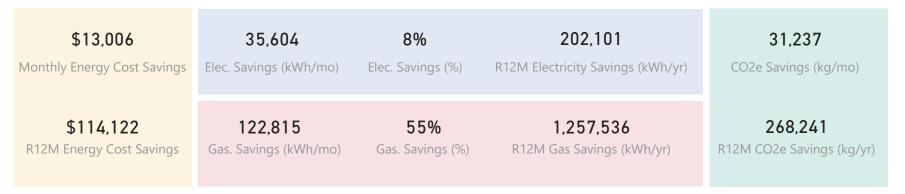
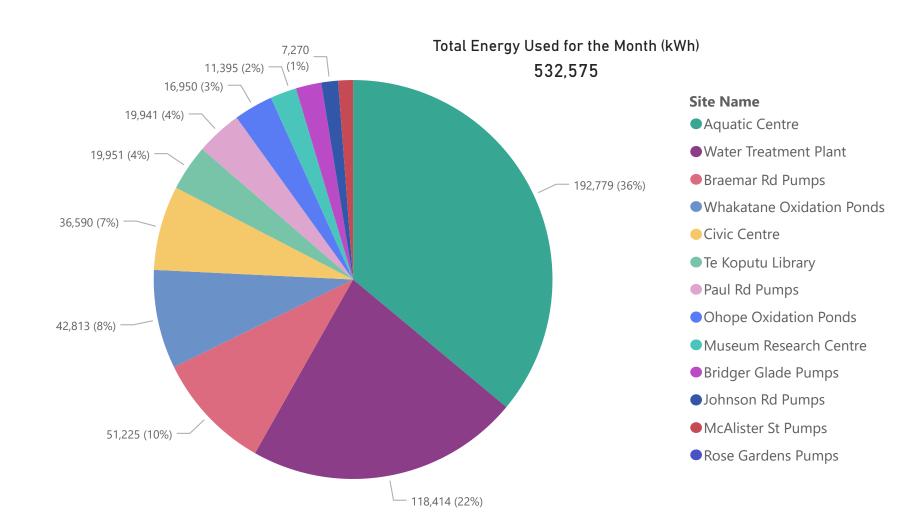


Summary



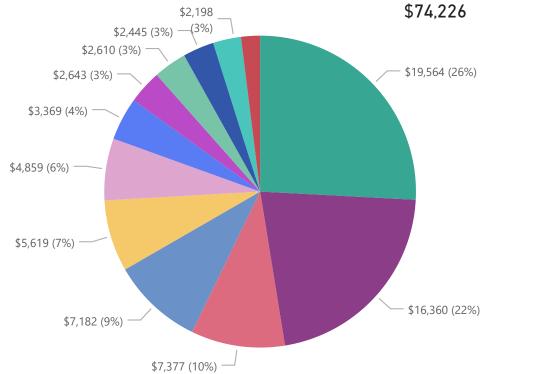
Total Energy (kWh/Month)





Summary



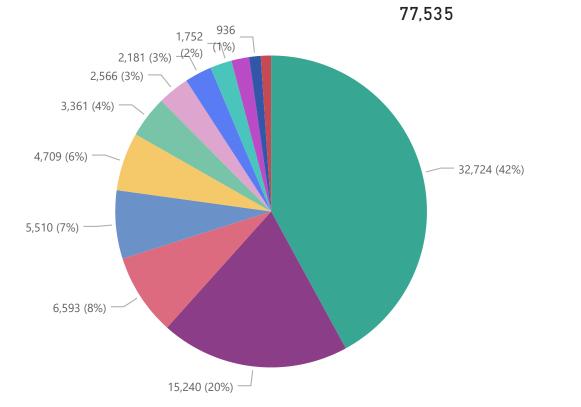


Site Name

- Aquatic Centre
- Water Treatment Plant
- Braemar Rd Pumps
- Whakatane Oxidation Ponds
- Civic Centre
- Paul Rd Pumps
- Ohope Oxidation Ponds
- Bridger Glade Pumps
- Te Koputu Library
- Johnson Rd Pumps
- Museum Research Centre
- McAlister St Pumps
- Rose Gardens Pumps



Carbon Emissions for the Month (kgCO2e)

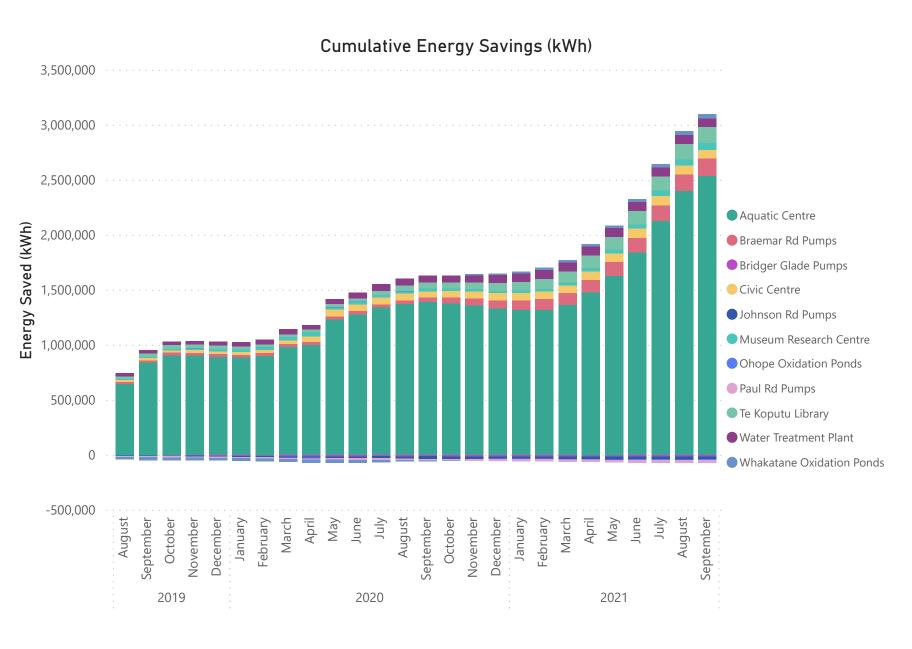


Site Name

- Aquatic Centre
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- Rose Gardens Pumps



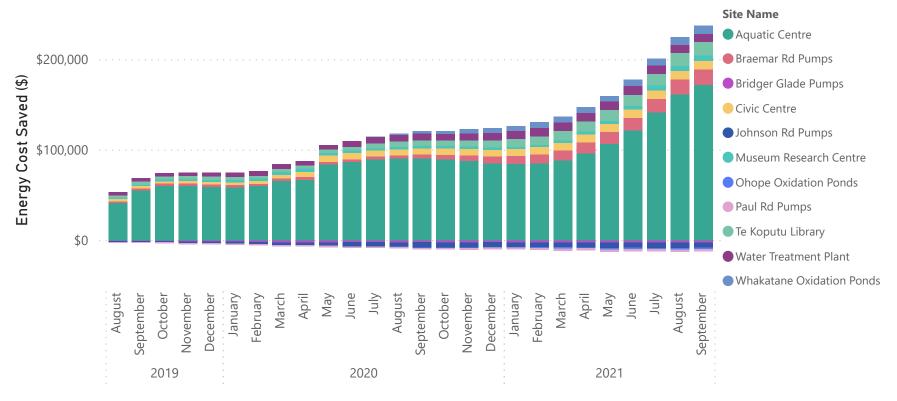
Summary



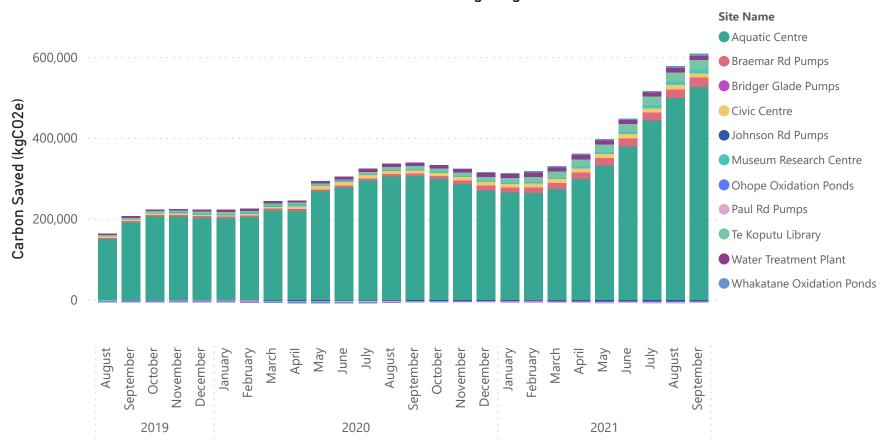


Summary



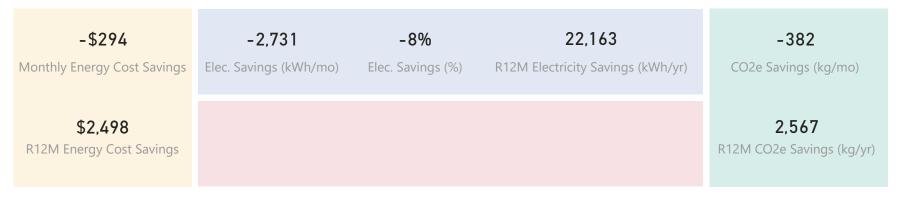


Cumulative Carbon Savings (kgCO2e/month)





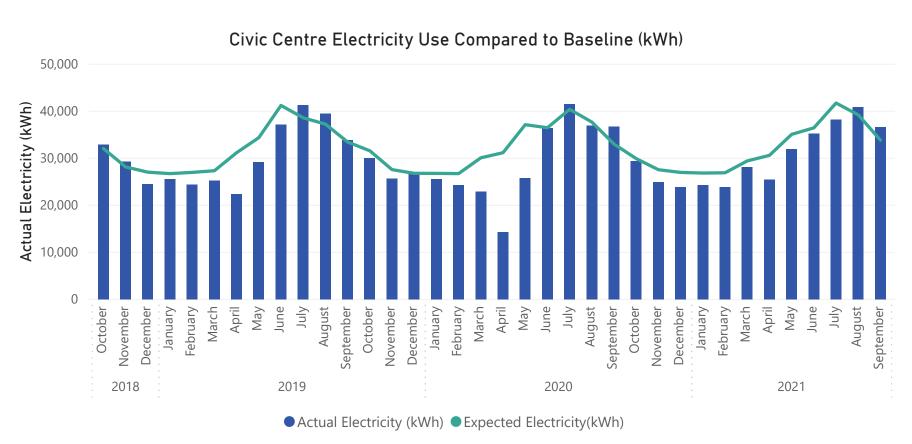
Civic Centre



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.

