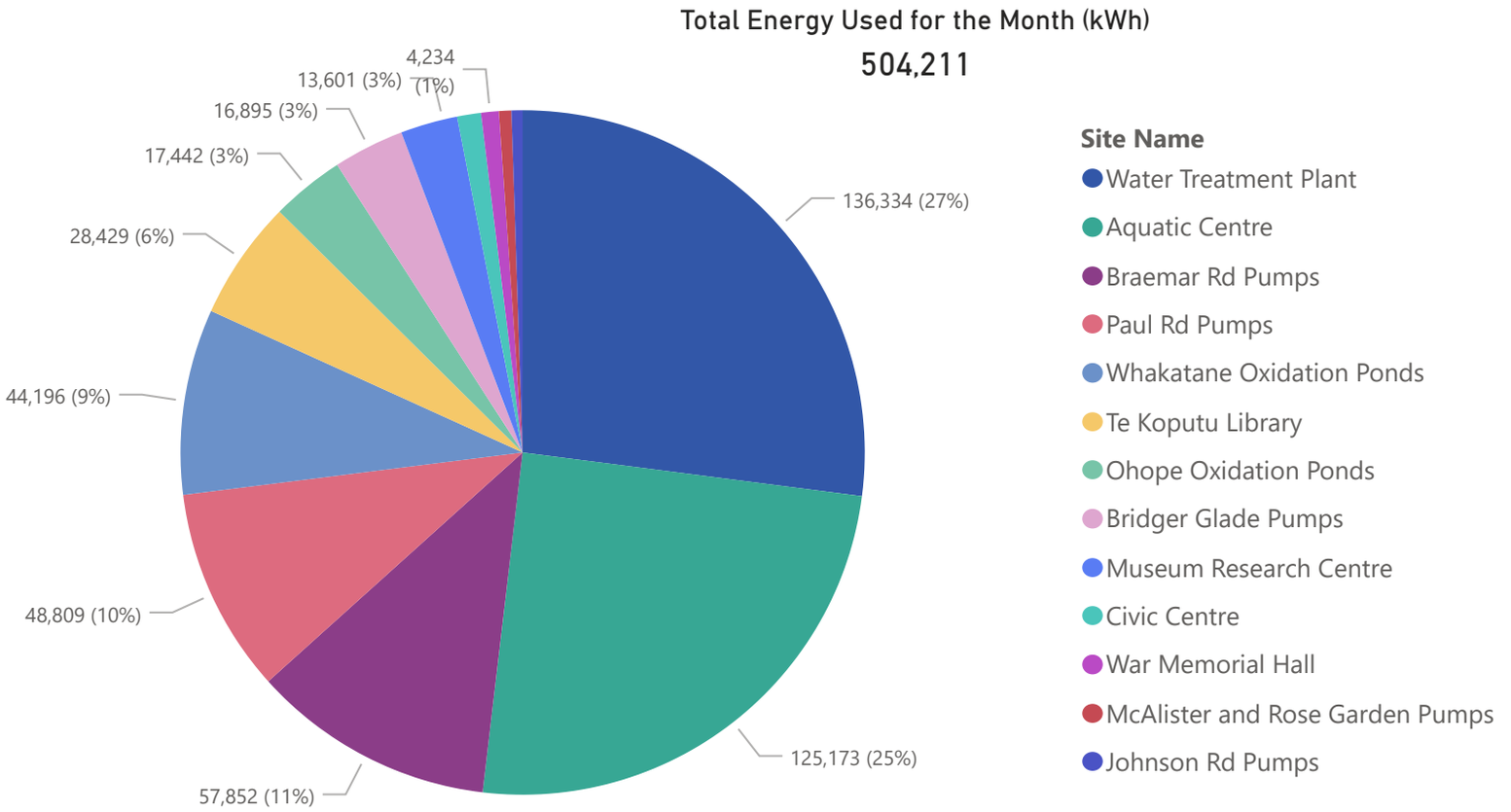
March 2022

Whakatane District Council

Summary

$6,699 Monthly Energy Cost Savings	16,593 Elec. Savings (kWh/mo)	3% Elec. Savings (%)	267,514 R12M Electricity Savings (kWh/yr)	11,606 CO2e Savings (kg/mo)
$136,177 R12M Energy Cost Savings	43,488 Gas. Savings (kWh/mo)	67% Gas. Savings (%)	1,415,269 R12M Gas Savings (kWh/yr)	341,757 R12M CO2e Savings (kg/yr)

Total Energy (kWh/Month)



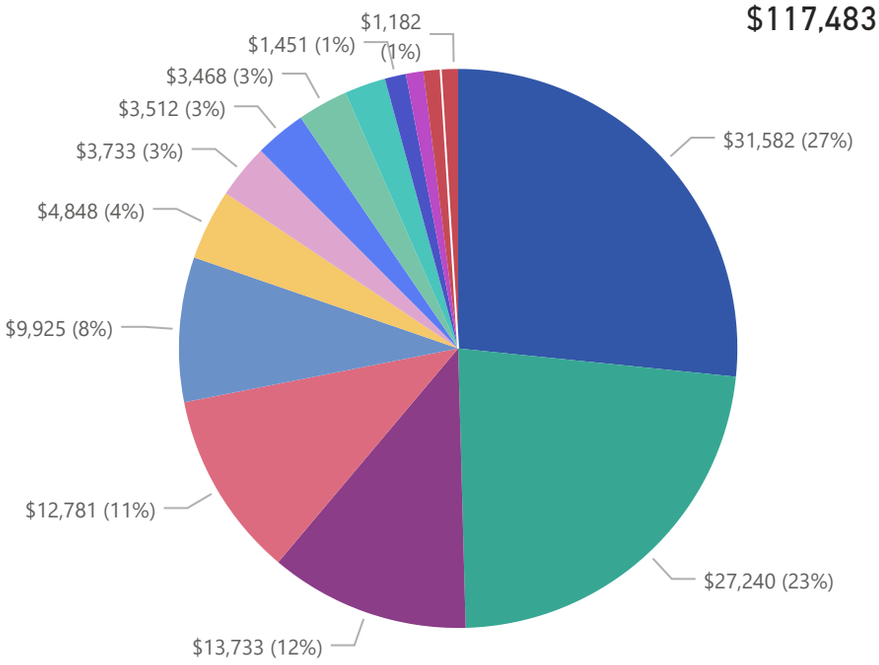
Whakatane District Council

Summary

Energy Cost ($/Month)

Energy Cost for the Month ($)

$117,483



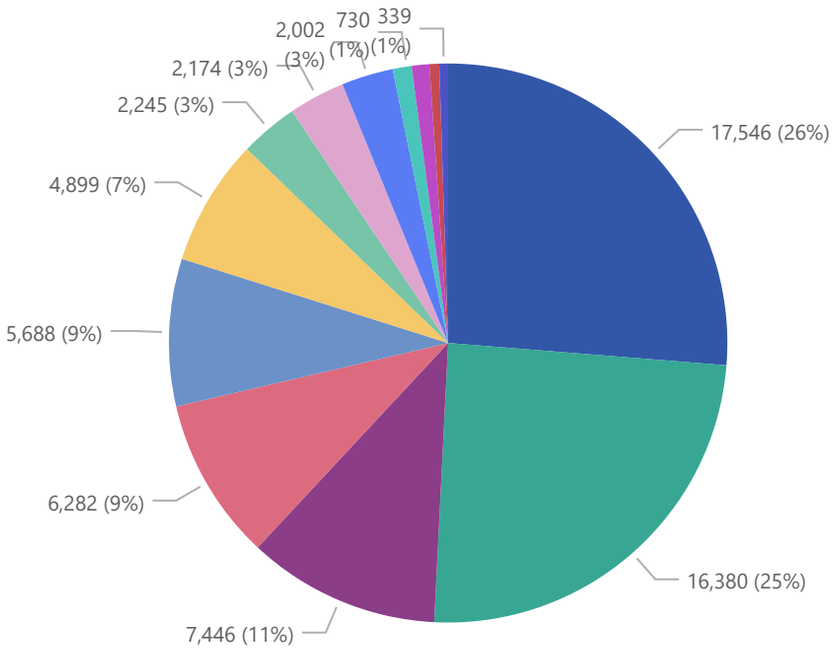
Site Name

- Water Treatment Plant
- Aquatic Centre
- Braemar Rd Pumps
- Paul Rd Pumps
- Whakatane Oxidation Ponds
- Te Koputu Library
- Bridger Glade Pumps
- Museum Research Centre
- Ohope Oxidation Ponds
- Civic Centre
- Johnson Rd Pumps
- War Memorial Hall
- McAlister and Rose Garden Pumps

Carbon Emissions (kgCO2e/Month)

Carbon Emissions for the Month (kgCO2e)

66,788



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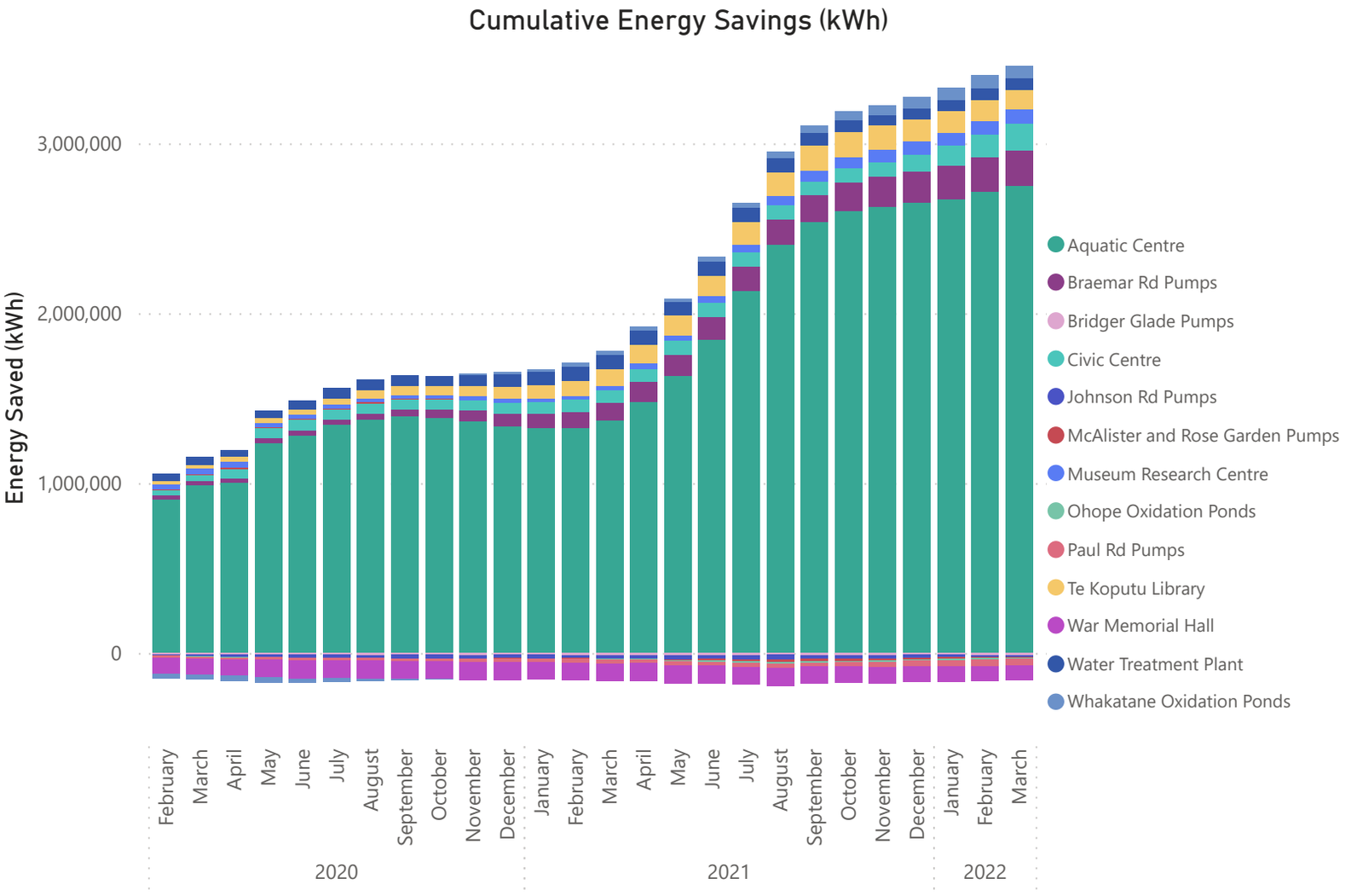
Whakatane District Council

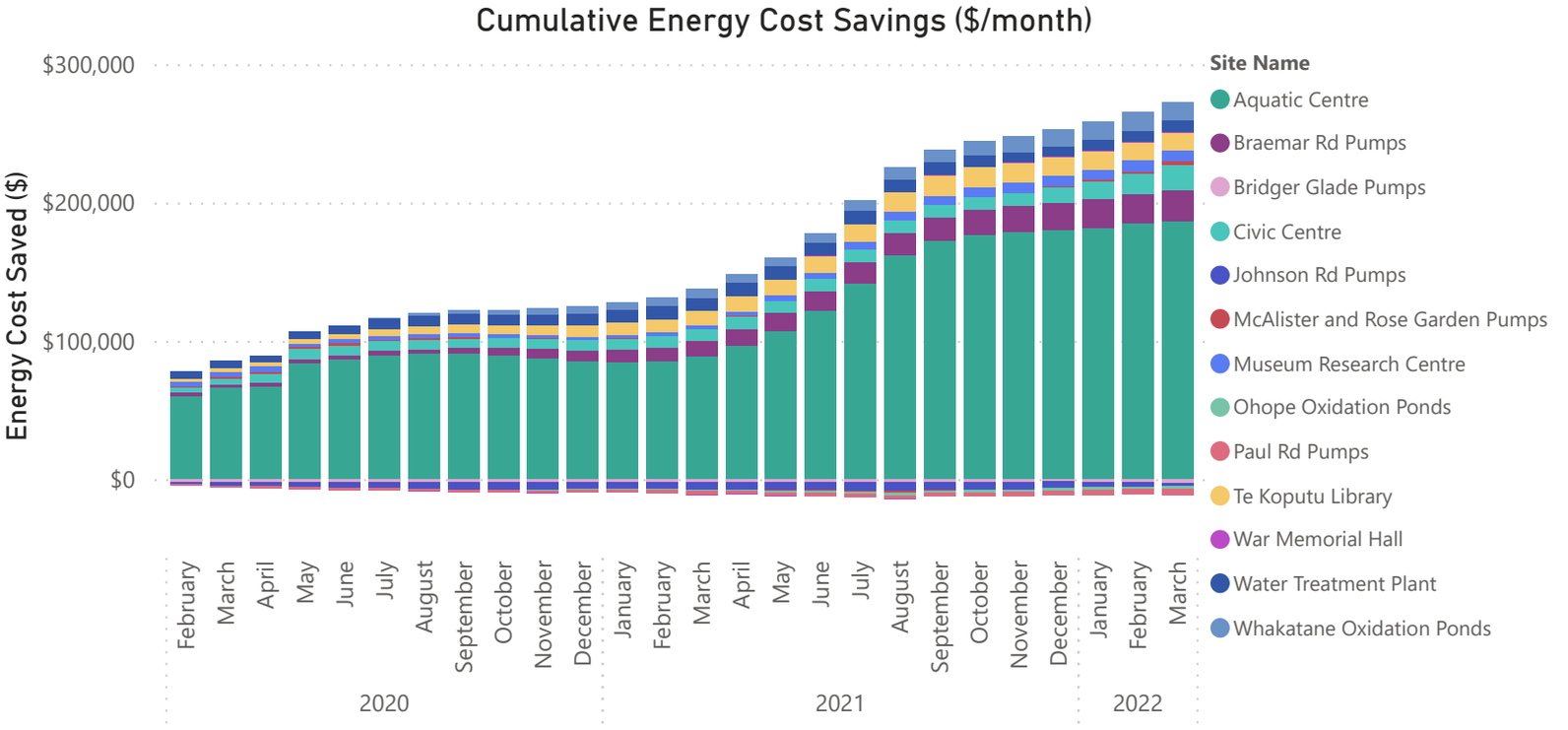
Summary

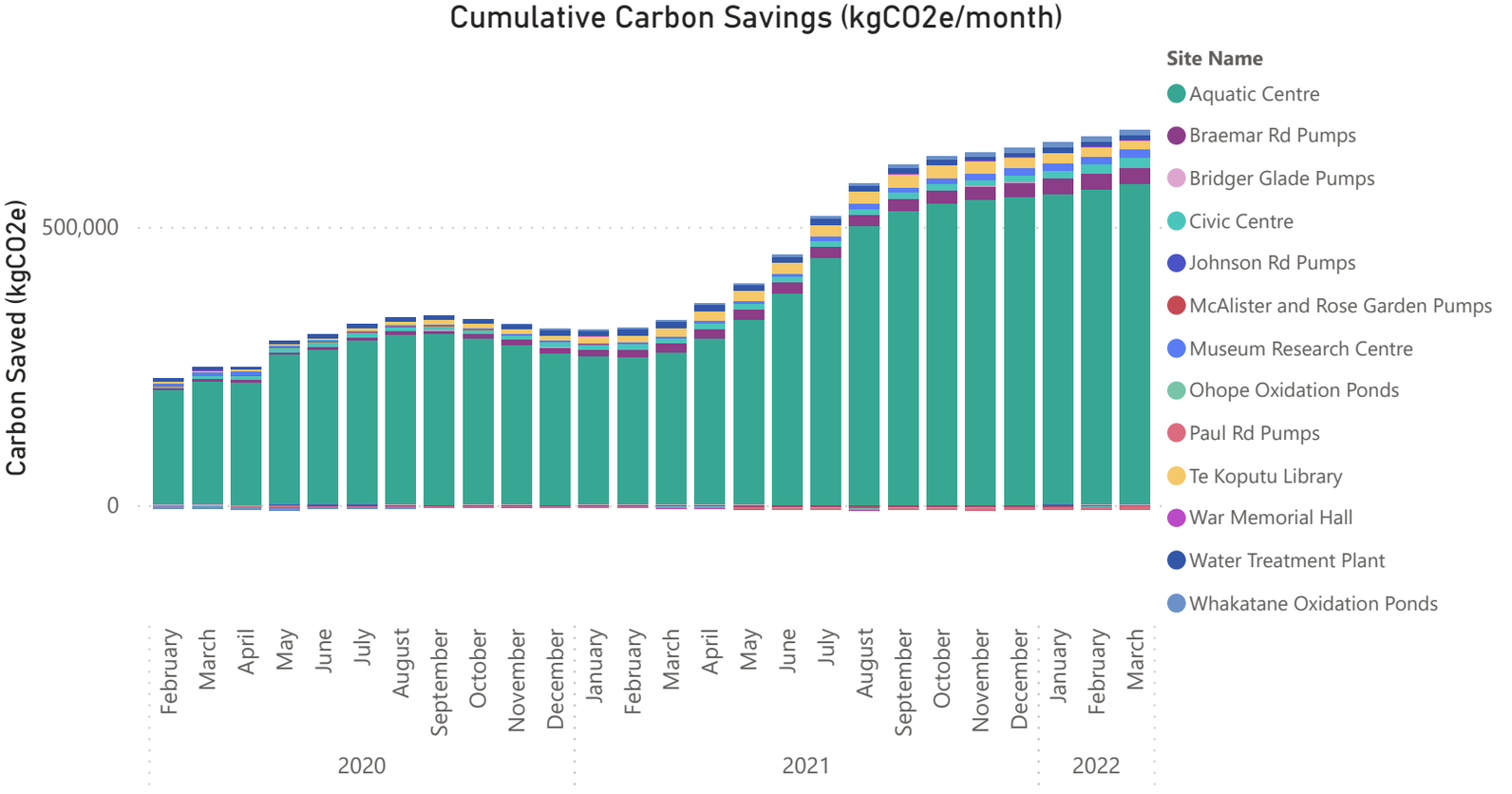


Note: New Zealand was in Covid-19 alert levels 3 and 4 from 23 March until 12 May, 2020. Energy use may have been impacted during this time

Whakatane District Council

Summary





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March 2022

Whakatane District Council

Civic Centre

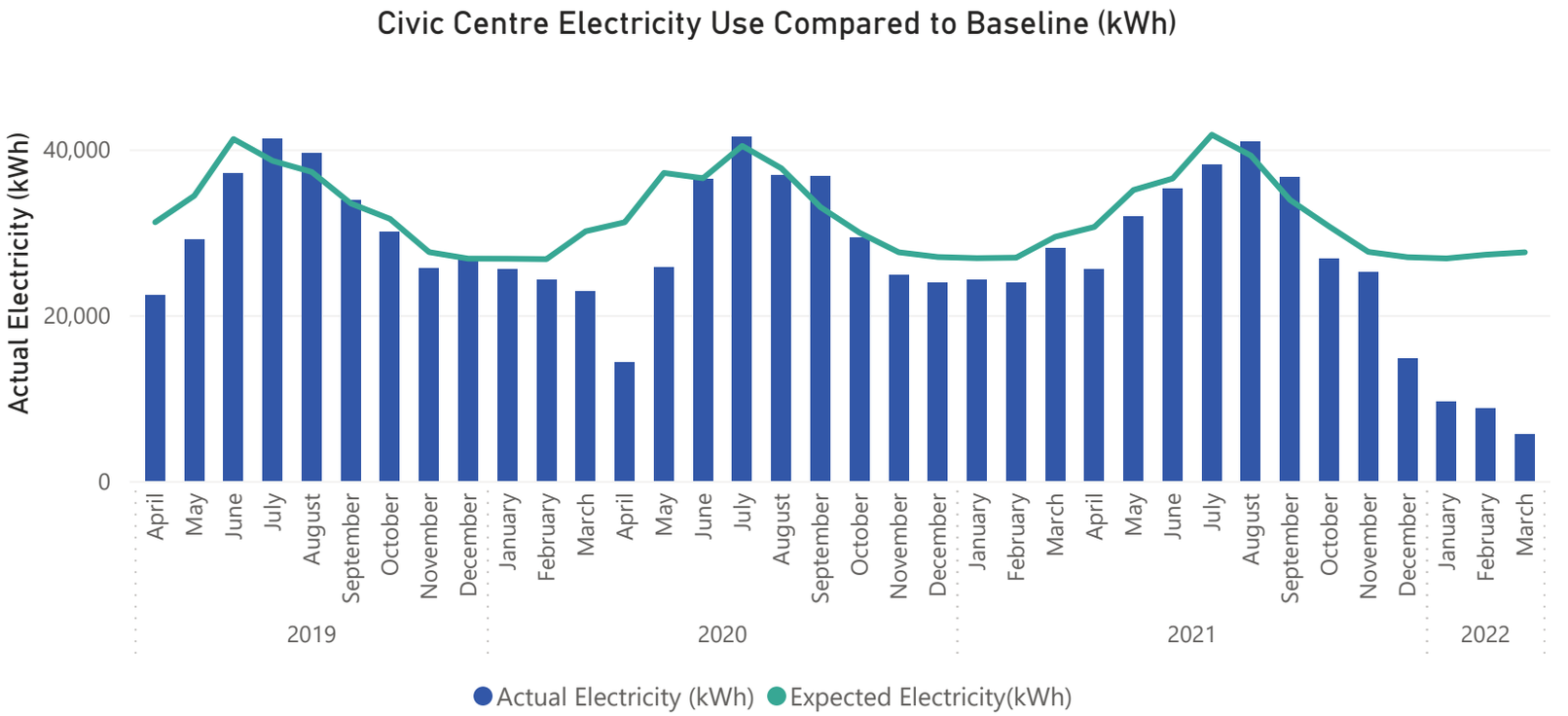
$4,443 Monthly Energy Cost Savings	21,907 Elec. Savings (kWh/mo)	79% Elec. Savings (%)	85,207 R12M Electricity Savings (kWh/yr)	2,819 CO2e Savings (kg/mo)
$10,853 R12M Energy Cost Savings				10,571 R12M CO2e Savings (kg/yr)

Comments:

Electric vehicle charging stations have been in use from March 2021, non-routine adjustments are on-going to account for the increased electricity use.

Electricity savings continue to be more than usual for 2022, the Civic Centre renovation has displaced many office workers, which has decreased electricity demand.

Marginal cost of electricity for the Civic Centre has increased by approximately 68% due to new contract rates, compared to March 2021.



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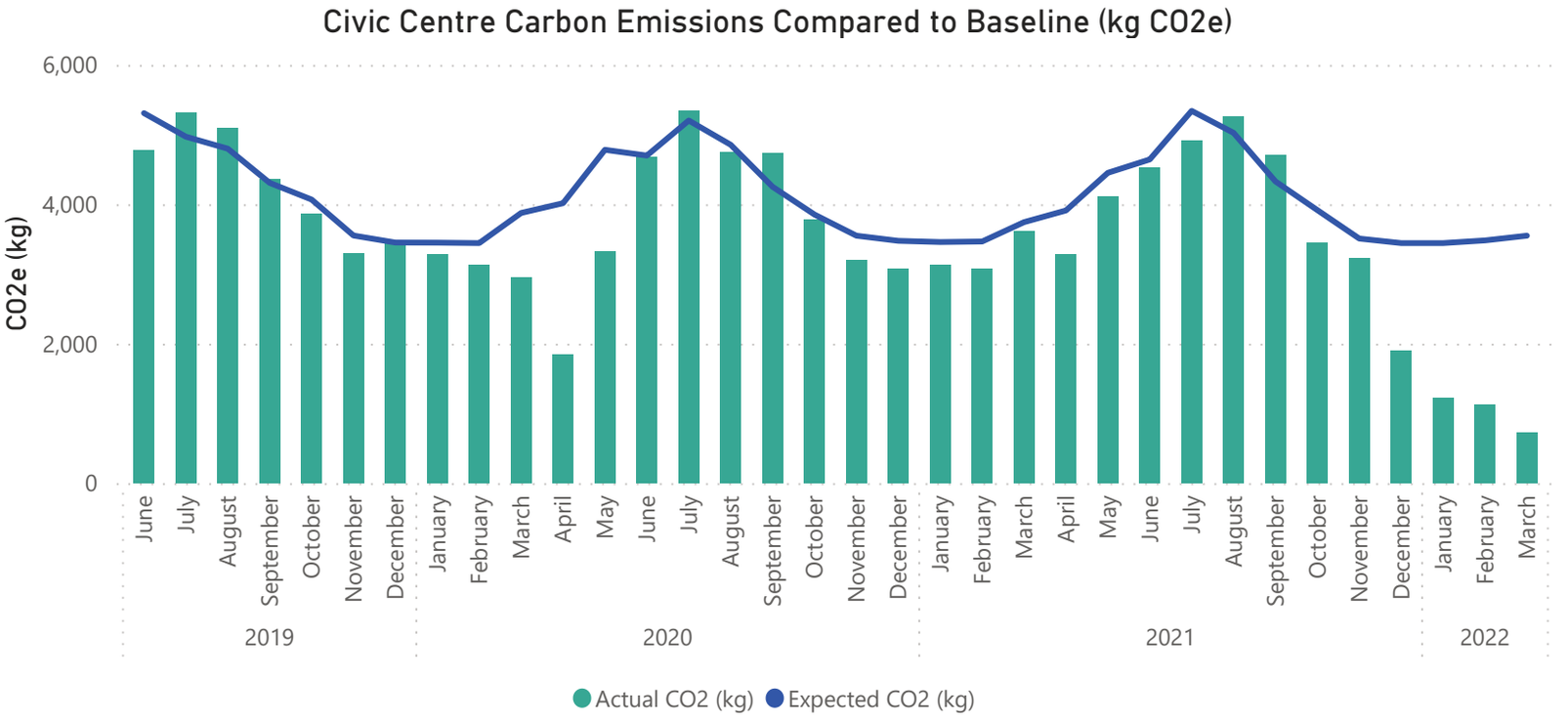
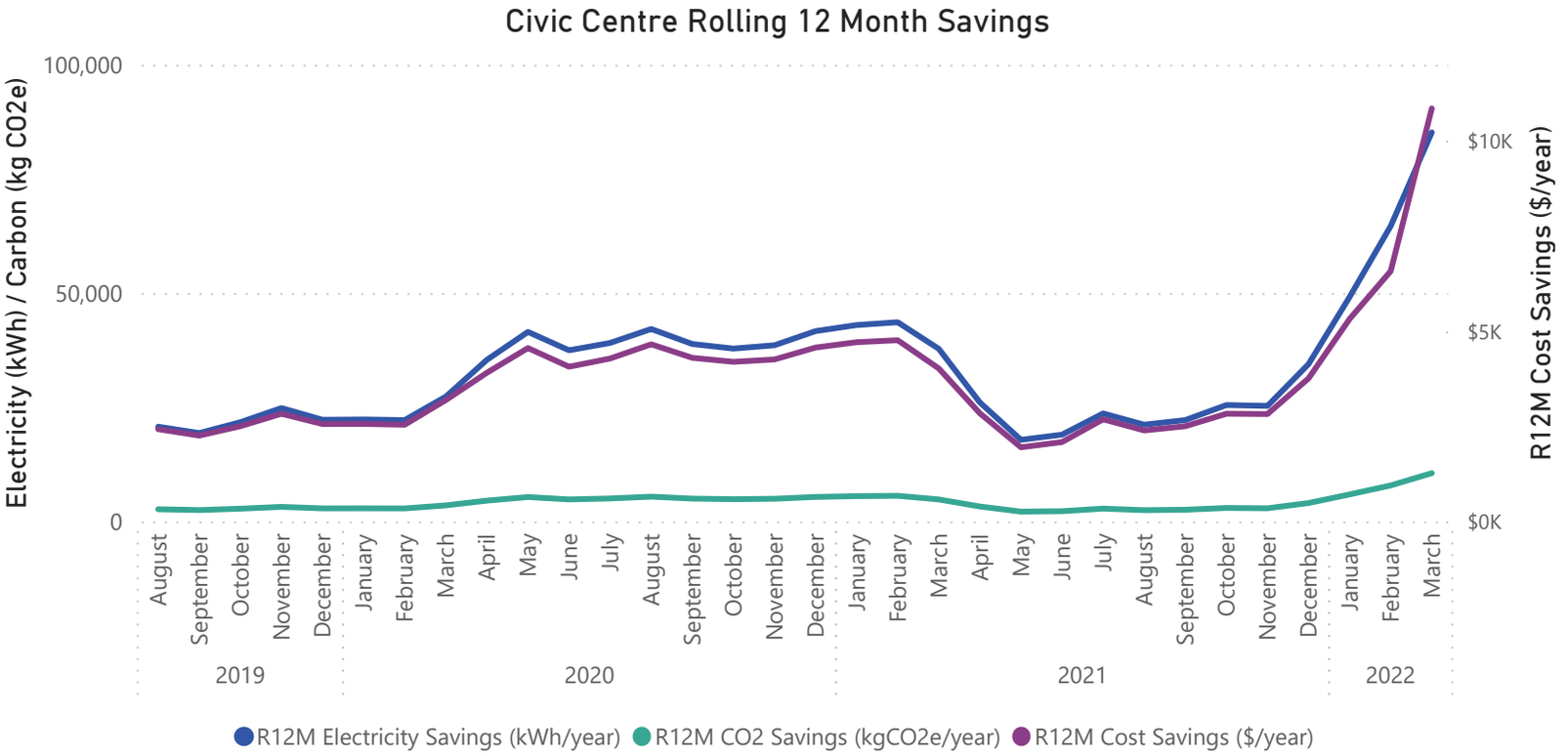
Whakatane District Council

