Energy Costs

Tips to maximise irrigation energy efficiency

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Efficient pumping centres on having the correct size pump and the correct settings and installation to optimise performance.

To improve pumping efficiency, consider these options:

Low cost or no-cost options	• **Install a flow meter** to monitor water flow through pipes. • **Install sensors** to monitor pressure through pumps. • **Regularly check pumps for impeller wear,** damaged seals and bearings and for overheating. • **Optimise pump settings,** e.g. adjust variable-speed drive speed to reduce friction losses.
Higher cost options	• **Replace under-sized pumps** to better match the distribution system and crop requirements • **Replace motor controllers** with a variable-speed drive • **Replace single-phase induction motors** with 3-phase AC induction motors for larger loads • **Improve the overall design** of the distribution system

Next Steps

Substantial cost savings can often be achieved without spending a lot of money. For example, a Mareeba cane farm saved $9500 per year by simply optimising the operation of their variable speed drive pump.

There are often opportunities to create savings through investment in efficient motors and pumps alongside effective irrigation design. For example, an audit of a Childers cane farm found that an investment of about $30,000 to replace oversized pumps and install variable drives could save their business over $110,000 in operating costs over 10 years.

An audit of the whole irrigation system can reveal a need for more extensive changes to achieve greater efficiencies and cost savings. For example, a Bundaberg cane and sweetpotato farm installed variable frequency drives (VFD) at two pumps, a lateral move irrigator and changed the tariff for both pumps for a capital cost of $260,000 to achieve an energy cost saving of $86,323.

Engage with your productivity services and irrigation specialists to audit your current installation and identify opportunities to improve efficiencies.

Resources

Case study – Mareeba cane farm https://www.qff.org.au/newsroom/case-studies/mareeba-cane-farm/

Case study – Childers cane farm https://www.qff.org.au/newsroom/case-studies/childers-sugar-cane-2/

Case study – Bundaberg cane farm https://www.qff.org.au/newsroom/case-studies/queensland-sugar-cane-sweet-potato-farm/

https://www.aer.gov.au/consumers/my-energy-bill/tariff-and-fees-explained