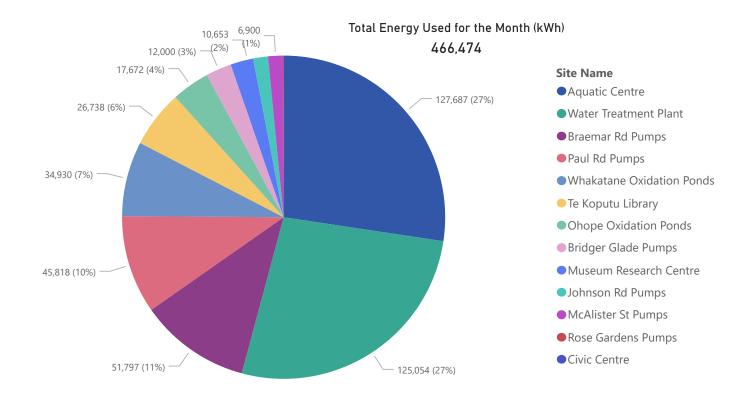


Summary

\$3,327 Monthly Energy Cost Savings	7,332 Elec. Savings (kWh/mo)	2% Elec. Savings (%)	249,895 R12M Electricity Savings (kWh/yr)	6,826 CO2e Savings (kg/mo)
\$127,261 R12M Energy Cost Savings	26,878 Gas. Savings (kWh/mo)	50% Gas. Savings (%)	1,328,519 R12M Gas Savings (kWh/yr)	307,947 R12M CO2e Savings (kg/yr)

Total Energy (kWh/Month)



Johnson Rd Pumps

McAlister St Pumps

Rose Gardens Pumps

Civic Centre

Museum Research Centre

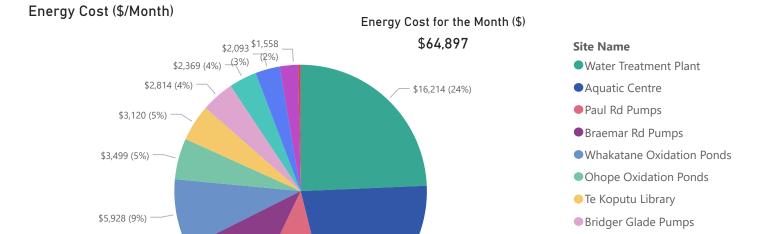


Whakatane District Council

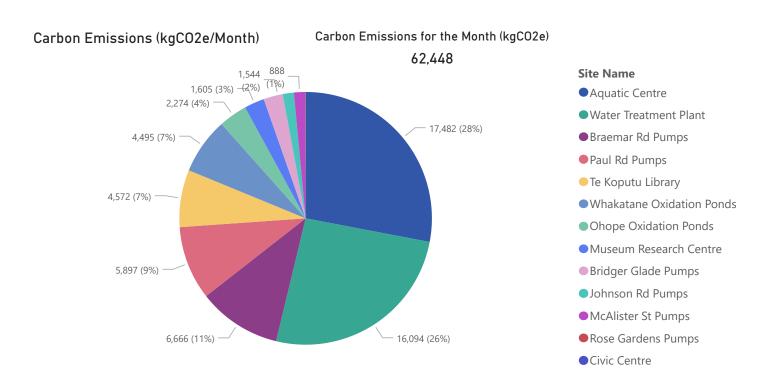
\$7,017 (11%)

\$7,320 (11%)

Summary



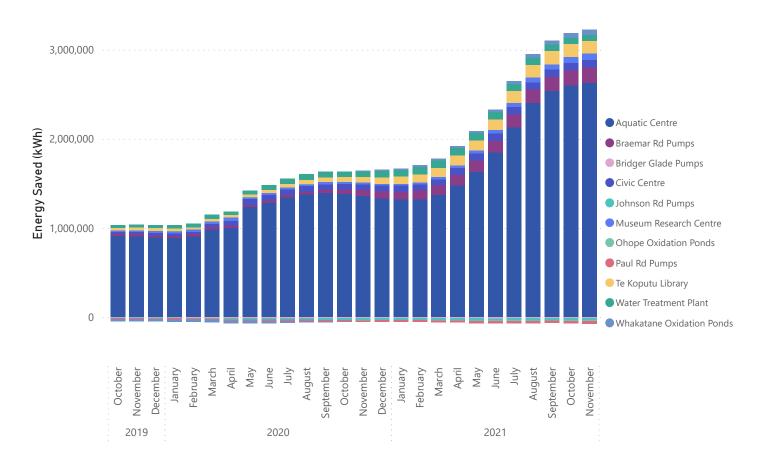
\$14,523 (22%)





Summary

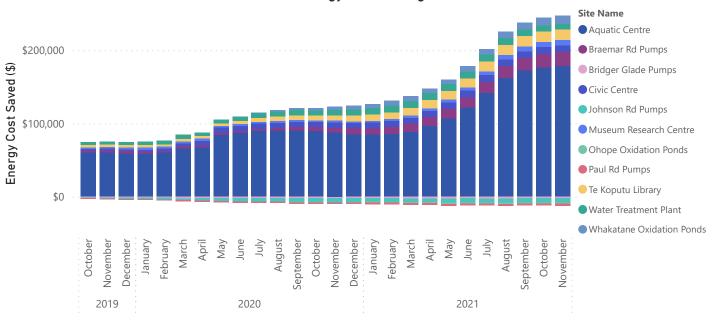
Cumulative Energy Savings (kWh)



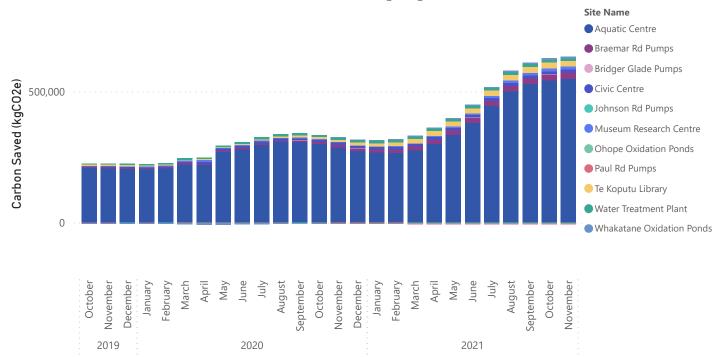


Summary











Civic Centre

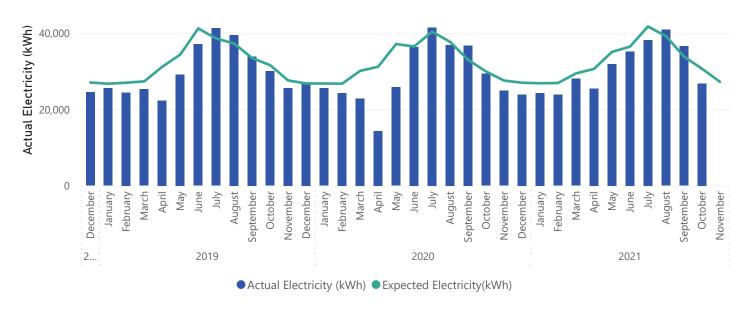
\$0	0	0%	22,794	0
Monthly Energy Cost Savings \$2,558	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo) 2,610
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

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

There were metering errors for the Civic Centre in November 2021, no usage was recorded and the Civic Centre has not been invoiced. The electricity retailer, Mercury, is currently working towards a resolution. Monitoring will be updated when data becomes available.

