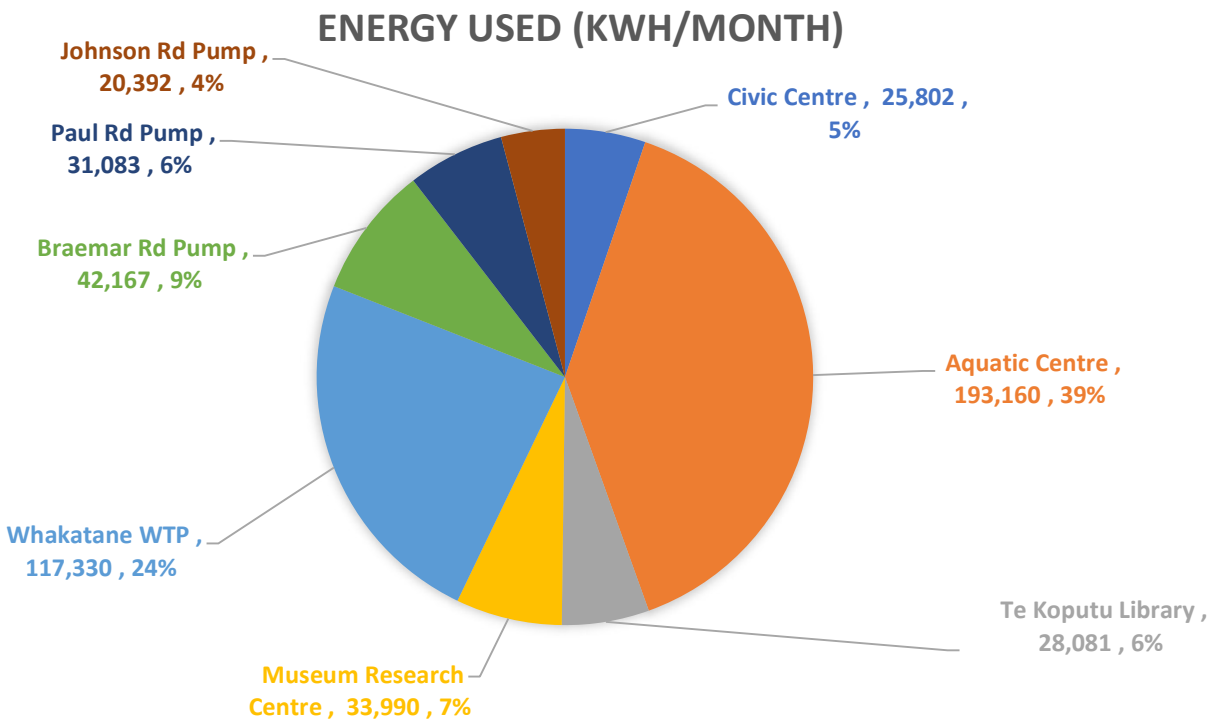
# Whakatāne District Council Energy Performance Report

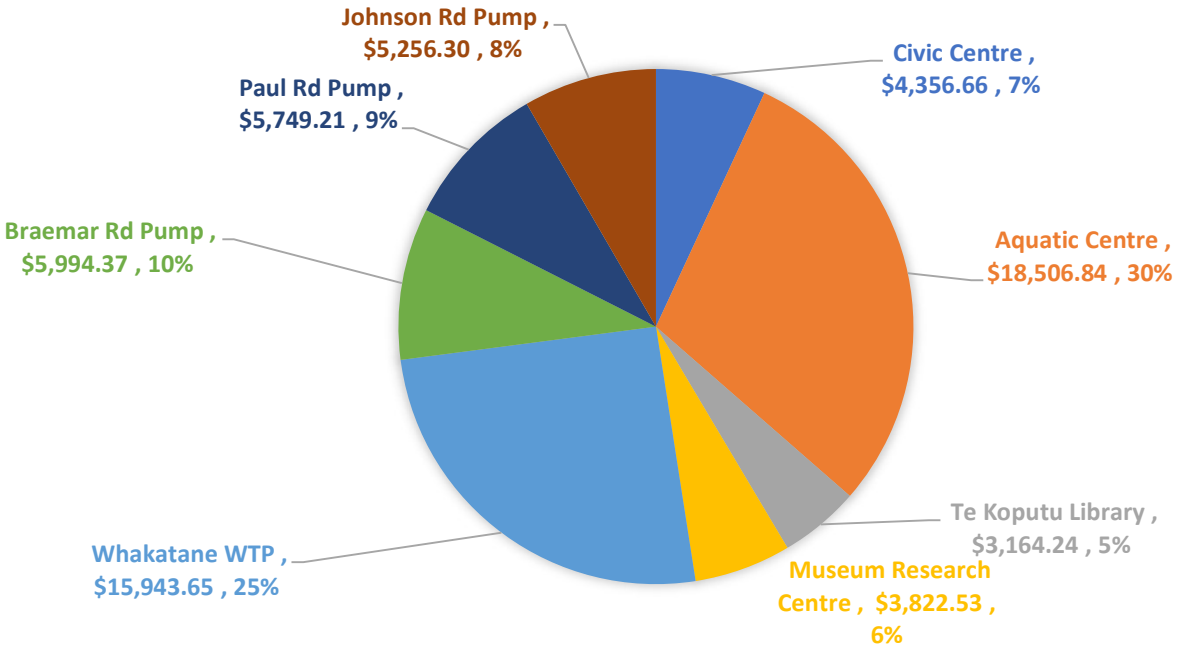
**Summary**

For Eight of Whakatāne District Council's largest energy using sites:

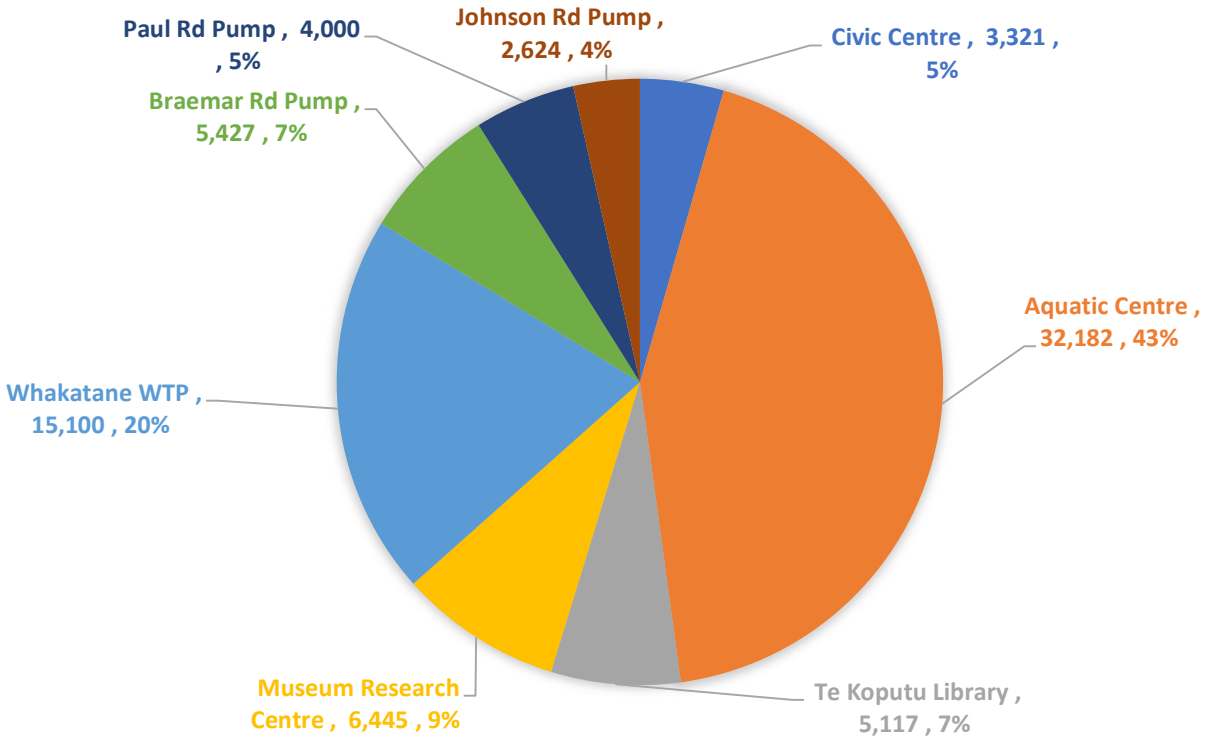
- Total energy used for the month was 504,514 kWh
- Total energy cost for the month was $65,590
- Total carbon emissions for the month were 75,826 kgCO2e
- Rolling 12-month energy savings total 827,750 kWh
- Rolling 12-month energy cost savings total $57,896
- Rolling 12-month carbon savings total 171,707 kgCO2e



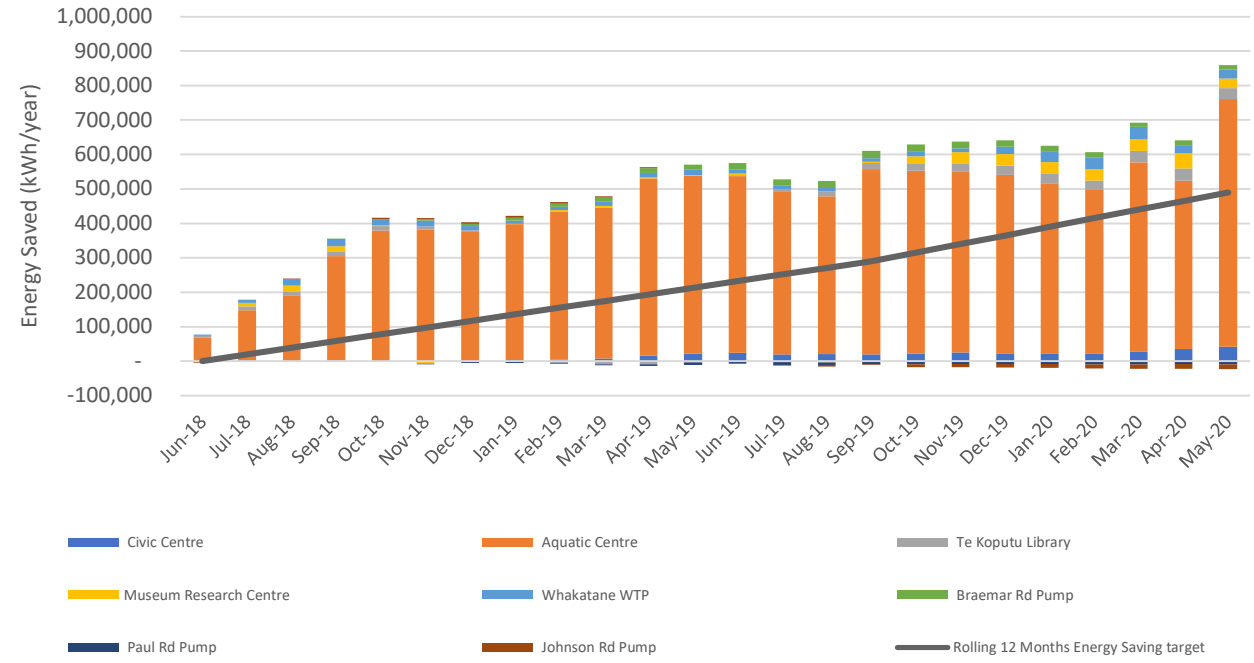
## ENERGY COST ($/MONTH)



