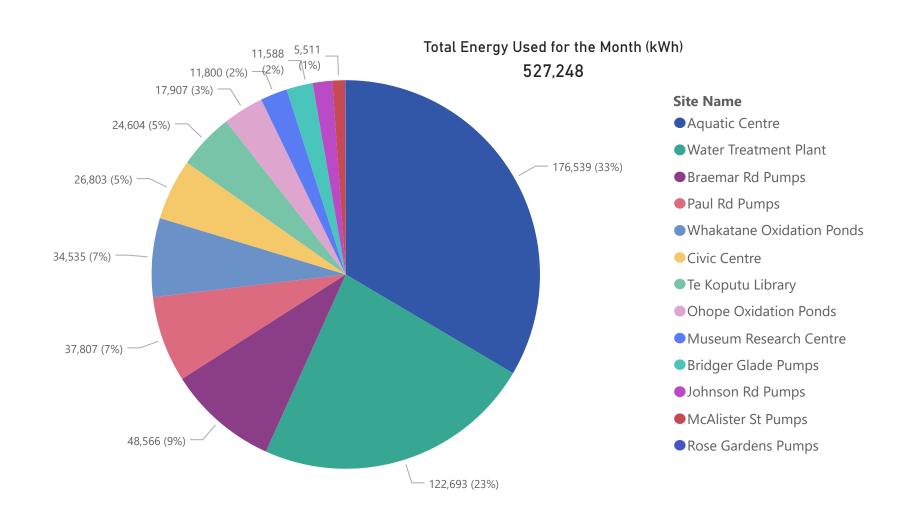


# Summary

| \$6,442<br>Monthly Energy Cost Savings | 10,623 Elec. Savings (kWh/mo)   | <b>2%</b><br>Elec. Savings (%) | 230,266 R12M Electricity Savings (kWh/yr)  | 16,293<br>CO2e Savings (kg/mo)           |
|--|---------------------------------|--------------------------------|--|--|
| \$123,623<br>R12M Energy Cost Savings  | 66,356<br>Gas. Savings (kWh/mo) | <b>48%</b><br>Gas. Savings (%) | <b>1,306,153</b> R12M Gas Savings (kWh/yr) | <b>293,479</b> R12M CO2e Savings (kg/yr) |

#### Total Energy (kWh/Month)



Museum Research Centre

McAlister St Pumps

Rose Gardens Pumps

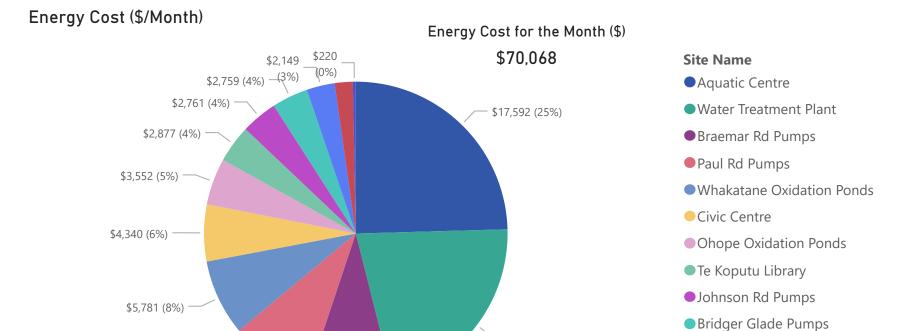


### Whakatane District Council

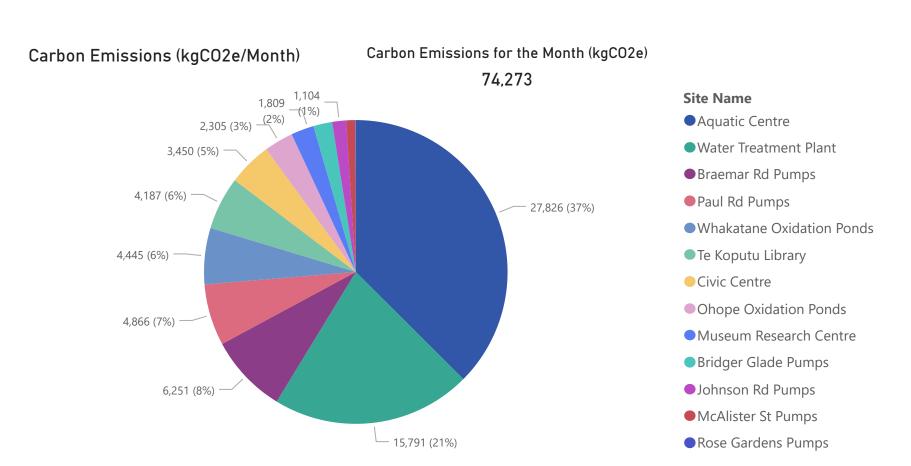
\$6,339 (9%)

\$6,485 (9%) -

## **Summary**



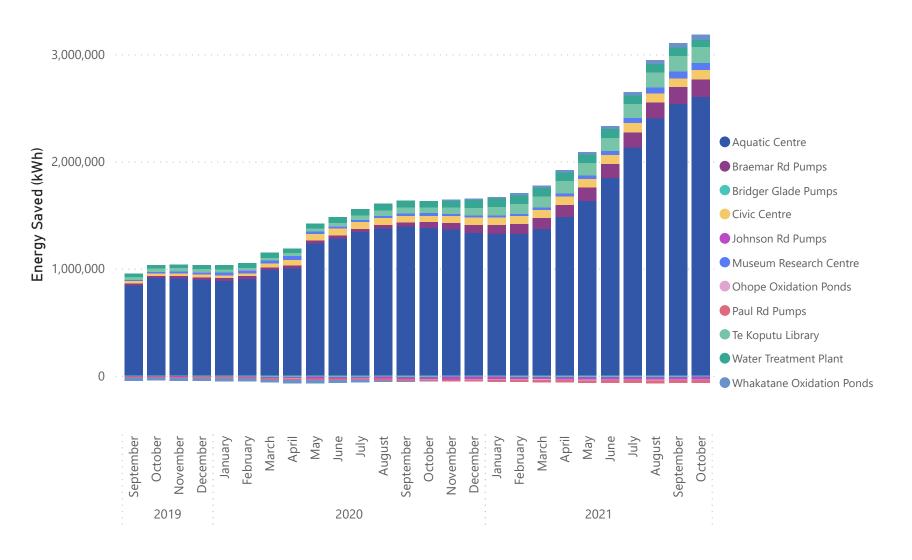
\$15,432 (22%)





# Summary

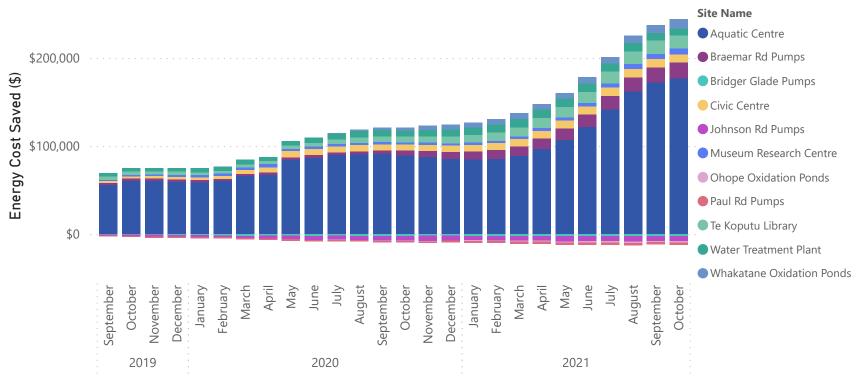
#### Cumulative Energy Savings (kWh)



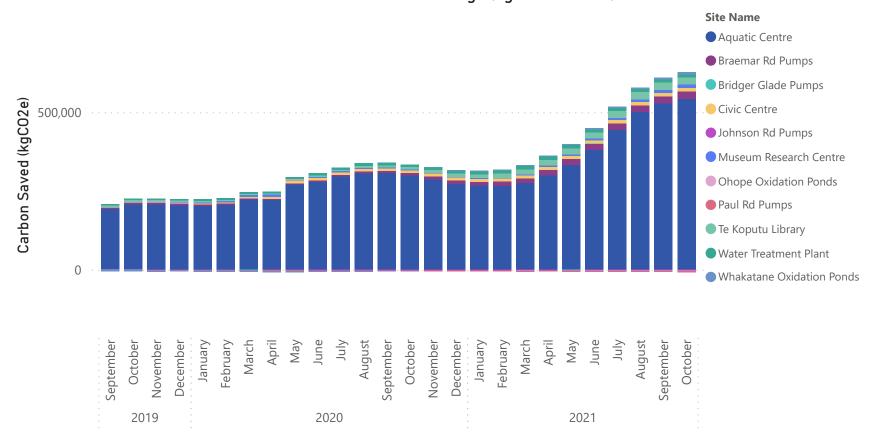


## **Summary**











### Civic Centre

| \$386                       | 3,883                  | 13%               | 25,484                            | 466                       |
|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|
| Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
|                             |                        |                   |                                   |                           |
| \$2,830                     |                        |                   |                                   | 2,957                     |
| R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |
|                             |                        |                   |                                   |                           |

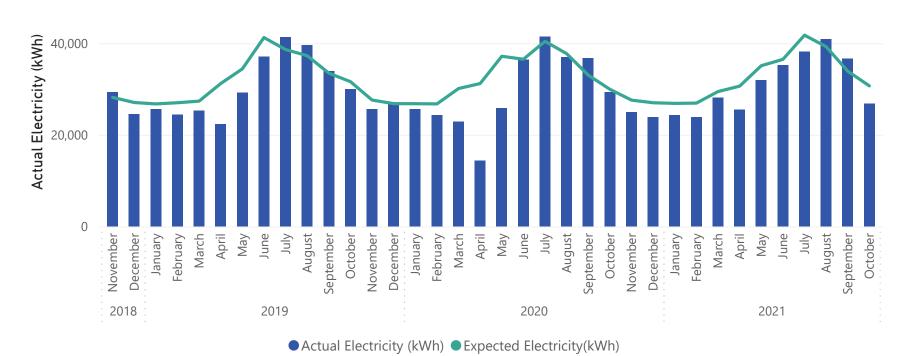
#### **Comments:**

Electric vehicle charging stations have seen an uptake in recent months, non-routine adjustments have been made to account for the increased electricity use.