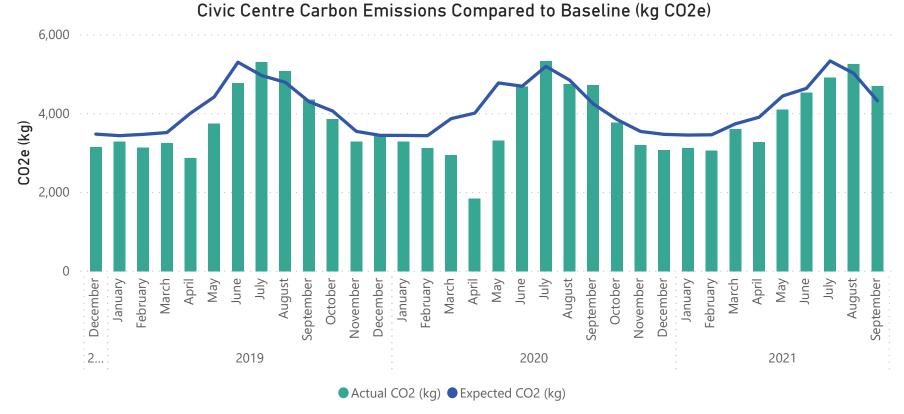
The Civic Centre used more electricity than expected this month. TOU data indicates a baseload increase around 20-25kW started on 9 August and continued until 17 September. A load of this size might be attributed to HVAC being on unnecessarily.

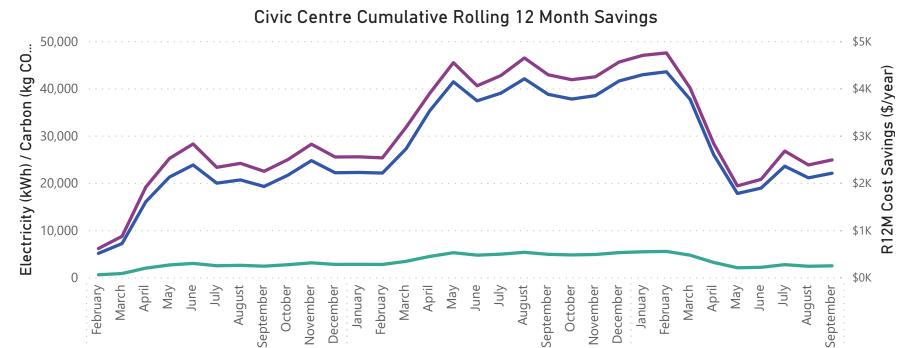




Civic Centre







2019

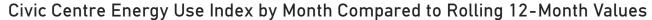
■R12M Electricity Savings (kWh/year)
■R12M CO2 Savings (kgCO2e/year)
■R12M Cost Savings (\$/year)

2020

2021



Civic Centre





● EUI Monthly (kWh/year/m^2) ● EUI R12M (kWh/year/m^2)



Aquatic Centre

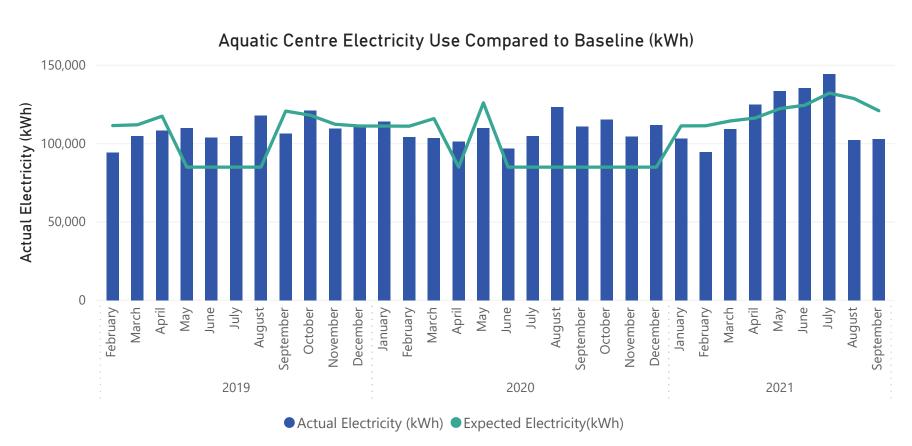
\$10,293 Monthly Energy Cost Savings	18,035 Elec. Savings (kWh/mo)	15% Elec. Savings (%)	-43,672 R12M Electricity Savings (kWh/yr)	27,855 CO2e Savings (kg/mo)
\$81,355 R12M Energy Cost Savings	117,618 Gas. Savings (kWh/mo)	57% Gas. Savings (%)	1,188,129 R12M Gas Savings (kWh/yr)	221,249 R12M CO2e Savings (kg/yr)

Comments:

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

Electricity use was below baseline for the second month in a row; electricity use had been more than baseline from April to July 2021. Part of the savings may be attributed to approximately one week of the pool being closed in alert level three.

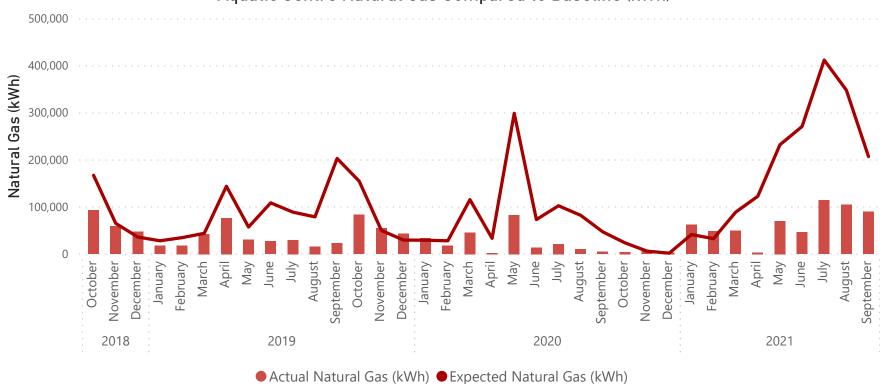
Natural gas was less than last month, despite the pool being closed for half as long in September compared to August. Gas savings for the month are 57% compared to a temperature adjusted baseline.



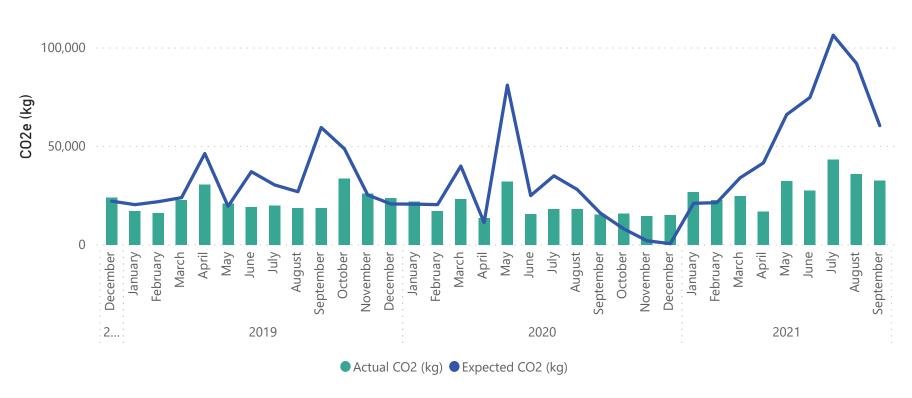


Aquatic Centre





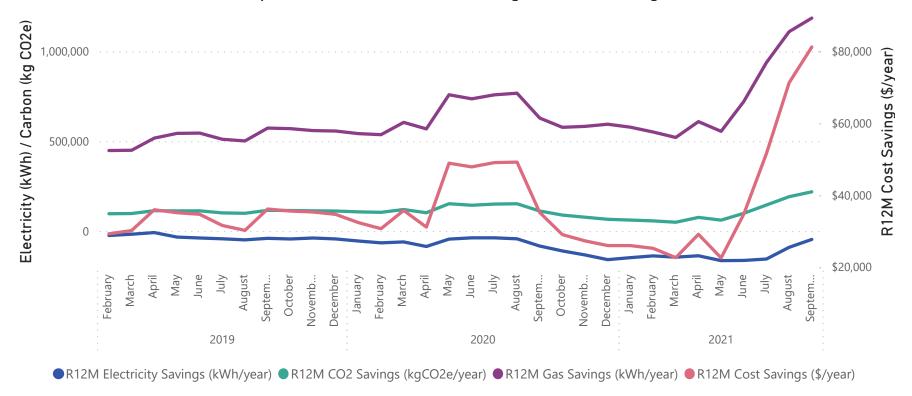
Aquatic Centre Carbon Emissions Compared to Baseline (kg CO2e)



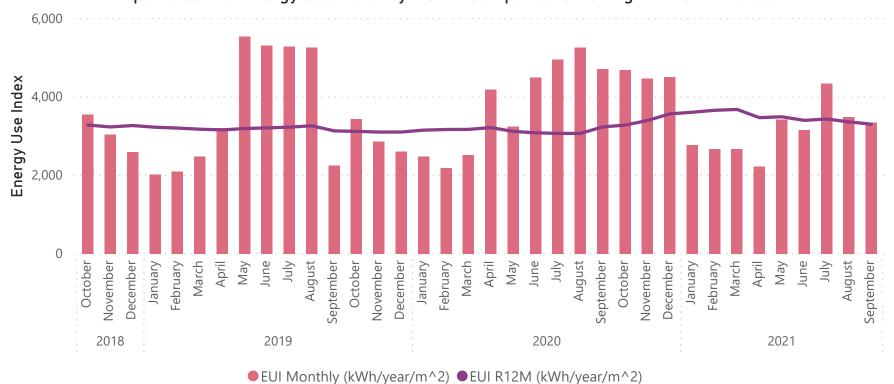


Aquatic Centre

Aquatic Centre Cumulative Rolling 12 Month Savings



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





Te Koputu Library

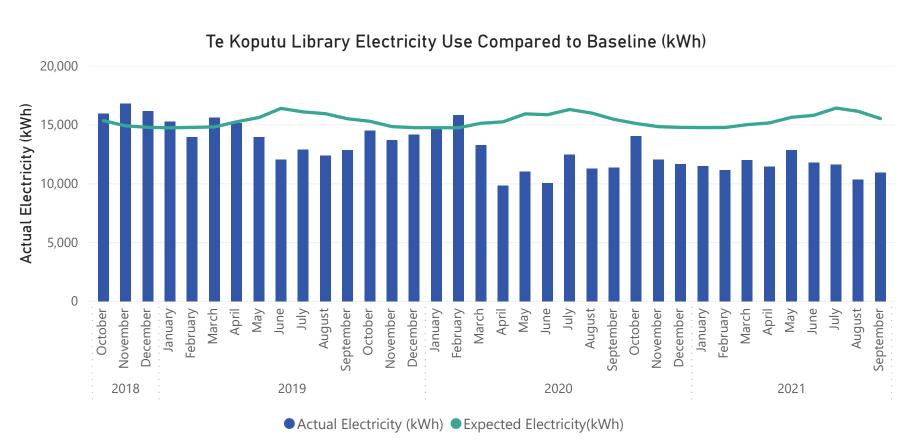
\$628 Monthly Energy Cost Savings	4,598 Elec. Savings (kWh/mo)	30% Elec. Savings (%)	42,645 R12M Electricity Savings (kWh/yr)	1,001 CO2e Savings (kg/mo)
\$8,471 R12M Energy Cost Savings	1,865 Gas. Savings (kWh/mo)	17% Gas. Savings (%)	50,811 R12M Gas Savings (kWh/yr)	16,557 R12M CO2e Savings (kg/yr)

Comments:

Electricity use has been less than baseline since March 2020.