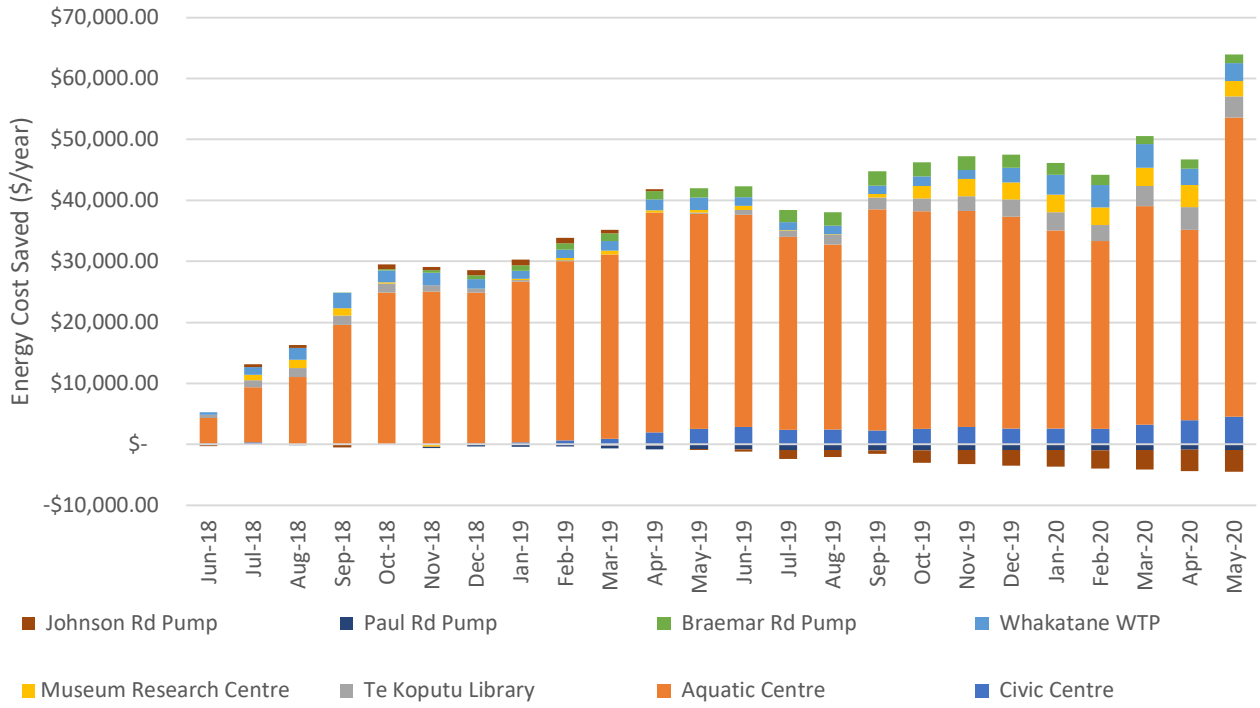

## CARBON EMISSIONS (KGCO2E/MONTH)

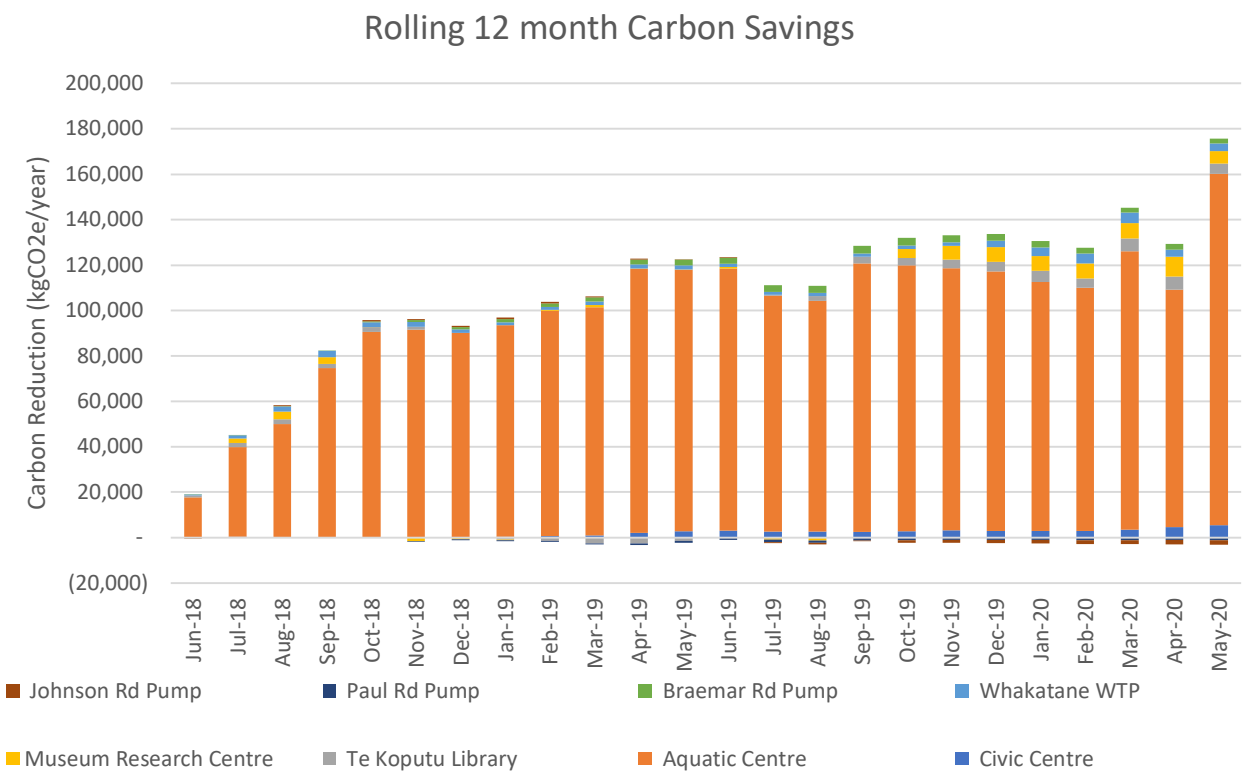


## Rolling 12 month Energy Savings




## Rolling 12 month Energy Cost Savings




Rolling 12 month Carbon Savings
Carbon Reduction (kgCO2e/year)
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
-
(20,000)
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Johnson Rd Pump
Paul Rd Pump
Braemar Rd Pump
Whakatane WTP
Museum Research Centre
Te Koputu Library
Aquatic Centre
Civic Centre

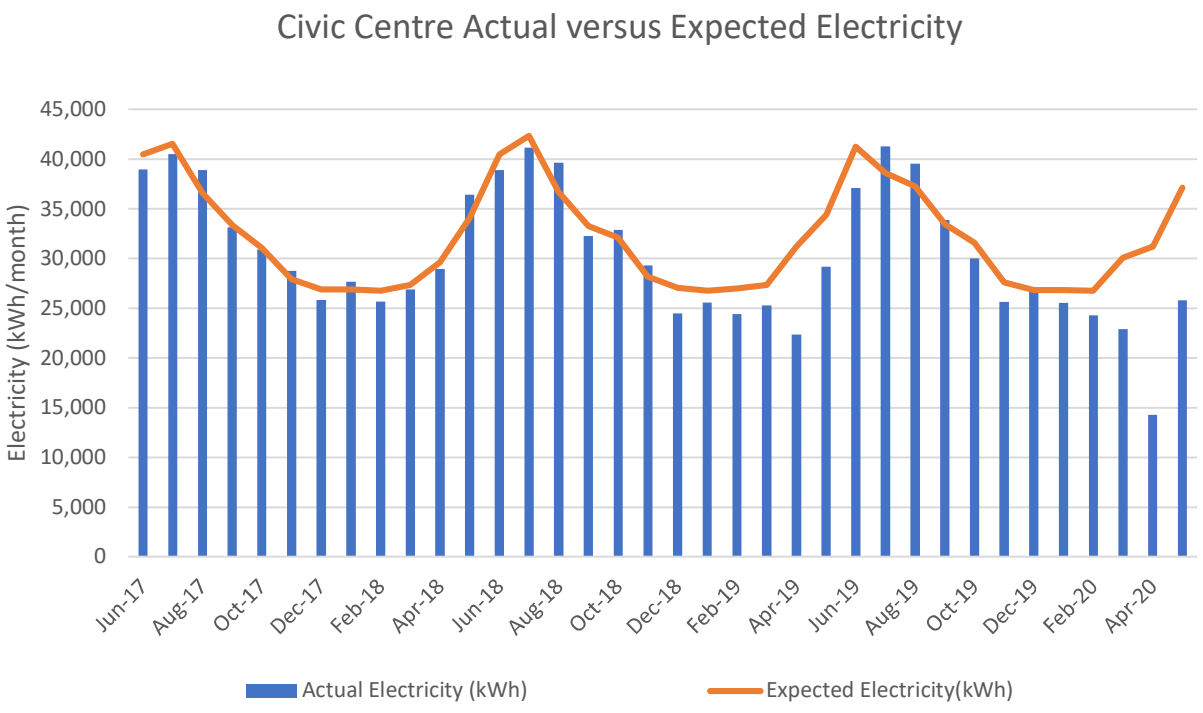
# Civic Centre

**Summary**

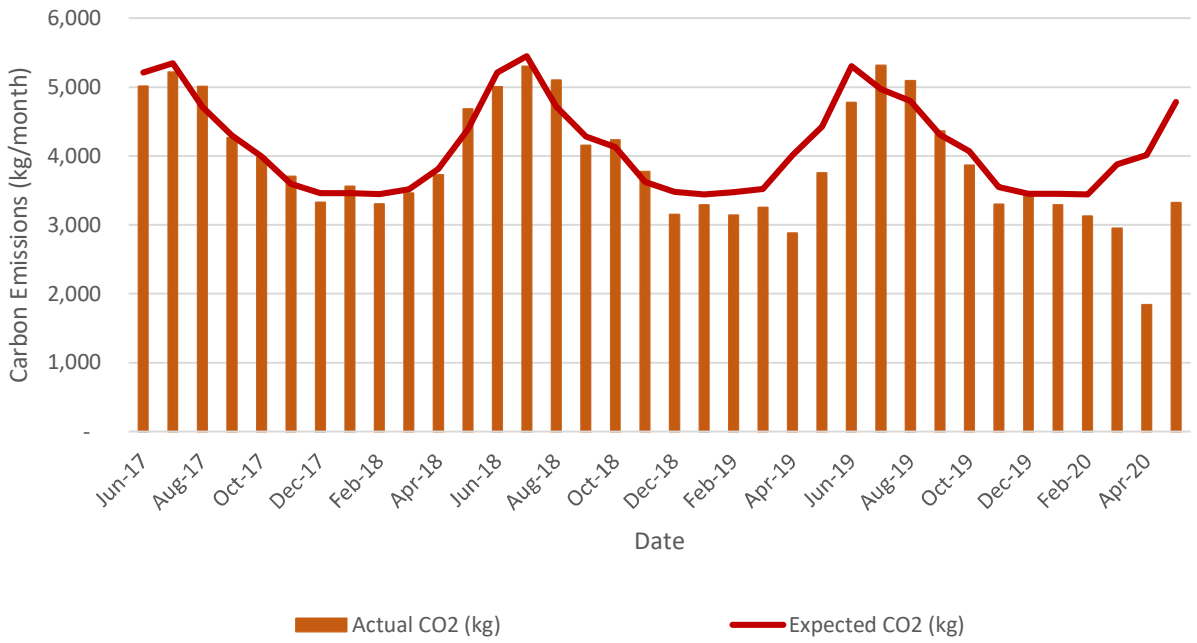
- Electricity savings for the month were 11,350kWh, a saving of 30.6%.
- Energy cost savings for the month were $1,255.
- Carbon savings for the month were 1,461 kgCO2e, a saving of 30.6%.
- Rolling 12-month electricity savings are 41,505 kWh, a saving of 10.7%.
- Rolling 12-month energy cost savings are $4,556.
- Rolling 12-month carbon savings are 5,342 kgCO2e, a saving of 10.7%.

**Comments**

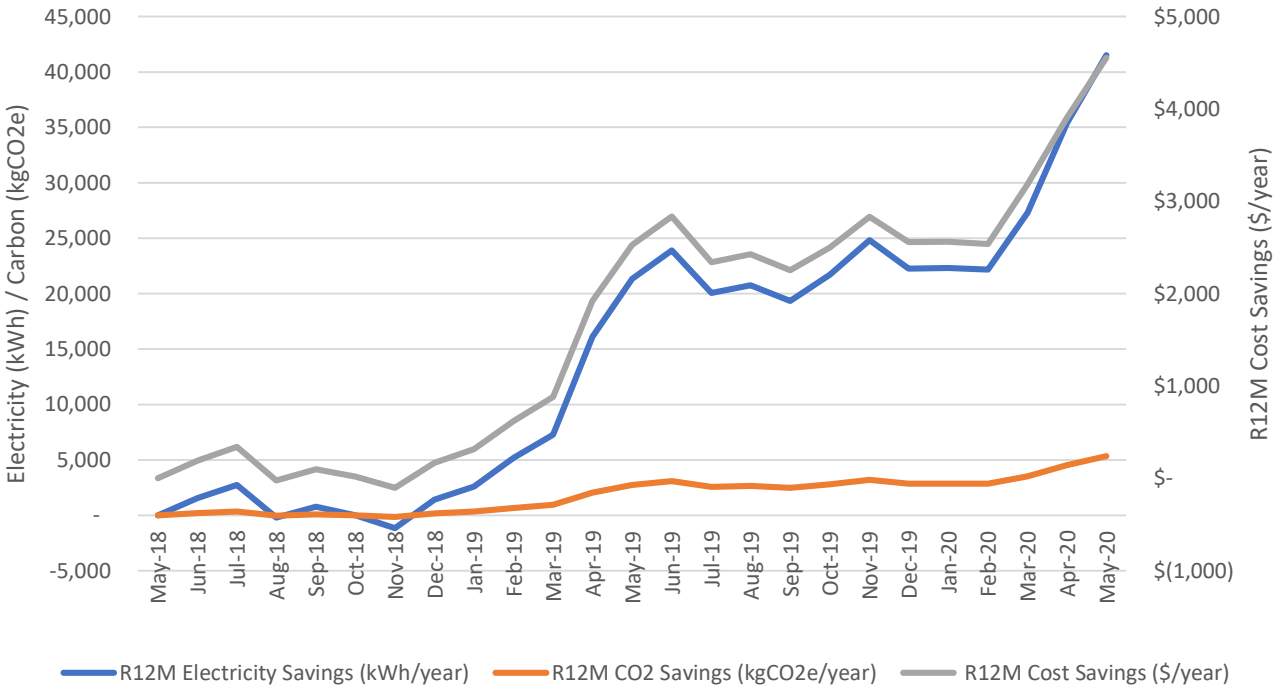
May 2020 electricity use at the Civic Centre was less than 3/4 of expected. This is related to the Covid 19 lockdown with some staff still working from home. The baseline adjusts for heating degree days which is a measure of ambient temperature, however it does not adjust for occupancy because under normal circumstances this is relatively constant. It will be interesting to note the ongoing energy implications of staff continuing to work from home some days of the week.