The Civic Centre used less electricity than expected in October 2021, which may be attributed to turning off heaters that were on unnecessarily in August and September.

Compared to October last year, October 2021 used 9% less electricity even though it was a warmer month on average.

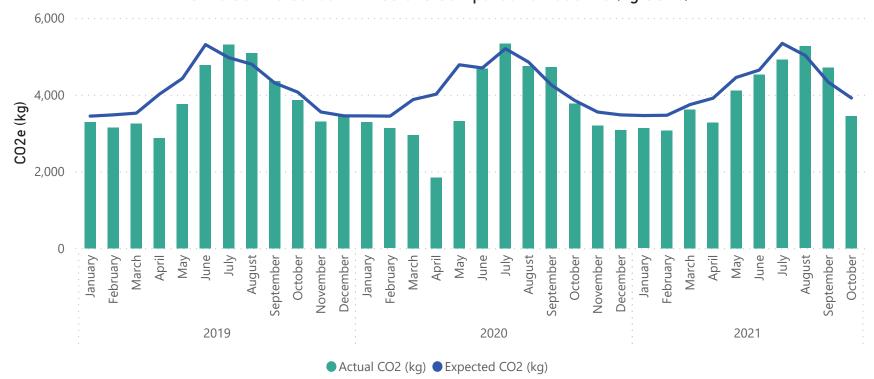
#### Civic Centre Electricity Use Compared to Baseline (kWh)





## Civic Centre



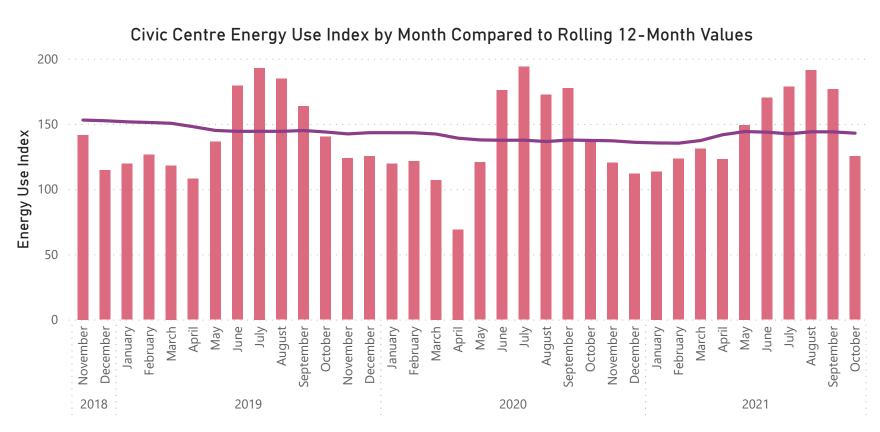


#### Civic Centre Cumulative Rolling 12 Month Savings





## Civic Centre





# **Aquatic Centre**

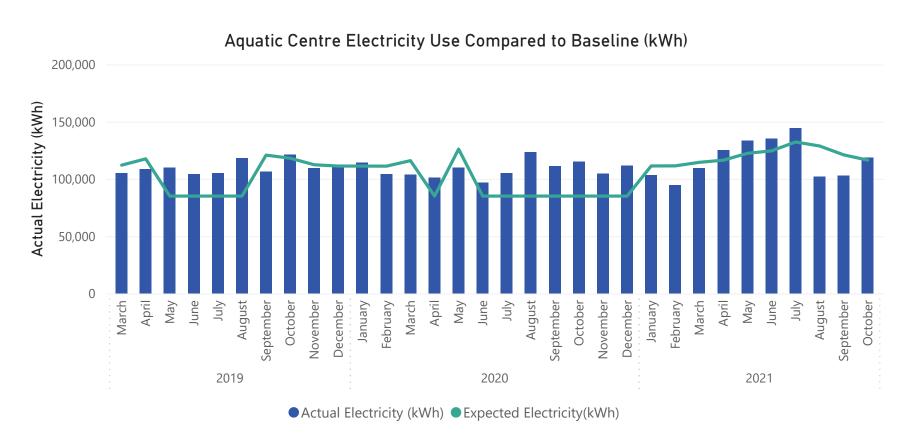
| \$4,513  Monthly Energy Cost Savings     | -2,183 Elec. Savings (kWh/mo)       | <b>-2%</b> Elec. Savings (%)   | -15,693 R12M Electricity Savings (kWh/yr)  | 14,079<br>CO2e Savings (kg/mo)           |
|--|-------------------------------------|--------------------------------|--|--|
| <b>\$87,229</b> R12M Energy Cost Savings | <b>66,077</b> Gas. Savings (kWh/mo) | <b>53%</b><br>Gas. Savings (%) | <b>1,234,645</b> R12M Gas Savings (kWh/yr) | <b>242,922</b> R12M CO2e Savings (kg/yr) |

#### **Comments:**

The outdoor pool is now open year-round and uses a baseline that reflects this change.

Electricity use was more than baseline in October 2021. Some of the savings achieved in August and September may be attributed to the pool pool being closed in alert level three.

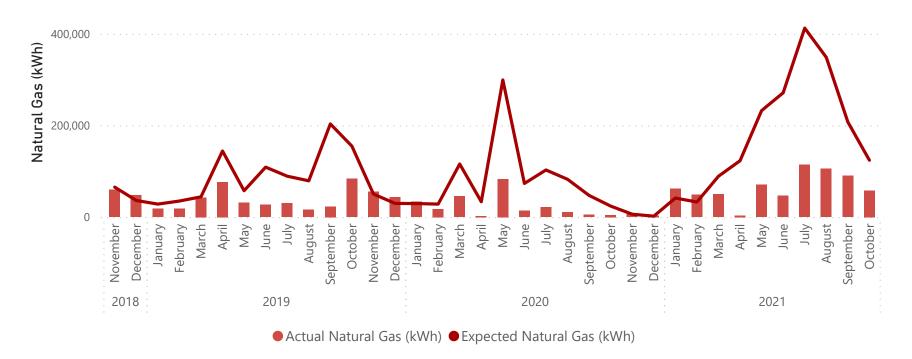
Natural gas was less than last month and is 53% less than expected in October 2021.



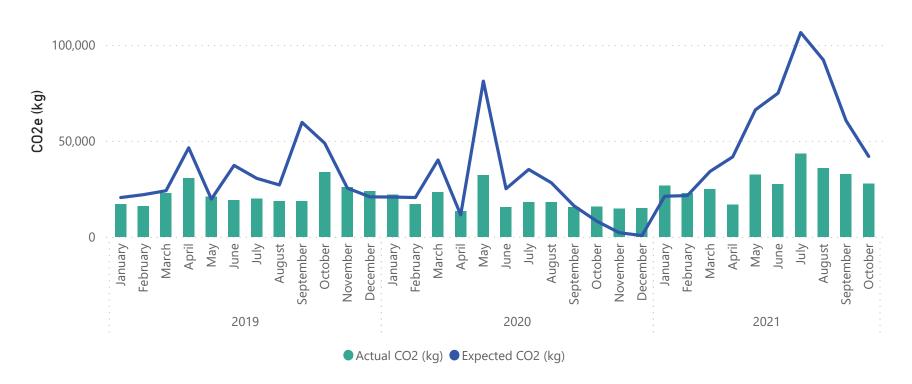


# **Aquatic Centre**

#### Aquatic Centre Natural Gas Compared to Baseline (kWh)



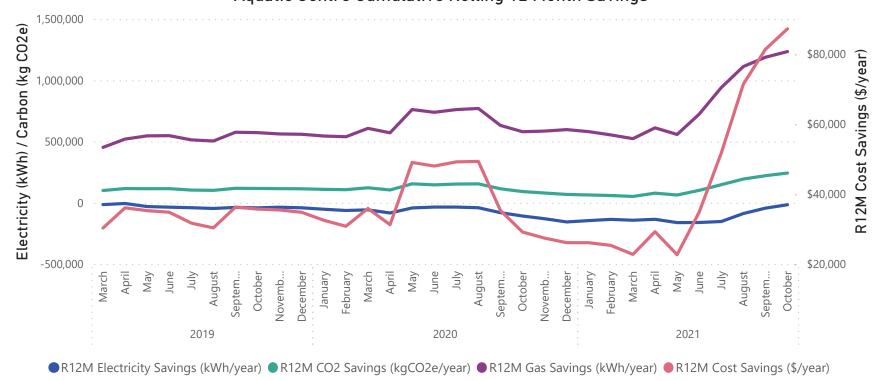
### Aquatic Centre Carbon Emissions Compared to Baseline (kg CO2e)



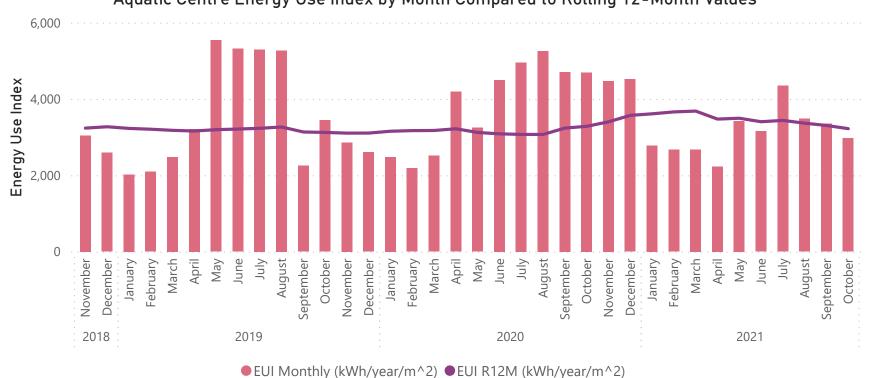


# **Aquatic Centre**





## Aquatic Centre Energy Use Index by Month Compared to Rolling 12-Month Values





## Te Koputu Library

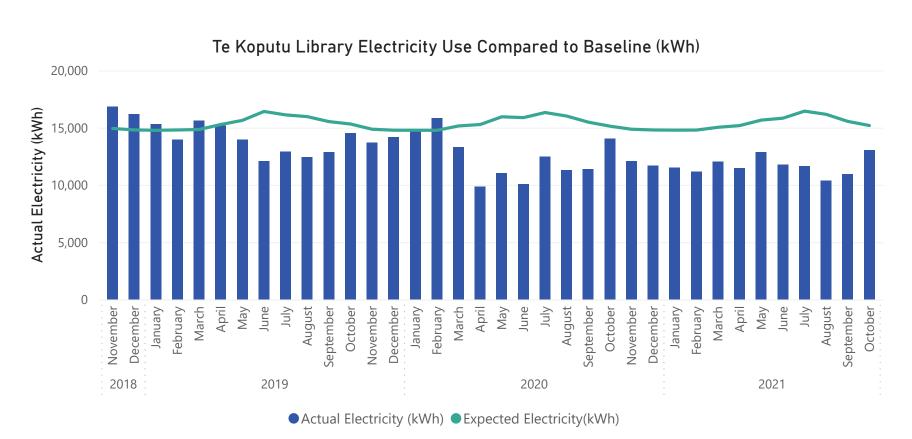
| \$7 Monthly Energy Cost Savings     | 2,163 Elec. Savings (kWh/mo) | 14%<br>Elec. Savings (%)     | 43,725 R12M Electricity Savings (kWh/yr) | -311<br>CO2e Savings (kg/mo)        |
|-------------------------------------|------------------------------|------------------------------|--|-------------------------------------|
| \$8,461<br>R12M Energy Cost Savings | -2,738 Gas. Savings (kWh/mo) | <b>-31%</b> Gas. Savings (%) | <b>49,218</b> R12M Gas Savings (kWh/yr)  | 16,351<br>R12M CO2e Savings (kg/yr) |

#### **Comments:**

Electricity use has been less than baseline since March 2020.

