

25 March 2026  
Our ref: 8434473

Committee Secretary  
Standing Committee on Climate Change, Energy, Environment and Water  
[CCEEW@aph.gov.au](mailto:CCEEW@aph.gov.au)

Dear Secretary

The City of Onkaparinga welcomes the opportunity to contribute to the Inquiry into solar panel reuse and recycling in Australia, that was adopted by the House of Representatives Standing Committee on Climate Change, Energy, Environment and Water, following a referral from the Minister for the Environment and Water, Senator the Hon Murray Watt.

### About City of Onkaparinga

The City of Onkaparinga is the largest metropolitan local government by population in South Australia. Our 178,500+ residents represent 10% of the state's population. Located on the southern urban fringe of the Greater Adelaide area, we span urban centres, low and medium density suburbs, rural areas and townships.

Nature and the environment are consistently identified as matters of critical importance to our community. Recent engagement conducted in the development of our Community Vision showed that our community believes their natural environment is the 'best thing about living in Onkaparinga' and that environmental issues are key priority areas for council to continue to focus on in the future, including "Waste and recycling".

Our Community Vision includes the following goals:

- *Transition towards a circular economy by maximising the lifespan and value materials and products.*
- *Support individuals and businesses to reduce waste to landfill.*

Our council has a higher proportion of solar panels than average in our state. As of January 2026, almost 64% of homes in our city have solar panels compared to 55% across South Australia. Due to such as high proportion of solar in our community, we are very keen to see programs that facilitate end of life solar panel reuse, and recycling, within South Australia and nationwide.

With installations commencing in the early 2000s, many solar systems are starting to reach the end of their useful life or are being upgraded to more efficient or larger systems, resulting in solar waste already starting to be generated. It is envisaged that the proportion of solar waste will continue to increase over the next five to 10 years. To help us better understand the quantities of solar waste that may be generated over this time period, council undertook some data analysis to help quantify this for our council area.

The City of Onkaparinga will respond to the areas of the Terms of Reference relevant to council and our community.

## Response to selected Terms of Reference

### a. current and projected waste volumes from end-of-life solar panels in Australia

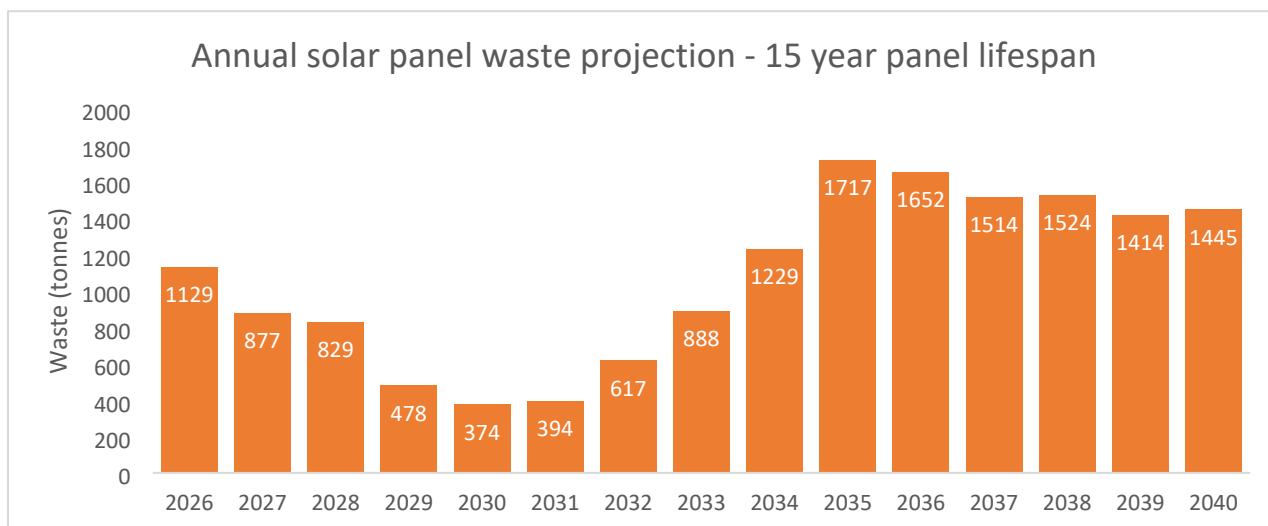
Annual solar panel waste volumes in Australia are predicted to nearly double over the next five years, from almost 60,000 tonnes in 2025 to approximately 91,000 tonnes in 2030<sup>1</sup>. The surge in waste is expected to be greatest in metropolitan cities from domestic use, with volumes beginning to grow in regional areas from large-scale solar facilities after 2030<sup>2</sup>.