## Civic Centre Actual versus Expected CO2




## Civic Centre Cumulative Rolling 12 Month Savings



# Aquatic Centre

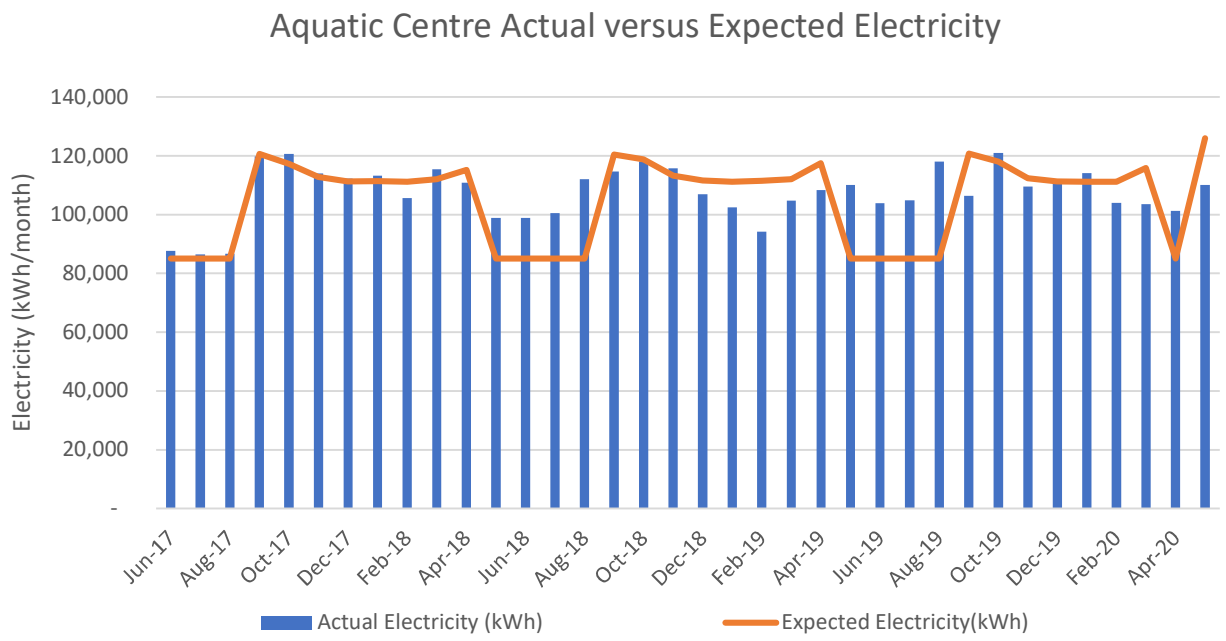
**Summary**

- Electricity savings for the month were 15,992kWh, a saving of 12.7%.
- Natural gas savings for the month were 216,288 kWh, a saving of 72.2%
- Energy cost savings for the month were $16,965.
- Carbon savings for the month were 48,985 kgCO2e, a saving of 60.4%.
- Rolling 12-month electricity savings are -41,958 kWh, an extra 3.3%.
- Rolling 12-month natural gas savings are 761,348 kWh, a saving of 62.3%
- Rolling 12-month energy cost savings are $49,026.
- Rolling 12-month carbon savings are 154,955 kgCO2e, a saving of 36.6%.

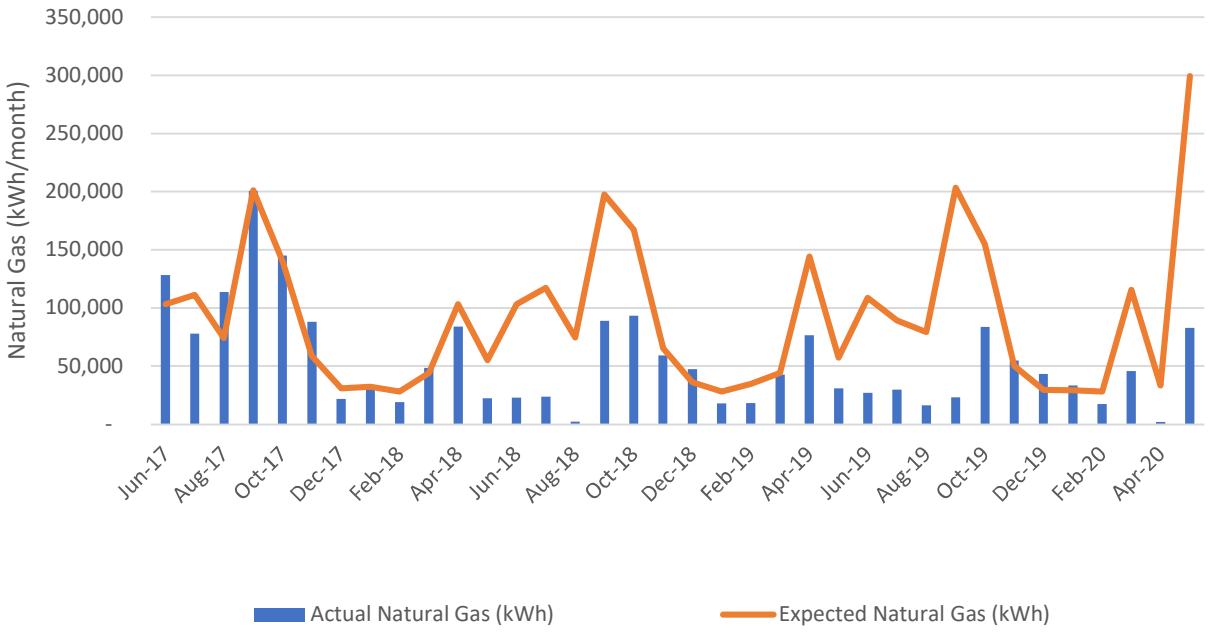
**Comments**

For the month of May, a baseline was used that includes heating for the outdoor pool. May is not normally a month where the outdoor pool is in use; however, the outdoor pool was used in May to allow extra occupancy during social distancing measures. Electricity use at the Aquatic Centre is similar to May 2019.

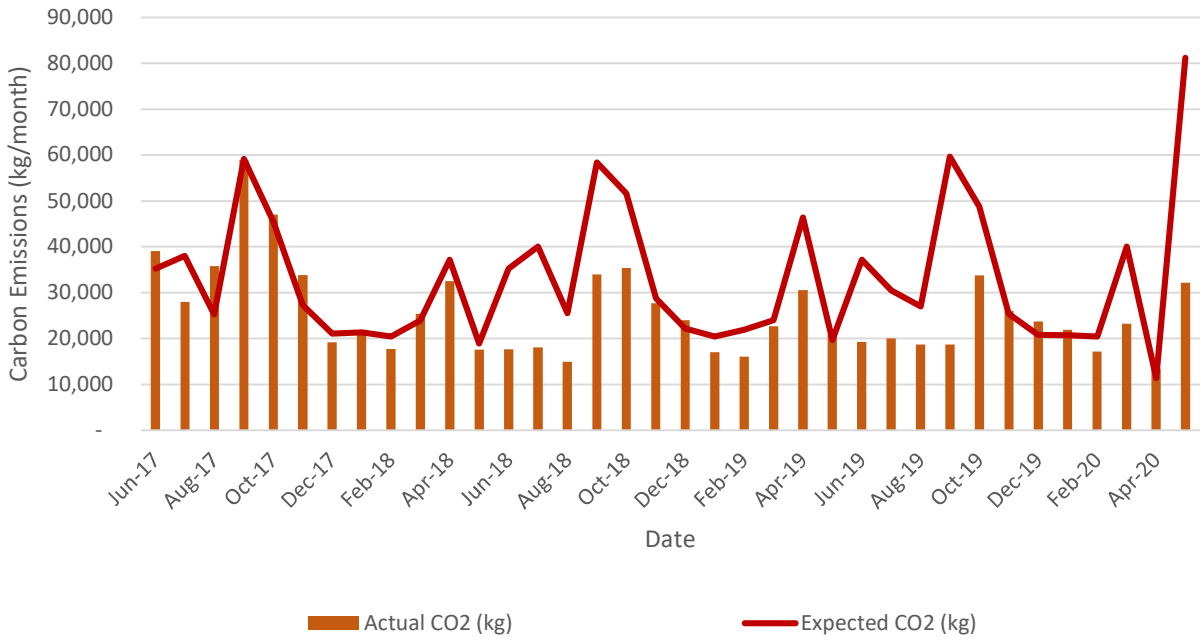
Natural Gas use in May 2020 is 167% higher than it was in 2019; however, the outdoor pool was not open in May 2019. Additionally, the pool had to be re-heated in May 2020 after it was closed due to the Covid-19 lockdown. The gas boilers have been used to heat the pool and maintain temperatures since 2 May. Expected gas use is substantially higher in May 2020 than any other month historically, because this is the first time the outdoor pool has been in use during such a cold ambient temperature month.

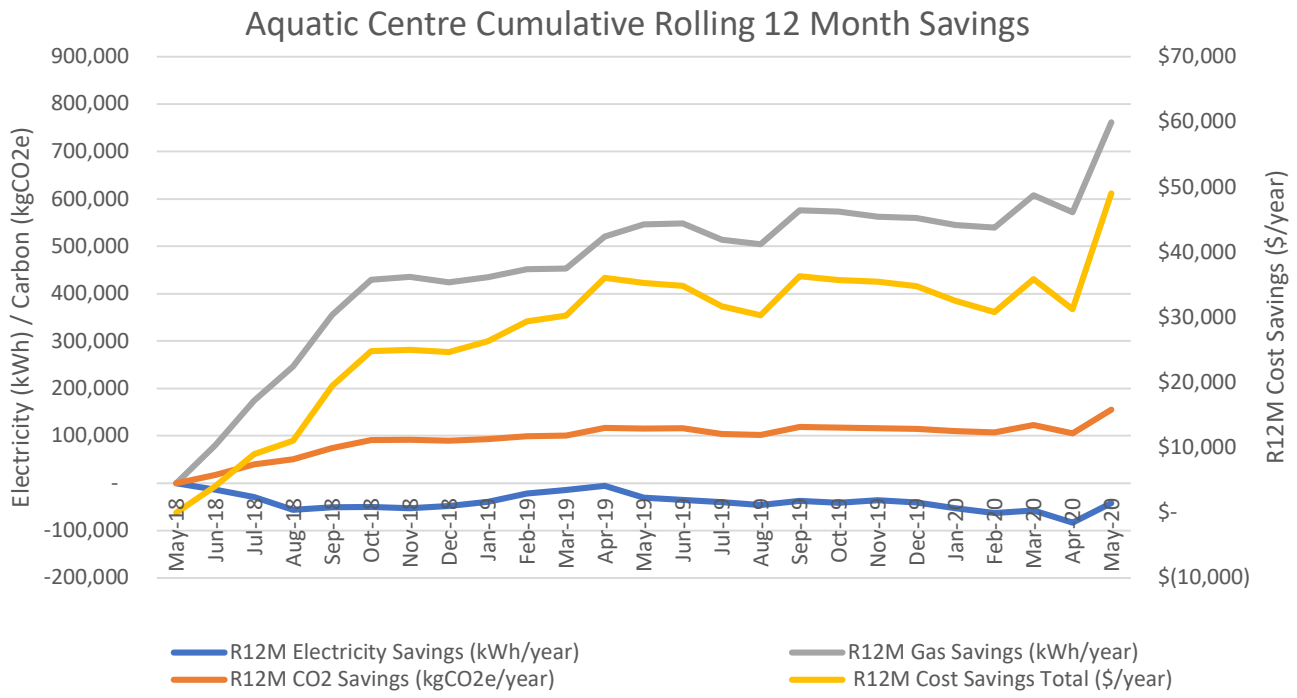


## Aquatic Centre Actual versus Expected Natural Gas




## Aquatic Centre Actual versus Expected CO2




Aquatic Centre Cumulative Rolling 12 Month Savings
Electricity (kWh) / Carbon (kgCO2e)
R12M Cost Savings ($/year)
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
-100,000
-200,000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$-
$(10,000)
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
R12M Electricity Savings (kWh/year)
R12M Gas Savings (kWh/year)
R12M CO2 Savings (kgCO2e/year)
R12M Cost Savings Total ($/year)