Electricity and natural gas use were both below baseline in September 2021, however, some of these savings may be credited towards the facility being closed to the public during during alert level three,.

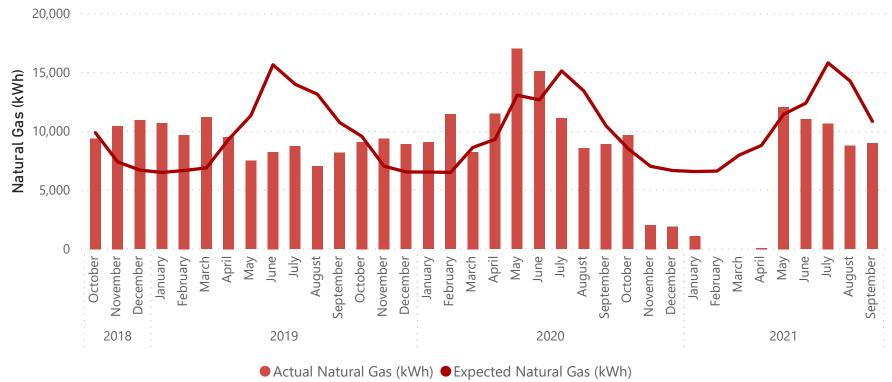
Rolling 12 month cost savings have been maintained at approximately \$8,500 saved per year.



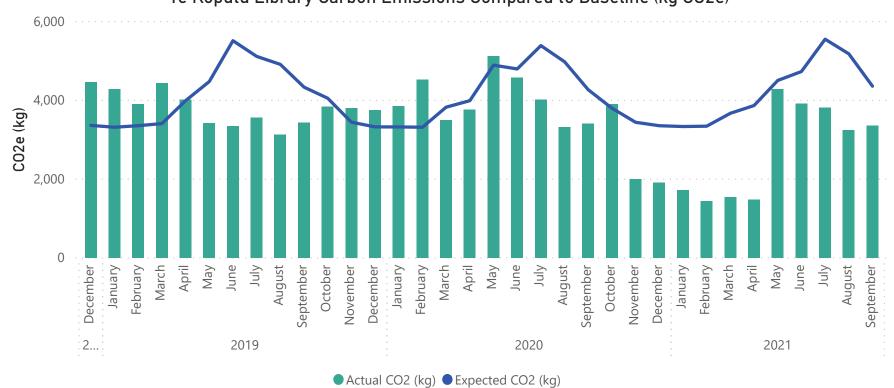


Te Koputu Library





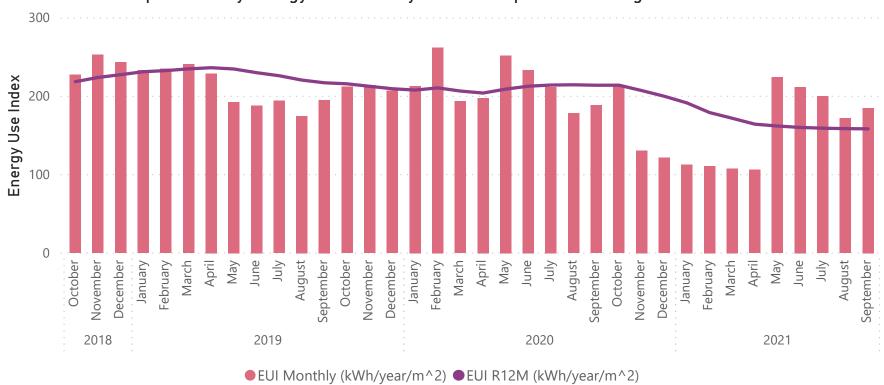
Te Koputu Library Carbon Emissions Compared to Baseline (kg CO2e)



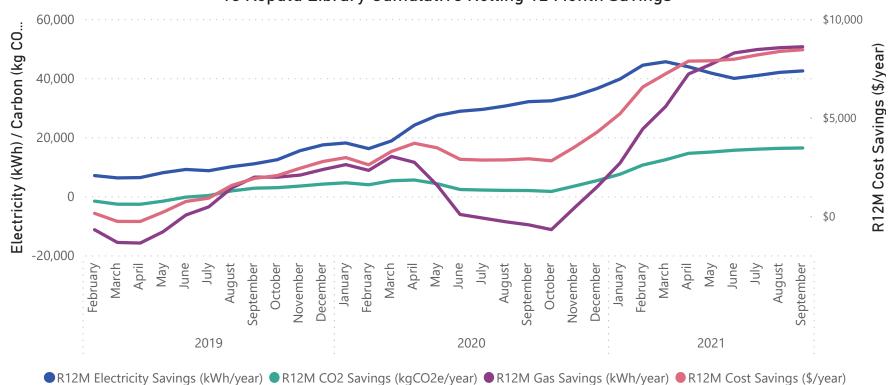


Te Koputu Library











Museum and Research Centre

\$535 Monthly Energy Cost Savings	2,722 Elec. Savings (kWh/mo)	25% Elec. Savings (%)	18,614 R12M Electricity Savings (kWh/yr)	1,073 CO2e Savings (kg/mo)
\$3,520 R12M Energy Cost Savings	3,331 Gas. Savings (kWh/mo)	51% Gas. Savings (%)	18,596 R12M Gas Savings (kWh/yr)	6,427 R12M CO2e Savings (kg/yr)

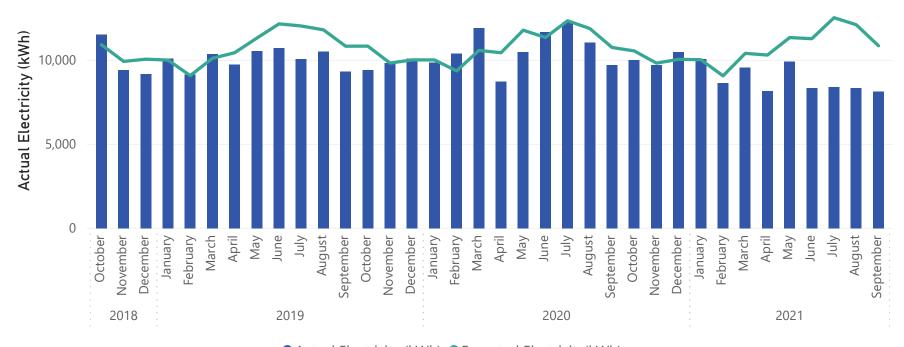
Comments:

Electricity use in September 2021 compared to September 2020 is 16% lower and gas use was is 47% 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 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)

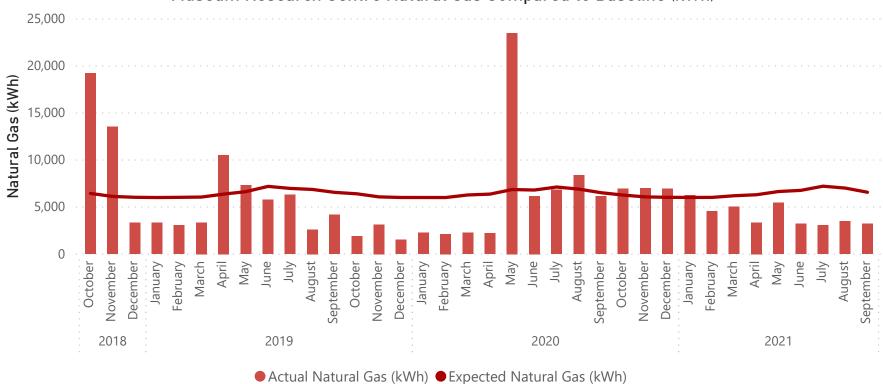


Actual Electricity (kWh)Expected Electricity(kWh)

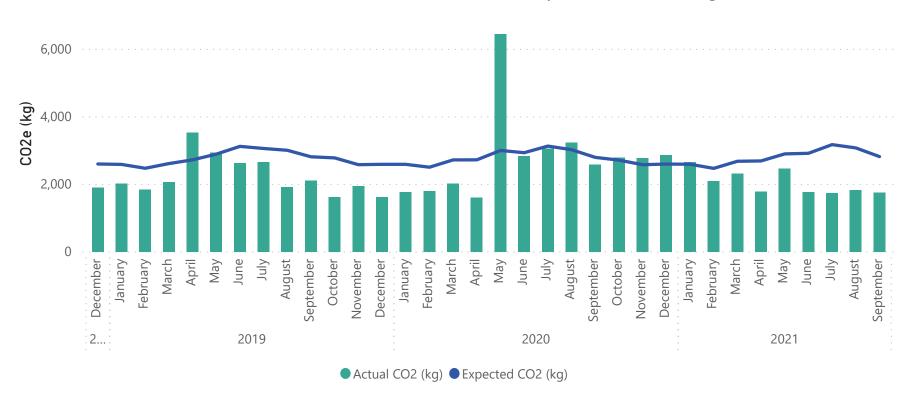


Museum and Research Centre





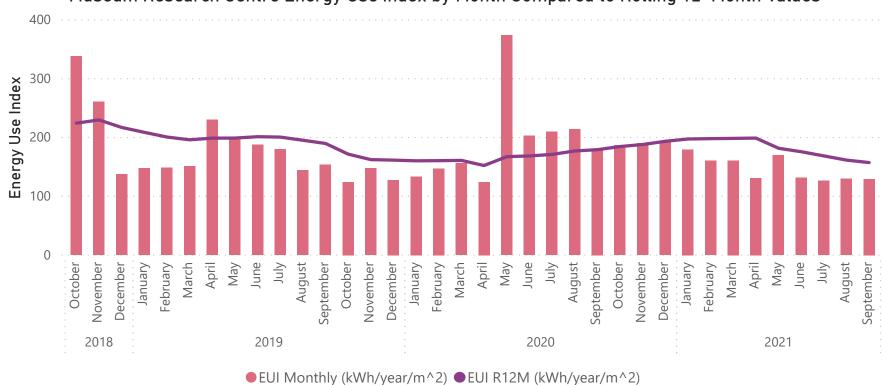
Museum Research Centre Carbon Emissions Compared to Baseline (kg CO2e)

