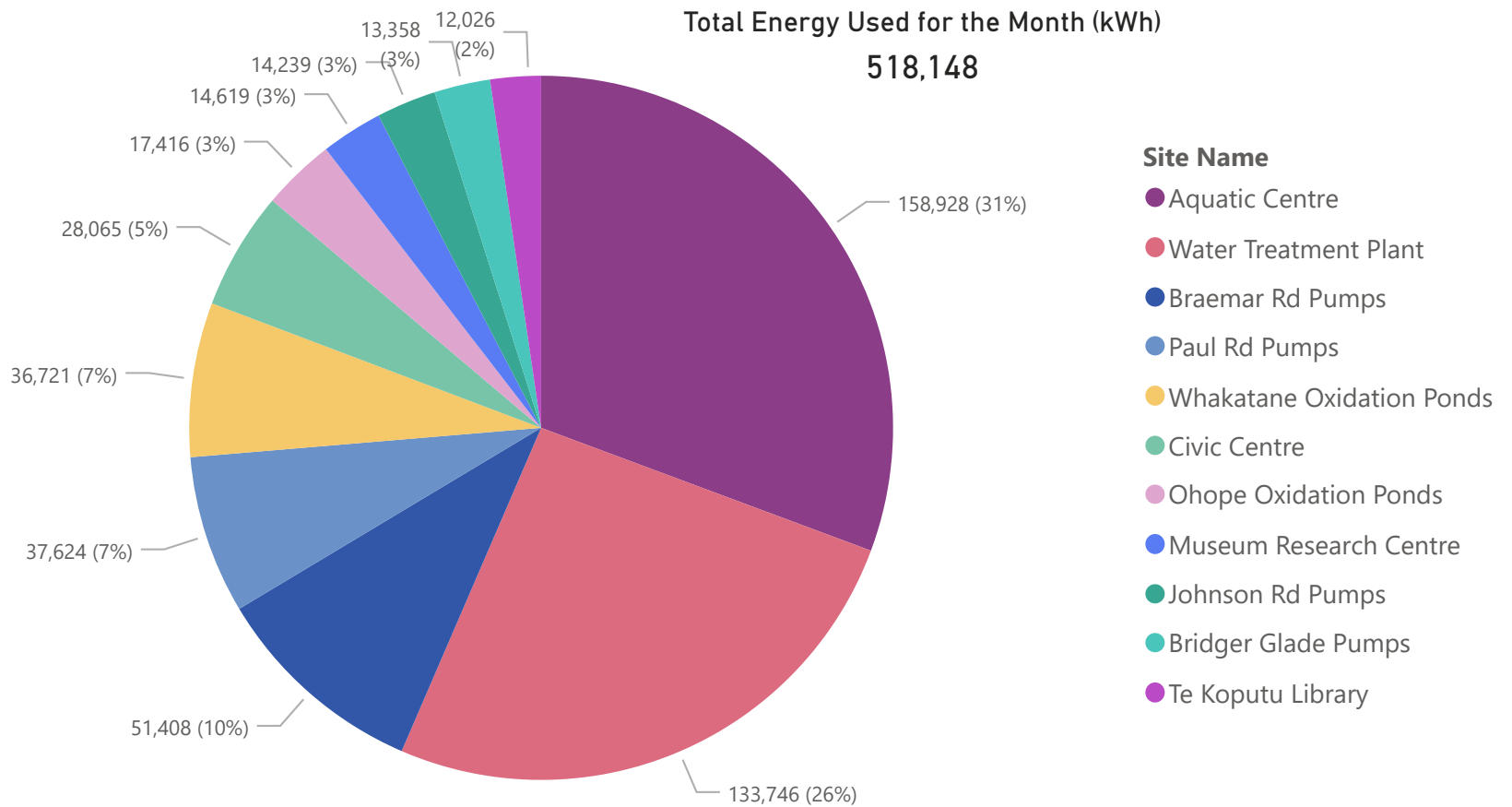


Whakatane District Council

Summary

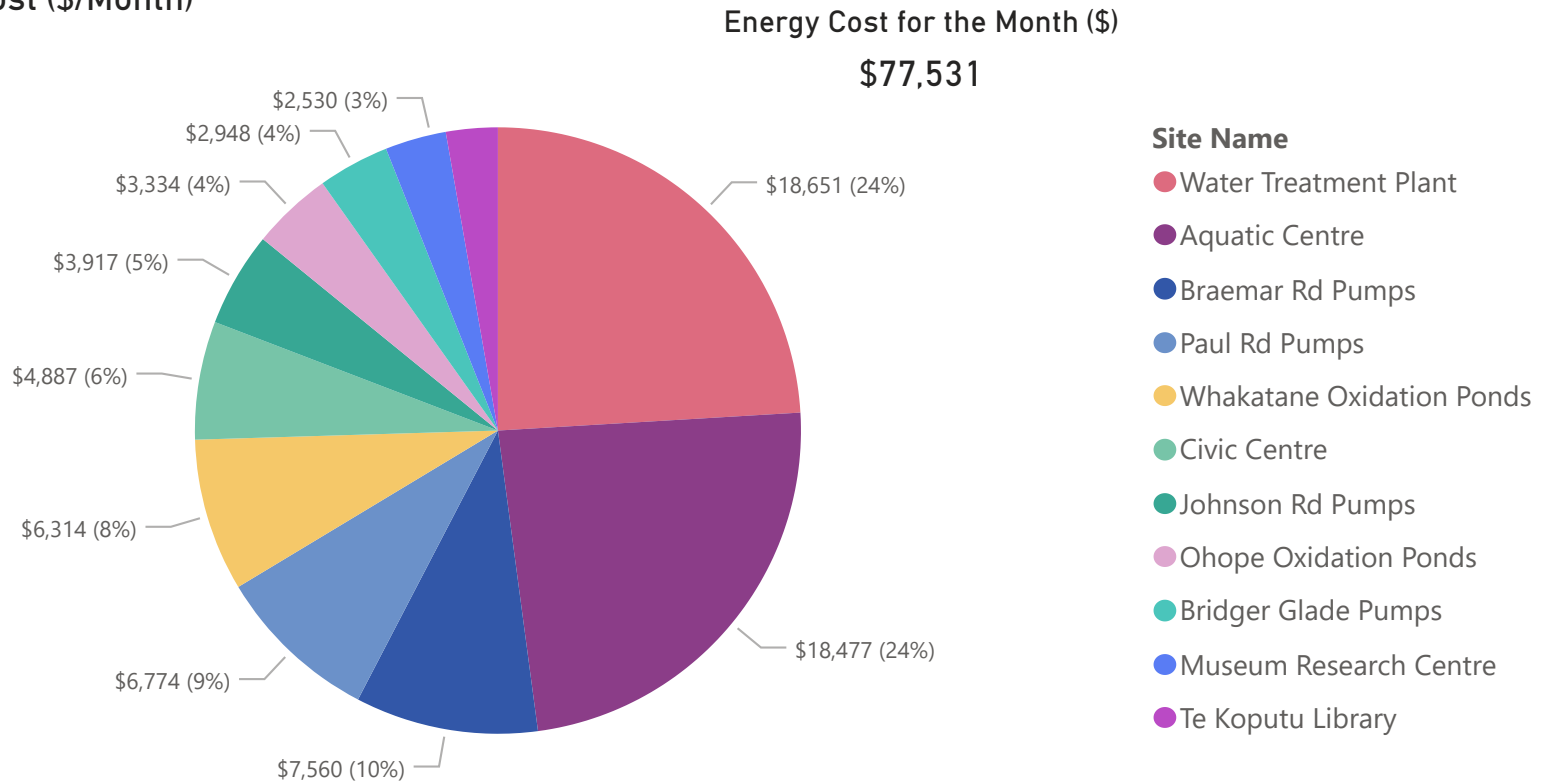
<p>\$5,665 Monthly Energy Cost Savings</p>	<p>17,695 Elec. Savings (kWh/mo)</p>	<p>4% Elec. Savings (%)</p>	<p>83,367 R12M Electricity Savings (kWh/yr)</p>	<p>12,851 CO2e Savings (kg/mo)</p>
<p>\$48,060 R12M Energy Cost Savings</p>	<p>48,541 Gas. Savings (kWh/mo)</p>	<p>47% Gas. Savings (%)</p>	<p>541,508 R12M Gas Savings (kWh/yr)</p>	<p>85,718 R12M CO2e Savings (kg/yr)</p>

Total Energy (kWh/Month)

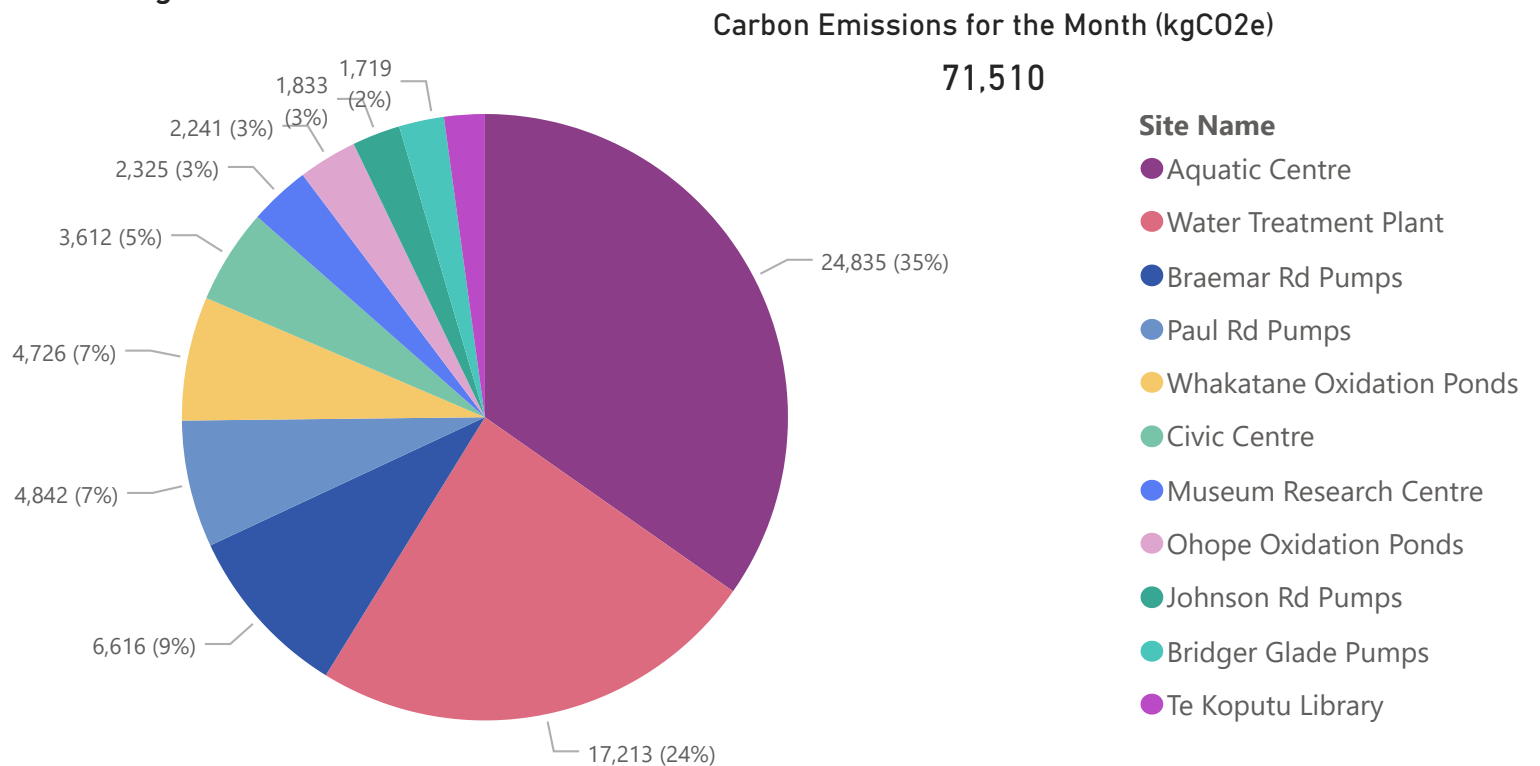


Whakatane District Council Summary

Energy Cost (\$/Month)



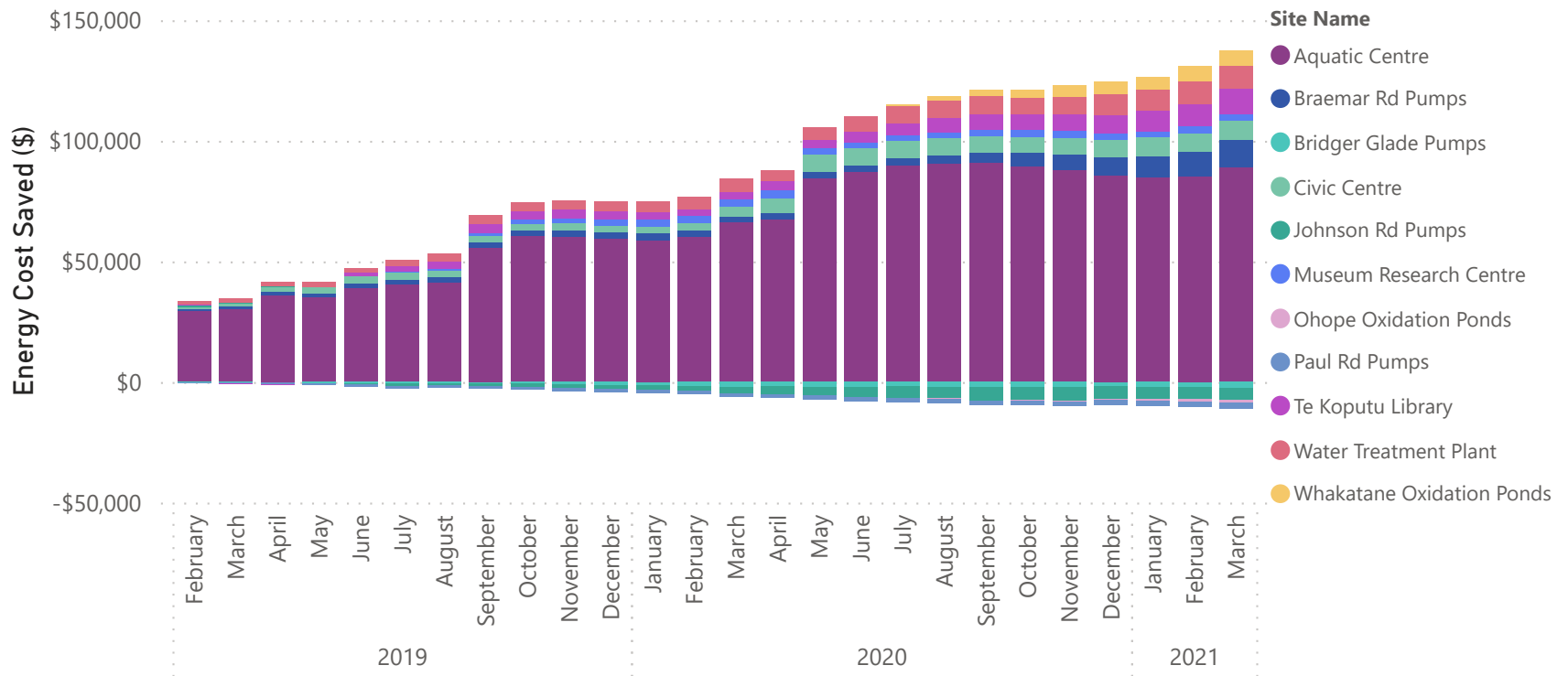
Carbon Emissions (kgCO2e/Month)



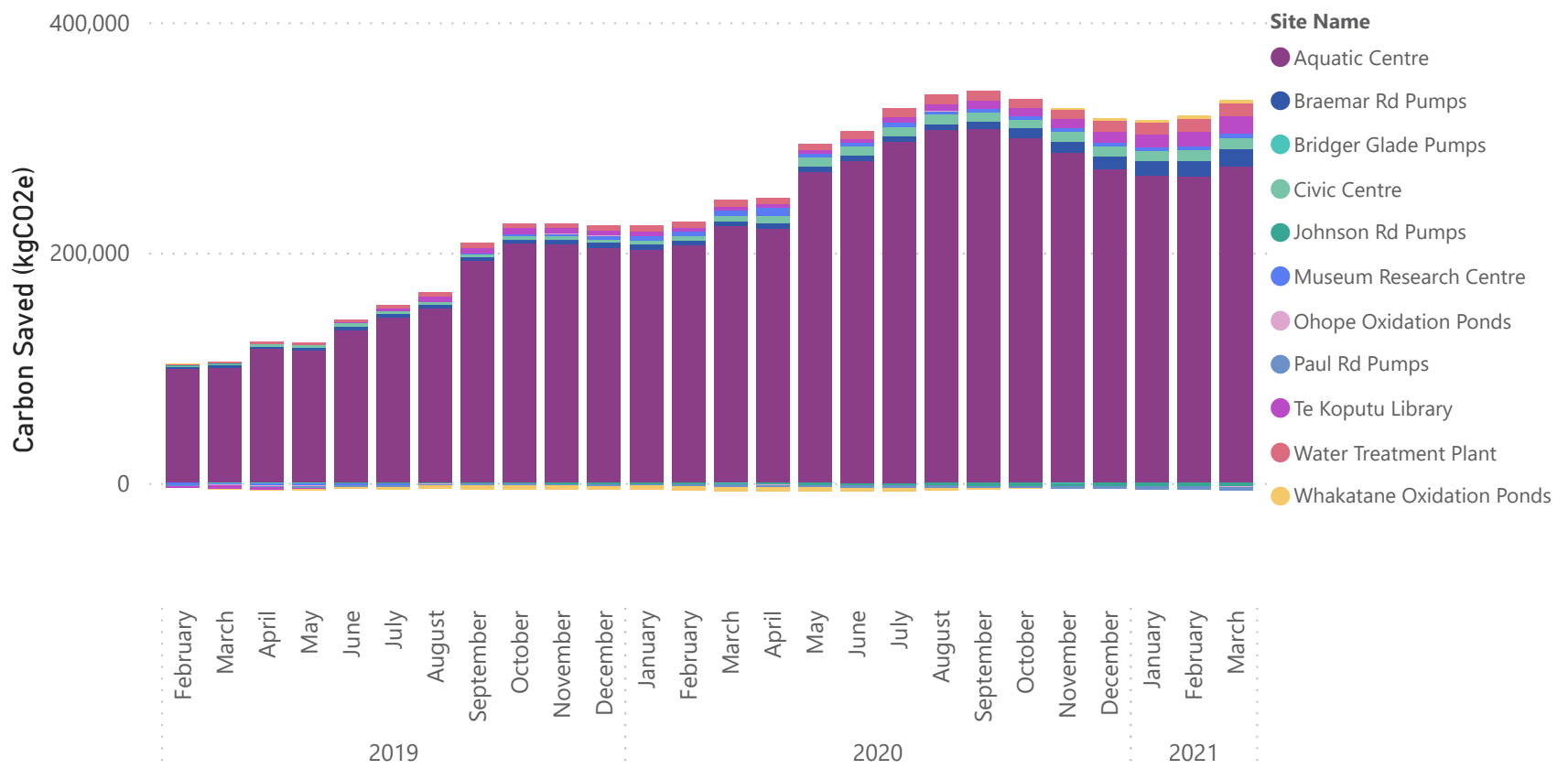
Whakatane District Council

Summary

Cumulative Energy Cost Savings (\$/month)