In South Australia, by 2032 it is expected that 30,000 tonnes of solar PV will reach end-of-life per year, increasing to 50,000 tonnes per year in 2050<sup>3</sup>. As new, more efficient solar technologies come onto the market, many solar panels are being removed well before their intended 30-year life, generating waste ahead of time. This may be accelerated by subsidies available for both solar PV and household battery energy storage systems<sup>4</sup>

With high solar PV coverage across council, we analysed the projected waste output for the City of Onkaparinga. We are anticipating a fluctuation leading up to an annual tonnage of around 1,500 tonnes per annum from 2034 onwards using an average life span of 15 years (refer to figure 1). This would equate to just over 16,000 tonnes between now and 2040. Figure 2 provides the scenario for a 20-year life span based on our assumptions.

#### Assumptions

- 1kW solar = 3 panels
  - each panel is 20kg
  - useful life of panels average of 15 or 20 years. This is the lifespan average used in other studies.
- Number of installations include new installations, upgrades to existing systems and stand-alone (off-grid) systems that are <100kW*
- Assumptions include that the majority of small scale SGU solar installations are by private dwellings (could possibly include small commercial or industrial buildings)



**Figure 1: annual solar waste projection in City of Onkaparinga based on 15 year life span**

<sup>1</sup> [Industry welcomes national push for mandatory solar panel stewardship](#)

<sup>2</sup> [NSW leads the way towards national solar panel reuse and recycling scheme | NSW Government](#)

<sup>3</sup> [Circularity in Grid-Scale Renewable Energy Infrastructure](#)

<sup>4</sup> [Accelerating SA's transition to a circular economy: South Australia's waste strategy 2025–2030](#)

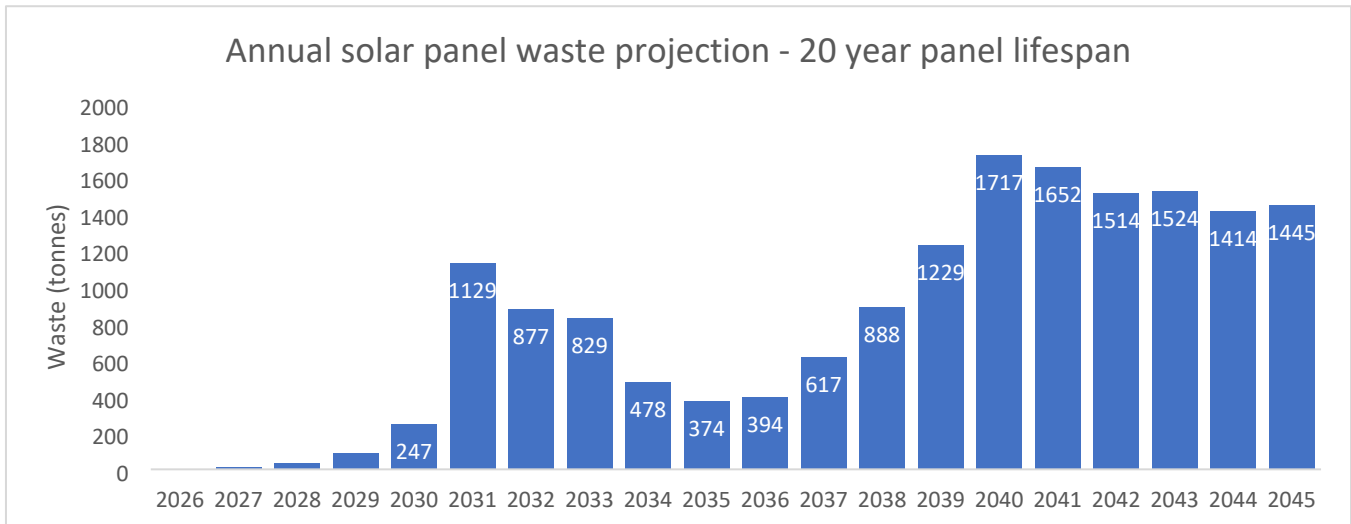


Figure 2: annual solar waste projection in City of Onkaparinga based on 20 year life span

b. current disposal practices and trends

Australia's recycling infrastructure has not kept pace with installations. Right now, options for responsible disposal exist but are not always easy to find, and the rules vary by state.

There are a limited number of companies operating in this space<sup>5</sup>.

The majority of solar PV waste in South Australia currently ends up in landfill. However, even with a simple recycling step that removes the frame and glass cover, this waste volume can be significantly reduced<sup>6</sup>

c. the comparative costs of solar panel reuse, recycling and landfill disposal, including valuation processes behind landfill disposal prices

The waste levy in South Australia is \$166 per tonne. Gate fees are determined by the landfill facility.