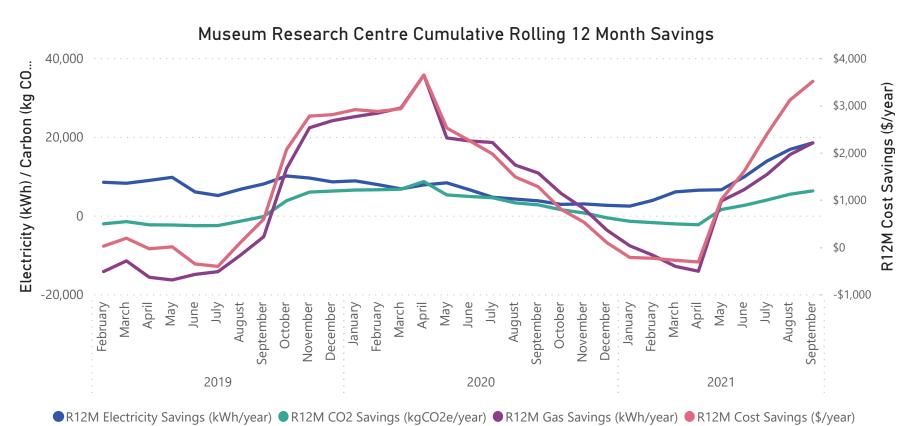




Museum and Research Centre

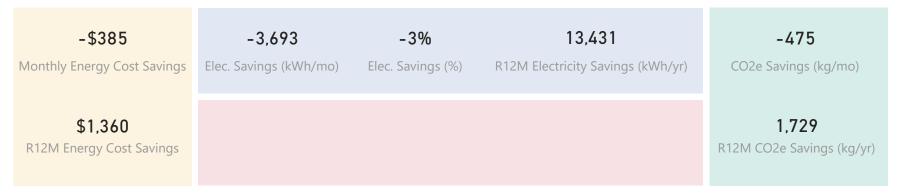








Water Treatment Plant

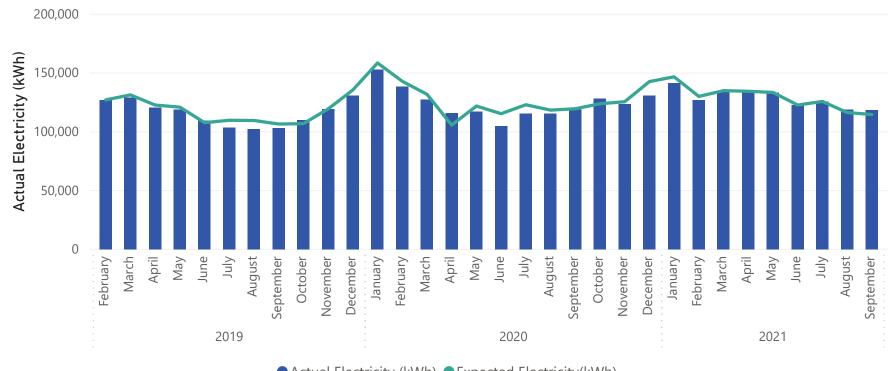


Comments:

Metering for April to July 2021 was incorrect and was previously only picking up approximately half of the actual value. To rectify this in monitoring, electricity use for those months have been set equal to expected electricity use.

Electricity use in September 2021 is slightly above baseline.

Water Treatment Plant Electricity Use Compared to Baseline (kWh)

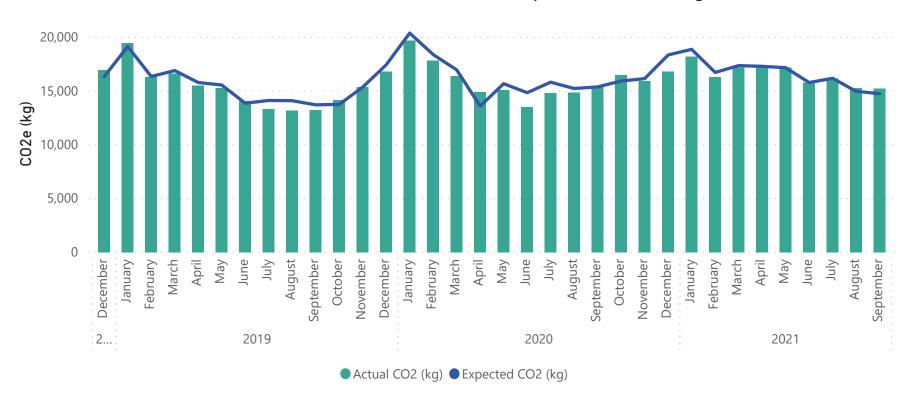


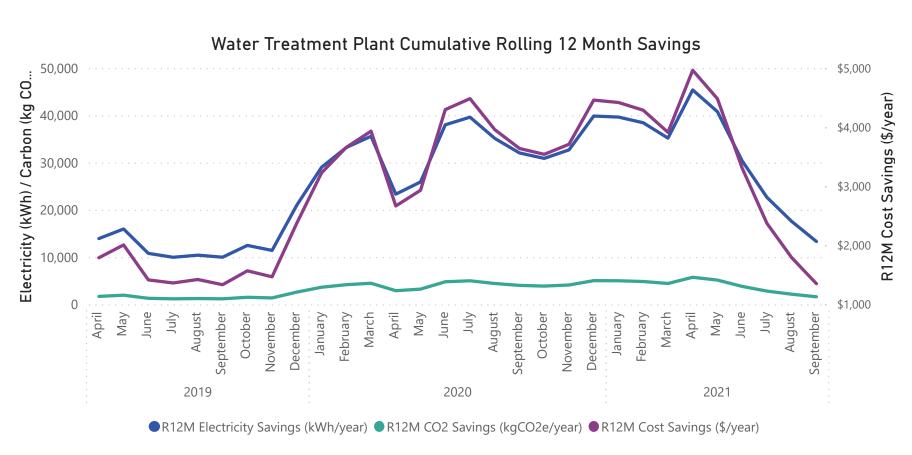
Actual Electricity (kWh)Expected Electricity(kWh)



Water Treatment Plant

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

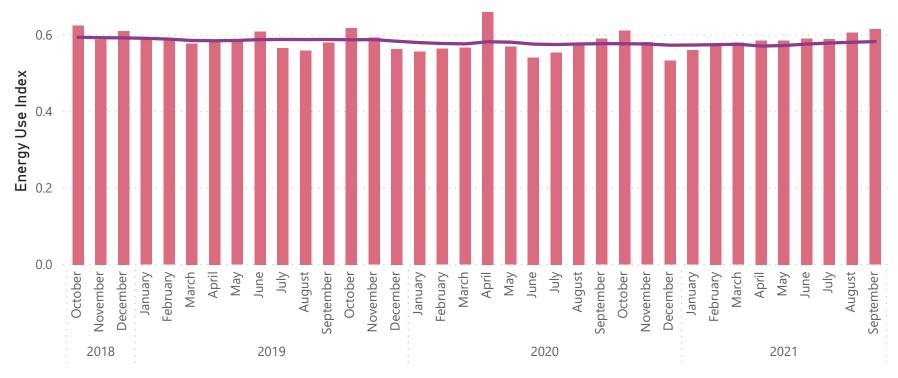






Water Treatment Plant

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



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



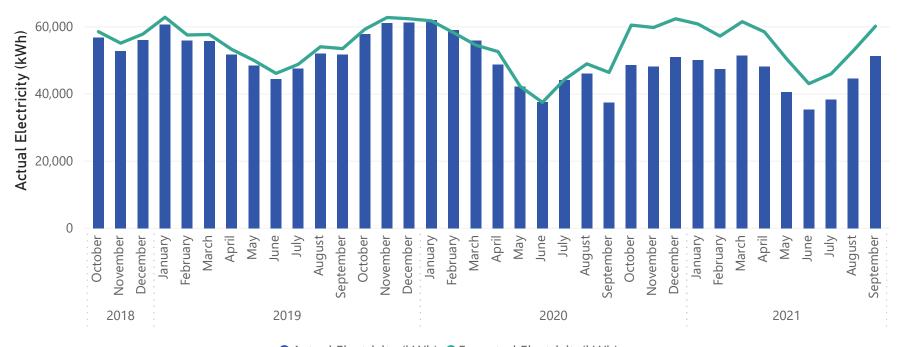
Braemar Road Pump Station

\$965	8,952	15%	118,843	1,171
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$12,824 R12M Energy Cost Savings				15,826 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 \$12,800 per year, 120,000 kWh per year, and 15,800 kgCO2e per year.

Braemar Rd Pumps Electricity Use Compared to Baseline (kWh)

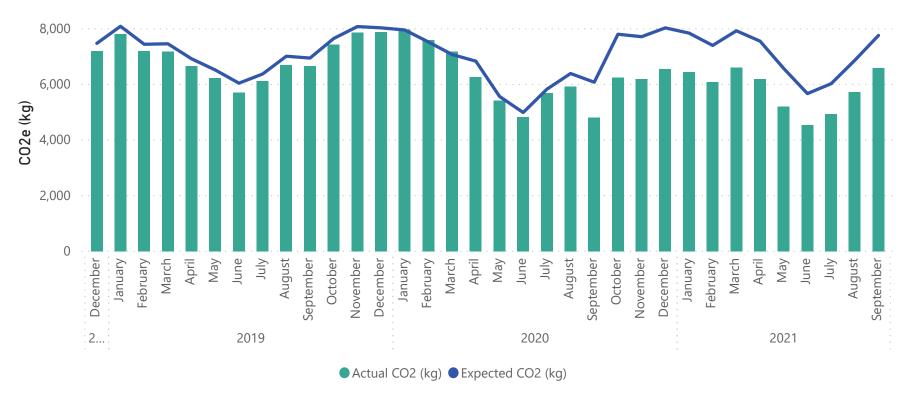


Actual Electricity (kWh)Expected Electricity(kWh)

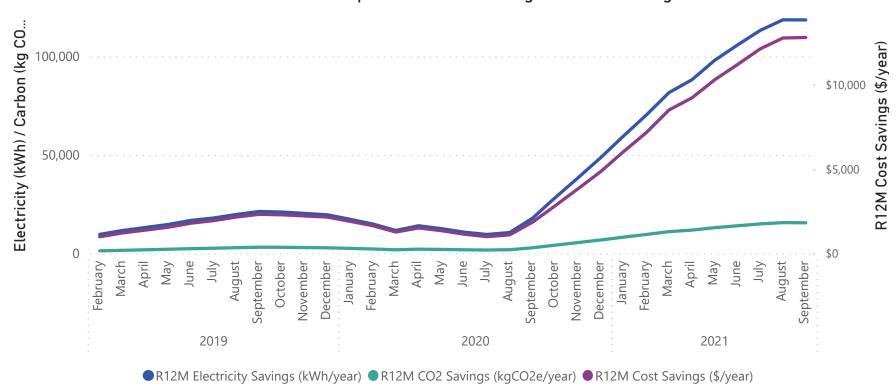


Braemar Road Pump Station

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



Braemar Rd Pumps Cumulative Rolling 12 Month Savings





Braemar Road Pump Station

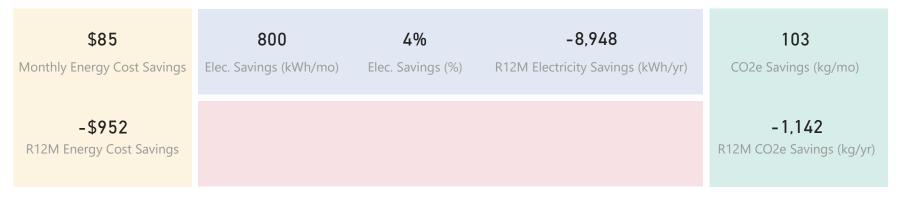




● EUI Monthly (kWh/m^3) ● EUI R12M (kWh/m^3)