Cumulative Carbon Savings (kgCO2e/month)



Whakatane District Council

Civic Centre

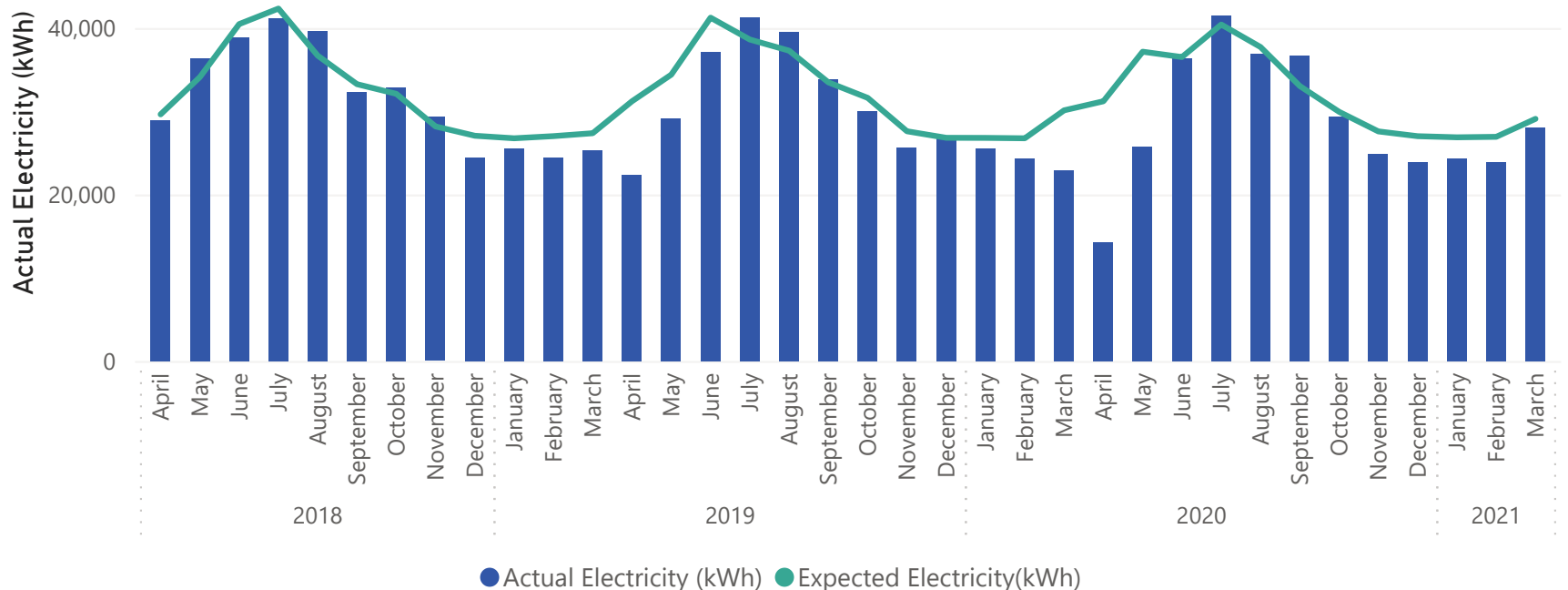
<p>\$123</p> <p>Monthly Energy Cost Savings</p>	<p>1,021</p> <p>Elec. Savings (kWh/mo)</p>	<p>4%</p> <p>Elec. Savings (%)</p>	<p>37,430</p> <p>R12M Electricity Savings (kWh/yr)</p>	<p>131</p> <p>CO2e Savings (kg/mo)</p>
<p>\$3,977</p> <p>R12M Energy Cost Savings</p>				<p>4,817</p> <p>R12M CO2e Savings (kg/yr)</p>

Comments:

Energy use in March was less than baseline, and has similar use to October 2020. Compared to March 2020, March 2021 used approximately 23% more electricity, and March 2021 was a warmer month on average. However, the end of March 2020 was effected by the Covid-19 lockdown.

A seasonal trend can be observed with winter months using the most electricity. Rolling 12 month electricity savings have decreased by approximately \$800 since from last month. Currently, rolling 12 month electricity savings are approximately 37,400 kWh and \$4,000 in the past 12 months.

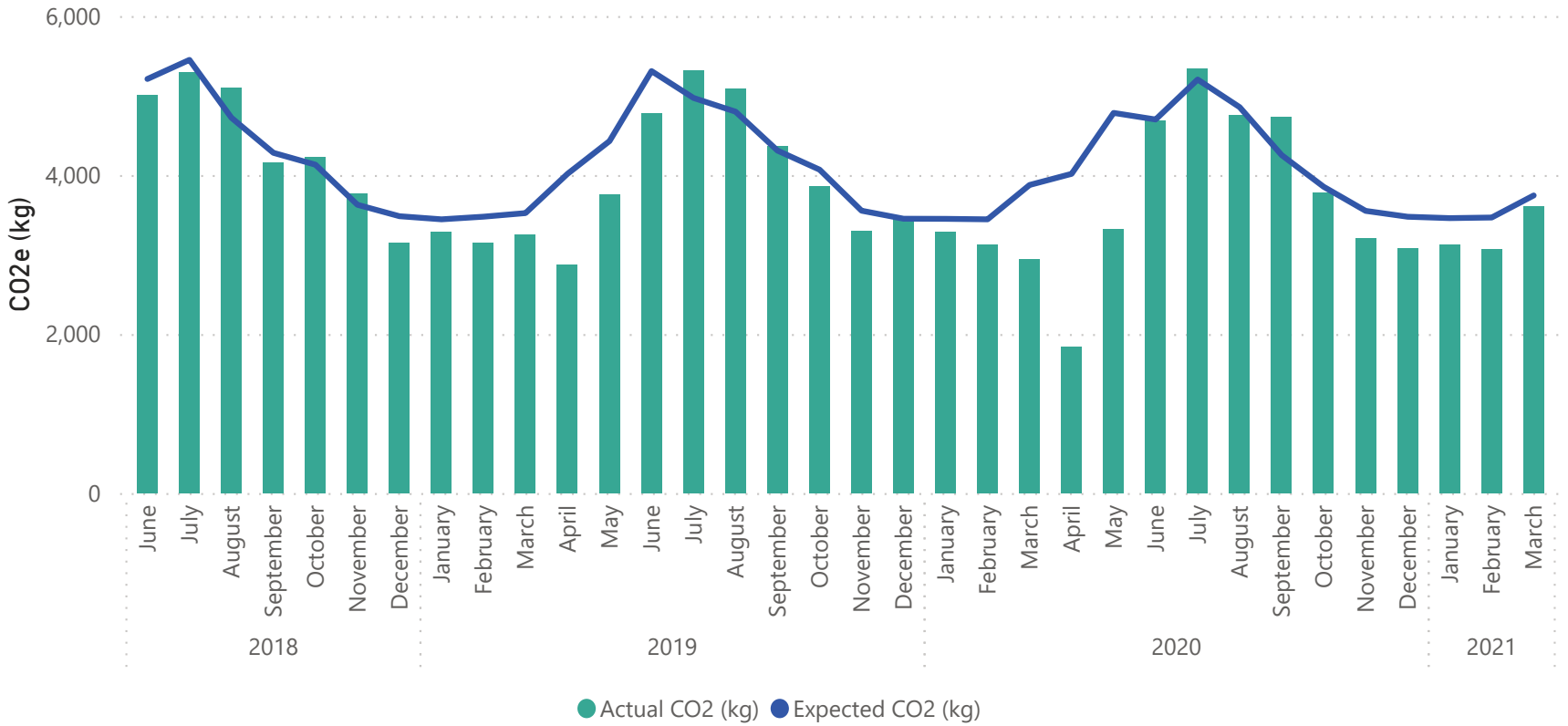
Civic Centre Electricity Use Compared to Baseline (kWh)



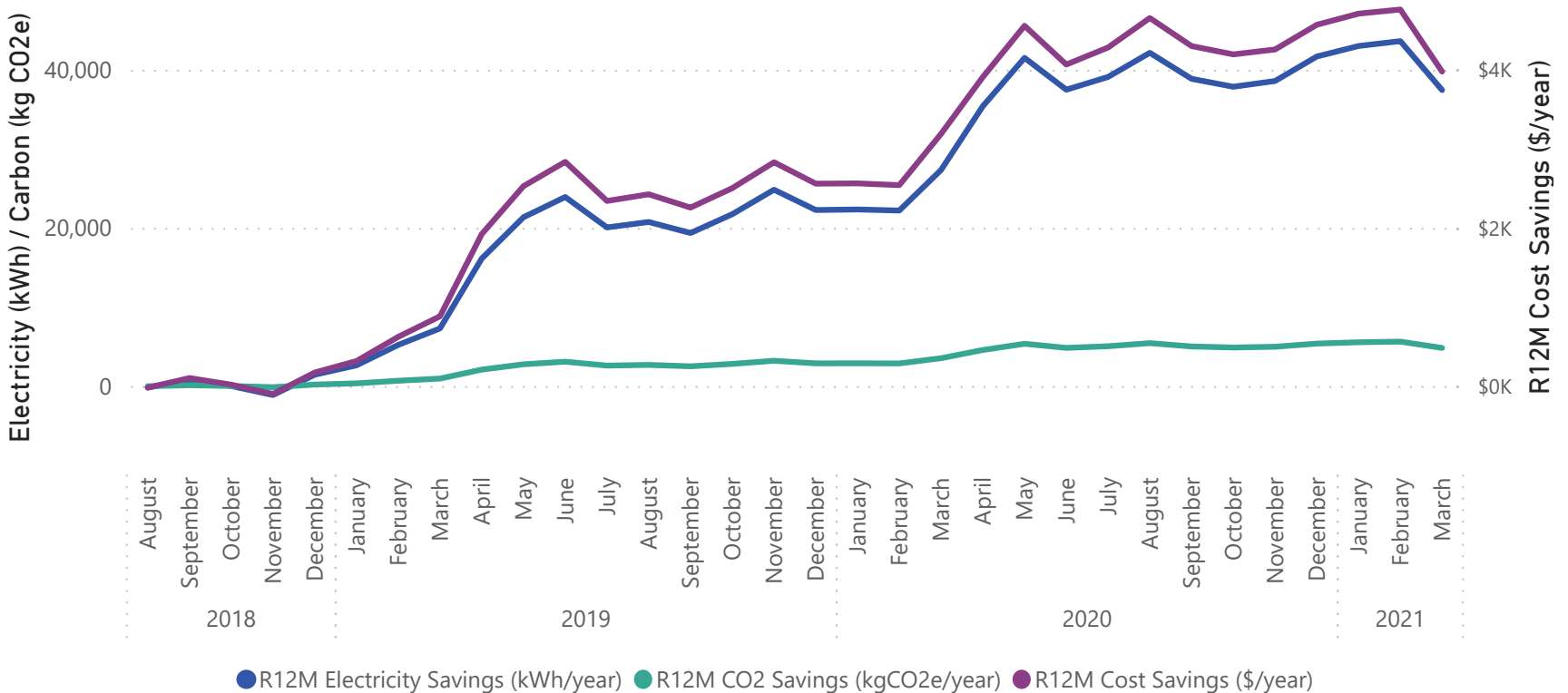
Whakatane District Council

Civic Centre

Civic Centre Carbon Emissions Compared to Baseline (kg CO2e)



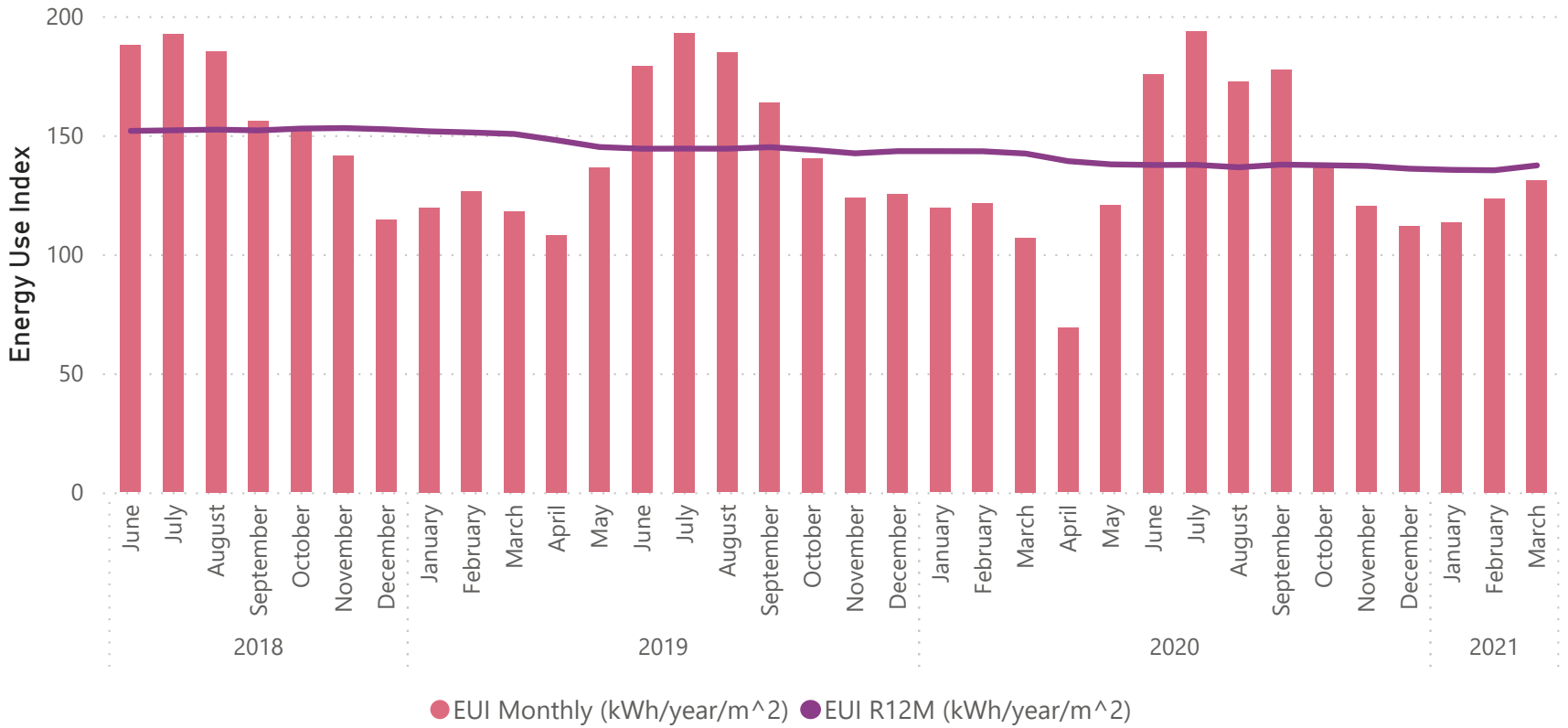
Civic Centre Cumulative Rolling 12 Month Savings



Whakatane District Council

Civic Centre

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



Whakatane District Council

Aquatic Centre

<p>\$3,800</p> <p>Monthly Energy Cost Savings</p>	<p>5,287</p> <p>Elec. Savings (kWh/mo)</p>	<p>5%</p> <p>Elec. Savings (%)</p>	<p>-142,351</p> <p>R12M Electricity Savings (kWh/yr)</p>	<p>9,251</p> <p>CO2e Savings (kg/mo)</p>
<p>\$23,149</p> <p>R12M Energy Cost Savings</p>	<p>39,377</p> <p>Gas. Savings (kWh/mo)</p>	<p>44%</p> <p>Gas. Savings (%)</p>	<p>523,639</p> <p>R12M Gas Savings (kWh/yr)</p>	<p>51,949</p> <p>R12M CO2e Savings (kg/yr)</p>

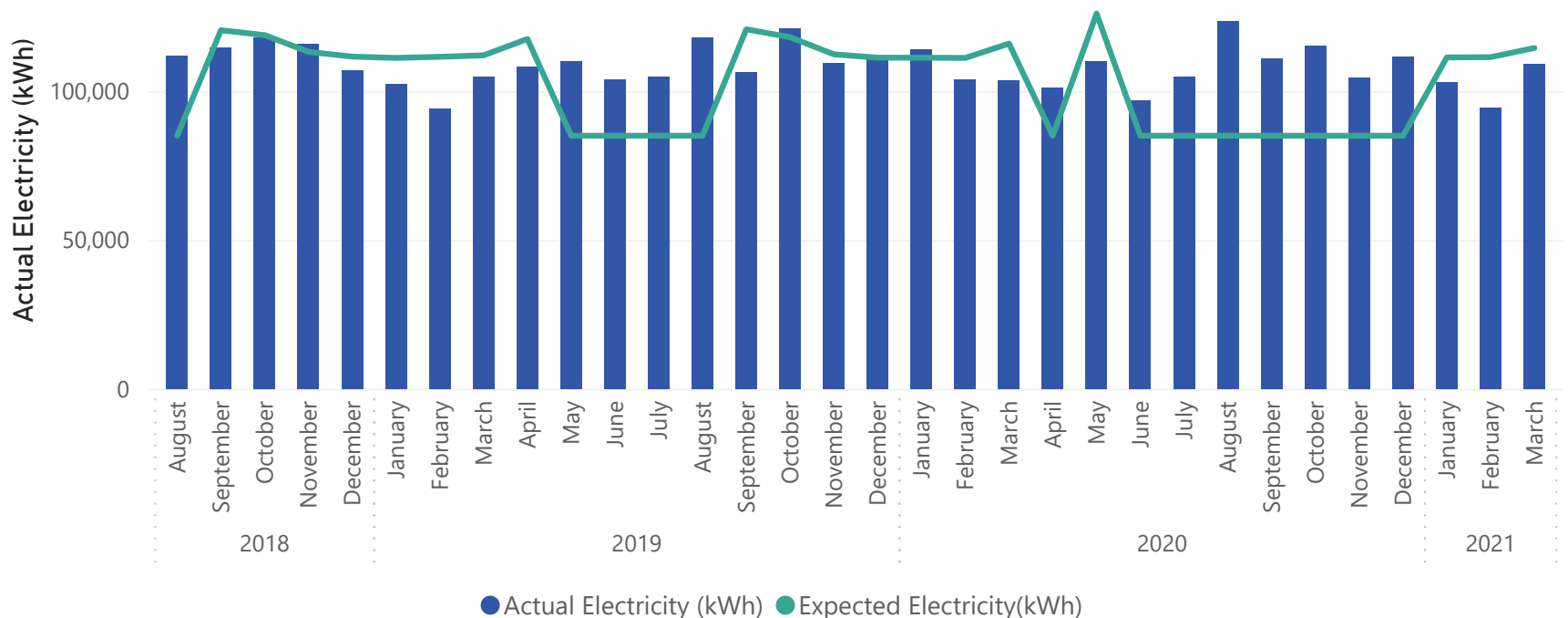
Comments:

The Aquatic Centre's outdoor pool re-opened on 5 January. The outdoor pool is now open year-round and uses a baseline that includes the outdoor pool. On 24 March, a heat pump was switched on that heat the outdoor pool instead of the gas boilers. From 24 March, gas boilers have only used natural gas for idling.

