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Heat pump solution to reduce emissions in the poultry industry

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$318,000 in funding to Ground Source Systems to demonstrate a full-scale solar PV and ground-source heat pump system, with gas backup, for heating and cooling at a commercial broiler facility in Yanderra, New South Wales.

The hybrid system will see the installation of a 100-200 kW thermal ground source heat pump system to replace LPG as a fuel for heating and cooling a single shed for housing chickens.

The University of Melbourne is assisting Ground Source Systems on the project by providing data analysis, content generation and knowledge sharing across the sector.

The poultry broiler industry utilises sheds that require both heating when chicks are young, and cooling as the chicks grow up. Annual energy bills for chicken farms amount to around \$80 to \$100 million in aggregate across Australia and result in emissions of around 1.8 million tonnes of carbon dioxide per year.

Ground Source Systems estimates that installing heat pumps powered by onsite solar PV has the potential to reduce total emissions by around 1 million tonnes per year and provide even better conditions for the chickens housed in the shed.

100 kW of solar PV will also be installed on the site, as part of a separate project to continue to reduce emissions at the site.

The project will demonstrate how the energy demands of sheds can be coordinated with on-site renewable energy production, showing both economic and environmental benefits to farmers to further support the uptake of the technology across the industry.

ARENA CEO Darren Miller said the project is expected to provide an important case study to drive uptake across the sector

“Heat pumps represent a viable alternative to traditional heating systems in helping to reduce emissions from Australia’s meat and poultry industry.

“Ground Source Systems is showing what’s possible with the demonstration scale project and we’re hoping that the valuable knowledge gained will encourage even the larger poultry companies to jump on board and look to heat pumps as a viable solution to their energy needs and net zero goals.”

For more information on the project, visit arena.gov.au/projects.