Electricity and natural gas use have both increased compared to recent months, with gas use higher than expected in October 2021. The library was open for all of October 2021 as alert levels dropped to level 2 in September.

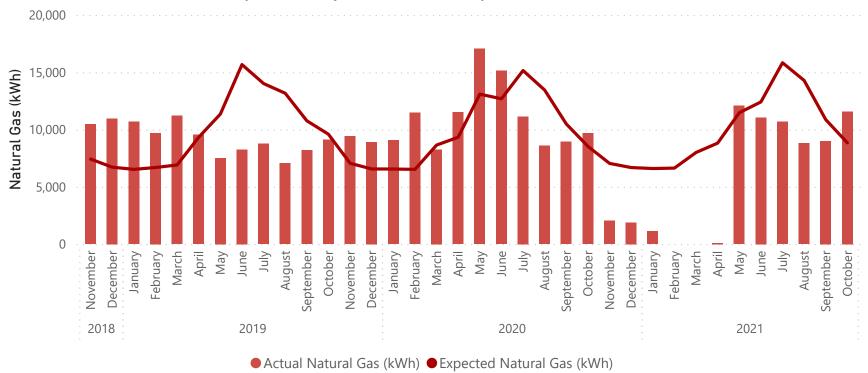
Rolling 12 month cost savings have been maintained at approximately \$8,500 saved per year.



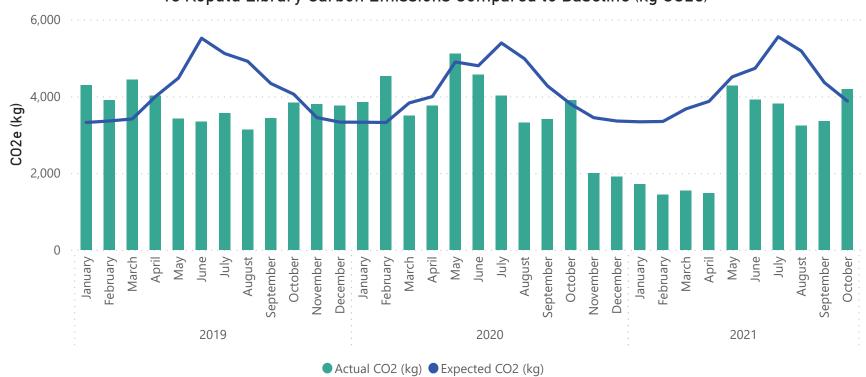


# Te Koputu Library



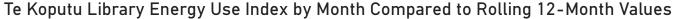


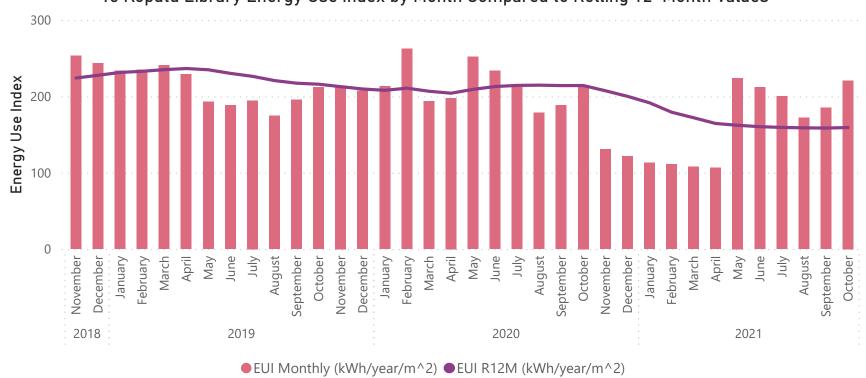


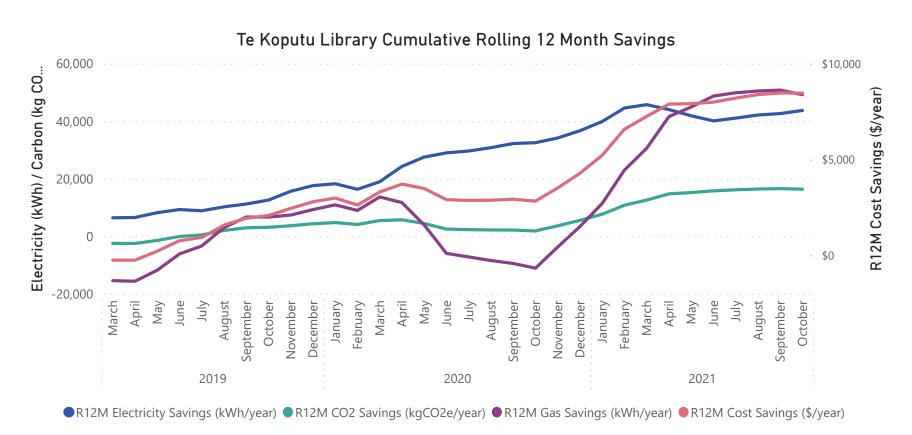




## Te Koputu Library









#### Museum and Research Centre

| \$426<br>Monthly Energy Cost Savings    | 2,145 Elec. Savings (kWh/mo) | <b>20%</b> Elec. Savings (%)   | <b>20,220</b> R12M Electricity Savings (kWh/yr) | <b>930</b> CO2e Savings (kg/mo)        |
|---|------------------------------|--------------------------------|---|--|
| <b>\$3,945</b> R12M Energy Cost Savings | 3,017 Gas. Savings (kWh/mo)  | <b>48%</b><br>Gas. Savings (%) | <b>22,289</b> R12M Gas Savings (kWh/yr)         | <b>7,435</b> R12M CO2e Savings (kg/yr) |

#### **Comments:**

Electricity use in October 2021 compared to October 2020 is 15% lower and gas use was is 53% lower for the same period.

Some of these savings reflect the recent work on the HVAC system, operation of the air handling unit has been changed as well as modifying timing on air conditioning. Some of the savings in August and September 2021 are likely attributed to the Museum and Research Centre being closed to public during alert level 3.

Rolling 12 month savings have increased this month.

#### Museum Research Centre Electricity Use Compared to Baseline (kWh)

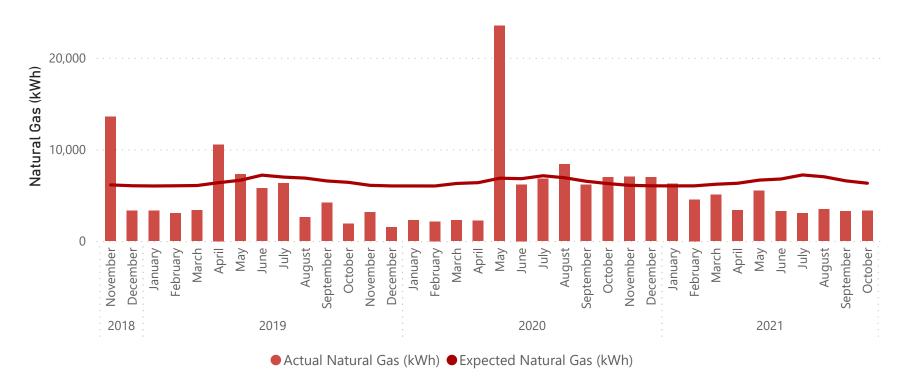


● Actual Electricity (kWh) ■ Expected Electricity(kWh)

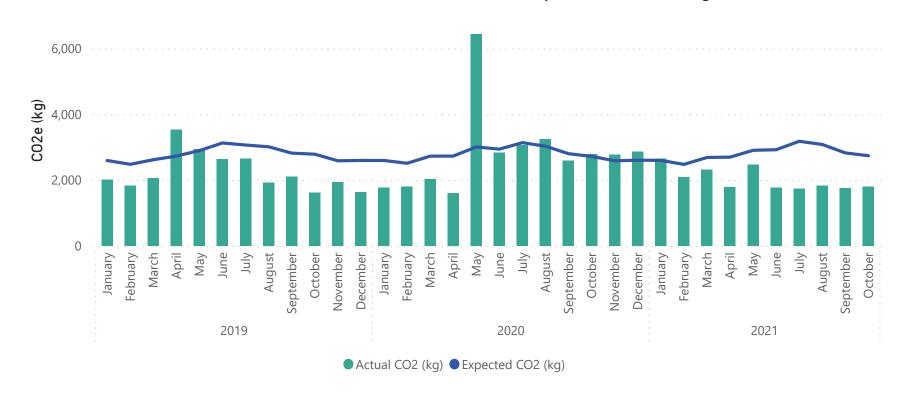


## Museum and Research Centre

#### Museum Research Centre Natural Gas Compared to Baseline (kWh)



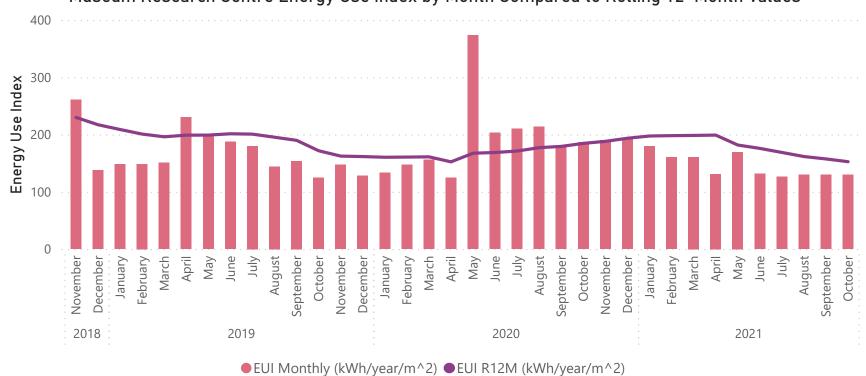
#### Museum Research Centre Carbon Emissions Compared to Baseline (kg CO2e)