Electricity use in March 2021 is 5% below baseline, however, compared to 2020, March 2021 used 5% more electricity. Historically, March has been a month that usually achieves electricity savings.

Natural gas use was less than expected in March. Total gas use has increased slightly from last month. Compared to March 2020, March 2021 used 8.5% more natural gas. Natural gas savings from the heat pump will be fully realised in April's monitoring, as the heat pump was only working for seven full days in March.

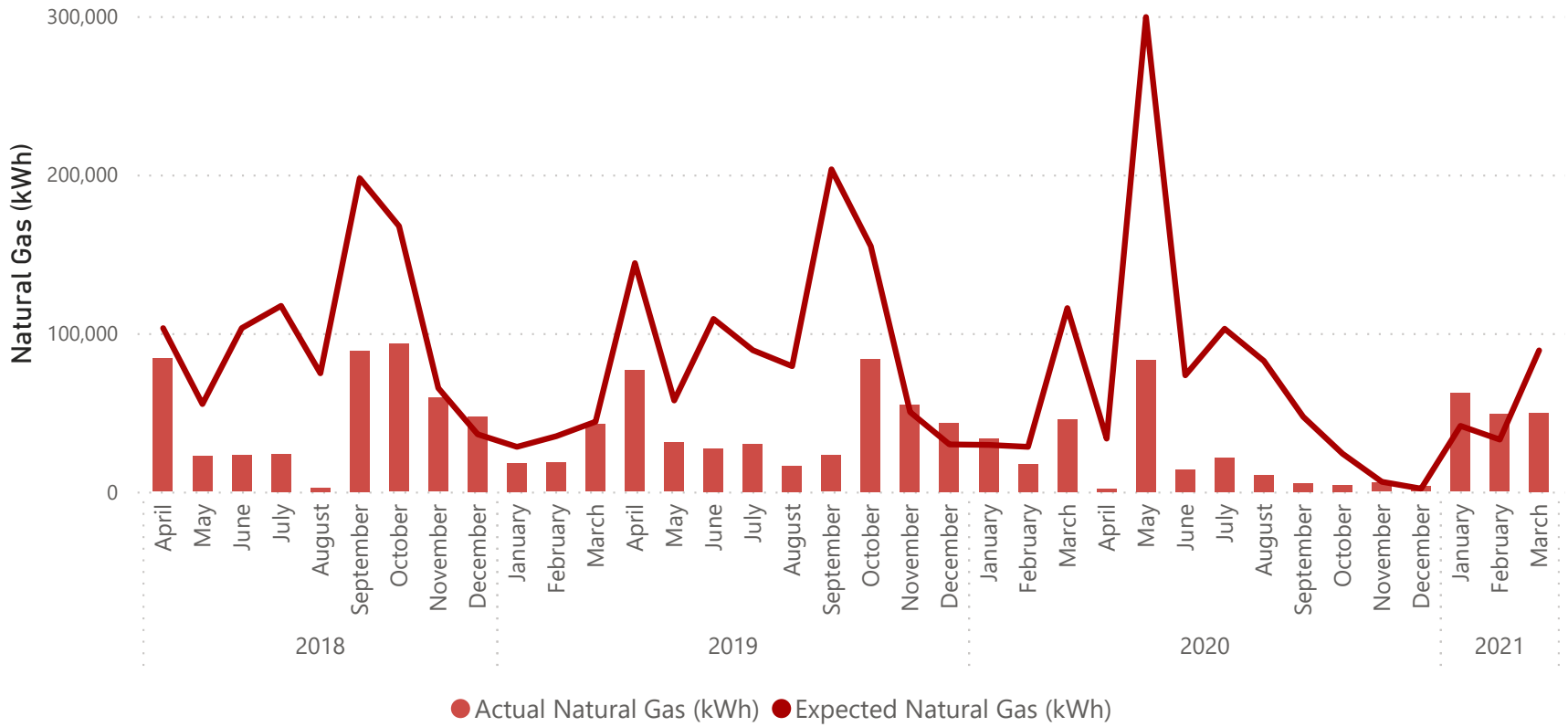
Aquatic Centre Electricity Use Compared to Baseline (kWh)



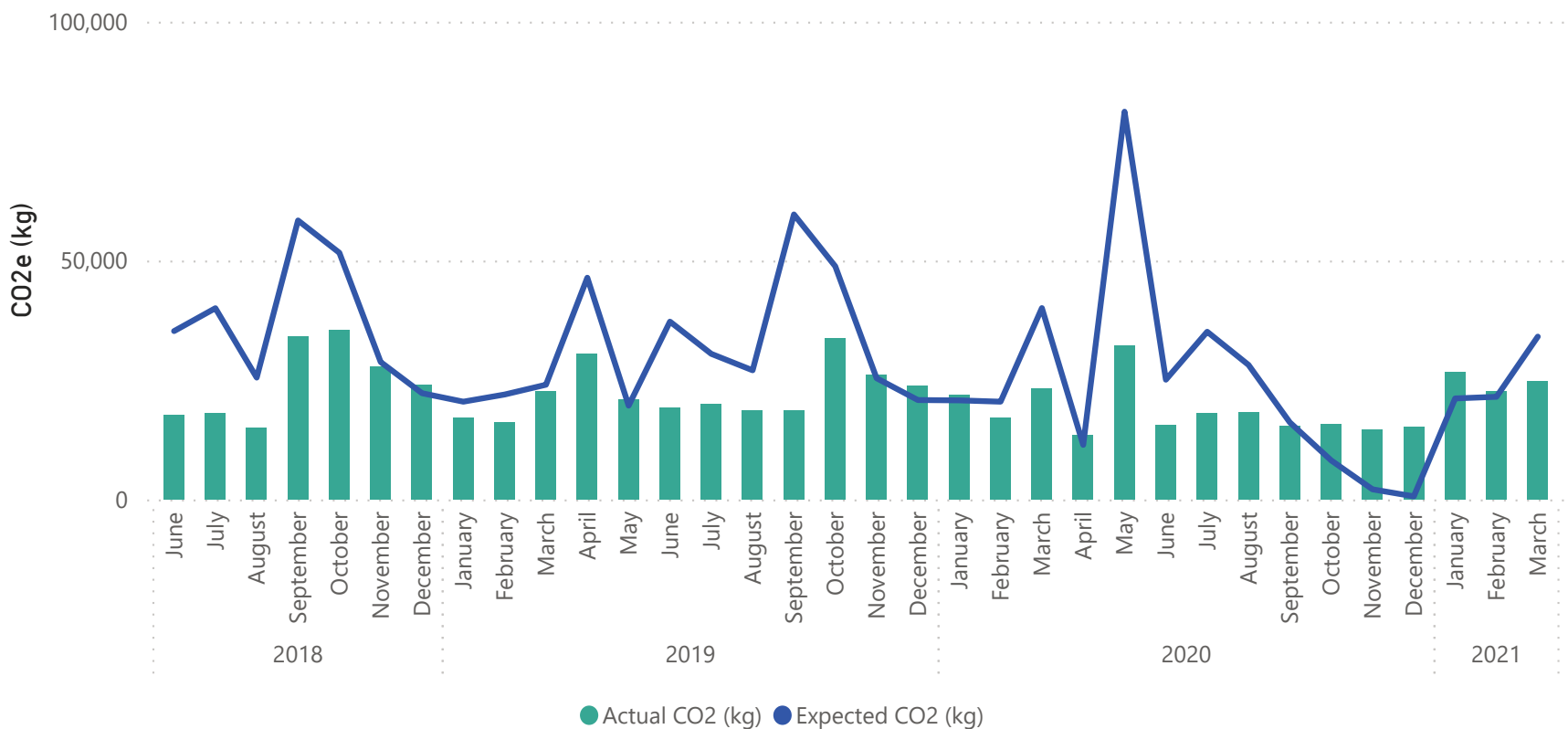
Whakatane District Council

Aquatic Centre

Aquatic Centre Natural Gas Compared to Baseline (kWh)



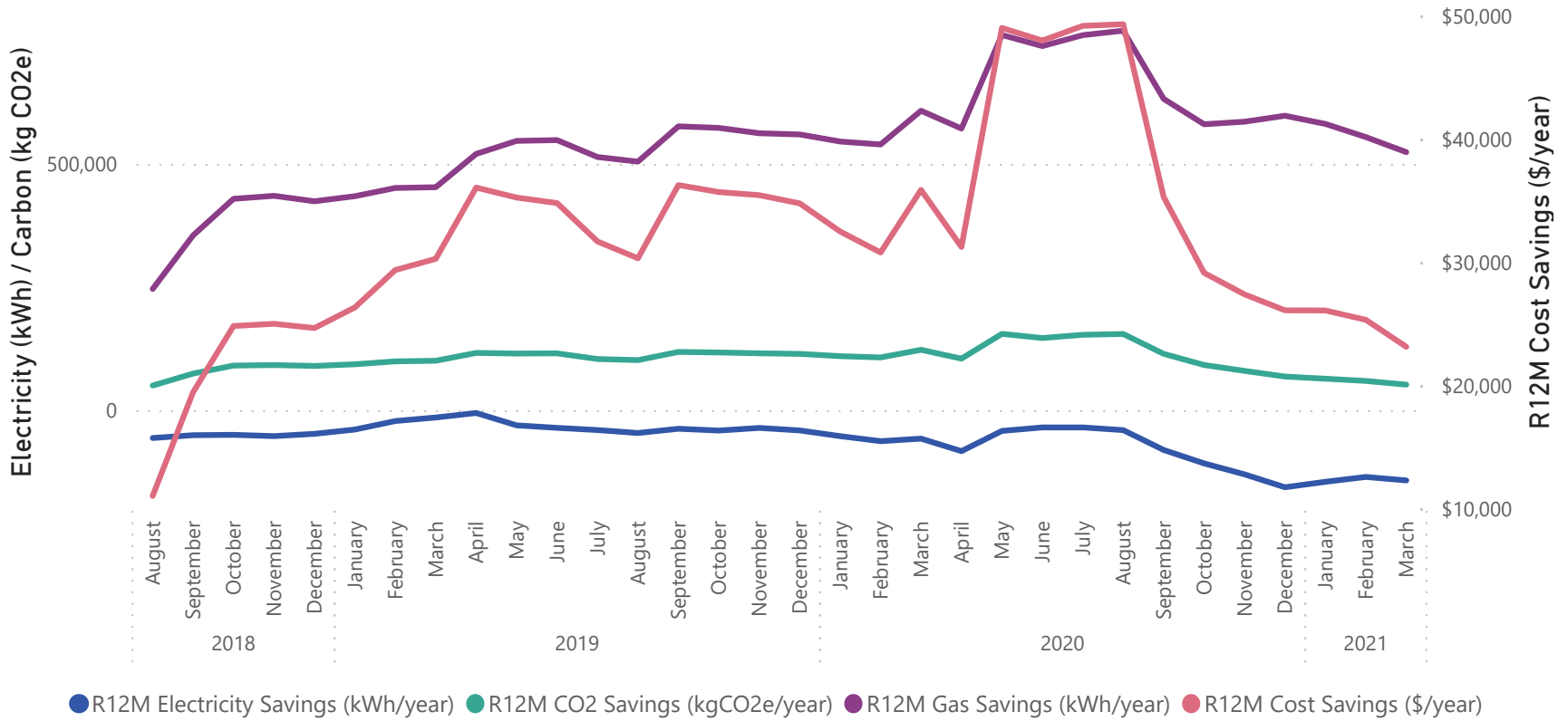
Aquatic Centre Carbon Emissions Compared to Baseline (kg CO2e)



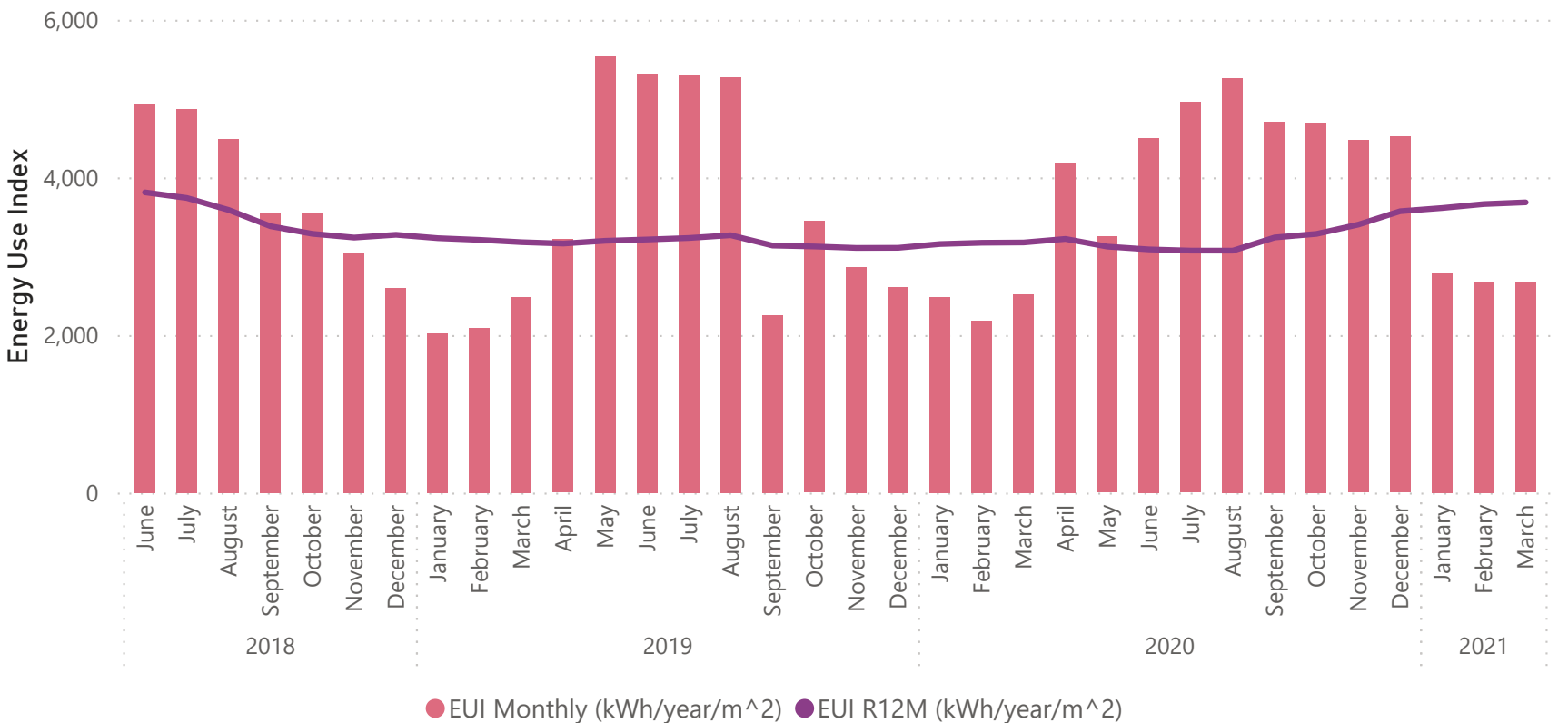
Whakatane District Council

Aquatic Centre

Aquatic Centre Cumulative Rolling 12 Month Savings



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



Whakatane District Council

Te Koputu Library

<p>\$940 Monthly Energy Cost Savings</p>	<p>3,008 Elec. Savings (kWh/mo)</p>	<p>20% Elec. Savings (%)</p>	<p>45,750 R12M Electricity Savings (kWh/yr)</p>	<p>2,125 CO2e Savings (kg/mo)</p>
<p>\$7,250 R12M Energy Cost Savings</p>	<p>7,997 Gas. Savings (kWh/mo)</p>	<p>100% Gas. Savings (%)</p>	<p>30,618 R12M Gas Savings (kWh/yr)</p>	<p>12,579 R12M CO2e Savings (kg/yr)</p>

