Future Farming Fact Sheets

NRM North

Farm and Irrigation Energy Efficiency

Snapshot of Farm Energy Use in Tasmania

NRM North has funded the first independent audits of energy use on Tasmanian farms. Nine farms were audited by Hydro Tasmania Consulting, with the following outcomes:

- Total energy bills (electricity + fuel) varied from $35,000 to $156,000 per year, **with average being just over $80,000 per year**. Electricity bills accounted for an average 64% of the total energy bill or nearly $52,000 per year.
- Irrigation accounted for **70-80%** of farm energy costs.
- The average energy index for irrigated areas was **1,268 kWh/ha** (**$216/ha at 2008/09 costs)**
- For those irrigation systems with flow meters installed, energy indices were calculated at between **200 kWh/ML to 500 kWh/ML, or around $35/ML to $85/ML** . Variations depended on pump/irrigation sets efficiencies and the Total Dynamic Heads for those pumps.
- For dairy sheds on the three dairy farms audited, an average energy index of **168 kWh/cow** was estimated (at 2008/09 cost of **$29/cow**).

ARM Agricultural Resource Management

Estimated Pumping Cost Saving for Reduced System Pressure

System Flow Rate	**20.0**	l/sec
Potential Head (Pressure) Reduction	**10**	metres
Pump Efficiency	**75**	
Motor Size	**75**	(as installed)
Estimated Motor Efficiency	90	
Calculated reduction in Pump input kW	2.62	
Calculated reduction in Units at the Meter	2.91	
Estimated potential saving per hour off peak	$ 0.29	
Estimated potential saving per hour Peak	$ 0.67	
Hours Per Day	**20**	
Typical season length	**100**	days
Estimated potential saving per day (excluding fixed charges)	$ 9.24	
Estimated potential saving per ML	$ 6.42	
Estimated potential saving per season	$ 923.80	
Power Tariffs		
Fixed Charges	**241.874**	c/ day
Energy – Day Rate (7 am – 8 pm)	**22.975**	c/ kWh
Energy – Night rate (8 pm – 7 am)	**10.095**	c/ kWh

(Current Aurora Charges Sept 09)

Farm Energy Audits to Save $$$

Hydro Tasmania Consulting

The *Energy Self-Audit Tool for Tasmanian Farmers* developed by Hydro Tasmania Consulting provides detailed information on farm energy efficiency, as well as detailed energy efficiency checklists. It has information and detailed references for general farm operations, dairy farms, tractors and domestic energy use. Audits allow you to identify where the major energy costs are and to identify potential savings. Energy audits highlight that ***you cannot manage (save) what you cannot measure!***

√	Example Actions from a Farm Energy Audit Checklist
☐	Register for Aurora's on-line Services. Download Electricity Consumption Data (www.auroraenergy.com.au/online_services)
☐	Compile historical records for Diesel, Petrol, and other fuel uses on farm. Establish an Energy consumption History for the farm (min. 2 years)
☐	Establish annual energy use in kWh/Yr and energy costs in $/Yr
☐	Check that you are using the right tariffs (e.g. Irrigation tariffs used for very small pumps and pivots' motive power can be more expensive than General Tariff 22
☐	Check if you are using the full 11 hr/day under Low Rate tariff of Irrigation Tariff 73/74 (standard hours are only 10 hrs, but that can be extended to 11 hrs by signing a standard contract)

Irrigation Energy Efficiency

Well designed pumping and irrigation systems can save thousands of dollars each year in electricity charges. Seek professional advice when installing/upgrading your systems. Consider various capital and operating cost scenarios, particularly for pump setups. The *Pump Efficiency Calculator* is a useful tool for comparing efficiency of pumping systems and reducing costs.

One of the spreadsheets in the Pump Efficiency Calculator

The *Energy Self-Audit Tool for Tasmanian Farmers* (Word document) and the *Pump Efficiency Calculator* (Excel document) are both available from NRM North

ARM Agricultural Resource Management

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Australian Government Department of Agriculture, Fisheries and Forestry

Tasmania Explore the possibilities

NRM North Natural Resource Management in Northern Tasmania