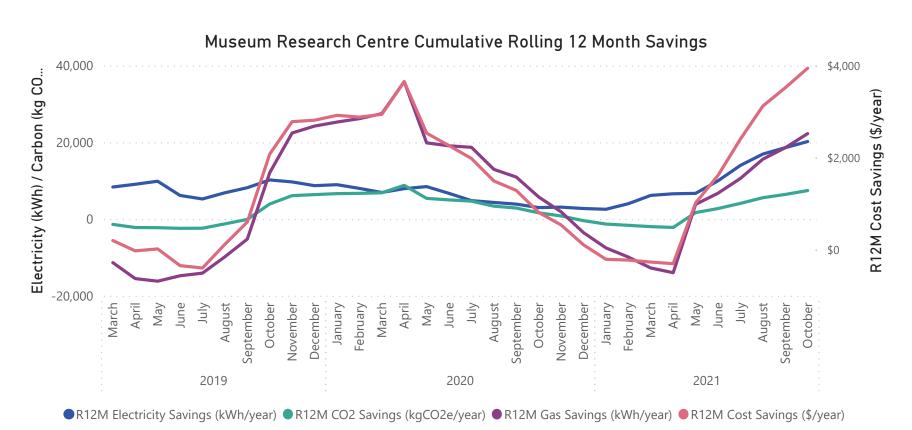




## Museum and Research Centre









### Water Treatment Plant

| -\$667                           | -7,172                 | -6%               | 10,537                            | -923                               |
|----------------------------------|------------------------|-------------------|-----------------------------------|------------------------------------|
| Monthly Energy Cost Savings      | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)               |
| ¢1 002                           |                        |                   |                                   | 1 254                              |
| \$1,083 R12M Energy Cost Savings |                        |                   |                                   | 1,356<br>R12M CO2e Savings (kg/yr) |
|                                  |                        |                   |                                   |                                    |

#### **Comments:**

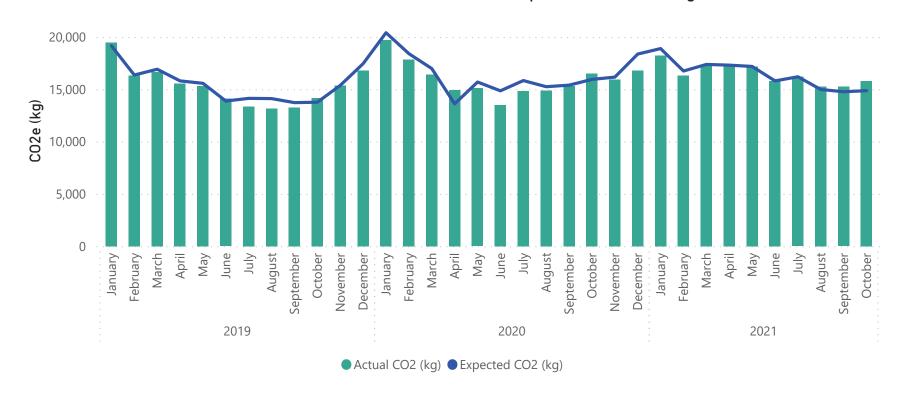
Electricity use in October 2021 is greater than expected. This is the third month in a row that electricity use has been greater than baseline. EUI has been increasing steadily from July 2021.

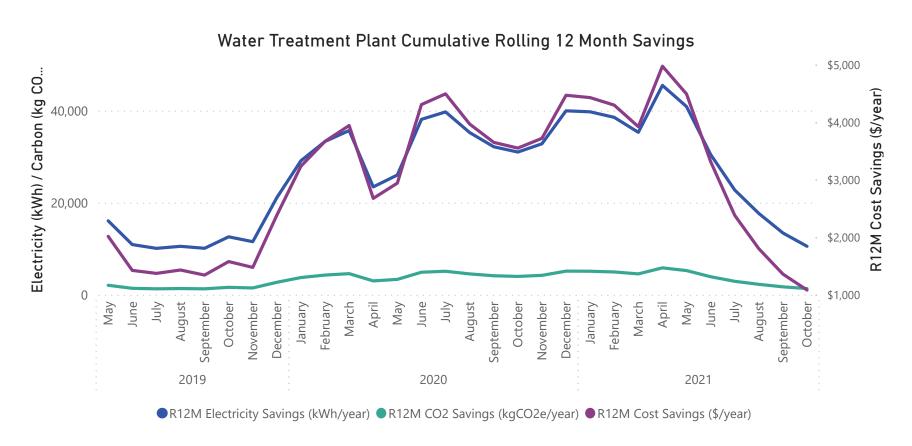
#### Water Treatment Plant Electricity Use Compared to Baseline (kWh) 200,000 Actual Electricity (KWh) 150,000 100,000 50,000 0 August January January October March June March November December September October November December May September February May February June May September 2019 2020 2021 ■ Actual Electricity (kWh)■ Expected Electricity(kWh)



## Water Treatment Plant

Water Treatment Plant Carbon Emissions Compared to Baseline (kg CO2e)

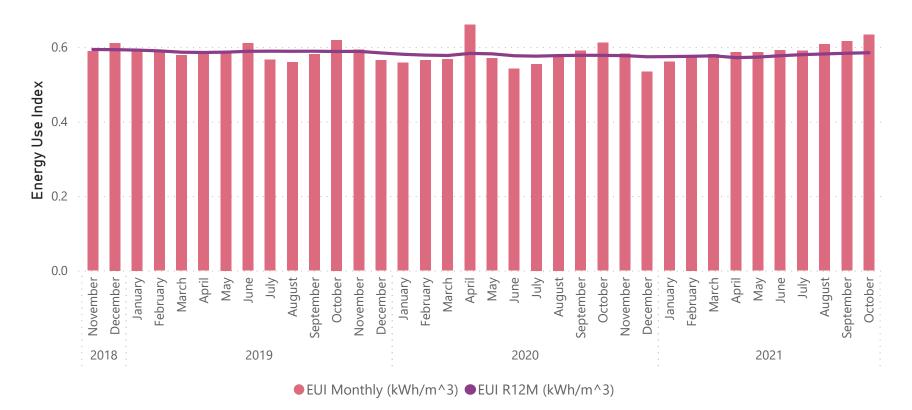






# Water Treatment Plant

Water Treatment Plant Energy Use Index by Month Compared to Rolling 12-Month Values





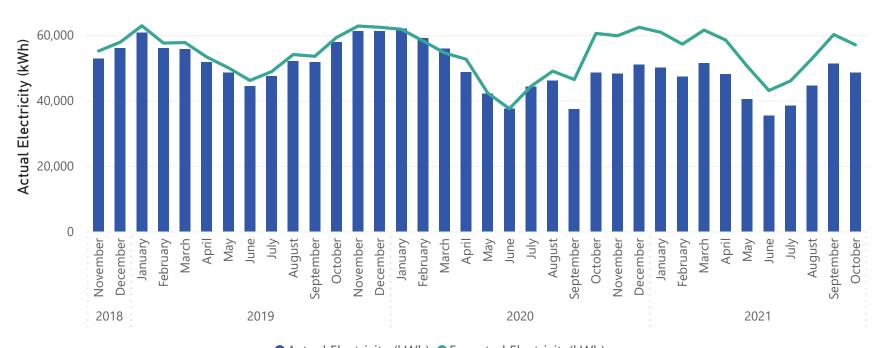
# Braemar Road Pump Station

| \$807                       | 8,468                  | 15%               | 115,330                           | 1,128                     |
|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|
| Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
| \$12,510                    |                        |                   |                                   | 15,396                    |
| R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |

#### **Comments:**

Continued savings from high efficiency pumps and motors, installed September 2020. Rolling 12 month savings have settled with approximate savings of \$12,500 per year, 115,000 kWh per year, and 15,400 kgCO2e per year.

#### Braemar Rd Pumps Electricity Use Compared to Baseline (kWh)

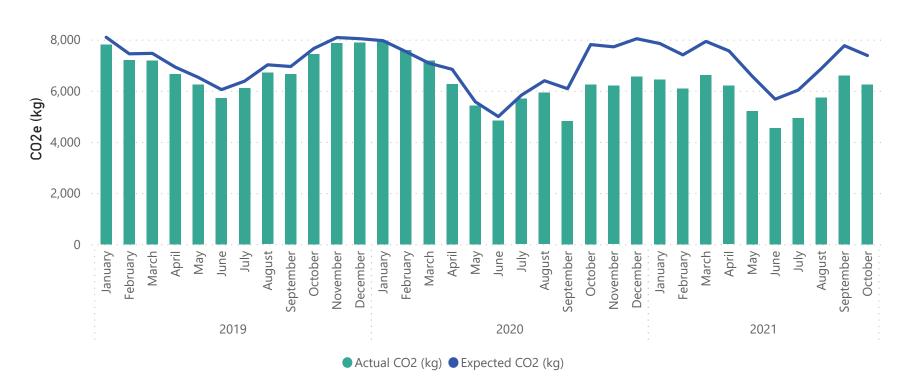


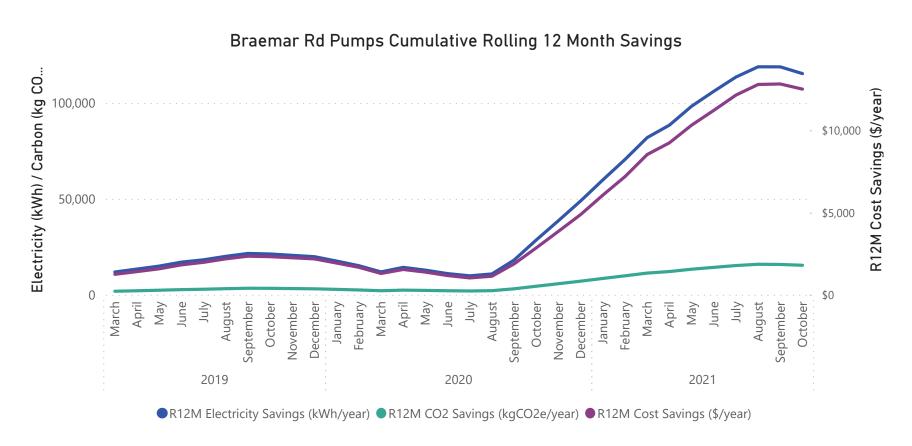
● Actual Electricity (kWh) ■ Expected Electricity(kWh)



