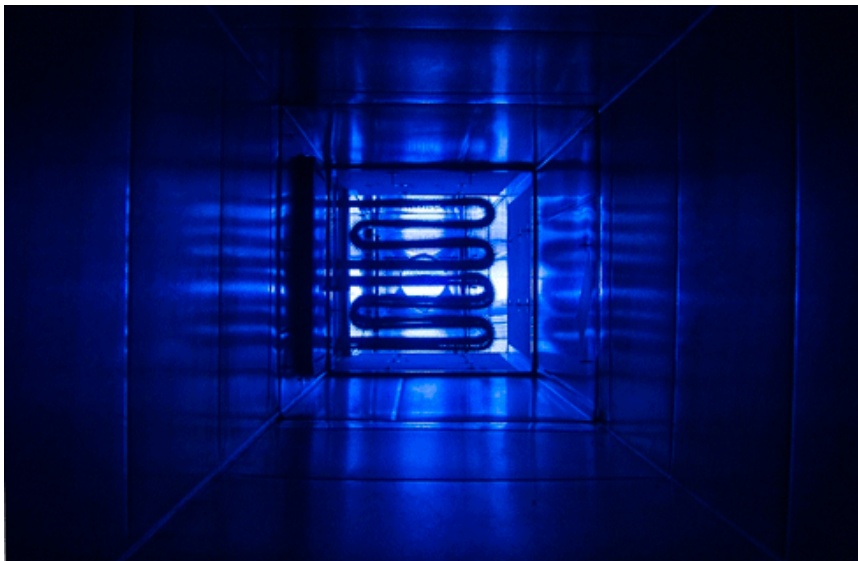


Australia, US connect on solar energy research

Australia's solar research effort was boosted during the recent visit of US President Barack Obama to Australia, when Prime Minister Julia Gillard and the President jointly announced the establishment of a United States-Australia Solar Energy Collaboration (USASEC) program.



Credit: CSIRO

Through USASEC, \$32 million in funding is being allocated to seven projects aiming to speed up the widespread rollout of solar energy technologies in both countries. CSIRO was successful in its bid for three projects:

Lower-cost, bulk clean-energy generation: A solar-driven supercritical carbon dioxide Brayton Cycle

[Wes Stein](#) from the [CSIRO Energy Transformed Flagship](#), is leading this project to reduce the levelised cost of electricity by bringing together advanced technologies capable of bulk power generation. These include high-efficiency solar receivers, thermal storage and a carbon dioxide Brayton cycle – the same technology that powers jet engines.

Compared to today's steam-driven Rankine cycle turbines, a Brayton system could increase the electrical power produced per unit of fuel by 40 per cent or more. The combination of low temperatures, high efficiency and high power density allows for the development of compact, transportable systems that use standard engineering materials (stainless steel) and modular manufacturing processes.

Partners include Sandia National Laboratories (US), National Renewable Energy Laboratory (NREL)(US), University of Sydney, Queensland University of Technology, and Barber Nicholls Inc (US).

Improving translation models for predicting the energy yield of photovoltaic power systems

This study, led by the Energy Transformed Flagship's Chris Fell, will look at how different solar cell technologies respond to changing conditions with respect to irradiance, spectrum, diffuse light and temperature. This will greatly improve yield predictions and confidence for investors in large-scale solar in Australia.

Partners include NREL, CAT Projects (Desert Knowledge Australia Solar Centre), and Lend Lease.

Integrated solar radiation data sources over Australia

[Alberto Troccoli](#) from [CSIRO Marine and Atmospheric Research](#) is leading this project, which aims to 'map' our solar resource through the development of Australia's first comprehensive solar radiation data set.

This will combine ground station observations, satellite-derived data and atmospheric model output, which can be used to estimate solar power production. Partners include NREL and the Bureau of Meteorology.

[Jacek Jasieniak](#) from [CSIRO Materials Science and Engineering](#) was also awarded a USASEC research exchange fellowship that will enable him to work with 2000 Nobel Prize winner, Professor Alan Heeger, at the University of California for a year.

They will jointly work on a project aimed at overcoming barriers to increasing the efficiency of organic solar cells, thus increasing the cost-competitiveness of solar.

Source: CSIRO

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