

Energy Savers Program

targets significant energy savings with
Lighting and General

POTENTIAL
SOLUTION



AVERAGE
ENERGY
SAVINGS

3.3%

Key facts

Farm / Industry

All

Location

Queensland

Case study focus

LED Lighting & General

Solution

Upgrade Infrastructure, make general changes such as energy monitoring and install efficient LED lighting technology

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 Lighting and general recommendations from 180 audits across the nine agricultural sectors.

The total energy consumption recorded from the 180 farms was 18,666,737kWh, at an annual cost of \$4,187,148, resulting in emissions of 15,120 tonnes of CO₂. Various technology types were identified in the program aimed at improving efficiency onsite.

An energy audit is a good investment

An energy audit is a great first step in moving farming industries towards a more efficient future by reducing energy use, costs, and carbon emissions. This category includes the following technology solutions to improve efficiency for lighting systems on farm.

- New Led light fittings- installation of new fittings and LED globes.
- Retrofitting of existing LED fittings- with new LED globes.
- Infrastructure changes- to aid in tariff changes, sensors and automation of irrigation systems and infrastructure changes to facilitate energy and cost savings.
- General recommendations- such as temperature probes, liquid pressure gauges and energy monitoring.

Table 1. Total Recommendations and Savings for Lighting and General Technology Adoption.

Recommendation	Total	Energy Savings (kWh)	Cost Savings (\$)	Capital Cost (\$)	Average Payback (Years)	Emission Reduction (t/CO ₂ -e)
Retrofit Existing Light LED	10	6,492	2,304	16,089	6.2	5
New LED Lamp	19	68,105	16,049	58,326	6.4	55
Infrastructure	29	131,558	90,719	251,278	3.7	107
General	92	409,882	137,149	631,958	4	332
Total	150	616,037	246,221	957,051	5.1	499
All Findings	671	7,459,014	3,044,332	12,784,670	6.6	6,042

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



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From the 150 recommendations found in the 180 audits total energy savings of 616,037kWh were discovered. Including production benefits, a saving of \$246,221 and estimated 499 tonnes of CO₂-e could be realised per annum. At a capital cost of \$957,051 the average payback was 5.1 years.

As installation of the technology is made measurement and verification will take place. The energy savings from the process will be tabled and compared against the total number of farms in the programs

Table 2. Pre and Post Audit Metrics.

Metric	Pre-Audits	Post-Audits	%Reduction
Energy Consumption (kWh)	18,666,737	18,050,700	3.30
Energy Costs (\$)	4,187,148	3,940,927	5.88
Emissions (CO ₂ -e)	15,120	14,621	3.30

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.

Next Steps

Look to improve energy efficiency on farm by taking action with a regular maintenance plan, quick wins or by conducting a full energy audit that adheres to Australian Standard AS:3598 and implementing new efficient technology.

Some quick wins to reduce consumption and costs include:

- Plan and design infrastructure for the future.
- Turn off electrical equipment when not in use.
- Regularly dust electrical motors and lights.
- Remove trash from pump inlets and clean filters.
- Minimise irrigation fittings and bends.
- Use monitoring equipment such as temperature and moisture probes, pressure gauges and real time energy monitors.



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.