has a huge task ahead to meet our legislated emission reduction goal of 43% by 2030 and to increase our renewable power generation to 82% within the same timeframe. These are targets that can and must be met and will require a whole of government approach.

There are significant headwinds and challenges facing Australia over the next decade including supply chain issues and workforce shortfalls. These challenges must be faced head-on if we are to reach our renewable goals and meet our potential to be a smart energy superpower.

If Australia is to become an exporter of renewable energy the Smart Energy Council recommends a clear focus on the following areas.

- a. Manufacturing high-energy goods using renewable energy and exporting the goods as a zero-carbon product.
- b. Manufacturing and exporting renewable energy components such as batteries, solar panels, wind turbines, etc.
- c. Directly by generating renewable energy electrons and exporting via electricity transfer such as sending them across to Singapore, as proposed by Sun Cable.
- d. Making hydrogen and ammonia using 100% certified renewable energy sources and exporting it on ships, as we do with LNG now.
- a. Growing other exports such as engineering expertise and software services.

There is a clear abundance of resources, a competitive advantage in technical know-how, and a sector that is up to the challenge of delivering on these areas of focus. What is needed is a clear plan, a pipeline of priorities and investment, and a commitment to achieve these goals.

The Smart Energy Council is pleased to provide this submission and would welcome the opportunity to appear before the committee.

Summary of recommendations

Recommendation 1: The Australian Government co-invests with the smart energy sector, in industry programs to promote the take up of smart energy jobs throughout our economy.

Recommendation 2: The Australian Government develops a strong, multiyear plan of investment based on the need to decarbonise existing key sectors (e.g. steel, aluminium, cement) to ensure their future. A concurrent plan needs to be in place, no later than June 2023, to develop Australia's renewable energy component sector. Raw materials must have value added onshore before being exported to ensure Australia reaps the rewards of our next minerals boom.

Recommendation 3: The Australian Government explores opportunities with governments in the region to provides a regulatory and treaty framework for Australian companies to enable the trade of smart energy across jurisdictions.

Recommendation 4: The Australian Government promotes at-scale renewable hydrogen and the implementation of a viable, trusted certification scheme to ensure the value of the product is properly captured.

Recommendation 5: The Australian Government increases investment in renewable product innovation, design, and development.

Australia's investment opportunity for its domestic smart energy transition

The Australian Government has committed Australia to reducing its greenhouse gas emissions by 42% by 2030 and to deliver 82% renewables within that same timeframe. We also need a renewable energy storage target to meet this challenge. To put this into perspective Australia produced just 29%¹ of its energy mix from renewables in 2021. There are different calculations underpinning the size of the investment opportunity afforded this decade by the energy transition; from AEMO's \$66 billion in large-scale renewables and \$27 billion in rooftop solar and battery storage² to the Investor Group on Climate Change's \$131 billion.³

Whichever way you cut the numbers, the opportunities are considerable. Even within some specific sectors, such as battery supply and manufacturing supply chains, improvements are estimated to be worth as much as \$7.4 billion over the coming years.⁴

The Smart Energy Council has long understood that Australia has some of the best renewable energy resources in the world and the greatest opportunity to become a renewable energy superpower that exports significant amounts of zero-carbon energy to the rest of the world – directly or by being embodied in locally processed and manufactured goods.

With the appropriate policy and investment mix, Australia could become the world's biggest exporter of smart energy within the next 10 years.

¹ <https://www.energy.gov.au/data/renewables>

² AEMO's 2020 Integrated System Plan

³ IGCC, Making the change happen (2022, Sept), <https://igcc.org.au/wp-content/uploads/2022/09/IGCC-Policy-2025-PrioritiesWeb.pdf>

⁴ Accenture (2021, June) Future Charge, <https://fbicrc.com.au/wp-content/uploads/2021/06/Future-Charge-Report-Final.pdf>

The challenge ahead of us

Supply chain constraints

There are headwinds that Australia must navigate to meet our stated goals. The most significant is a shortfall of currently available input resources that is increasing the global price for renewable energy goods in the solar, storage and wind sector. This has primarily been attributed to the global supply chain being reliant on Asia for most products. Covid related closures in China have seen large disruptions in that value chain. Demand is also exacerbated by the fact that the markets in which goods are manufactured have regulations that require local demand be met ahead of export. Australia is late to the party and so without negotiating sizeable offtakes from other countries or overseas companies, Australia will be forced to find its own local production to match the ambition and pace of our own smart energy transition.

