

SMART ENERGY COUNCIL
STEWARDSHIP WEBINAR SERIES - Webinar 3

Solar Panel Reuse

21 October 2025

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ACKNOWLEDGMENT OF COUNTRY





Smart Energy Council has developed this content with the assistance of Queensland Government funding.



RECAP - Solar Stewardship Enablers



**High appetite
for change**



**Critical
Mineral Prize**



**Confidence
via quality
enablers**



**Criticality of
data**



**Industry &
job creation**



**Highest
recovery
collections**



PANELLISTS



Darren Johannessen
Executive GM, Sustainability
Smart Energy Council



Dr Marina Lunardi
Stewardship Technical Lead
Smart Energy Council



Robyn Cowie
Stewardship Program Manager
Smart Energy Council



GUEST SPEAKER
Michelle McCann
CEO
PV Labs



Darren Johannesen, EG Manager - Sustainability

HOW MUCH ENERGY SHOULD WE THROW AWAY?

The Strategic, Economic, and Social Imperative for a National Reuse Market



The Undeniable Case for Reuse

Pillar 1: Economic



\$44 Billion: Untapped Energy Value

133 x more value than recycling

12 Gigawatts of capacity by 2043

Power for **Nearly 3 Million** Australian Homes

Pillar 2: Social



Powering Communities & Building Resilience

Address cost-of-living via community solar

Power for remote & disaster-affected communities

Build our industry's social licence

Pillar 3: Strategic



Securing our Resource Future

Ease pressure on critical minerals like copper & silver

Keep minerals in service for another
10-15 years

Delay the need for mass-scale recycling



The Solution: From a Failing Market to a Thriving Industry

A Failing, Ad-Hoc Market



No national standards for safety & performance

Poor economics for solar installers

No coordinated collection systems

A National Stewardship Scheme



Funded National Trial:

To de-risk investment and fine tune logistics

Mandatory National Scheme:

To create a robust, equitable, and effective market from day one

“Pioneers are proving it’s possible: The Blue Tribe Company’s ‘Second Life Solar’ farm in Wagga Wagga



An aerial photograph of a massive solar farm in a desert. The solar panels are arranged in long, parallel rows that stretch across the landscape towards the horizon. The ground is a mix of reddish-brown soil and sparse, low-lying desert vegetation. The sky is a clear, bright blue. The perspective is from a high angle, looking down and across the rows of panels.

“The wave is coming from our utility-scale solar farms”

“Understanding the source is key to unlocking the opportunity”

Dr Marina Lunardi, Stewardship Technical Lead

LARGE SCALE SOLAR

Reasons for decommissioning that enable reuse

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From Decommissioning to Reuse

Every decommissioned module still represents **usable energy and critical materials** – throwing them away undermines our renewable transition.



