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Research boost for solar panel efficiency and cost reduction

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) today announced it has awarded \$15.14 million in funding to 16 research projects to help address solar PV panel efficiency, overall cost reductions and end-of-life issues.

The funding has been awarded to research teams from six Australian universities including the Australian National University, Macquarie University, University of Melbourne, University of New South Wales, University of Sydney and Swinburne University.

ARENA initially opened the application in December last year with a \$15 million commitment. The round received over 50 applications with a total project value of over \$150 million.

The two-year R&D projects will support solar PV in the following areas:

- **advanced silicon:** improvements to the overall cost-effectiveness of silicon-based panels already in mass market production, and their production processes
- **tandem silicon:** increasing the cost-effectiveness of silicon-based solar PV through the use of tandem materials
- **new materials:** development of new materials with the potential to either reach breakthrough cost-efficiencies, or the potential for new deployment applications
- **end-of-life:** new solutions, including upfront solar PV panel designs and end of life processing, that increase the cost-effectiveness of sustainable end-of-life management of solar PV panels.

The 16 projects selected will strengthen Australia's world-leading solar PV R&D sector that ARENA has helped establish through its previous funding. This is the first time that ARENA has sought applications for addressing solutions to end-of-life solar PV issues. It is anticipated in excess of 50 full time equivalent positions will be created across the 16 projects.

In addition to end-of-life issues, selected projects will also aim to improve the efficiency and cost-effectiveness of solar PV for new or established applications and develop new materials with the potential to either reach breakthrough cost-efficiencies, or the potential for new deployment applications.

ARENA CEO Darren Miller said it was fantastic to see so much interest in the latest solar R&D round.

"We're very pleased with the level of interest which is reflected in the great variety of projects across the priority areas, particularly in the Advanced Silicon field where Australia leads the world," Mr Miller said.

"A key part of the funding round was finding a solution to the end-of-life of solar panels and we're excited to see some interesting new research into this area. It's an important part in our transition to renewable energy as we need to ensure that materials used in solar panels can be recycled or repurposed for future use," he said.

For more information on the below funding recipients, visit the [solar R&D funding page](#).

Solar R&D Funding Recipients	Priority Area	Funding
Australian National University		
Physical vapour deposited passivating contacts for high efficiency silicon solar cells	Advanced Silicon	\$404,177
Simplifying production of high-efficiency silicon solar cells	Advanced Silicon	\$455,322
Further reducing tandem costs while achieving high conversion efficiency and stability	Tandem Silicon	\$1,130,542
Perovskite modules that are stable under real-world conditions	New Materials	\$735,288
24% efficiency hybrid solar cell	Advanced Silicon	\$507,819
Macquarie University		
Substitution of niche-market PV production tools with cost-effective consumer-electronics technology	Advanced Silicon	\$420,000
University of Melbourne		
Enhanced silicon solar cells using Singlet Fission	New Materials	\$1,290,333
University of New South Wales		
Reduced Solar Module Temperature R&D project	Advanced Silicon	\$1,767,730
Lower PV cost through luminescence imaging and machine-learning	Advanced Silicon	\$694,224
Advanced Silicon next-generation selective-emitters for commercial solar panels	Advanced Silicon	\$1,232,429
A highly efficient, low-cost and eco-friendly recycling technology for silicon photovoltaic panels	End of Life	\$1,360,000
Closed-loop recycling & manufacturing end-of-life silicon photovoltaic modules: towards a circular economy	End of Life	\$1,560,000
Antimony chalcogenide: a top cell alternative for Silicon tandem cells	Tandem Silicon	\$693,388
University of Sydney		
Durable Silicon Perovskite Tandem PV	Tandem Silicon	\$987,285
Triple Junction Silicon-Perovskite-Perovskite Tandem PV	Tandem Silicon	\$1,494,340
Swinburne University		
Electrically-Enhanced Recycling Process for End of Life Silicon PV-Cells	End of Life	\$404,000
TOTAL FUNDING		\$15,136,877