Civic Centre





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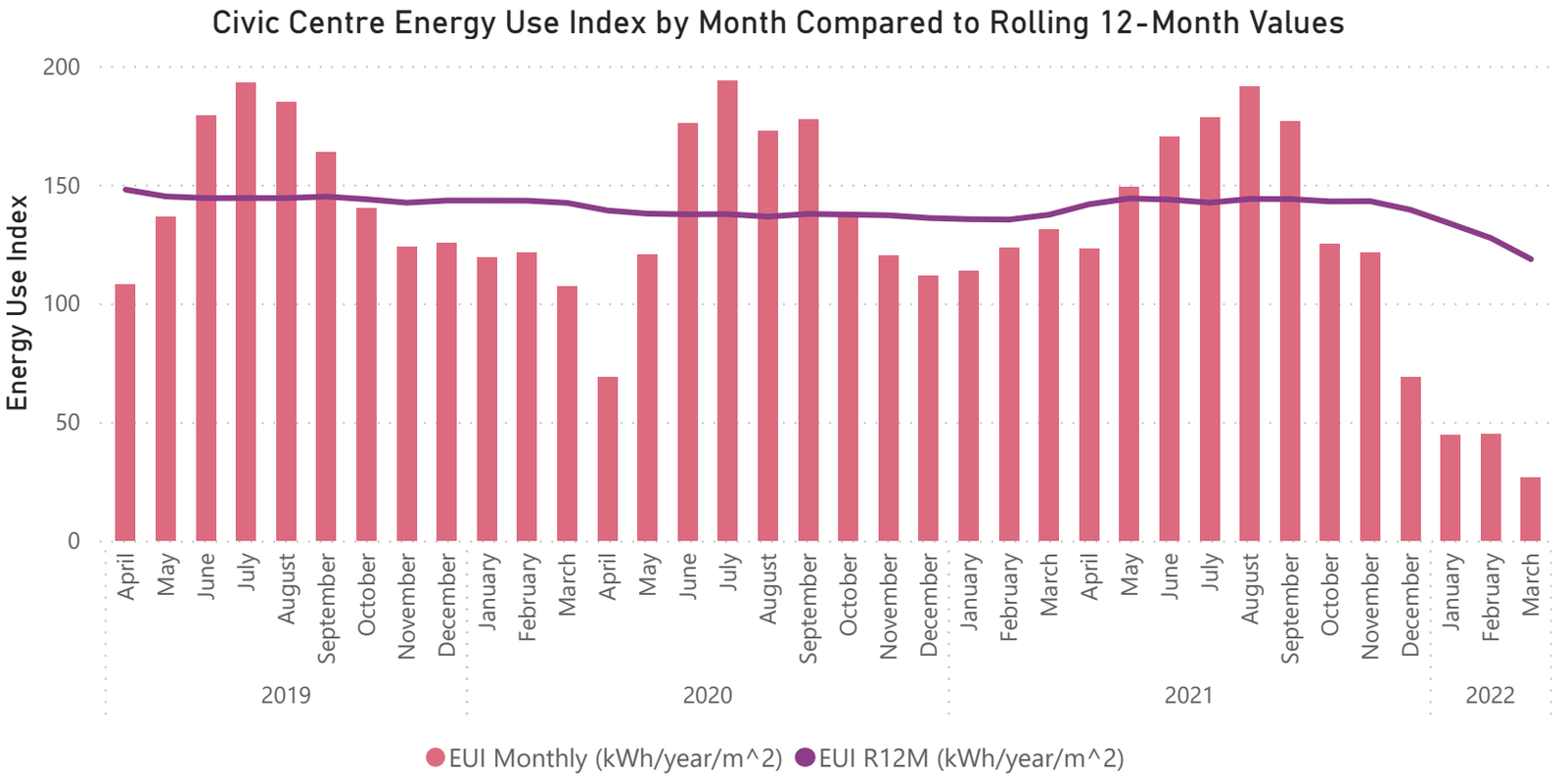
Whakatane District Council

Civic Centre



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Whakatane District Council

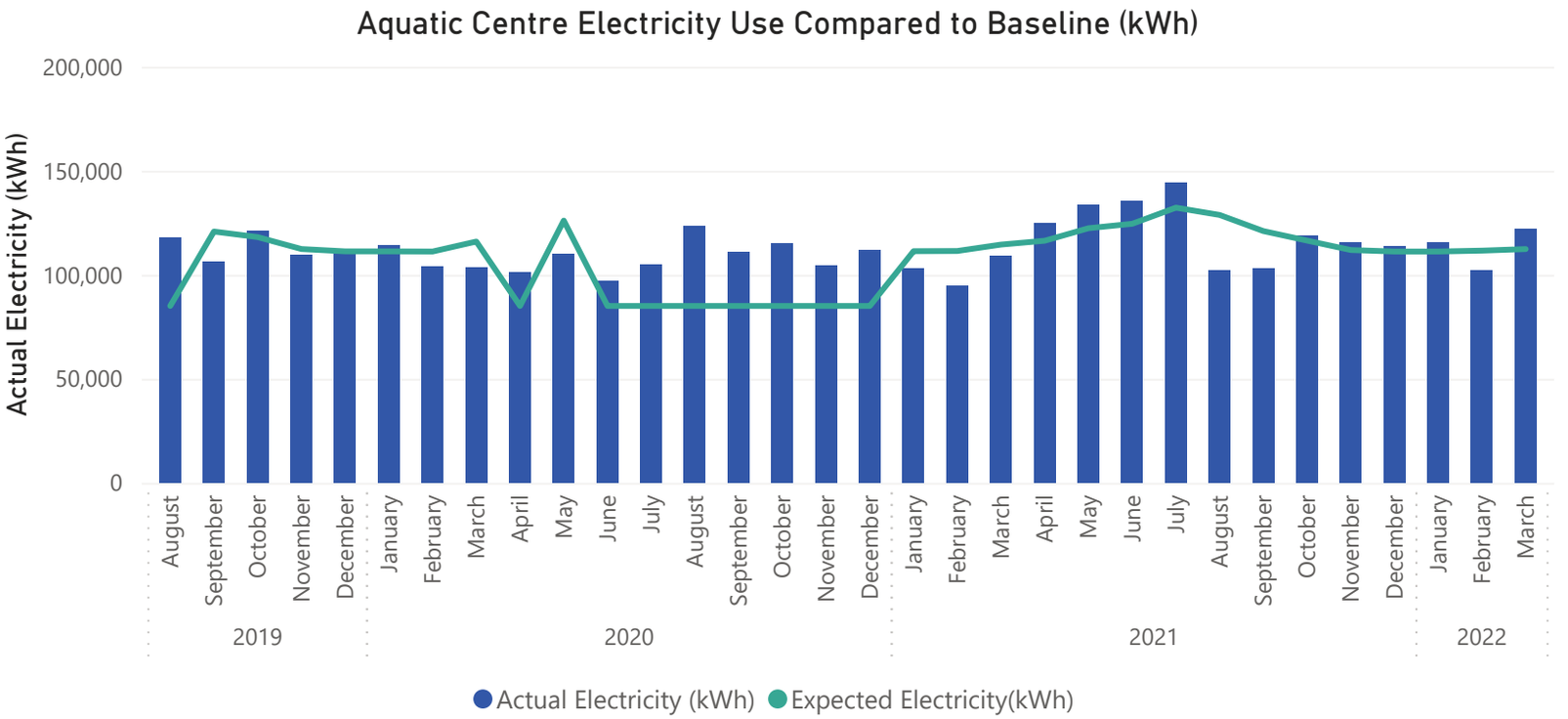
Aquatic Centre

$1,358 Monthly Energy Cost Savings	-9,778 Elec. Savings (kWh/mo)	-9% Elec. Savings (%)	-11,045 R12M Electricity Savings (kWh/yr)	8,898 CO2e Savings (kg/mo)
$97,497 R12M Energy Cost Savings	46,692 Gas. Savings (kWh/mo)	94% Gas. Savings (%)	1,395,013 R12M Gas Savings (kWh/yr)	301,429 R12M CO2e Savings (kg/yr)

Comments:

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

Natural gas savings are still excellent, achieving 94% for the month of March 2022. Marginal cost of electricity for the Aquatic Centre has increased by approximately 80% compared to March 2021, due to new contract rates.



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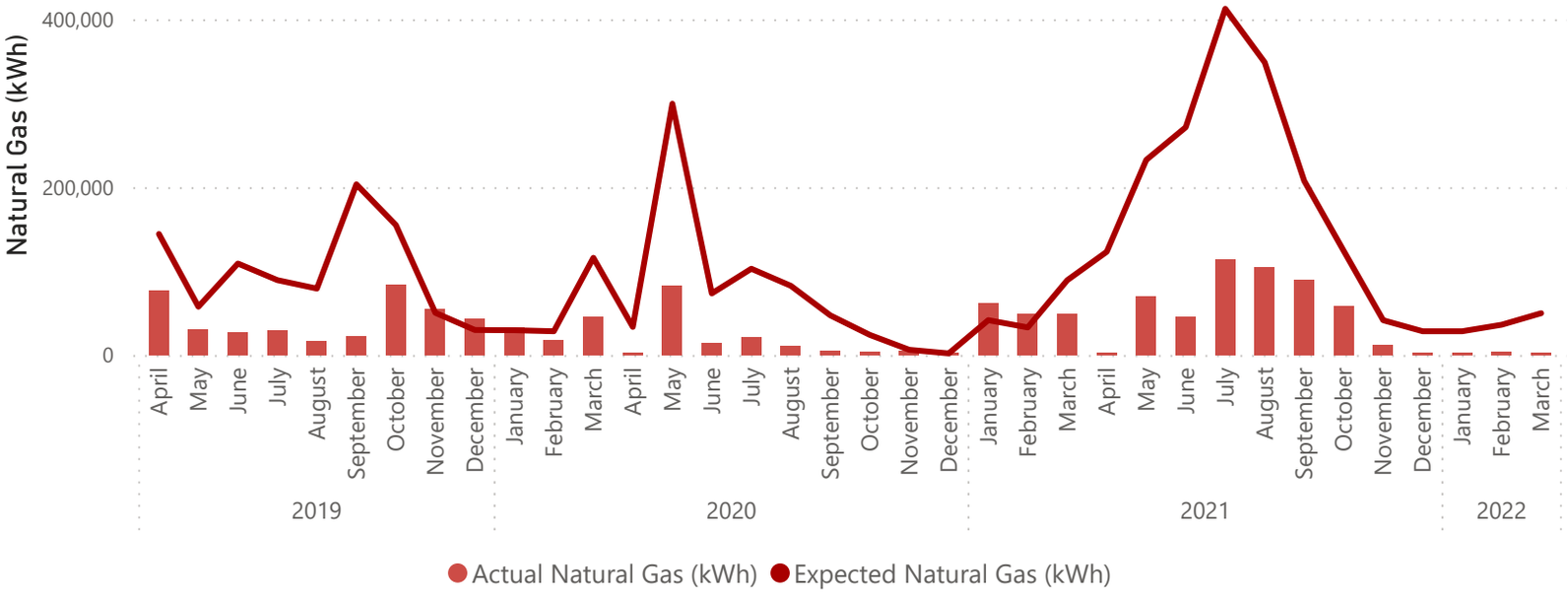
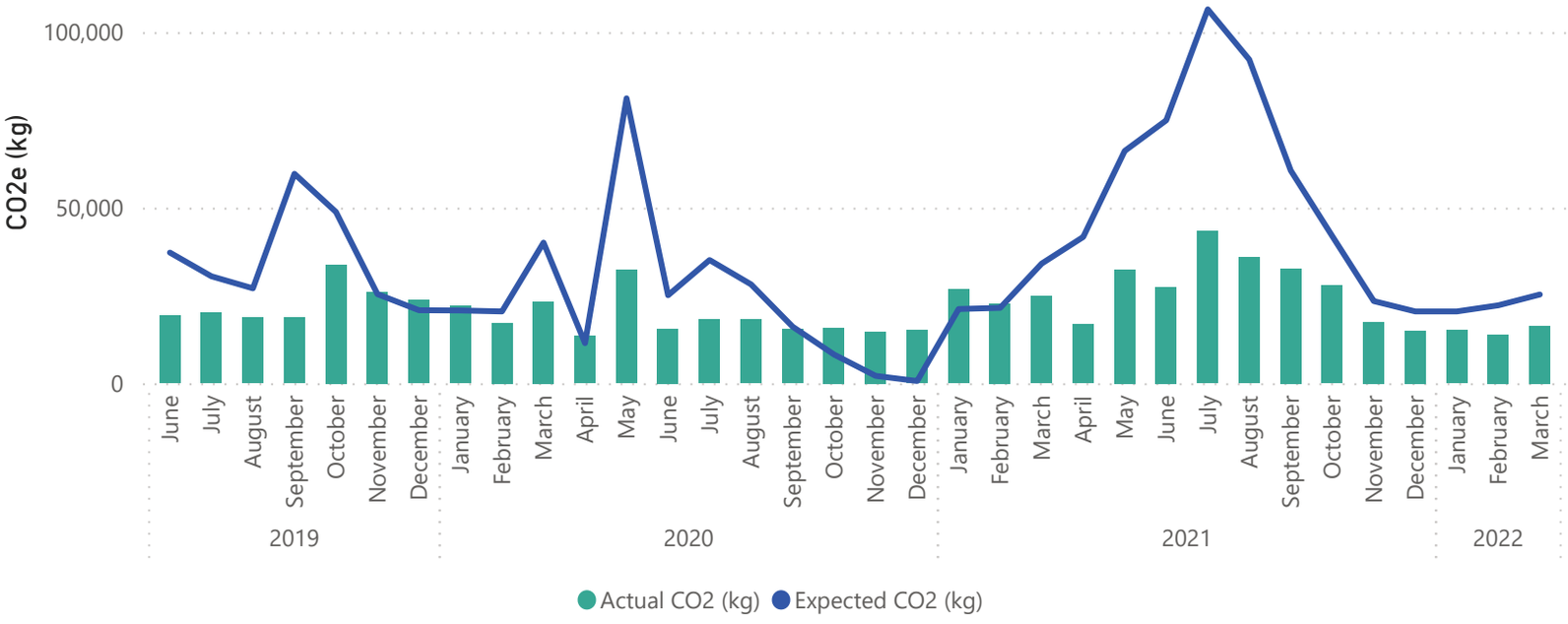
Whakatane District Council

Aquatic Centre

Aquatic Centre Natural Gas Compared to Baseline (kWh)



Aquatic Centre Carbon Emissions Compared to Baseline (kg CO2e)



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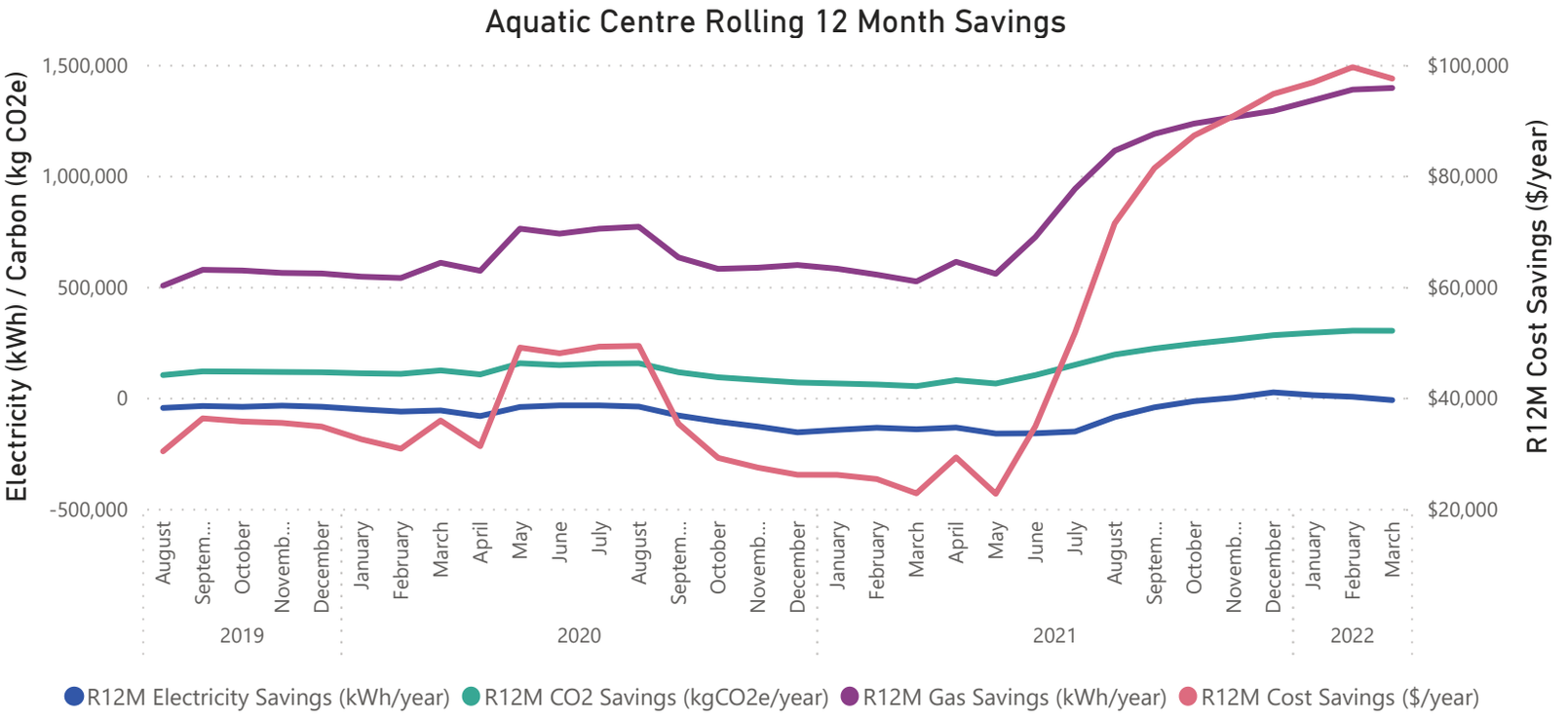
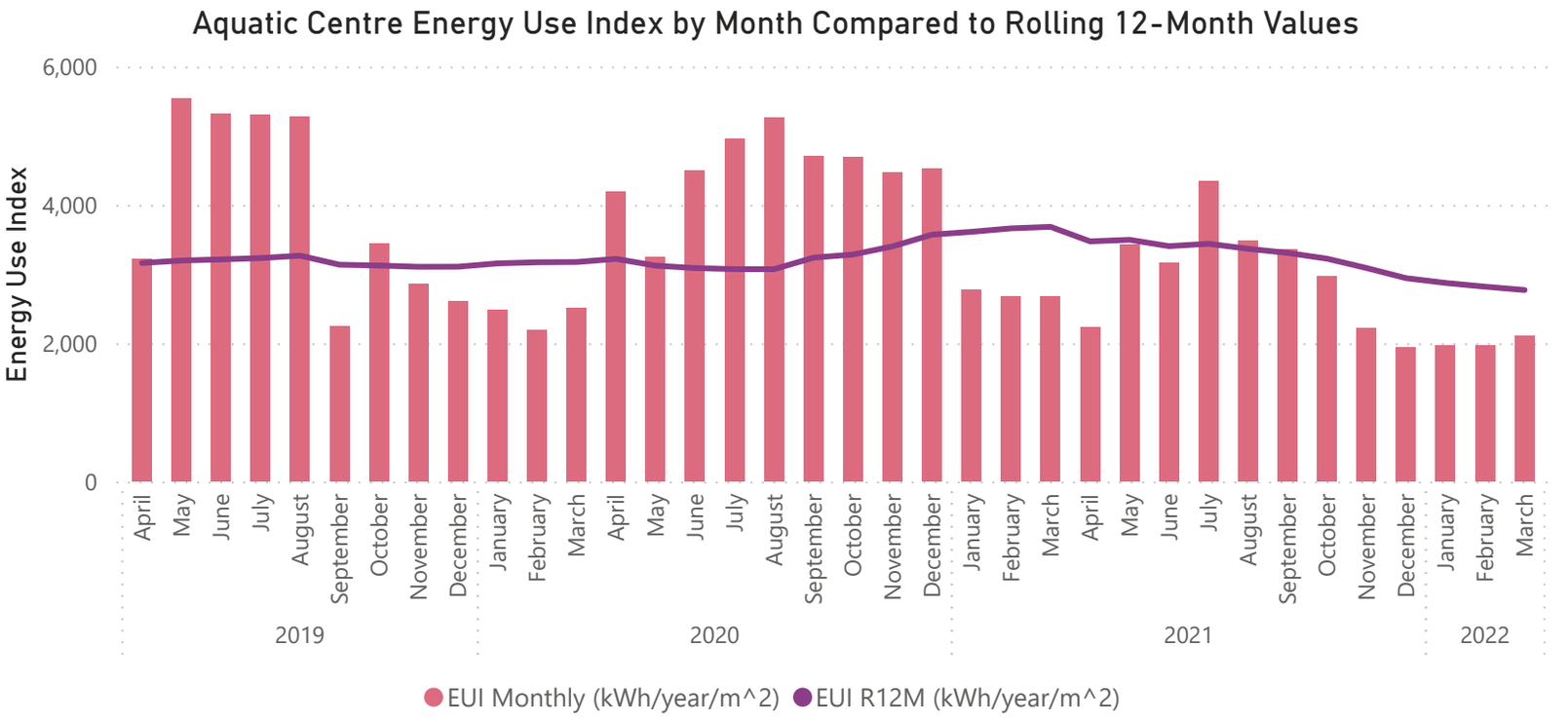
Whakatane District Council

Aquatic Centre





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March 2022

Whakatane District Council

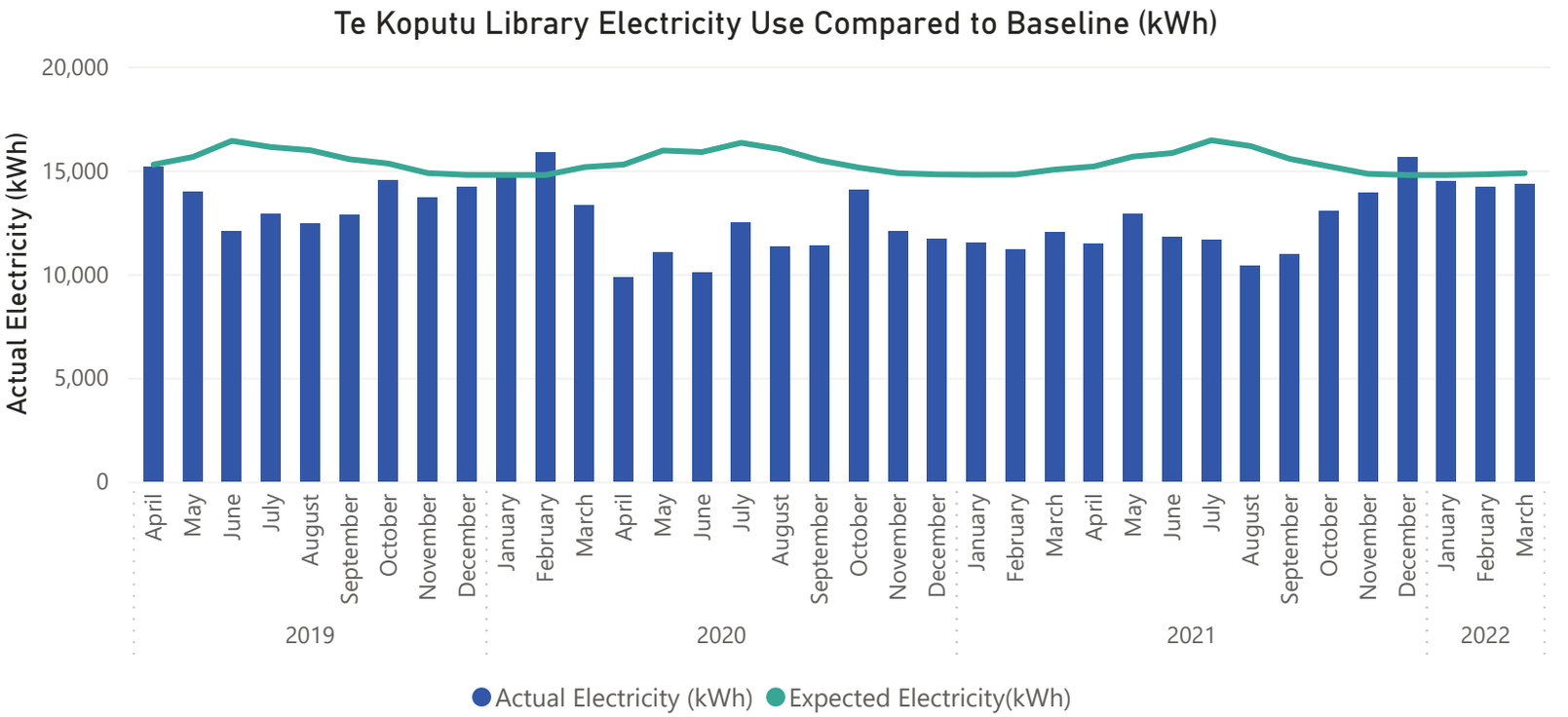
Te Koputu Library

-$407 Monthly Energy Cost Savings	509 Elec. Savings (kWh/mo)	3% Elec. Savings (%)	29,366 R12M Electricity Savings (kWh/yr)	-1,455 CO2e Savings (kg/mo)
$2,228 R12M Energy Cost Savings	-7,032 Gas. Savings (kWh/mo)	-100% Gas. Savings (%)	-15,874 R12M Gas Savings (kWh/yr)	391 R12M CO2e Savings (kg/yr)

Comments:

Gas use was twice as much as expected. Dehumidification loads were significant in March and this requires both electricity for cooling as well as gas for re-heat. Control of relative humidity has improved, however further investigation is needed to understand if this is optimised or if the cooling and heating coils are fighting each other excessively.

Marginal cost of electricity for the Library has increased by approximately 79% compared to March 2021, due to new contract rates.