# Te Koputu Library

**Summary**

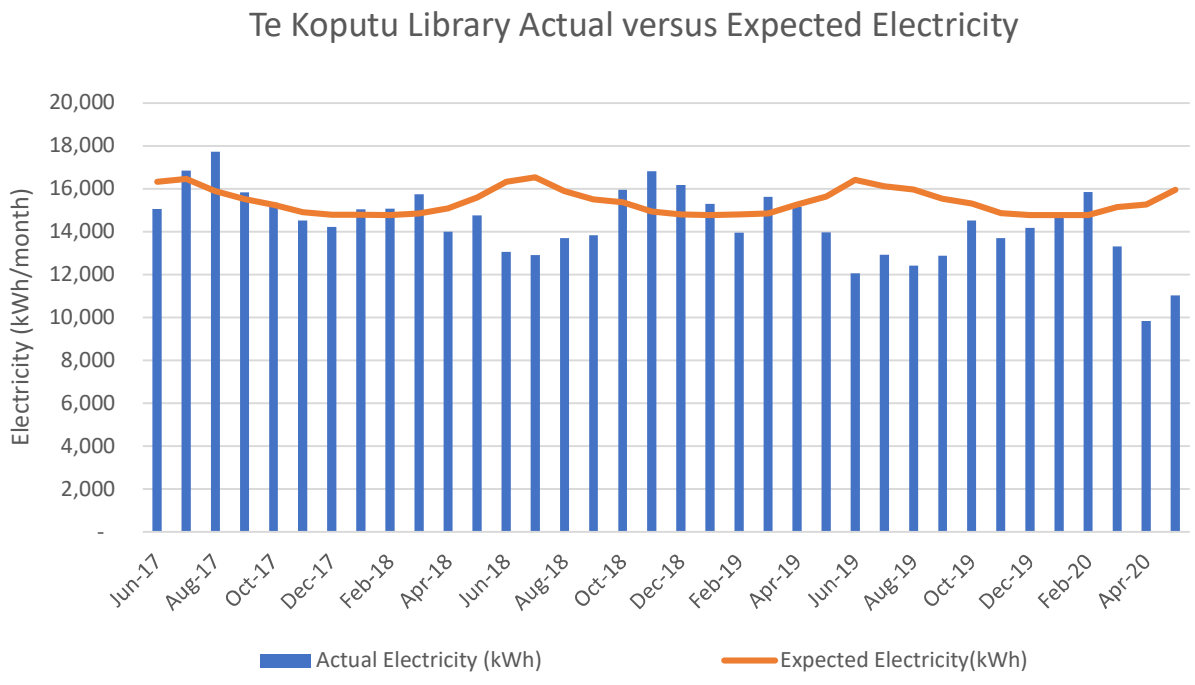
- Electricity savings for the month were 4,923kWh, a saving of 30.9%.
- Natural gas savings for the month were -3,961 kWh, an extra 30.3%
- Energy cost savings for the month were $244.
- Carbon savings for the month were -221 kgCO2e, an extra 4.5%.
- Rolling 12-month electricity savings are 27,537 kWh, a saving of 14.9%
- Rolling 12-month natural gas savings are 3,904 kWh, a saving of 3.2%
- Rolling 12-month energy cost savings are $3,490.
- Rolling 12-month carbon savings are 4,444 kgCO2e, a saving of 8.9%.

**Comments**

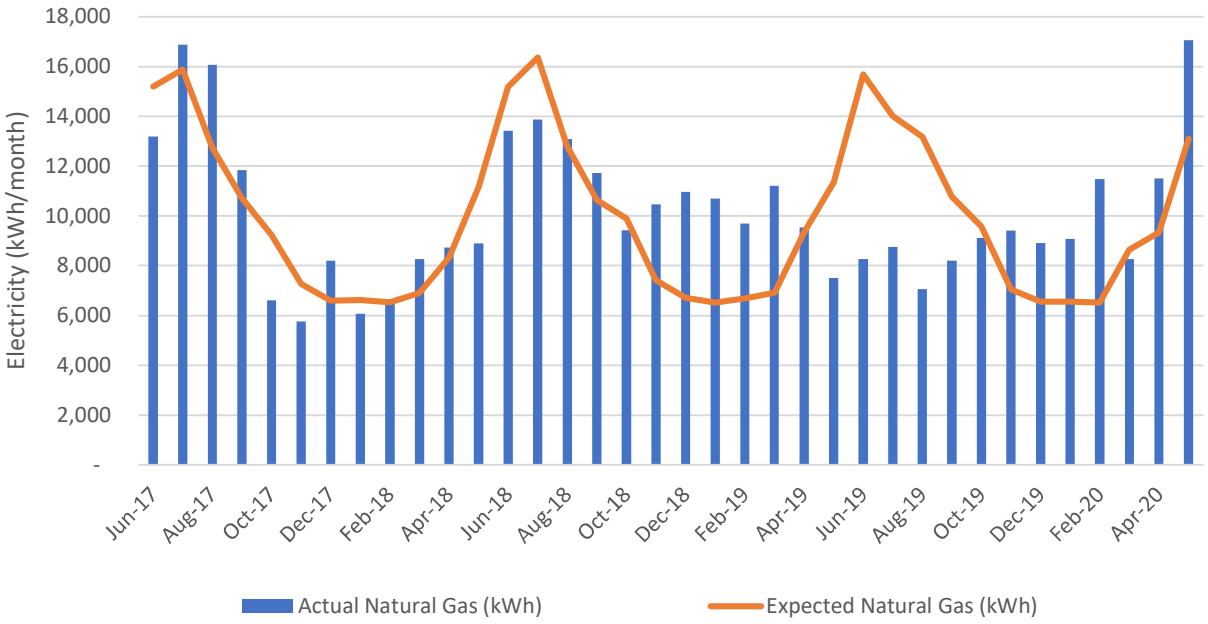
The library achieved  significant electricity savings for May 2020, although electricity has increased from April 2020. This shows the impact of reduced occupancy, since the library was open, but had social distancing measures in place. Electricity use was still approx 70% of expected.

In the past, April and May have been the beginning of a seasonal reversal in energy use.  Lower electricity use for May 2020 is likely due in part to the seasonal reversal trend, as well as reduced occupancy from Covid-19.

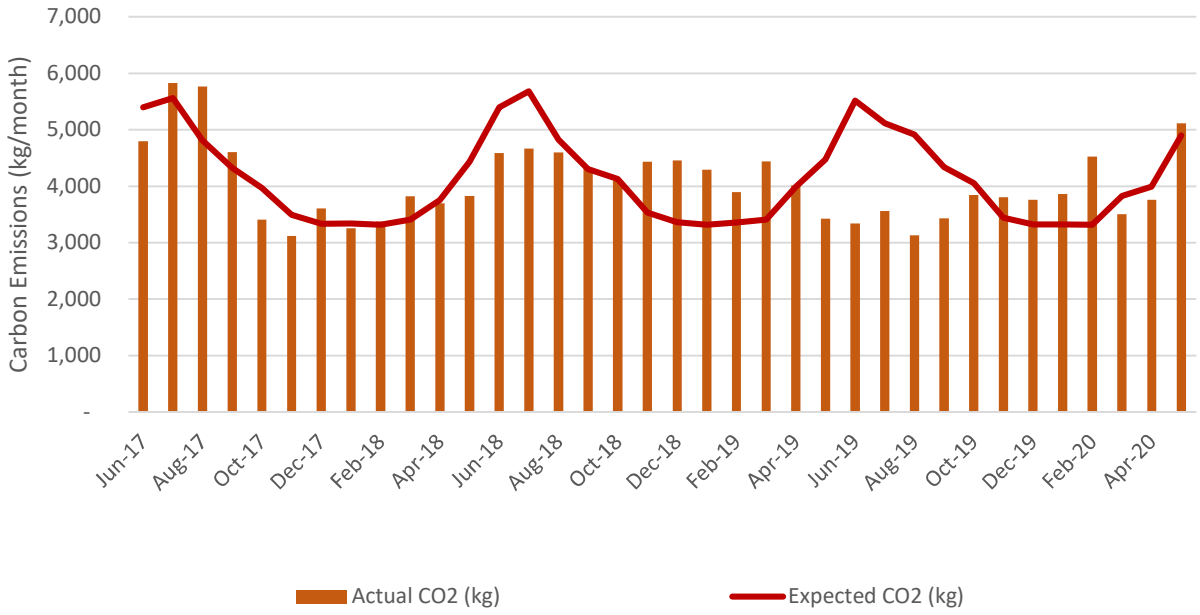
Gas use at the library in May 2020 was 30% greater than baseline for the month, and was the highest it has been in the last three years. It was more than double the gas use in May 2019. The HVAC system at the library continues to be an area of erratic performance.

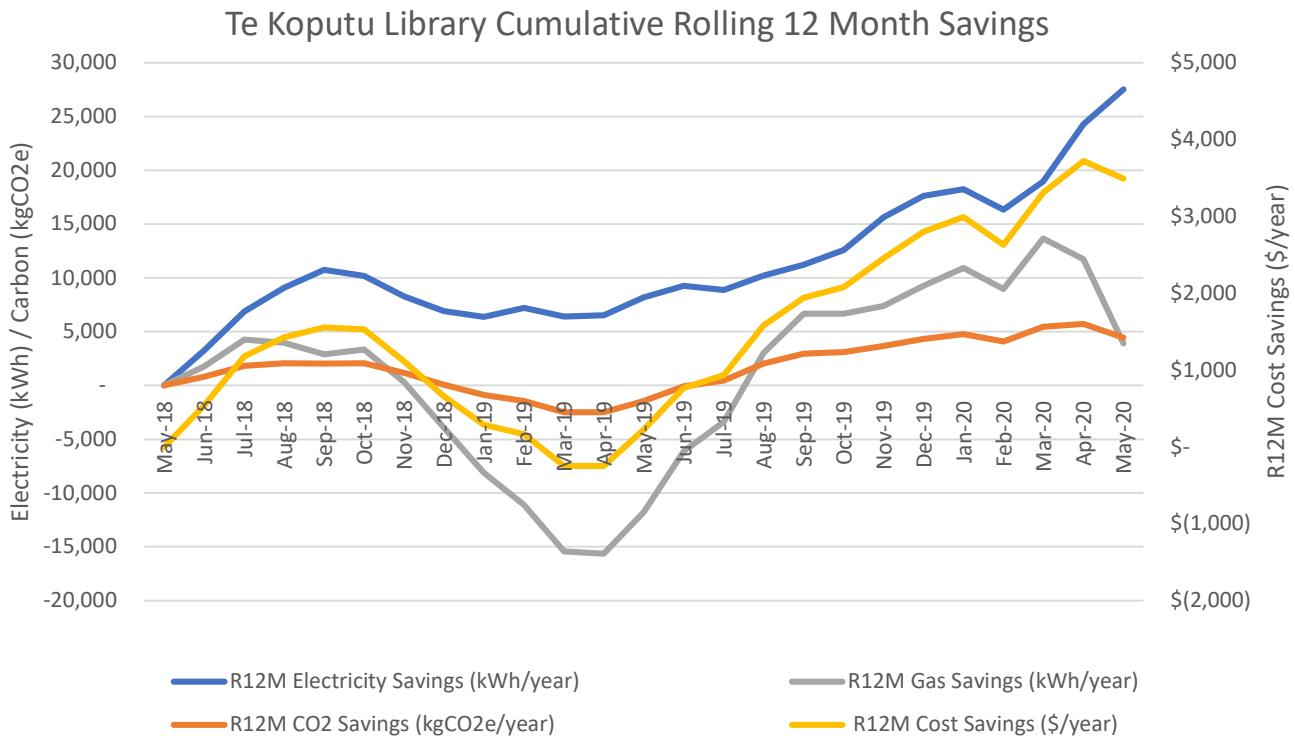


## Te Koputu Library Actual versus Expected Natural Gas




## Te Koputu Library Actual versus Expected CO2




Te Koputu Library Cumulative Rolling 12 Month Savings
Electricity (kWh) / Carbon (kgCO2e)
R12M Cost Savings ($/year)
30,000
25,000
20,000
15,000
10,000
5,000
-
-5,000
-10,000
-15,000
-20,000
$5,000
$4,000
$3,000
$2,000
$1,000
$-
$(1,000)
$(2,000)
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
R12M Electricity Savings (kWh/year)
R12M Gas Savings (kWh/year)
R12M CO2 Savings (kgCO2e/year)
R12M Cost Savings ($/year)

# Museum Research Centre

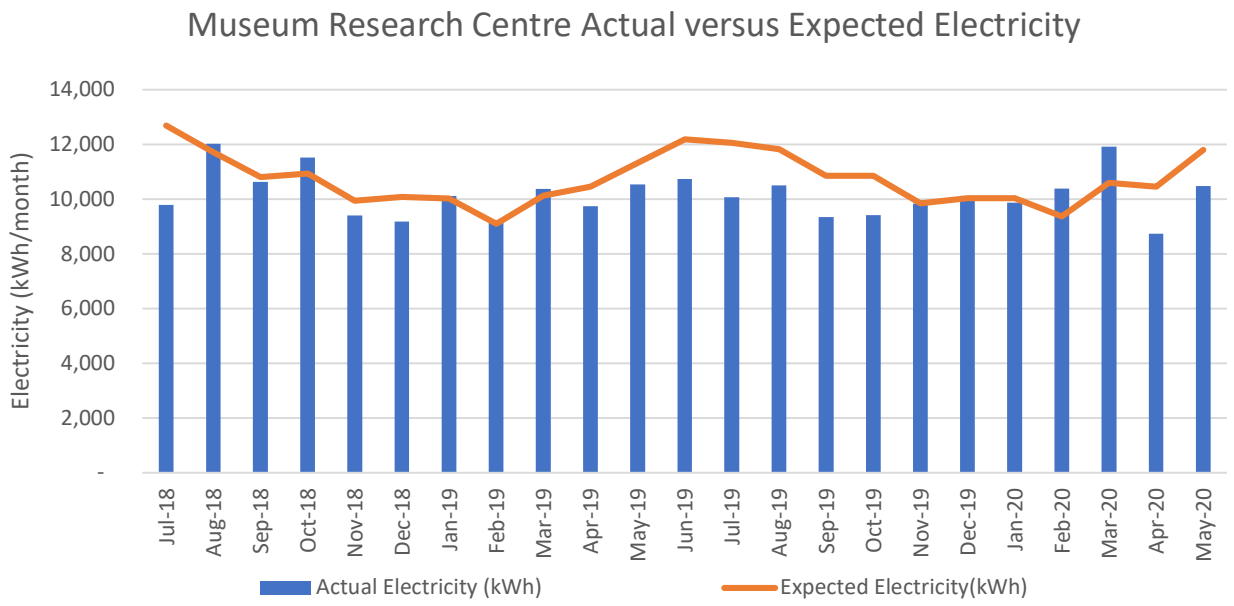
**Summary**

- Electricity savings for the month were 1,315kWh, a saving of 11.1%.
- Natural gas savings for the month were -16,641 kWh, an extra 242.5%
- Energy cost savings for the month were -$1,076, which is an increase.
- Carbon savings for the month were -3,439 kgCO2e, an extra 114.4%.
- Rolling 12-month electricity savings are 8,465 kWh, a saving of 6.5%
- Rolling 12-month natural gas savings are 19,868 kWh, a saving of 25.6%
- Rolling 12-month energy cost savings are $2,533.
- Rolling 12-month carbon savings are 5,397 kgCO2e, a saving of 16.1%.

