

**Submission  
No 5**

**PERFORMANCE OF THE REGIONAL INVESTMENT ACTIVATION FUND AND  
THE REGIONAL JOB CREATION FUND**

**Organisation:** SunDrive Solar  
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## **Committee on Investment, Industry and Regional Development**

### **Submission to Performance of the Regional Investment Activation Fund and the Regional Job Creation Fund**

SunDrive Solar welcomes the opportunity to provide this submission to the New South Wales Legislative Assembly Committee on Investment, Industry and Regional Development's inquiry into the Performance of the Regional Investment Activation Fund and the Regional Job Creation Fund.

SunDrive submitted an application to the Regional Investment Activation fund earlier this year for support to establish its advanced solar manufacturing facility in New South Wales, which if established in NSW, will create more than 500 direct jobs in its initial phase, and up to several thousand over time, mostly in regional Australia.

Funding from the Regional Investment Activation Fund would have assisted SunDrive to establish its advanced solar manufacturing facility in the State of NSW and would be catalytic to the renewable economy, job creation, advancing and diversifying industry, and building supply chain resilience.

#### **Company overview**

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

SunDrive is currently constructing a large pilot manufacturing factory in Kurnell, NSW, to be completed in the coming months. We will directly employ approximately 100 full-time employees by the end of the year. And we are looking to establish an advanced manufacturing facility which will lead to the creation of more than 500 direct jobs with the potential to increase to several thousand over time.

SunDrive's early investors include ARENA, CEFC, Grok Ventures, Main Sequence, Blackbird Ventures and Dr Shi Zhengrong. Robyn Denholm, the global chair of Tesla, is also an advisor to the business.

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 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. Solar produces approx. 1% of the world's energy today - however, solar manufacturing consumes approximately 25% of the world's annual industrial silver consumption today. New solar cell technologies further increase silver demand and pose a supply risk as they require more silver.
- **More environmentally friendly production** – the mining and refinement of copper generates ~90% fewer carbon emissions than silver. Copper is easier to recycle than silver paste. SunDrive's manufacturing process uses considerably less heat and energy (emissions) than silver

## The opportunity

Australia has a significant opportunity to become a renewable energy superpower and a renewable energy advanced manufacturing superpower, that will help Australia, and the world, achieve net zero, through the production of cost effective, efficient and environmentally friendly solar PV.

Locally advanced manufactured solar PV will have a multitude of benefits by reducing costs for consumers, creating advanced domestic manufacturing and greater supply chain certainty, creating thousands of jobs (particularly in transitioning regional areas), increasing our domestic energy generation capacity and energy security, and creating significant international export opportunities.

However, to seize the opportunity to keep Australian innovation onshore and capitalise on our globally competitive advantages, we must get the policy settings right through investment in the development of clean energy.

According to the IEA's *Net Zero by 2050* report, in our pathway to Net Zero, 70% of electricity generation globally will come from solar PV and wind, with solar being the single largest source of supply.<sup>1</sup> To achieve this, 630GW of solar PV capacity needs to be added each year - that's the equivalent to installing the world's current largest solar farm roughly every day.

The precious metal silver accounts for approximately half the cost of converting a bare silicon wafer into a finished solar cell and solar manufacturing consumes approximately 25% of the world's annual industrial silver consumption. For the world to rapidly scale up solar manufacturing in view of Net Zero commitments (only 1% of the world's energy comes from solar PV) then an alternative metal is required

With the increasing need for solar to help meet Net Zero, the industry's dependence on using silver could ultimately limit the ability for PV to scale to terawatt levels. SunDrive's

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<sup>1</sup> Net Zero by 2050, IEA, <https://www.iea.org/reports/net-zero-by-2050>

world-leading technology helps to solve for this impending roadblock to net zero, while reducing costs and improving efficiency.

**The regions that power Australia today must be the regions that power Australia tomorrow**

**Manufacturing, mining, and supply chain job creation**

Manufacturing of solar PV technologies 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<sup>2</sup>, 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.<sup>3</sup>

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.

According to Net Zero Australia, Australia will need 1900GW of solar to reach Net Zero. Australia only has ~30GW currently installed. Australia will therefore need to install approx ~60GW of solar every year for the next 30 years to reach Net Zero. That would lead to the creation of up to 60,000 jobs (more than BHP, the world's largest mining company employing 40 000 people).

**New South Wales can capture the value of its world-leading solar technology**

SunDrive's investment in an advanced solar manufacturing industry would be catalytic to the renewable economy, job creation, advancing and diversifying industry, and building supply chain resilience.

80% of the world's solar panels are made in one country, and this represents a rare opportunity to not only drive a new industry in NSW, but also build Australia's sovereign capacity in solar PV. A sovereign solar manufacturing capability represents a significant opportunity for Australia.

SunDrive would be only the second solar manufacturer in Australia and the only manufacturer of solar cells. Last year there was over \$50 billion of global revenue in the solar industry from solar PV made using Australian IP, developed at the University of New South Wales, with little of that value captured in Australia.

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<sup>2</sup> International Energy Agency, Special Report on Solar PV Global Supply Chains, <https://www.iea.org/reports/solar-pv-global-supply-chains>

<sup>3</sup> Sustainable PV Manufacturing in Europe, <https://www.ise.fraunhofer.de/content/dam/ise/de/documents/publications/studies/ISE-Sustainable-PV-Manufacturing-in-Europe.pdf>

If SunDrive were to establish its advanced manufacturing facility in NSW – we would likely manufacture the world’s most efficient commercial solar module using Australian technology. Establishing the facility would create thousands of local high-paid, secure jobs (with the majority in regional areas), clean and cheaper energy for millions of households, and millions of tonnes of carbon abatement.

### **New South Wales can retain our world-leading talent**

A local solar manufacturing industry would also enable NSW and Australia to retain the world’s best 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 at UNSW, the birthplace of the global solar power industry. Within the past decade, top solar manufacturers in the world have had locally-trained researchers in senior executive positions at critical stages of company development, including leading companies such as Canadian Solar, Longi, Suntech, Jinko Solar, JA Solar, and Trina Solar.

### **Helping reduce barriers to success**

Globally and domestically, governments are seeking to invest in renewable energy technologies and advanced domestic manufacturing, bolstering domestic supply and fostering local innovation. It is in this environment that SunDrive is seeking to find a suitable site for its advanced solar manufacturing facility. Programmes such as the Regional Investment Activation Fund and Regional Job Creation Fund, help unlock the private sector investment needed to stimulate and foster new industries and secure jobs in transitioning regions, and position regional NSW as a competitive location for investment.

In addition to providing critical financial support, the NSW Government and Department of Regional NSW has a pivotal role to play in reducing barriers to success through services such as the Business Concierge service, to help emerging industries navigate often complex government planning systems, unlock the necessary skills and talent, and ensure cooperation at all levels of government, creating flow on benefits to the regions.

SunDrive thanks the Committee on Investment, Industry and Regional Development for the opportunity to make this submission to the Inquiry on the Performance of the Regional Investment Activation Fund and the Regional Job Creation Fund. SunDrive would welcome the reinstatement of the programme, or similar, and looks forward to continuing our constructive work with the Department of Regional NSW.