

Climate Change Research Strategy - Energy Efficiency Solutions

Feasibility Case Study – Pecora Dairy, Robertson

Pecora Dairy is a sheep dairy and boutique cheese producer located in Robertson, NSW where a study was conducted to assess the feasibility of generating energy on-farm using solar panels, flow batteries and peer to peer energy trading and replacing the LPG boiler with a heat pump.

The NSW DPI Energy Efficiency Solutions project conducted feasibility studies to assess the technical and commercial feasibility of proposals that would address the cost, reliability and sustainability of energy use on farms. Proposals were sought through public advertisements and more direct engagement with associations and networks. An independent advisory group identified ten priority proposals through a merit selection process, then an independent expert assessor was matched to each priority proposal to undertake a detailed feasibility study. This case study summarises the context, proposal and results of the Pecora Dairy feasibility study.

Pecora Dairy



Context

Pecora Dairy is a family-owned sheep dairy and boutique cheese producer in Robertson, NSW. The business is committed to producing environmentally friendly and unique food products and in April 2019 Pecora Dairy was awarded the first raw cheese processor license from NSW Food Authority.

Proposal

Pecora Dairy suffers from energy supply issues such as power outages and an insecure supply of LPG to the farm. To deal with these issues, and to secure a renewable source of energy, the farmers plan to install a 28 kW solar photovoltaic and 40 kWh flow battery system. Pecora Dairy's solar and battery storage system will then be combined with a peer-to-peer (P2P) energy trading platform to sell and purchase excess solar electricity with other P2P users on the platform.

Pecora Dairy also plans to introduce measures that will reduce energy consumption, such as a stronger focus on raw cheese production which does not require intense heating for pasteurisation. The site's LPG boiler will be retired and the site's remaining heat requirements will be met by a new heat pump powered by the solar and battery system.

Estimated costs and benefits

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|-------------------------------|----------------------------------|
| Project costs | \$217,618 |
| Operating cost savings | \$16,432 p.a. |
| Energy use reduction | 167 GJ p.a. (84%) |
| Emissions reduction | 21 tCO ₂ e p.a. (74%) |
| Simple payback period | 14.4 years |

Additional benefits from the project include:

- Improved energy security due to battery backup powering crucial operations equipment during instances of blackouts.
- Reduction in food waste due to battery backup power maintaining cool room temperatures in instances of blackouts.
- Improved ability to market sustainability credentials to a carbon conscious community.

Acknowledgments

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CM9 Reference

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