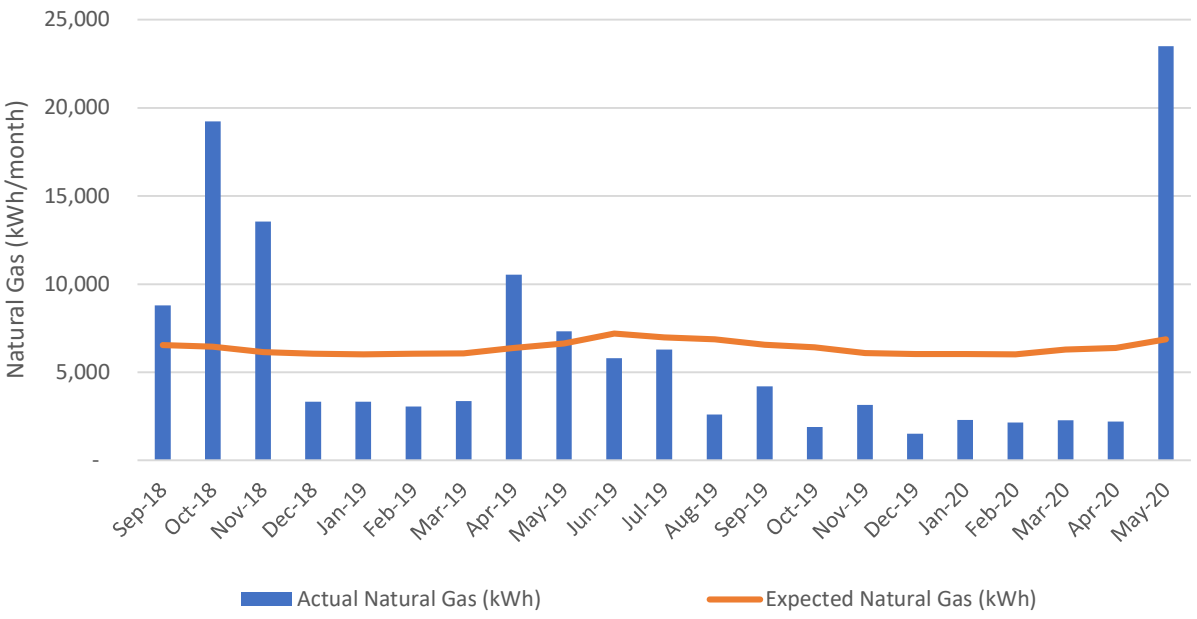
**Comments**

Electricity savings at the Museum and Research Centre have decreased from 16.5% in April to 11% in May. This is likely to be largely due to lockdown effects and increasing occupancy levels in May. However, this also indicates that a large part of the electricity use is baseload and not affected by occupancy.

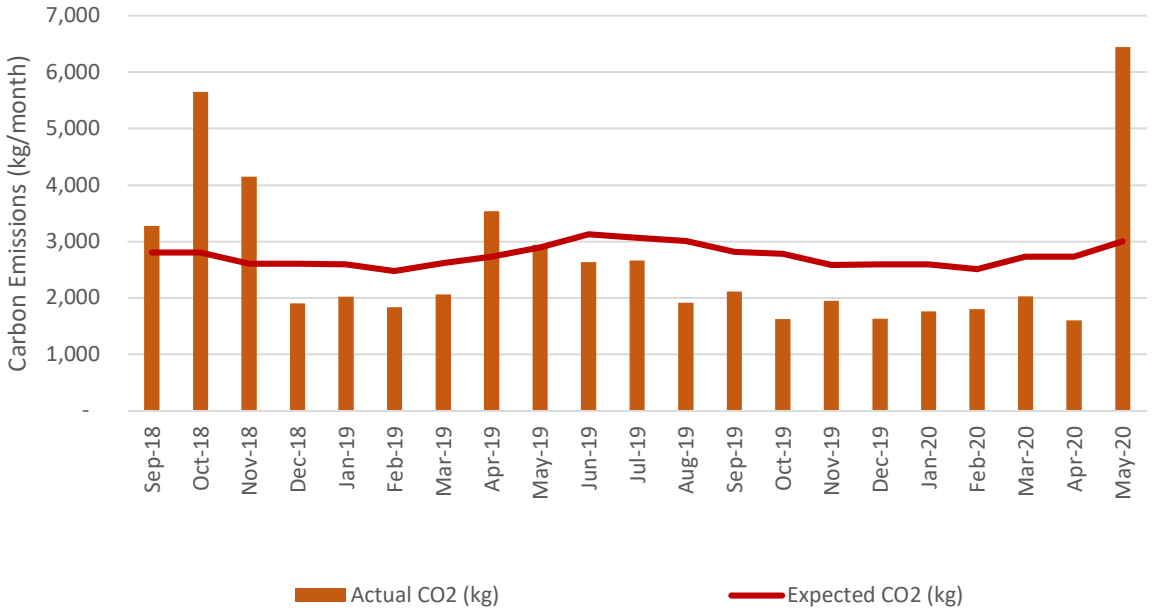
Gas use for the month was extremely high for the month, at approx 240% above baseline. Compared to 2019, May 2020's gas use is greater than three times higher. This should be investigated to identify the main contributing factors to the exceptional gas use. It is possible this value was an estimate only by the gas company. Monthly readings of the meter should be taken manually to avoid any potential estimations being substantially different to actual use.

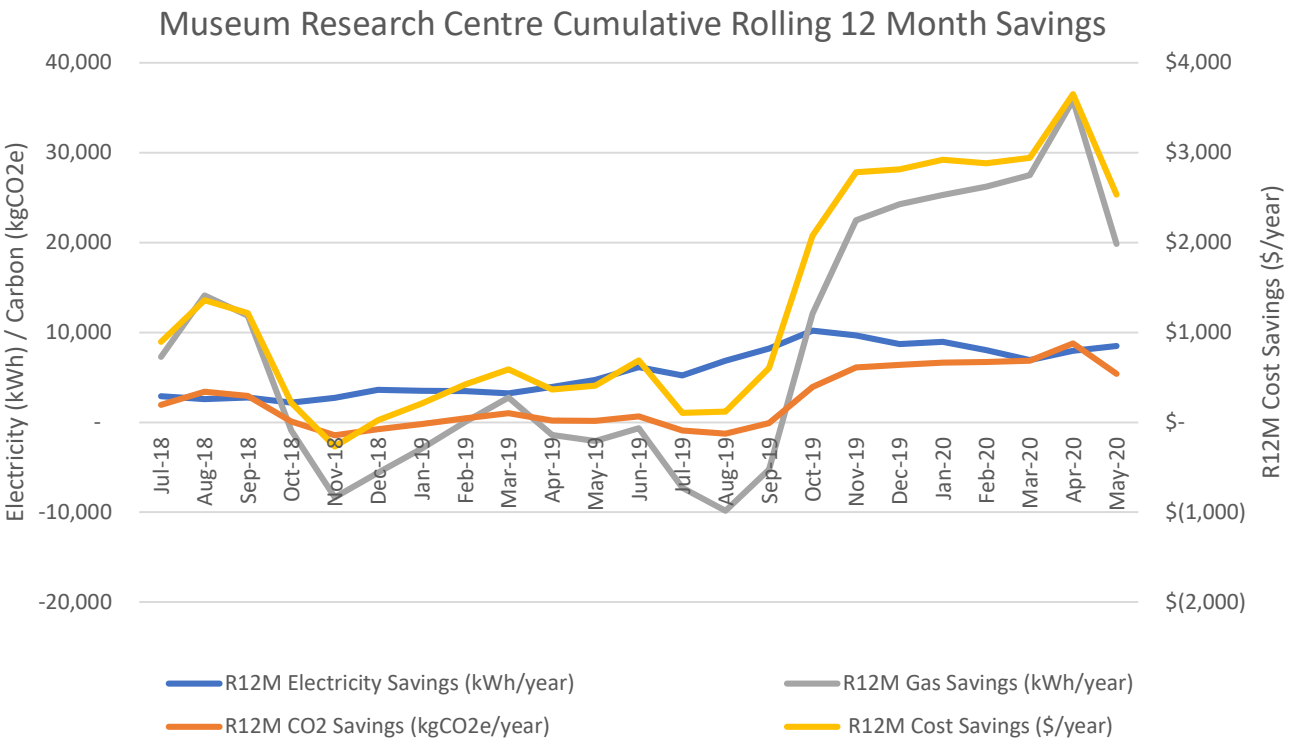


## Museum Research Centre Actual versus Expected Natural Gas




## Museum Research Centre Actual versus Expected CO2




Museum Research Centre Cumulative Rolling 12 Month Savings
Electricity (kWh) / Carbon (kgCO2e)
R12M Cost Savings ($/year)
40,000
30,000
20,000
10,000
-
-10,000
-20,000
$4,000
$3,000
$2,000
$1,000
$-
$(1,000)
$(2,000)
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
R12M Electricity Savings (kWh/year)
R12M Gas Savings (kWh/year)
R12M CO2 Savings (kgCO2e/year)
R12M Cost Savings ($/year)