The Growing Wave of Decommissioned Panels



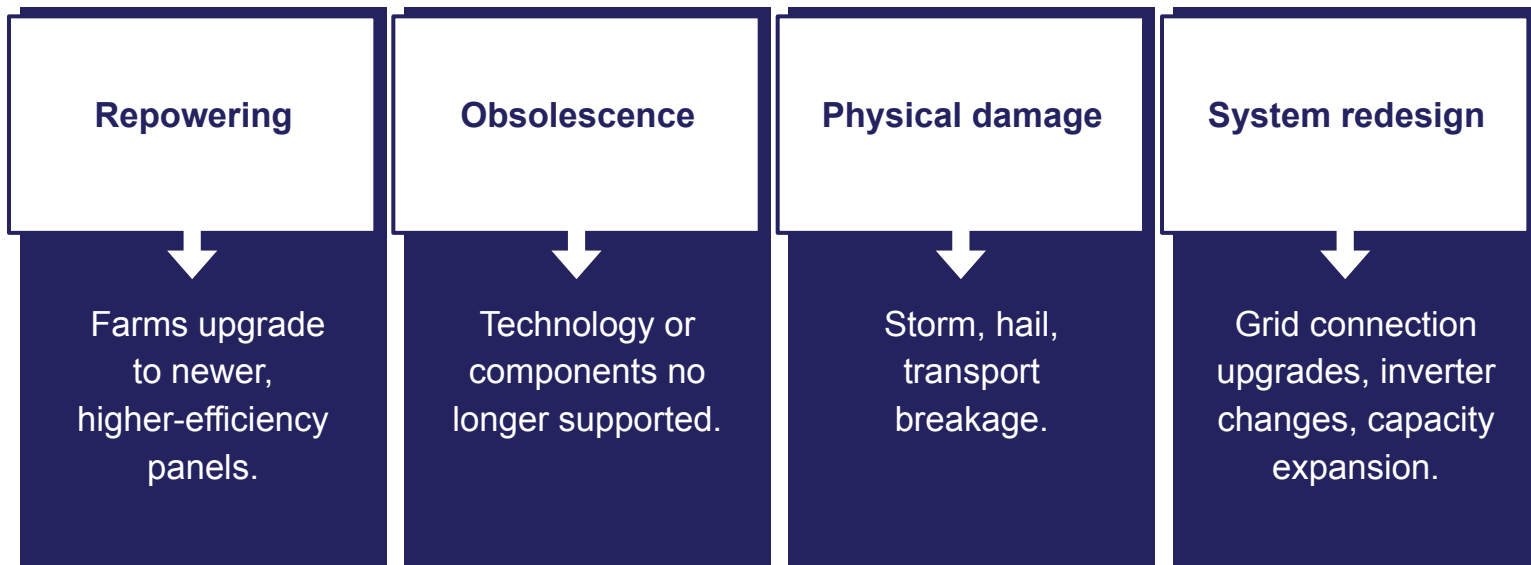
Reuse

Recycling

Landfill



Main Reasons for Decommissioning



Many panels decommissioned for *strategic or economic* reasons, not because they are non-functional.



Barriers and Learnings



Lack of national
standards for
reuse testing

01



Economic
distortions

02



Installer
handling issues

03



Data and
traceability
gaps

04



Opportunities for Reuse Markets

Social licence

Reused panels can support low-income households and communities.

Strategic security

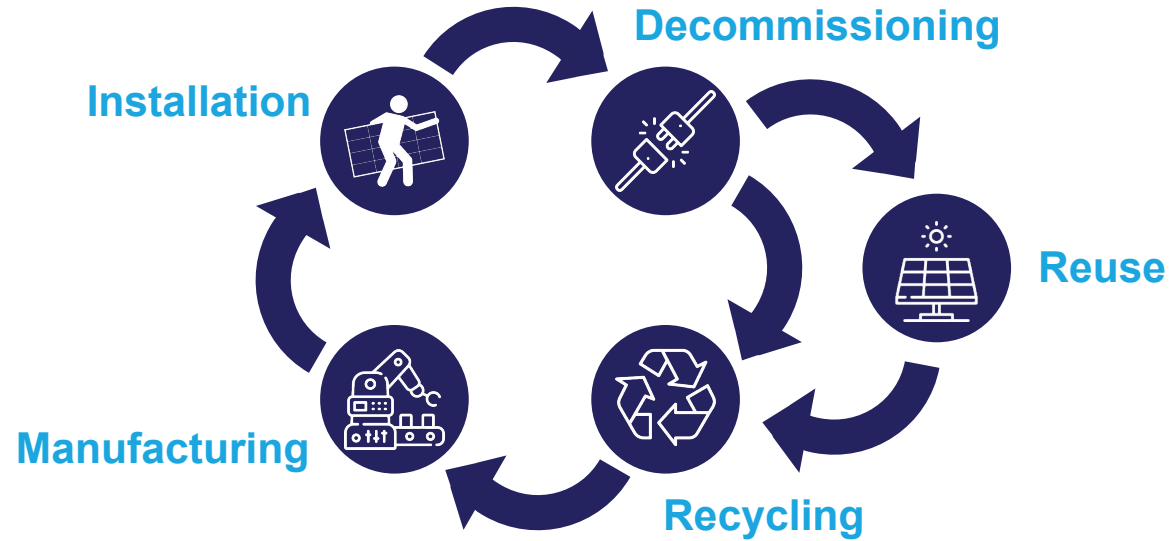
Keeps silver, copper, silicon in productive use longer.

