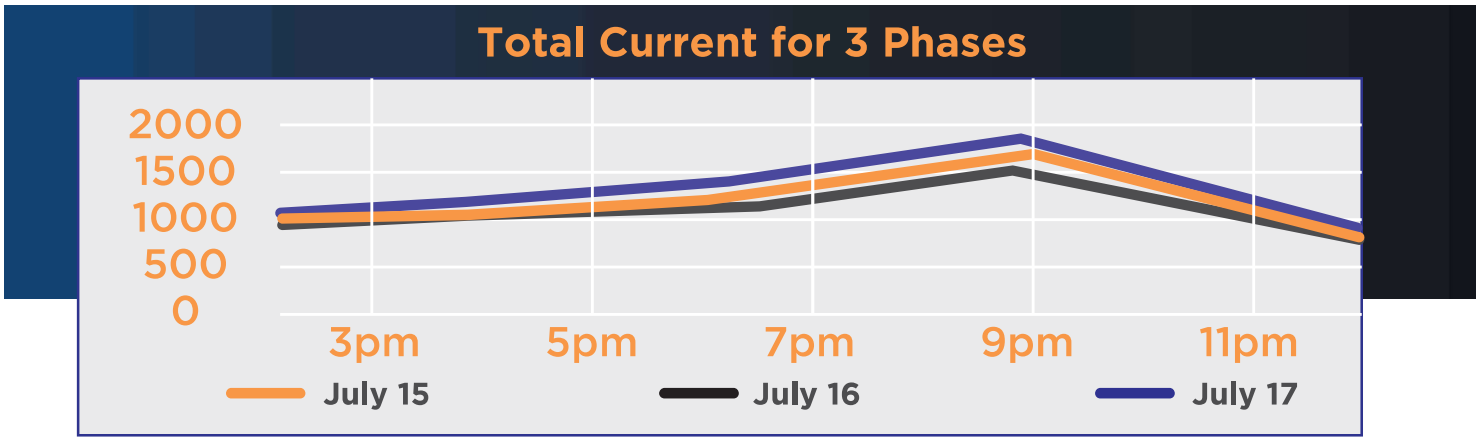
WMAC TRANSFORMER SENSOR

USE CASE: Effect of Electric Kiwi Hour of Free Power

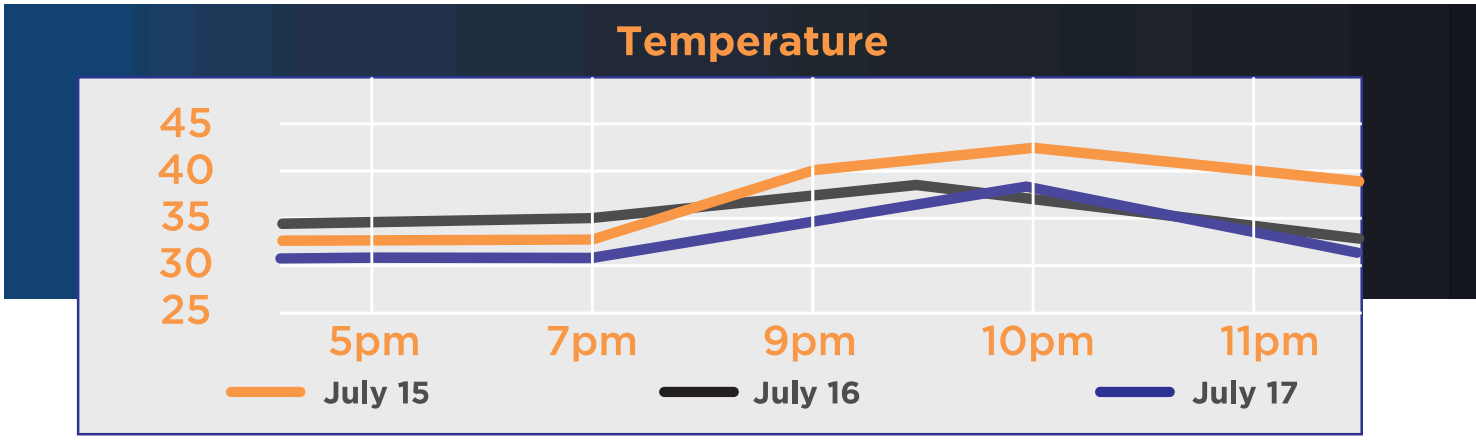
The WMAC DTM was installed in a residential transformer that serviced a large student population and the local Electricity Distribution Business was keen to understand the load characteristics. Especially the impact of the Electric Kiwi Free Hour of Power promotion https://www.electrickiwi.co.nz/hour-of-power.

Free Hour of Power allows customers to choose 1 hour of off-peak time to have free power. For students, from 9 pm to 10 pm was by far the most popular time.

Below is the average total current load for this transformer with the 1-hour average load at 3pm, 5pm, 7pm, 9pm and 11pm over 3 days. The students were not home on Friday and Saturday nights as the 9pm averages on these nights were well below weekdays.



During the 9 to 10pm period, the 300KVA transformer was operating at between 130 and 150% of capacity, during this time there was no appreciable temperature increase measured on the oil tank.



Based on a traditional approach using MDI data this transformer would have had to be replaced with a bigger transformer. But after reviewing the current and temperature data from the WMAC DTM it was obvious that although the transformer overloaded for periodsof time, was coping and there was no need to replace it with a bigger transformer.

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