

## **Exploring Solar Panel (PV) System Waste Management and Disposal in Australia: What is the way forward?**

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### **Abstract**

A recent analysis of e-waste market flow and technology trends identified solar (PV) panels as the fastest growing e-waste stream in Australia in the coming years owing to the ongoing boom in the installation of PV systems over the last 10 years. As a rapidly emerging e-waste stream with absence of local processing options, there is a need to develop strategies and approaches to manage this e-waste stream to prevent them from ending up in landfills. As the quantity of this waste stream is rising, there is increasing concern from local governments, state and federal governments and industry on the insufficient management options to safely dispose of end-of-life PV system components across Australia and a lack of established re-processors and recyclers capable of recovering valuable resources. This study aims to examine the growing issues on PV system waste management and disposal in Australia and the way forward. The study will identify the issues and challenges associated with solar panel waste disposal and develop innovative approaches to address its collection and recycling in Australia. This study adopts both quantitative and qualitative research approaches involving online survey questionnaires and semi-structured interviews. The study interviews employees of metropolitan and regional councils, and surveys residents and businesses in the communities. Based on the outcomes of this study, practical approaches on the way forward are recommended. The study provides real-world suggestions for dealing with the growing issues on PV system waste management in Australia. From a practical perspective; this study will be useful to metropolitan and regional councils, environmentalists, policy makers, researchers and organizations in developing appropriate recycling strategies and schemes for addressing the ongoing concerns on PV system waste management in Australia.

## **Keywords**

Solar panels (PV) system, Waste management, Waste disposal, Issues and Challenges, Collection, Recycling and Australia.

## **Biographies**

**Lynda Andeobu** is currently Lecturer – ICT in the School of Engineering and Technology at CQUniversity. Dr Andeobu is an active researcher and has published several research papers in international research conferences, refereed journals and book chapters. Her research interests include green ICT, electronic waste management, sustainability, artificial intelligence, information systems analysis, blockchain technologies, IoT, network and cybersecurity.

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**Srimannarayana Grandhi** is an Associate Professor and the Head of College, in the College of Information and Communications Technology. Dr Grandhi is an active researcher with research interests in educational technology, technology adoption, sustainability and multicriteria decision making. He has published several papers in reputed international conferences, and refereed journals and also participated in collaborative book chapters. He is currently teaching Blockchain technologies and Enterprise systems at Undergraduate and Postgraduate levels and supervising research students. Over the years, Dr Grandhi has published research papers at Excellence in Research for Australia (ERA) listed conferences and journals. He is also a guest editor for the special issue (Environmental Research and Public Health) of the International Journal of Environmental Research and Public Health.