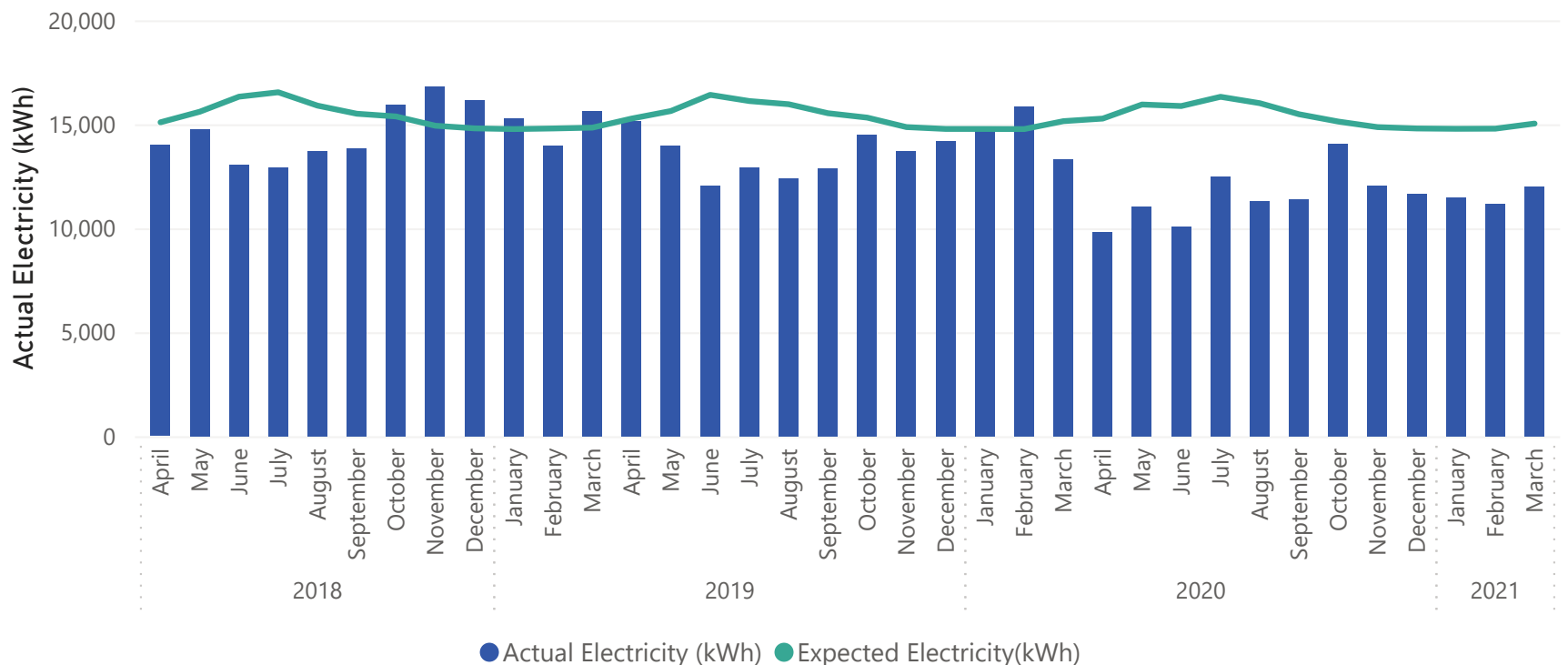
Comments:

Electricity use has been significantly less than baseline for the past five months and electricity use has been less than baseline since March 2020. Compared to March 2020, the library's electricity use in March 2021 is 10% lower, although March 2021 was a warmer month on average.

Natural gas was turned off for the month of March. Turning off the boilers completely has saved the Library \$585 this month in gas charges.

The library's rolling 12 month EUI has been dropping steadily and rolling 12 month energy savings are at a record high, saving approx. 45,800 kWh of electricity, 30,600 kWh of natural gas, \$7,300, and 12,600 kgCO2e. The rolling 12 month EUI for the library is 17% lower than it was a year ago.

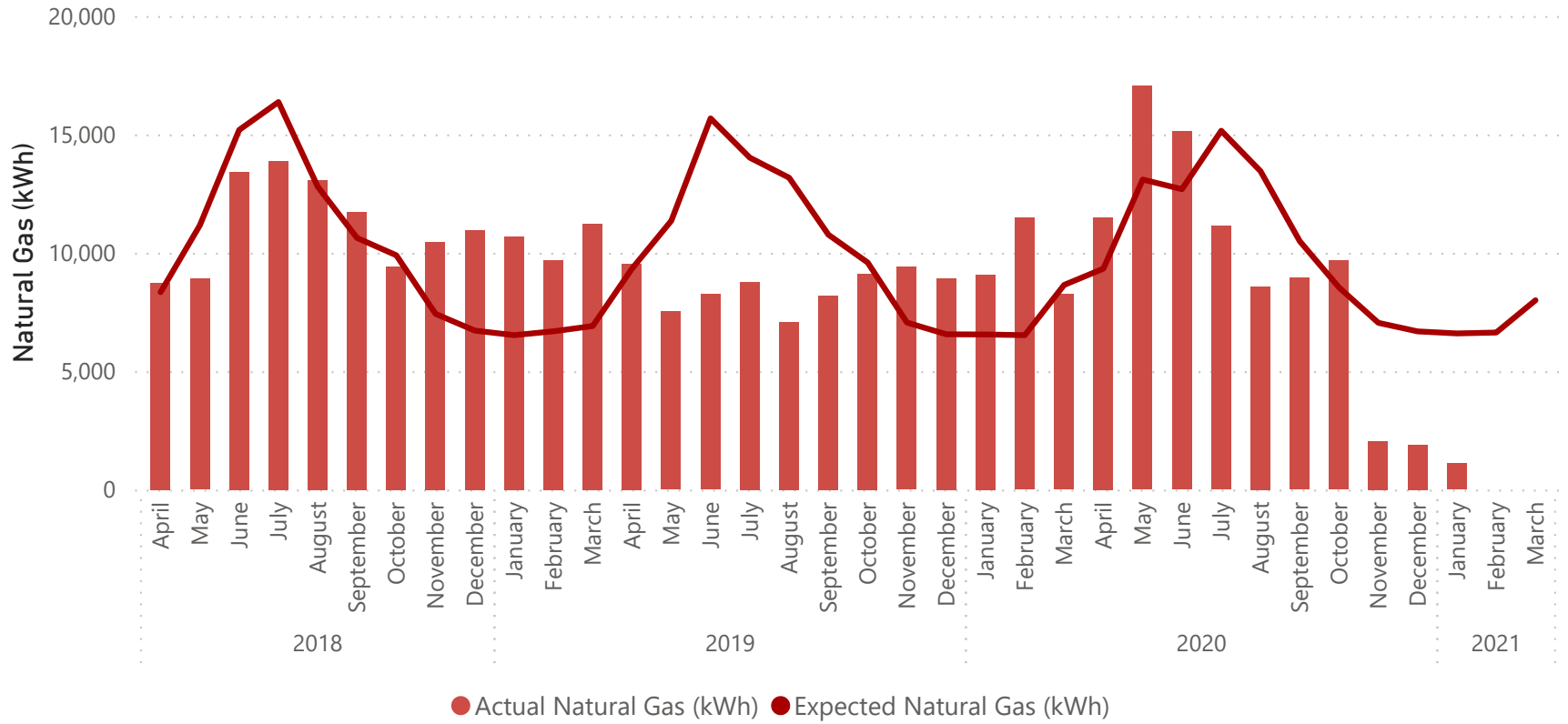
Te Koputu Library Electricity Use Compared to Baseline (kWh)



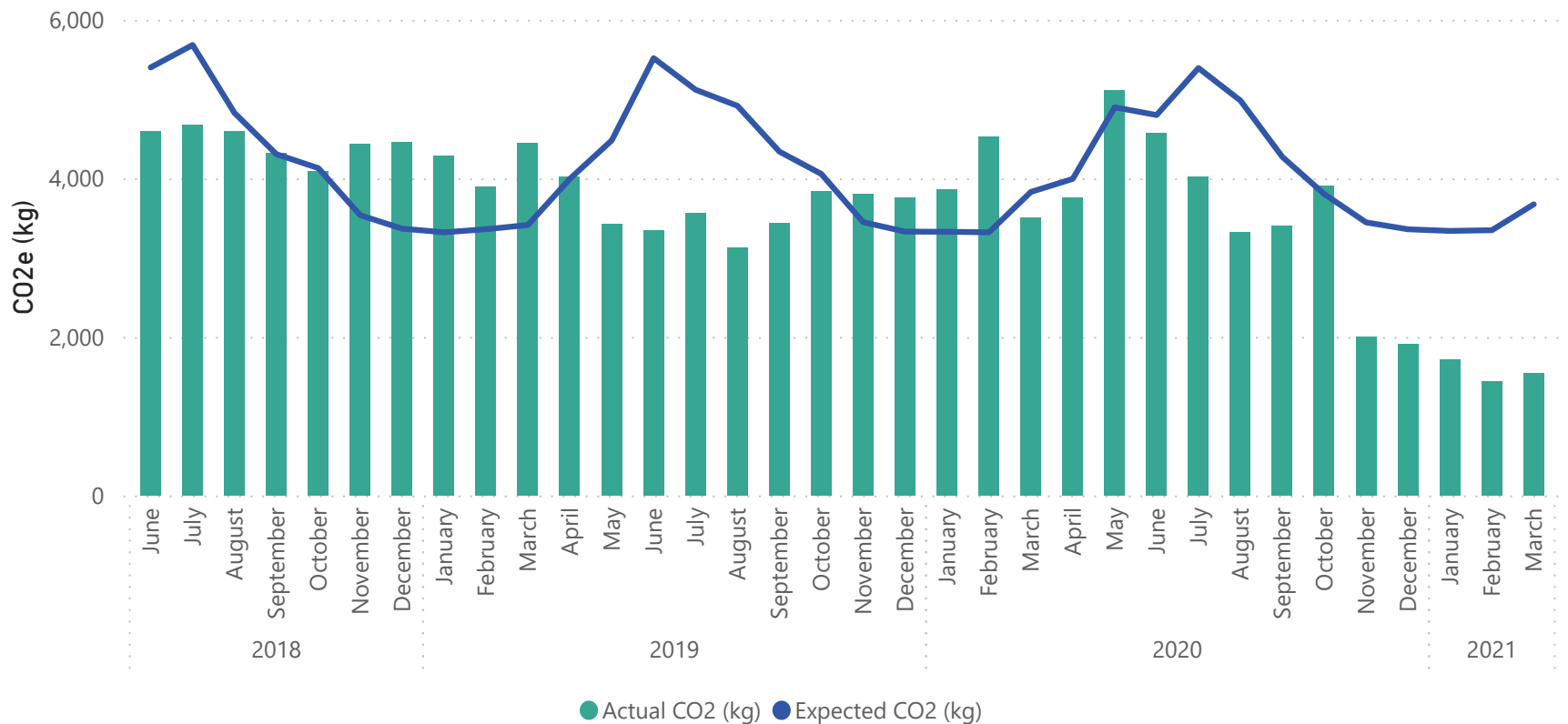
Whakatane District Council

Te Koputu Library

Te Koputu Library Natural Gas Compared to Baseline (kWh)



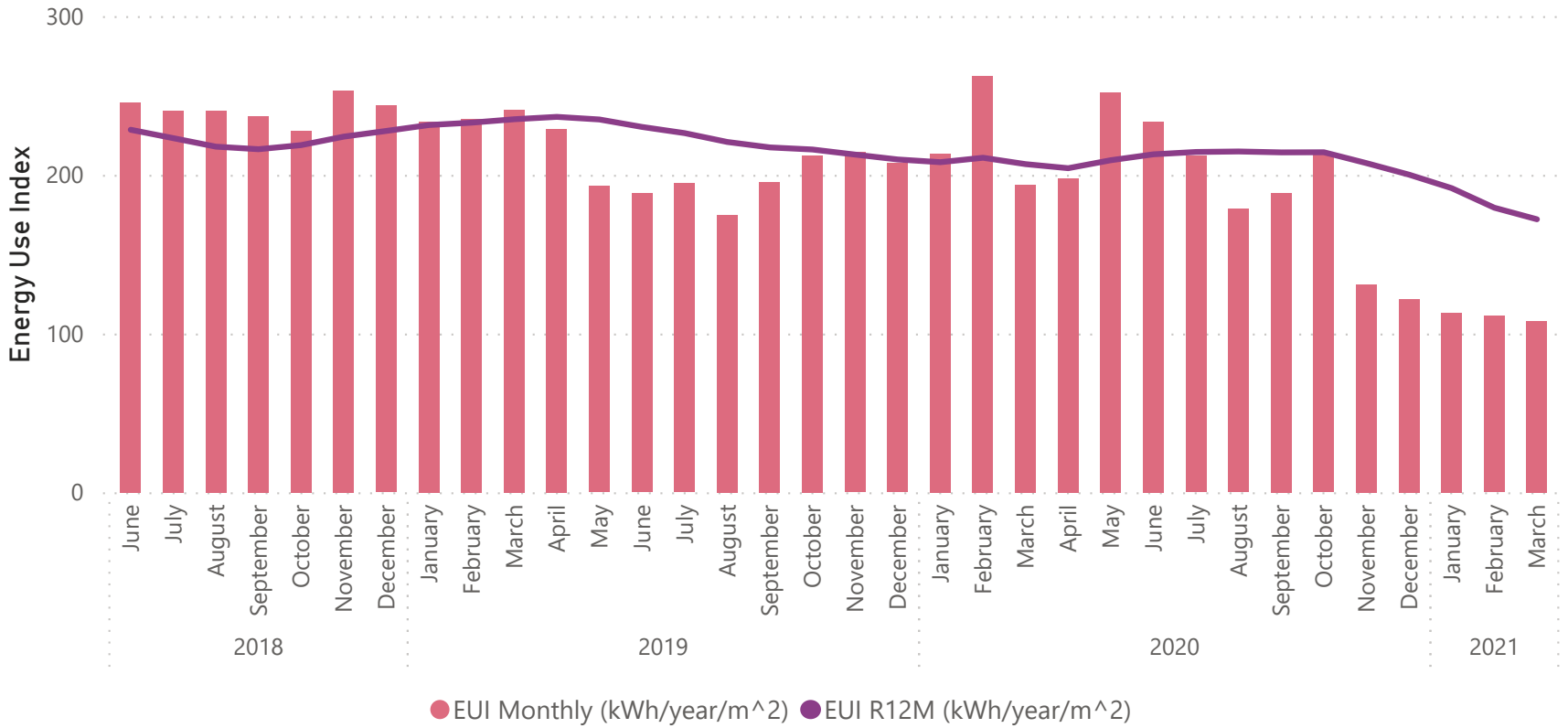
Te Koputu Library Carbon Emissions Compared to Baseline (kg CO2e)



