Submission No 48

INQUIRY INTO PROCUREMENT PRACTICES OF GOVERNMENT AGENCIES IN NEW SOUTH WALES AND ITS IMPACT ON THE SOCIAL DEVELOPMENT OF THE PEOPLE OF NEW SOUTH WALES

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SUBMISSION TO INQUIRY INTO PROCUREMENT PRACTICES OF GOVERNMENT AGENCIES IN NSW AND ITS IMPACT ON THE SOCIAL DEVELOPMENT OF THE PEOPLE OF NSW
Standing Committee on Social Issues
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SunDrive Solar welcomes the opportunity to provide this submission to the Standing Committee on Social Issues into procurement practices of government agencies in New South Wales and its impact on the social development of the people of New South Wales.

Australia has a significant opportunity to become a renewable energy and advanced manufacturing superpower that will help Australia and the world achieve net zero. And NSW can be the home of Australia's solar manufacturing industry through the local production of cost effective, efficient, and environmentally friendly solar PV, using world-leading Australian technology developed right here at the University of NSW.

Locally manufactured advanced solar PV will ensure greater supply chain certainty, create thousands of high-skilled jobs (particularly in transitioning regional areas), increase Australia's domestic energy generation capacity and energy security, and create significant international export opportunities.

However, to seize the opportunity to keep local innovation onshore and capitalise on our global competitive advantages, New South Wales must get the policy settings right.
In this submission, we would like to specifically highlight the role that the State can play in leveraging purchasing power to support local innovation and emerging technology, to in turn ensure a viable and resilient local manufacturing capability and sovereign energy capacity.

Company overview

SunDrive was founded in 2015 and has rapidly grown from a University of New South Wales PhD project to producing the world's most efficient commercial-sized solar cell in 2021.

SunDrive's world-leading proprietary technology enables using copper instead of silver in solar cells. This technological breakthrough has significant benefits, including:

- **Greater efficiency** - SunDrive's record breaking cells produce more electricity for every square metre.
- **Lower cost to produce** - the use of silver is currently the single most expensive solar cell production step. Copper is, on average, 100x cheaper than silver.
- **A more sustainable supply chain** - copper is 1000x times more abundant than silver.

- **More environmentally friendly production** – mining and refining copper generates ~90% fewer carbon emissions than silver, copper is easier to recycle than silver paste, and SunDrive's manufacturing process uses considerably less heat and energy (emissions) than silver-based processes.

SunDrive is currently constructing a large commercial demonstration and pilot manufacturing factory in Kurnell, NSW. SunDrive is looking to establish an advanced manufacturing facility in Australia which will lead to the creation of 500 direct jobs with the potential to increase to several thousand over time. SunDrive's early investors include ARENA, CEFC, Grok Ventures, Main Sequence, and Blackbird Ventures.

Australia and New South Wales' solar value chain history and potential

Modern solar technology was invented at the University of New South Wales, however Australia has failed to capture the more than $50 billion in global revenue in the solar industry made using Australian IP. More than 80% of the world's solar modules are made in China and China dominates more than 90% of the global solar supply chain. To achieve NSW's legislated Net Zero by 2050 and Australia's legislated renewable energy targets of 82% by 2030, a rapid scaling up of distributed rooftop and utility-scale solar is required. By 2050, AEMO forecasts solar will account for around 50% of Australia's energy generation. NSW is forecast to require an additional 3.7GW of large scale solar by 2031-32 in AEMO's 2022 Integrated System Plan, and NSW has a legislated target of 12GW of large-scale renewables by 2030.

Australia's reliance on imported solar could limit the nation and the state's ability to achieve legislated net zero targets, and supply chain disruptions could create economic and national security vulnerabilities. As NSW, along with the rest of the country, transitions away from fossil fuels and coal, investing in local renewable technology secures our energy sovereignty and energy supply.