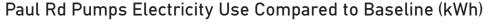


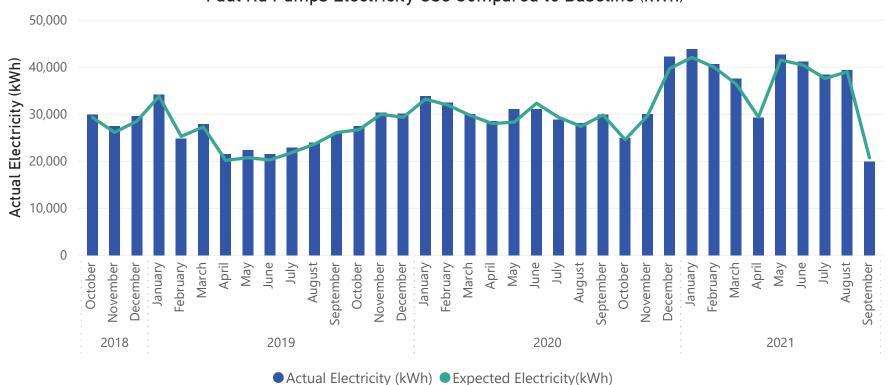
Paul Road Pump Station



Comments:

Demand has dropped to approximately half of what it was in August. On an EUI basis, the pumps have used marginally more energy per cubic meter, 0.68 kWh per cubic meter, compared to the average for the past 12 months, 0.65 kWh per cubic meter. As Paul Road Pump Station has a non-zero baseload, it is expected that as the pump station is used less, the EUI will also increase.

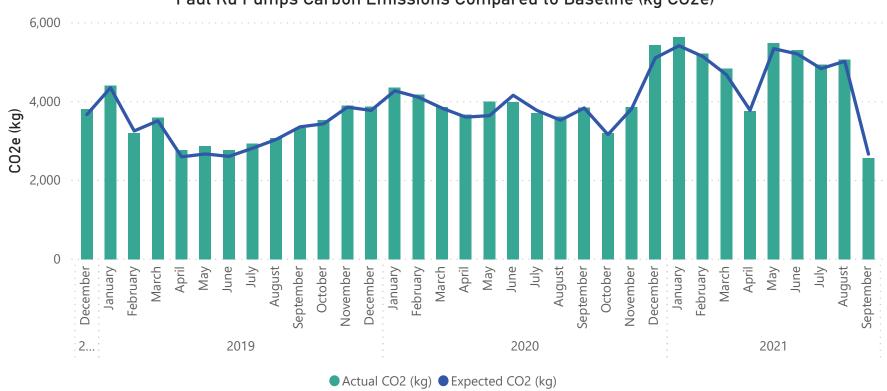


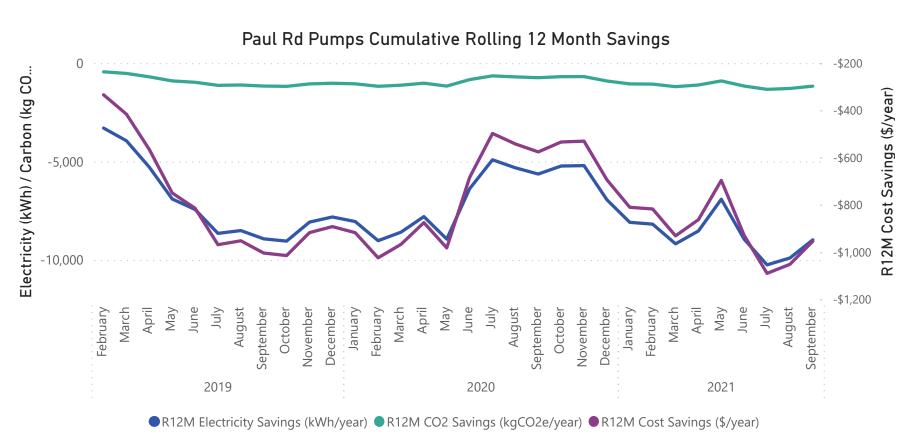




Paul Road Pump Station



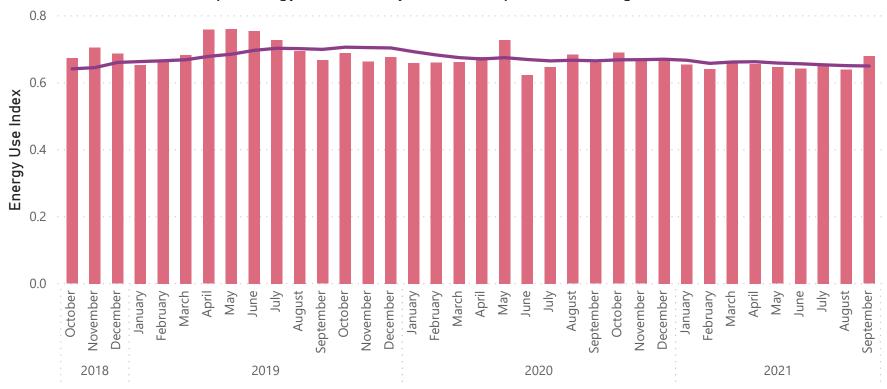






Paul Road Pump Station





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



Johnson Road Pump Station

\$492	2,230	23%	-238	287
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
-\$57 R12M Energy Cost Savings				-25 R12M CO2e Savings (kg/yr)

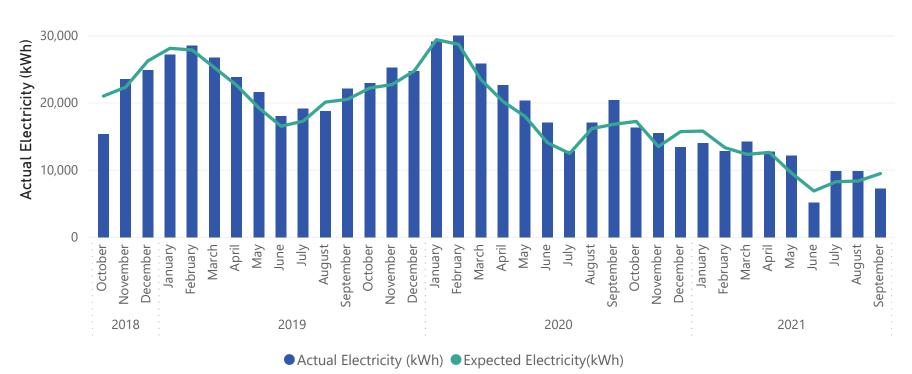
Comments:

Generally, both Paul Road and Johnson Rd's EUIs are approximately twice as high compared to Bridger Glade and Braemar Road on a kWh per cubic meter pumped basis. This may be due to operating at different pressures.

For May to August 2021, Johnson Road Pump Station's EUI has increased by approximately 60% compared to previous 12 months. The month of September has reduced the EUI to less than the 12 month average.

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.

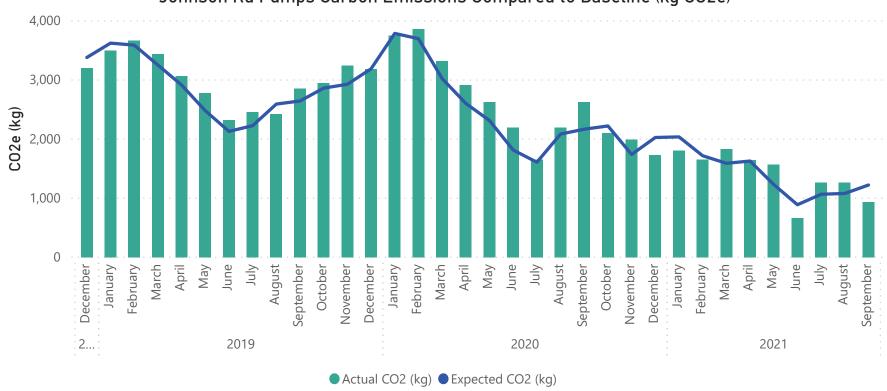
Johnson Rd Pumps Electricity Use Compared to Baseline (kWh)