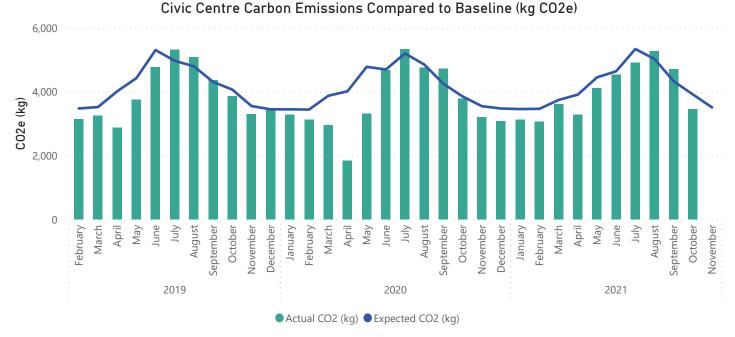
Civic Centre Electricity Use Compared to Baseline (kWh)



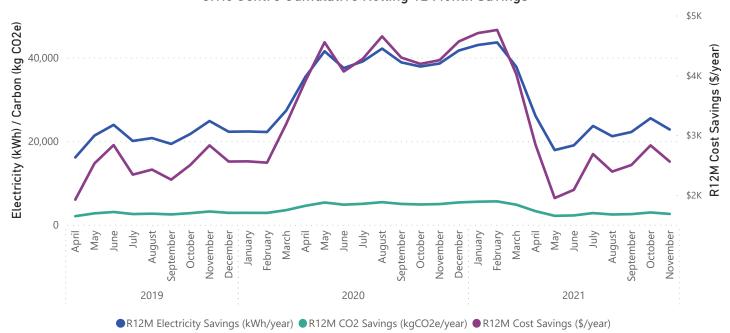


Civic Centre









2021

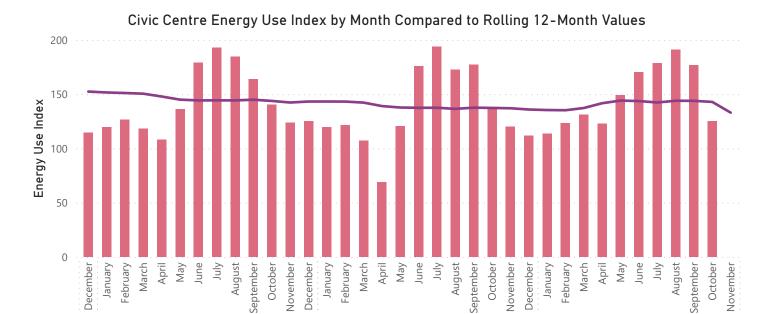


Whakatane District Council

Civic Centre

2...

2019



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

2020



Aquatic Centre

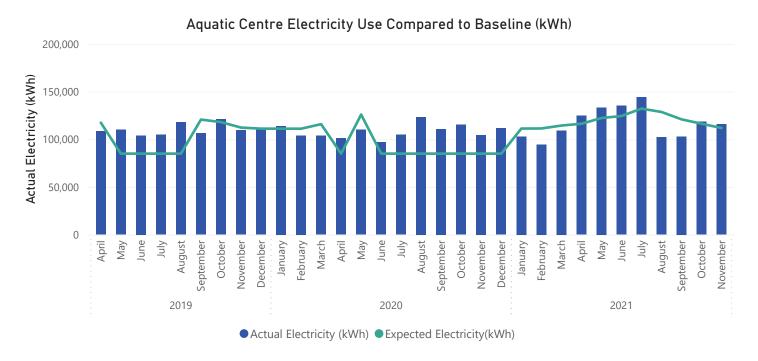
\$1,720 Monthly Energy Cost Savings	-3,922 Elec. Savings (kWh/mo)	-4% Elec. Savings (%)	-142 R12M Electricity Savings (kWh/yr)	5,919 CO2e Savings (kg/mo)
\$90,766 R12M Energy Cost Savings	29,473 Gas. Savings (kWh/mo)	71% Gas. Savings (%)	1,263,669 R12M Gas Savings (kWh/yr)	261,415 R12M CO2e Savings (kg/yr)

Comments:

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

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

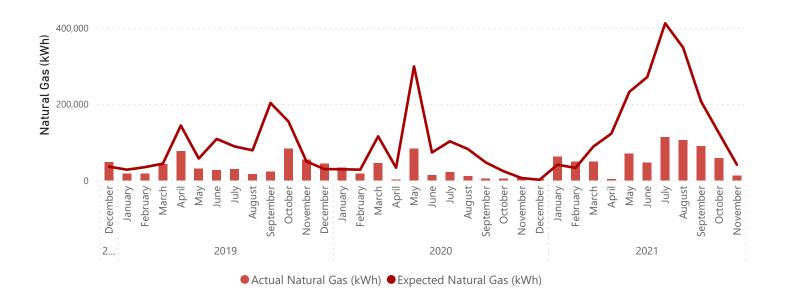
Natural gas was less than last month and is 71% less than expected in November 2021.



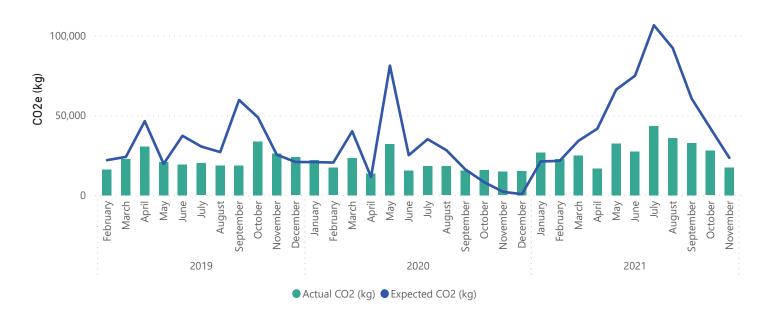


Aquatic Centre

Aquatic Centre Natural Gas Compared to Baseline (kWh)

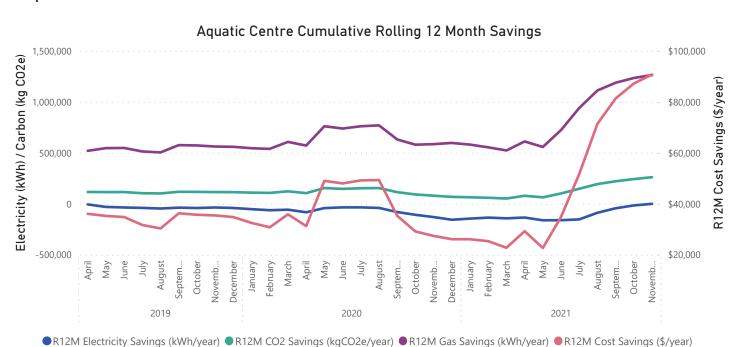


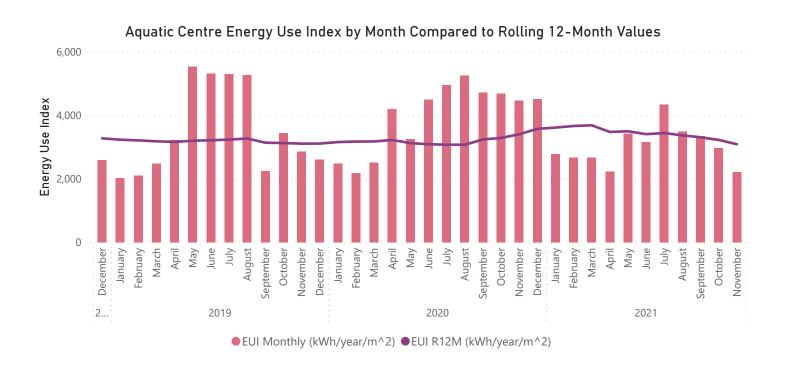
Aquatic Centre Carbon Emissions Compared to Baseline (kg CO2e)