New South Wales can retain our world-leading talent

Australia has a long and impressive history of training the world's best solar technology experts through universities and R&D centres, in particular the University of NSW, the world's leading photovoltaic tertiary institution. UNSW School of Photovoltaics and Renewable Energy is the birthplace of modern solar technology, with 85% of all new solar panels produced globally powered by research from UNSW. Top solar manufacturers the world over have had Australian-trained researchers, many from NSW institutions, in senior executive positions at critical stages of company development. One 2021 investigation found that seven of the top ten Chinese solar manufacturers have Australian graduates at the level of chief technology officers or higher.[1]
Onshoring and developing the local solar value chain would help retain the world's best talent and further foster technology innovation. A local solar sector has the potential scale

[1] ABC News, *The world is hungry for solar panels. Why did we stop making them?,* James Purtill, https://www.abc.net.au/news/science/2021-09-19/solar-panels-why-australia-stopped-making-them-china/100466342

and global relevance to ground a whole ecosystem of clean technology startups, right here in NSW.

Opportunity for NSW manufacturing, mining, and supply chain job creation
Manufacturing of solar PV technologies in NSW would foster the development of new industries and support existing industries, creating jobs (particularly regional jobs) at an unprecedented scale.

According to the International Energy Agency[2], the entire solar PV industry (including solar glass, polysilicon, and other related components) could create 1,300 manufacturing jobs per 1GW of production capacity. For manufacturing solar PV from wafer to modules, the German institute Fraunhofer ISE estimates 750 new direct jobs are created for every 1GW.[3]

Materials such as glass and aluminium – the two largest components by weight in a solar module, could also be produced locally creating 1000's of additional jobs. For example, the amount of aluminium module framing required for 10GW of Solar PV is approximately 60,000 tons and is equivalent to the entire output production capacity of Capral Aluminium, Australia's largest producer of aluminium products with over 900 employees.

Current state of procurement by NSW government agencies

Offtake agreements, wherein a customer commits in advance to purchase a certain volume of energy or the supply chain components required to produce it, play a pivotal role in ensuring the viability and ongoing success of renewable energy projects globally. Offtakes provide investment certainty to attract the private capital required to scale up proven technology to commercial deployment and stimulate demand for locally made products.

Current NSW government procurement policies and tender processes tend to avoid risk, and so do not support early-stage businesses and instead favour existing large-scale foreign manufacturers with a demonstrated track record. In addition, local content requirements are often inadequately implemented or enforced and fail to stimulate the demand for domestic capacity. In the case of solar, local content requirements can be met by using local labour to install a non-local or non-Australian product.

Smaller technology companies face significant barriers in accessing public sector procurement opportunities through complex tender processes that are difficult, time consuming, and costly to navigate relative to the resources of these companies.

Scaling and emerging companies seeking to access government support, either through competitive tenders or grant programmes, often have limited opportunities to do so.

[2] International Energy Agency, Special Report on Solar PV Global Supply Chains, https://www.iea.org/reports/solar-pv-global-supply-chains
[3] Sustainable PV Manufacturing in Europe, https://www.ise.fraunhofer.de/content/dam/ise/de/documents/publications/studies/ISE-Sustainable-PV-Manufacturing-in-Europe.pdf

NSW is already a large procurer of solar, however the vast majority of solar panels installed in NSW are foreign-made.

NSW Climate and Energy Action's Going Solar programme has the ambition to help the state achieve 126,000 megawatt hours a year of rooftop solar on government buildings by 2024. The Smart Energy Schools Pilot Project is installing 7,488 solar panels across 79 public schools. The NSW Health Solar has installed more than 20MW on the rooftops of hospitals and health facilities. And NSW is installing solar across many other government owned assets such as courthouses and fire stations.

Opportunities for Reform of NSW Government Procurement Policy

There is an obvious and significant opportunity for the government to develop a clear pathway for the procurement of locally made solar panels, developed from NSW innovation, rather than foreign-made panels as they do today.

To achieve this, the government should consider opportunities for emerging solar and renewables manufacturers to access government tenders.

A more open and agile ongoing opportunity for smaller local companies to access support when they need it would better enable companies seeking to scale to access government contracts. This could be achieved a number of ways:

- An open and competitive tender opportunity for offtakes from small and emerging businesses, to help them secure revenue and leverage private sector investment. The offtakes could be distributed across a number of suppliers to provide a pipeline to build local capability. Criteria for maturity and performance could give buying departments confidence in newer technologies.