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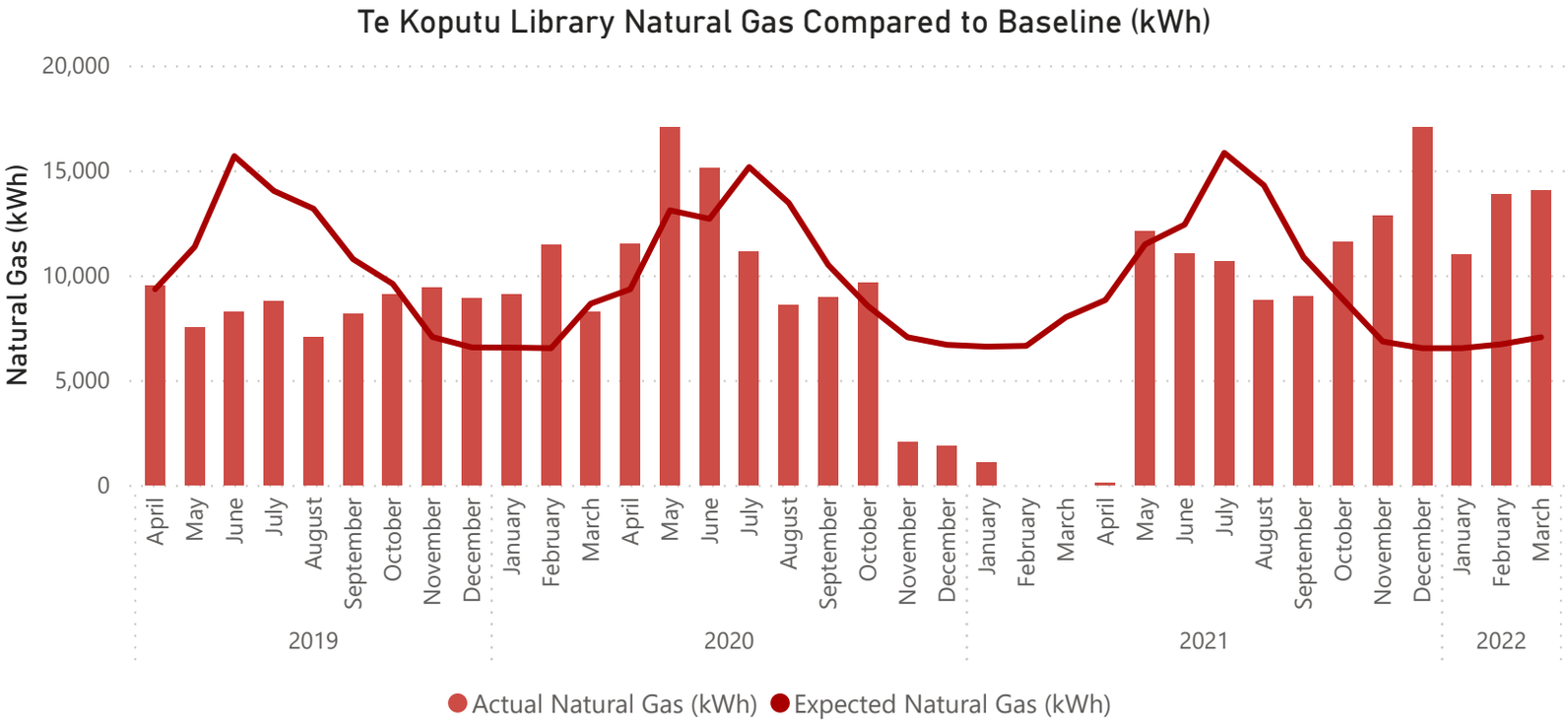
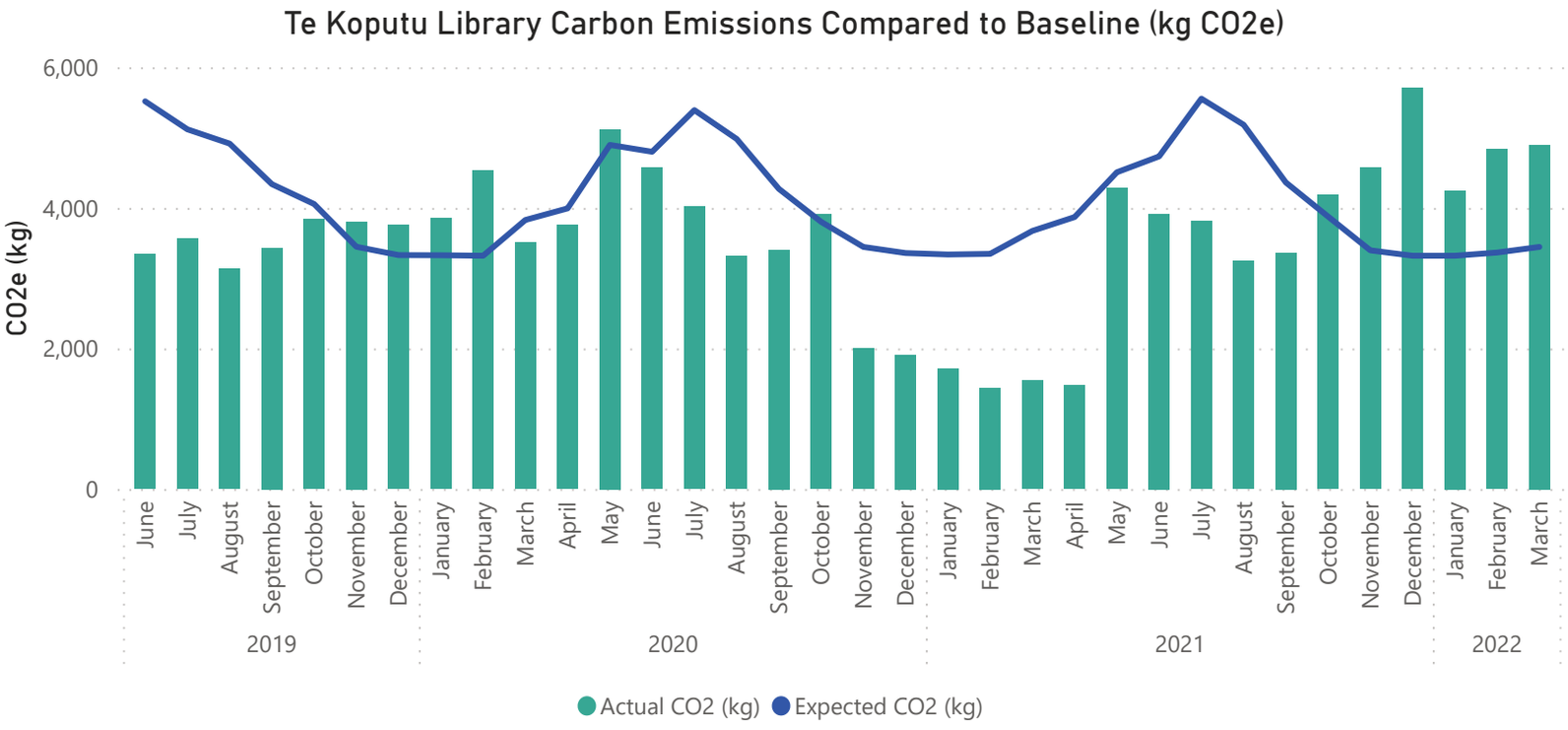
Whakatane District Council

Te Koputu Library





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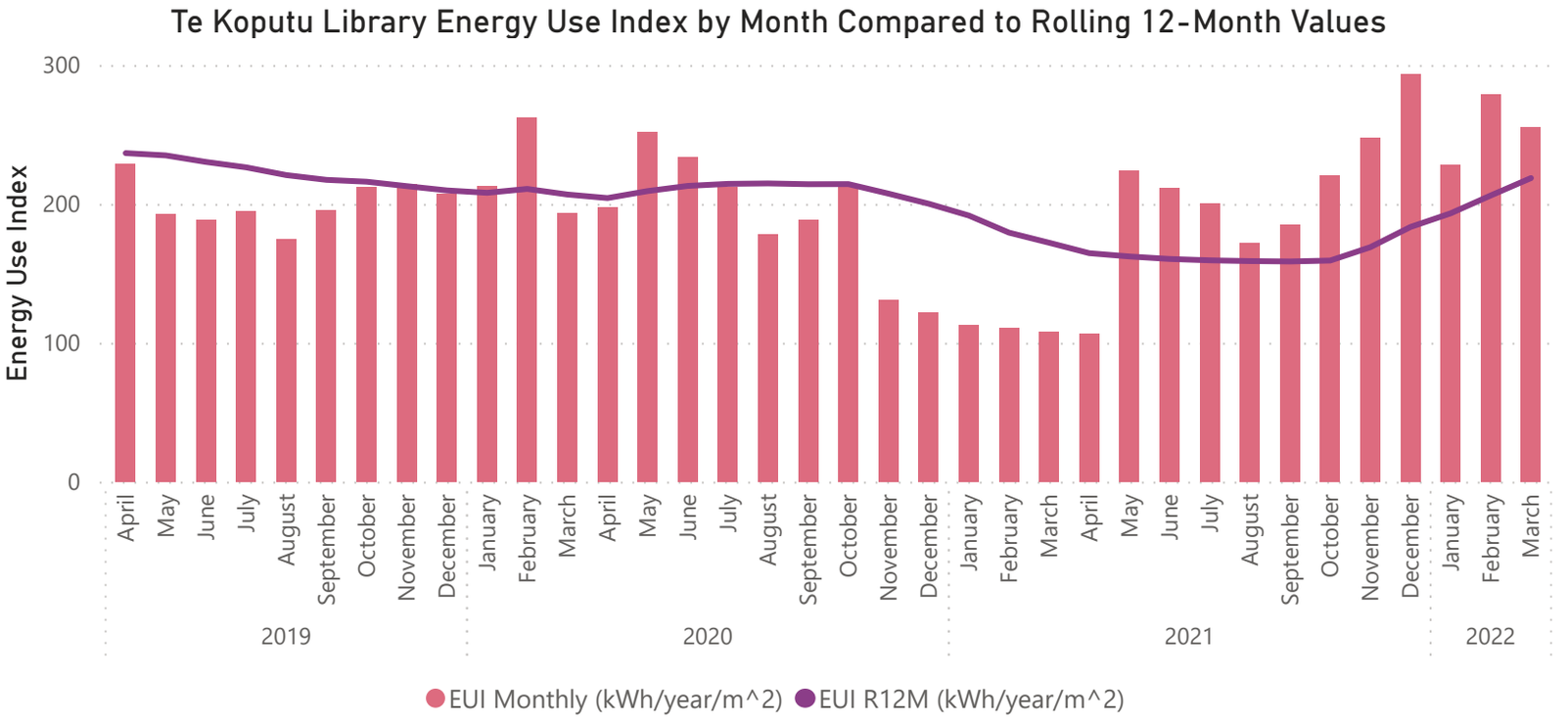
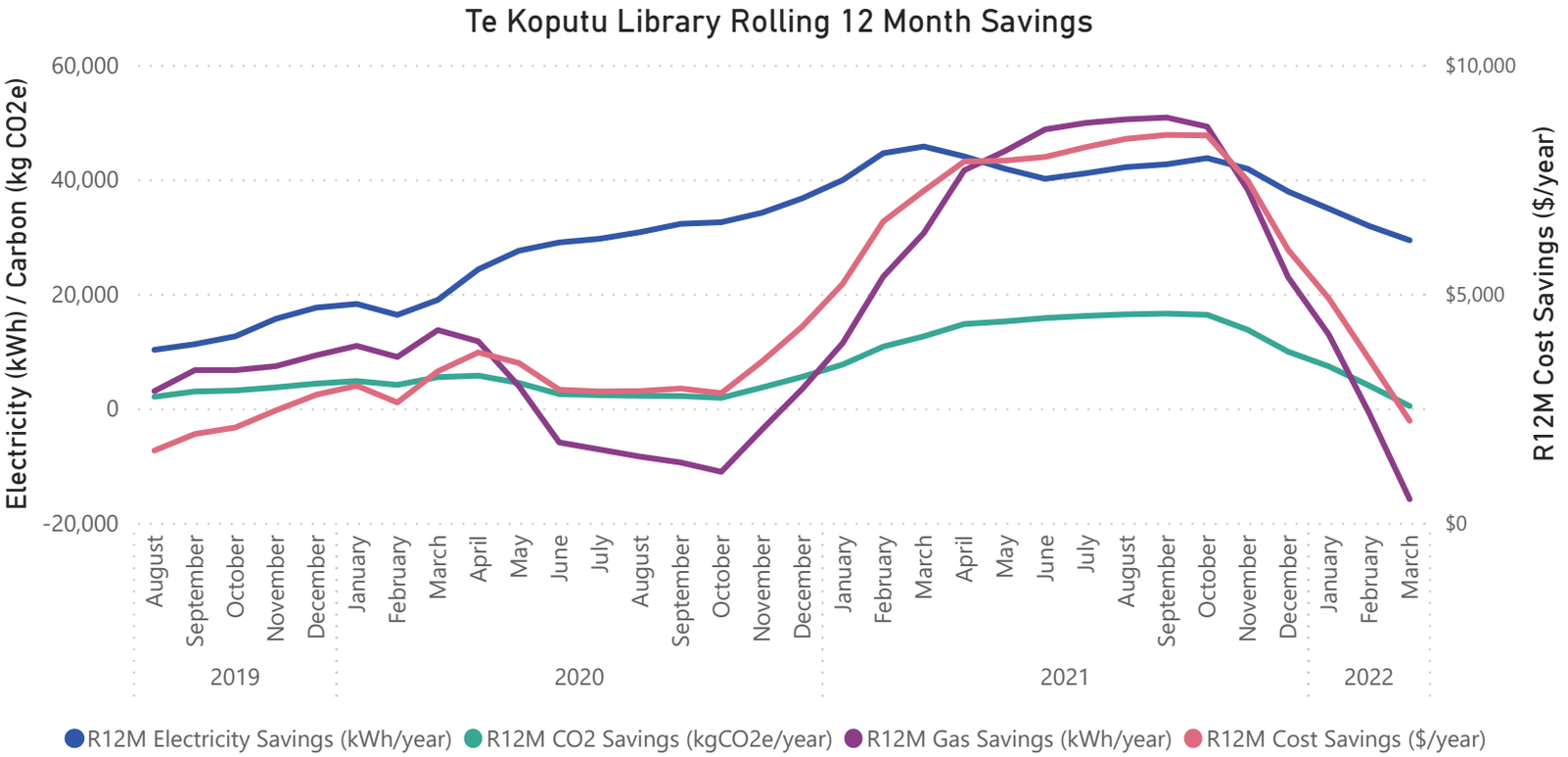
Whakatane District Council

Te Koputu Library





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March 2022

Whakatane District Council

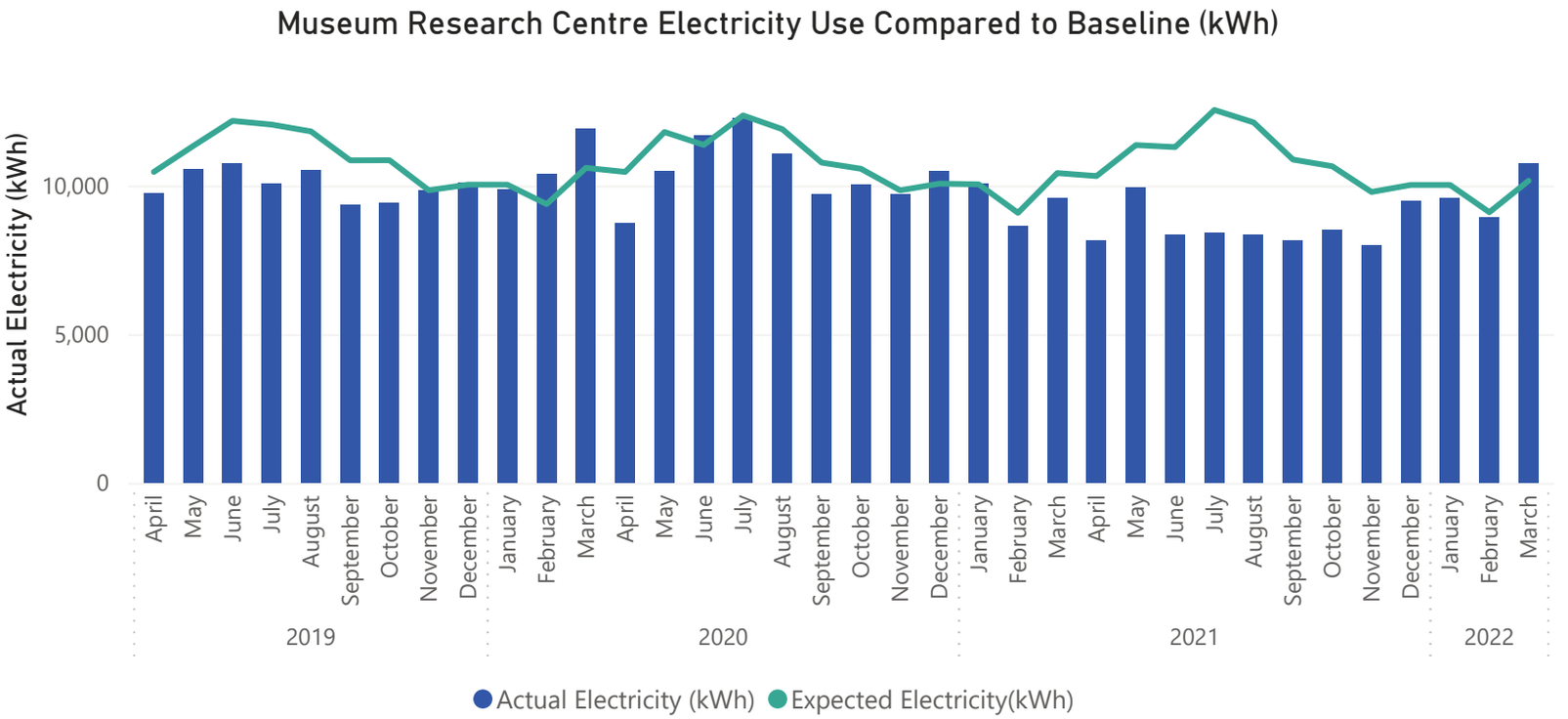
Museum and Research Centre

$113 Monthly Energy Cost Savings	-584 Elec. Savings (kWh/mo)	-6% Elec. Savings (%)	21,631 R12M Electricity Savings (kWh/yr)	624 CO2e Savings (kg/mo)
$5,156 R12M Energy Cost Savings	3,226 Gas. Savings (kWh/mo)	53% Gas. Savings (%)	37,950 R12M Gas Savings (kWh/yr)	11,012 R12M CO2e Savings (kg/yr)

Comments:

The rolling 12 month EUI continues to drop for the Museum and Research Centre, which is good. Electricity use was more than expected, however extra council staff are occupying the building as the Civic Centre is being re-developed. Natural gas use has proven to be relatively steady over the past ten months, which demonstrates excellent control.

March 2022 is the first month since January 2021 that electricity use has been greater than expected. TOU data indicates that from 13 February, afterhours baseload has increased by 2-3 kW and remained elevated through March.
Marginal cost of electricity for the Museum and Research Centre has increased by approximately 79% compared to March 2021, due to new contract rates.



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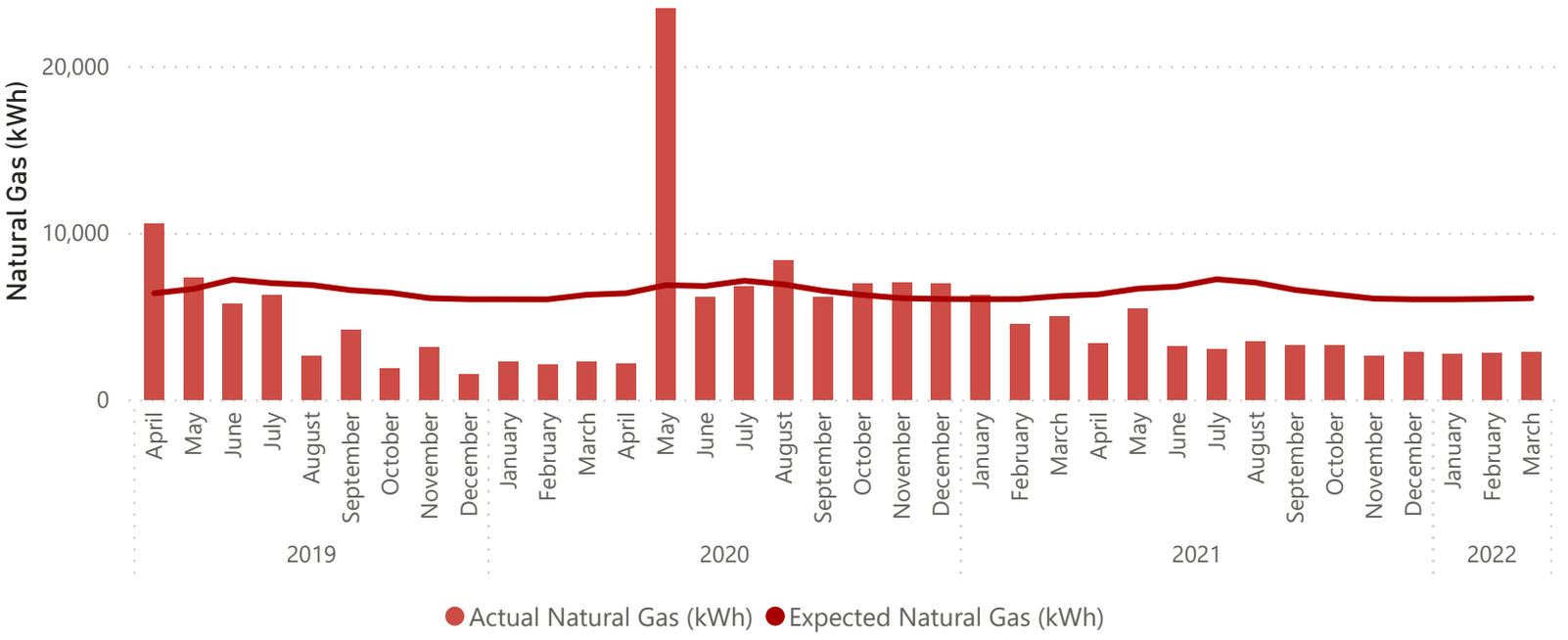
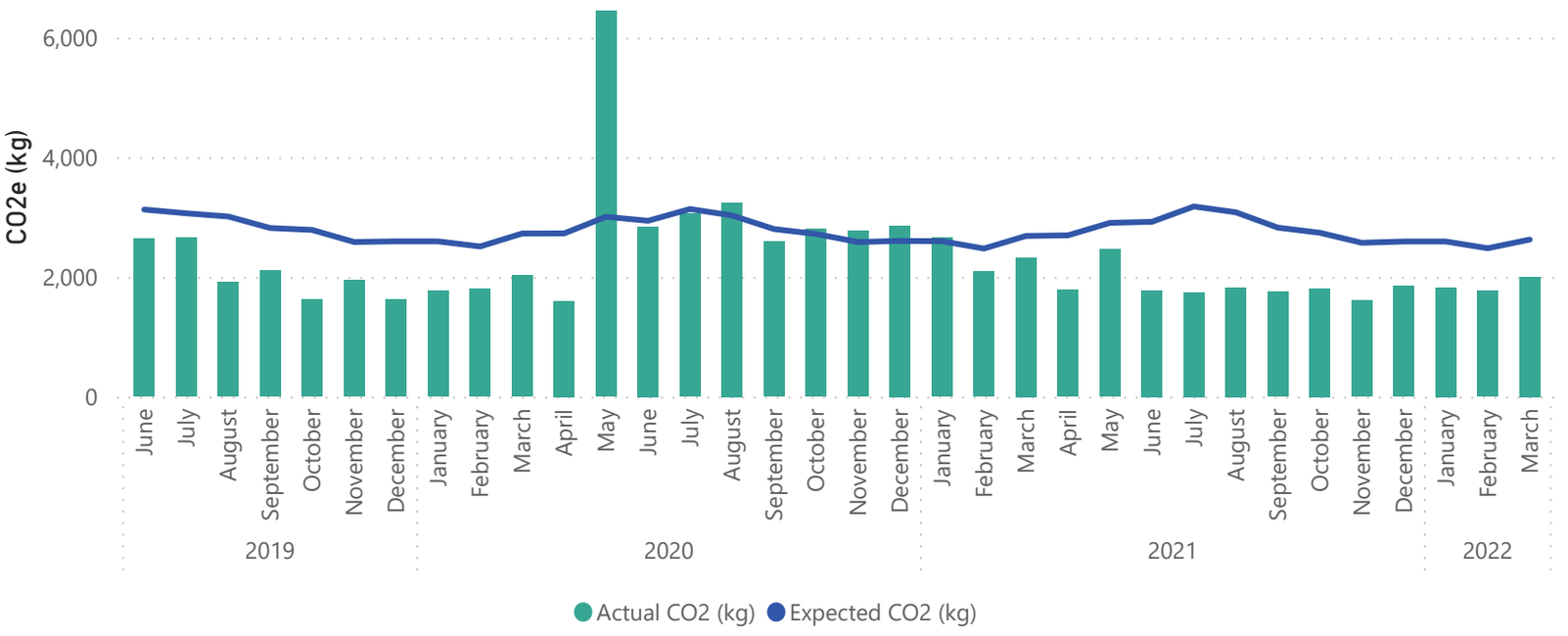
Whakatane District Council

Museum and Research Centre

Museum Research Centre Natural Gas Compared to Baseline (kWh)



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



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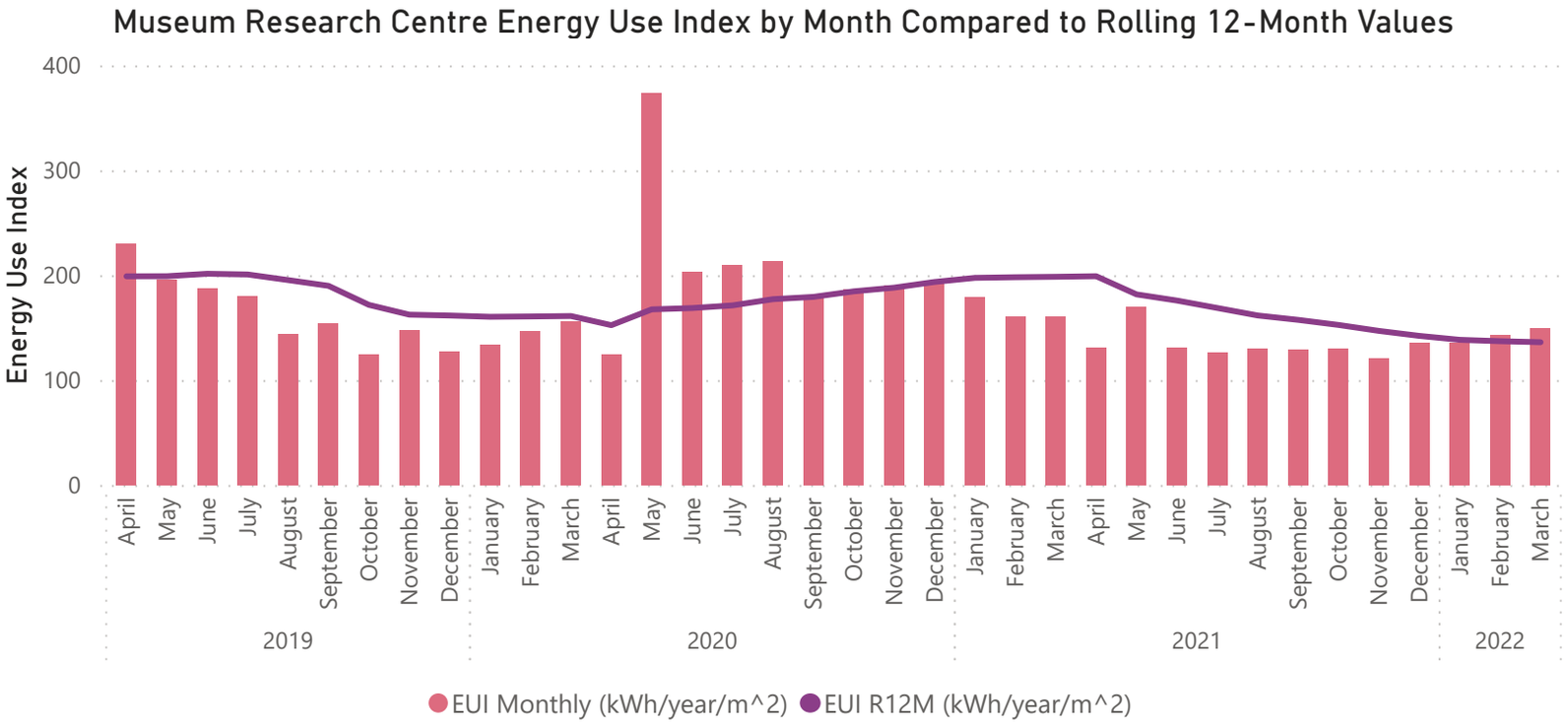
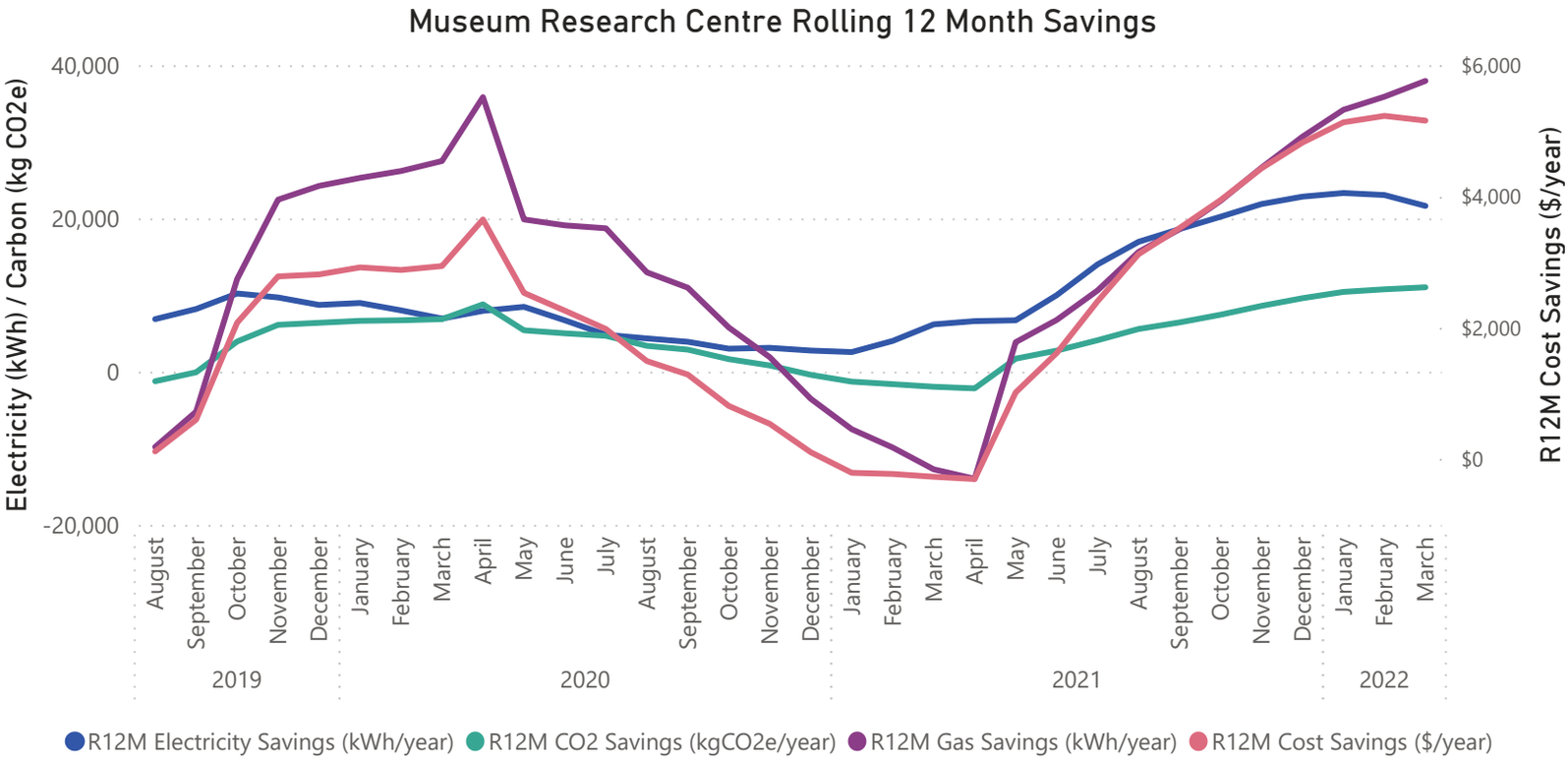
Whakatane District Council

Museum and Research Centre





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March 2022

Whakatane District Council

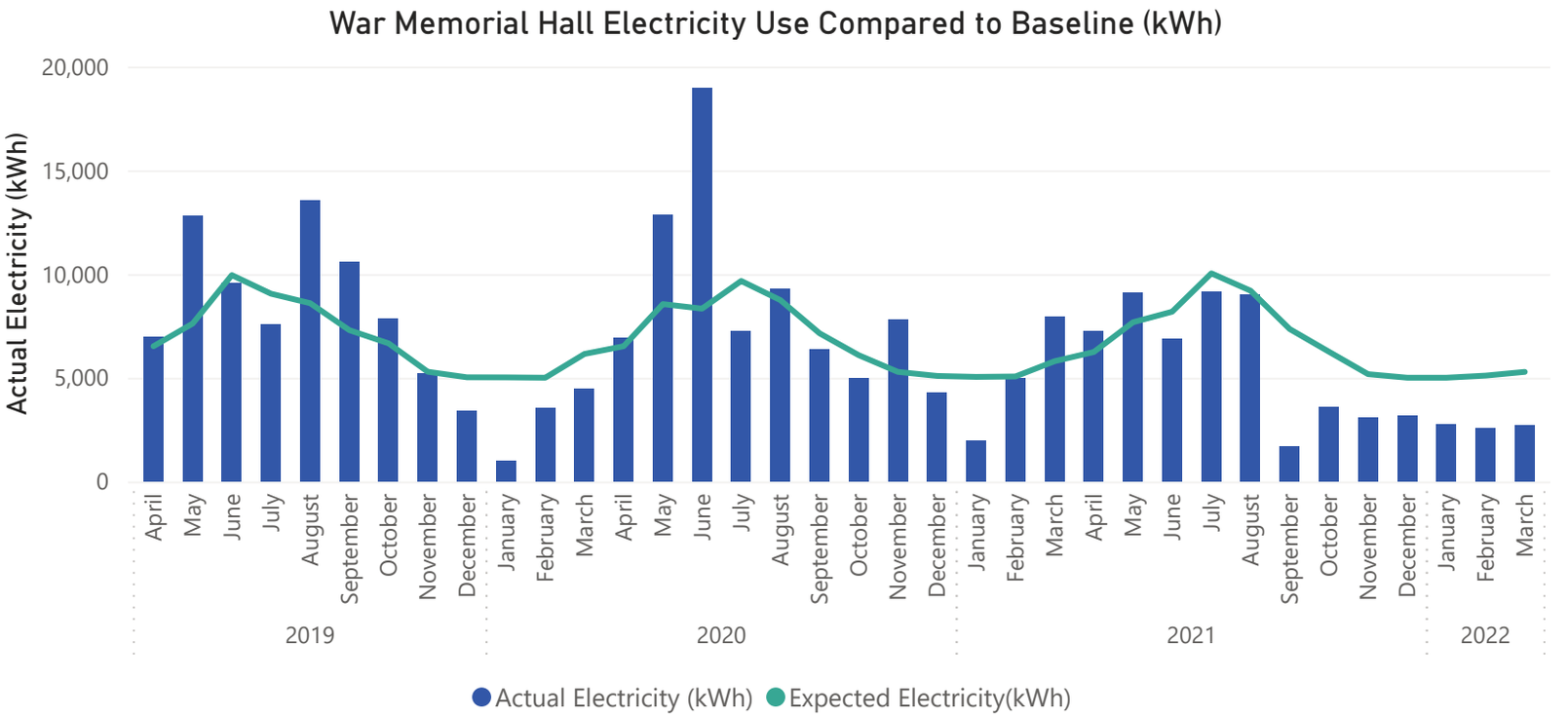
War Memorial Hall

$587 Monthly Energy Cost Savings	2,568 Elec. Savings (kWh/mo)	49% Elec. Savings (%)	19,501 R12M Electricity Savings (kWh/yr)	461 CO2e Savings (kg/mo)
$2,196 R12M Energy Cost Savings	603 Gas. Savings (kWh/mo)	28% Gas. Savings (%)	-1,820 R12M Gas Savings (kWh/yr)	2,115 R12M CO2e Savings (kg/yr)

Comments:

A baseline was created for War Memorial Hall that adjusts for ambient temperature. The baseline period is July 2020 to June 2021. The War Memorial Hall uses more electricity and gas in winter months. The War Memorial Hall is on a NHH account, some months' usage may be estimated by the retailer and captured by a subsequent meter reading. Manual meter readings can improve accuracy of electricity and gas usage.