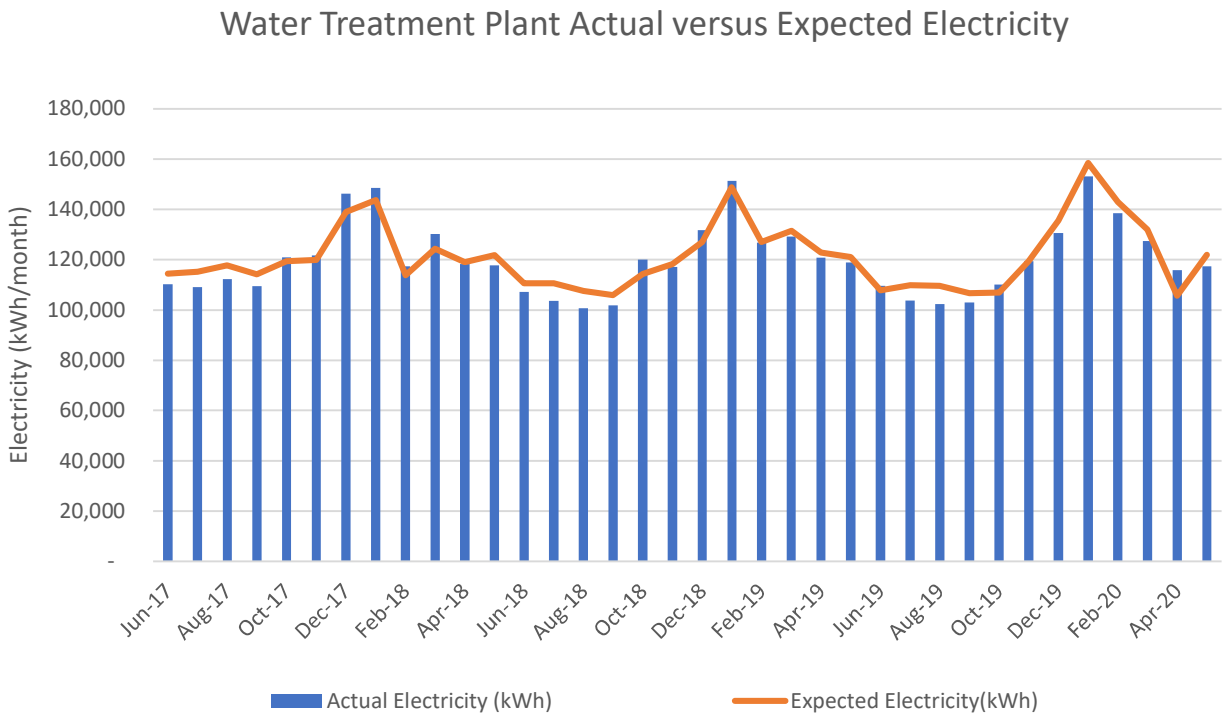
# Whakatāne Water Treatment Plant

**Summary**

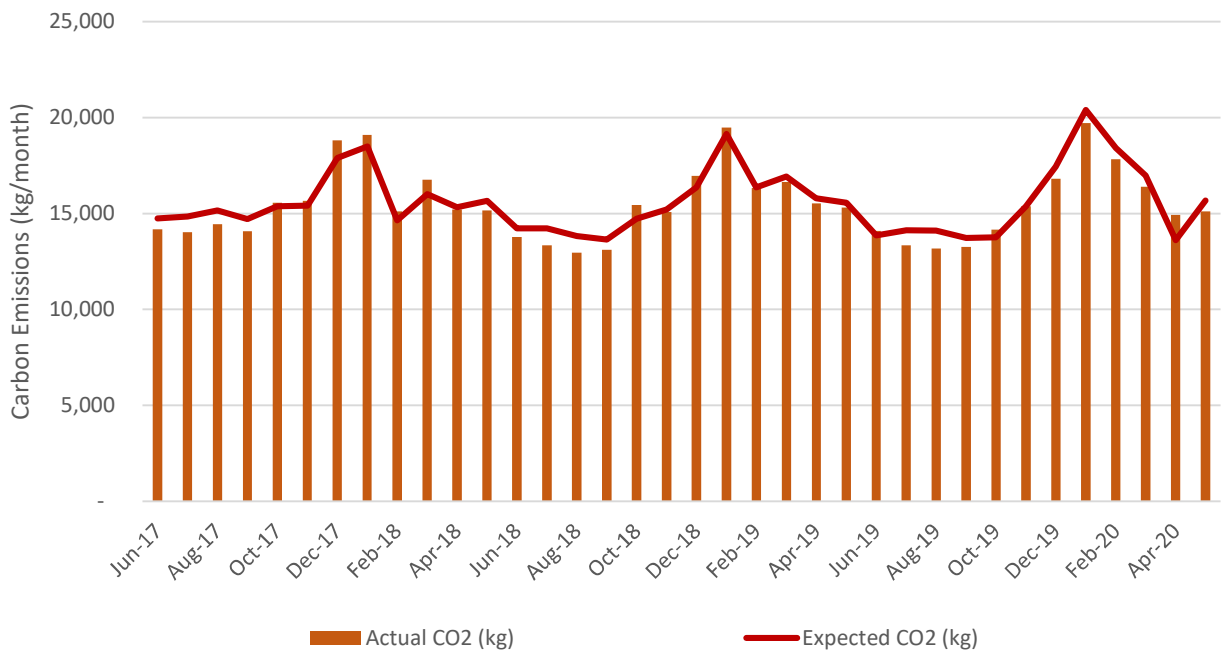
- Electricity savings for the month were 4,604kWh, a saving of 3.8%.
- Energy cost savings for the month were $483.
- Carbon savings for the month were 593 kgCO2e, a saving of 3.8%.
- Rolling 12-month electricity savings are 26,022 kWh, a saving of 1.8%.
- Rolling 12-month energy cost savings are $2,941.
- Rolling 12-month carbon savings are 3,349 kgCO2e, a saving of 1.8%.

**Comments**

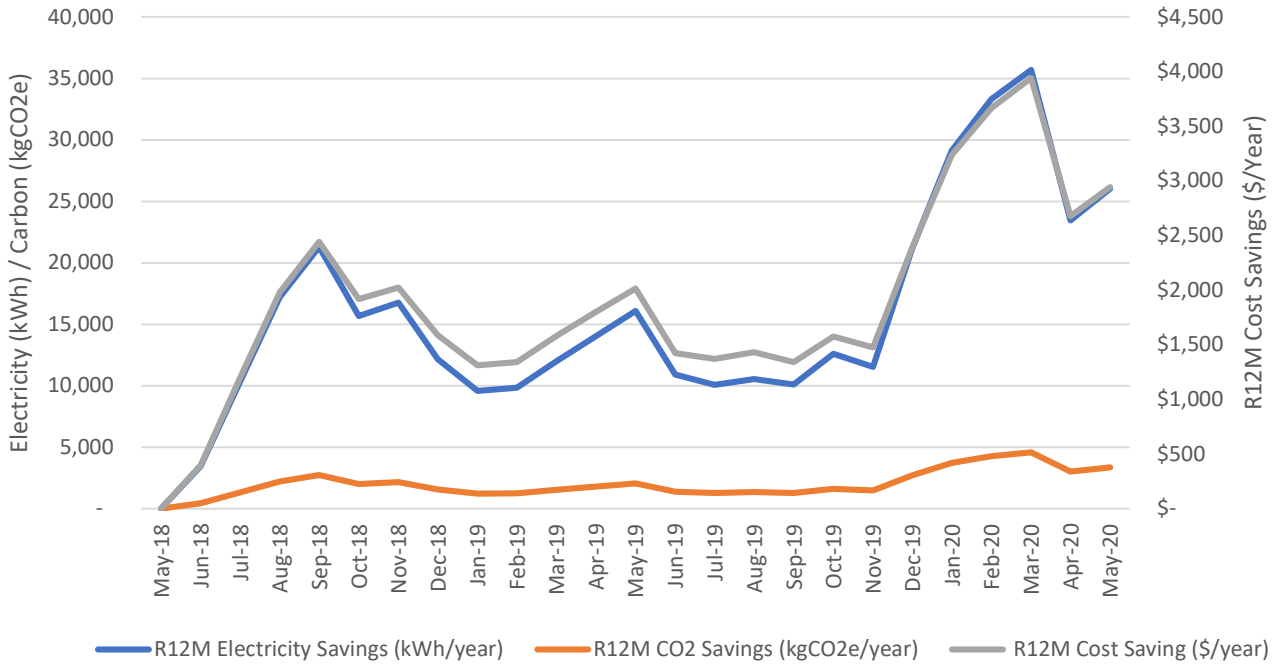
The water treatment plant achieved approx 4% in electricity savings for the month of May 2020. Electricity use was marginally lower compared to May 2019. Electricity savings have been achieved at the Water Treatment Plant for five of the last six months; April 2020's increase in electricity appears to be an anomoly.



## Water Treatment Plant Actual versus Expected CO2




## Whakatane Water Treatment Plant Cumulative Rolling 12 Month Savings



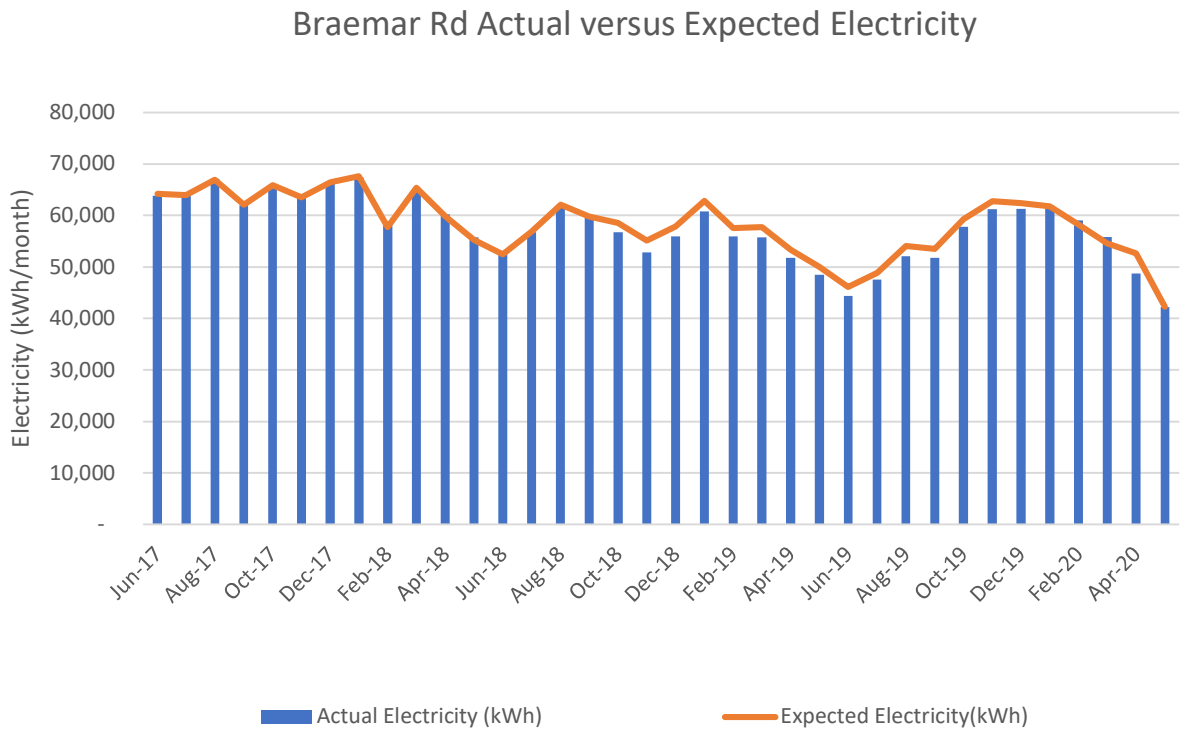
# Braemar Rd Pump Station

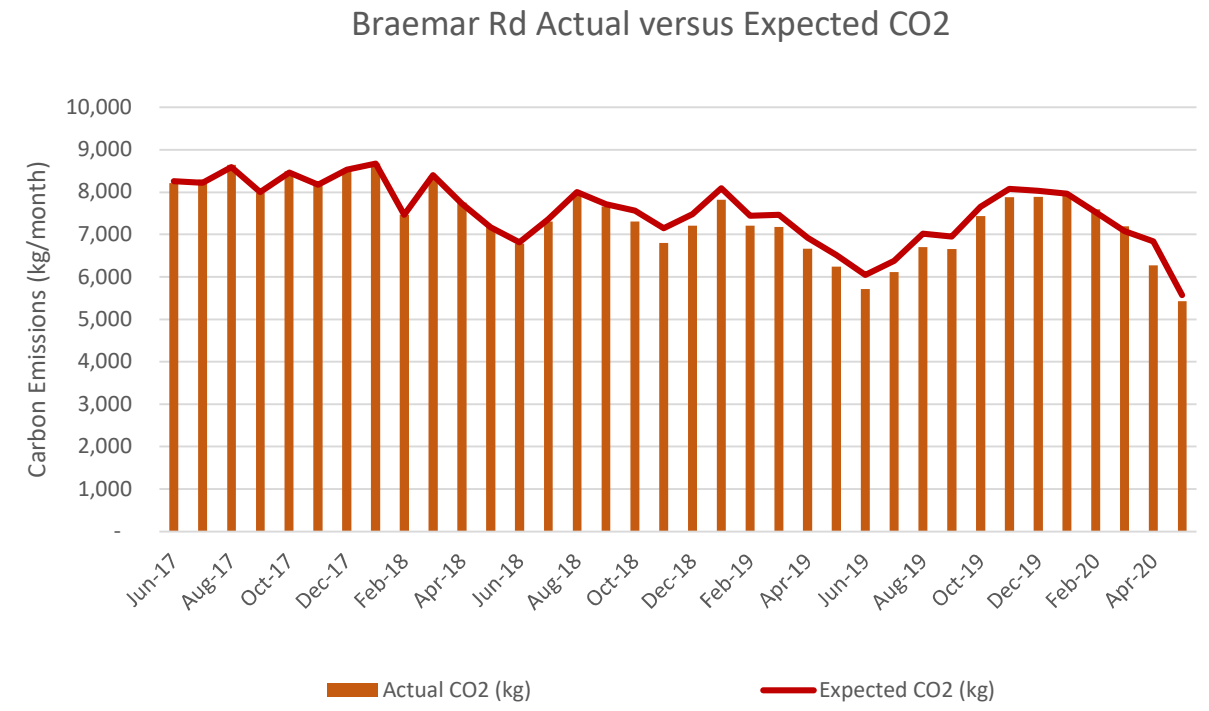
**Summary**

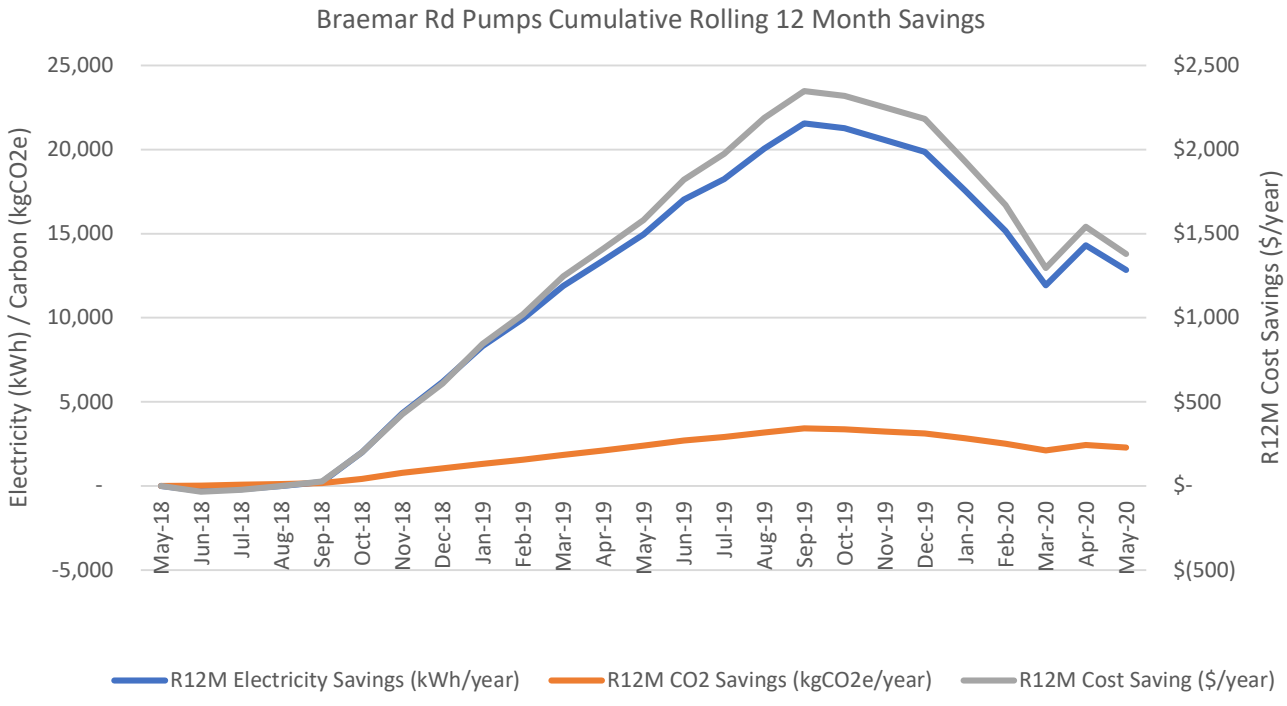
- Electricity savings for the month were 92kWh, a saving of 0.2%.
- Energy cost savings for the month were $10.
- Carbon savings for the month were 143 kgCO2e, a saving of 0.2%.
- Rolling 12-month electricity savings are 12,849 kWh, a saving of 2%.
- Rolling 12-month energy cost savings are $1,380.
- Rolling 12-month carbon savings are 2,291 kgCO2e, a saving of 2%.