Aquatic Centre







Te Koputu Library

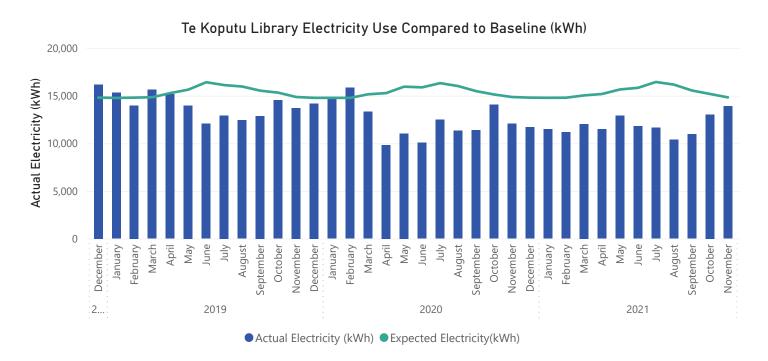
-\$346 Monthly Energy Cost Savings	926 Elec. Savings (kWh/mo)	6% Elec. Savings (%)	41,848 R12M Electricity Savings (kWh/yr)	-1,177 CO2e Savings (kg/mo)
\$7,474 R12M Energy Cost Savings	-5,998 Gas. Savings (kWh/mo)	-88% Gas. Savings (%)	38,227 R12M Gas Savings (kWh/yr)	13,727 R12M CO2e Savings (kg/yr)

Comments:

Electricity use has been less than baseline since March 2020.

Electricity and natural gas use have both increased compared to recent months. Gas use was 92% more than expected and has increased by 13% from October to November, even though November was a warmer month on average.

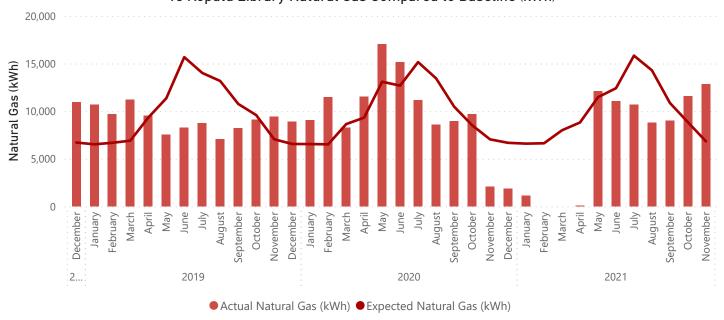
Rolling 12 month cost savings have been decreased to approximately \$7,500 saved per year.



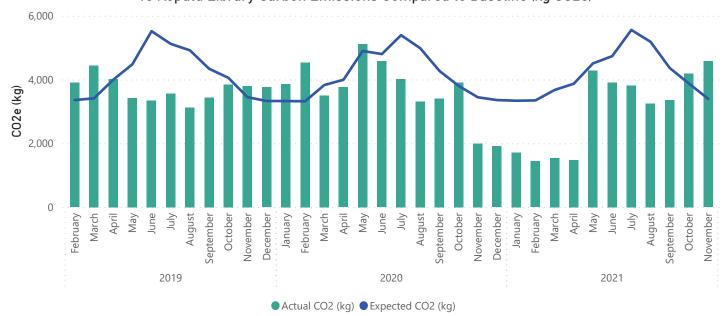


Te Koputu Library





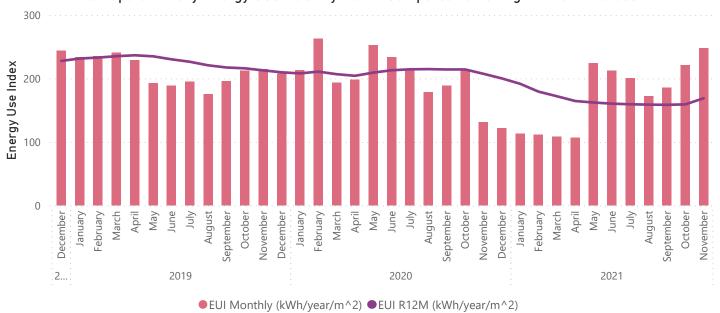




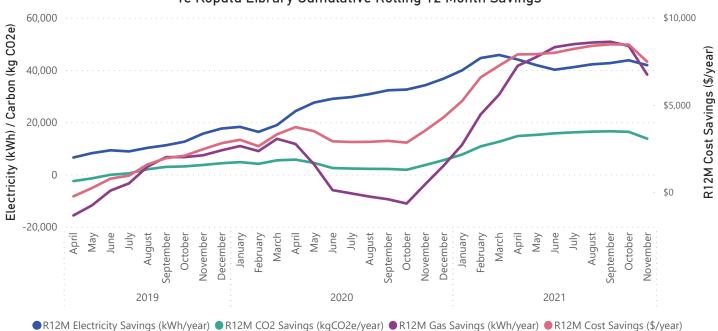


Te Koputu Library











Museum and Research Centre

\$428 Monthly Energy Cost Savings	1,782 Elec. Savings (kWh/mo)	18% Elec. Savings (%)	21,878 R12M Electricity Savings (kWh/yr)	967 CO2e Savings (kg/mo)
\$4,430 R12M Energy Cost Savings	3,403 Gas. Savings (kWh/mo)	56% Gas. Savings (%)	26,624 R12M Gas Savings (kWh/yr)	8,588 R12M CO2e Savings (kg/yr)

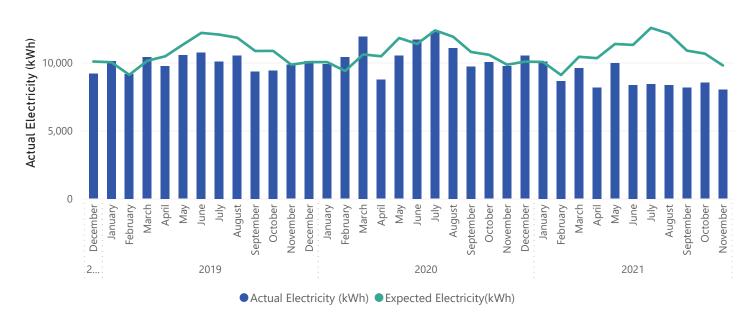
Comments:

Electricity use in November 2021 compared to November 2020 is 18% lower and gas use was is 61% lower for the same period. The EUI continues to drop for the Museum and Research Centre, which is good.

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.

