

Energy Savers Plus Program

targets significant energy savings for

Queensland Horticulture Farms

POTENTIAL SOLUTION



AVERAGE ENERGY SAVINGS

38%

Key facts

Farm / Industry

Horticulture

Product

Fruit, Vegetables, Wine and Grapes

Location

Queensland

Case study focus

Industry and Technology

Solution

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

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 41 Queensland Horticulture farms.

Collectively the total energy consumption consumed from the measured areas on the 41 farms was 4,619,701kWh at an annual cost of \$1,002,647, resulting in emissions of 3,742tonnes of CO₂-e per annum

Opportunities

The main opportunities identified on Horticulture farms include:

- Pumping and Irrigation Upgrades**- 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 systems.

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 ₂ -e)
Pumping and Irrigation Upgrades	52	608,113	202,497	1,802,342	19	493
HVAC	19	177,513	49,194	487,032	9	144
Lighting and General	30	113,839	49,194	487,032	9	92
Solar Systems	34	888,019	239,874	1,353,324	6	719
Total	134	1,787,484	526,361	2,953,682	10.2	1,448
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 1,787,484kWh were discovered from the audit process.

Including production benefits a saving of \$526,361 and estimated 1,448 tonnes of CO2-e could be realised per annum. At a capital cost of \$2,953,682 the average payback was 10.2 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.

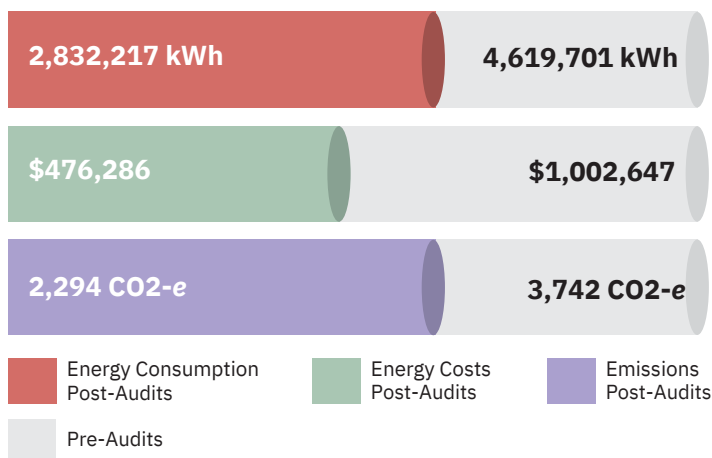
Metric	Pre-Audits	Post-Audits	%Reduction
Energy Consumption (kWh)	4,619,701	2,832,217	38
Energy Costs (\$)	1,002,647	476,286	52
Emissions (CO2-e)	3,742	2,294	38

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.

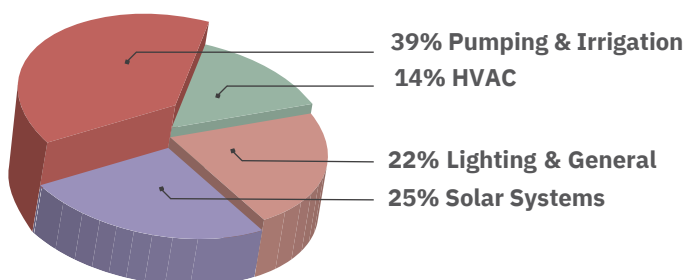
Energy Audits for your Business

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 horticulture



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.