**Comments**

Braemar Rd electricity use was close to expected for the month of May. Electricity used is 13% less than May 2019 which is due to lower demand for water. Compared to last year, pumped water has decreased at Braemar Road and increased at Paul Road Pump Station. One of the two Braemar Rd pumps has failed and the system is due to be replaced by a more modern pumping system.




Braemar Rd Actual versus Expected CO2
Carbon Emissions (kg/month)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Actual CO2 (kg)
Expected CO2 (kg)

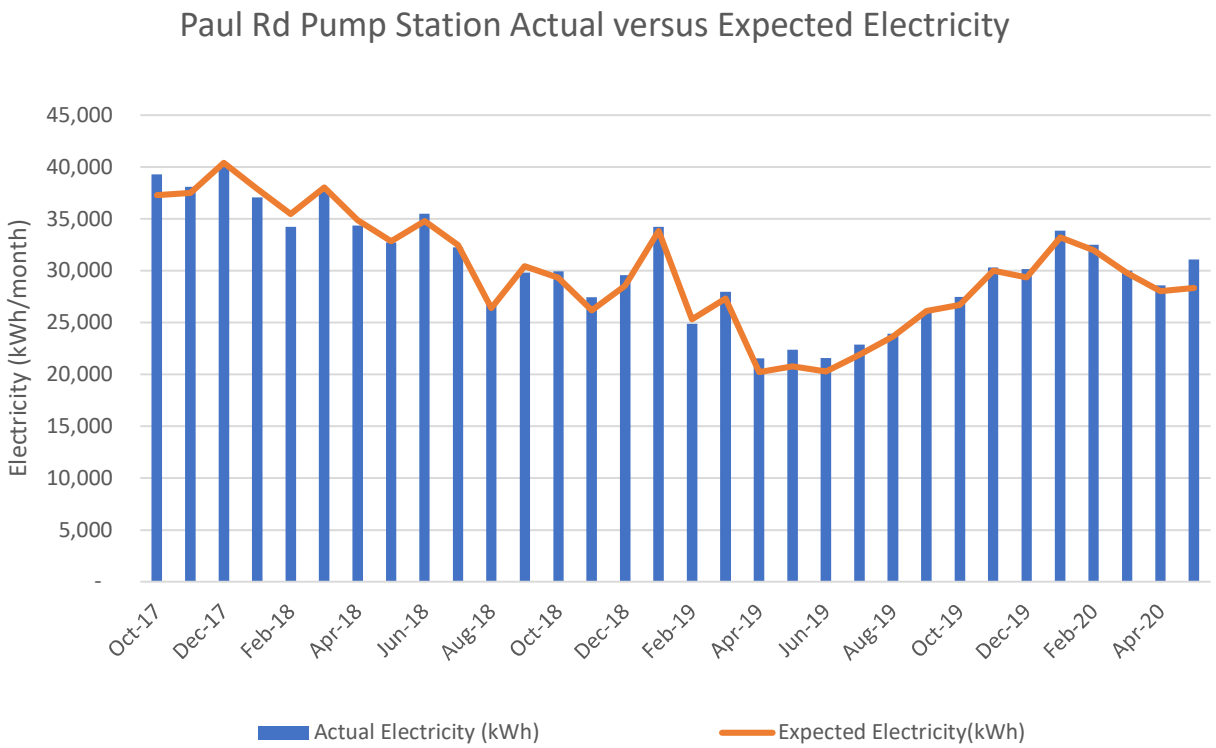

Braemar Rd Pumps Cumulative Rolling 12 Month Savings
Electricity (kWh) / Carbon (kgCO2e)
25,000
20,000
15,000
10,000
5,000
-
-5,000
$2,500
$2,000
$1,500
$1,000
$500
$-
$(500)
R12M Cost Savings ($/year)
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
R12M Electricity Savings (kWh/year)
R12M CO2 Savings (kgCO2e/year)
R12M Cost Saving ($/year)

# Paul Rd Pump Station

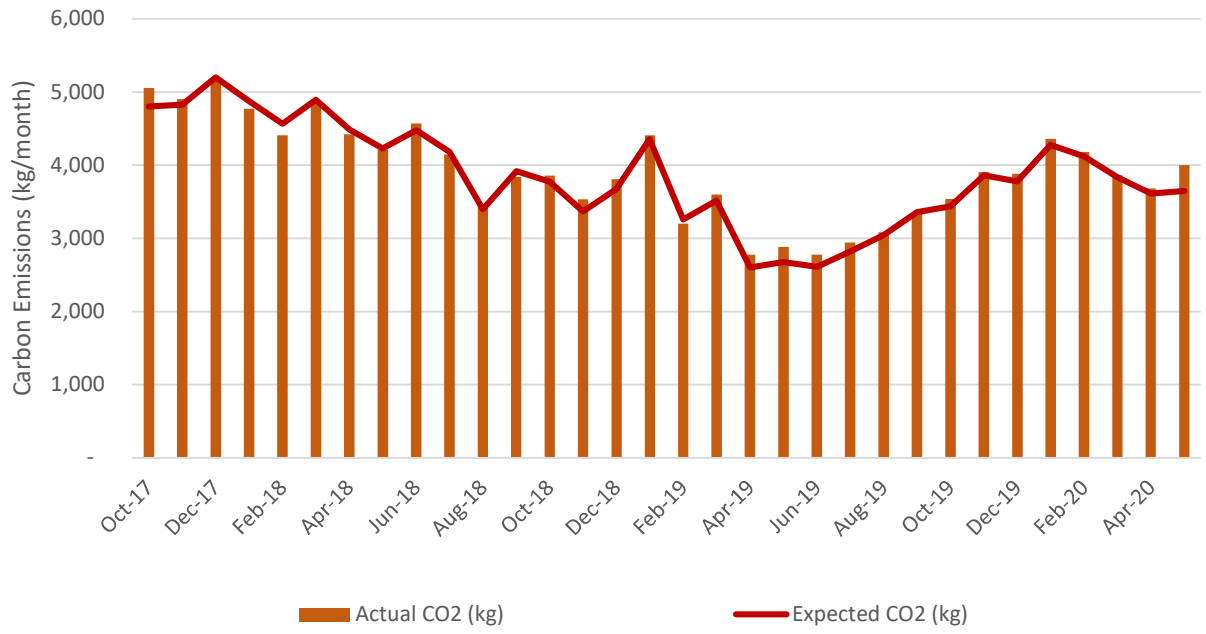
- Electricity savings for the month were -2,755kWh, an extra 9.7%.
- Energy cost savings for the month were -$291, which is an increase.
- Carbon savings for the month were -354 kgCO2e, an extra 9.7%.
- Rolling 12-month electricity savings are -8,909 kWh, an extra 2.7%.
- Rolling 12-month energy cost savings are -$980, which is an increase.
- Rolling 12-month carbon savings are -1,140 kgCO2e, an extra 2.7%.

**Comments**

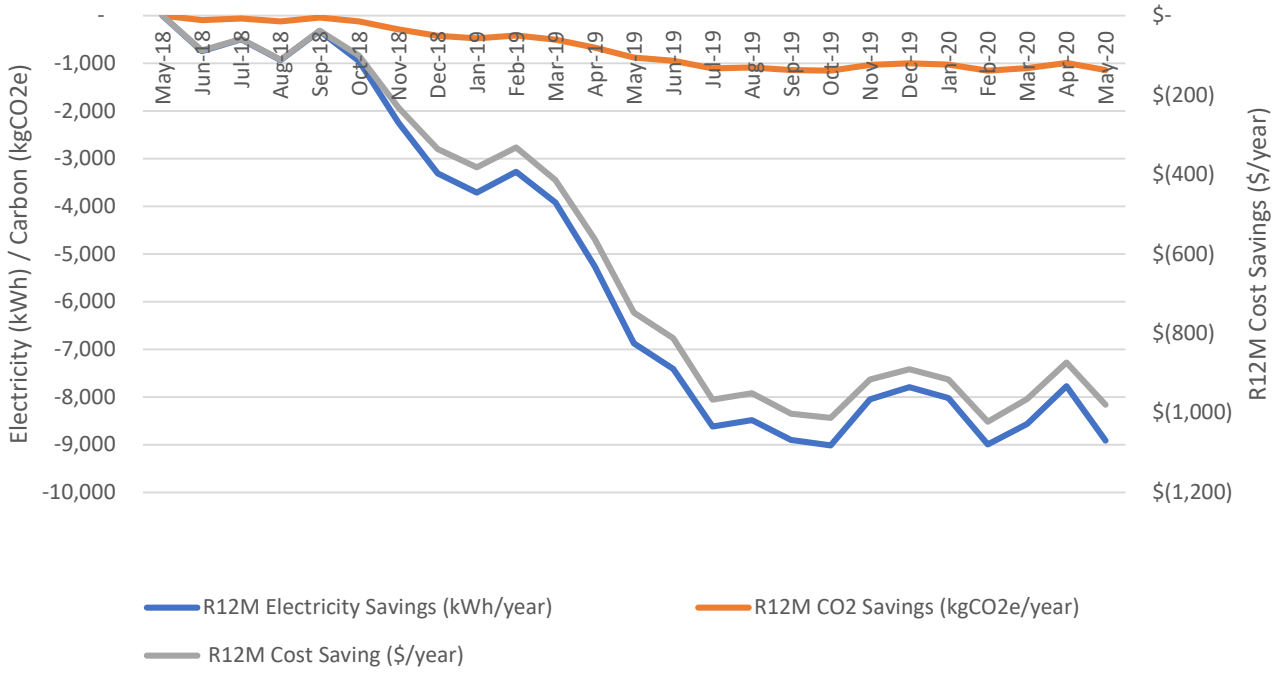
Electricity used by the Paul Rd pump station has increased by approximately 9% compared to April 2020, while the amount of water pumped has only increased by 1%. Compared to May 2019, electricity use has increased by approximately 39%, and decreased by 5% compared to May 2018. Demand for water was at a minimum in Apr-Jun 2019.