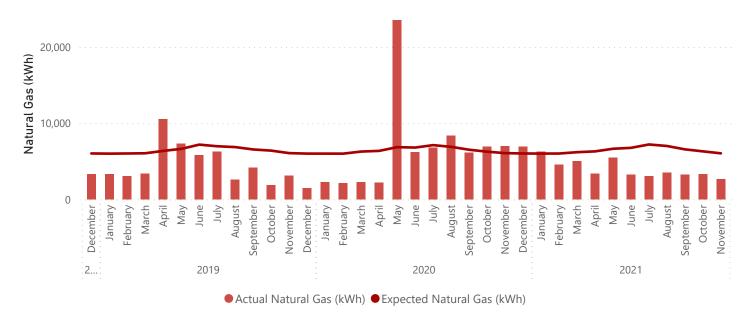
Museum Research Centre Electricity Use Compared to Baseline (kWh)



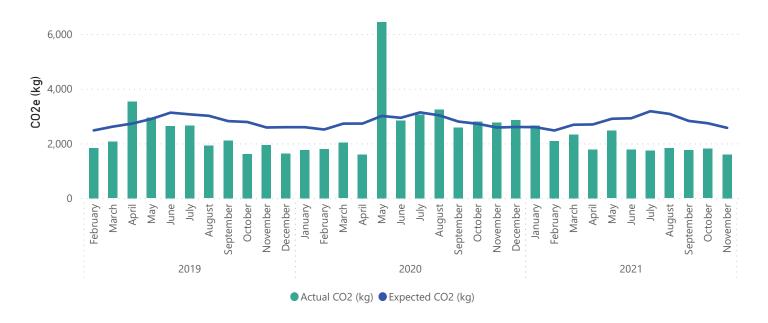


Museum and Research Centre

Museum Research Centre Natural Gas Compared to Baseline (kWh)

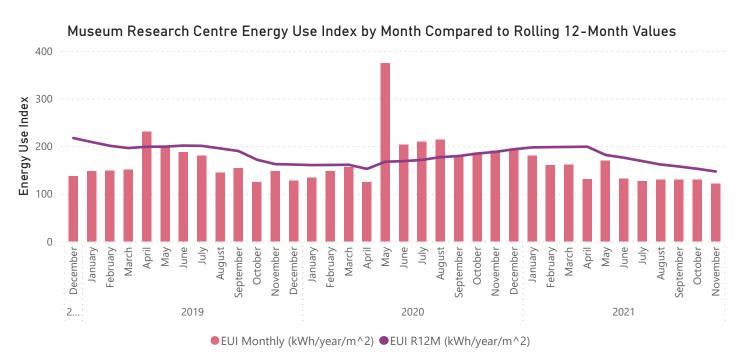


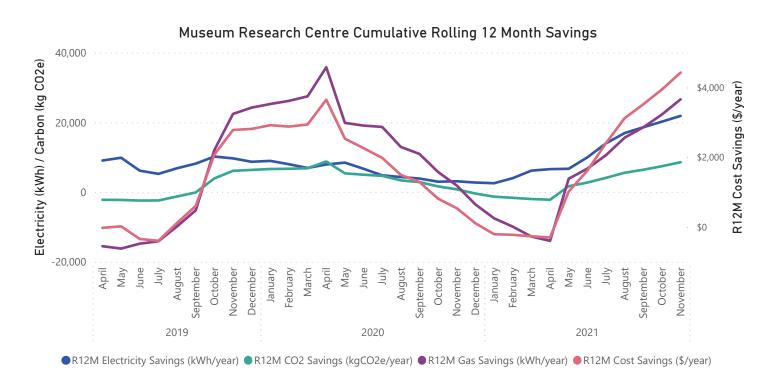
Museum Research Centre Carbon Emissions Compared to Baseline (kg CO2e)





Museum and Research Centre





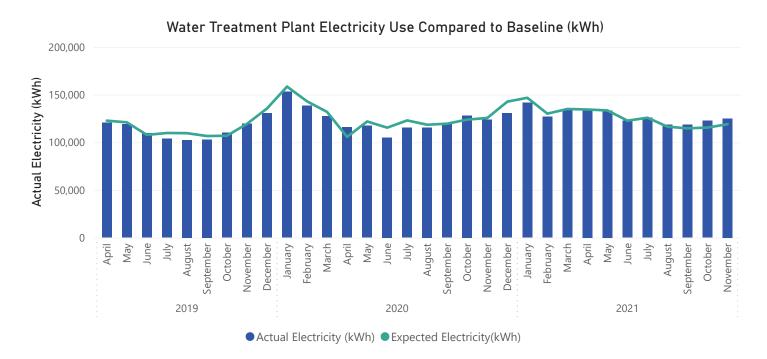


Water Treatment Plant

-\$586	-6,010	- 5%	2,673	-773
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$321				344
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

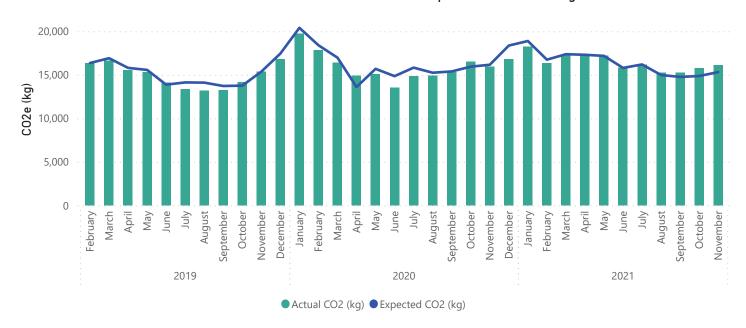
Electricity use in November 2021 is greater than expected. This is the fourth month in a row that electricity use has been greater than baseline. EUI has increased from July 2021, when electricity use increased above the baseline.

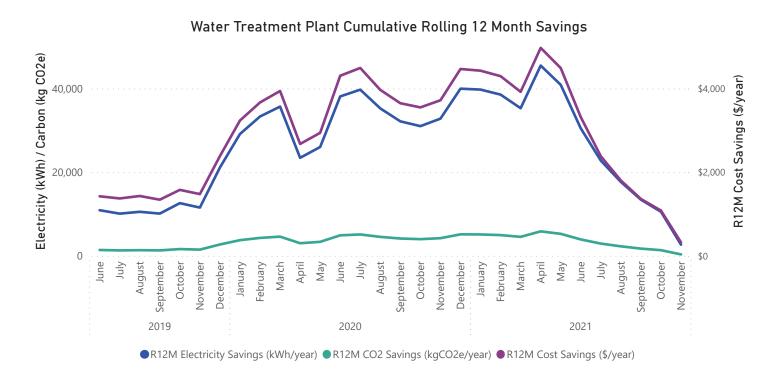




Water Treatment Plant

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

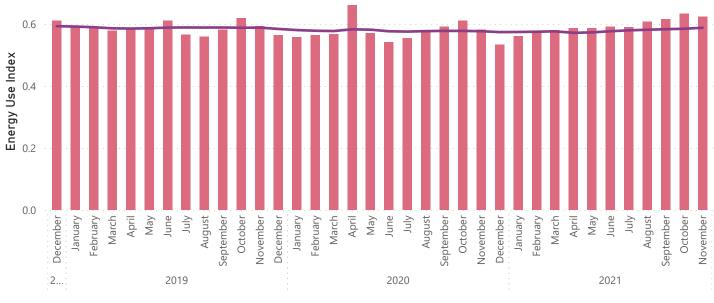






Water Treatment Plant

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





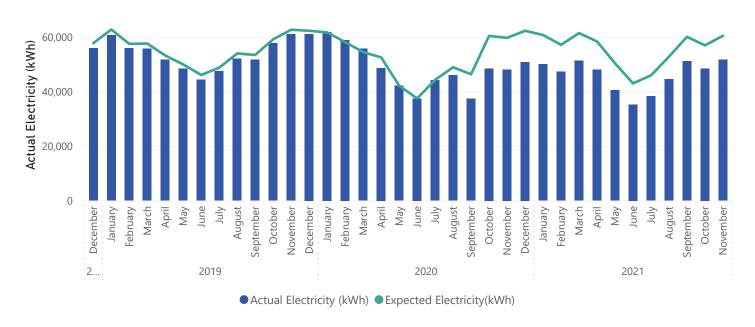
Braemar Road Pump Station

\$875	8,775	14%	112,446	1,146
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$12,220 R12M Energy Cost Savings				15,020 R12M CO2e Savings (kg/yr)