Processing costs are typically \$5 to \$15 per panel or \$500 to \$1,000 per tonne, covering transportation and before accounting for the revenue from sold materials.<sup>7</sup>

d. potential benefits to Australia of expanding onshore reuse and recycling of solar panels, including for households, the environment, energy security supply chain resilience and the economy, including the economic benefits of recovering solar panel resources (such as glass, silicon, aluminium, copper, silver and other critical minerals)

Whilst a costly exercise to establish, there are benefits to creating onshore solar panel recycling. For example, solar panels are 85% to 95% recyclable by weight (providing they are designed appropriately), allowing for the recovery of valuable resources that could be redistributed into the manufacturing chain and encourage job creation.

Other benefits include:

<sup>5</sup> [Solar Panel Disposal & Recycling in Australia \(2026\) | Why Solar](#)

<sup>6</sup> [Product stewardship considerations for solar photovoltaic panels](#)

<sup>7</sup> [Bigger and better solar panel recycling centres needed to deal with PV waste, says report](#)

- The South Australian Waste Strategy 2025-2030 highlights: “Valuable materials that can be recovered from solar PV systems include silicon, glass, silver, copper and aluminium. These materials are essential for manufacturing new renewable energy technologies, and domestic recovery of these will provide economic and resource security and further support the transition to net zero emissions and a circular economy. Nationally, the total recoverable material value from end-of-life solar PV systems is projected to surpass \$1 billion by 2035”.<sup>8</sup>
  - The International Energy Agency predicts that without action, there will be a 30 per cent global shortfall in copper by 2035, and it recommends countries regulate recycling to help bridge the gap.
  - Australian Manufacturing Workers’ NSW/ACT claimed in a recent statement on NSW developing a product stewardship scheme: “*A national solar panel stewardship scheme is a major opportunity for Australian jobs.*”
  - Jobs creation would range from technology development through to collection, transportation and processing.
- e. the state of development of Australia’s solar panel reuse and recycling capabilities, domestic markets for second-hand solar panels and recycled materials, and relevant policy and regulatory frameworks at state and federal level.

Options for recycling, and end-market solutions, are limited in South Australia and much goes to landfill currently as it is not banned. Photovoltaic cells are banned in landfill in Victoria; and NSW is leading the way on this work with a state-based product stewardship for problematic waste.

Photovoltaic systems were formerly listed on the Minister’s priority list (2016-17 to 2022-23), demonstrating the insufficient progress to manage the environmental impacts of these products.

The absence of an effective product stewardship scheme leads to no shared responsibility to reduce environmental harm. In addition, the recovery of valuable resources is limited because of the lack of circular economy design.

The South Australian government has released its Waste Strategy 2025-2030 with a clear focus on circular economy and ‘problematic wastes’ including solar/battery recycling infrastructure.

A national (not limited to state) policy that supports the shift to a circular economy where products are designed and manufactured for longevity and circularity, and that also encourages resource recovery (including the establishment of end markets), would promote sustainable waste management practices, allow for innovation within the waste management industry, and decrease the onus on local government to manage large volumes of waste and associated contamination.

The Commonwealth is supporting technologies for manufacturing solar PV and batteries through the Australian Renewable Energy Agency, but additional support is needed to help support the feasibility and cost-effectiveness of industry approaches to solar product stewardship.

A Victorian company has recently committed to establishing their SA processing site in the City of Onkaparinga. This is the sixth business that has looked to establish in Onkaparinga and they intend to open in Lonsdale, towards the end of 2026, for recycling both solar and battery products.

Since 2020, two Lonsdale businesses have failed, one Aldinga business moved out of the region, and two others failed to raise the capital to move forward. Some firms applying for state or federal government Solar Panel recycling funding have little to no start up experience in the sector (some

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<sup>8</sup>[Accelerating SA's transition to a circular economy: South Australia's waste strategy 2025–2030](#)

are not even licensed electrical firms). There should be a minimum standard before firms can access these government funds to avoid potential failures and mitigate risk.

f. [barriers to reusing and recycling solar panels at scale in Australia, including technical, commercial, regulatory or any other challenges](#)

There are several barriers observed:

1. Cost – investment is needed to make recycling markets and business financially sustainable
  - The cost of recycling solar panels is currently a prohibitive factor as well as establishing markets.
  - Investment is needed to create the markets and internal infrastructure required to facilitate and maintain the industry.
  - Progressing investment into development and establishment of the necessary technology is also critical to ensure progress before the waste streams begin to peak as anticipated by 2030 onwards. These things take time to develop.
2. Establishing end-markets