## Paul Rd Pump Station Actual versus Expected CO2




## Paul Rd Pumps Cumulative Rolling 12 Month Savings

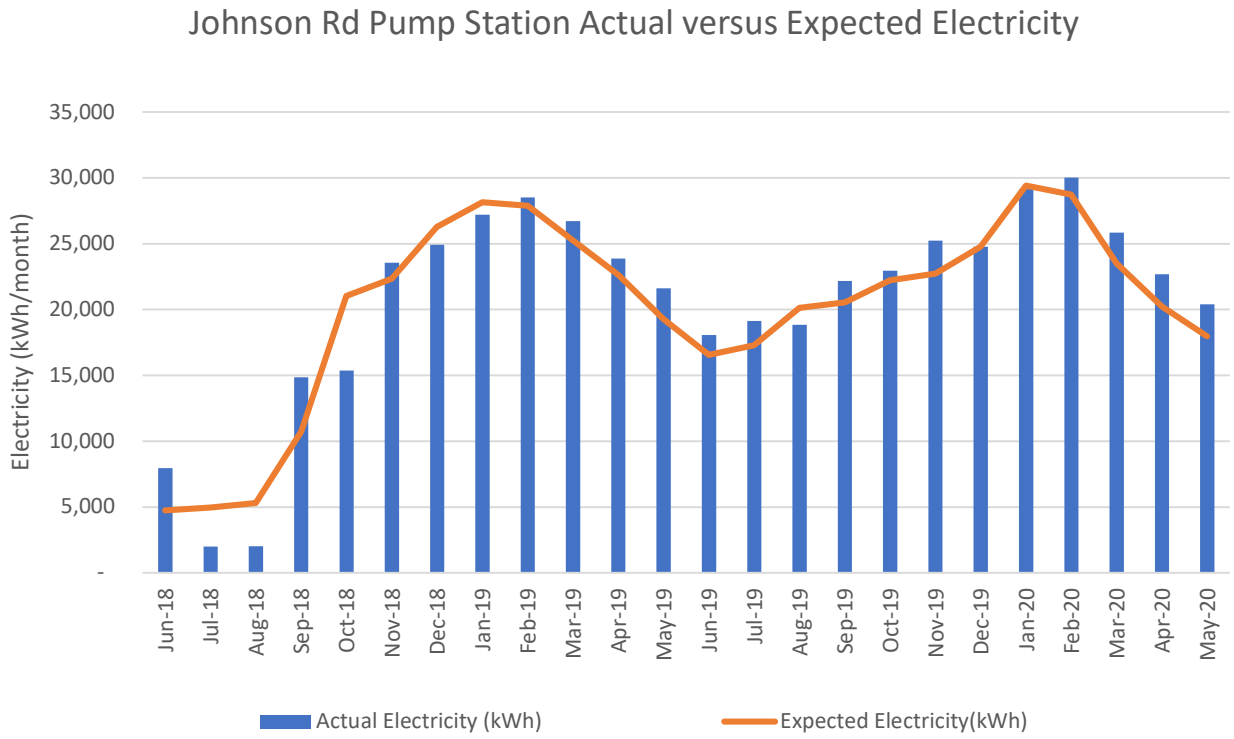


# Johnson Rd Pump Station

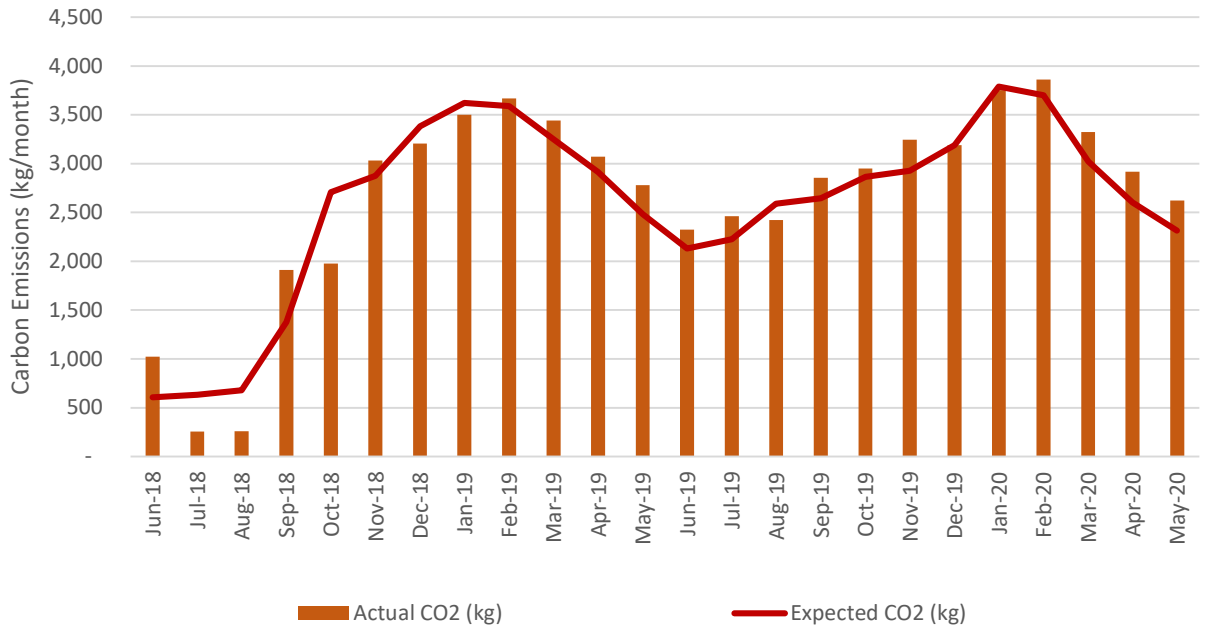
- Electricity savings for the month were -2,417kWh, an extra 13.4%.
- Energy cost savings for the month were -$526, which is an increase.
- Carbon savings for the month were -310 kgCO2e, an extra 13.4%.
- Rolling 12-month electricity savings are -15,076 kWh, an extra 5.7%.
- Rolling 12-month energy cost savings are -$3,539, which is an increase.
- Rolling 12-month carbon savings are -1,926 kgCO2e, an extra 5.7%.

**Comments**

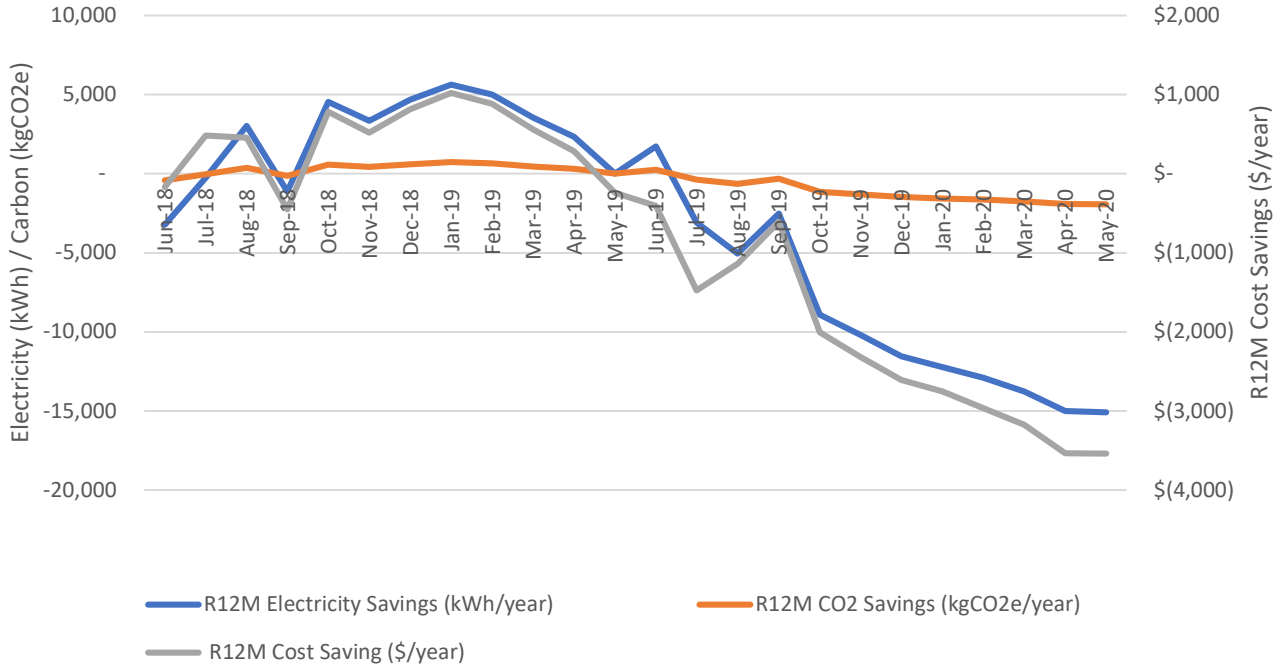
Electricity used by the Johnson Rd pump station in May 2020 was approx. 13% higher than expected for the month. This is the fourth month in a row that electricity use has been above baseline. Electricity usage is consistent with the previous trend of above baseline use since Feb 2019 for most months.



## Johnson Rd Pump Station Actual versus Expected CO2




## Johnson Rd Pumps Cumulative Rolling 12 Month Savings

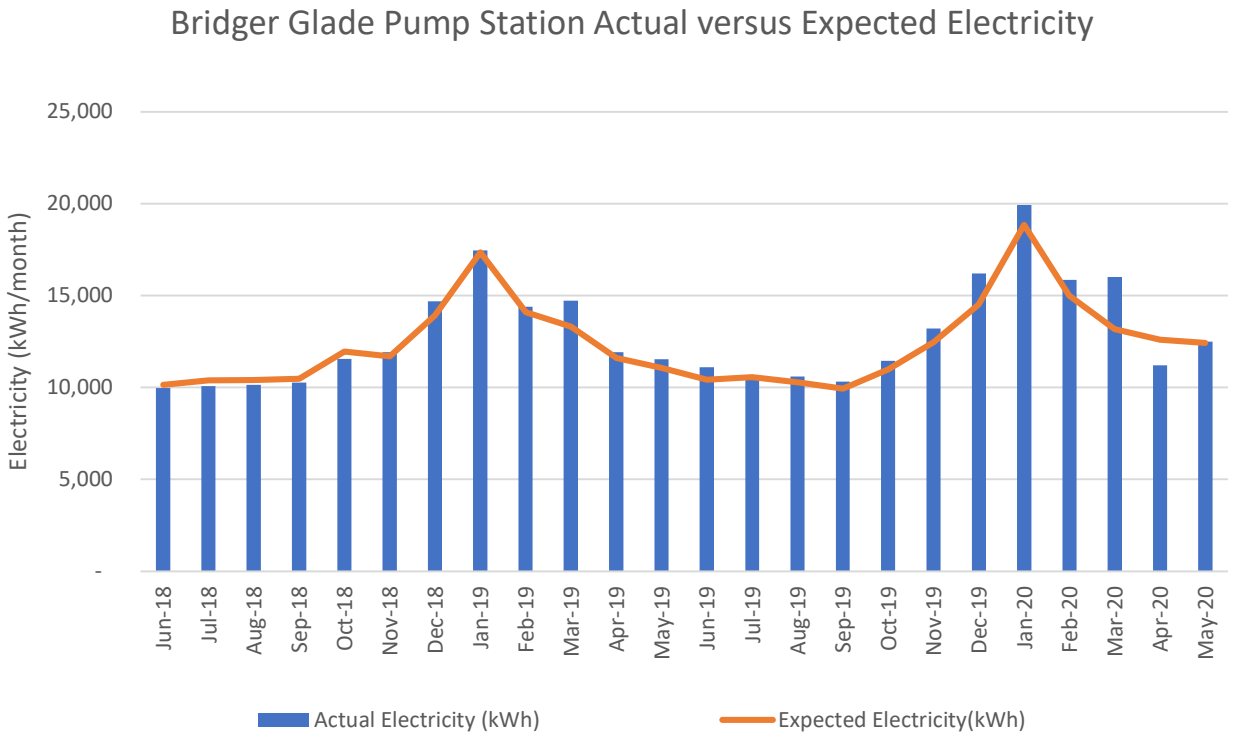


# Bridger Glade Pump Station

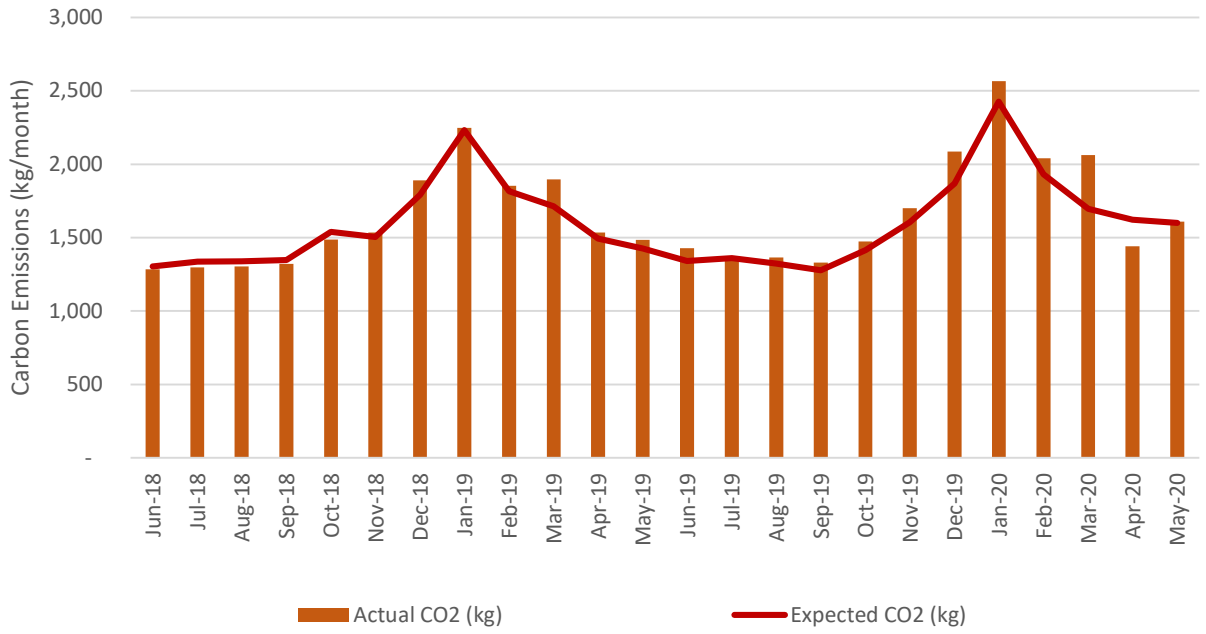
- Electricity savings for the month were -78kWh, an extra 0.6%.
- Energy cost savings for the month were -$14, which is an increase.
- Carbon savings for the month were -10 kgCO2e, an extra 0.6%.
- Rolling 12-month electricity savings are -7,805 kWh, an extra 5.2%.
- Rolling 12-month energy cost savings are -$1,512, which is an increase.
- Rolling 12-month carbon savings are -1,004 kgCO2e, an extra 5.2%.

**Comments**

Electricity use at Bridger Glade has been at or above baseline since Dec-18,with the exception of April 2020. Electricity use in May 2020 was the same as the baseline, which adjusts for the volume of water supplied. Electricity use in May 2020 has increased by approximately 8% over May-19, while the volume of water pumped has increased by approx 12%.



## Bridger Glade Pump Station Actual versus Expected CO2




## Bridger Glade Pumps Cumulative Rolling 12 Month Savings