Comments:

Continued savings from high efficiency pumps and motors, installed September 2020. Rolling 12 month savings are approximately \$12,200 per year and 112,000 kWh per year. November 2021's EUI has increased by approximately 6% compared to November 2020, when the pumps were operating most efficiently.

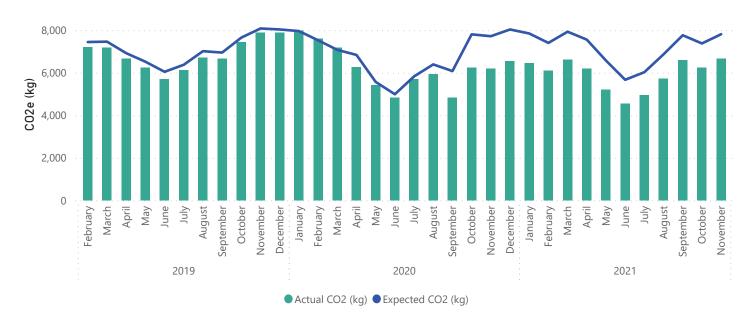
Braemar Rd Pumps Electricity Use Compared to Baseline (kWh)





Braemar Road Pump Station

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



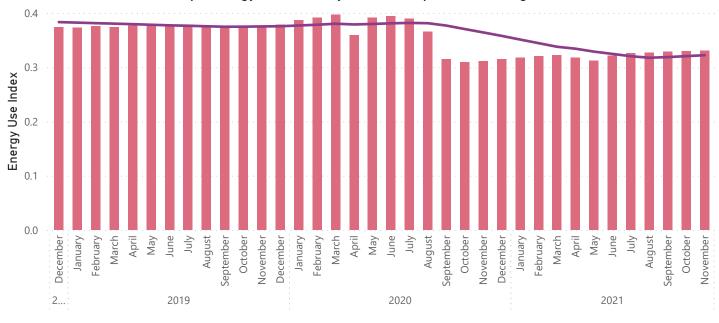
Braemar Rd Pumps Cumulative Rolling 12 Month Savings





Braemar Road Pump Station





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



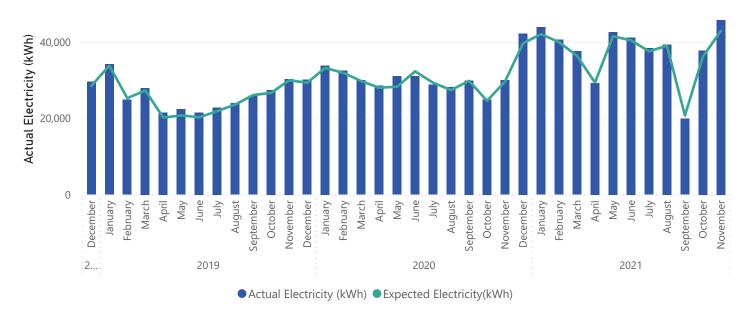
Paul Road Pump Station

-\$283	-2,826	-7%	-12,698	-363
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
-\$1,323				-1,624
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

Demand has increased for the third month in a row. High demand in November and electricity use that is more than expected may indicate that the pump is operating outside its best efficiency point.

Paul Rd Pumps Electricity Use Compared to Baseline (kWh)



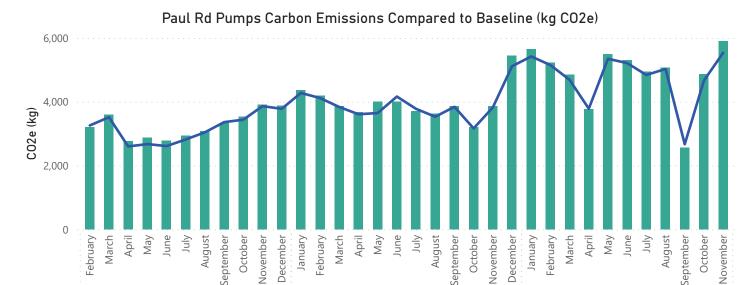
2021



Whakatane District Council

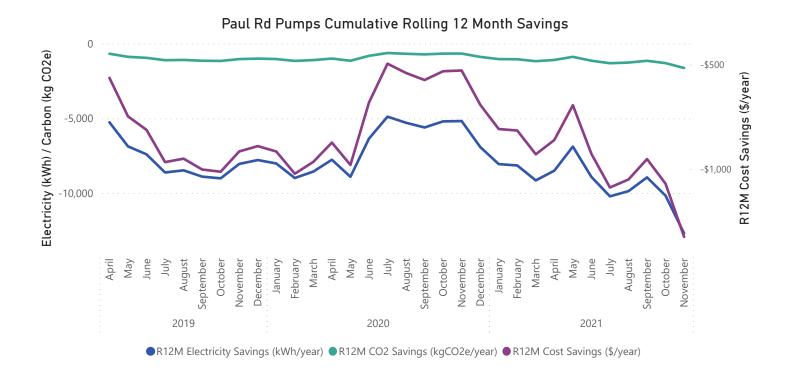
2019

Paul Road Pump Station





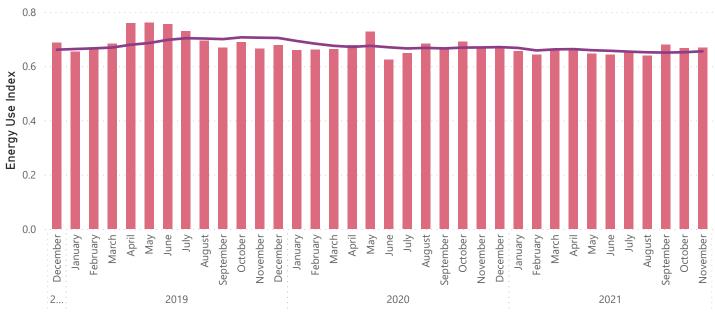
2020





Paul Road Pump Station





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



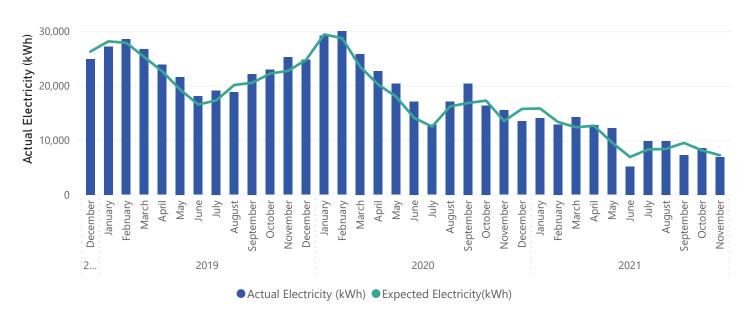
Johnson Road Pump Station

\$67 Monthly Energy Cost Savings	305 Elec. Savings (kWh/mo)	4% Elec. Savings (%)	723 R12M Electricity Savings (kWh/yr)	39 CO2e Savings (kg/mo)
\$152 R12M Energy Cost Savings				98 R12M CO2e Savings (kg/yr)