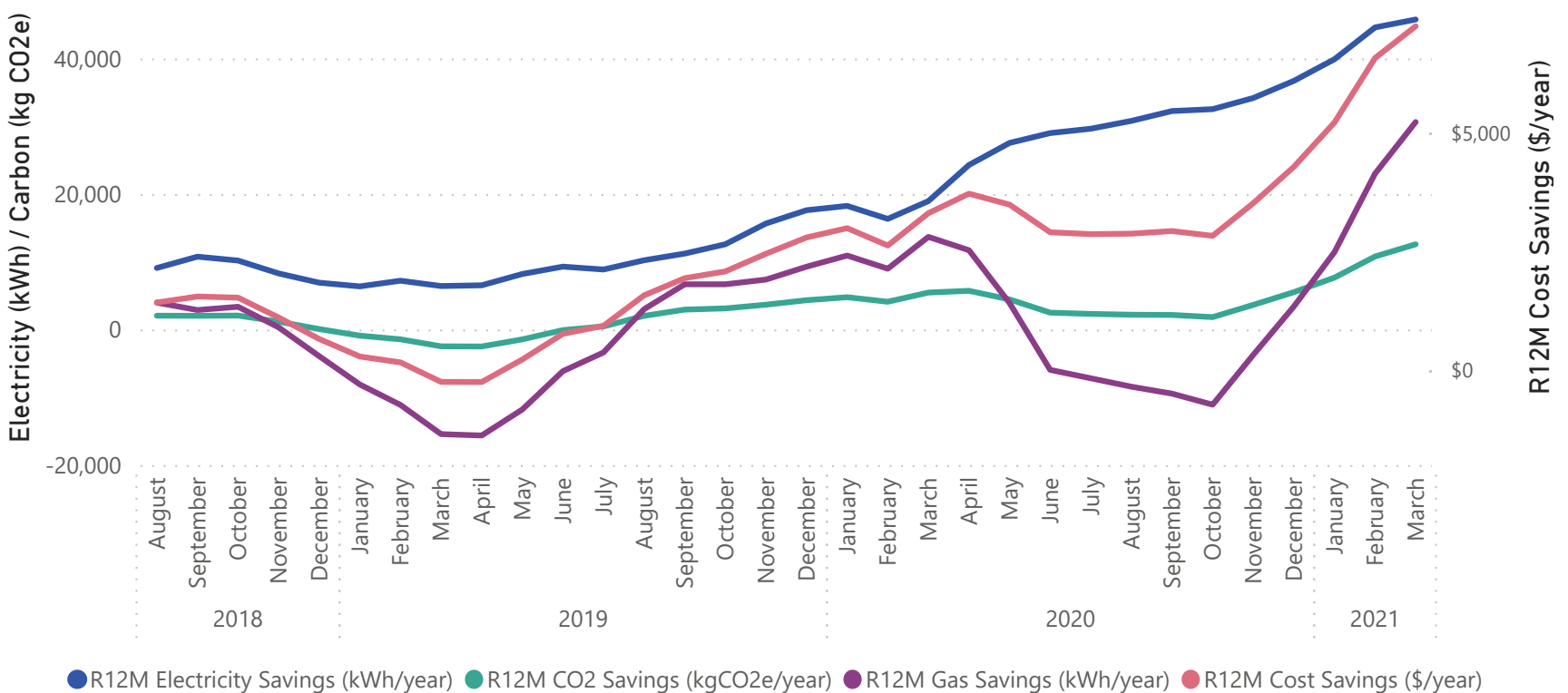
Whakatane District Council

Te Koputu Library

Te Koputu Library Energy Use Index by Month Compared to Rolling 12-Month Values



Te Koputu Library Cumulative Rolling 12 Month Savings



Whakatane District Council

Museum and Research Centre

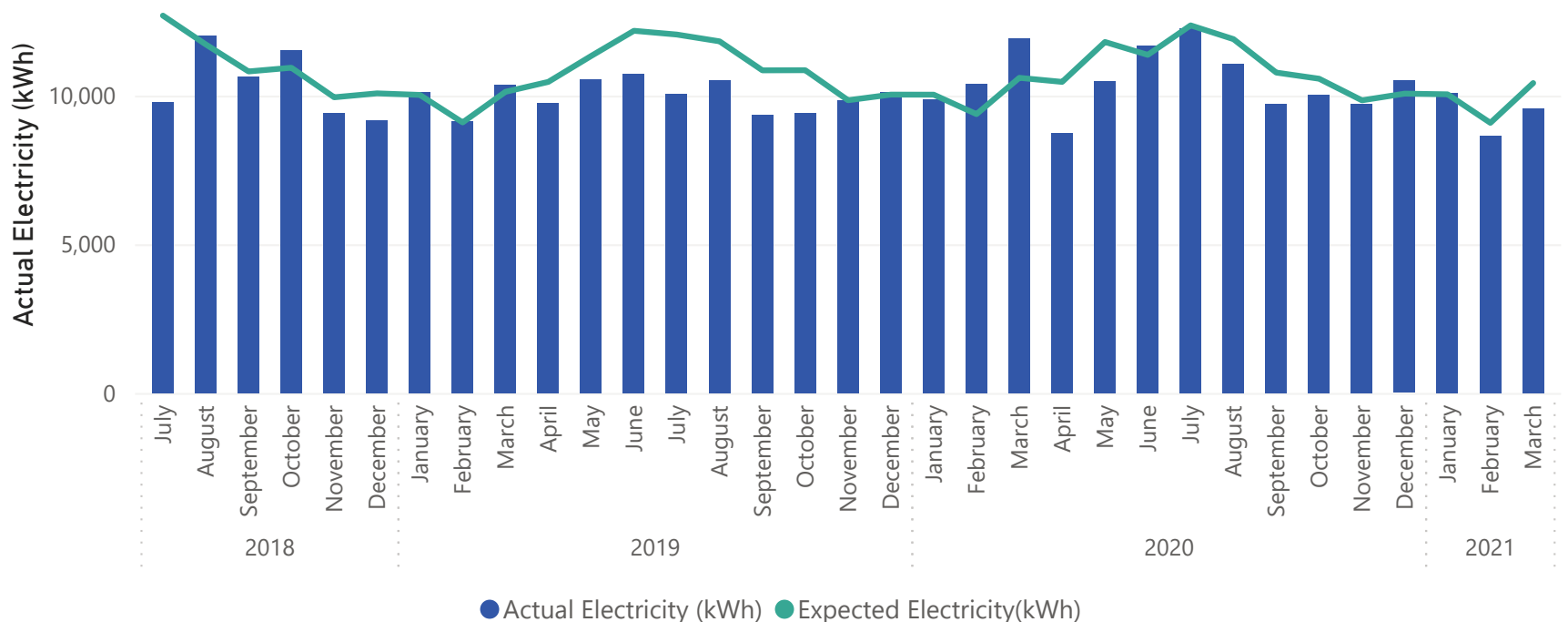
\$184 Monthly Energy Cost Savings	839 Elec. Savings (kWh/mo)	8% Elec. Savings (%)	6,173 R12M Electricity Savings (kWh/yr)	361 CO2e Savings (kg/mo)
-\$267 R12M Energy Cost Savings	1,167 Gas. Savings (kWh/mo)	19% Gas. Savings (%)	-12,749 R12M Gas Savings (kWh/yr)	-1,970 R12M CO2e Savings (kg/yr)

Comments:

Electricity use at the Museum and Research Centre is below baseline for March 2021. Compared to March 2020, electricity use has decreased by 20%. March 2021 was a warmer month on average.

The Museum and Research Centre achieved a savings of 19% below baseline for natural gas. Compared to March 2020, the museum used 2.2 times more natural gas in March 2021. This seems to be the result of the meter not being read for several months from Aug 2019 to Apr 2020.

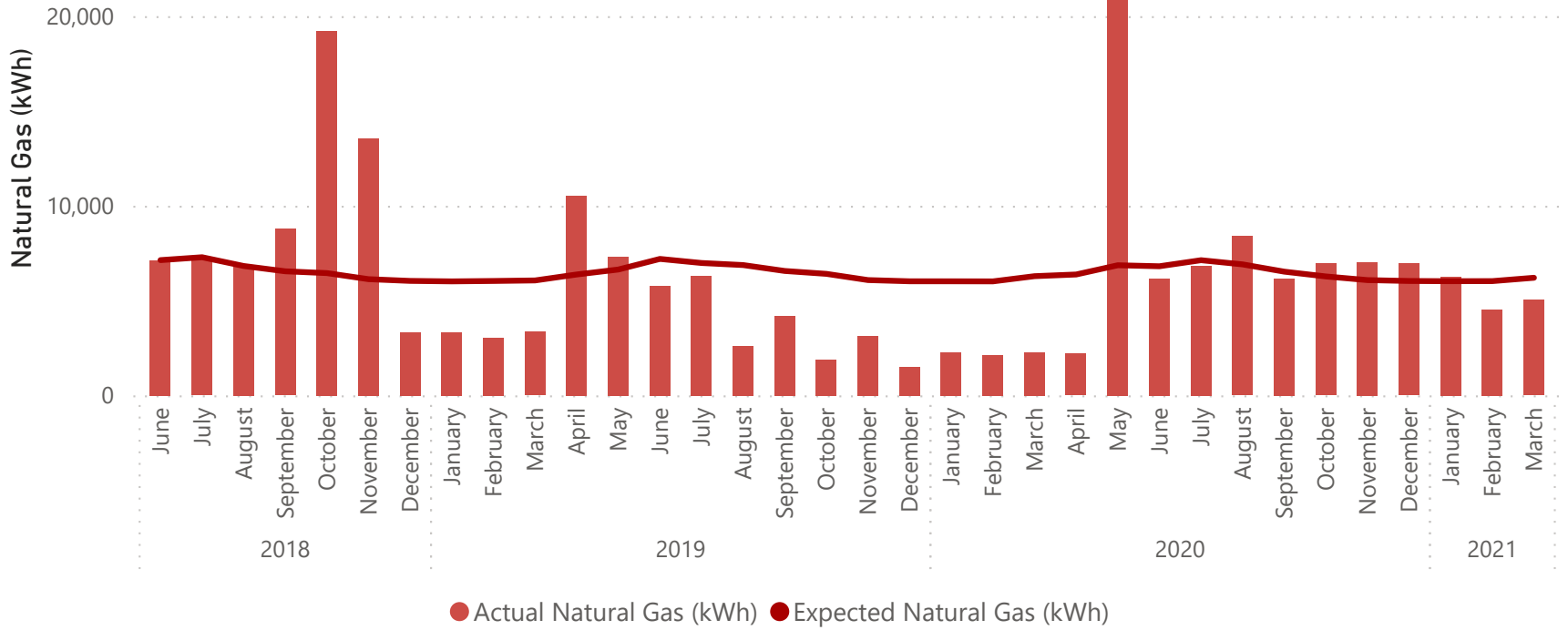
Museum Research Centre Electricity Use Compared to Baseline (kWh)



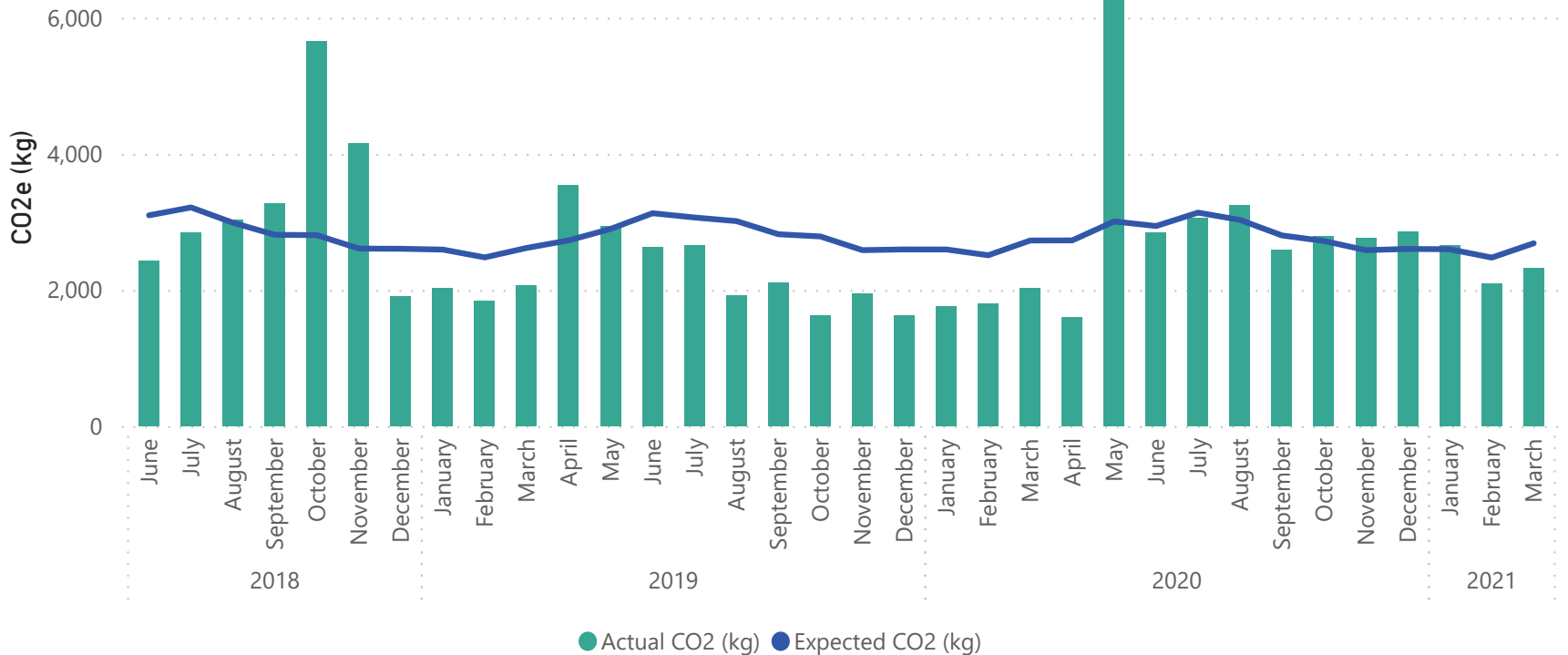
Whakatane District Council

Museum and Research Centre

Museum Research Centre Natural Gas Compared to Baseline (kWh)



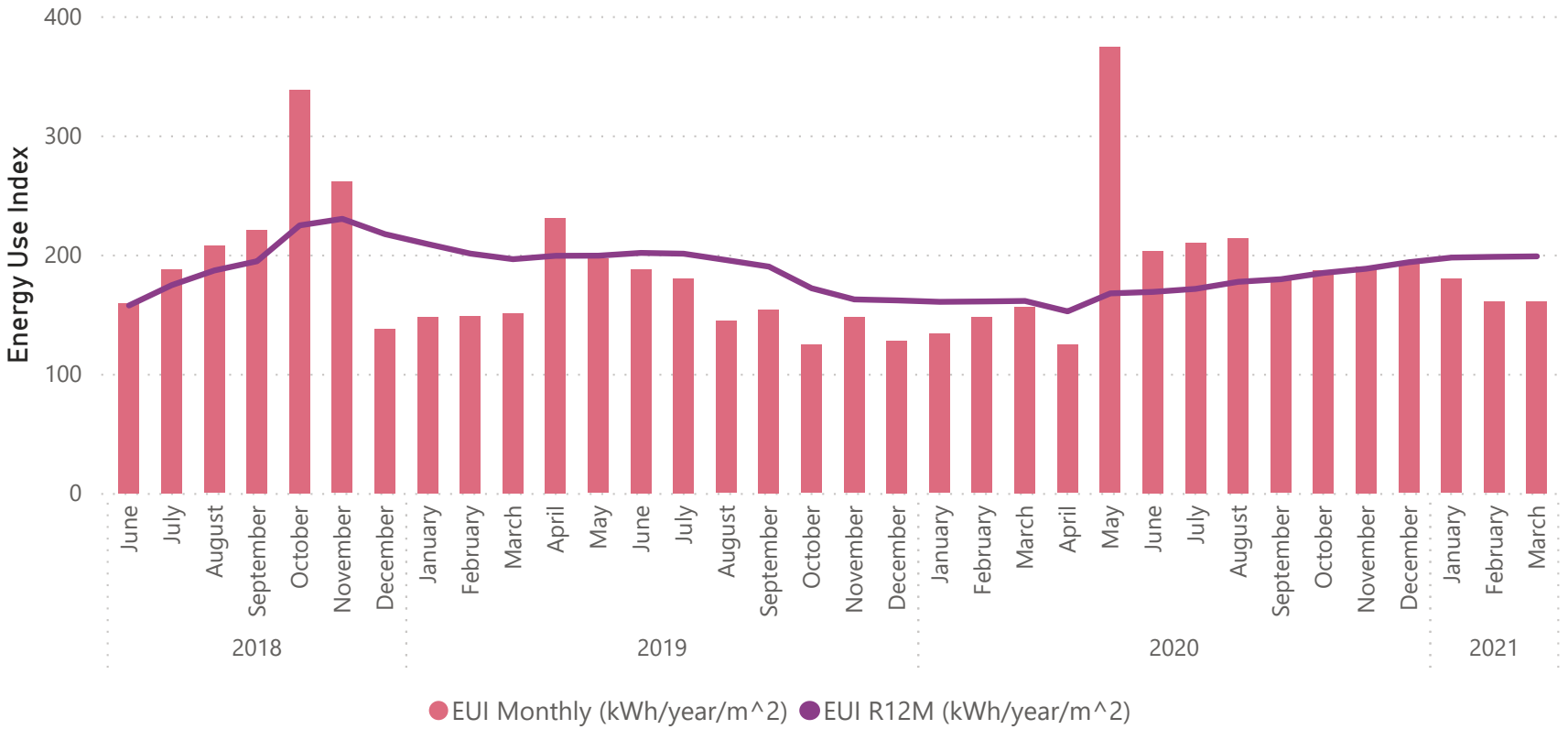
Museum Research Centre Carbon Emissions Compared to Baseline (kg CO2e)



