

Tariff Review

At Two Pump Sites

This case study summarises the review of tariffs associated with two irrigation pump accounts at a site in Central Queensland in December 2020.

Background Information

One centrifugal pump, located on the Pioneer River, runs a soft-hose winch at night and fills the dam during the day. The second pump, located on the dam, is used to run a hard-hose winch.

Different pump operation times, resulting in different peak and off-peak pumping times, were assessed to gain an understanding of how management can impact energy costs.

All small business tariffs (see notes below) were examined and a limited number of tariff options are reported in this case study.

Site 1: Dam pump tariff review

The data from the review is shown in Table 1. Key observations from the data include:

- Two years of energy records were available.
- The account is classified as a 'Small Business' account (uses less than 100,000 kWh per year).
- Year 1 has almost twice the energy usage of Year 2. This is a large variation.
- The current tariff used in 'Time-of-Use' tariff (T62), which is an obsolete tariff that was removed on 30 June 2020, and the account was to move to T20 (the default 'Small Business' tariff).
- The tariff review compared all 11 Small Business tariffs but the results for only four tariff options are shown here.

Options considered for this pump

Current costs – Tariff 62 (T62)

- Year 1: cost of \$9075, with an average energy cost of 36 c/kWh.
- Year 2: cost of \$3876, with an average energy cost of 27 c/kWh
- These costs are a combination of energy costs and daily supply charge.
- In both years, the cost was affected by the amount of peak and off-peak pumping, i.e. how the pumping time was managed.

Change to Tariff 20 (T20)

- Changing to T20 would result in a lower energy cost in Year 1, but a higher cost in Year 2.
- Over the 2-year period, T20 would have reduced energy costs by \$1767 (a saving of 13.6%).

Change to Tariff 33, 34 or 24 0%

- Changing to one of these three tariff options (T33, T34 or T24 0%) would have resulted in a saving of over 30 per cent compared to the original T20 tariff cost.
- These three tariffs produced very similar results for both years. T33 was the best overall by a small margin, producing a 37 per cent saving of \$4790.

Table 1 – Dam pump (37 kW)

Year*	Total	Current T62		Default T20			Proposed T33			Proposed T34			Proposed T24 0%		
	kWh	Cost	\$/kWh	Cost	Saving / Loss	\$/kWh	Cost	Saving	\$/kWh	Cost	Saving	\$/kWh	Cost	Saving	\$/kWh
	kWh	\$	\$/kWh	\$	\$	\$/kWh	\$	\$	\$/kWh	\$	\$	\$/kWh	\$	\$	\$/kWh
Y1	25,285	9075	0.36	6990	2,085	0.28	5063	4012	0.20	5290	3785	0.21	5053	4022	0.20
Y2	14,385	3876	0.27	4194	-318	0.29	3098	778	0.22	3210	666	0.22	3074	802	0.21
Total	39,670	12,951	0.326	11,184	1767	0.158	8161	4790	0.587	8500	4451	0.524	8127	4824	0.594

*Y1 and Y2 represents the time period of November 2018 – November 2019 and November 2019 – November 2020. Values are GST inclusive.

Site 2: River pump tariff review

The data from the review is shown in Table 2. Key observations from the data include:

- Two years of energy records were available.
 - The account is classified as a 'Small Business' account (uses less than 100,000 kWh per year).
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- Year 2 used about 31 per cent more energy than Year 1.
- The current tariff used in 'Time-of-Use' tariff (T62), which is an obsolete tariff that was removed on 30 June 2020, and the account was to move to T20 (the default 'Small Business' tariff)
- The tariff review compared all 11 Small Business tariffs but the results for only four tariff options are shown here.

Options considered for this pump

Current costs – Tariff 62 (T62)

- Year 1: cost of \$14,171, with an average energy cost of 35 c/kWh.
- Year 2: cost of \$15,536, with an average energy cost of 30 c/kWh.
- These costs are a combination of energy costs and daily supply charge.
- In both years, the cost was affected by the amount of peak and off-peak pumping, i.e. how the pumping time was managed.

Change to Tariff 20 (T20)

- Changing to T20 would result in a lower energy cost in both years.
- Over the 2-year period, T20 would have reduced energy costs by \$5012, a saving of almost 17%.

Change to Tariff 33, 34 or 24 0%

- Changing to one of these three tariff options (T33, T34 or T24 0%) would have resulted in a saving of over 37 per cent compared to the original T20 tariff cost.
- These three tariffs produced very similar results for both years. T33 was the best overall by a small margin, producing a 41 per cent saving of \$12,060.

Table 2 – River pump (45 kW)

Year*	Total kWh	Current T62		Default T20			Proposed T33			Proposed T34			Proposed T24 0%		
		Cost \$	\$/kWh	Cost \$	Saving \$	\$/kWh	Cost \$	Saving \$	\$/kWh	Cost \$	Saving \$	\$/kWh	Cost \$	Saving \$	\$/kWh
Y1	40,015	14,171	0.35	10,751	3420	0.27	7702	6469	0.19	8085	6086	0.20	7707	6464	0.19
Y2	52,483	15,536	0.30	13,944	1592	0.27	9945	5591	0.19	10,460	5076	0.20	9966	5570	0.19
Total	46249	14853.5	0.321	12347.5	2506	0.203	8823.5	6030	0.683	9272.5	5581	0.602	8836.5	6017	0.681

*Y1 and Y2 represents the time period of October 2018 – October 2019 and October 2019 – October 2020. Values are GST inclusive.

Things to consider

- The results shown here are specific to these two accounts and this farmer's current management of the pumps.
- In the review, other tariffs were considered and showed a wide range of costs. Many showed higher costs than the tariff costs reported here. Costs are based on tariff costs for options available on 01/03/2021.
- The amount of peak and off-peak pumping time influences energy costs.

General notes on tariffs

T20	This is a default tariff, a small business flat-rate primary tariff.
T33	Small business flat-rate secondary tariff with interruptible supply. As a secondary tariff, it must be installed with a primary tariff (e.g. Tariff 20). If Tariff 33 is selected, farmers need to be aware that the energy supply will be available for a minimum of 18 hours daily. The times and duration when power is switched off may change every day. T33 could have energy 24 hours per day. There may be additional costs if the existing meter box is too small or does not meet minimal electrical compliance. Additional costs (metering costs and electrical) may be incurred if two meters are required.
T34	Small business flat-rate primary tariff with interruptible supply. Supply will be available for a minimum of 18 hours daily but may be reduced in an emergency.
T33 & T34	These two tariffs are very similar in how they are managed by Ergon, but the charging rates are different.
T24	Charges apply for daily connection, energy used and demand. The demand charges are based on the average kilowatt (kW) demand for electricity used between 10 am and 8 pm weekdays (measured in half hour intervals), known as the daily chargeable demand. The demand charge is higher in the summer months compared to other months. The farmer needs to avoid pumping during the chargeable demand period, weekdays 10 am to 8 pm, all year to maximise the saving. In the two situations discussed, 'T24 0%' refers to no pumping during the chargeable demand period.