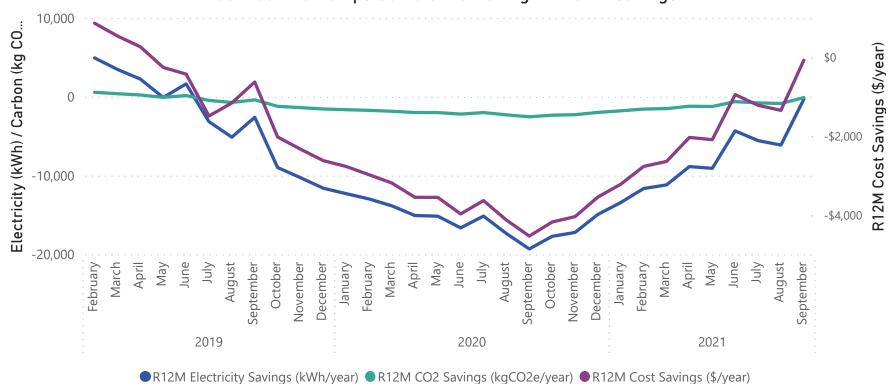


Johnson Road Pump Station





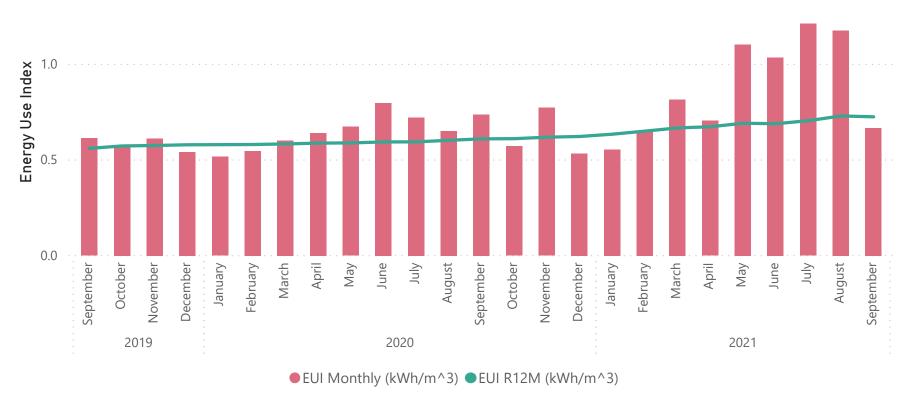






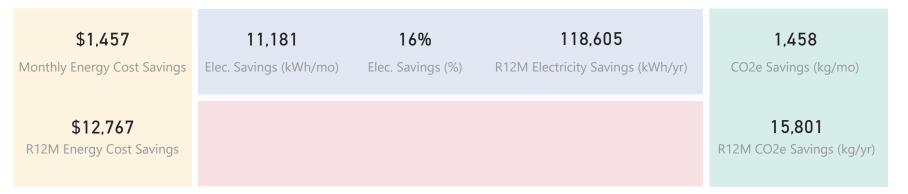
Johnson Road Pump Station

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





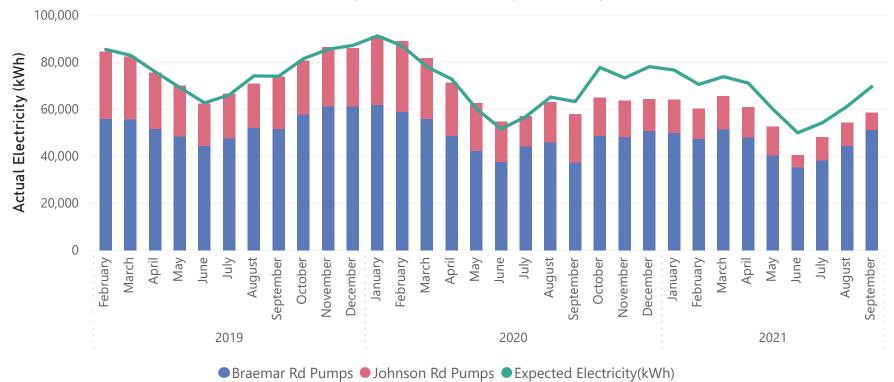
Johnson and Braemar Rd Pump Stations



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.

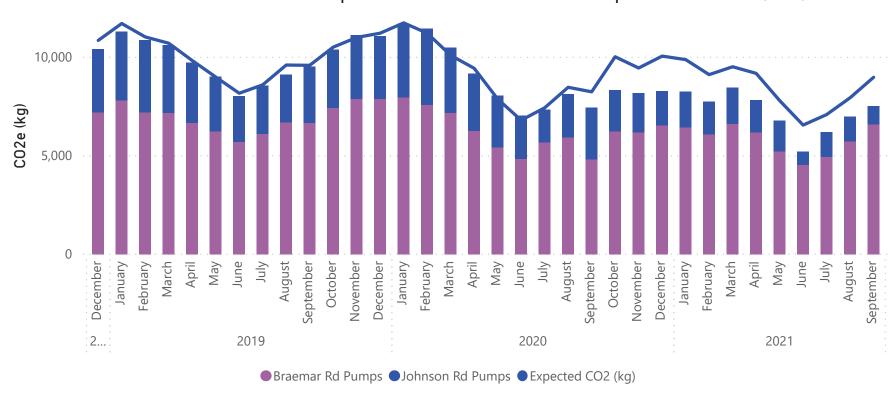


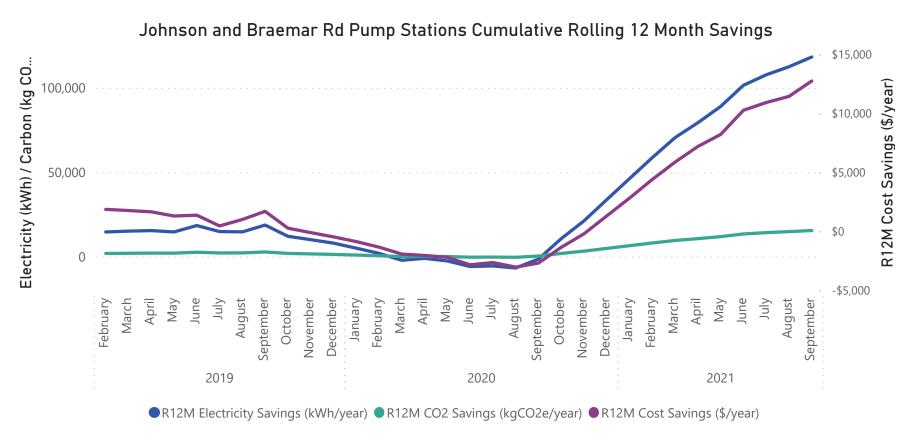




Johnson and Braemar Rd Pump Stations

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

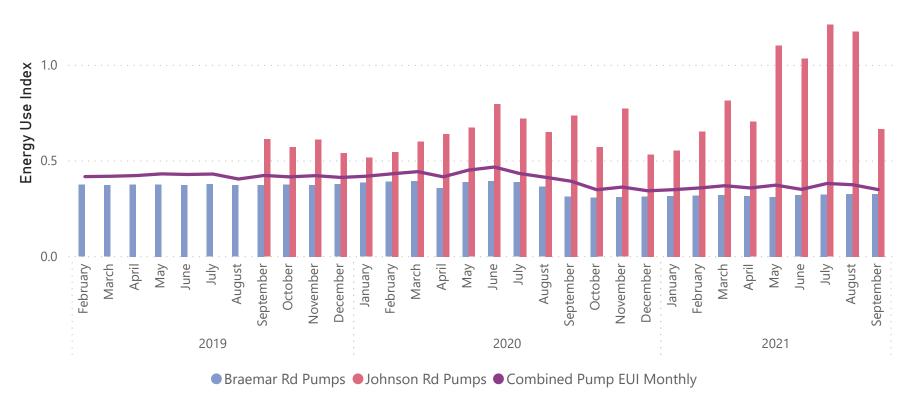






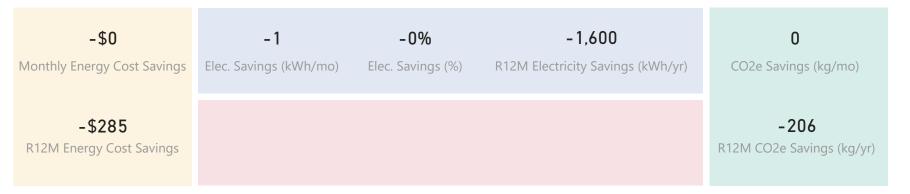
Johnson and Braemar Rd Pump Stations

Johnson and Braemar Rd Pump Stations Energy Use Index by Month





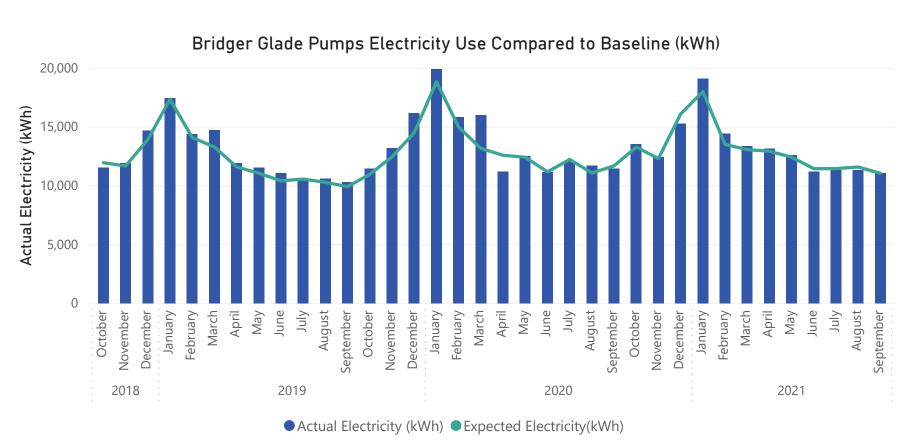
Bridger Glade Pump Station



Comments:

Electricity use was equal to baseline (differing by just 1 kWh) for the month of September 2021 at Bridger Glade pump station.

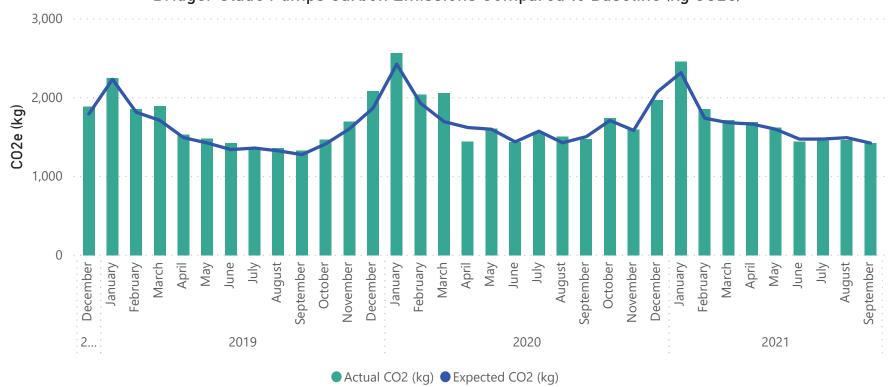
In September 2021 the volume of water pumped was 5% less and electricity was 3% less compared to to September 2020.