A new trend emerges from October 2021 as the relative amount of savings achieved at the War Memorial Hall has increased over previous years. Although this may be due to a reduced level of occupancy as a result of Covid-19. March 2022 was a good month for energy savings. Rolling 12 month energy savings continue to increase.



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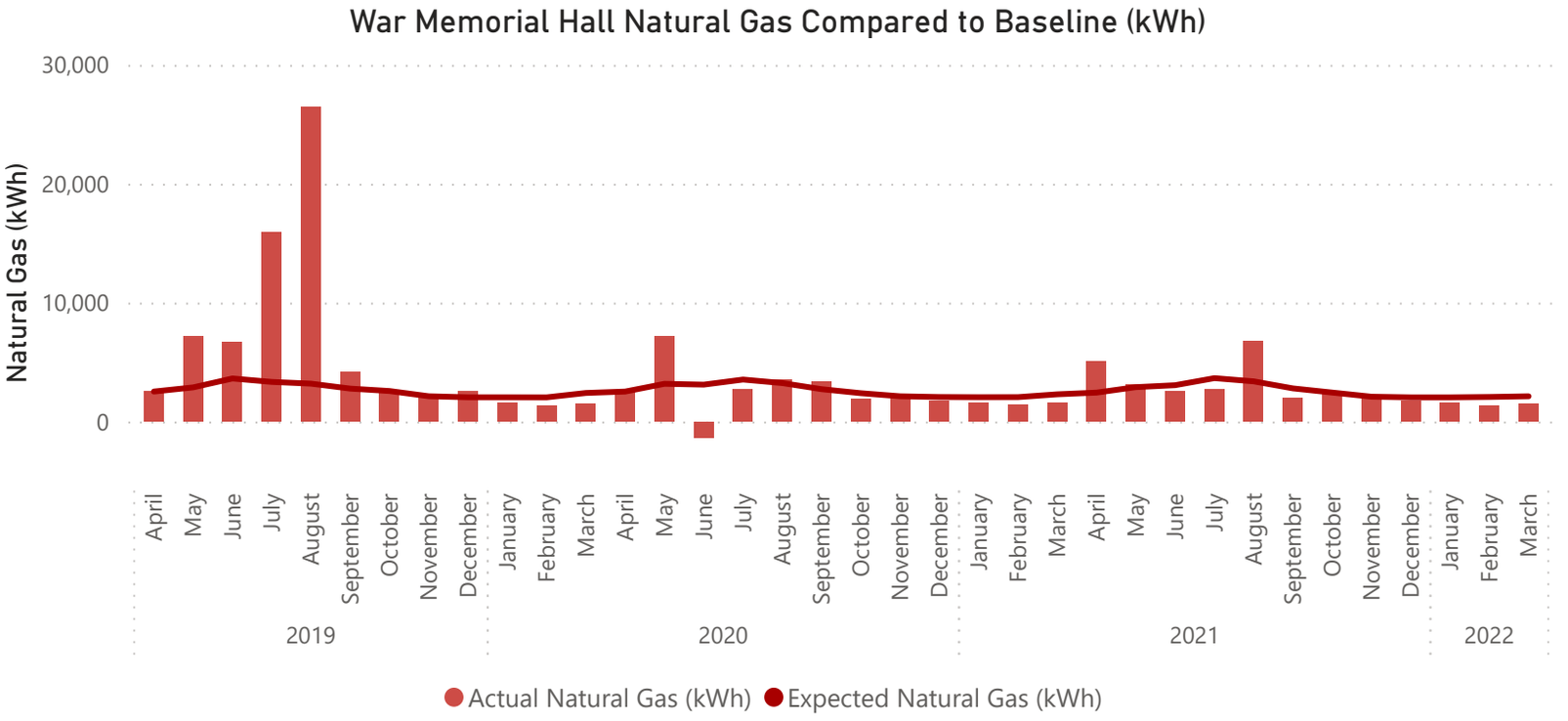
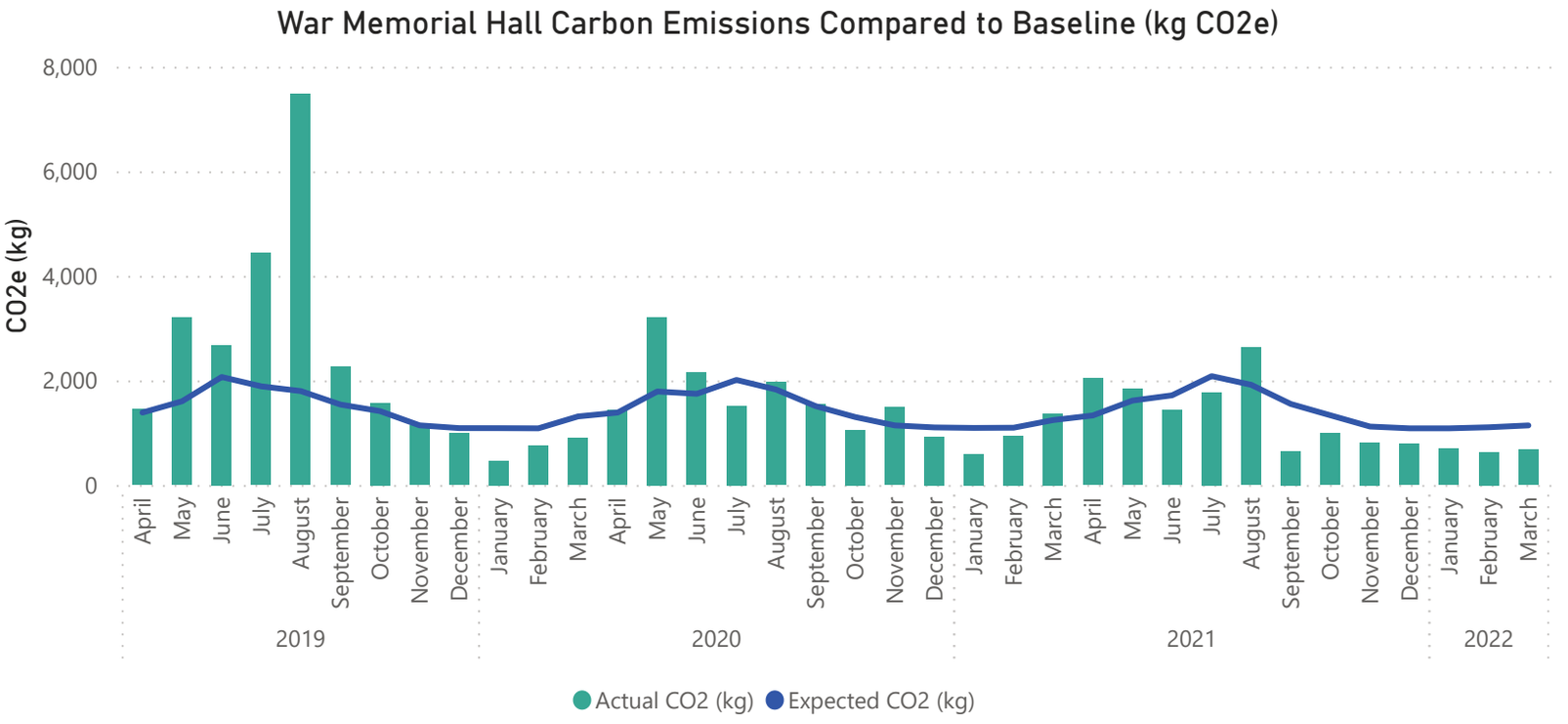
Whakatane District Council

War Memorial Hall





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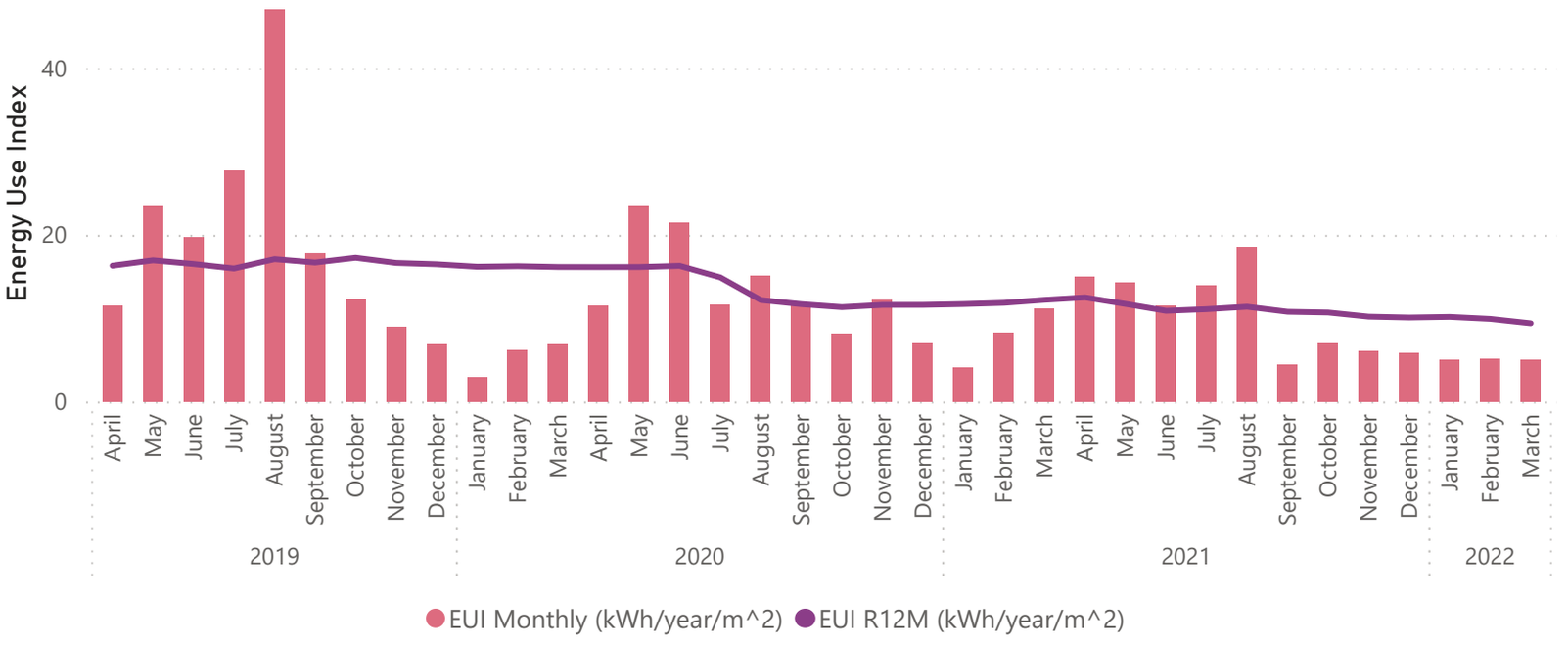
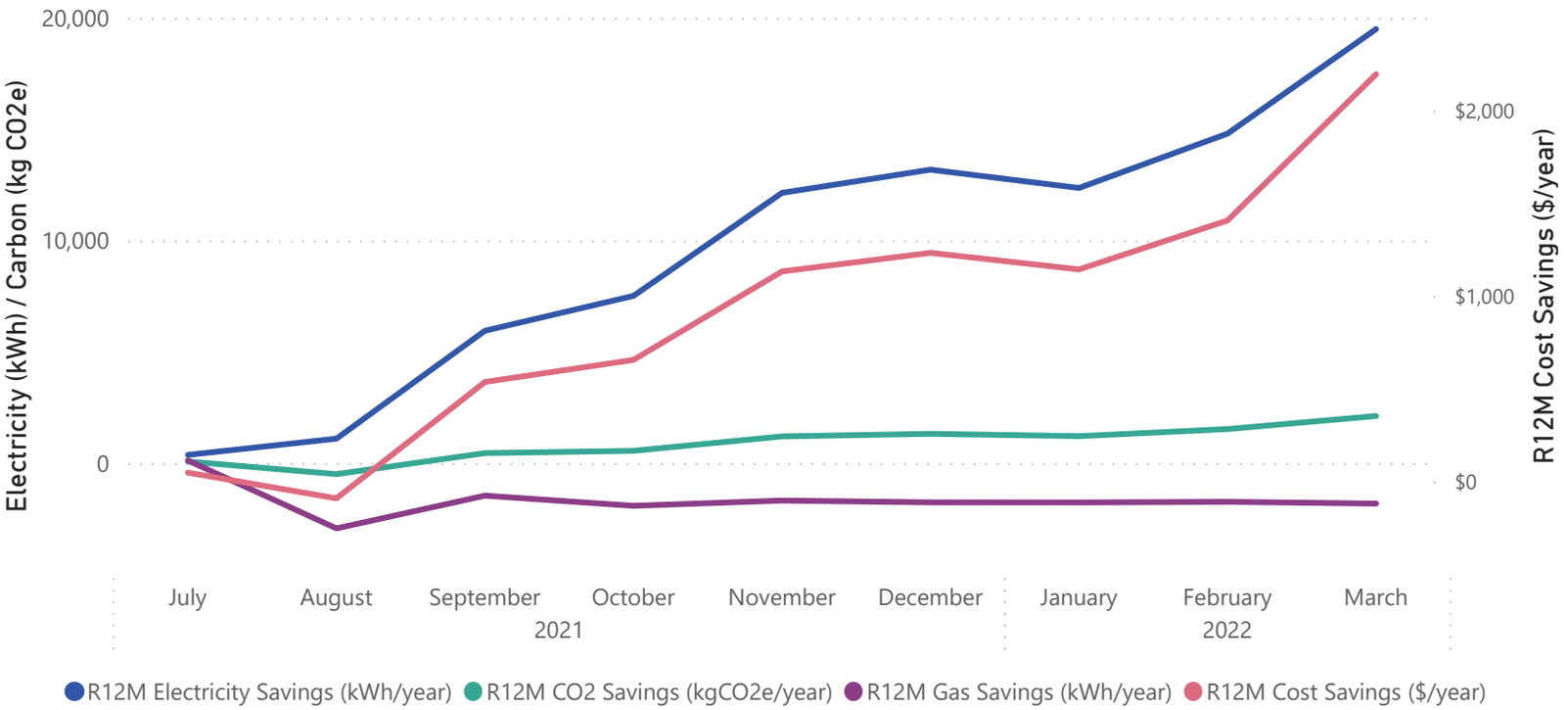
Whakatane District Council

War Memorial Hall

War Memorial Hall Energy Use Index by Month Compared to Rolling 12-Month Values



War Memorial Hall Rolling 12 Month Savings



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March 2022

Whakatane District Council

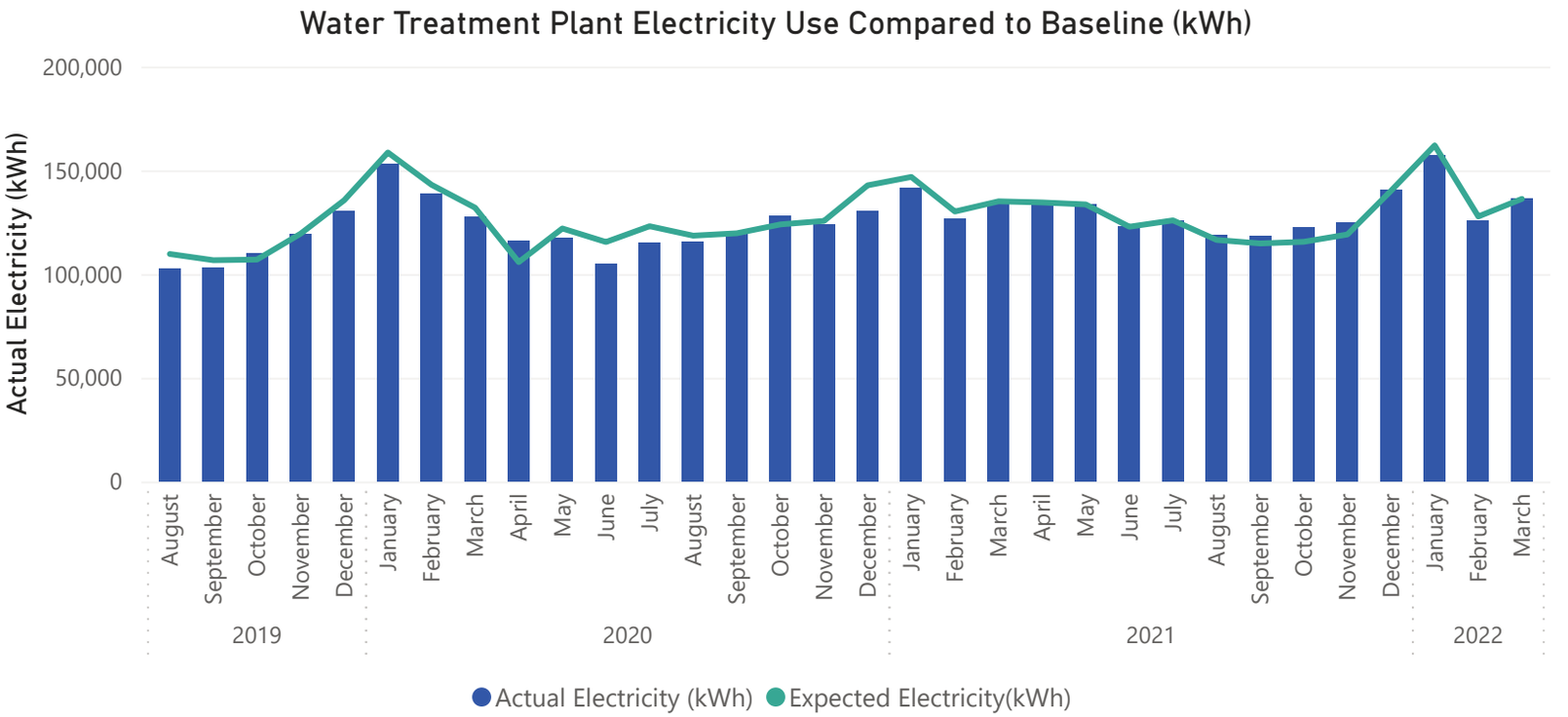
Water Treatment Plant

-$28 Monthly Energy Cost Savings	-137 Elec. Savings (kWh/mo)	-0% Elec. Savings (%)	-13,187 R12M Electricity Savings (kWh/yr)	-18 CO2e Savings (kg/mo)
-$1,282 R12M Energy Cost Savings				-1,697 R12M CO2e Savings (kg/yr)

Comments:

Daily demand for water (m^3/day) decreased from February to March. Electricity use was close to expected and the EUI is close to the average over the past 12 months, which demonstrates consistent process control.

Marginal cost of electricity for the WTP has increased by approximately 80% compared to March 2021, due to new contract rates.



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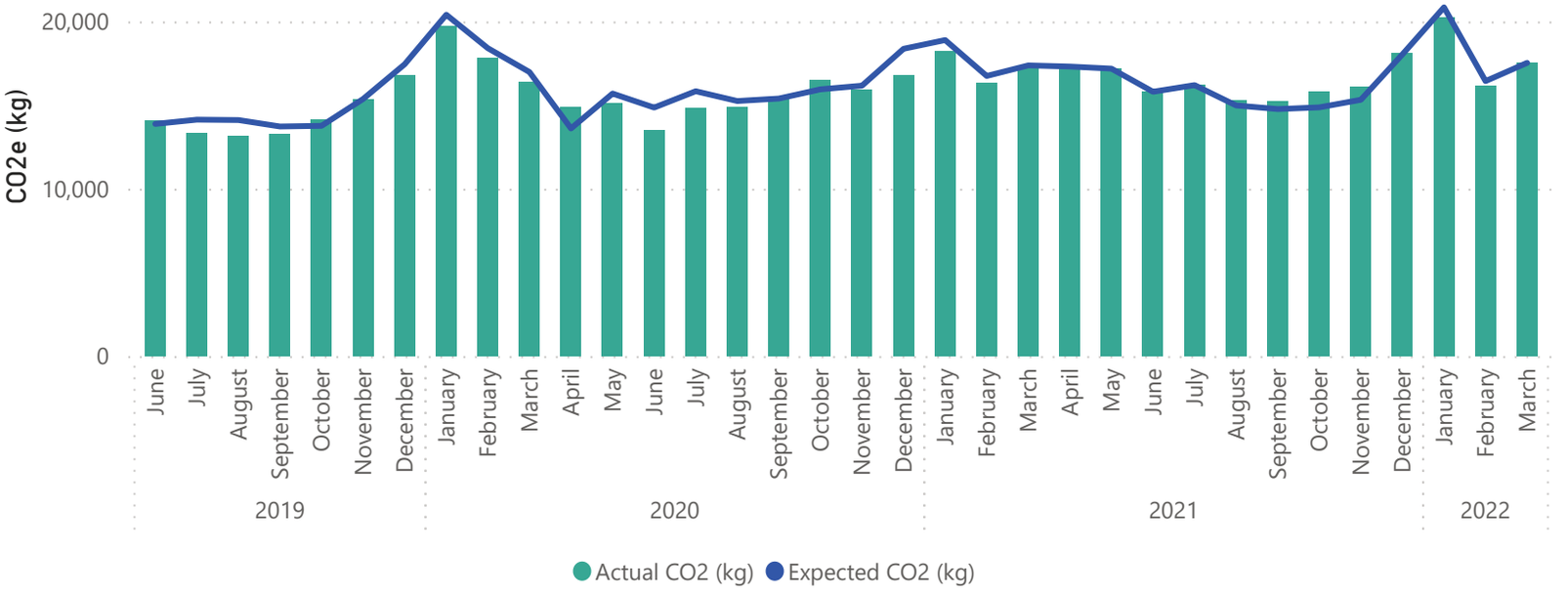
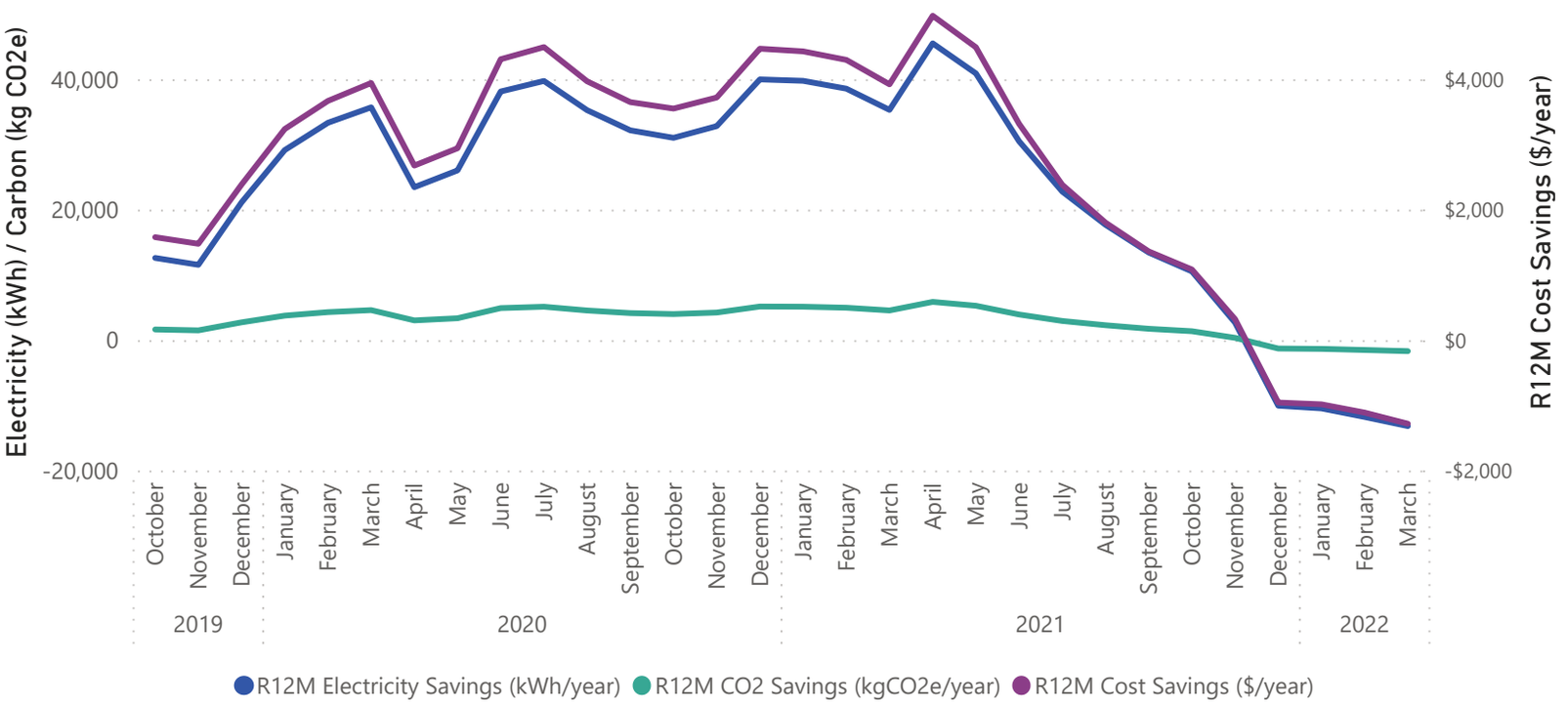
Whakatane District Council

