OVERVIEW

A Burdekin sugarcane farmer uses a total of 12 pumps to irrigate 215 hectares of sugarcane. Groundwater is pumped to irrigate the crop using both furrow and drip irrigation. This farmer has been regularly reviewing his pumping tariffs for the past twenty years, generally using the Tariff Comparison Service provided by Ergon Energy. However, he found this service lacked detail regarding farm particulars such as specific site information and irrigation timing requirements. A process that could help him understand how to better manage irrigation timing was needed. The Energy Efficiency Gains for Australian Irrigators project was able to provide the tools for this farmer to make the most appropriate decision to allow him to minimise his energy costs and also maximise flexibility of his pumping infrastructure. The majority of his pumps were on Tariff 65, a transitional ‘time of use’ tariff which offers a low rate for electricity used within a fixed 12 hour period.

THE ASSESSMENT

The first step of the review involved a discussion with a project consultant regarding information on electricity usage patterns over a twelve month period (four consecutive quarters). The usage from twelve pumps on the farm was examined using the Energy Efficiency Gains for Australian Irrigators Tariff Comparison Calculator (web link provided on second page) to find the most cost effective tariff for that twelve month period. The tariffs compared were:

- Tariff 62, a transitional ‘farm time of use’ tariff;
- Tariff 65, a transitional ‘irrigation time of use’ tariff;
- Tariff 66, a transitional ‘irrigation’ flat rate tariff;
- Tariff 20, a small and large business ‘general supply’ tariff;
- Tariff 21, a transitional small business ‘general supply’ tariff; and
- Tariff 22, a transitional small and large business, ‘general supply time of use’ tariff.

Details of these tariffs can be found at the ‘Ergon Energy tariff information link’ provided below under ‘Useful Links’.

The next step was for the consultant to meet with the farmer again to explain the results for each pump and to discuss any implications changing tariff could have. For example, the costs incurred if meters or electrical supply switch boards need to be upgraded and how soon these costs could be recovered.

RECOMMENDATIONS

- Change Pump Tariffs – Based on historical use, it was recommended that five of the pumps be changed to Tariff 62, three of the pumps be changed to Tariff 65, one to Tariff 66 and the remaining two to Tariff 22 (Time of Use).
- Examine Irrigation management options - opportunities may also exist for additional savings to be made based on the use of tariffs. For example, for five of the pumps, the proposed tariff was actually more expensive for some of the quarters, however, the savings from other quarters resulted in an overall saving for the twelve month period. The savings could be increased even more by altering the irrigation schedule to better fit within scheduled off-peak usage times.
- Decommission low use pumps? – Of the twelve pumps examined, three had very little usage. Are these pumps really required? Could they be disconnected? Disconnecting the pumps may lower costs as any fixed charges or service fees will no longer have to be paid.
- Review Tariff Rules and Prices Regularly - pump usage and tariff rules should be reviewed regularly, price rises are predicted to occur annually until the end of the decade. An initial assessment can be done using the EEGAI Tariff Comparison Calculator.

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REMEDIAL ACTIONS

Realising the substantial savings possible just by using the best tariff for his circumstances resulted in this farmer doing a full review of his irrigation management practices. After completing an Energy Efficiency Gains for Australian Irrigators (EEGAI) workshop, using the EEGAI Tariff Calculator and completing a Tariff Comparison Review with a consultant, he felt more confident in his understanding of the implications of his irrigation management regime.

With the help of the EEGAI team, the grower made a decision to change all of his pumps to Tariff 62. This allows him access to 98 hours per week of off peak electricity use, compared to 84 hours per week off peak electricity which he received on Tariff 65. However, the additional hours are made up on the weekend.

To do this, two pump sites need major upgrades which are estimated to cost between $2000 and $2500 each. Meters also need to be upgraded on the other eight sites at an estimated cost of $500 each. Therefore, the initial cost of changing tariffs for this farmer is estimated to be $9000. However, this initial outlay will make any future tariff changes much simpler and more cost effective.

OUTCOMES

Changing to the most appropriate tariff can potentially save this farmer $5,642 per year. Therefore, in approximately 1.5 years, the initial outlay of $9000 to upgrade meters would be recovered. Changing irrigation practices to better utilise the tariff conditions is likely to save this farmer even more money as he is more aware of the consequences of irrigating during peak billing hours. Tariff 62 was most suited to this grower’s financial situation and lifestyle. Other tariffs may be more appropriate to other farmers based on the individual circumstances of each business operation.

RESULTS

For this farmer’s circumstance, the most cost effective tariff was determined to be Tariff 62 for five pumps, Tariff 65 for three pumps, Tariff 66 for one pump and Tariff 22 (Time of Use) for the remaining pumps. By changing to these tariffs, the potential savings over the twelve month period was calculated to be $5,642 (costs involved with changing from one tariff to another have not been included). The majority of savings ($4,927) were contributed by only six of the pumps. The amount saved for each of these six pumps can be seen in Figure 3, along with the:

- Total energy cost over the four quarter billing period for the current tariff (blue);
- Expected total energy cost using the proposed, lowest cost tariff over the four quarter period (red), and;
- Dollars saved had the proposed tariff been used (green).

![Figure 3 - Comparison of energy costs and potential savings over a 12 month period](Image)

USEFUL INTERNET LINKS

Ergon Energy tariff information

Energy Efficiency Gains for Australian Irrigators Tariff Comparison Calculator

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