## **Braemar Road Pump Station**

#### Braemar Rd Pumps Carbon Emissions Compared to Baseline (kg CO2e)

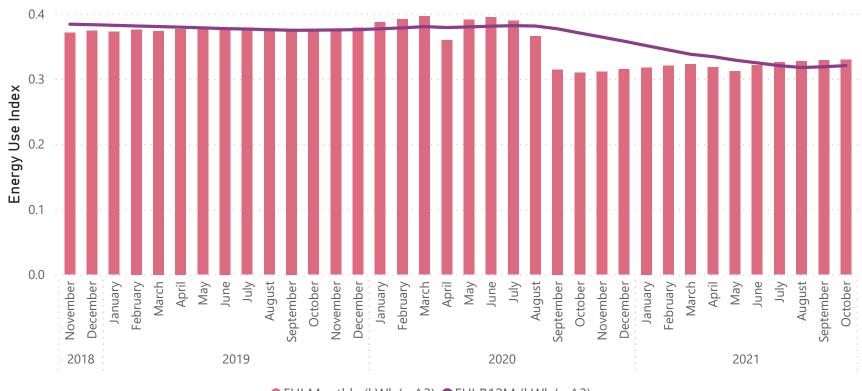






# **Braemar Road Pump Station**





● EUI Monthly (kWh/m^3) ● EUI R12M (kWh/m^3)



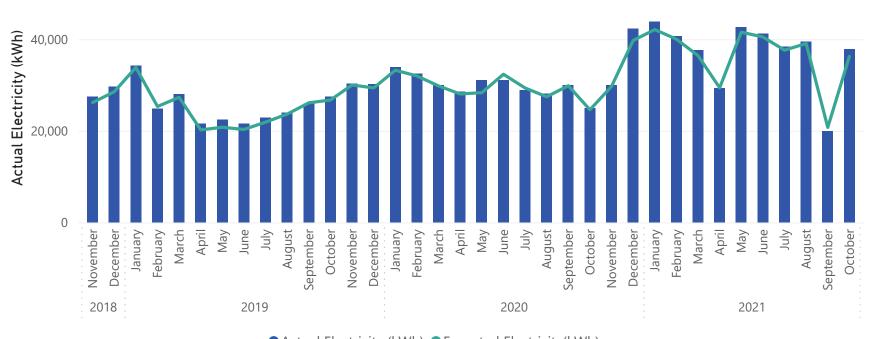
## Paul Road Pump Station

| -\$150                      | -1,569                 | -4%               | -10,172                           | -201                      |  |
|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|--|
| Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |  |
| -\$1,069                    |                        |                   |                                   | -1,300                    |  |
| R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |  |
|                             |                        |                   |                                   |                           |  |

#### **Comments:**

Demand has nearly doubled, compared to September 2021. On an EUI basis, the pumps have used marginally less energy per cubic meter, compared to September 2021. More energy was used per cubic meter in October 2021, 0.67 kWh per cubic meter, compared to the average for the past 12 months, 0.65 kWh per cubic meter.

#### Paul Rd Pumps Electricity Use Compared to Baseline (kWh)

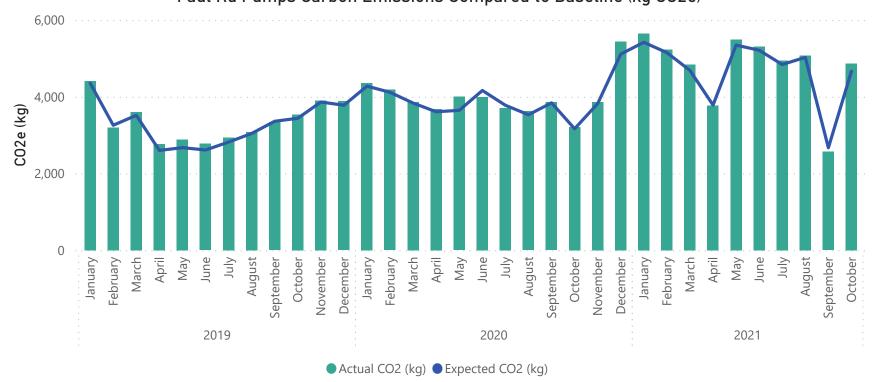


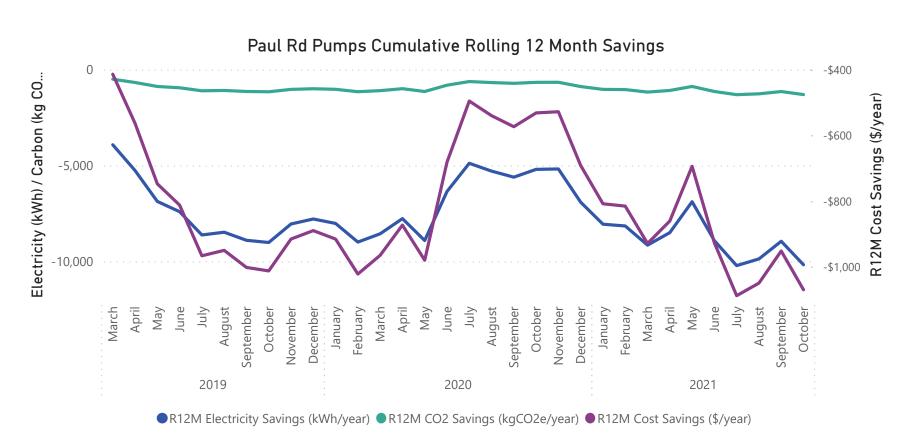
● Actual Electricity (kWh) ■ Expected Electricity(kWh)



# Paul Road Pump Station









# Paul Road Pump Station





● EUI Monthly (kWh/m^3) ● EUI R12M (kWh/m^3)



## Johnson Road Pump Station

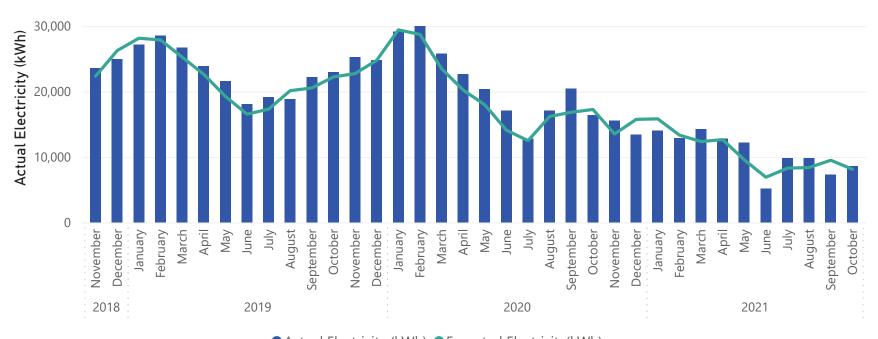
| -449                   | -6%               | -1,584                            | -58                       |
|------------------------|-------------------|-----------------------------------|---------------------------|
| Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
|                        |                   |                                   | -199                      |
|                        |                   |                                   | R12M CO2e Savings (kg/yr) |
| E                      |                   |                                   |                           |

#### **Comments:**

For May to August 2021, Johnson Road Pump Station's EUI has increased by approximately 60% compared to previous 12 months. The EUI for September 2021 was less than the 12 month average and the EUI for October 2021 is similar to May-August 2021. The differences may be partly due to when the electricity meter was read.

As Johnson Road Pump Station has a non-zero baseload, it is expected that as the pump station is used less, the EUI will also increase.

#### Johnson Rd Pumps Electricity Use Compared to Baseline (kWh)

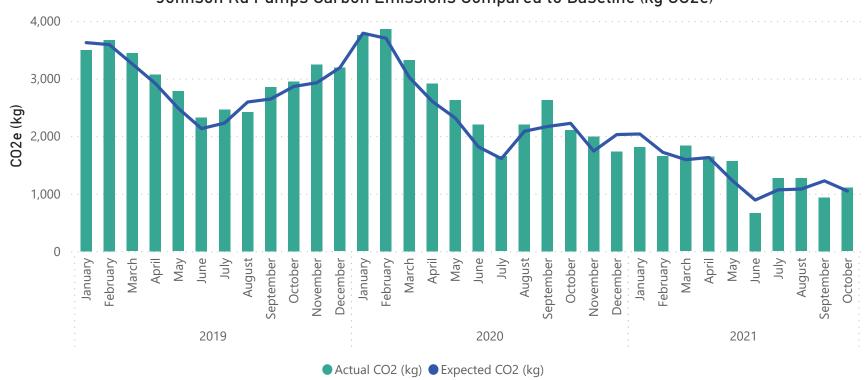


● Actual Electricity (kWh) ■ Expected Electricity(kWh)