Water Treatment Plant

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



Water Treatment Plant Rolling 12 Month Savings



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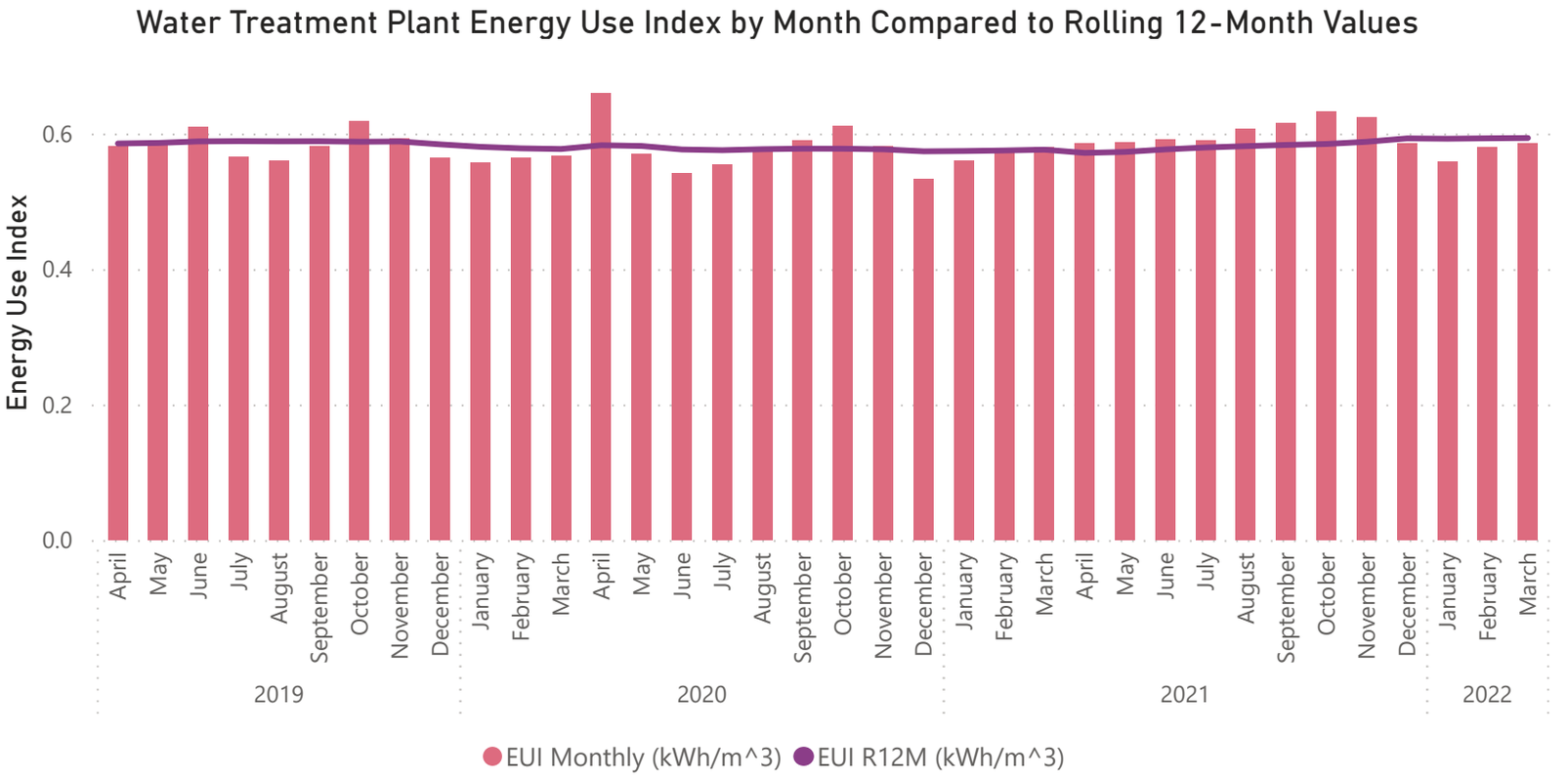
Whakatane District Council

Water Treatment Plant



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March 2022

Whakatane District Council

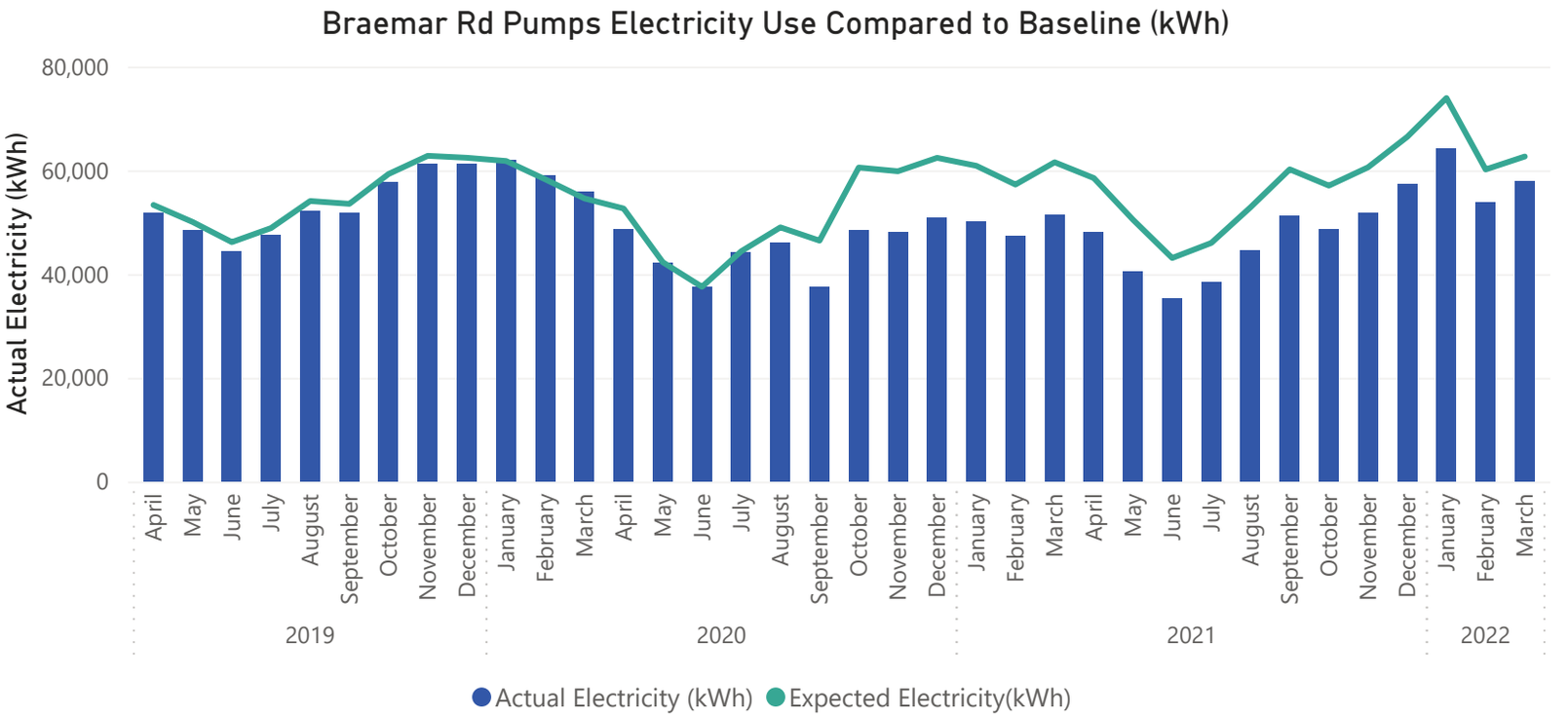
Braemar Road Pump Station

$985 Monthly Energy Cost Savings	4,797 Elec. Savings (kWh/mo)	8% Elec. Savings (%)	99,944 R12M Electricity Savings (kWh/yr)	621 CO2e Savings (kg/mo)
$11,248 R12M Energy Cost Savings				13,278 R12M CO2e Savings (kg/yr)

Comments:

Continued savings from high efficiency pumps and motors, installed September 2020. However, the relative savings have decreased for March 2022. The EUI has increased by 12% over March 2021, 12% more energy is being used to pump each cubic meter of water.

Marginal cost of electricity for Braemar Road Pump Station has increased by approximately 74% compared to March 2021, due to new contract rates.



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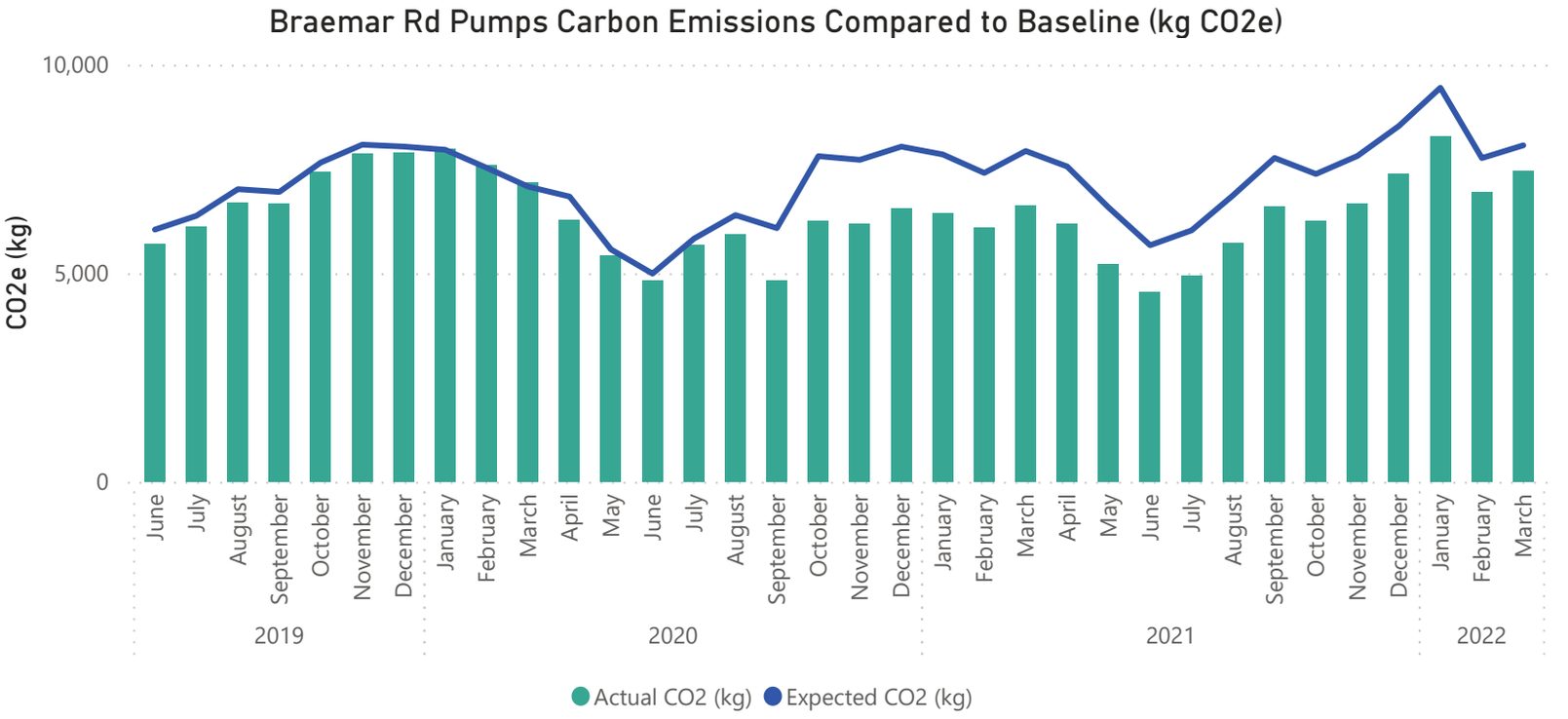
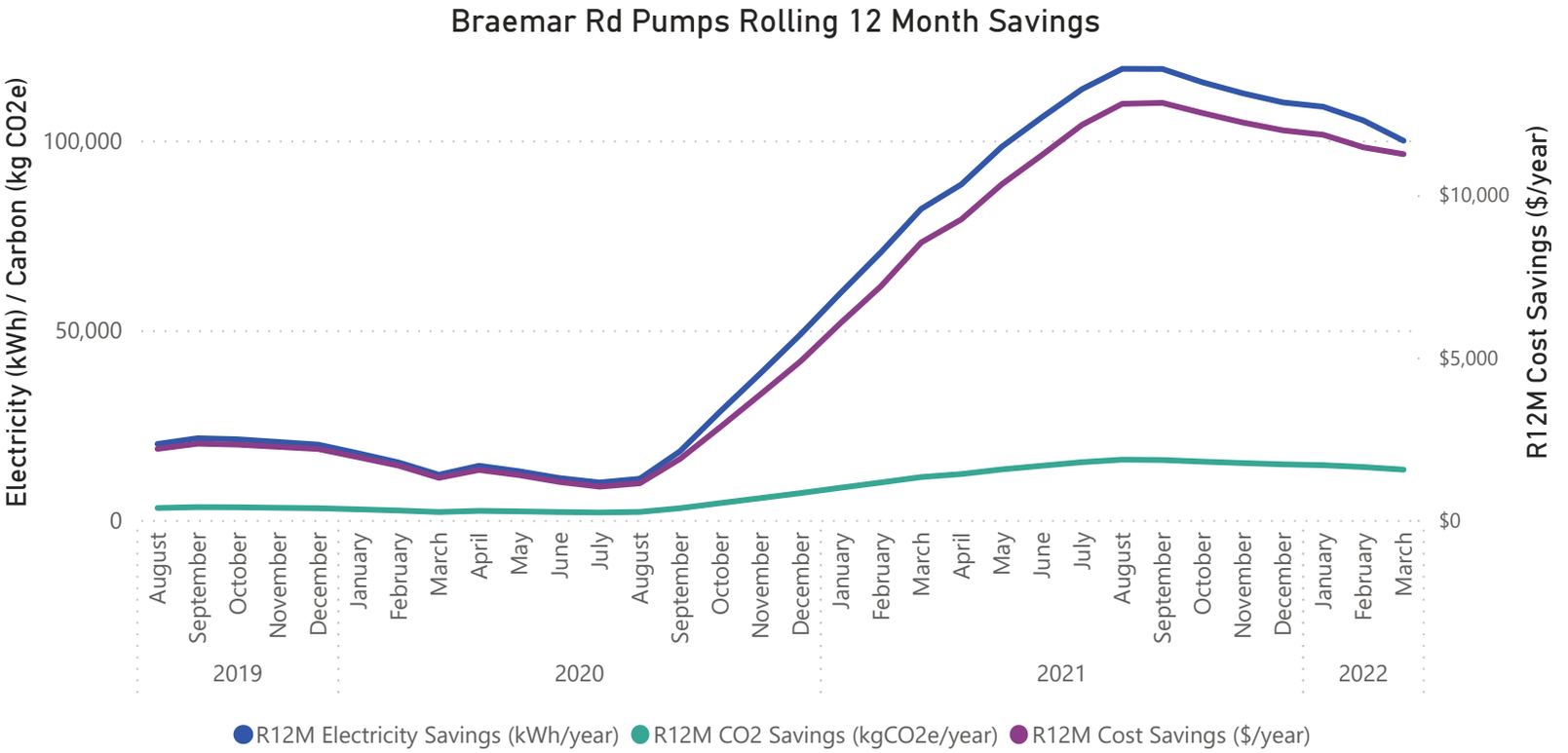
Whakatane District Council

Braemar Road Pump Station





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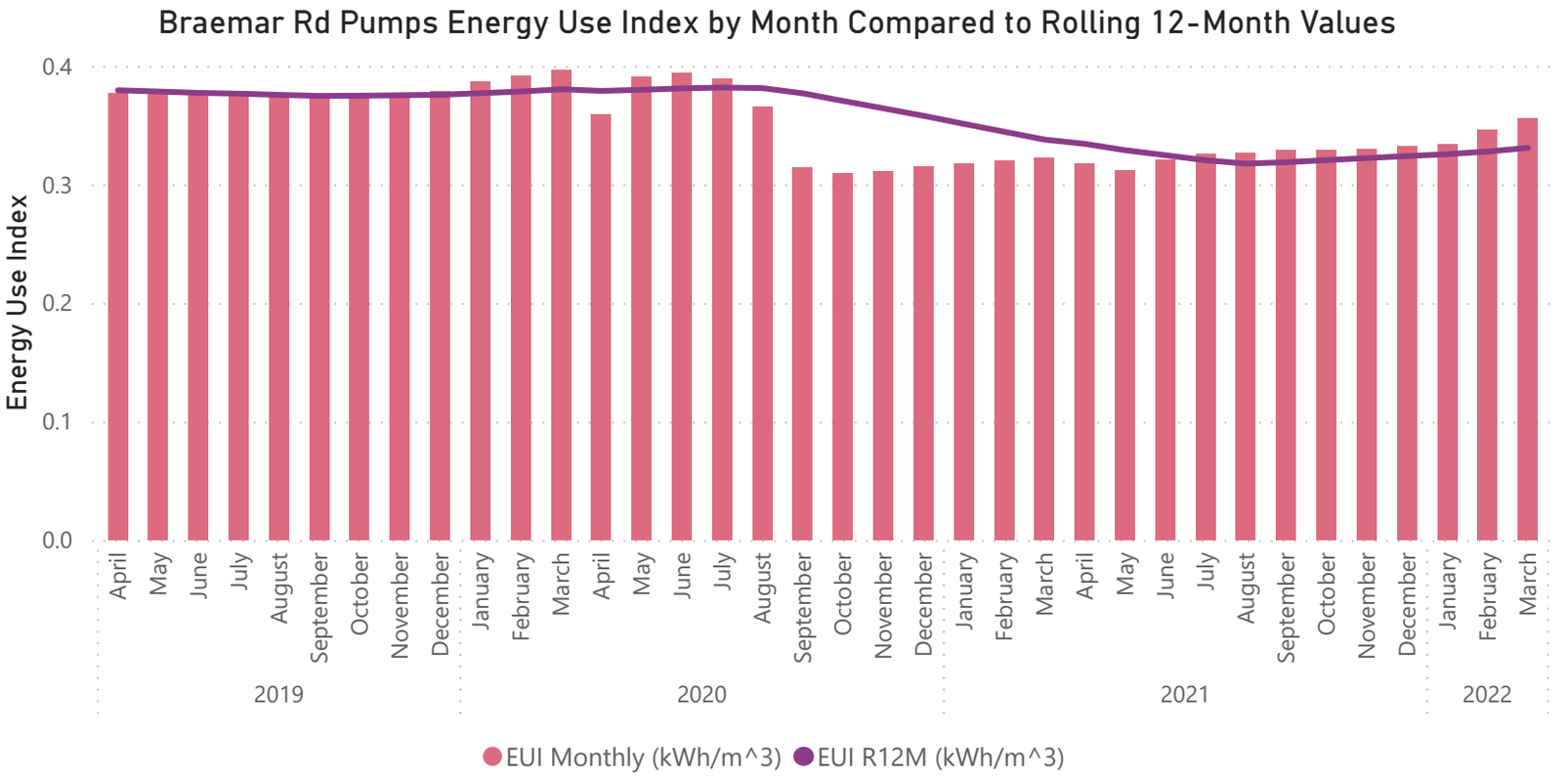
Whakatane District Council

Braemar Road Pump Station



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March 2022

Whakatane District Council

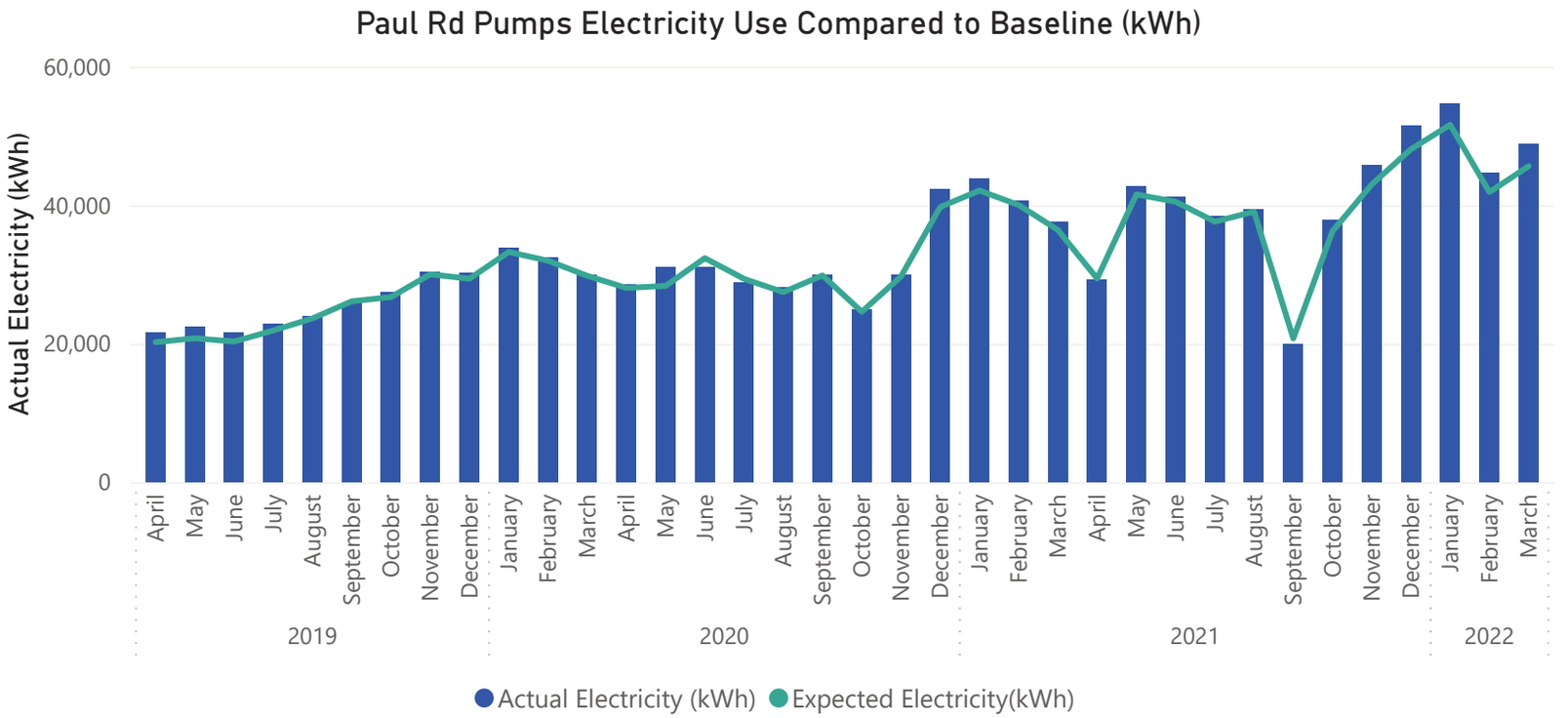
Paul Road Pump Station

-$655 Monthly Energy Cost Savings	-3,184 Elec. Savings (kWh/mo)	-7% Elec. Savings (%)	-18,920 R12M Electricity Savings (kWh/yr)	-409 CO2e Savings (kg/mo)
-$2,297 R12M Energy Cost Savings				-2,424 R12M CO2e Savings (kg/yr)

Comments:

Demand decreased relative to previous months (m^3/day), however the EUI has increased. A general trend can be observed that months of high demand typically use more electricity than expected. This may indicate that the pump is operating outside its optimum efficiency range.

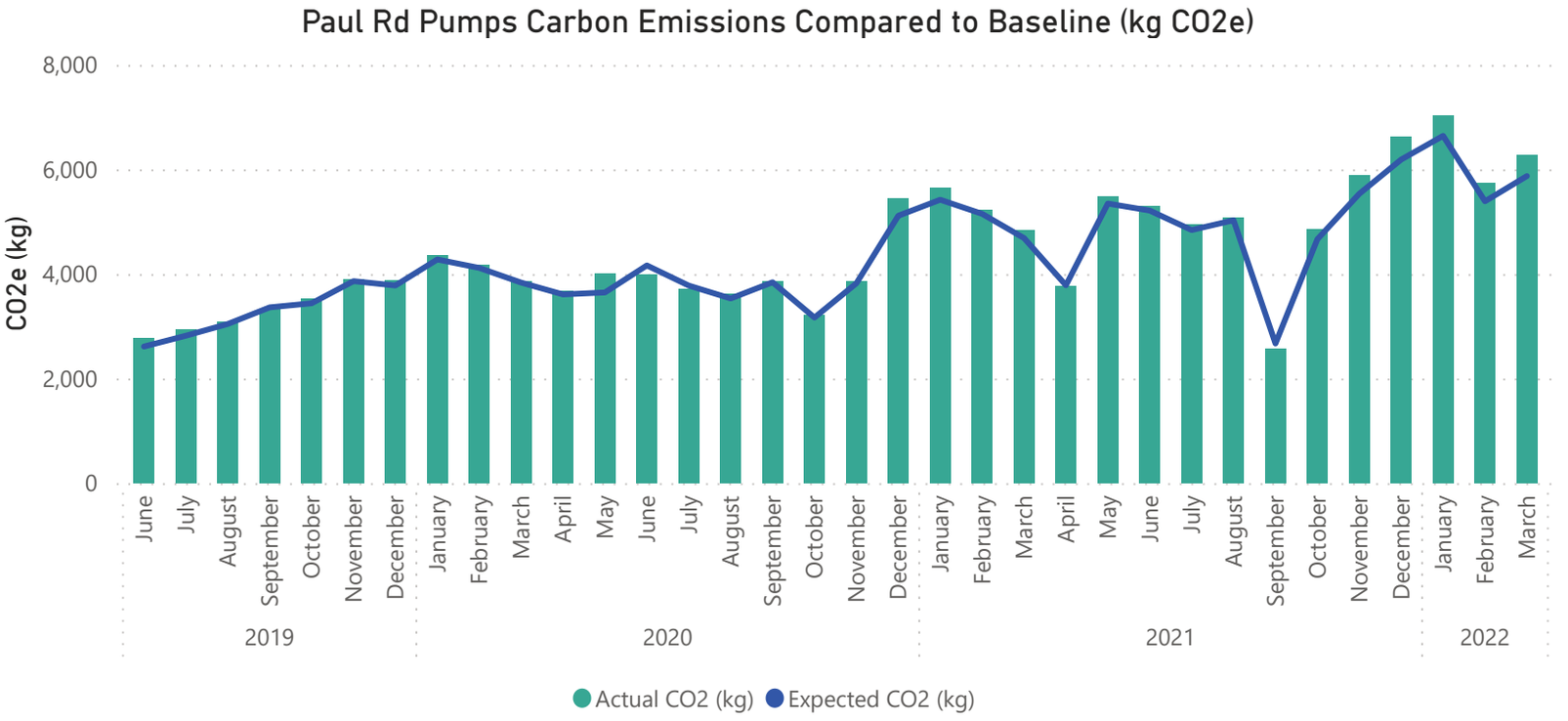
Marginal cost of electricity for Paul Road Pump Station has increased by approximately 80% compared to March 2021, due to new contract rates.

