House of Representatives Standing Committee on Climate Change, Energy, Environment and Water Inquiry into solar panel reuse and recycling in Australia.

Terms of Reference:

The House of Representatives Standing Committee on Climate Change, Energy, Environment and Water will inquire and report into solar panel reuse and recycling in Australia with regard to:

a. Current and projected waste volumes from end-of-life solar panels in Australia
b. Current disposal practices and trends
c. The comparative costs of solar panel reuse, recycling and landfill disposal, including valuation processes behind landfill disposal prices
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 panels resources
(such as glass, silicon, aluminium, copper, silver and other critical minerals)
e. The state of development in 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 levels
f. Barriers to reusing and recycling solar panels at scale in Australia, including technical, commercial, regulatory or any other challenges
g. Alternative policy options for government to help overcome these challenges
h. Any other relevant matter

Introduction:

It is my understanding over four million houses and some small businesses have solar panels installed in Australia according to the Clean Energy Regulator in March 2026. According to "Why Solar" South Australia, Queensland and Western Australia have the highest penetration of solar panels. I also understand that a solar panel has a life of 20-25 years however solar panels can have a much shorter life span if affected by storm damage including hail. Salt and salt mist can also damage solar panels as can dust. Once their peak performance drops below 80 per cent of its original output panels are considered end of life in Australia.

In Europe from 2012 the Waste Electrical and Electronic Equipment Directive (WEEE Directive) made manufacturers and importers legally responsible for collecting and recycling photovoltaic modules- a goal to prevent solar panels from ending up in landfill. France and Germany are well ahead of other European countries and operate a national take-back and recycling network through organisations which co-ordinate collection on behalf of manufactures. Other counties including Italy, Spain and the

Netherlands are rapidly expanding their own infrastructures. Some fourteen years have passed since the WEEE directive in Europe and Australia is now just discussing what should be done with 'end of life' solar panels. Only Victoria in 2019 has made it illegal to dump e-waste including solar panels in landfills. However, even in Victoria the solar panel recycling options are very limited.

Solar Panels:
Glass makes up 70-75 per cent of a panel and can and should be recycled. Aluminum frames can and should be melted down and returned to industrial production. The concerns many people have is with a number of toxic chemicals in a solar panel including cadmium telluride, copper idium selenide, cadmium (di) selenide and a number of others. Additionally, silicon tetcachloride, a byproduct of producing crystalline silicon which is highly toxic is in a solar panel. During the life of the panel there is no danger however when the solar panel ends up in landfill (which currently happens in almost everywhere in Australia) there is every chance these toxic chemicals can leach out and get into groundwater.

Solutions:
1.Encourage all States and Territories (except Victoria which already has such legislation) to introduce legislation to make it illegal to dump e-waste in landfills.

2. Encourage more recycling centres, in particular, those that deal with larger electronics and hazardous materials to take 'end of life' solar panels.

3. Introduce laws that have Solar Panel Manufacturers and Importers to be legally responsible for collecting and recycling 'end of life' Solar panels to prevent them ending up in landfill and be able to recover valuable materials including glass, aluminum, silicon, copper and silver.

4.Ensure all State and Territories introduce a take-back program overtime for safe dismantling and efficient recycling.

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