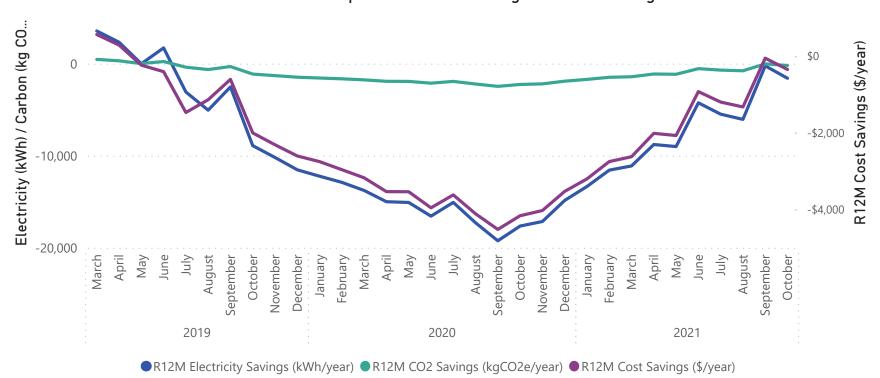


## Johnson Road Pump Station





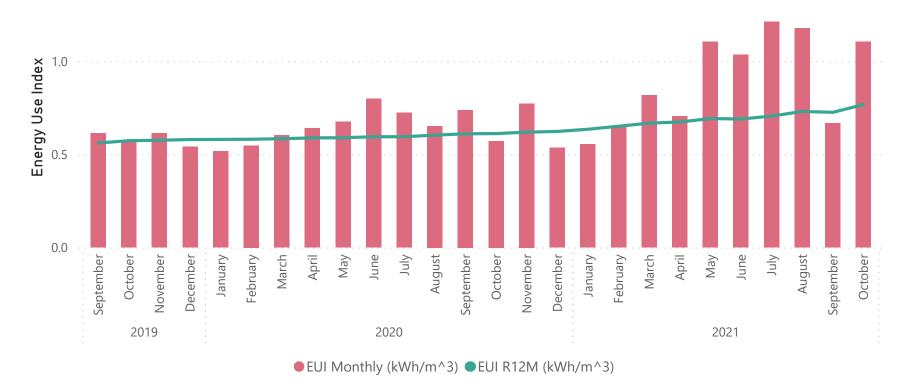
#### Johnson Rd Pumps Cumulative Rolling 12 Month Savings





# Johnson Road Pump Station

Johnson Rd Pumps Energy Use Index by Month Compared to Rolling 12-Month Values





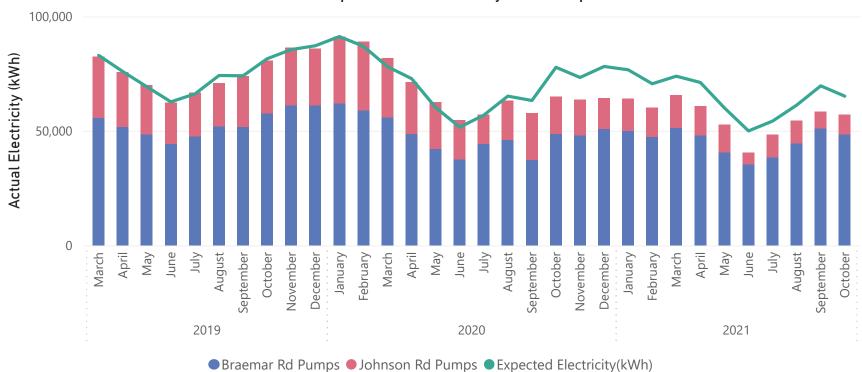
## Johnson and Braemar Rd Pump Stations

| \$708                       | 8,019                  | 12%               | 113,746                           | 1,071                     |
|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|
| Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
| \$12,159                    |                        |                   |                                   | 15,197                    |
| R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |

#### **Comments:**

It is clear from the combined monitoring how the new, more efficient pumps (installed September 2020) at Braemar Road greatly contribute to the collective savings. On an EUI basis, even before the more efficient pumps were installed, Braemar Road was pumping water more efficiently than Johnson Rd.

#### Johnson and Braemar Rd Pump Stations Electricity Use Compared to Baseline (kWh)

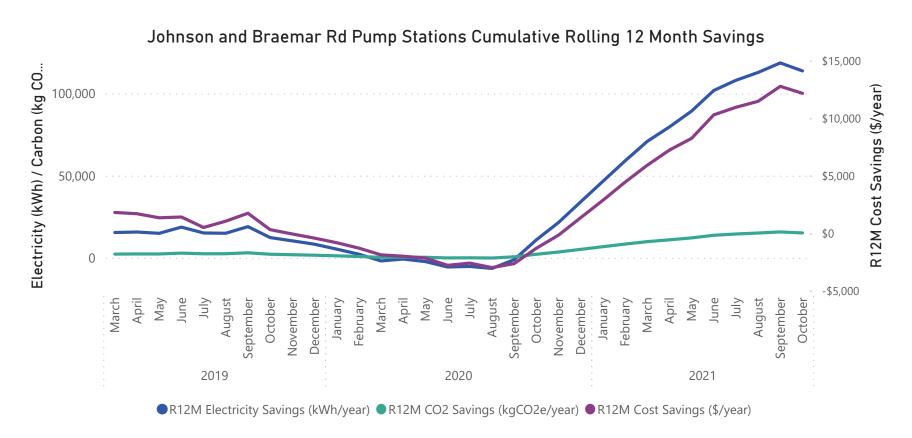




## Johnson and Braemar Rd Pump Stations

Johnson and Braemar Rd Pump Stations Carbon Emissions Compared to Baseline (kWh)

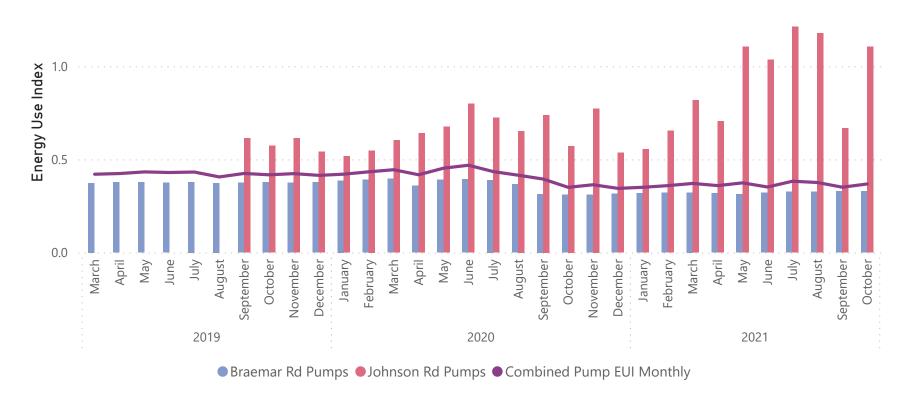






# Johnson and Braemar Rd Pump Stations

Johnson and Braemar Rd Pump Stations Energy Use Index by Month





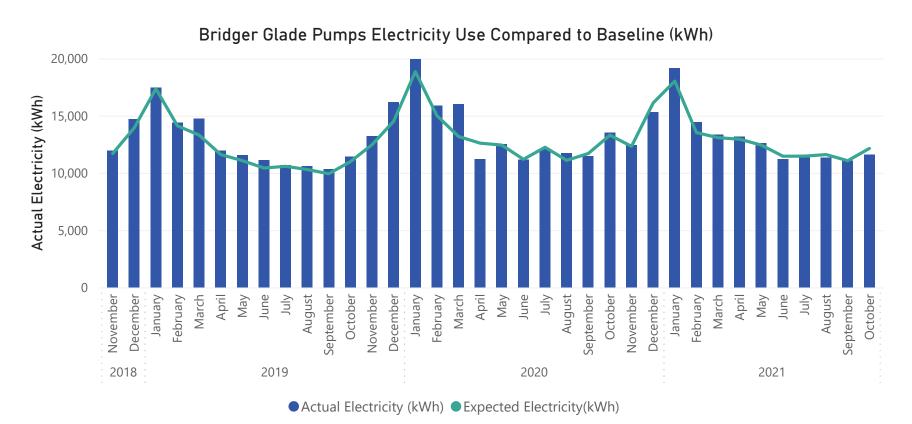
# Bridger Glade Pump Station

| 550                    | 5%                | -813                              | 71                        |
|------------------------|-------------------|-----------------------------------|---------------------------|
| Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
|                        |                   |                                   | -105                      |
|                        |                   |                                   | R12M CO2e Savings (kg/yr) |
|                        |                   |                                   |                           |

#### **Comments:**

Electricity use was less than baseline for the month of October 2021 at Bridger Glade pump station.

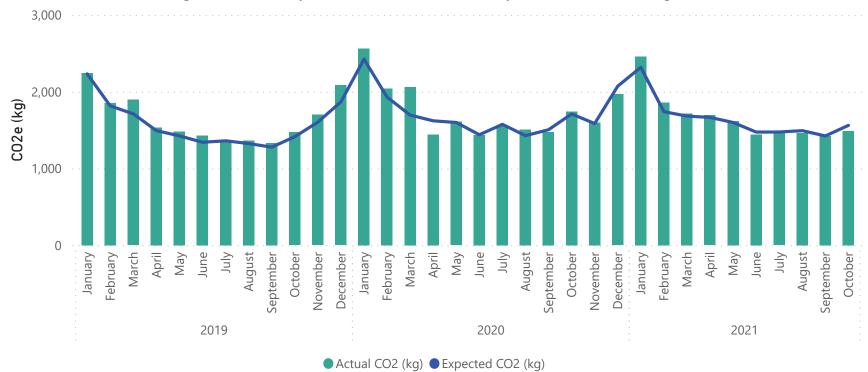
In October 2021 the volume of water pumped was 9% less and electricity was 14% less compared to to October 2020.

