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ARENA invests \$105.6 million in next wave of solar innovation

The Australian Renewable Energy Agency (ARENA) has announced up to \$105.6 million for 20 research and development projects aimed at tackling the next frontier in ultra low-cost solar, reducing the cost of designing, building, operating and maintaining large-scale solar farms.

The funding represents ARENA's largest single investment in solar PV research and development and will support a portfolio of projects spanning improved efficiency, cost and stability across advanced cells and modules, to innovations that can help improve the performance of solar farms and reduce the levelised cost of electricity (LCOE).

The investment builds on ARENA's ultra low-cost solar ambition to help reduce installed solar costs to 30 cents per watt by 2030 to drive down the costs of solar-generated electricity.

ARENA acting CEO Chris Faris said the projects would help ensure Australia remained at the forefront of solar innovation while addressing some of the biggest challenges facing the renewable energy industry.

"Australia has played a leading role in the development of solar technology, and these projects will help ensure we continue to strengthen that position," Mr Faris said.

"The portfolio brings together a mix of near-term improvements and breakthrough technologies that have the potential to lower costs, improve performance and accelerate the deployment of solar energy both in Australia and around the world."

"Achieving ultra low-cost solar requires innovation across the entire value chain. From the solar cells and modules themselves through to the way solar farms are built, operated and maintained, these projects will help unlock practical solutions that support a faster, more affordable energy transition."

"ARENA initially allocated \$60 million to the Ultra Low-Cost Solar PV Research and Development Funding Round. When we saw the quality of applications, we decided to increase funding to support a broader portfolio of high-quality projects that can help accelerate progress towards ultra low-cost solar."

The projects are being supported across two streams and six focus areas:

Stream 1: Cells and modules

- Increase efficiency
- Reduce cost
- Improve stability

Stream 2: Balance of systems and operation and maintenance

- Reduce balance of system deployment costs
- Reduce operations and maintenance costs
- Support other LCOE reduction or innovation to increase yield.

Read more about ARENA's [Ultra Low-Cost Solar priorities](#).

The 20 projects selected for funding are listed below.

Stream 1: Cells and modules

Applicant	Project	ARENA funding (\$m)	Total project cost (\$m)
ANU	Low-cost parallel-connected perovskite/silicon tandems	7.1m	19.2m
ANU	TOPCon back contact silicon cells	6.0m	17.4m
UNSW	Low-temperature interconnection solution for advanced PV modules	5.4m	12.4m
UNSW	UV resilience and efficiency boost for silicon	7.1m	18.6m
UNSW	Field-testing of commercial perovskite & tandem module for stability	5.6m	18.0m
UNSW	Supercharging solar module durability for Australian conditions	6.5m	21.7m
UNSW	Efficient and stable perovskite/Si tandem PV for cell stability	6.3m	20.7m
UNSW	Advancing tandem cells via ML-assisted contactless measurements and industry 4.0	5.1m	16.3m
UNSW	Scalable Cu based chalcogenide/Si tandem solar cell	6.3m	18.4m
UNSW	AI-accelerated PV material discovery	5.2m	19.9m
UNSW	Passivating and shuttling interlayers to increase efficiency	5.1m	17.0m

University of Melbourne	Spectral utilisation for next-gen silicon	4.8m	13.2m
University of Sydney	Silicon tandems - built to last	7.4m	19.5m

Stream 2: BoS and O&M

Applicant	Project	ARENA funding (\$m)	Total project cost (\$m)
ANU	AI-enabled reliability and yield increase for utility-scale PV	2.9m	8.5m
Sunsence Pty Ltd	Lightweight bifacial laminate PV system for utility scale	3.6m	7.7m
Proa Energy Australia Pty Ltd	HiveOps platform for O&M optimisation and LCOE reduction	4.2m	10.5m
UNSW	Site-tailored modules to reduce cost in utility-scale deployment	4.4m	13.9m
UNSW	Enhancing utility-scale PV O&M with advanced ML models, risk maps, and AIoT	4.7m	16.7m
UNSW	Innovative daylight PL image acquisition and advanced quantitative data analysis	3.1m	8.5m
University of Melbourne	Intelligent modular platform for solar PV	4.8m	12.9m