Comments:

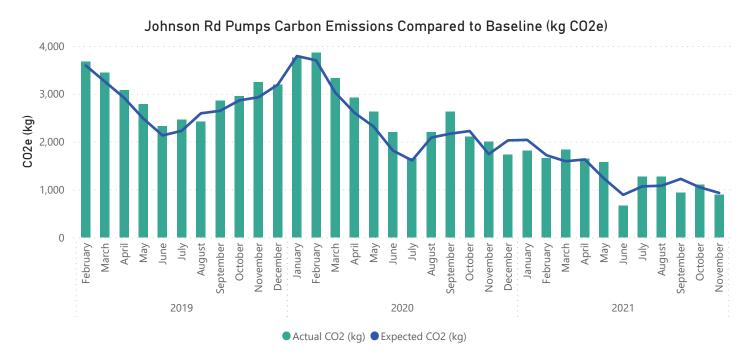
The rolling 12-month EUI for Johnson Road Pump Station has increased over the past year as demand decreases. This is expected as the pump station has a non-zero baseload.

Johnson Rd Pumps Electricity Use Compared to Baseline (kWh)

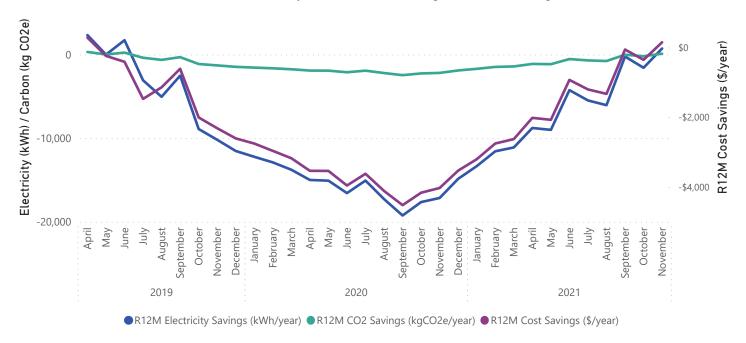




Johnson Road Pump Station



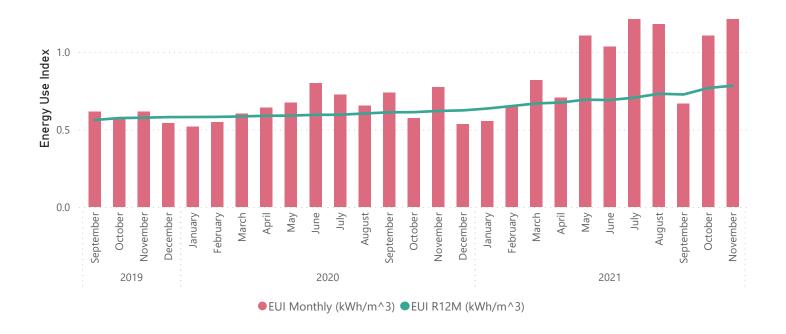
Johnson Rd Pumps Cumulative Rolling 12 Month Savings





Johnson Road Pump Station

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





Johnson and Braemar Rd Pump Stations

\$942	9,081	13%	113,169	1,185
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$12,372				15,117
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

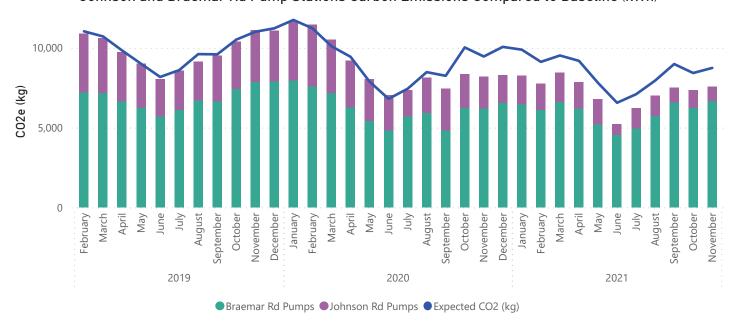
It is clear from the combined monitoring how the new, more efficient pumps (installed September 2020) at Braemar Road greatly contribute to the collective savings. On an EUI basis, even before the more efficient pumps were installed, Braemar Road was pumping water more efficiently than Johnson Rd.

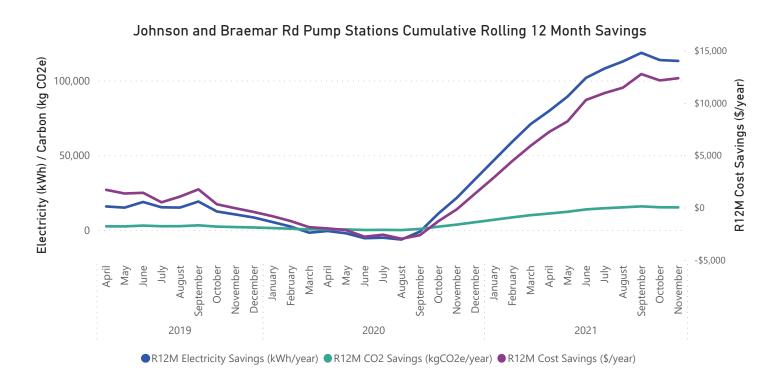
Johnson and Braemar Rd Pump Stations Electricity Use Compared to Baseline (kWh) 100,000 Actual Electricity (kWh) 50,000 March June August March **December** January August August November February September November September September July October December -ebruary January 2019 2020 2021 ■ Braemar Rd Pumps ■ Johnson Rd Pumps ■ Expected Electricity(kWh)



Johnson and Braemar Rd Pump Stations

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

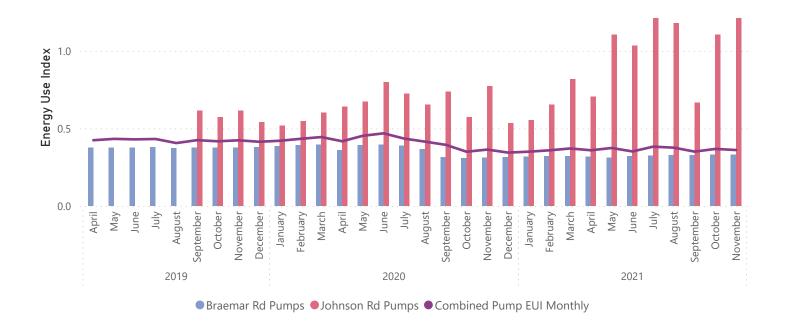






Johnson and Braemar Rd Pump Stations

Johnson and Braemar Rd Pump Stations Energy Use Index by Month





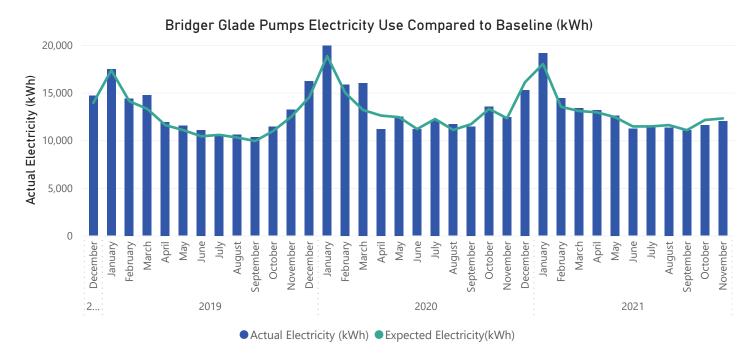
Bridger Glade Pump Station

\$56	303	2%	-408	39
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
-\$68				- 52
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