Environmental benefit

Delays recycling, reduces pressure on mining.



The Future Material Flow Graphic



Michelle McCann - PV Labs

REUSING SOLAR PANELS

Where do we start?

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Title

AWAITING SLIDES VIA PPT WITH VIDEO FROM
MICHELLE M



Robyn Cowie

PILOT PROCESS

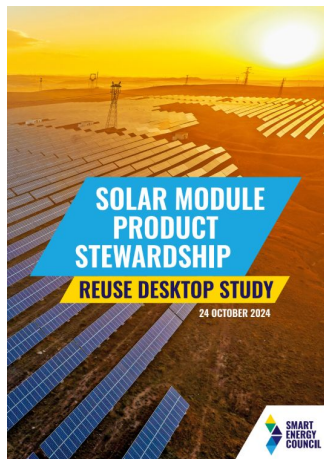
From Theory to Tonnes
The Queensland Reuse Pilot Findings

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Building Our Evidence Base

The Reuse Desktop Study



120+
Documents Reviewed

Identified Key Barriers:
Policy
Technical
Market
Capability

Email: stewardship@smartenergy.org.au for a copy

From Research to Reality



“The study gave us a clear roadmap of the challenges.
Our pilot was designed to test the practical solutions.”



Why We Tested for Reuse

A Multi-Billion Dollar Prize



James McGregor from Blue Tribe telling us
how the CSIRO test rig operates

Up to **133x** the value of recycling

\$Tens of Billions in future energy value

Turning Theory into Evidence

1. Quantify the Opportunity:

What percentage of panels are
actually suitable for a second life?

2. Define the Gold Standard:

How do we create a trusted, safe, and
efficient testing process?



The Evaluation Funnel: A Landmark Australian Study

Initial on-site visual grading by installers suggested ~75% of panels were potentially reusable (Rated A or B)



Initial Triage (Installer & Visual Checks)

23,587 Panels Collected

5,067 Panels selected
for Scientific Testing

*Contracted by Smart Energy Council with grant funding from the Queensland Government to conduct **world's largest test of reused solar panels**



A Rigorous, Multi-Stage Testing Process

Start: 5,067 Panels enter testing

This technical screening rejected over half of the panels that were visually graded as acceptable

Stage 1: Performance Screening (EL & IV Testing)

Result 1: 2,200 panels advanced

Stage 2: Final Safety Test (Wet Leakage)

Result 2: 1,869 Panels passed

37% of panels pass both stages

An essential test for insulation integrity and shock prevention



The 28% Opportunity

28%

**of decommissioned panels were
perfectly suitable for reuse**

“This is the first tangible step towards capturing the massive economic and energy value of our urban mine.”



The Challenges We Must Solve to Unlock 31%

Policy & Technical Vacuum



No national standards for testing & re-installation

A “one-size fits-all” standard won’t work

Our Pilot Proved: End-to-end traceability is possible

Significant Economic Barriers



Low-cost imported panels create market pressure

Reused panels are **ineligible for STCs** - a major market distortion

Capability & Awareness Gap

Need for accredited training across the industry

Case in Point: Cut Cables

A simple, low-cost tool and basic training can save thousands of panels from being needlessly discarded.



Note: This slide contains AI generated images



A Clear Pathway to a High-Value Reuse Industry

28%

Step 1:
Funded National Trial

Step 2:
Mandatory National
Scheme

A National Scheme will:



“We aren’t just managing waste; we are building a new, high-value Australian industry”



Q & A

QUICK POLL



Final remarks

- All webinar recordings and presentations are available via <https://smartenergy.org.au/reuse-recycle/>
- You can support this work. stewardship@smartenergy.org.au.



THANK YOU

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