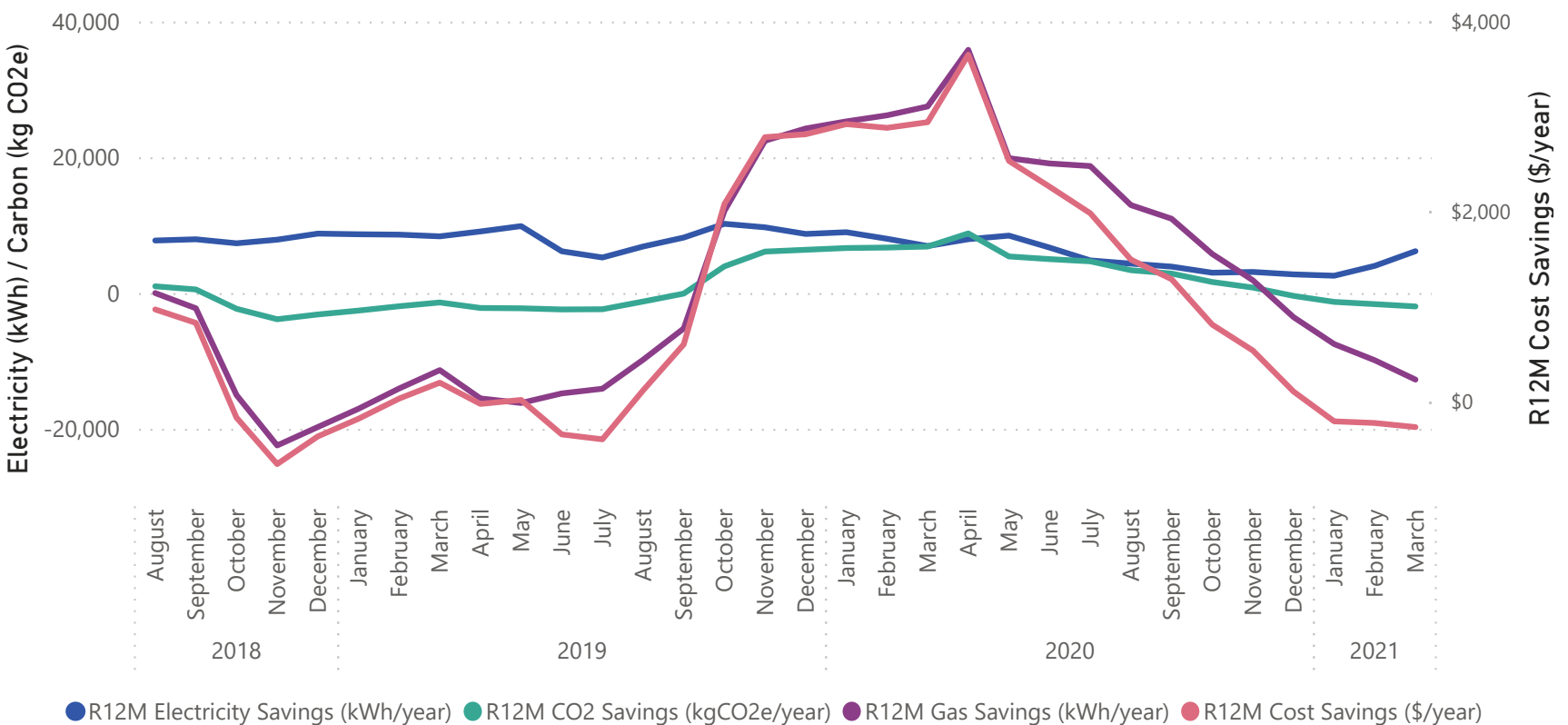
Whakatane District Council

Museum and Research Centre

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



Museum Research Centre Cumulative Rolling 12 Month Savings



Whakatane District Council

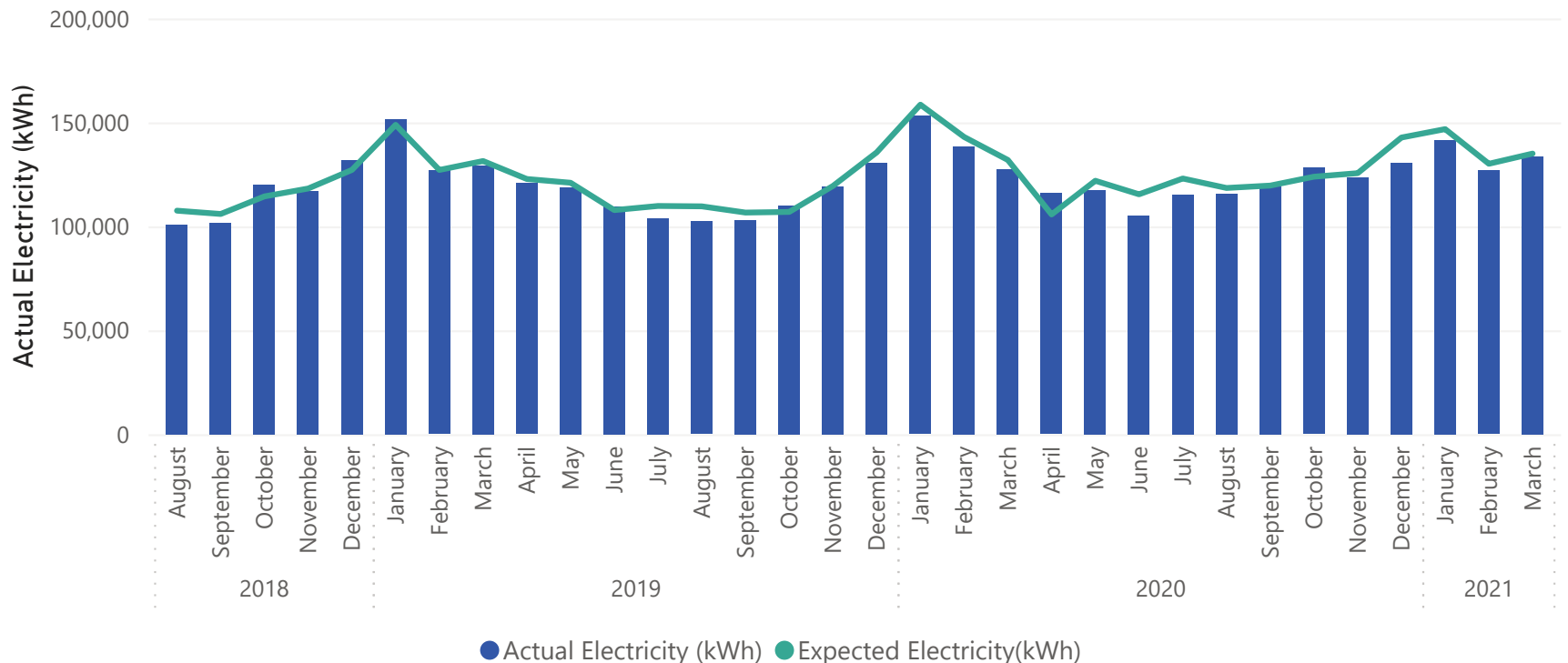
Water Treatment Plant

<p>\$142 Monthly Energy Cost Savings</p>	<p>1,265 Elec. Savings (kWh/mo)</p>	<p>1% Elec. Savings (%)</p>	<p>35,298 R12M Electricity Savings (kWh/yr)</p>	<p>163 CO2e Savings (kg/mo)</p>
<p>\$3,922 R12M Energy Cost Savings</p>				<p>4,543 R12M CO2e Savings (kg/yr)</p>

Comments:

Demand for water in March 2021 was 3% higher and electricity use was 5% higher compared to March 2020. Excluding summer months, demand was relatively steady in 2020 and was consistent with historical trends. Compared to previous years, peak demand has been less pronounced in 2021.

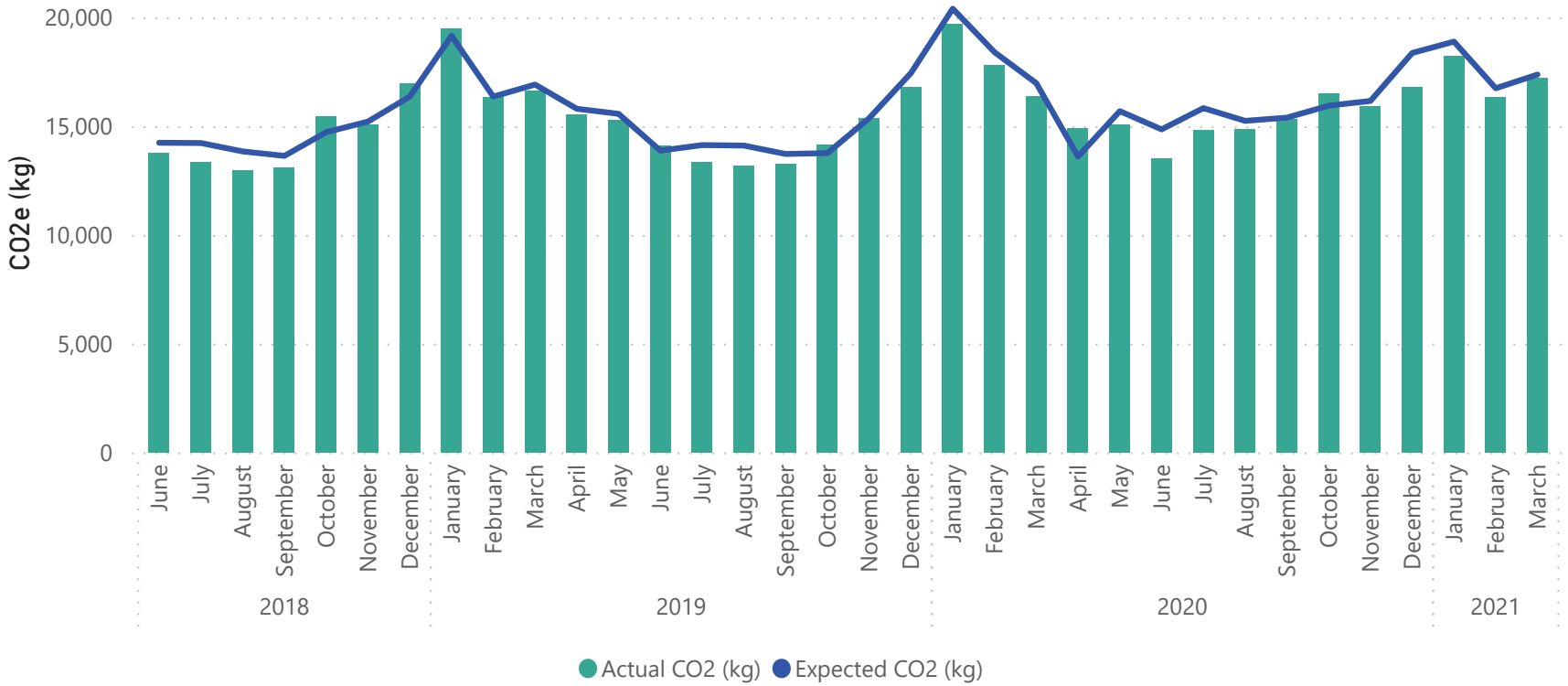
Water Treatment Plant Electricity Use Compared to Baseline (kWh)



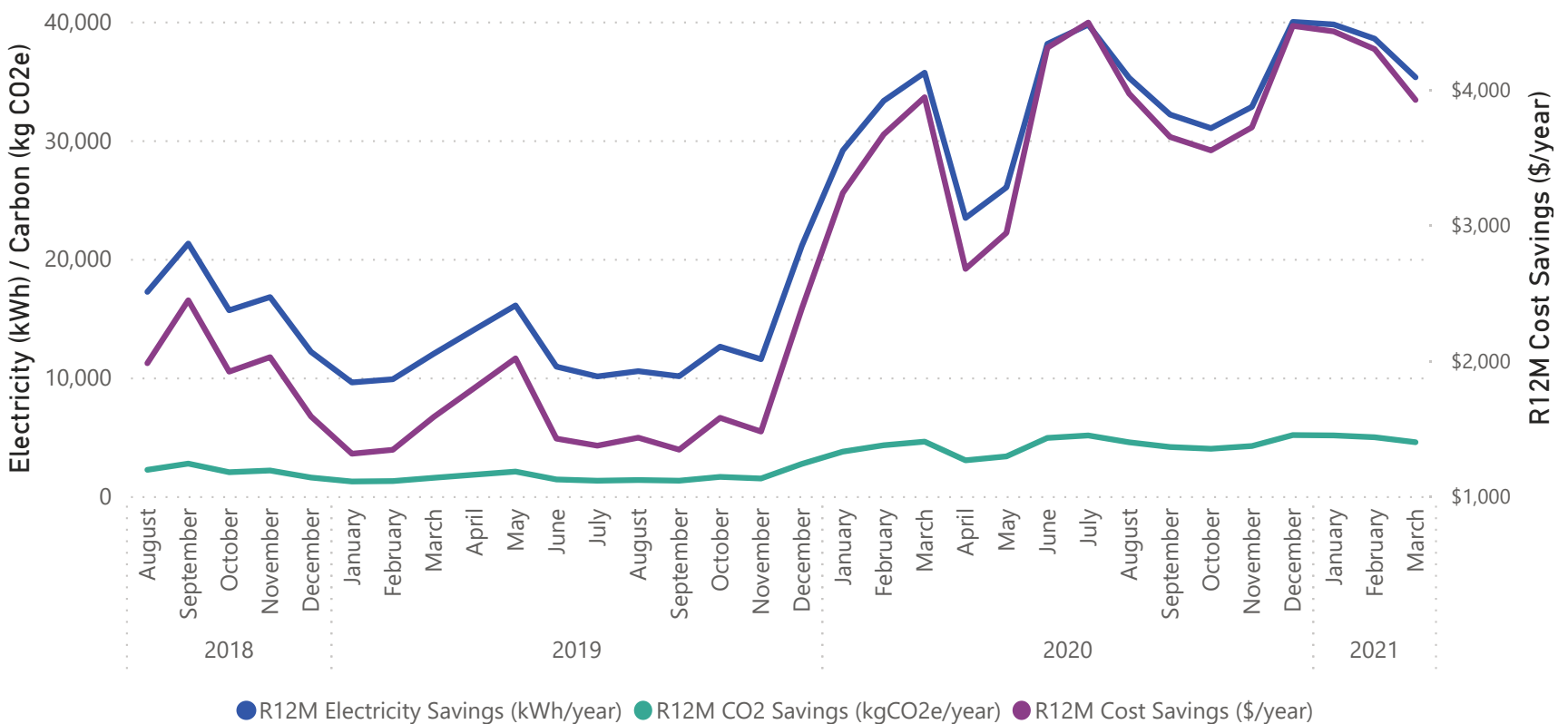
Whakatane District Council

Water Treatment Plant

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



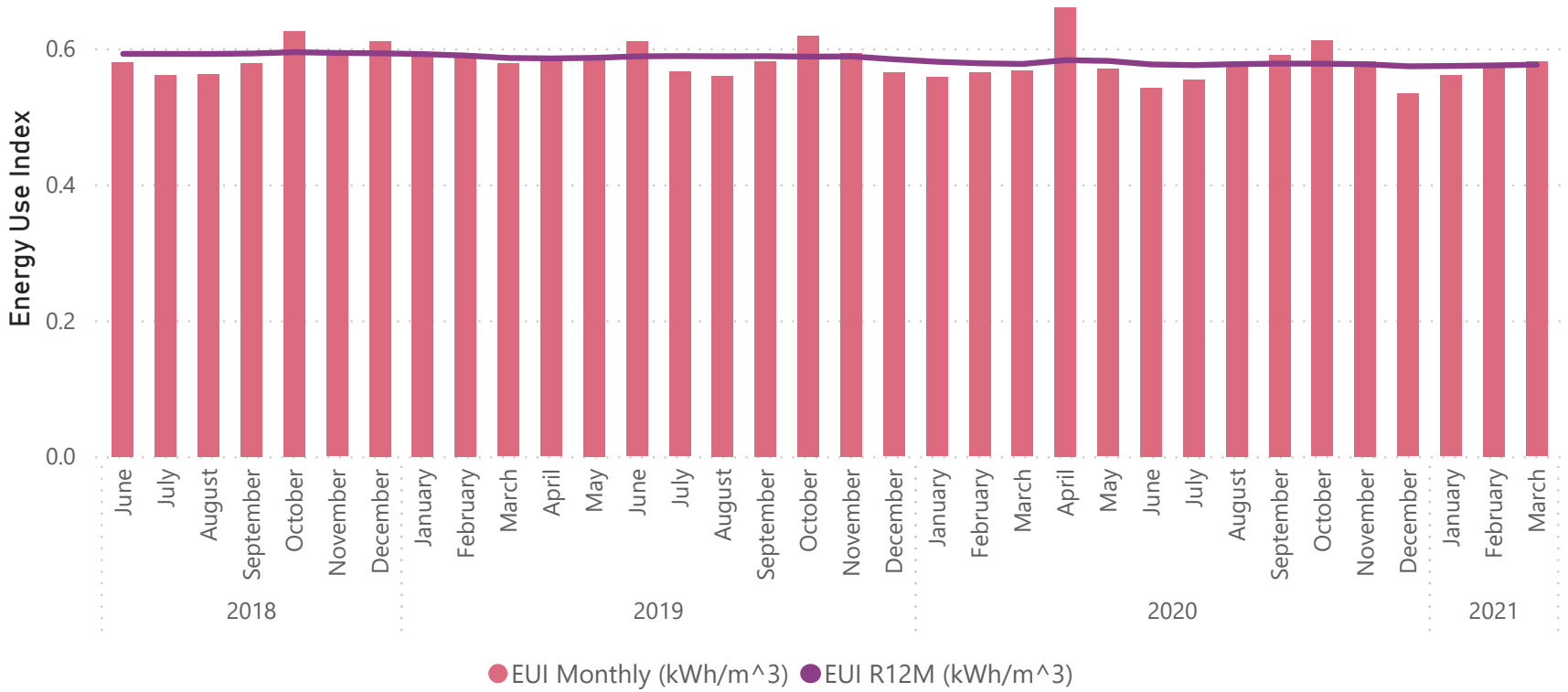
Water Treatment Plant Cumulative Rolling 12 Month Savings



Whakatane District Council

Water Treatment Plant

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



Whakatane District Council

Braemar Road Pump Station

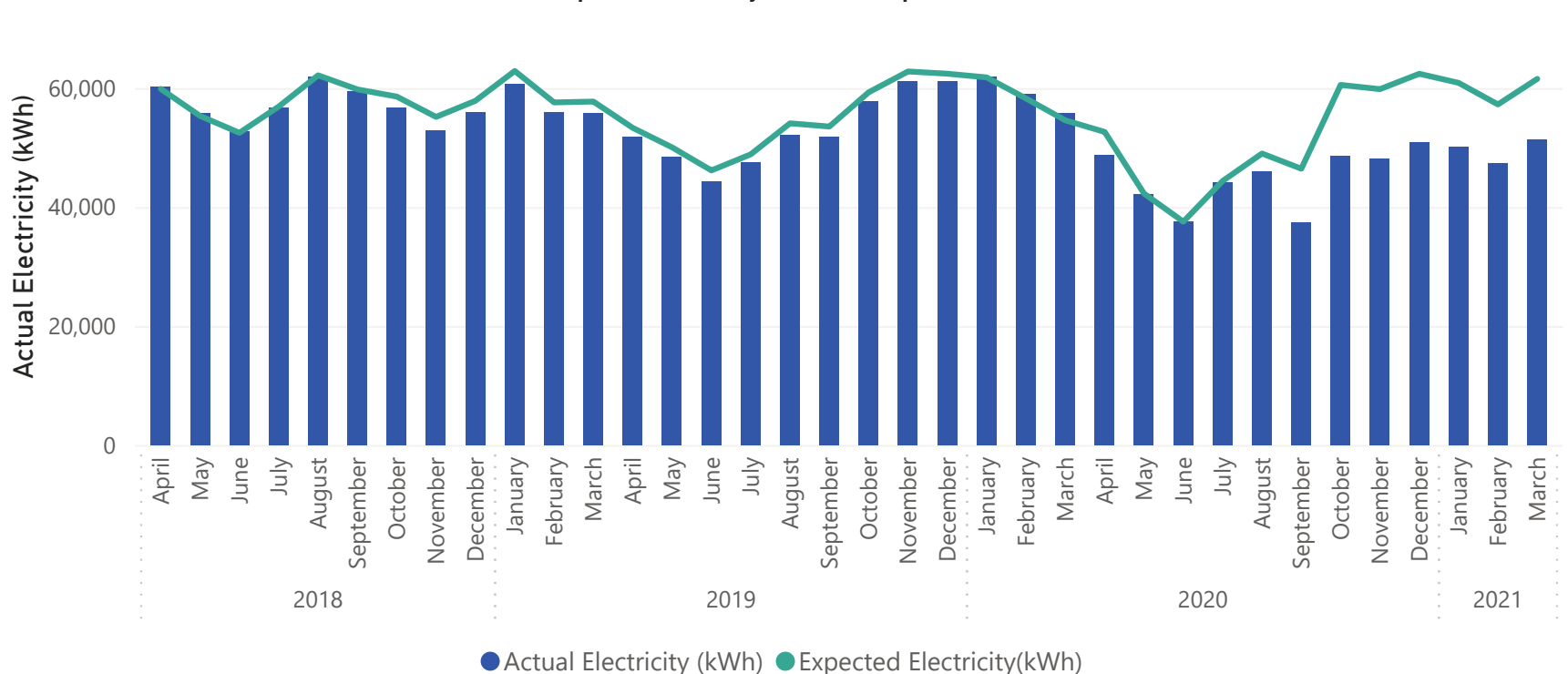
<p>\$1,195 Monthly Energy Cost Savings</p>	<p>10,131 Elec. Savings (kWh/mo)</p>	<p>16% Elec. Savings (%)</p>	<p>81,971 R12M Electricity Savings (kWh/yr)</p>	<p>1,314 CO2e Savings (kg/mo)</p>
<p>\$8,533 R12M Energy Cost Savings</p>				<p>11,325 R12M CO2e Savings (kg/yr)</p>

Comments:

Compared to baseline, Braemar Rd. has saved approximately 16% in electricity use in March 2021. This is the seventh month in a row that significant savings have been achieved. Over the past seven months, electricity use has been 18% less than baseline on average. The savings are due to new, more efficient pumps installed late in August, which have consistently proven to use less electricity to pump water.