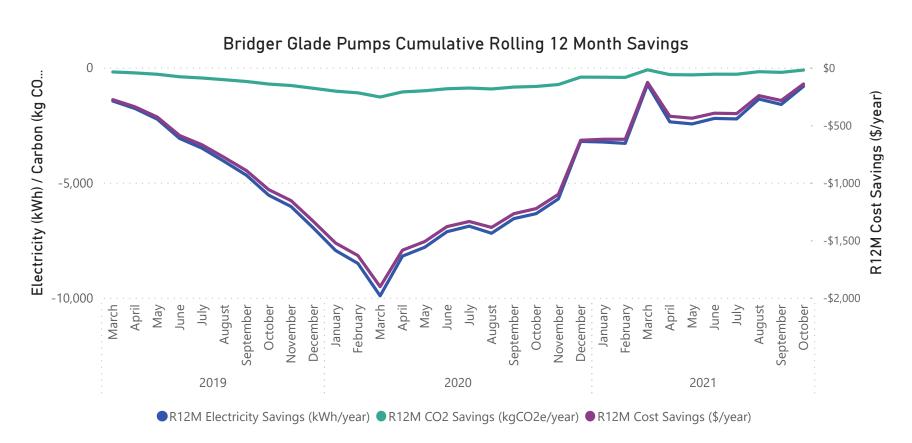




# Bridger Glade Pump Station



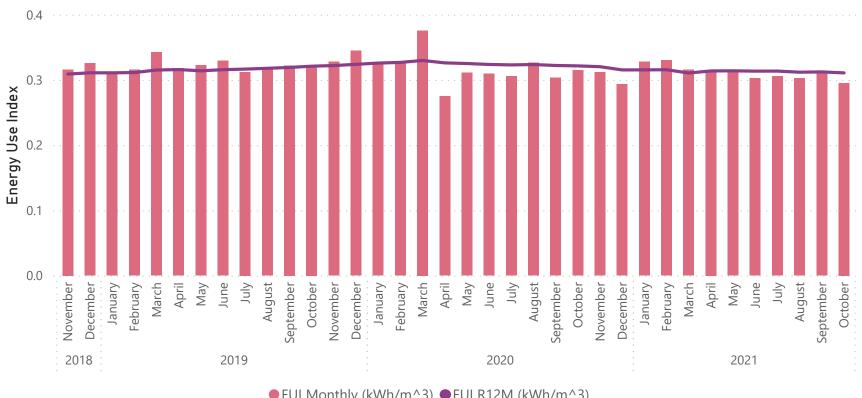






# **Bridger Glade Pump Station**







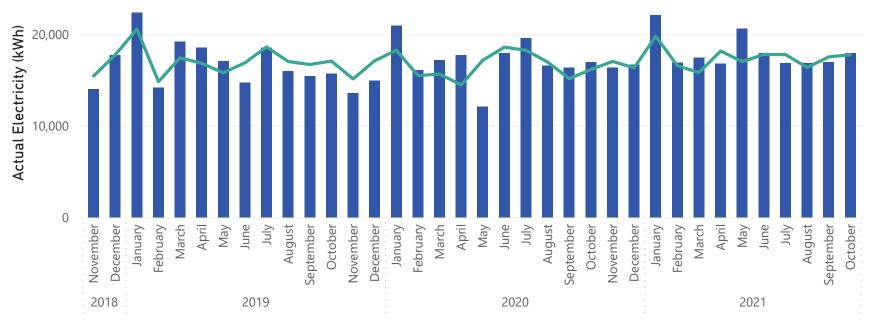
# **Ohope Oxidation Ponds**

|   | -\$26                       | -147                   | -1%               | -5,375                            | -19                       |
|---|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|
| Ν | Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
|   |                             |                        |                   |                                   |                           |
|   | -\$951                      |                        |                   |                                   | -692                      |
|   | R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |
|   |                             |                        |                   |                                   |                           |

#### **Comments:**

Electricity use in October 2021 was 6% higher than October 2020 and the volume of water treated was 28% higher than October 2020. With the exceptions of January and May, monthly electricity use has been relatively constant in for the past 15 months.

#### Ohope Oxidation Ponds Electricity Use Compared to Baseline (kWh)

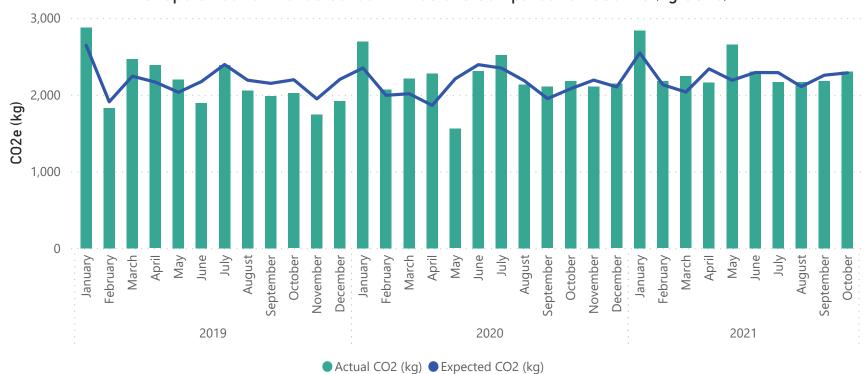


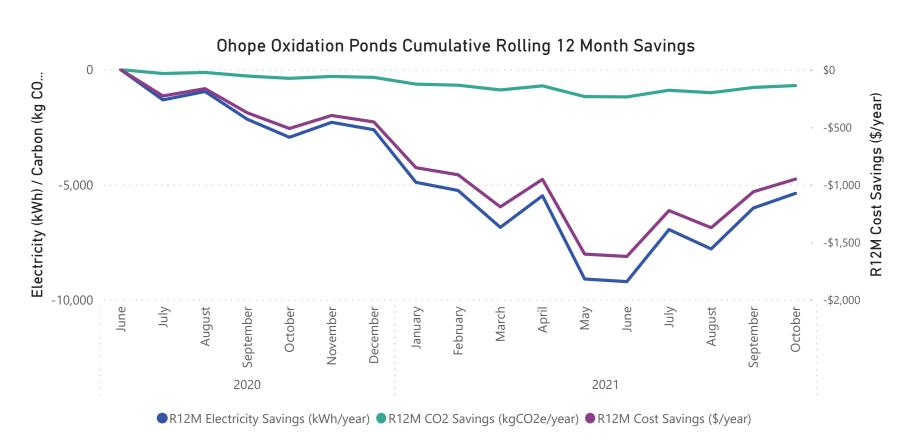
Actual Electricity (kWh)Expected Electricity(kWh)



# **Ohope Oxidation Ponds**



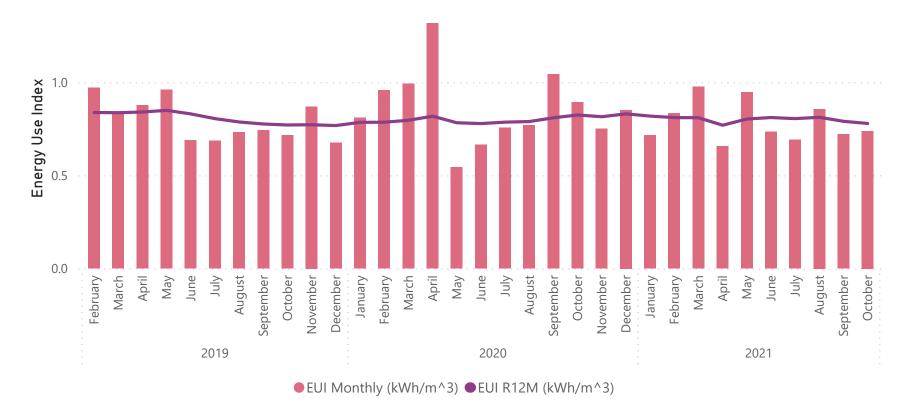






# **Ohope Oxidation Ponds**

Ohope Oxidation Ponds Energy Use Index by Month Compared to Rolling 12-Month Values





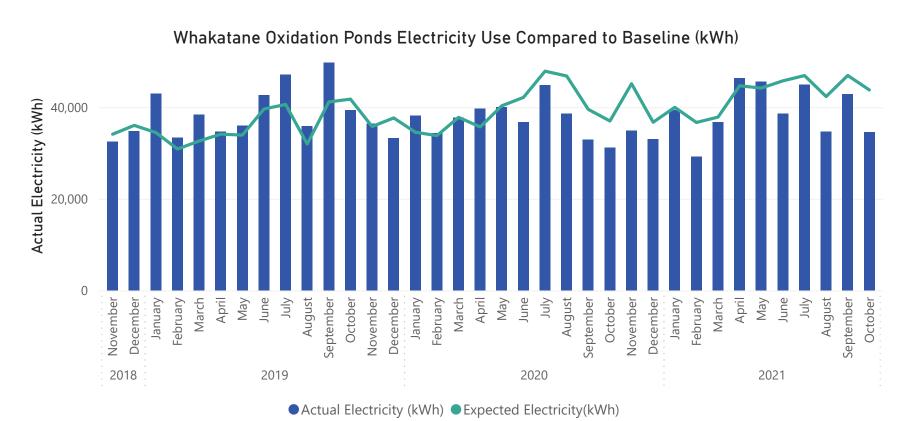
### Whakatane Oxidation Ponds

| \$1,244                     | 9,232                  | 21%               | 50,266                            | 1,188                     |
|-----------------------------|------------------------|-------------------|-----------------------------------|---------------------------|
| Monthly Energy Cost Savings | Elec. Savings (kWh/mo) | Elec. Savings (%) | R12M Electricity Savings (kWh/yr) | CO2e Savings (kg/mo)      |
|                             |                        |                   |                                   |                           |
| \$6,970                     |                        |                   |                                   | 6,469                     |
| R12M Energy Cost Savings    |                        |                   |                                   | R12M CO2e Savings (kg/yr) |

#### **Comments:**

The Whakatane Oxidation Ponds have two ICPs, the aerators are set up as a time of use (TOU) account (supplied by Mercury), and the pumps are non-TOU (supplied by Genesis).

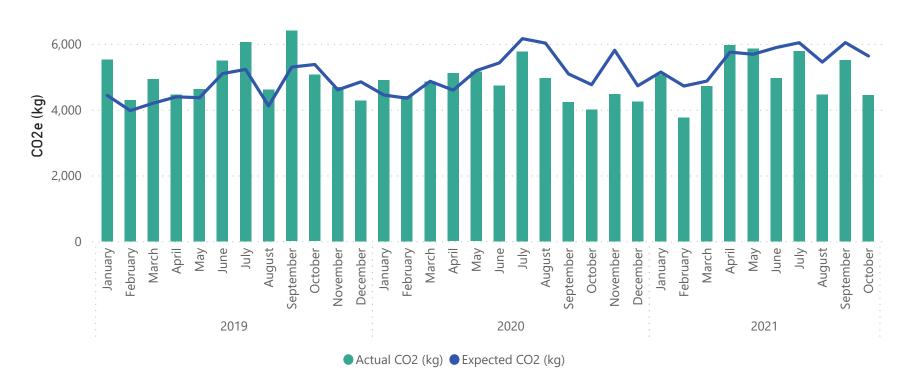
In October 2021, the oxidation ponds used 21% less electricity compared to baseline. Rolling 12 month EUI has been steadily decreasing, which is good.