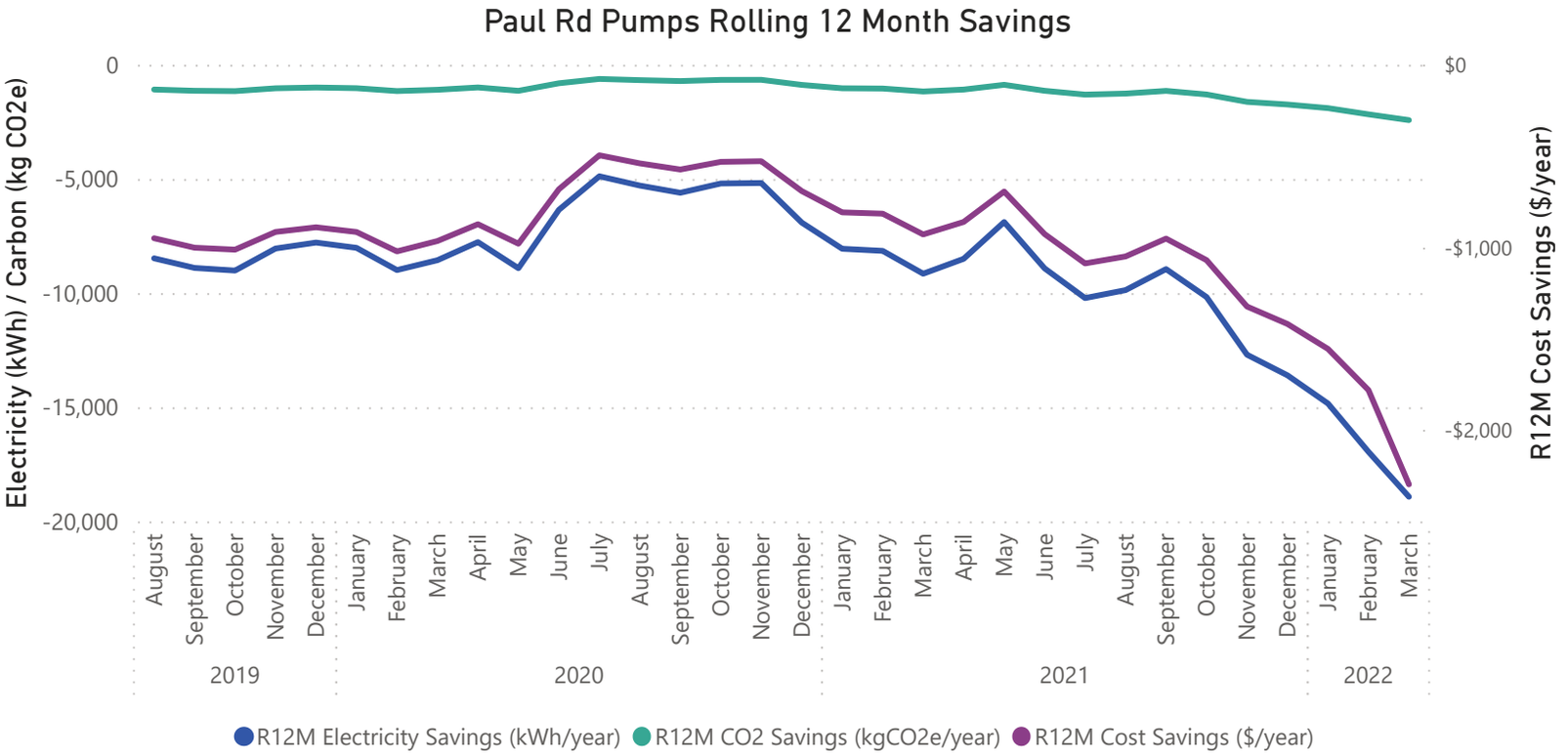


Note: New Zealand was in Covid-19 alert levels 3 and 4 from 23 March until 12 May, 2020. Energy use may have been impacted during this time

Whakatane District Council

Paul Road Pump Station





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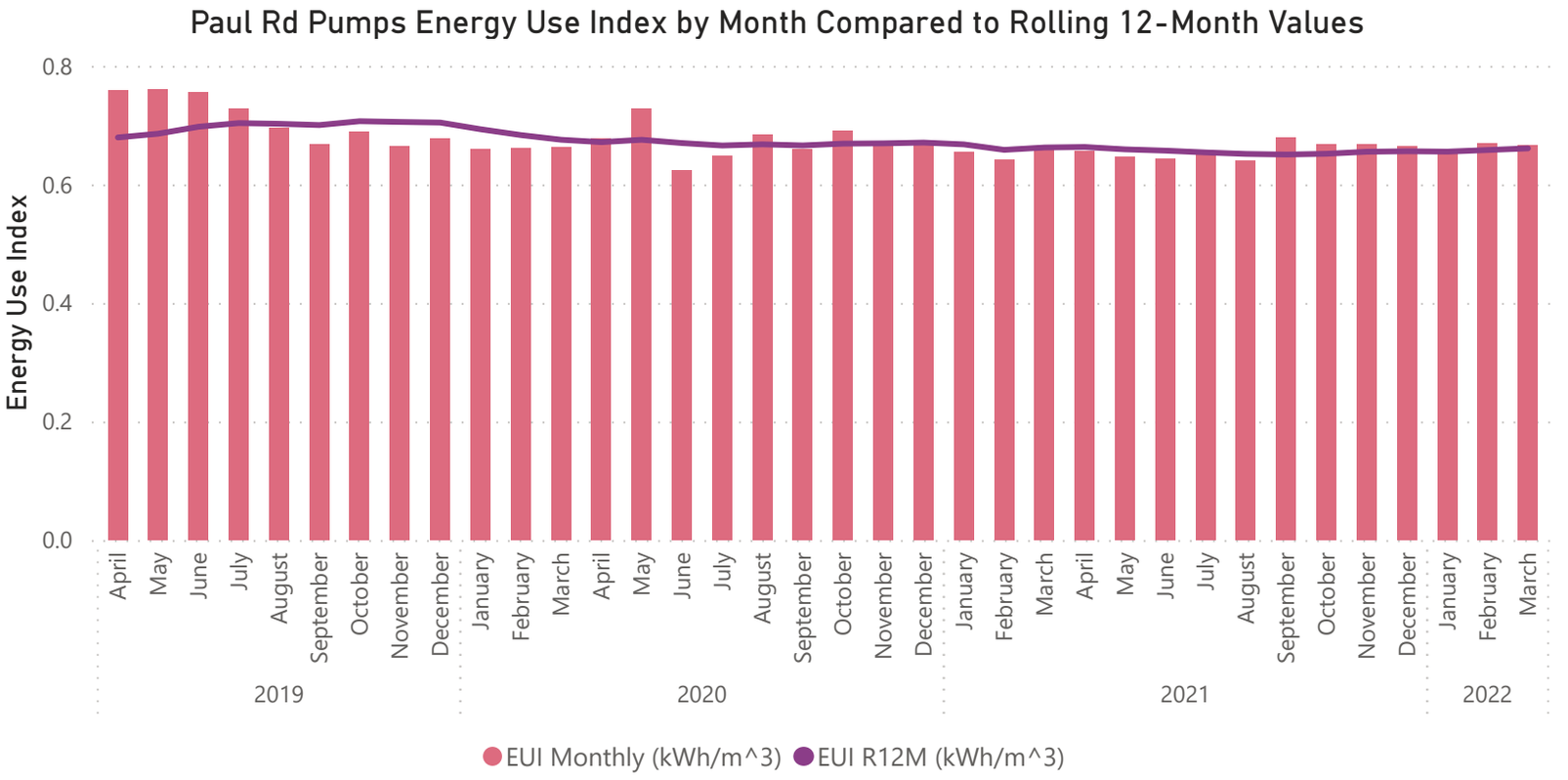
Whakatane District Council

Paul Road Pump Station



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March 2022

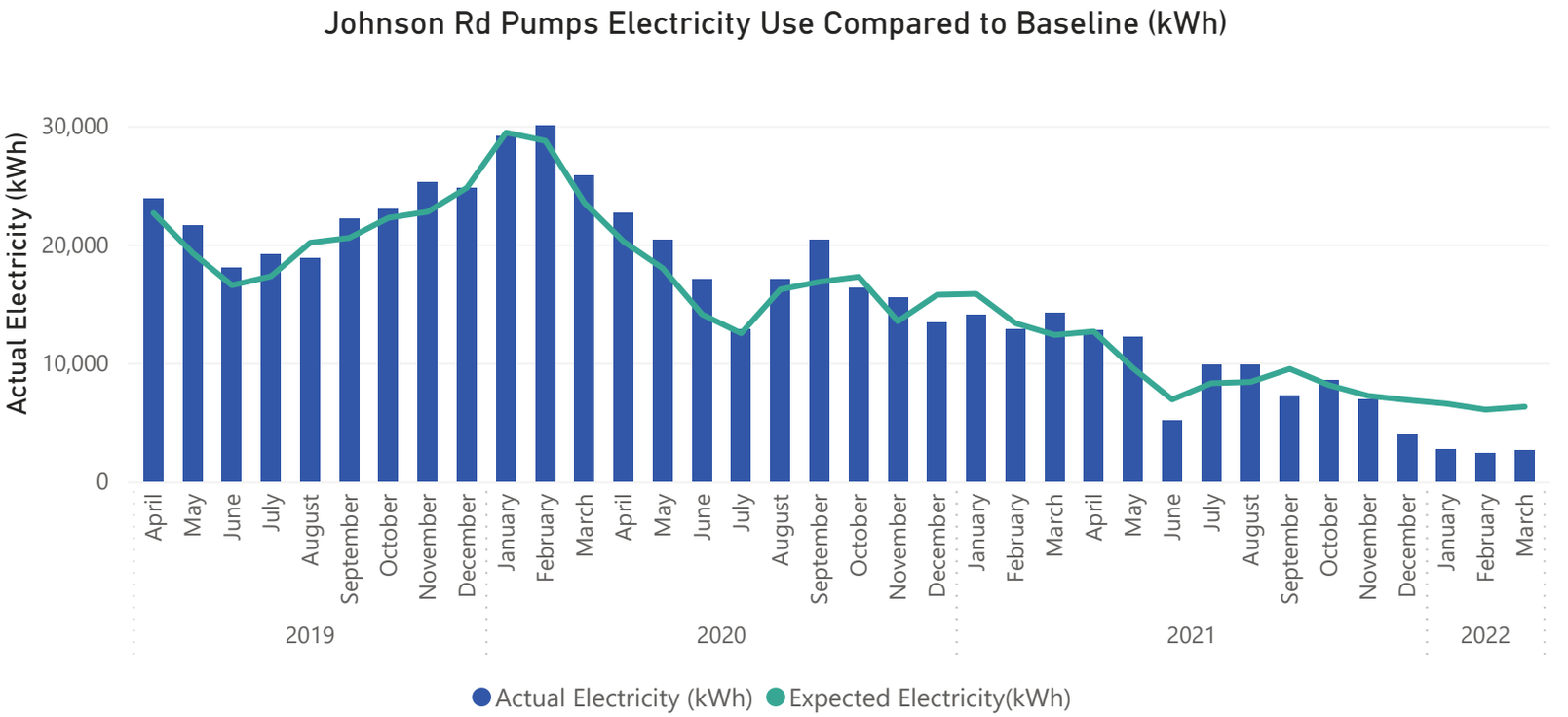
Whakatane District Council

Johnson Road Pump Station

$808 Monthly Energy Cost Savings	3,664 Elec. Savings (kWh/mo)	58% Elec. Savings (%)	12,017 R12M Electricity Savings (kWh/yr)	472 CO2e Savings (kg/mo)
$2,650 R12M Energy Cost Savings				1,549 R12M CO2e Savings (kg/yr)

Comments:

The pumps at Johnson Rd have been used less than previous years. 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.



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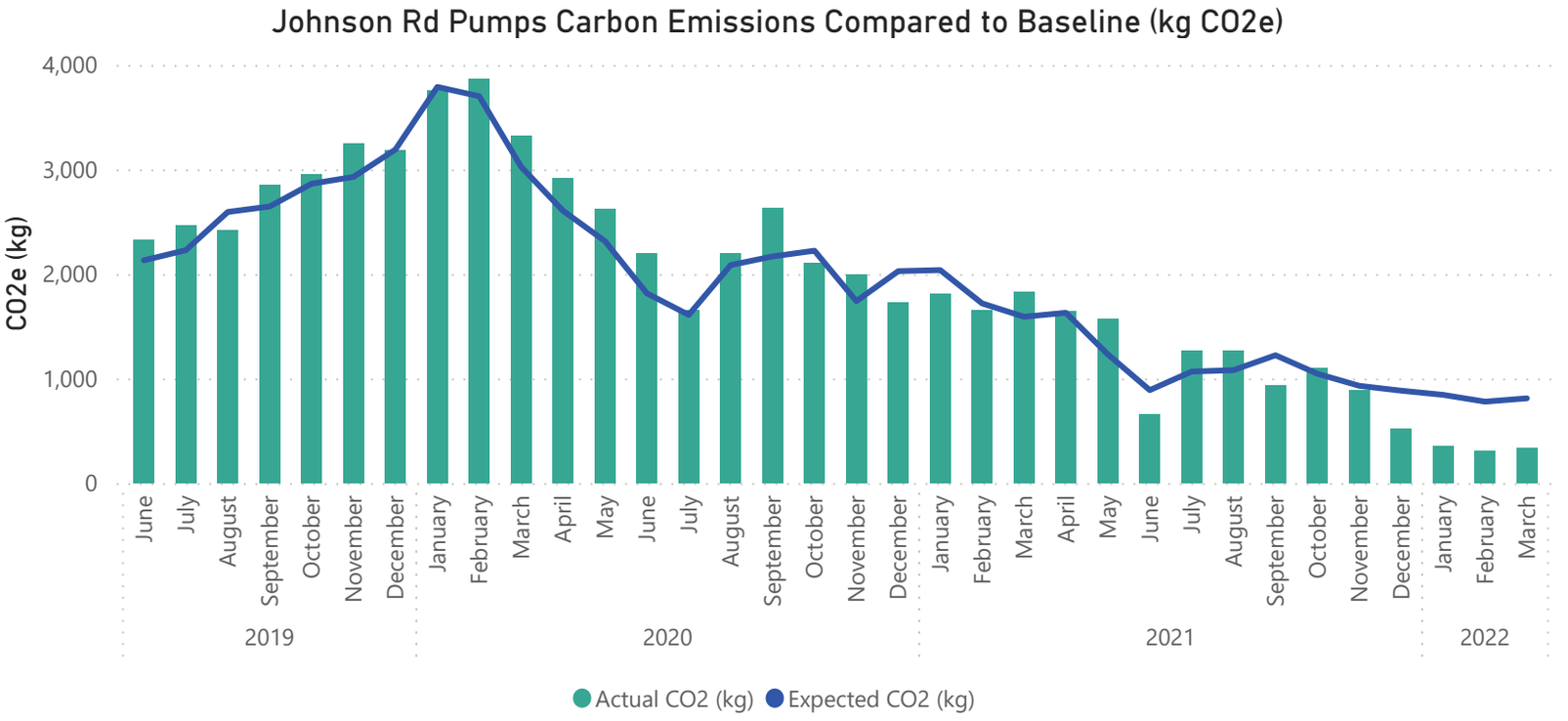
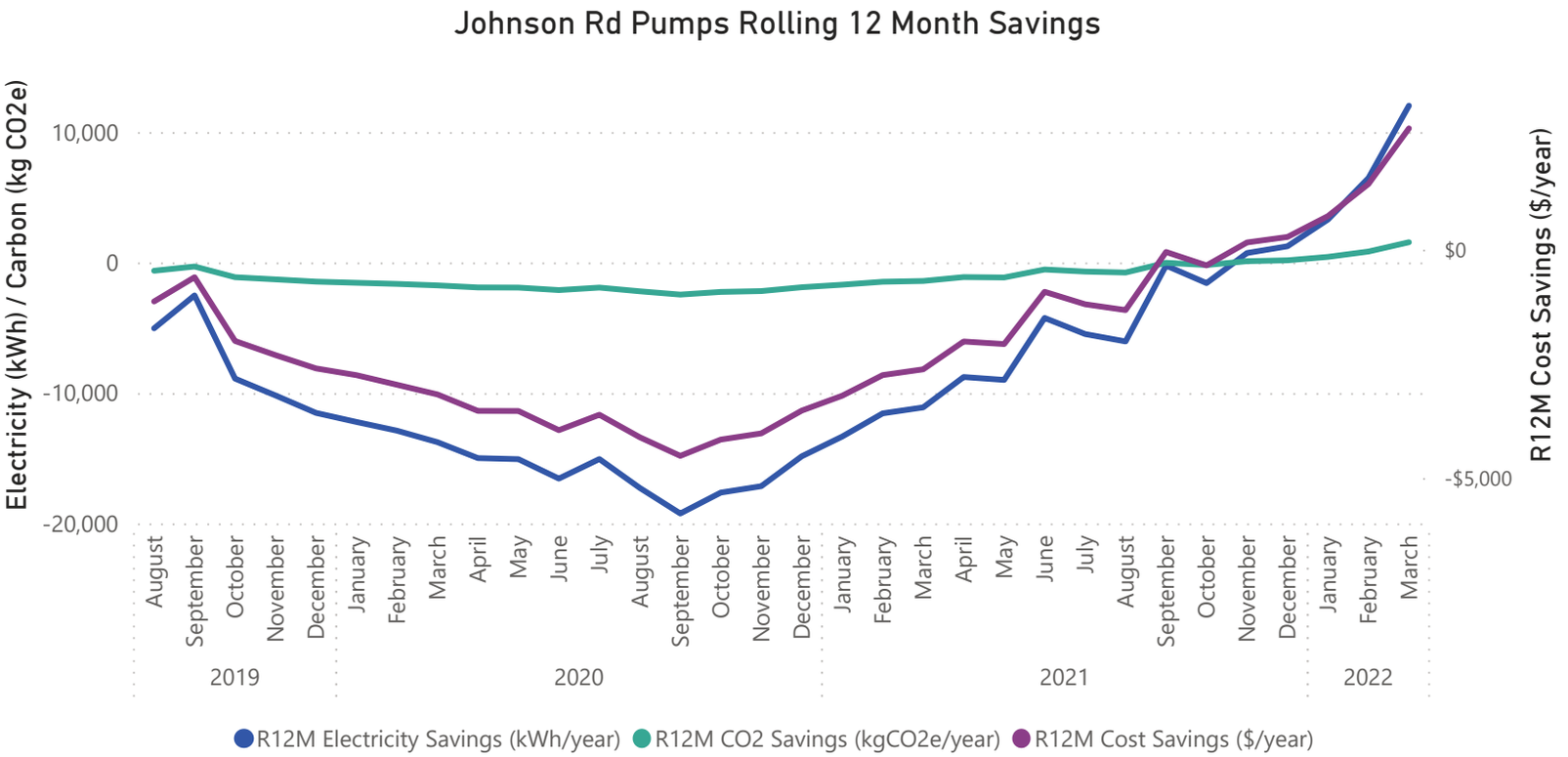
Whakatane District Council

Johnson Road Pump Station





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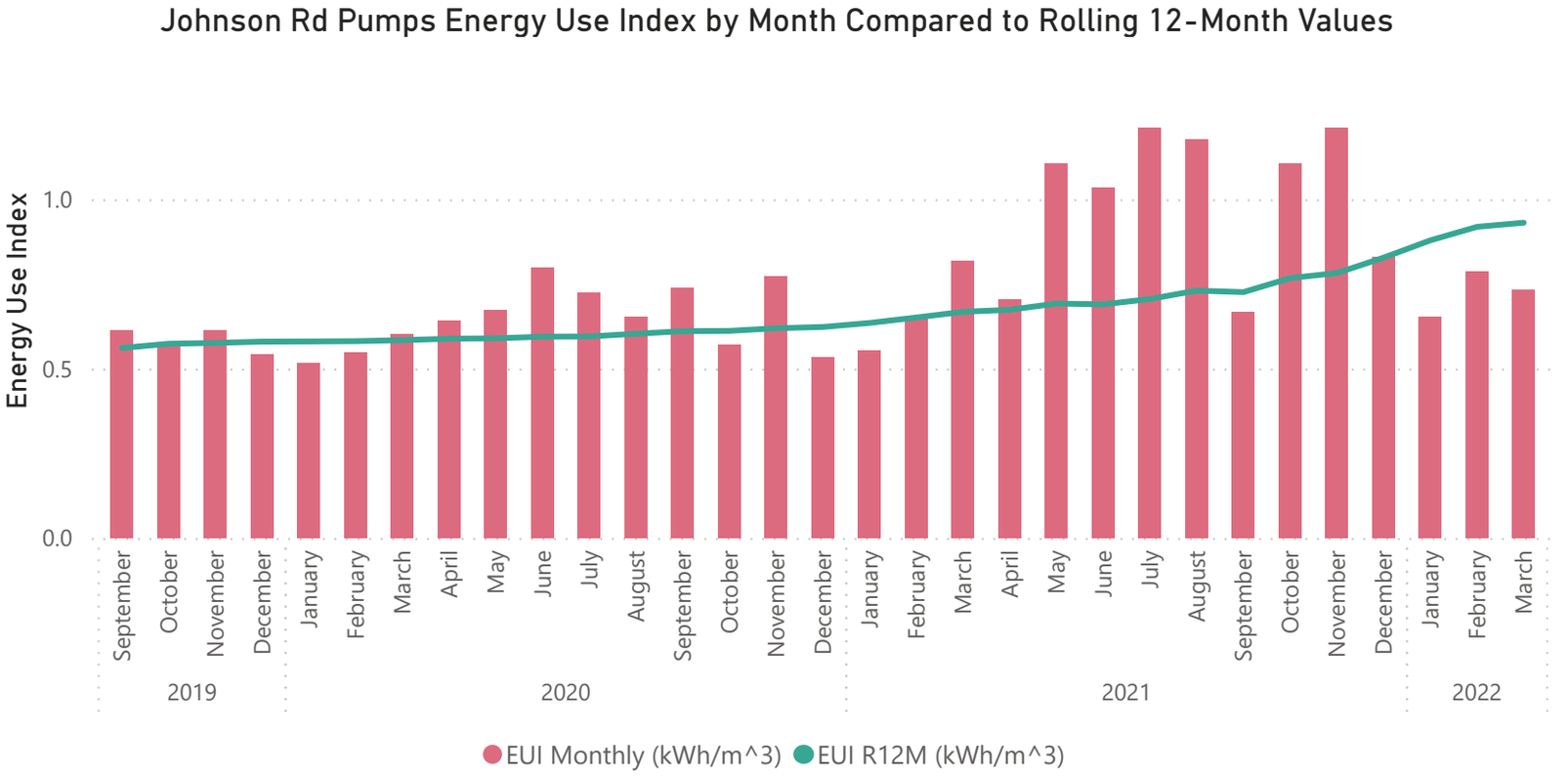
Whakatane District Council

Johnson Road Pump Station



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March 2022

Whakatane District Council

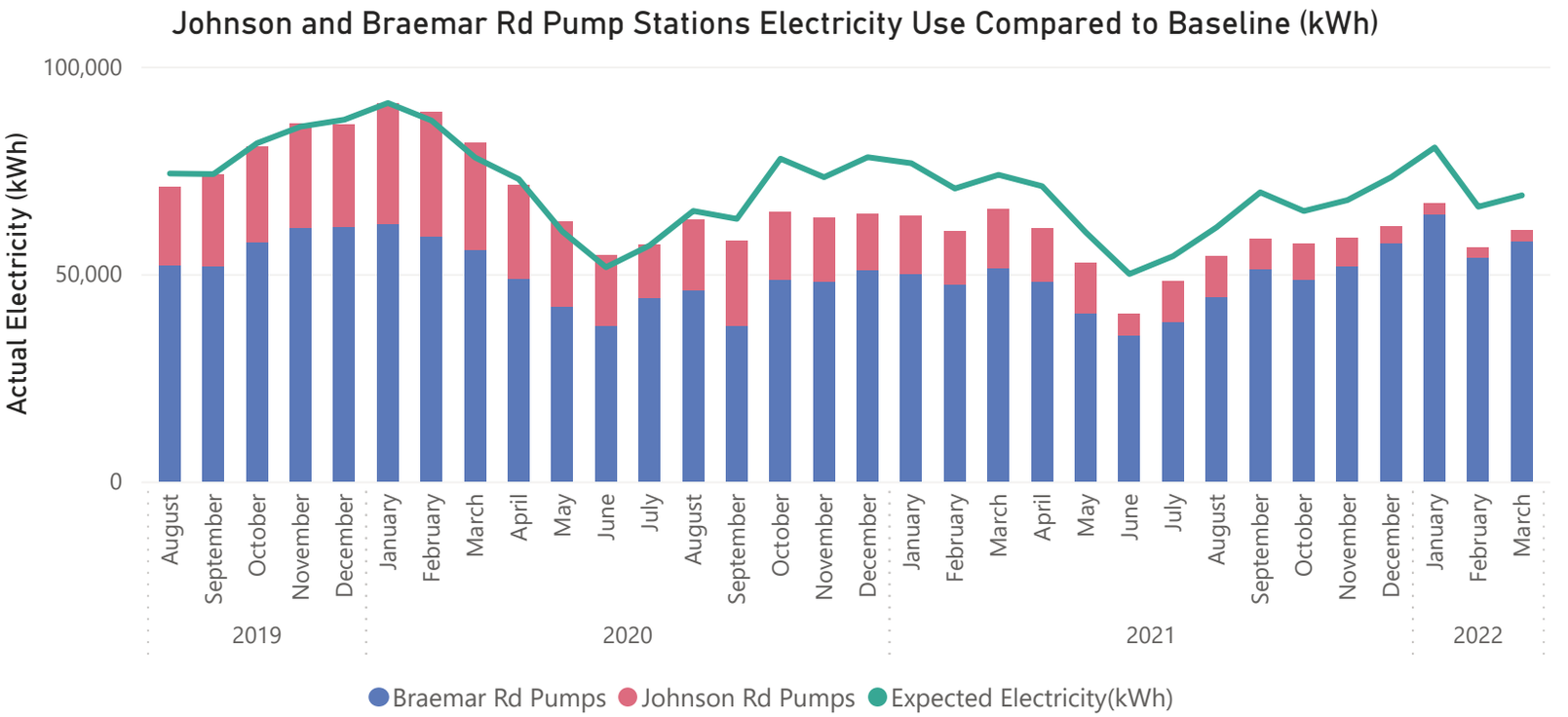
Johnson and Braemar Rd Pump Stations

$1,793 Monthly Energy Cost Savings	8,461 Elec. Savings (kWh/mo)	12% Elec. Savings (%)	111,962 R12M Electricity Savings (kWh/yr)	1,092 CO2e Savings (kg/mo)
$13,898 R12M Energy Cost Savings				14,827 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 Rd and Braemar Rd pump stations both achieved savings independently from one another. When viewed as a network of pumps, savings achieved over the past year are consistent: in recent months Johnson Rd has generated more savings and Braemar Rd less savings.



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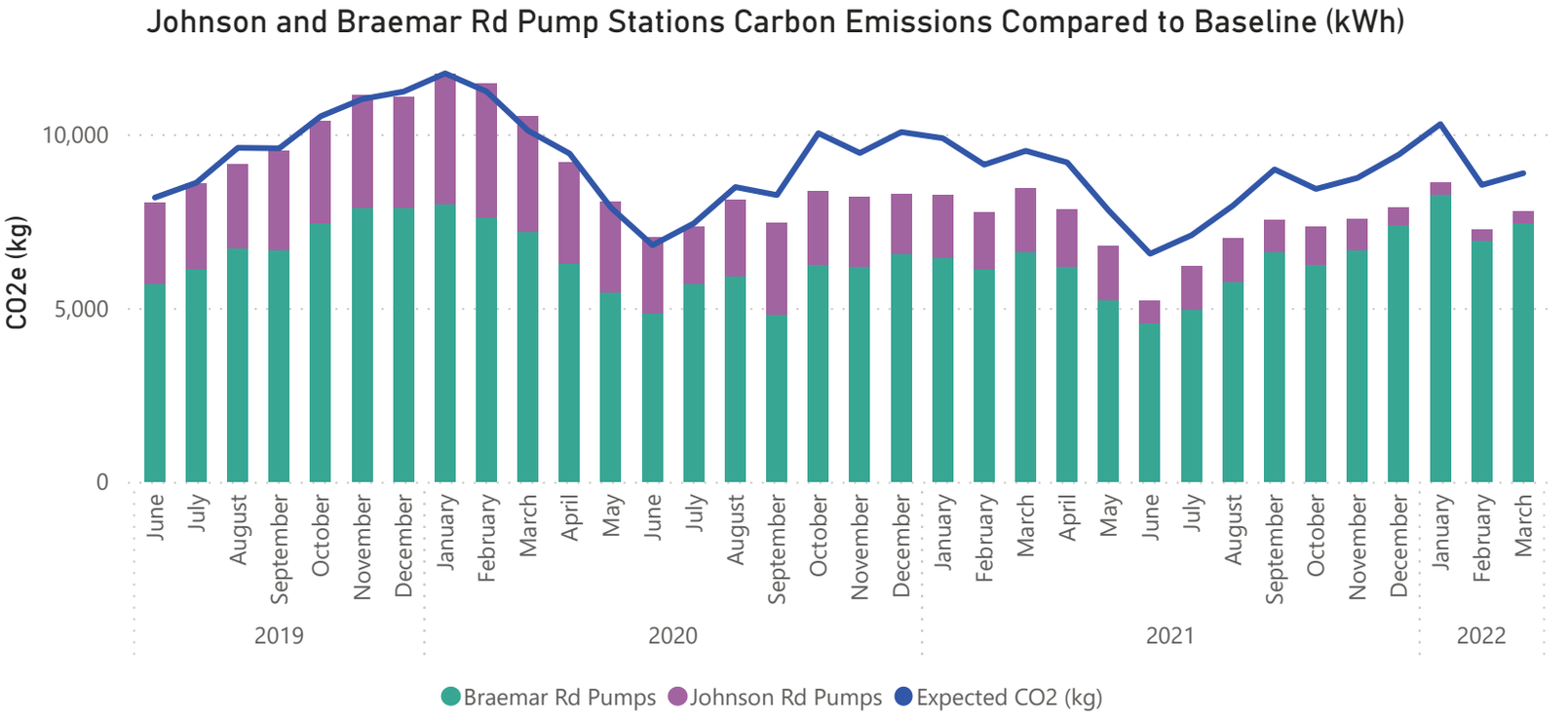
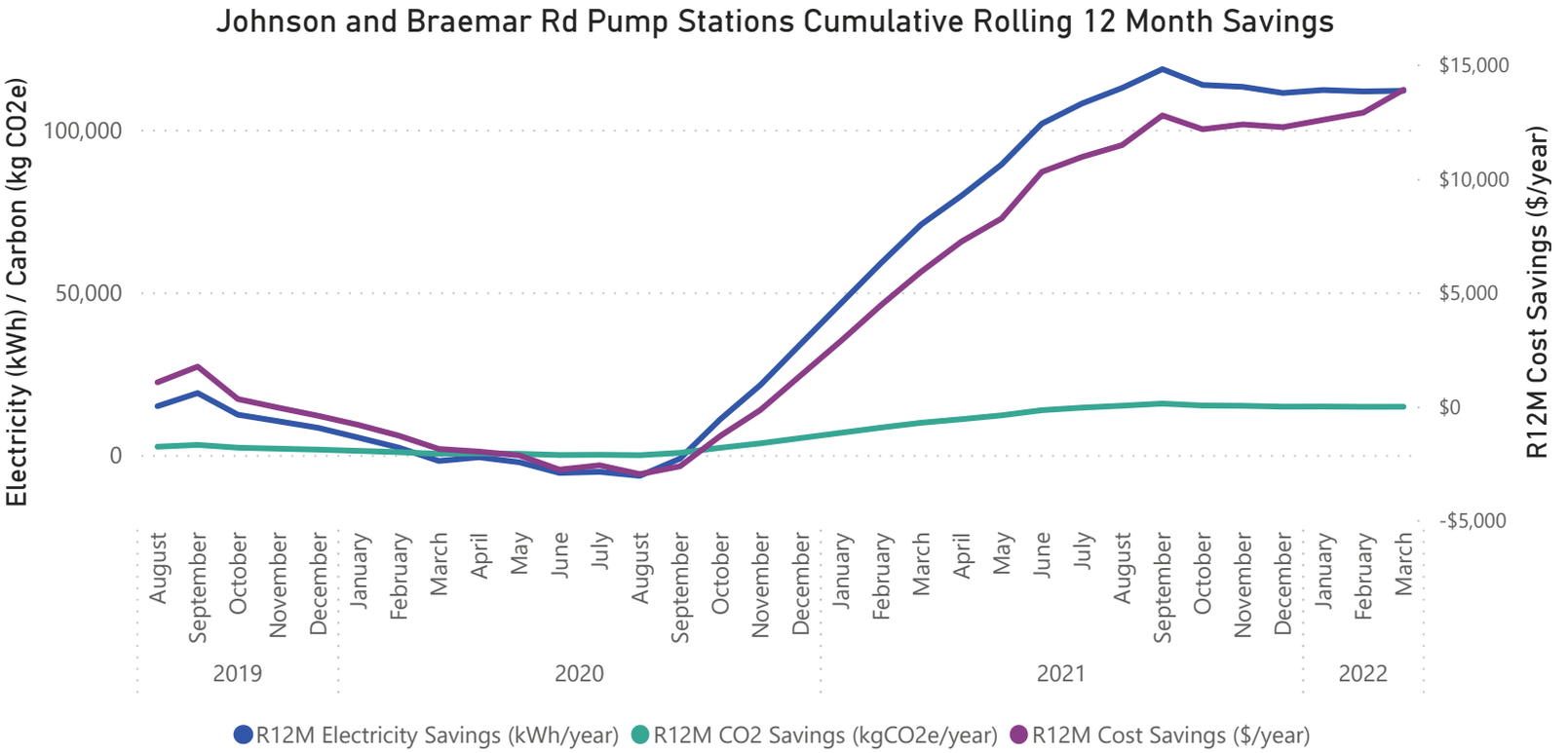
Whakatane District Council

