

Energy Savers Plus Program

targets significant energy savings for

Queensland Beef Farms

POTENTIAL
SOLUTION



AVERAGE
ENERGY
SAVINGS

67%



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 6 Queensland Beef Cattle farms.

Collectively the total energy consumption consumed from the measured areas on the 6 farms was 192,783kWh at an annual cost of \$51,293, resulting in emissions of 156 tonnes of CO₂-e.

Key facts

Farm / Industry

Beef Cattle

Product

Beef

Location

Queensland

Case study focus

Industry and Technology

Solution

Install new pumping and irrigation systems, LED lighting, solar and batteries make heating and general changes

Opportunities

- Pumping and Irrigation**- Savings from Variable Speed Drive installation, pump replacements and maintenance and changes to irrigation design.
- Heating Ventilation and Cooling (HVAC)** – Condensor motor, VSD, ventilation fan and heating upgrades.
- Lighting and General**- Replacement and retrofitting of lights with LEDs, infrastructure upgrades to facilitate efficiency gains and general management changes.
- Solar and Batteries**- Grid connected and standalone.
- Gas**- Hot water, insulation and general heating improvements to gas systems on farm.
- Solar Systems**- Ranging in size from 5-100kW.

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

Recommendation	Total	Energy Savings (kWh)	Cost Savings (\$)	Capital Cost (\$)	Average Payback (Years)	Emission Reduction (CO ₂ -e)
Pumping and Irrigation Upgrades	9	24,597	8,995	24,247	9.05	20
HVAC	2	2,671	544	3,500	13	2
Lighting and General	2	1,245	310	2,400	7.5	1
Solar and Batteries	1	N/A	9,935	27,500	2.7	N/A
Solar Systems	6	100,315	28,707	93,456	3.5	81
Total	20	128,828	48,191	151,103	7.2	104
Total Recommendations	665	7,459,015	2,817,342	12,784,670	6.85	6,042

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 128,828kWh were discovered from the audit process.

Including production benefits, a saving of \$48,191 and estimated 104 tonnes of CO2-e could be realised per annum. At a capital cost of \$151,103 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.

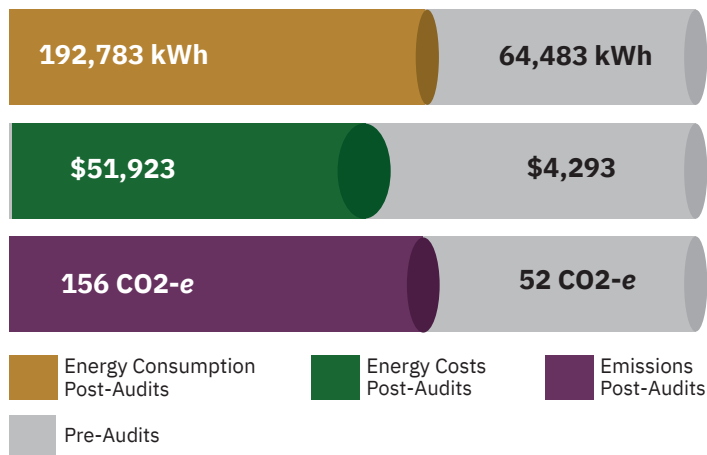
Metric	Pre-Audits	Post-Audits	%Reduction
Energy Consumption (kWh)	192,783	64,483	67
Energy Costs (\$)	51,923	4,293	92
Emissions (CO2-e)	156	52	67

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.

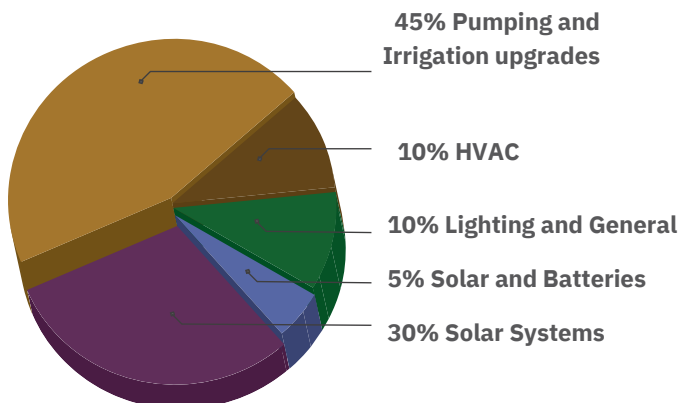
Energy Audits for your Business

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 beef cattle



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.