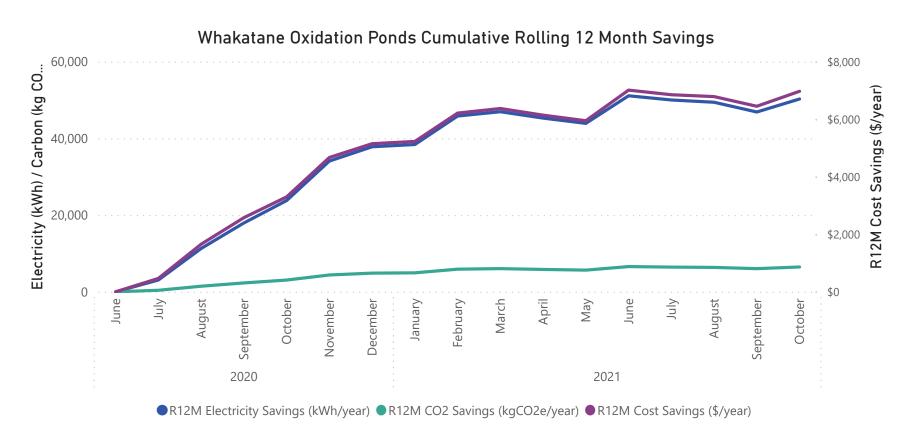




## Whakatane Oxidation Ponds

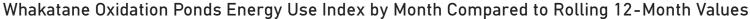
Whakatane Oxidation Ponds Carbon Emissions Compared to Baseline (kg CO2e)

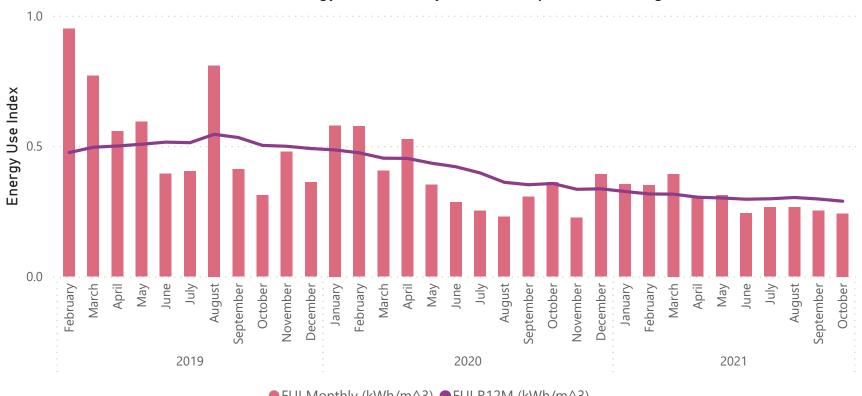






## Whakatane Oxidation Ponds







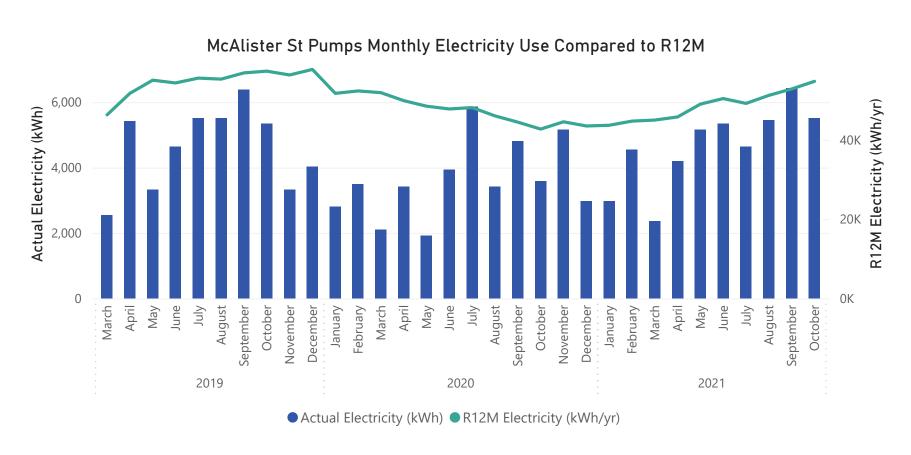
# McAlister Street Pump Station

| \$1,378<br>Monthly Energy Cost (\$)      | <b>5,511</b> Monthly Energy Use (kWh)  |
|--|--|
| <b>\$15,164</b> R12M Energy Cost (\$/yr) | <b>54,751</b> R12M Energy Use (kWh/yr) |

#### **Comments:**

McAlister Street Pump Station was added to monitoring in August 2021. No flow meter is available for this pump station, so only electricity use and cost have been included in monitoring.

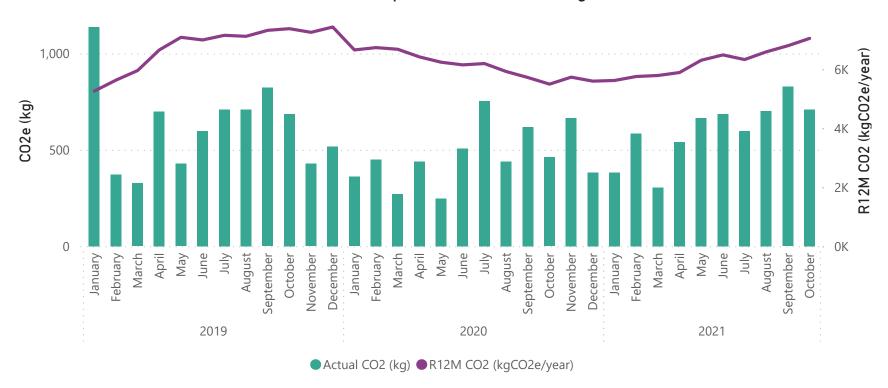
McAlister Street Pump Station is on a NHH account, some months' usage may be estimated by the retailer and captured by a subsequent meter reading. Manual readings at the end of each month would help with the accuracy of monitoring reports.

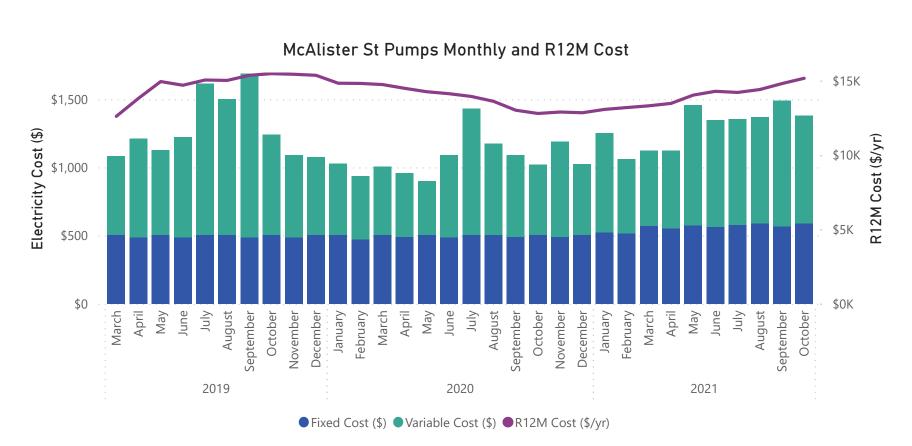




# McAlister Street Pump Station

#### McAlister St Pumps Carbon Emissions (kgCO2e)







## Rose Gardens Pump Station

| <b>\$220</b> Monthly Energy Cost (\$)   | <b>319</b> Monthly Energy Use (kWh)    |
|---|--|
| <b>\$7,726</b> R12M Energy Cost (\$/yr) | <b>34,988</b> R12M Energy Use (kWh/yr) |

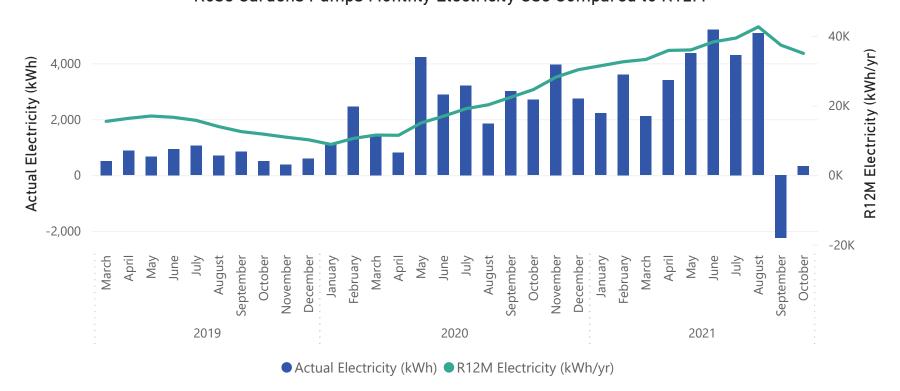
#### **Comments:**

Rose Gardens Pump Station was added to monitoring in August 2021. No flow meter is available for this pump station, so only electricity use and cost have been included in monitoring.

The Rose Gardens Pump Station is on a NHH account, some months' usage may be estimated by the retailer and captured by a subsequent meter reading. Meter readings for September and October were actual readings, electricity usage in October 2021 is relatively accurate. Using only 319 kWh for the month reflect a positive change that was made in how the pump operates.

The meter reading for September 2021 was an actual reading; previous month's readings were over estimated and a credit has been issued for the account. Monthly manual readings of the Rose Garden's electricity meter could be taken to improve accuracy for electricity monitoring.

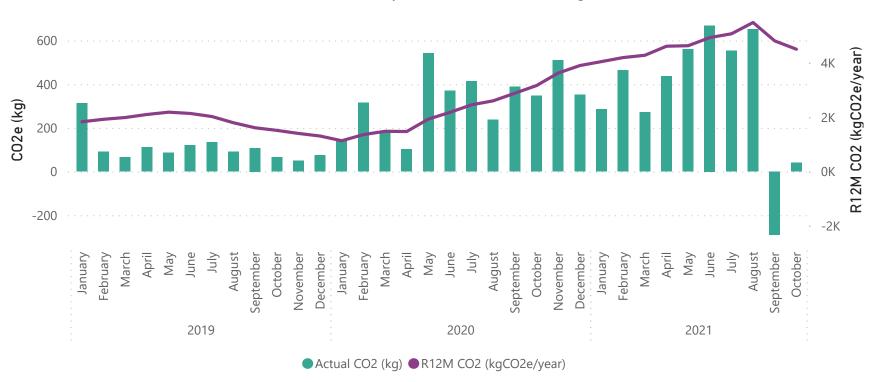
#### Rose Gardens Pumps Monthly Electricity Use Compared to R12M





# Rose Gardens Pump Station





## Rose Gardens Pumps Monthly and R12M Cost