- The government could establish a central coordinator for scaling businesses to propose innovative solutions to public sector needs. The coordinator could assist businesses in approaching relevant departments to access either existing procurement demands, or an ongoing innovation fund.

- For established or larger scale tenders, procurement guidelines and requirements could include targets for procuring from local and small business, with a more streamlined and navigable process for SMEs.

While grant funding has a vital role to play in supporting operational and capital requirements, perhaps the greatest value the government can offer for early-stage businesses is as a customer, leveraging private sector investment, delivering a revenue stream, and sending a strong signal as a reputable customer.

We understand that newer technologies and newer companies may appear to carry higher risk. We would welcome specific performance requirements as part of any government offtake commitment. Existing expert bodies including the Australian Renewable Energy Agency or the Clean Energy Finance Corporation could potentially provide services to

assure purchasing governments of the capabilities of new technologies; in many cases, these institutions have already carried out extensive due diligence on the technologies and the companies that produce them prior to awarding support.

To unlock our superpower future, procurement policy could be reformed to better leverage public sector investment by providing certainty of demand.

In the case of renewable energy technology, the Silicon to Solar report found that the government has several options to support Australian made products through policies such as local content incentives, direct government procurement and mandated local content requirements. The report found that demand side policy levers help smaller Australian market entrants overcome demand uncertainty.

"Offtake or demand certainty is critical to providing longer-term investment certainty for new or developing industries, due to competition with established international players that benefit from economies of scale and an ability to adjust profit margins in response to new market entrants. Australian governments can play a role to overcome investment uncertainty by implementing policies that stimulate demand for domestic solar PV products".[4]

Silicon to Solar recommended that as an immediate next step that the government announce a commitment to government procurement and commence procuring a minimum percentage of annual PV demand from local producers (where available) from 2026.[5]

The Federal Senate Economics References Committee inquiry into The Australian Manufacturing Industry examined the role of government procurement in supporting domestic industry and found that although there has been some support to varying degrees at the state level, there is a lack of clear, consistent national procurement policies.

The report noted: "State, territory and federal governments are purchasers of a significant amount of manufactured goods, there is scope for supporting Australian manufacturing through coordinated procurement policies without compromising on value for money or undermining the operations of the free market"[6] and the Committee encouraged such initiatives. The Committee specifically called out the significant potential of renewable energy innovation to have flow on benefits to downstream manufacturing activity through delivery of cheap renewable energy.

The report made several recommendations regarding Commonwealth and State procurement rules that would better support Australian capabilities, innovation, and job creation.

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[4] Silicon to Solar, APVI, 2024, p.105, https://arena.gov.au/assets/2024/02/APVI-Silicon-to-Solar-Detailed-Report.pdf
[5] Ibid, p.28.
[6] The Australian Manufacturing Committee, Senate Economics and References Committee, February 2022, p.82, https://parlinfo.aph.gov.au/parlInfo/download/committees/reportsen/024785/toc_pdf/TheAustralianmanufacturingindustry.pdf;fileType=application%2Fpdf

Conclusion

Government procurement policy reforms such as those noted above can stimulate the emergence and growth of innovative Australian technology companies. Direct procurement, incentives, simplified procedures, and a commitment to prioritising local content can all contribute to a more vibrant and resilient renewable tech sector.

SunDrive would welcome the opportunity to supply our world-leading technology to government customers. Our goal is to produce solar panels that are globally competitive — a goal that depends on rapidly achieving a large scale of production to progress down the technology “learning curve”. The Australian market, with its strong government commitments to support renewable energy growth including through direct underwriting where required, could provide such scale, if local content requirements are a mandatory part of any government-supported solar project.

SunDrive recognises the intention of NSW to use its procurement purchasing power to support domestic manufacturing in through prioritising local content, reflected in the creation of the portfolio of Domestic Manufacturing and Government Procurement and we look forward to the outcomes of the inquiry.

SunDrive thanks the Committee for the opportunity to make this submission and welcomes the chance to provide any further assistance.