Rolling 12 month savings have set a new record, with savings of \$8,500 per year, 82,000 kWh per year, and 11,300 kgCO2e per year.

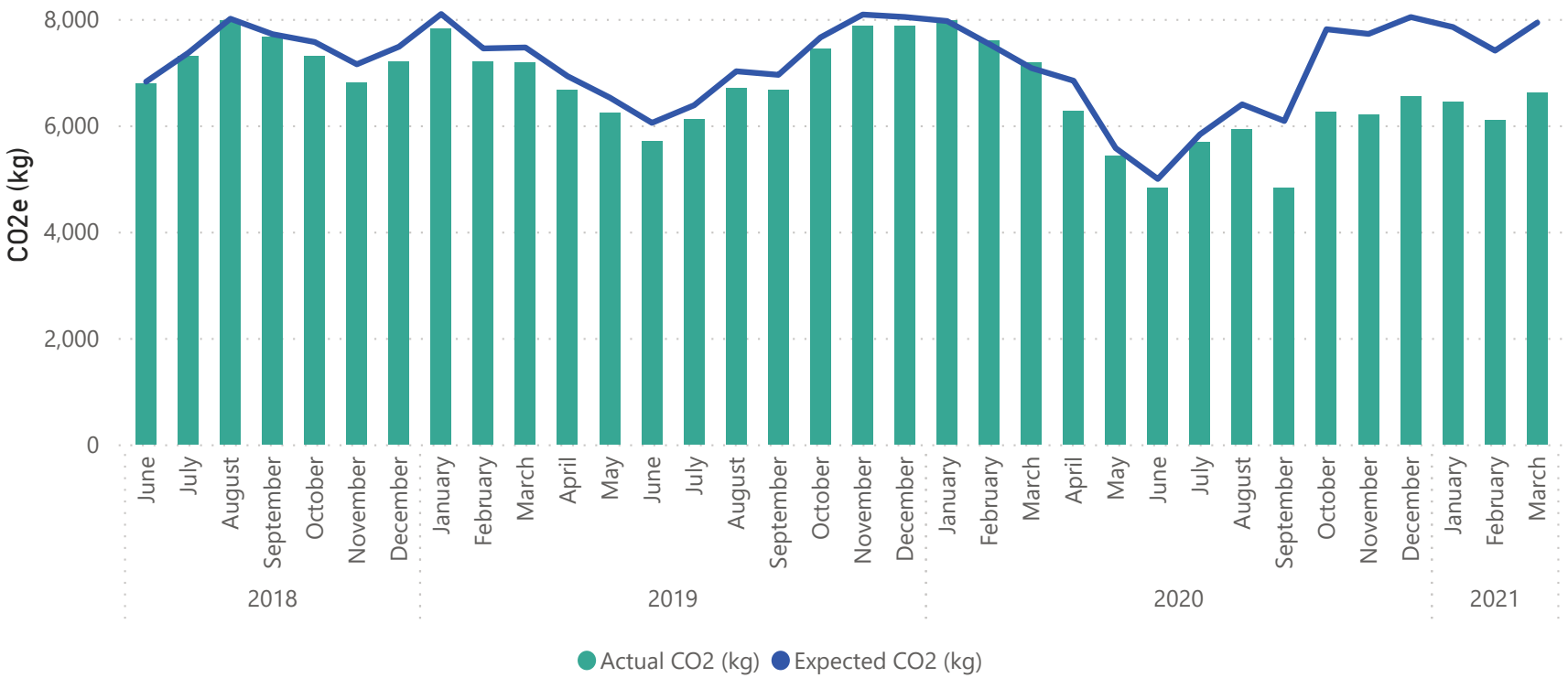
Braemar Rd Pumps Electricity Use Compared to Baseline (kWh)



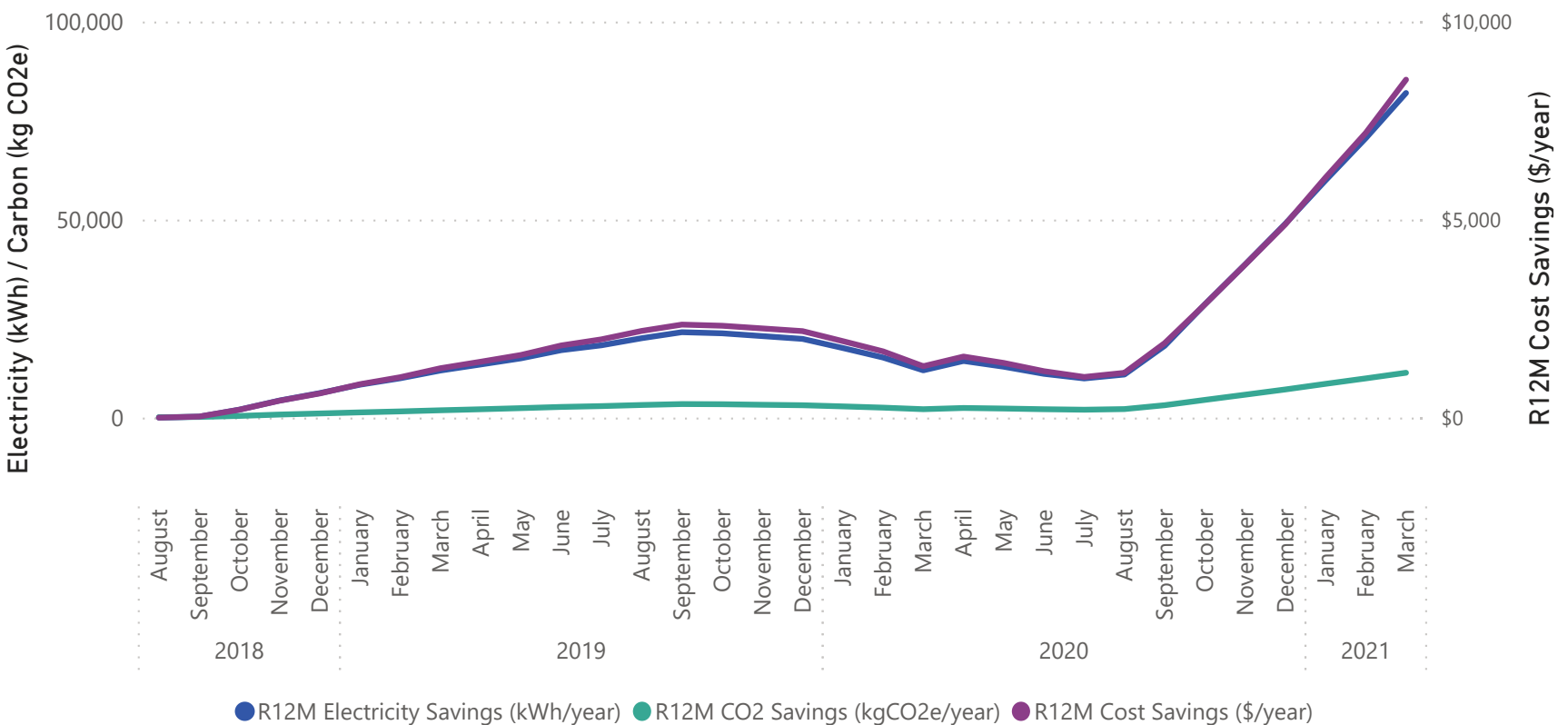
Whakatane District Council

Braemar Road Pump Station

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



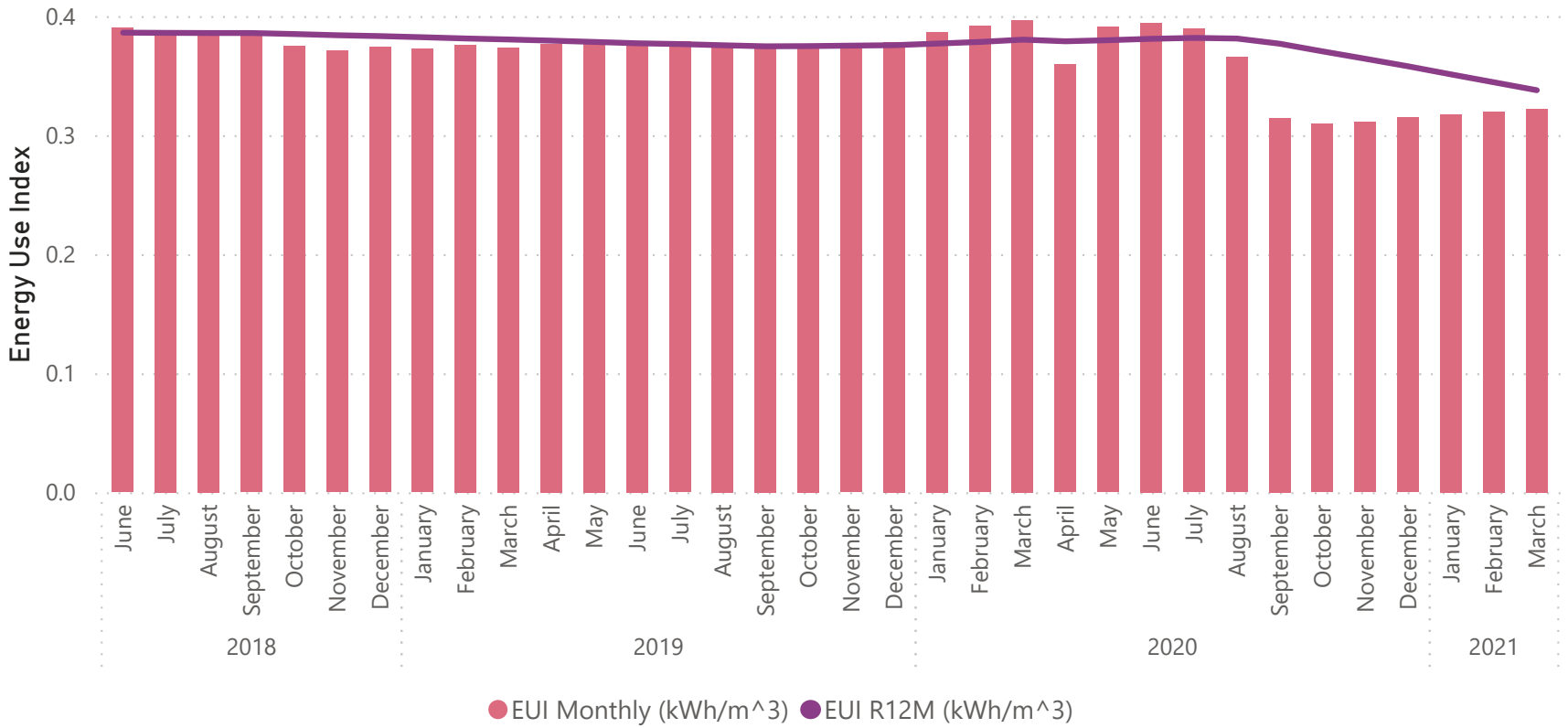
Braemar Rd Pumps Cumulative Rolling 12 Month Savings



Whakatane District Council

Braemar Road Pump Station

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



Whakatane District Council

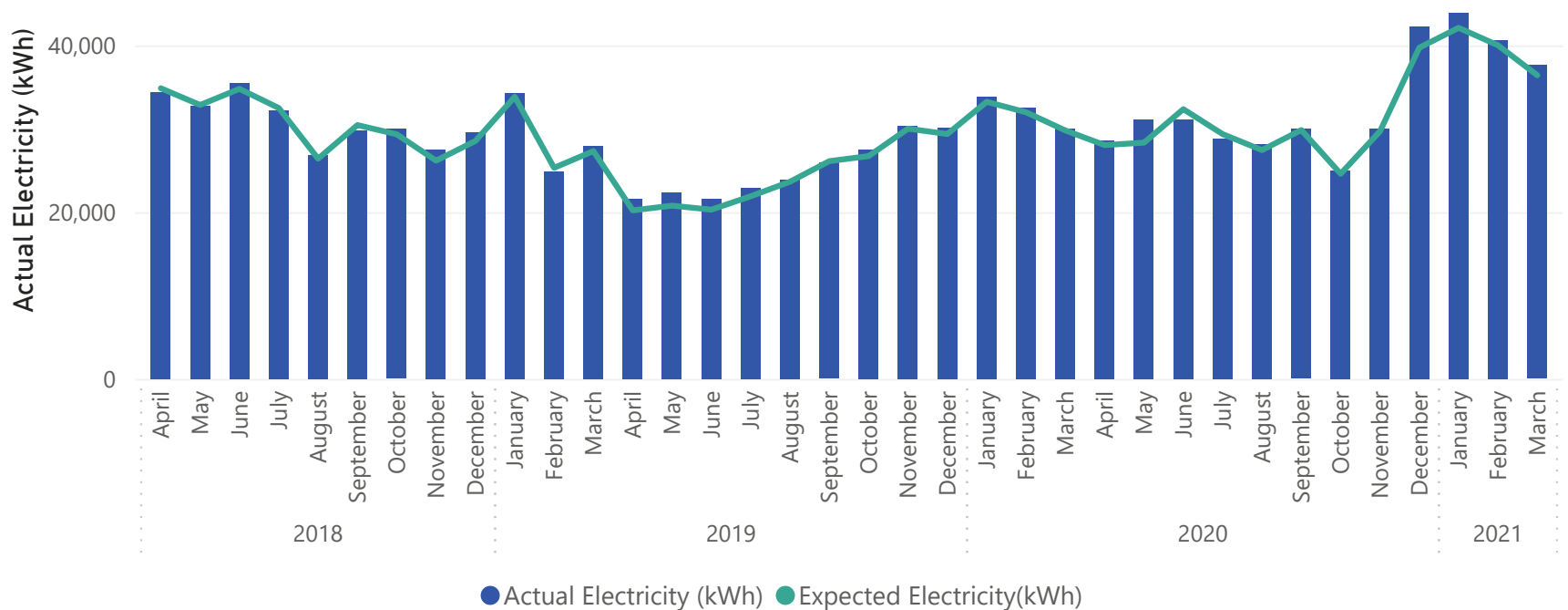
Paul Road Pump Station

<p>-\$139 Monthly Energy Cost Savings</p>	<p>-1,214 Elec. Savings (kWh/mo)</p>	<p>-3% Elec. Savings (%)</p>	<p>-9,151 R12M Electricity Savings (kWh/yr)</p>	<p>-155 CO2e Savings (kg/mo)</p>
<p>-\$929 R12M Energy Cost Savings</p>				<p>-1,169 R12M CO2e Savings (kg/yr)</p>

Comments:

Paul Rd Pump Station electricity was above baseline in March 2021 and pumped water has increased by 26% compared to March 2020. On an EUI basis, the pumps are still operating consistently at a rate of approx 0.66 kWh per cubic meter.

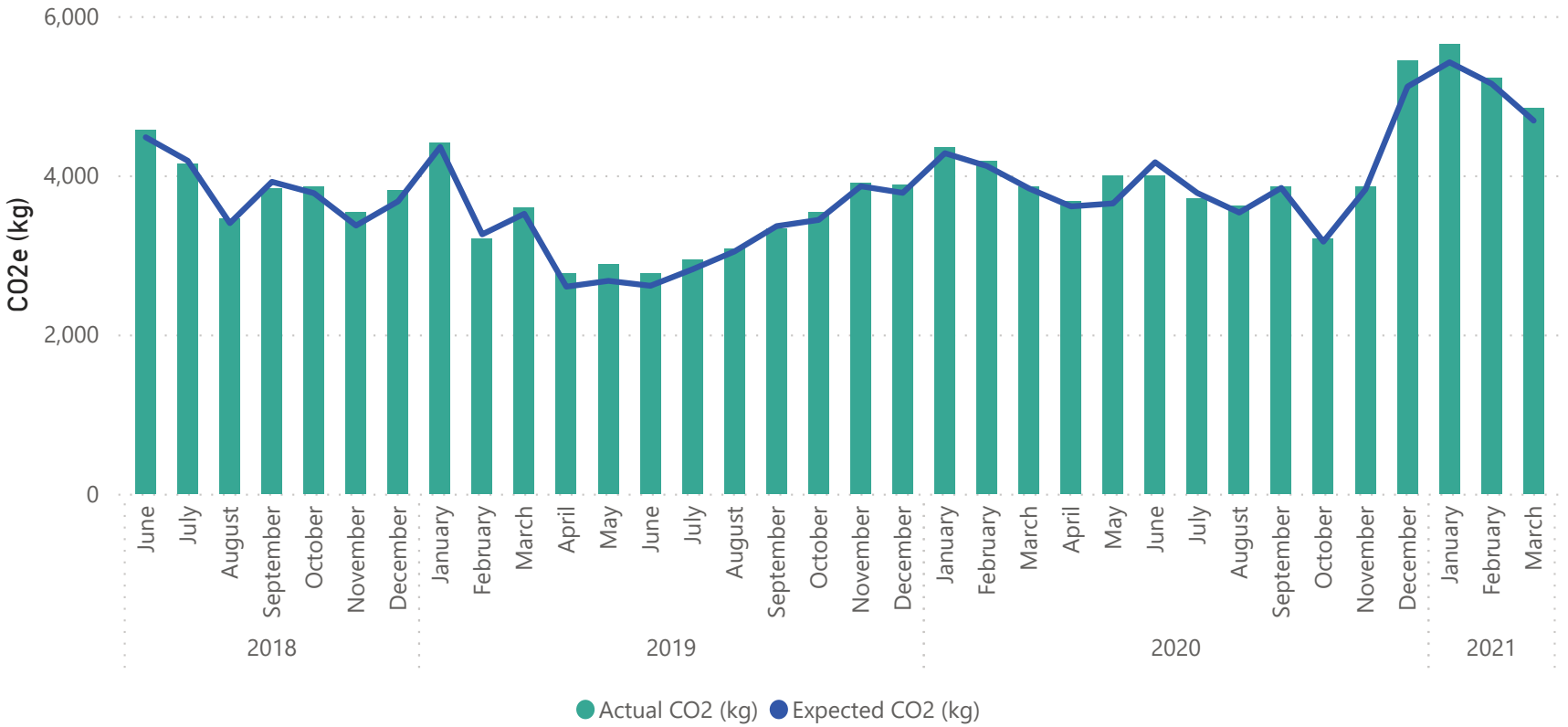
Paul Rd Pumps Electricity Use Compared to Baseline (kWh)