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

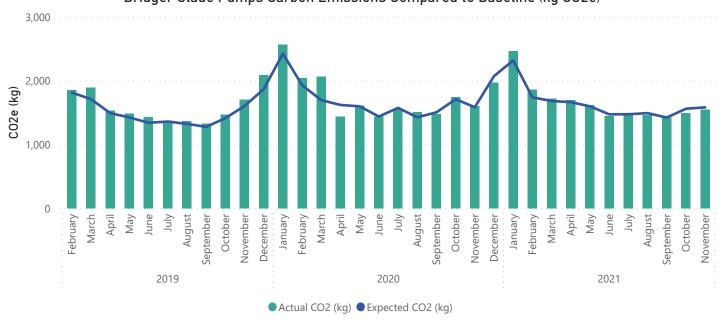
In November 2021 the volume of water pumped was similar and electricity was 3% less compared to November 2020.

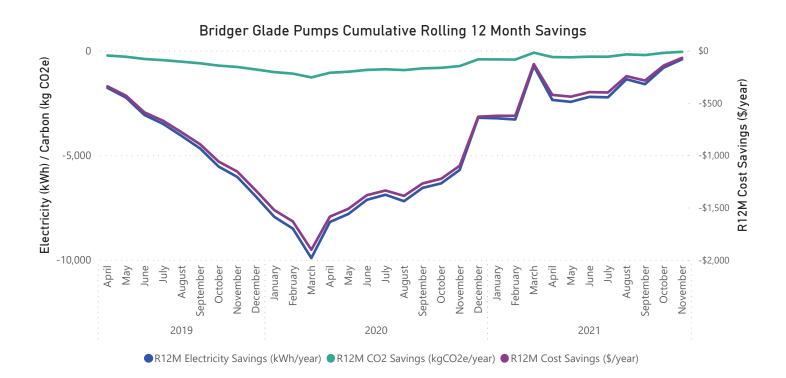




Bridger Glade Pump Station



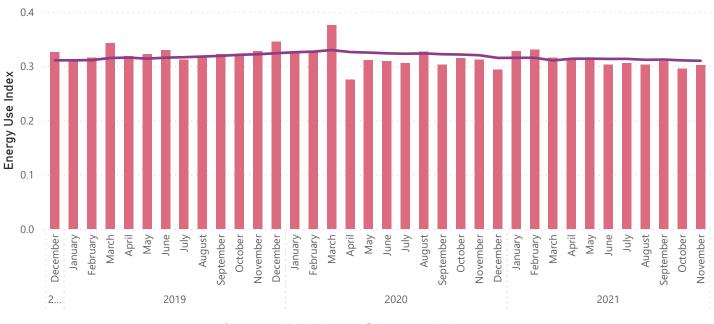






Bridger Glade Pump Station





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

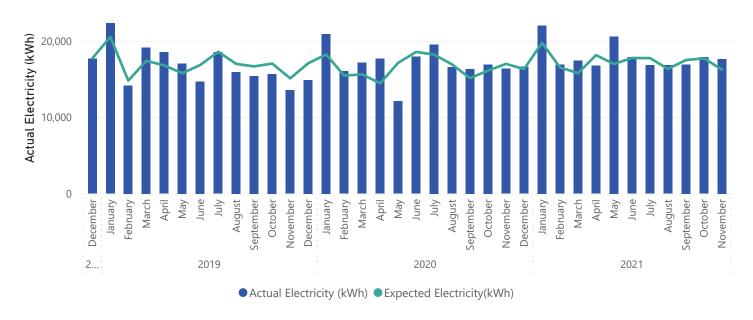


Ohope Oxidation Ponds

-\$251 Monthly Energy Cost Savings	-1,400 Elec. Savings (kWh/mo)	- 9% Elec. Savings (%)	-7,424 R12M Electricity Savings (kWh/yr)	-180 CO2e Savings (kg/mo)
-\$1,315 R12M Energy Cost Savings				-955 R12M CO2e Savings (kg/yr)

Comments:

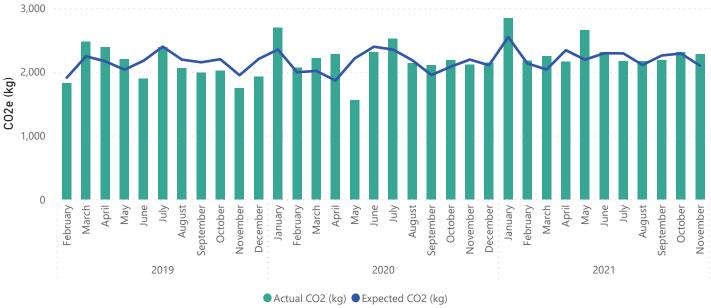
Ohope Oxidation Ponds Electricity Use Compared to Baseline (kWh)

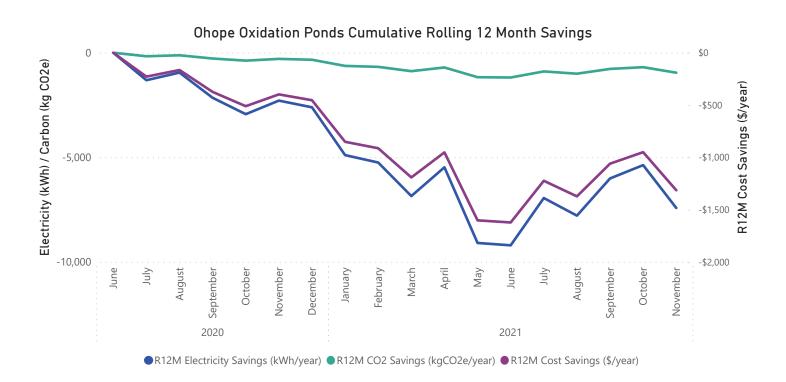




Ohope Oxidation Ponds









Ohope Oxidation Ponds

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





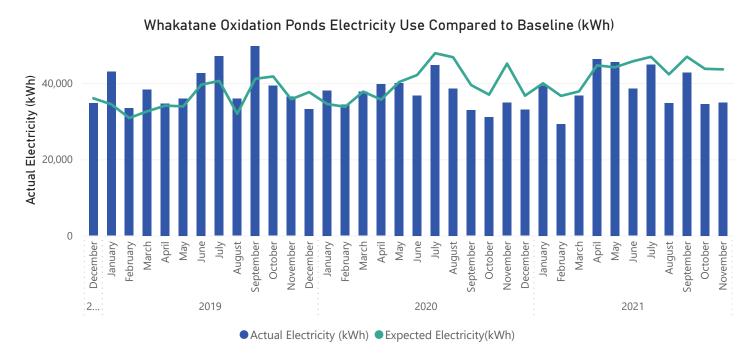
Whakatane Oxidation Ponds

\$1,203	8,699	20%	48,667	1,120
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$6,804 R12M Energy Cost Savings				6,263 R12M CO2e Savings (kg/yr)
KTZIVI Energy Cost Suvings				KTZW COZC Savings (kg/yl)

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).