The shortfall of available labour

The scope of the workforce challenge cannot be understated. Australia cannot meet its 43% emissions reduction target by 2030 unless substantially more people can be found, trained, and engaged to work in the sector. Some reports indicate there is a shortfall of up to 15,000 electricians in the system right now and potentially 41,000 engineers not to mention the jobs required throughout to support those roles⁵. Notably, there is almost no data available on shortfalls in manufacturing because most of our renewables are manufactured offshore. According to Reputex's modelling of the Government's Powering Australia policy to transform Australia's energy grid to 82% renewable by 2030 (to meet our national ambition of reducing greenhouse gas emissions by 43%), 600,000 direct and indirect workers are required by 2030. The Smart Energy Council is very concerned that by 2030, without significant intervention and investment the total workforce deficit will cripple our efforts to transform our energy network.

There is a clear need for an all of industry plan to embrace these challenges in order to overcome them and to set Australia up to become a smart energy superpower.

⁵ Infrastructure Australia (2021, Oct), Market Capacity for electricity generation and transmission projects, <https://www.infrastructureaustralia.gov.au/sites/default/files/2022-05/Market%20Capacity%20for%20Electricity%20Infrastructure%20220511.pdf>

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The Smart Energy opportunity ahead for all of us

There are obvious benefits for Australia in a smart energy future. Several studies have placed dollar value estimates on what a climate transition coupled with a clear industry plan could mean for the Australian economy. The IGCC September report lists these as:

- Deloitte Access Economics found Australia would grow its economy by \$680 billion, increase GDP by 2.6 percent and add 250,000 jobs by 2070 by adopting a comprehensive transition approach.⁶
- The Grattan Institute found Australia is well positioned to develop an export green steel industry and that capturing 6.5 percent of global trade would generate \$65 billion in export earnings and create 25,000 manufacturing jobs in NSW and Queensland.⁷
- ACIL Allen forecast that Australian hydrogen exports could be worth up to \$5 billion by 2040.⁸
- The Office of the Chief Economist projected that by the end of 2025–26, a surge in Australian export earnings of metals used in technologies central to the global energy transition – copper, lithium, and nickel – will replace the fall in thermal coal earnings arising from the net zero emissions transition.⁹

⁶ Deloitte Access Economics (2020), A new choice: Australia's climate for growth, <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-dae-new-choice-climate-growth-051120.pdf?nc=1>.

⁷ Grattan Institute (2020), Start with steel: A practical plan to support carbon workers and cut emissions, <https://grattan.edu.au/report/start-with-steel/>.

⁸ ARENA (2018), Opportunities for Australia from hydrogen exports, <https://arena.gov.au/assets/2018/08/opportunities-for-australia-from-hydrogenexports.pdf>.

⁹ Department of Industry, Science, Energy, and Resources (2021, March), Resources and Energy Quarterly, <https://publications.industry.gov.au/publications/resourcesandenergyquarterlymarch2021/index.html>.

Australia's transition to becoming a net exporter of smart energy

The options available to Australia to become a smart energy exporter and superpower should be pursued as a package.

- a. **Manufacturing high-energy goods using renewable energy and exporting the goods as a zero-carbon product.**
- b. **Manufacturing and exporting renewable energy components such as batteries, solar panels, wind turbines, etc.**

The Smart Energy Council acknowledges an industry plan and urgent investment is required to ensure our existing manufacturing industries can transition to renewable fuel stocks. Renewable steel and aluminium are key to this idea but so is the use of low-carbon products in the construction sector such as concrete and other building materials.

The Smart Energy Council firmly supports an Australian-made manufacturing sector for all elements of our renewables value chain. Australia's abundant supplies of lithium and nickel, key components in battery manufacturing, mean the country is uniquely placed to build out a sector that can supply a significant proportion of the world's needs for energy storage for decades to come. Australia has a long history of successfully mining raw materials and exporting them for value-add overseas. In this next phase of Australia's story, we must move up the value chain and produce more of the end products onshore capturing more of the benefits from these minerals for the advancement of all Australians.

Investment in our existing manufacturing base and in new smart energy componentry in Australia is critical to the success of Australia's transition to becoming a smart energy superpower.