Johnson and Braemar Rd Pump Stations





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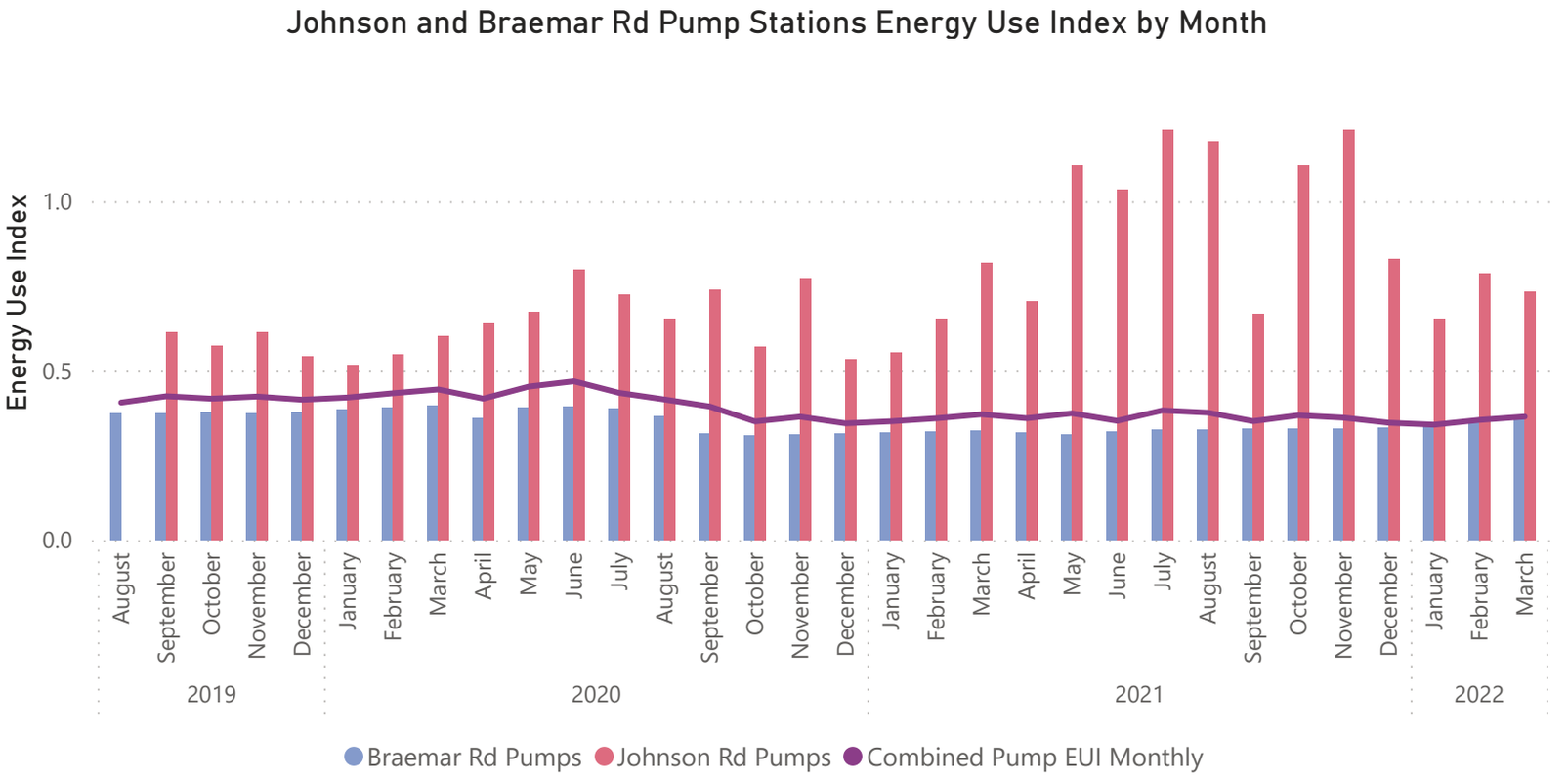
Whakatane District Council

Johnson and Braemar Rd Pump Stations



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March 2022

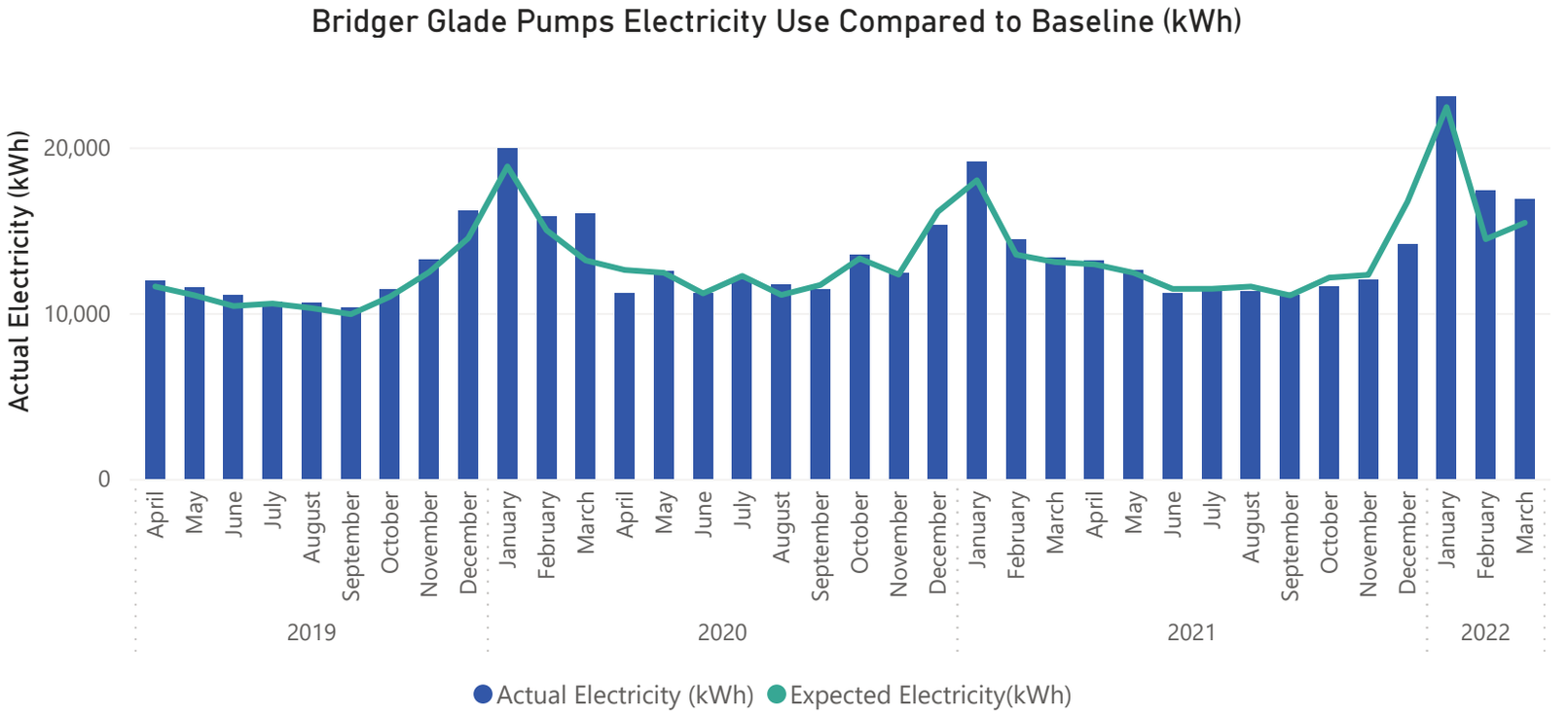
Whakatane District Council

Bridger Glade Pump Station

-$265 Monthly Energy Cost Savings	-1,445 Elec. Savings (kWh/mo)	-9% Elec. Savings (%)	-1,355 R12M Electricity Savings (kWh/yr)	-186 CO2e Savings (kg/mo)
-$248 R12M Energy Cost Savings				-174 R12M CO2e Savings (kg/yr)

Comments:

March follows January and February 2022's trend with electricity use above expected. March 2022 was a month of moderate demand, months of high demand have typically used more electricity than expected. This may indicate that during periods of high demand the pump station is operating outside of its best efficiency point.



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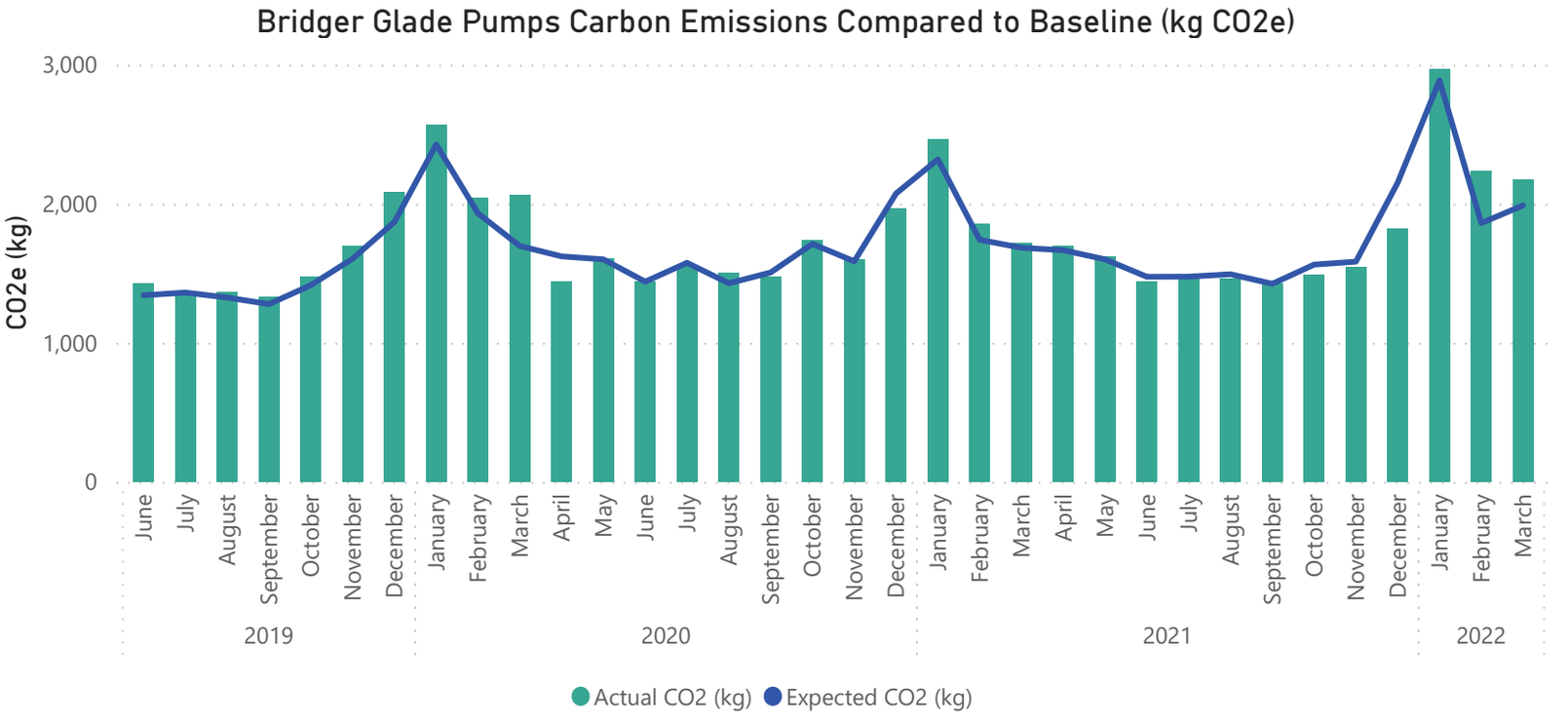
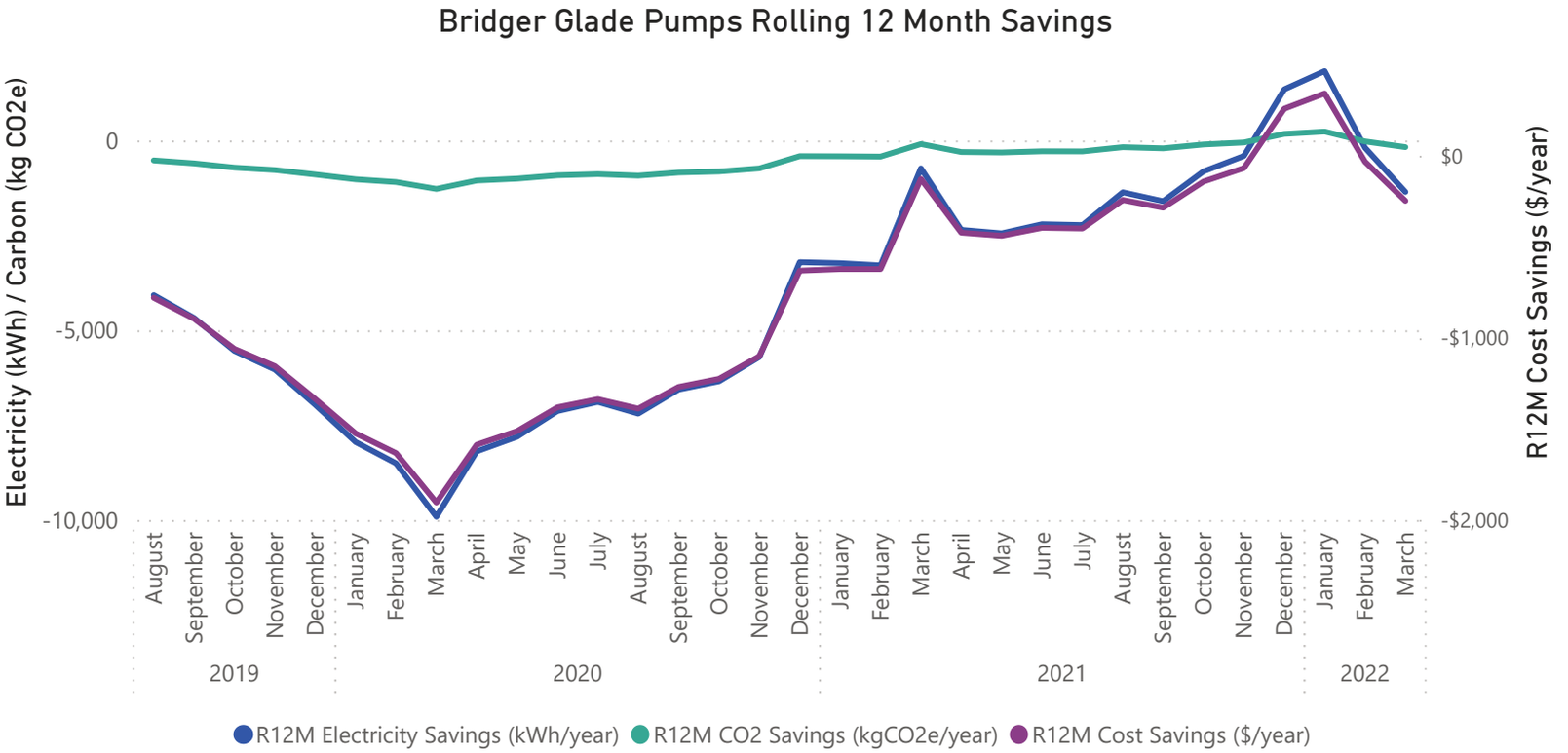
March 2022

Whakatane District Council

Bridger Glade Pump Station





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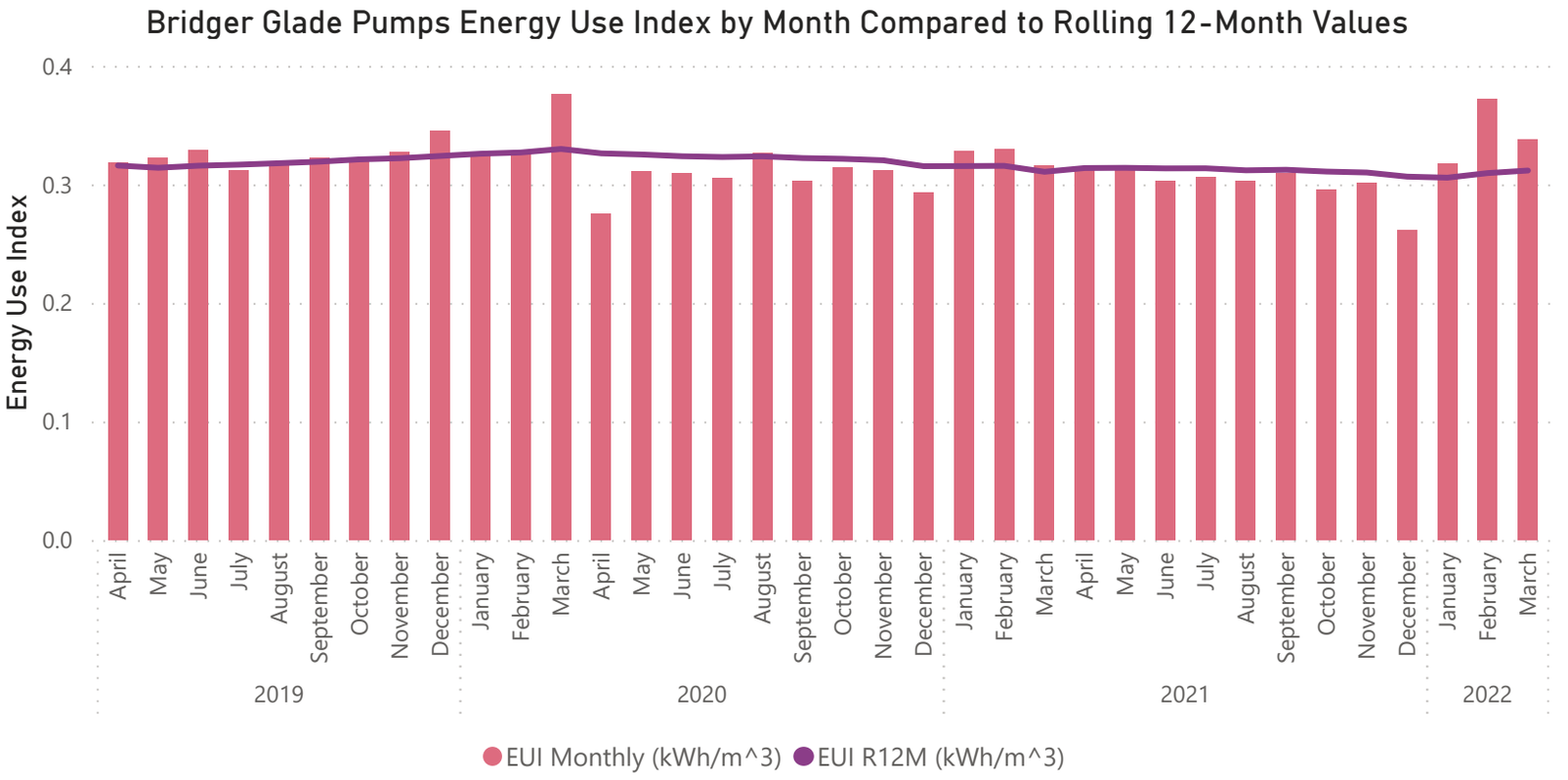
Whakatane District Council

Bridger Glade Pump Station



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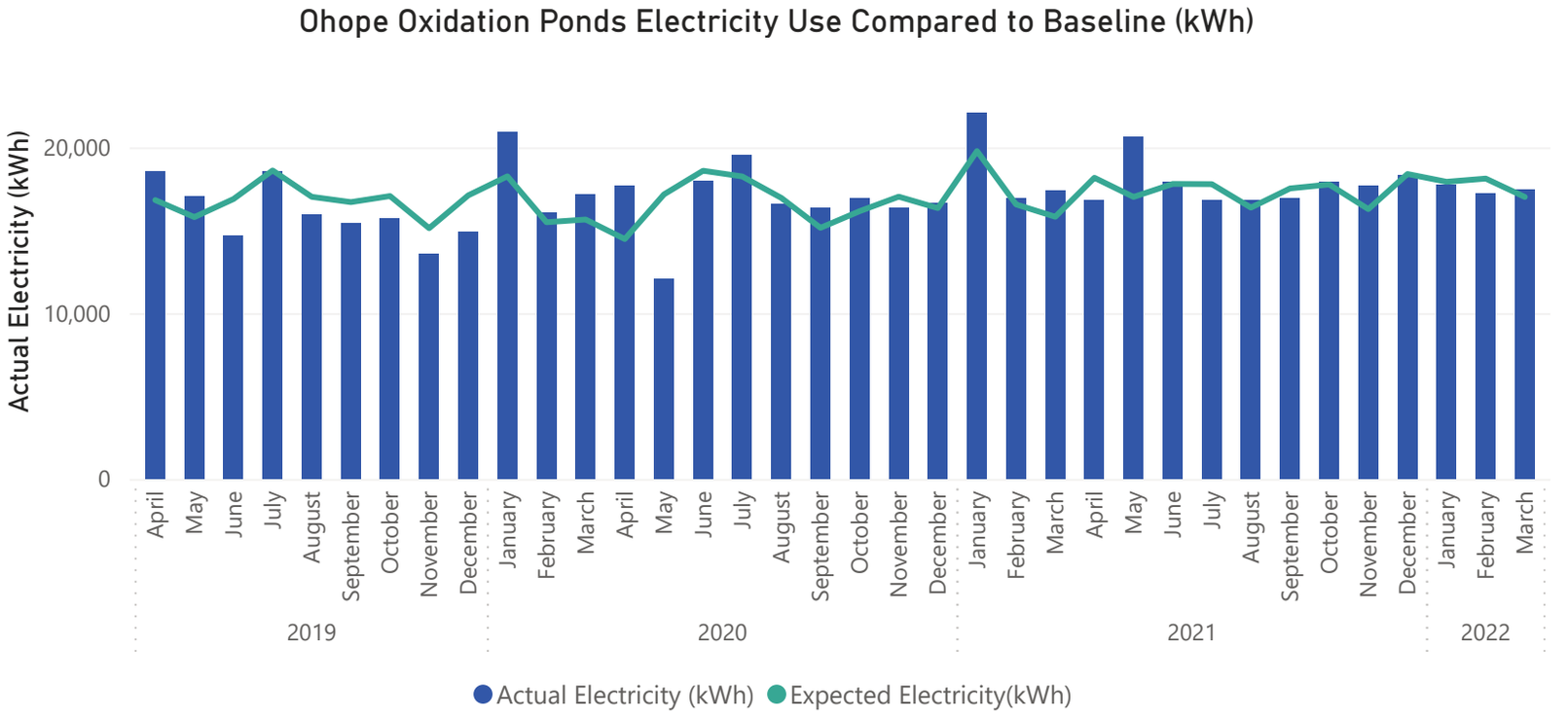
March 2022

Whakatane District Council

Ohope Oxidation Ponds

-$78	-434	-3%	-2,177	-56
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
-$399				-280
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

Comments:
Ohope oxidation pond electricity use was more than baseline in March 2022.



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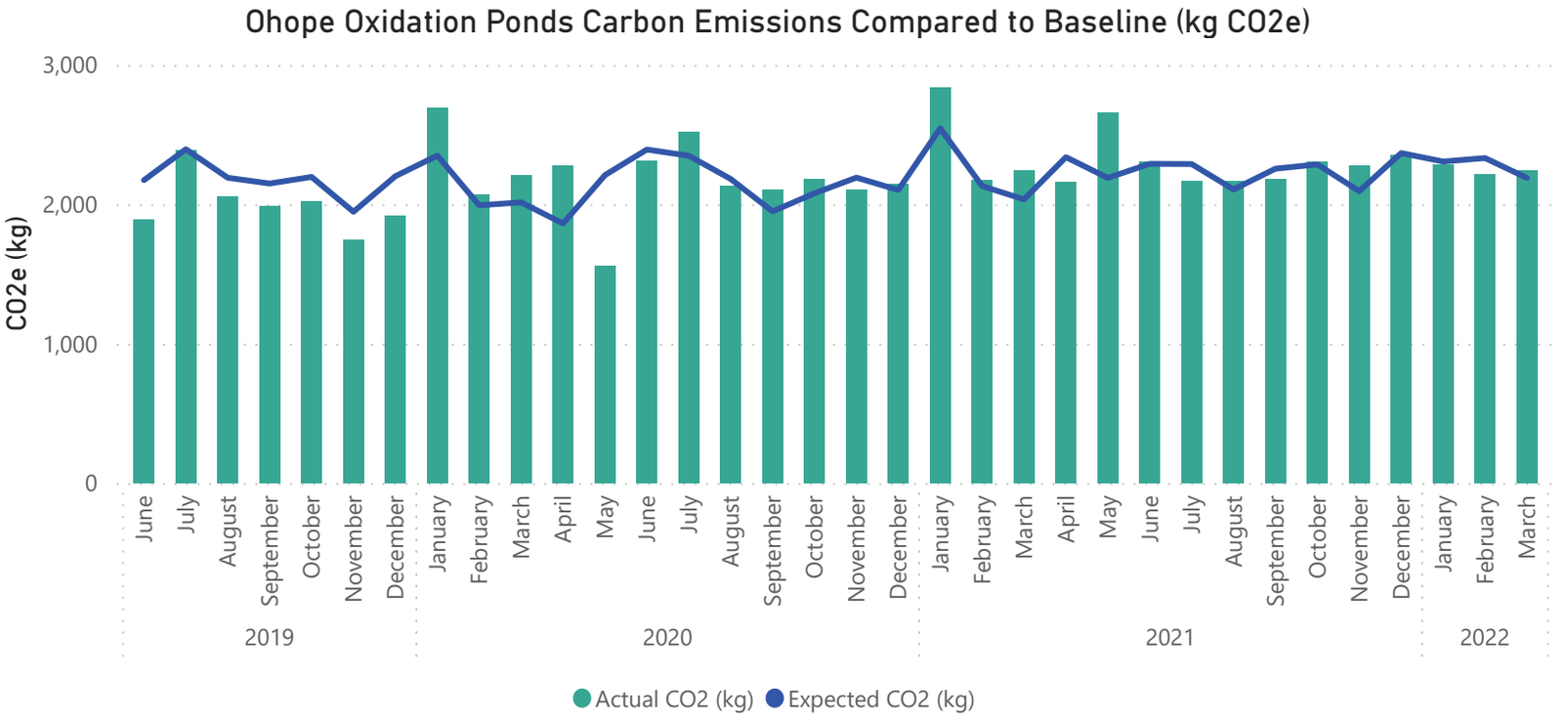
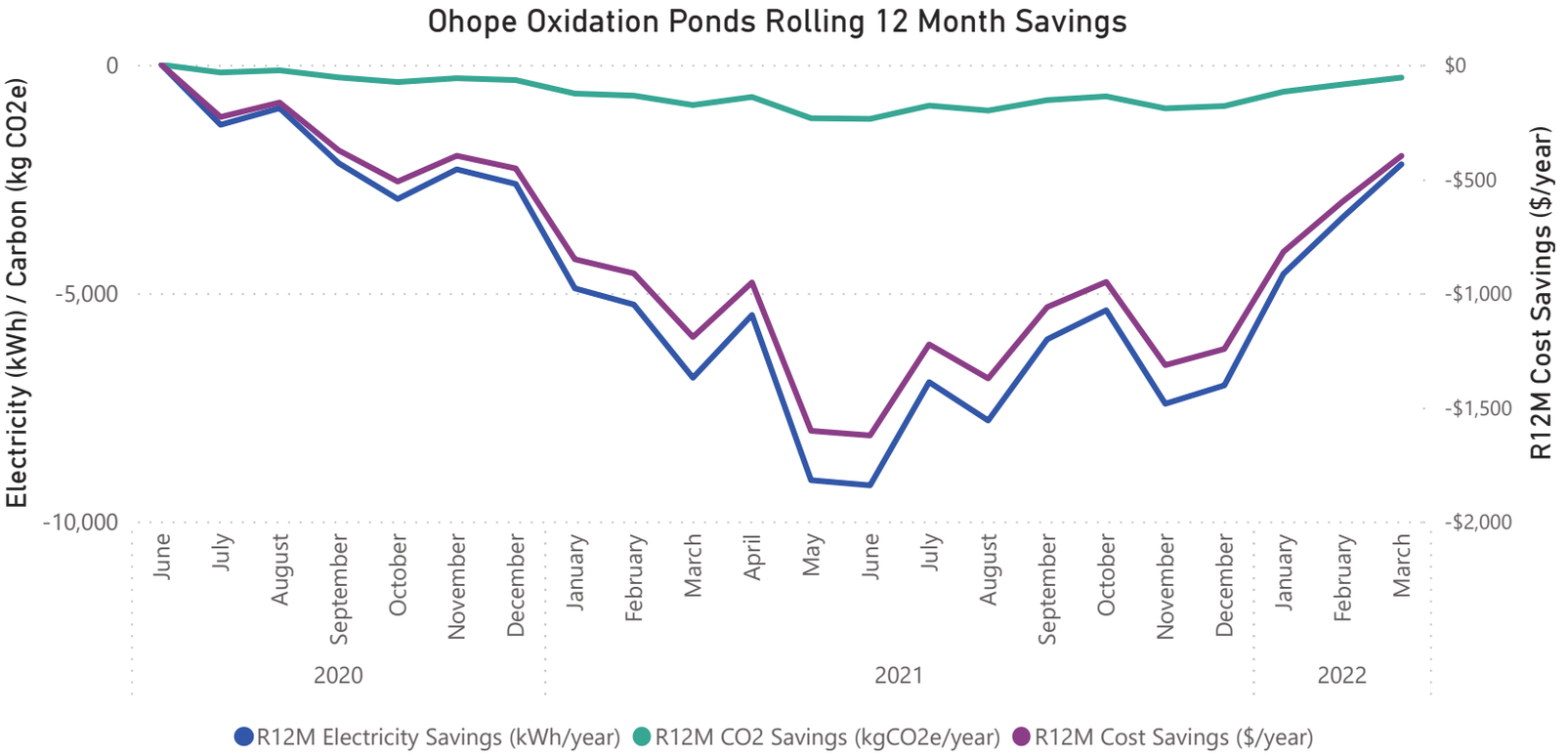
Whakatane District Council

