

**2019**

**THE LEGISLATIVE ASSEMBLY FOR THE  
AUSTRALIAN CAPITAL TERRITORY**

**Statement**

**Response to Assembly Resolution of 5 June 2019 -  
Solar Panel and Battery Recycling Disposal**

**Mr Chris Steel MLA  
Minister for Recycling and Waste Reduction**



I am pleased to provide another update to the Assembly and the community on what the Government is doing to manage the safe disposal, recycling and recovery of end-of-life solar panels and batteries in the ACT.

This Government remains committed to reduction, reuse and recycling of all types of waste in the ACT, not just waste from solar panels and batteries. As agreed in the June resolution, the ACT has been hard at work with other jurisdictions developing national strategies for these products and has cooperated on research into their management internationally.

In my June update, I noted the Australian Renewable Energy Target Administrative Report 2018 indicated that:

*Australia is installing solar and wind so fast that it is now leading the world in the per capita deployment rate for renewables.*

The Clean Energy Report 2019 suggested that the ACT was on track to meet the Government's target of 100 per cent of electricity derived from renewable sources by 2020. The ACT Government remains on track to become the first jurisdiction outside of Europe to transition to 100 per cent net renewable electricity.

While this impressive achievement was met primarily through investment in large scale renewable projects, the ACT saw a 32 per cent increase in small-scale solar system installations in the first quarter of this year compared with the same quarter in 2018.

Government and residents alike are clearly committed to a transition to renewable energy production in the ACT.

The recent boom in installations does, however, mean significant volumes of photovoltaic, or PV, system components will enter Australia's waste stream from around 2023. The Government recognises the need to consider the way our PV systems are designed and installed, so they can be reused, repaired and recycled when they reach end-of-life.

Doing so will help us achieve the goals of both the ACT Climate Change and Waste Management Strategies and align us with national waste initiatives.

As I explained in my June address, managing PV waste is an issue of national interest, and progress is being made by the Jurisdictional Working Group on Photovoltaics on management approaches and timeframes. This working group was established through, and reports to, the Meeting of Environment Ministers and is tasked with developing a national product stewardship approach for PV products.

For those unfamiliar with this approach, product stewardship places the responsibility of end-of-life treatment on the manufacturers, importers, distributors, retailers and consumers of a product.

Internationally, several PV product stewardship schemes are already being considered or implemented.

For example, the European Union adopted the EU Waste Electrical and Electronic Equipment Directive in 2014. This Directive requires all producers supplying PV modules to the EU, irrespective of their country of origin, to finance the cost of collecting and recycling end-of-life panels in Europe. The first European recycling plant for solar components opened in France in July 2018, followed by a second in Germany later that year. Similarly, China, which leads the world in PV uptake, has implemented a PV Recycling and

Safety Disposal Research program and is exploring legislative and regulatory solutions.

The Working Group recognised that international schemes represent a valuable knowledge bank for the development of domestic solutions. In response earlier this year, it engaged PV Cycle, a global non-profit waste management organisation, to conduct a detailed analysis of European solar panel recycling schemes and their government support measures. This work is ongoing and will ensure we understand the risks and benefits of policy approaches to PV recycling in Australia.

The Working Group is also considering the practical implications of realising a PV stewardship scheme. It has engaged a specialist testing, engineering and innovation services company, HRL Technology Group, to identify treatments with potential to increase resources recovered from end-of-life panels.

This is an important issue. In Australia, only around 17 percent of panels can be recovered by weight for recycling. Recovery is largely limited to the aluminium frame and, in some cases, the junction box that houses key electronic components, meaning a large proportion of the panel remains a waste product.

HRL Technology Group's preliminary findings suggest that recovery could be increased to 90 per cent through a combination of heat treatment and shredding. This is even more exciting as materials could be shredded using technology already available in the market.

This technology could maximise material recovery and will support the success of any Australian PV product stewardship scheme. I look forward to

considering the findings of HRL Technology's final report when it is released.

Alongside work being led by government, we are also seeing market-driven innovation in the PV recycling space. Since my June address, I am pleased to report that business has begun to recognise the opportunities available to process end-of-life PV panels in Australia. There is no clearer evidence of this than the establishment of Reclaim PV, Australia's first dedicated solar panel recycler, in South Australia.

Reclaim PV is working with several major solar companies to offer a national service to collect end-of-life PV modules for recycling<sup>1</sup>. They aim to process 75,000 solar panels in their first year of operations, ramping up in line with industry and government needs in following years.<sup>2</sup>

As I stated earlier, the ability to process PV waste will be further enhanced by innovation in material recovery techniques. Recent research by Deakin University's Institute for Frontier Materials found a way to extract silicon from PV panels and reuse it for nano-silicon in batteries<sup>3</sup>. This is yet another example of growing interest from business in this space.

With considerable room for growth of this and similar services, I am certain we will continue to see expansion of this sector into the future.

Complementary regulatory and market approaches will strengthen any system to recover end-of-life PV materials and ensure these valuable resources remain in circulation.

Having noted work underway on PV panel recycling, I would now like to turn my attention to associated batteries. PV systems are complex. Increasingly, they are associated with energy storage systems that will need recycling as they reach their end-of-life.

Battery recycling has featured on the national waste management and resource recovery agenda for quite some time. Government and industry have been working together since 2013 to develop a product stewardship solution for handheld batteries through the Battery Stewardship Council. The scope of the Council's work was broadened to encompass all batteries in December 2018, meaning PV energy storage is now also within its consideration.

This is a positive development. It avoids duplication of work between the Council and Jurisdictional Working Group on PV, and allows consideration of the various sizes, compositions and capacities of energy storage technology.

Recovering resources from these systems is complicated and needs extended consideration. While lead acid or lithium ion systems may be recyclable through existing battery management programs, sodium nickel chloride and flow batteries, which are newer technologies used for energy storage, will require further research to be appropriately managed.

The ACT is dedicated to addressing this issue and became a member of the Battery Stewardship Council in early 2019. We are actively contributing to potential solutions being explored.

As Minister Rattenbury explained in June, we are already leading the nation in energy storage system management, having required local providers

participating in the Next Generation Energy Storage program to follow best practice end-of-life processing operations and divert materials from landfill. We look forward to seeing this implemented as systems are decommissioned into the future. While research into material recovery from solar energy storage systems is in its early stages, we are committed to shaping the direction of solutions as they develop.

Managing the collection, reuse and recycling of PV panels and batteries is a complex issue requiring a nationally coordinated response.

Progress on the development of management schemes for these products, including timeframes for their implementation, is routinely reported to the Meeting of Environment Ministers, highlighting the national interest in this space. The ACT Government looks forward to continuing to work closely with other Australian governments and industry to ensure these resources are managed appropriately.

We are proactively shaping national product stewardship approaches through the Jurisdictional Working Group and Battery Stewardship Council. As stated in June, once agreed, we will implement solutions to provide Territory-wide certainty for the recycling and recovery of PV panels and batteries.

We are committed to realising our ambitious goal of full resource recovery which includes preventing PV systems and batteries going to landfill. I look forward to a greener and more sustainable future.

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