Recommendation 2: The Australian Government develops a strong, multiyear plan of investment based on the need to decarbonise existing key sectors (e.g. steel, aluminium, cement) to ensure their future. A concurrent plan needs to be in place, no later than June 2023, to develop Australia's renewable energy component sector. Raw materials must have value added onshore before being exported to ensure Australia reaps the rewards of our next minerals boom.

- c. Directly by generating renewable energy electrons and exporting via electricity transfer such as sending them across to Singapore, as proposed by Sun Cable.

The Smart Energy Council supports the Sun Cable project and believes there are other opportunities that this project will unlock with more potential partners to Australia's north.

The Sun Cable project, which should be online from 2027 includes up to 20 GW of solar and 42 GWh of energy storage to be built on a 12,000-hectare site in the Northern Territory's Barkly. The project importantly provides domestic power directly into Darwin and the excess is exported to Singapore. The energy generated in the Northern Territory is supplied via a 3,800-km submarine cable.



The Smart Energy Council believes this project will prove Australia is a reliable provider of carbon-free power to Singapore and will offer a strong base for future opportunities within the region.

Recommendation 3: The Australian Government explores opportunities with governments in the region to provides a regulatory and treaty framework for Australian companies to enable the trade of smart energy across jurisdictions.

- d. Making hydrogen and ammonia using 100% certified renewable energy sources and exporting it on ships, as we do with LNG now.

Hydrogen is the most abundant chemical in our world, it can be processed into an energy carrier using a renewable method such as electrolysis, or traditionally through steam reformation.

The produced hydrogen can be safely stored and used in a multitude of ways including in power generation and energy storage, as fuel for hydrogen vehicles, or as a feedstock for chemical products.

In December 2020, the Smart Energy Council launched its Zero Carbon Certification Scheme. It is an industry-led Guarantee of Origin style scheme which promotes the uptake and distribution of renewable hydrogen products and their derivatives in Australia and overseas. The scheme, which is delivered through the Smart Energy Council's Hydrogen Australia division, assesses the embedded carbon in participating hydrogen, ammonia, and metals produced within Australia.

This industry-led initiative is cognisant of the Australian Government's work in this area as part of the National Hydrogen Strategy and will complement international certification work.

Our aim is to accelerate the development and deployment of renewable hydrogen, green ammonia, and green metals in Australia and around the world.

The Smart Energy Council's current certification projects are:

- Bristol Springs Pre-Certification
- Project YURI Pre-Certification
- ACT Hydrogen Refueler Certification

The Smart Energy Council's view is that hydrogen created through renewable power stacks up environmentally and economically in many situations as a viable product for use in Australian industry and export to the world. Properly certified, carbon-free hydrogen can be sold at a premium and once generated at scale will be a significant export earner for Australia.

Recommendation 4: The Australian Government promotes at-scale renewable hydrogen and the implementation of a viable, trusted certification scheme to ensure the value of the product is properly captured.

e. Services export such as engineering expertise and software products.

The Smart Energy Council strongly believes that a true strength of Australia's energy sector is its workforce expertise and its innovation products.

Projects such as Sun Cable and CWP Global's Asian Renewable Energy Hub project prove Australia can lead the world in engineering expertise in the global transition to renewables. In the short term, there is a significant deficit of available labour for the domestic build-out. As explained earlier in this submission,

this deficit is a critical problem that must be addressed. If this skills shortage can be addressed and the workforce is trained to Australian Standards these workers will be in high demand and our expertise can and will be sought after worldwide. This will see Australian firms bidding for overseas projects and future build-outs.

Our software ecosystem, underpinned by our highly developed university sector is already producing goods that can be marketed around the world. A recent CSIRO partnership with Chinese company Thermal Focus enables the manufacture, marketing, and sale of CSIRO's heliostats, field control software, and design software in China.

Recommendation 5: The Australian Government increases investment in renewable product innovation, design, and development.

The Smart Energy Council is pleased to see this enquiry established and should you wish to talk further about any elements of this submission including having an audience with any of the Smart Energy Council's 950+ organisations already involved in the energy transition helping make Australia and Smart Energy Superpower, please don't hesitate to get in touch.

John Grimes

Chief Executive

Smart Energy Council

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Chief Executive
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