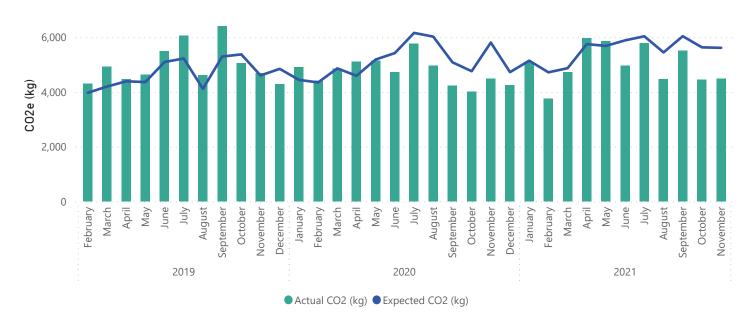
In November 2021, the oxidation ponds used a similar amount of electricity but treated 8% less water compared to November 2020. Rolling 12 month EUI has been steadily decreasing, which is good.

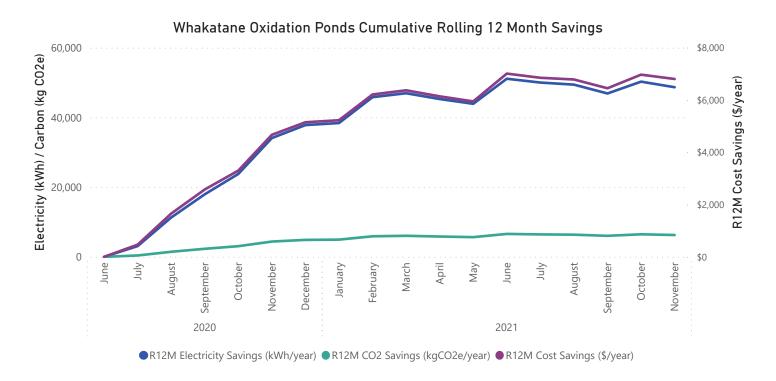




Whakatane Oxidation Ponds

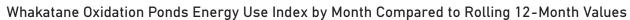
Whakatane Oxidation Ponds Carbon Emissions Compared to Baseline (kg CO2e)

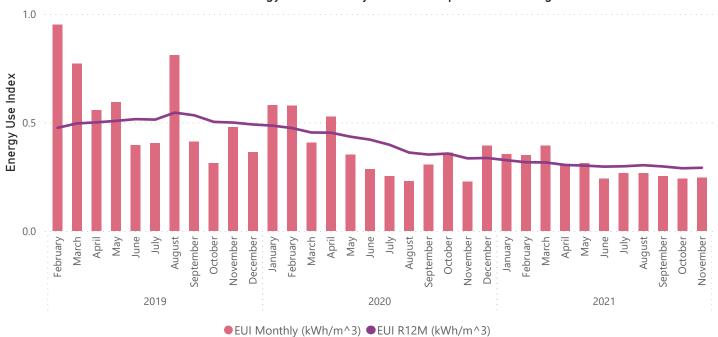






Whakatane Oxidation Ponds







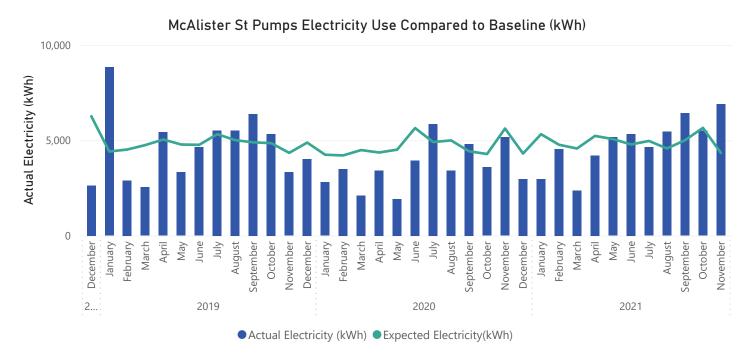
McAlister Street Pump Station

-\$192	-2,561	- 59%	2,104	-330
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$1,562				271
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:

A baseline was created for McAlister Street Pump Station that adjusts for the amount of rainfall at the Kopeopeo weather station. The baseline period is September 2020 to August 2021. The relationship between rainfall and electricity use is weak, with an R squared of 12.8, which suggests that factors other than rainfall influence electricity use.

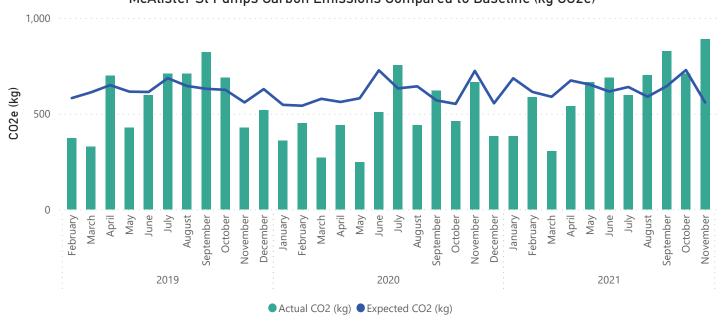
McAlister Street Pump Station is on a NHH account, some months' usage may be estimated by the retailer and captured by a subsequent meter reading. Manual readings at the end of each month would help with the accuracy of monitoring reports.





McAlister Street Pump Station











Rose Gardens Pump Station

\$635	3,260	91%	17,432	420
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
\$3,681				2,244
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

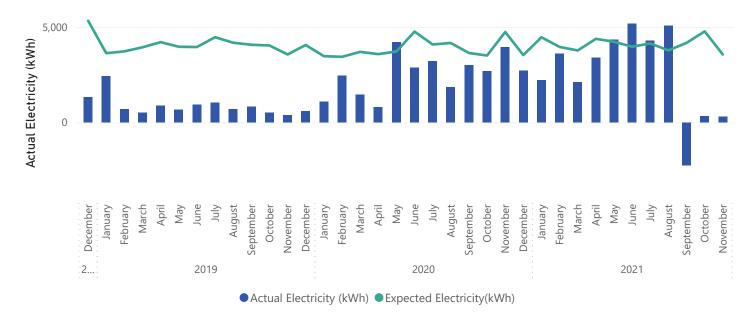
Comments:

A baseline was created for Rose Gardens Pump Station that adjusts for the amount of rainfall at the Kopeopeo weather station. The baseline period is September 2020 to August 2021. The relationship between rainfall and electricity use is weak, with an R squared of 13.7, which suggests that factors other than rainfall influence electricity use.

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 August was over-estimated by the retailer, September's usage is derived from an actual reading and August's estimated reading. Credit was issued for the over-estimation in August 2021. Manual meter readings can improve accuracy of electricity usage.

Low usage in recent months reflect a positive change that was made in how the pump operates.

Rose Gardens Pumps Electricity Use Compared to Baseline (kWh)





Rose Gardens Pump Station

Rose Gardens Pumps Carbon Emissions Compared to Baseline (kg CO2e)

