

# Energy Savers Plus Program

targets significant energy savings for

## Queensland Piggeries

POTENTIAL SOLUTION



AVERAGE ENERGY SAVINGS

106%

### Key facts

#### Farm / Industry

Piggeries

#### Product

Pig Meat

#### Location

Queensland

#### Case study focus

Industry and Technology

#### Solution

Install pump and irrigation upgrades, HVAC systems, LED lights, solar and batteries, and improve gas systems.

## Summary

The Energy Savers program aims to assist farmers to reduce energy costs by supporting the accelerated adoption of improvements in on-farm energy use. This case study summarises the outcomes from audits conducted on 2 Queensland Piggeries.

Collectively the total energy consumption consumed from the measured areas on the 2 piggeries was 458,344kWh at an annual cost of \$103,203, resulting in emissions of 371 tonnes of CO<sub>2</sub>-e per annum

## Opportunities

The main opportunities identified at the Piggeries include:

- Pumping and Irrigation**- Savings from Variable Speed Drive installation, pump replacements and maintenance. Changes to irrigation design and automation.
- Heating Ventilation and Cooling (HVAC)**- Condensor motor, VSD, ventilation fans and heating upgrades.
- Lighting and General**- Replacement and retrofitting of lights with LEDs, infrastructure and general changes.
- Solar and Batteries**- Grid Connected and standalone.
- Gas**- Hot water, insulation and general heating.
- Solar Systems**- Ranging in size from 5-100kW.

Table 1. Technology Recommendations and Savings in the Poultry Industry.

Recommendation	Total	Energy Savings (kWh)	Cost Savings (\$)	Capital Cost (\$)	Average Payback (Years)	Emission Reduction (CO <sub>2</sub> -e)
Pumping and Irrigation Upgrades	1	7,558	1,504	10,000	4.3	6
HVAC	2	14,400	5,373	48,000	15.6	12
Lighting and General	3	45,655	8,674	19,495	7.9	37
Solar and Batteries	1	13,000	1,900	29,000	11	10
Gas- Insulation of pipes, solar/gas hot water and heating improvements	3	300,836	46,500	90,600	4	244
Solar Systems	4	107,275	22,513	103,100	3.9	87
<b>Total</b>	<b>14</b>	<b>488,724</b>	<b>86,464</b>	<b>300,195</b>	<b>7.2</b>	<b>396</b>
<b>Total Recommendations</b>	<b>665</b>	<b>7,459,015</b>	<b>2,817,342</b>	<b>12,784,670</b>	<b>6.85</b>	<b>6,042</b>

The Energy Savers Plus Program Extension was funded by the Queensland Department of Energy and Public Works.



Table 1 highlights that total energy savings of 488,724 kWh were discovered from the audit process.

Including production benefits, a saving of \$86,464 and estimated 396 tonnes of CO<sub>2</sub>-e could be realised per annum. At a capital cost of \$300,195 the average payback was 7.2 years.

Additional value adding from the energy audits showed how an increase in water delivery, could increase production and profit with a reduction in energy consumed per unit of output.

**Table 2. Pre and Post Audit Metrics.**

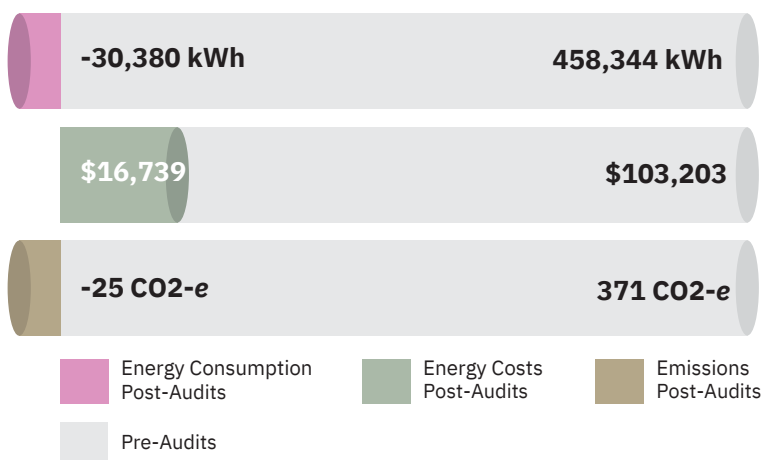
Metric	Pre-Audits	Post-Audits	%Reduction
Energy Consumption (kWh)	458,344	-30,380	106
Energy Costs (\$)	103,203	16,739	83
Emissions (CO <sub>2</sub> -e)	371	-25	106

As installation of the recommendations is made within the industry, measurement and verification will be undertaken, and case studies will be updated to include the actual energy savings.

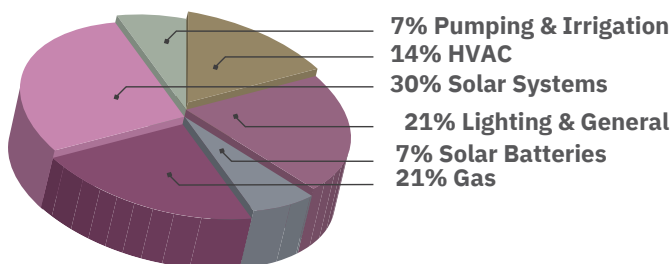
## Energy Audits for your Business

An energy audit is a great way for a business to identify the most effective way to cut costs, reduce emissions and boost productivity.

**Graph 1: Energy Savings Pre vs Post Audits**



**Graph 2: Energy Saving Opportunities in piggeries**



**This case study was originally developed in 2021 as part of the Queensland Government funded Energy Savers Plus Program Extension, delivered by the Queensland Farmers' Federation.**