Ohope Oxidation Ponds





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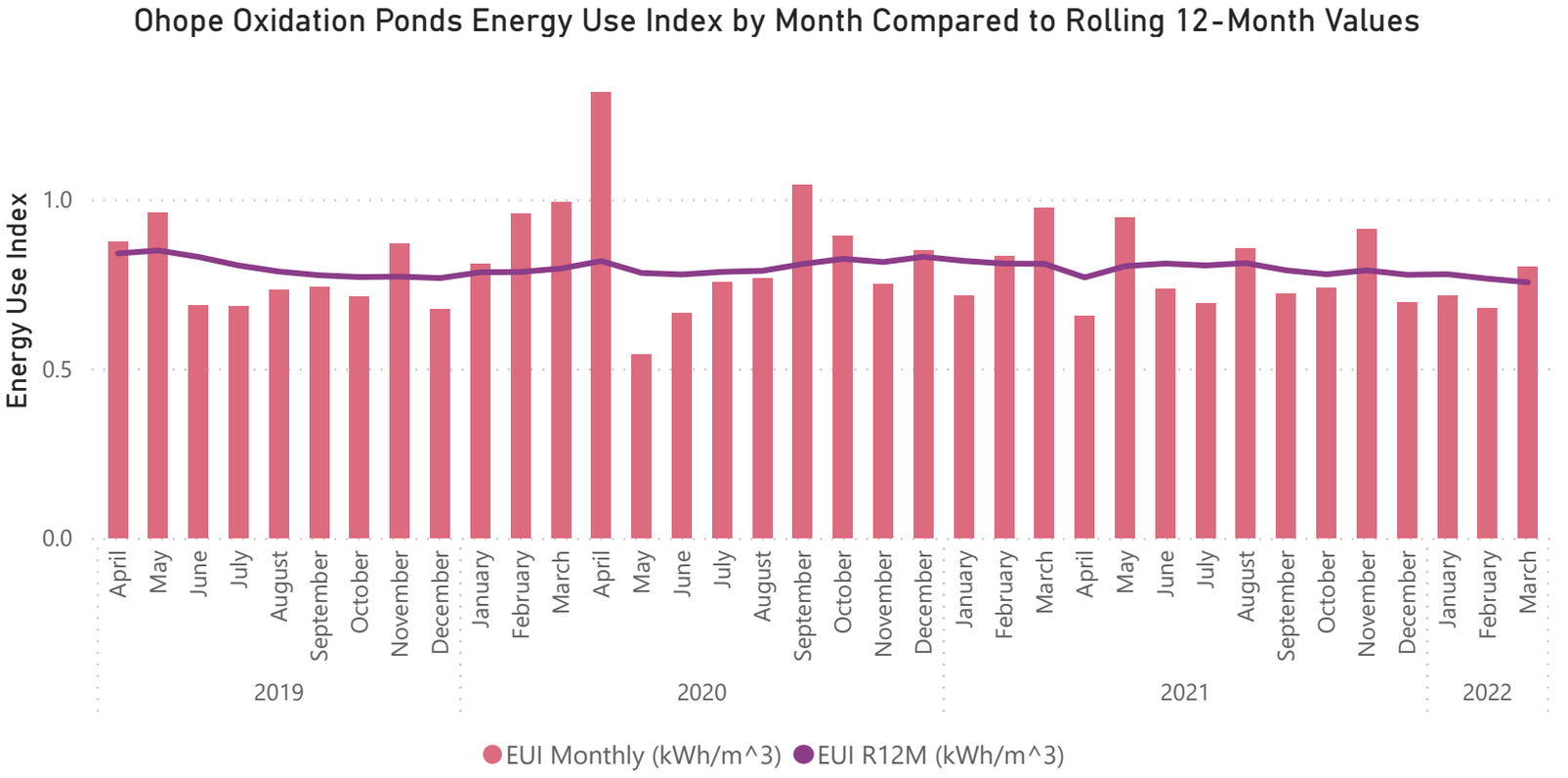
Whakatane District Council

Ohope Oxidation Ponds



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March 2022

Whakatane District Council

Whakatane Oxidation Ponds

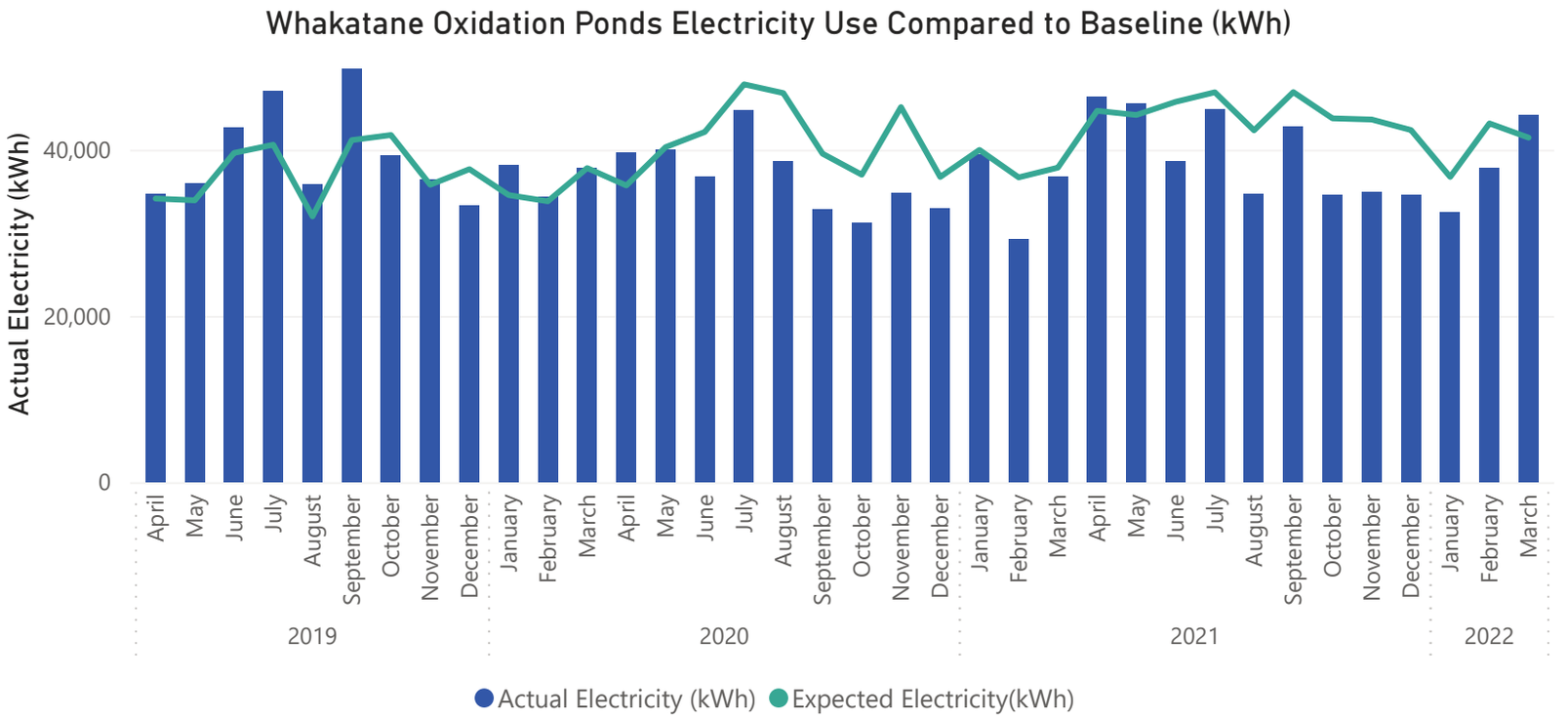
-$546	-2,744	-7%	50,432	-353
Monthly Energy Cost Savings	Elec. Savings (kWh/mo)	Elec. Savings (%)	R12M Electricity Savings (kWh/yr)	CO2e Savings (kg/mo)
$6,948				6,491
R12M Energy Cost Savings				R12M CO2e Savings (kg/yr)

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).

March 2022 is the first month since May 2021 that more electricity has been used than baseline. The increase in electricity is largely attributed to the NHH account, with a 25% increase in daily average electricity compared to February 2022.

The rolling 12 month EUI has been decreasing, which is good.



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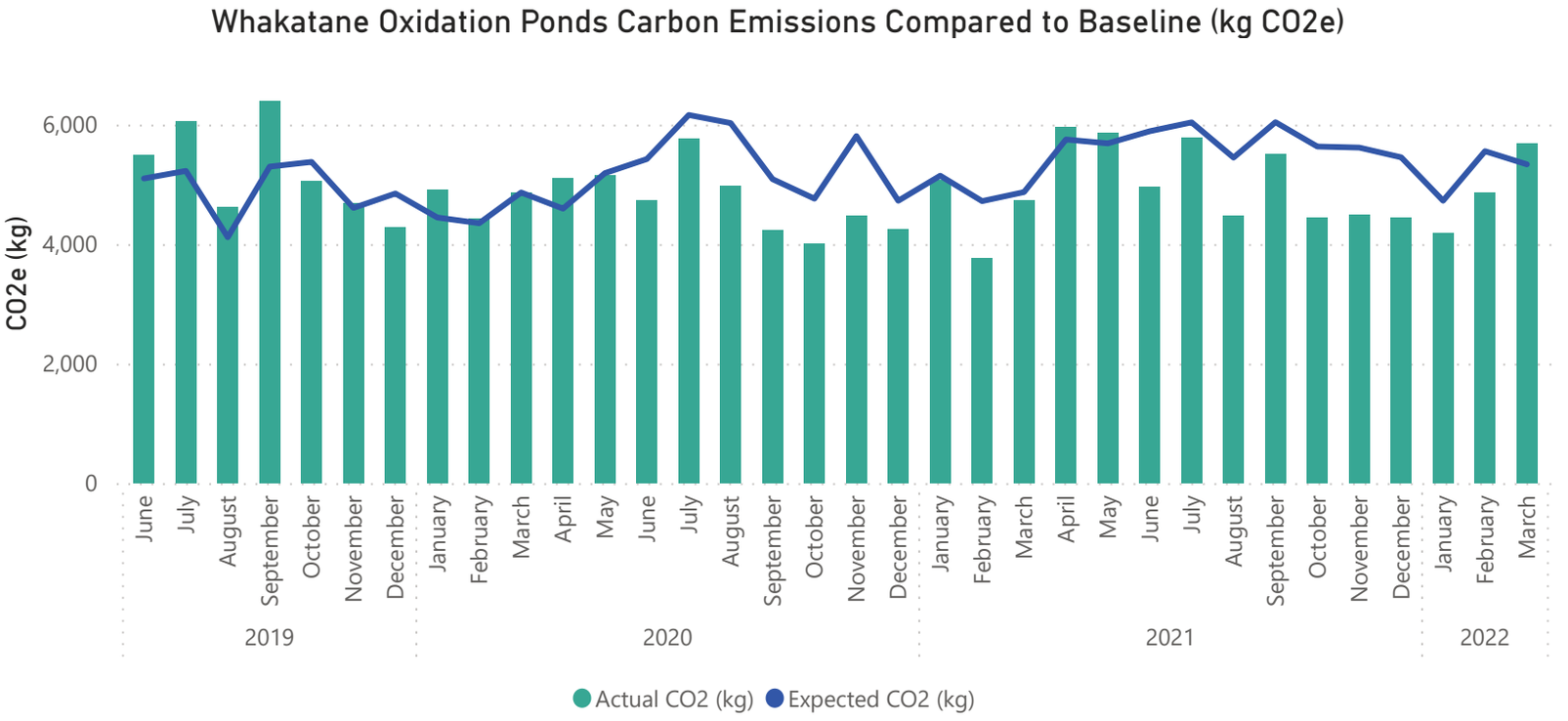
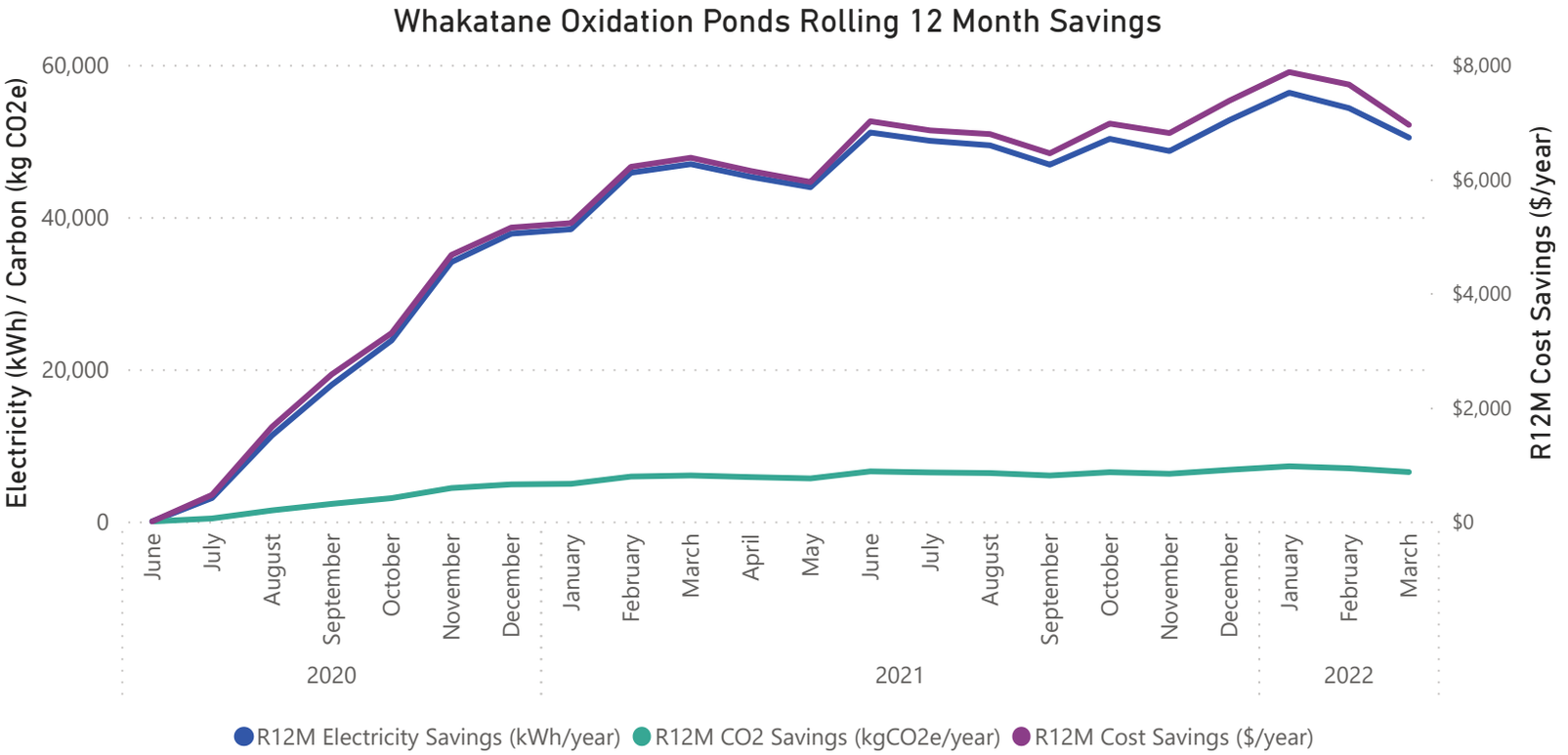
March 2022

Whakatane District Council

Whakatane Oxidation Ponds





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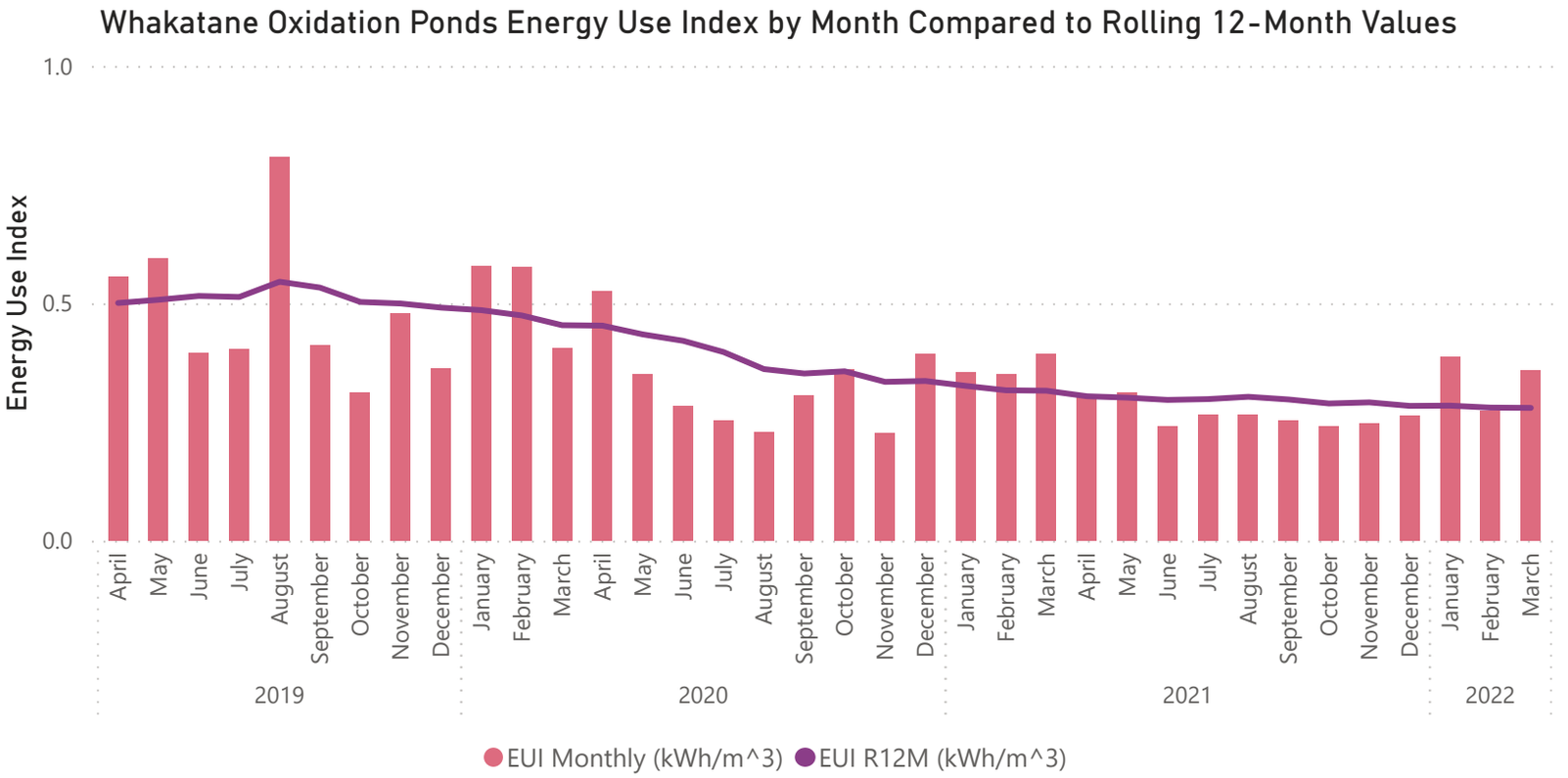
Whakatane District Council

Whakatane Oxidation Ponds



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March 2022

Whakatane District Council

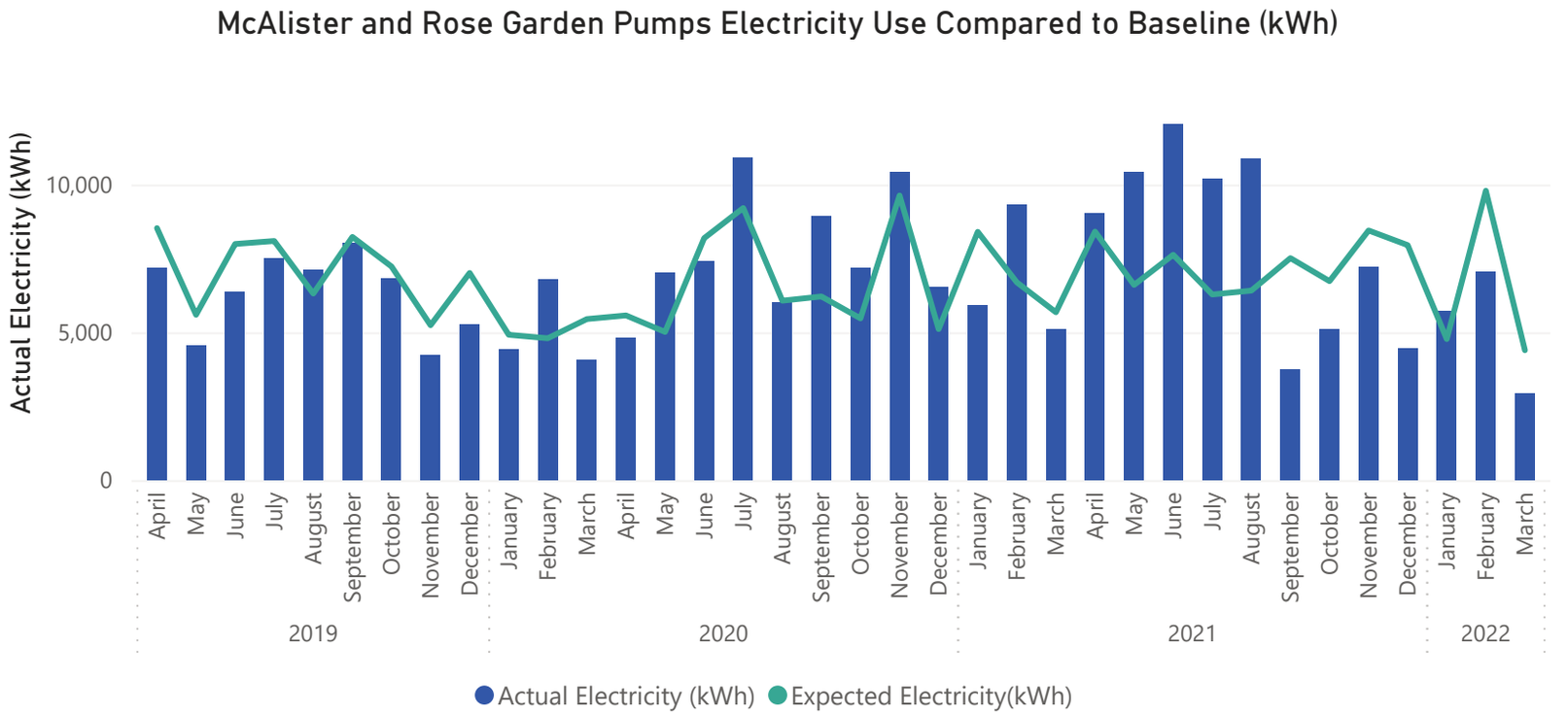
McAlister Street and Rose Garden Pump Stations

$385 Monthly Energy Cost Savings	1,454 Elec. Savings (kWh/mo)	33% Elec. Savings (%)	-3,901 R12M Electricity Savings (kWh/yr)	187 CO2e Savings (kg/mo)
$1,625 R12M Energy Cost Savings				-502 R12M CO2e Savings (kg/yr)

Comments:

A baseline for McAlister St and Rose Garden Pumps was created that adjusts for the amount of rainfall at the Kopeopeo weather station. Expected electricity is for McAlister St and Rose Gardens combined. The baseline period uses data from Jan 2019 to Dec 2020.

Rainfall in March 2022 occurred later in the month, which was outside of the billing periods for the sites and was not captured. Rainfall is aligned with billing periods and will be captured in subsequent monitoring.



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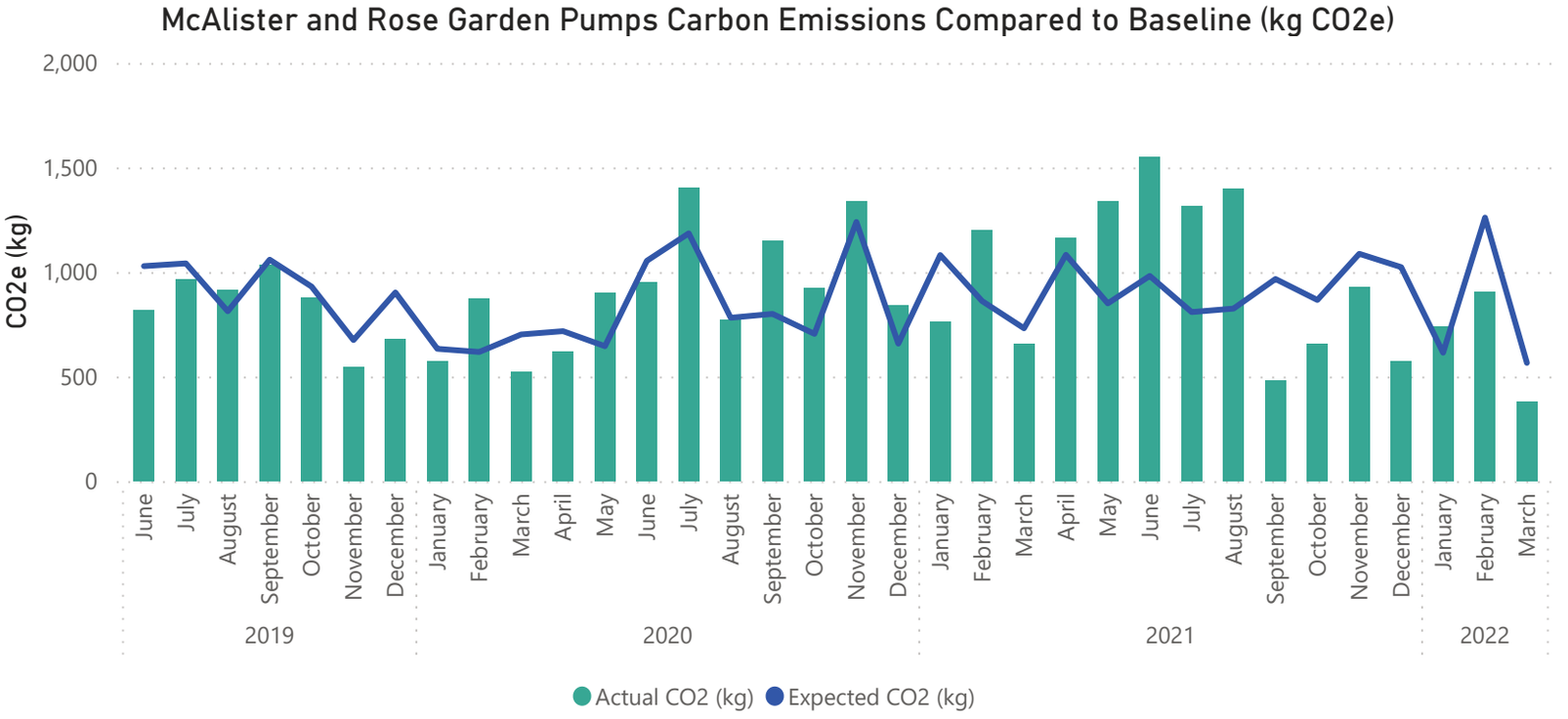
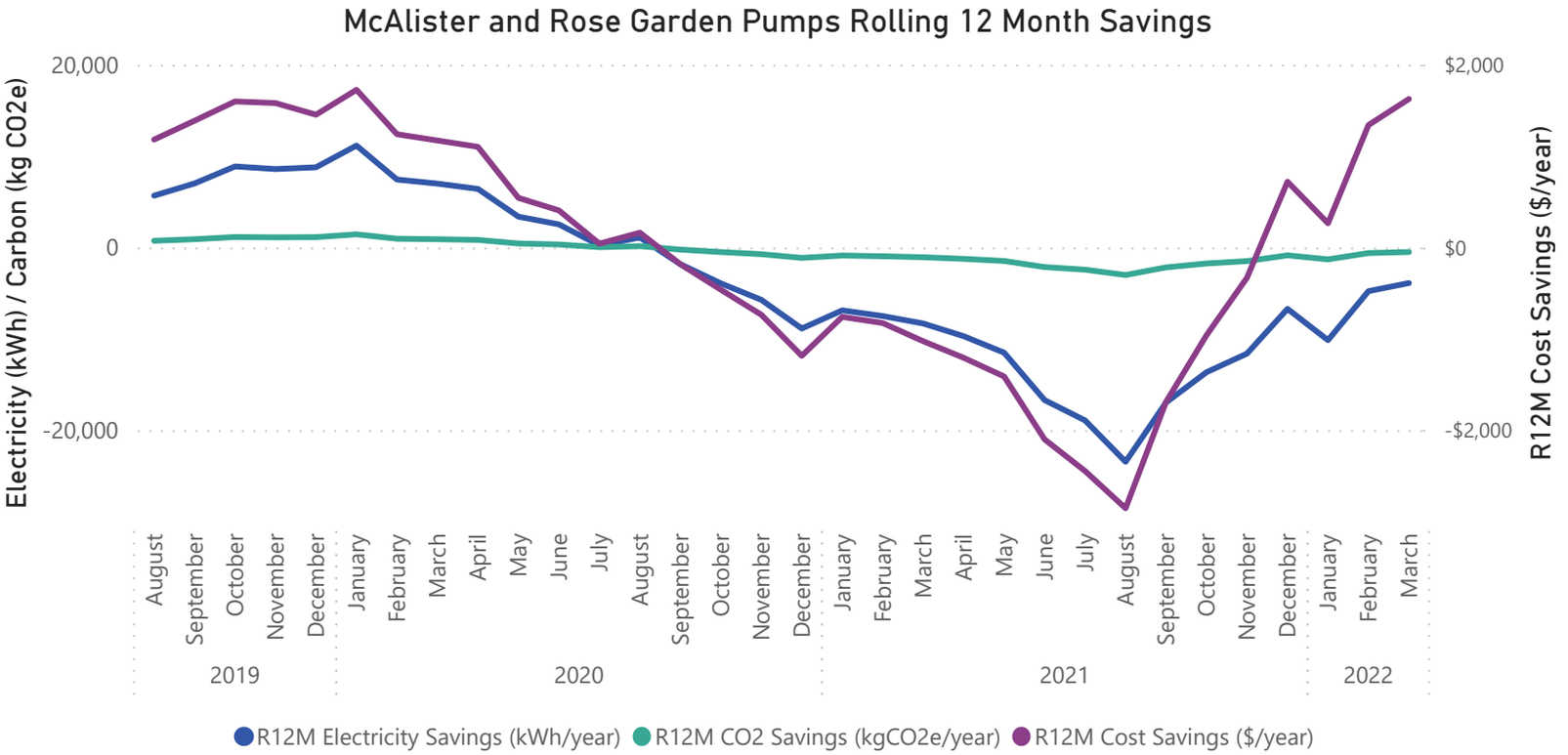
Whakatane District Council

McAlister Street and Rose Garden Pump Stations





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