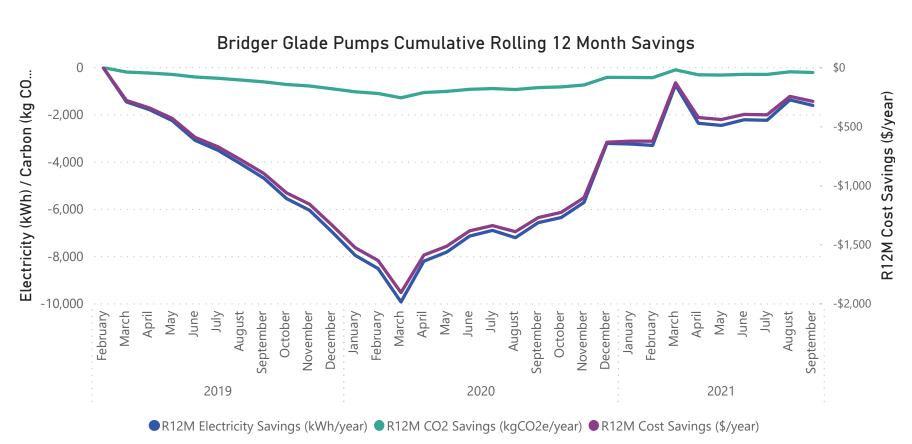




Bridger Glade Pump Station



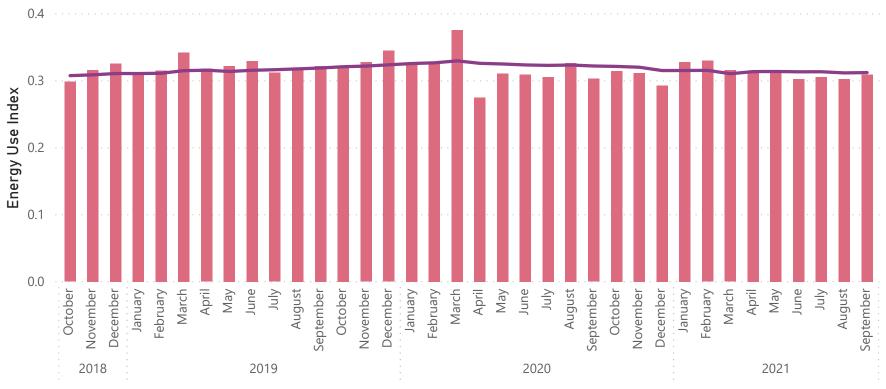






Bridger Glade Pump Station

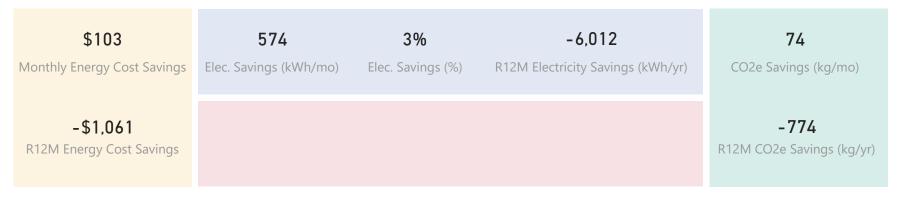




● EUI Monthly (kWh/m^3) ● EUI R12M (kWh/m^3)

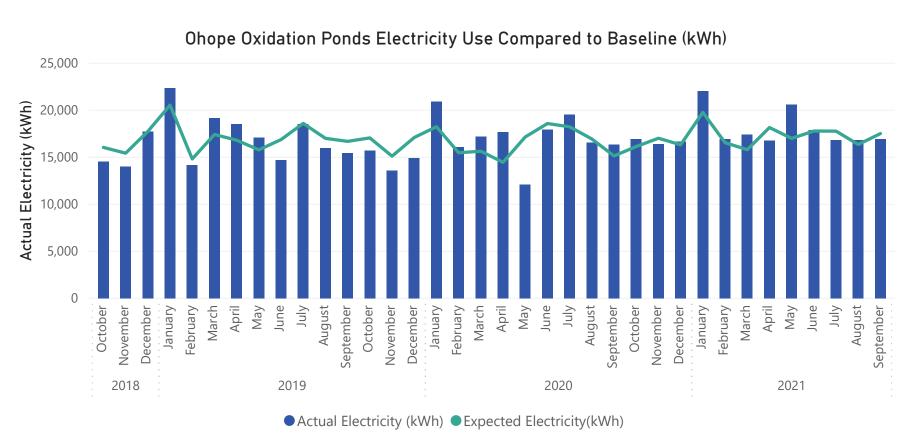


Ohope Oxidation Ponds



Comments:

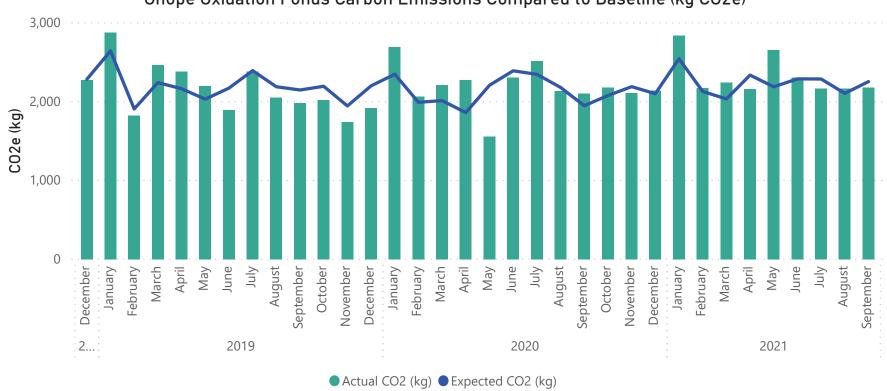
Electricity use in September 2021 was similar to September 2020, however, savings have been achieved this month since effluent volumes were higher. With the exceptions of January and May, monthly electricity use has been relatively constant.

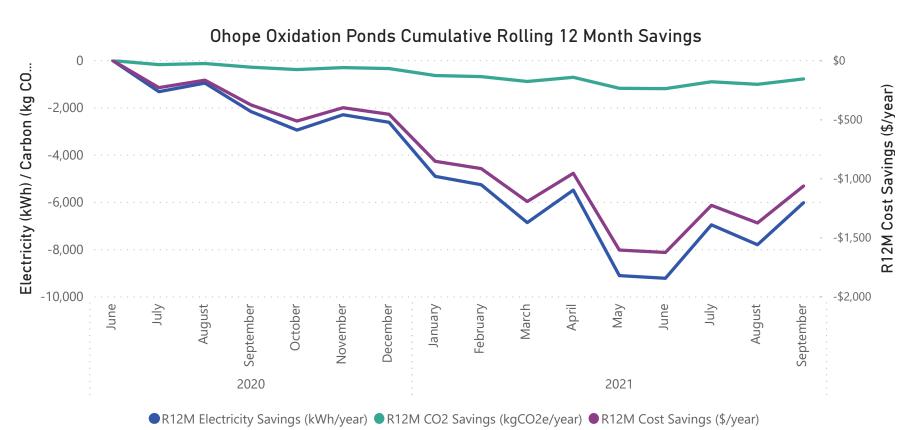




Ohope Oxidation Ponds



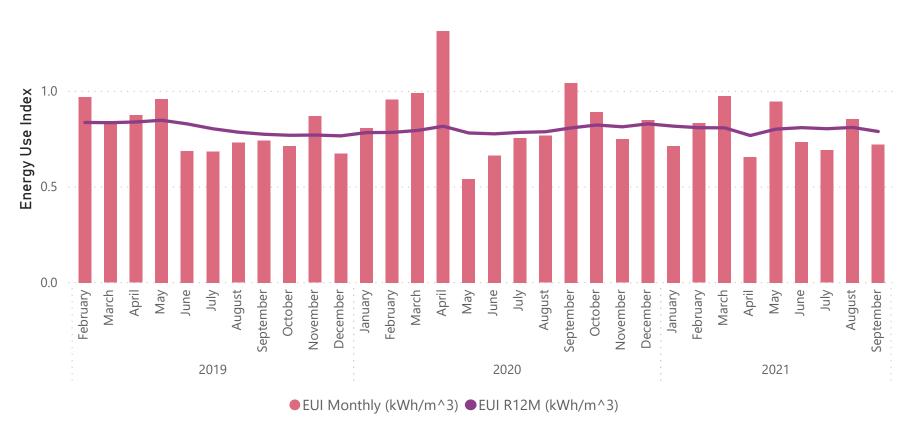






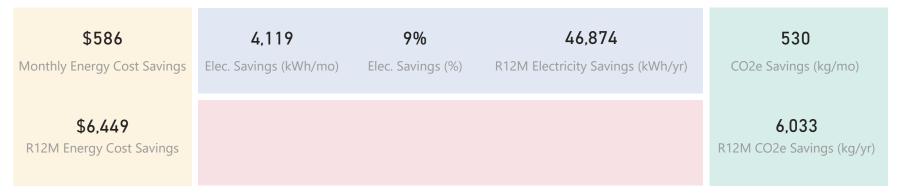
Ohope Oxidation Ponds

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





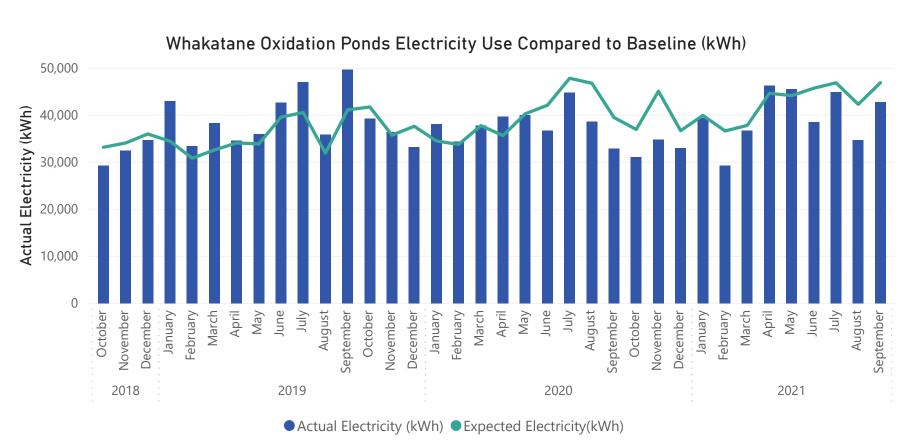
Whakatane Oxidation Ponds



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).

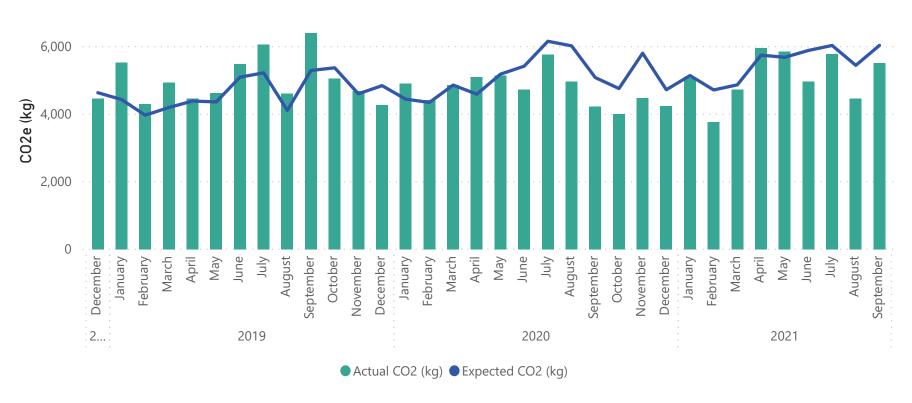
In September 2021, the oxidation ponds used 9% less electricity compared to baseline. Rolling 12 month EUI has been steadily decreasing, which is good.