The (solar panel) recycling sector faces significant challenges such as finding markets for recycled solar panel materials, especially glass which makes up 70 per cent of the panel weight.<sup>9</sup>

3. Lack of clear guidelines and legislative framework

- Inconsistent guidelines on manufacturing/circular economy principles to help with end-of-life recycling. There is a need for a clear framework to guide end-of-life recycling and product requirements to avoid infiltration of cheap, imported inferior products; and prevent the manufacturing of products always made to be recycled. In Europe, products have to meet strict design requirements.
- With no mandatory recycling scheme, a small percentage of solar panels are currently recycled, leading to many being sent offshore for recycling/disposal or disposed of in landfills in Australia.
- Glass comprises almost 70% of solar panel waste, but due to chemical contaminants cannot be used as feedstock in glass manufacturing, and so is used as low value sand product for civil, concrete, and roads etc.
- The bulk storage of solar panels (and lithium-ion batteries) awaiting disposal or installation can be a fire hazard if not managed well. For example, we note the recent fire at Regency Park in January at a solar and battery company.

g. [alternative policy options for governments to help overcome these challenges](#)

The expected demand for minerals and materials for renewable energy systems, like solar photovoltaic panels, makes it even more necessary to establish the processes and legislation for a circular economy for the materials embedded in solar panels<sup>6</sup>

Increased guidance and regulation is needed around key elements that increase end-of-life recycling. Organisations such as the International Renewable Energy Agency have clearly outlined the need and benefit of robust end-of-life management legislations, such as a product stewardship scheme or extended producer responsibility, to avoid a looming significant waste legacy.

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<sup>9</sup> [Bigger and better solar panel recycling centres needed to deal with PV waste, says report](#)

A new report by the Australian Centre for Advanced Photovoltaics, led by UNSW, on solar panel recycling has recommended a raft of measures including the establishment of large waste facilities in five big Australian cities by 2027<sup>10</sup>.

We support a national product stewardship scheme to manage and provide consistency for decommissioned panels. This scheme should be accelerated to allow for the recovery of valuable resources. Circular design is critical to resource recovery.

Considering and assessing the approaches used by Victoria (landfill ban) and NSW (*Product Lifecycle Responsibility Act 2025*) when determining a national approach. For example, Victoria currently requires installers and retailers to responsibly manage solar e-waste — including panels, inverters, and batteries — in line with the Victorian Government's ban on e-waste disposed to landfill.

The Federal Government announced a \$24.7m national solar recycling pilot and has issued an RFI closing early March 2026. We strongly support the move to invest in a national solar recycling pilot, however we have concerns that funding pilots without mandated sustainable design risks repeating end-of-life 'collection only' models.

Also, consider nationally aligned legislative reform to establish state-based mandatory product stewardship obligations for battery suppliers, prioritising battery types with the highest risk profile (such as lithium-ion batteries).

Publishing publicly available data on solar decommissioning as well as installation would help government and private enterprise to plan and finance for the future.

**h. any other relevant matter.**

Work on battery energy storage systems should be undertaken simultaneously to prepare for the need for further recycling opportunities, as the end of life for these products is less, at around 10 years.

Reference to another useful article: [Australia's Solar Panel Recycling Challenge and Market Outlook - Hamilton Locke](#)

### Summary statement

There is an increasing need for solar PV and battery recycling systems in Australia over the coming years, however still a lot of work to do to create and regulate the markets required as outlined by the key points below:

**Rapid growth in solar panel waste:** Australia's annual solar PV waste is projected to rise sharply— from ~60,000 tonnes in 2025 to ~91,000 tonnes by 2030—with South Australia alone reaching 30,000 tonnes per year by 2032.

**Recycling capacity is limited:** A large proportion of solar panels in SA currently go to landfill due to insufficient recycling infrastructure and effective collection systems, inconsistent rules, and limited service providers.

**Costs favour landfill over recycling:** Landfill costs (waste levy is \$166/tonne, gate fees unknown and subject to agreement between the recycler and landfill facilities) are significantly lower than recycling costs (\$500–\$1,000/tonne), discouraging higher-value recovery activities.

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<sup>10</sup> Australian Centre for Advanced Photovoltaics [Research Reports](#)

**Expanding onshore recycling offers major benefits:** Recovering high-value materials (aluminium, copper, silver, silicon, glass) could exceed \$1B in national value by 2035, strengthen supply chains, reduce emissions, and create jobs.

**Barriers and policy needs:** Key challenges include high costs, weak end-of-life solutions for recovered materials (especially glass), lack of consistent regulation, and absence of design standards—highlighting the need for a national product stewardship scheme and stronger circular-economy policies.

Yours sincerely



Renée Mitchell  
**Director Planning**