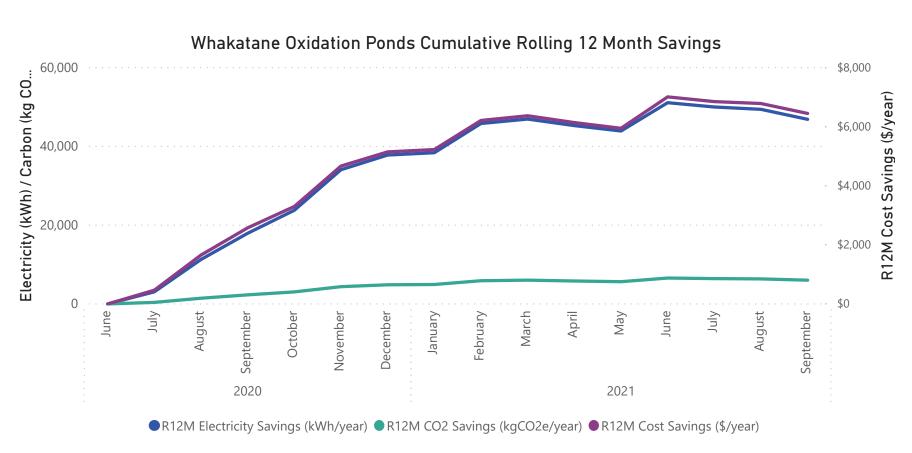




Whakatane Oxidation Ponds

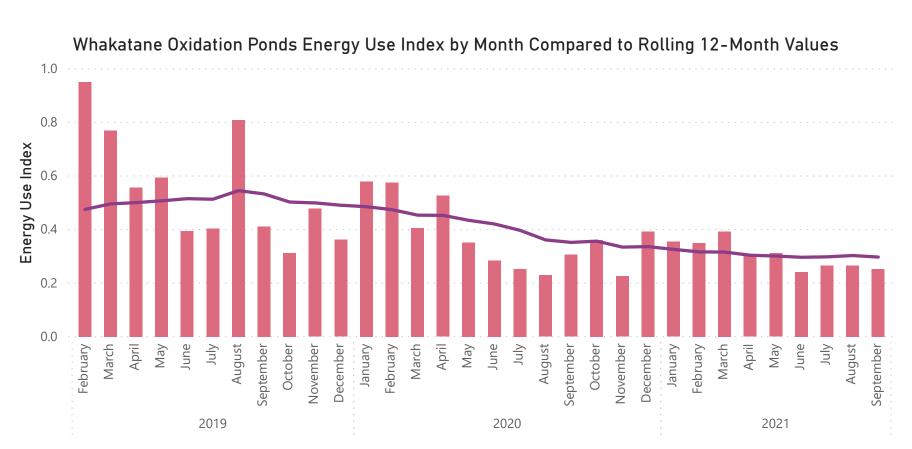
Whakatane Oxidation Ponds Carbon Emissions Compared to Baseline (kg CO2e)





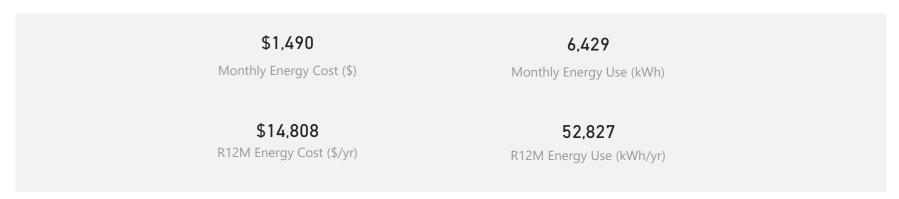


Whakatane Oxidation Ponds





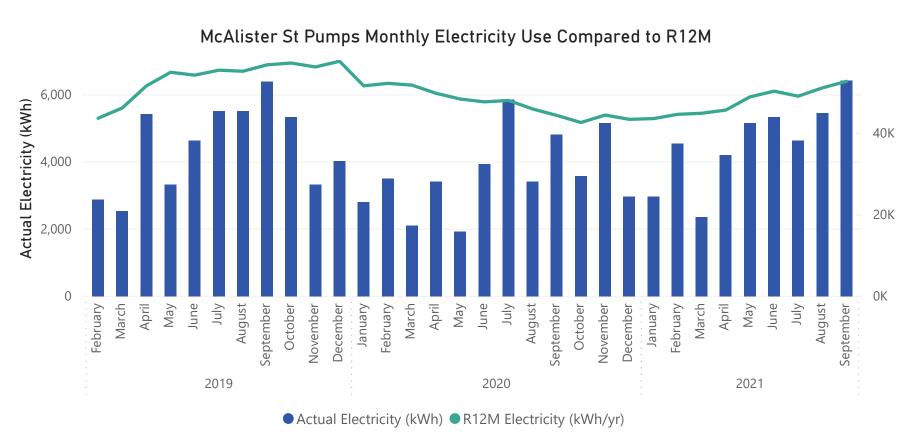
McAlister Street Pump Station



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.

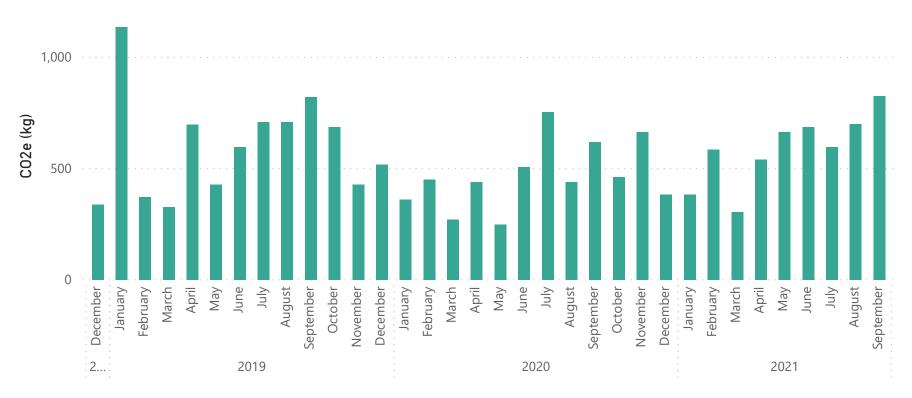
McAlister Street Pump Station is on a NHH account, some months' usage may be estimated by the retailer and captured by a subsequent meter reading. Manual readings at the end of each month would help with the accuracy of monitoring reports.

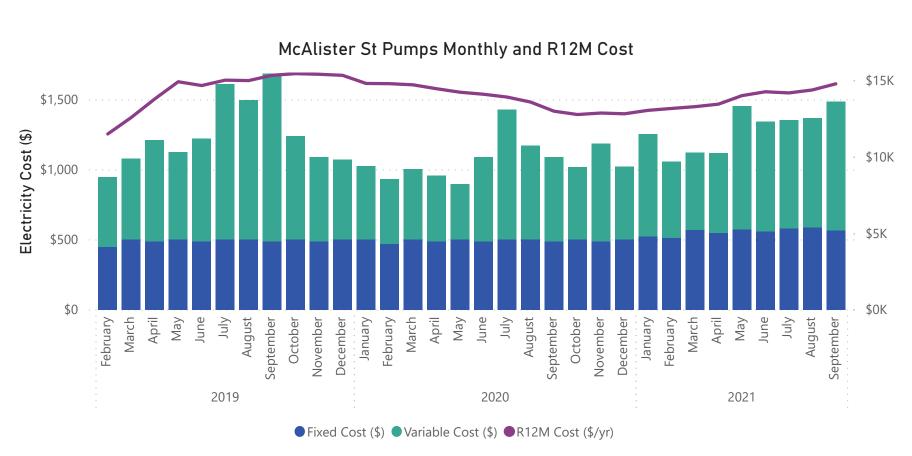




McAlister Street Pump Station

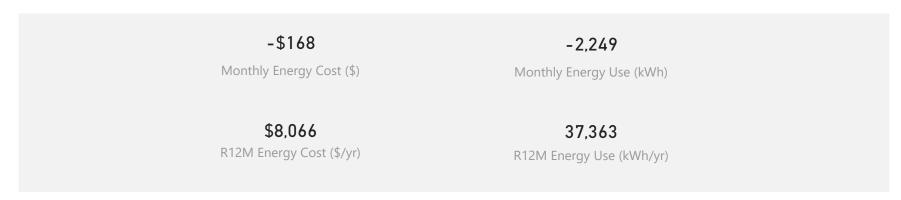
McAlister St Pumps Carbon Emissions (kgCO2e)







Rose Gardens Pump Station

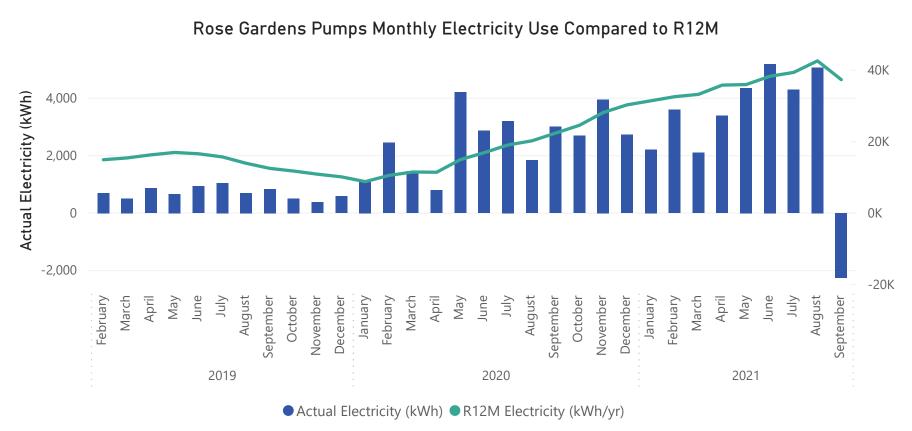


Comments:

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.

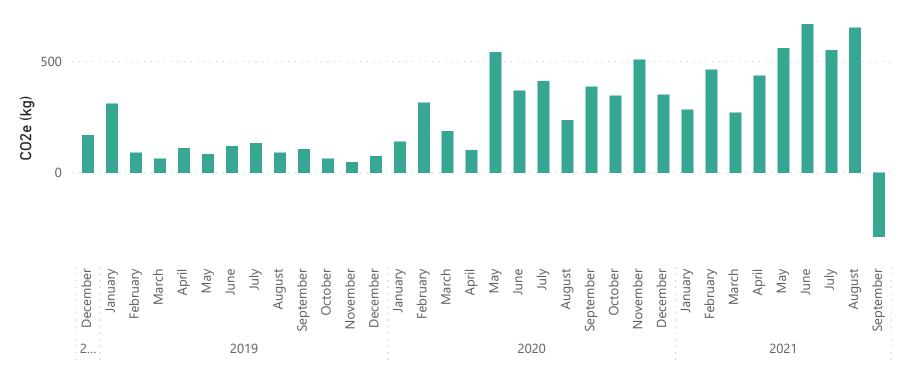
The meter reading for September 2021 was an actual reading; previous month's readings were over estimated and a credit has been issued for the account. Monthly manual readings of the Rose Garden's electricity meter could be taken to improve accuracy for electricity monitoring.





Rose Gardens Pump Station

Rose Gardens Pumps Carbon Emissions (kgCO2e)



Rose Gardens Pumps Monthly and R12M Cost