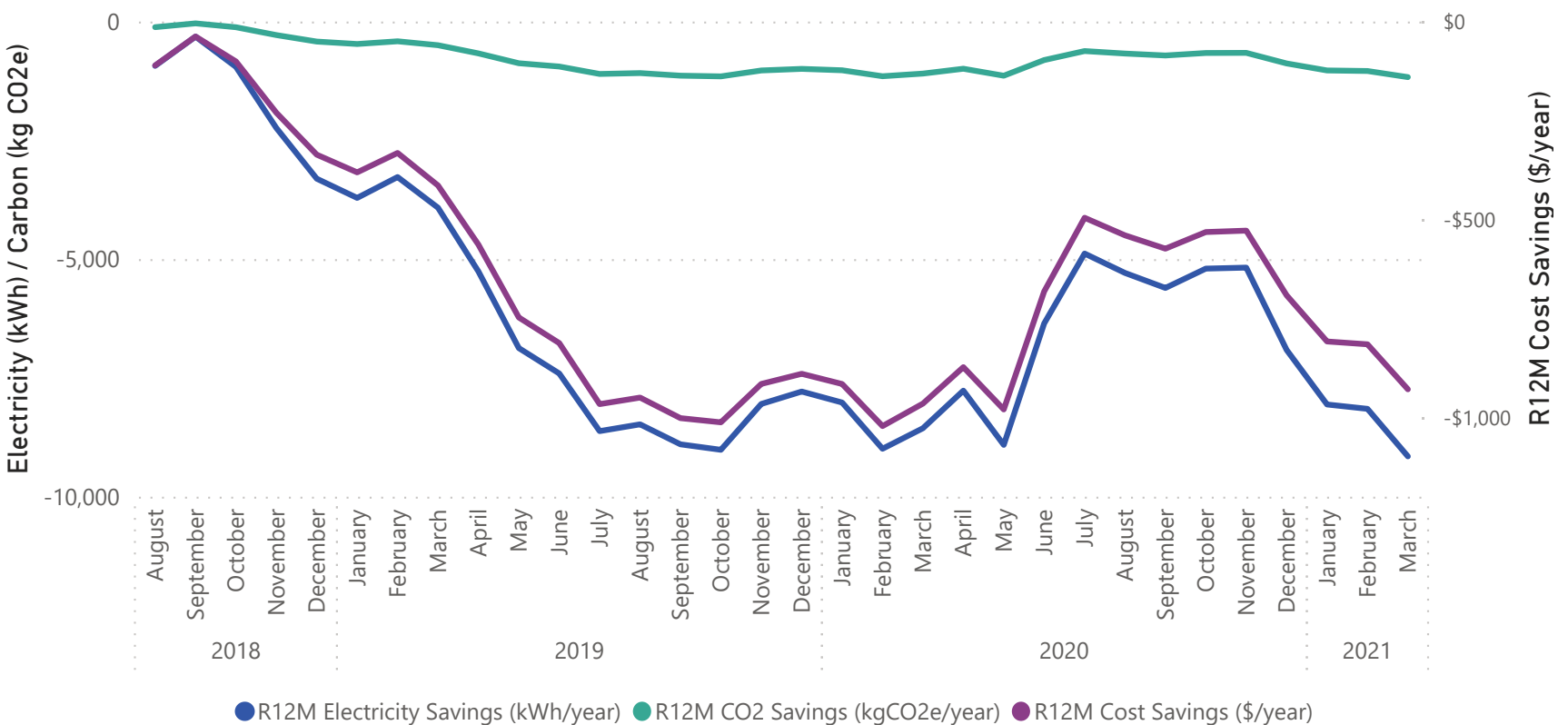
Whakatane District Council

Paul Road Pump Station

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



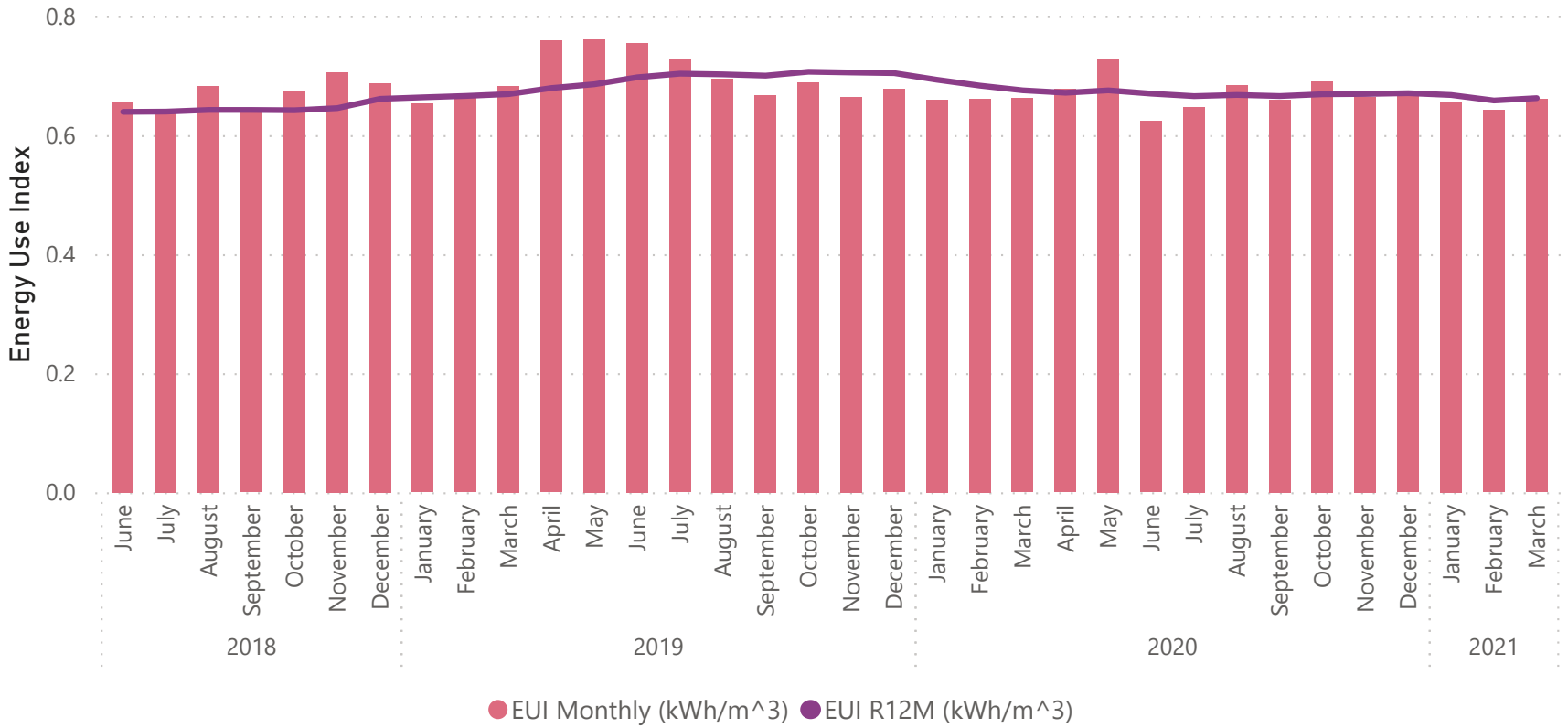
Paul Rd Pumps Cumulative Rolling 12 Month Savings



Whakatane District Council

Paul Road Pump Station

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



Whakatane District Council

Johnson Road Pump Station

<p>-\$410 Monthly Energy Cost Savings</p>	<p>-1,882 Elec. Savings (kWh/mo)</p>	<p>-15% Elec. Savings (%)</p>	<p>-11,108 R12M Electricity Savings (kWh/yr)</p>	<p>-242 CO2e Savings (kg/mo)</p>
<p>-\$2,626 R12M Energy Cost Savings</p>				<p>-1,421 R12M CO2e Savings (kg/yr)</p>

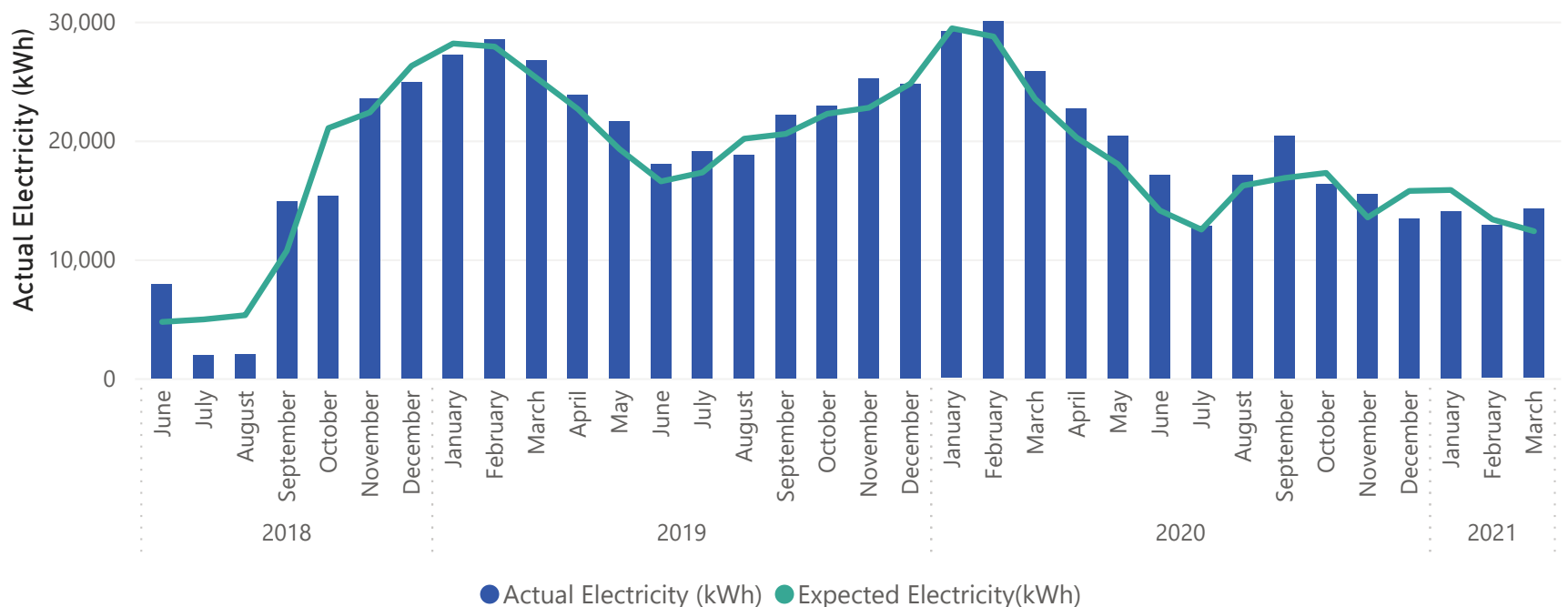
Comments:

Electricity use was more than baseline at Johnson Rd in March 2021. This may be partly due to when the electricity meter was read, although energy use is adjusted for the actual number of days in the month.

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.

Rolling 12 month savings have been rising for the past six months.

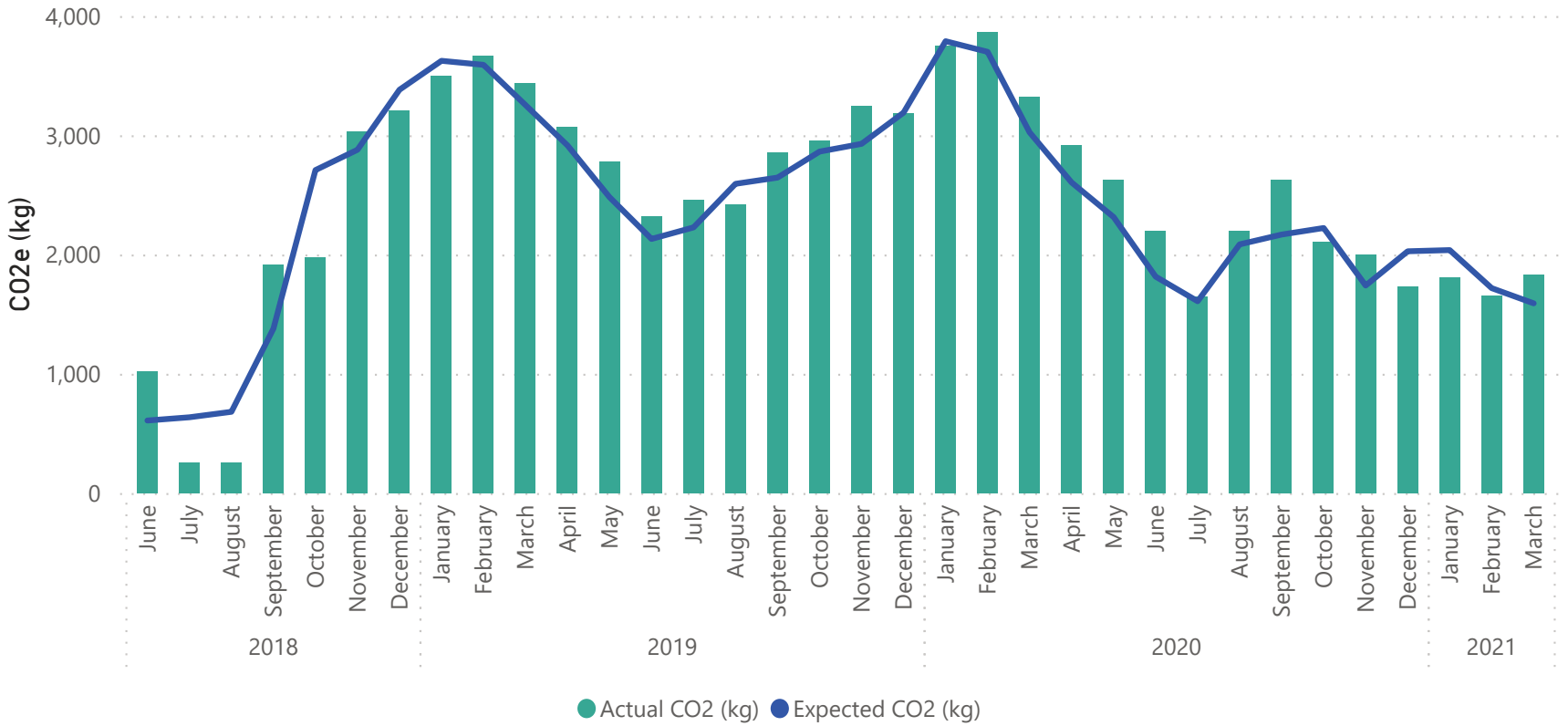
Johnson Rd Pumps Electricity Use Compared to Baseline (kWh)



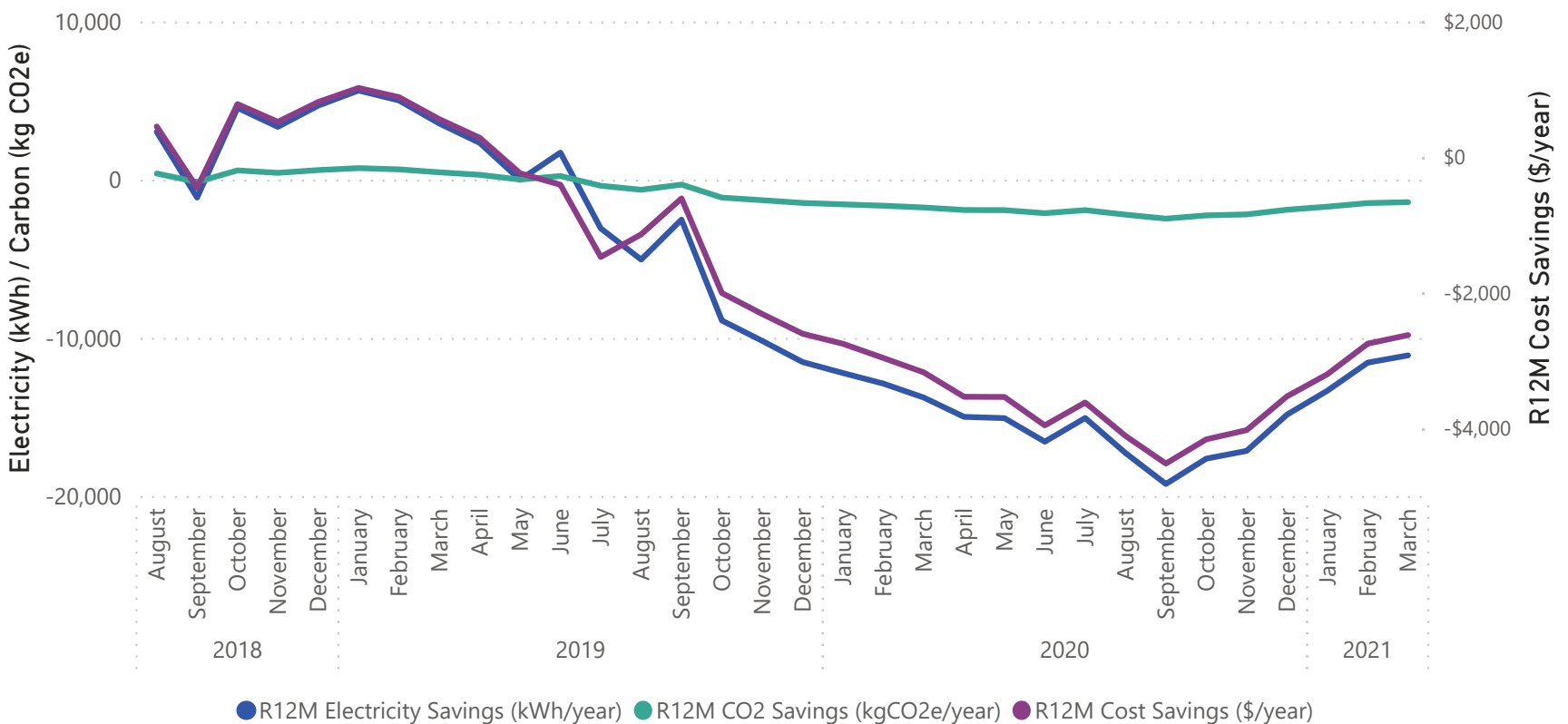
Whakatane District Council

Johnson Road Pump Station

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



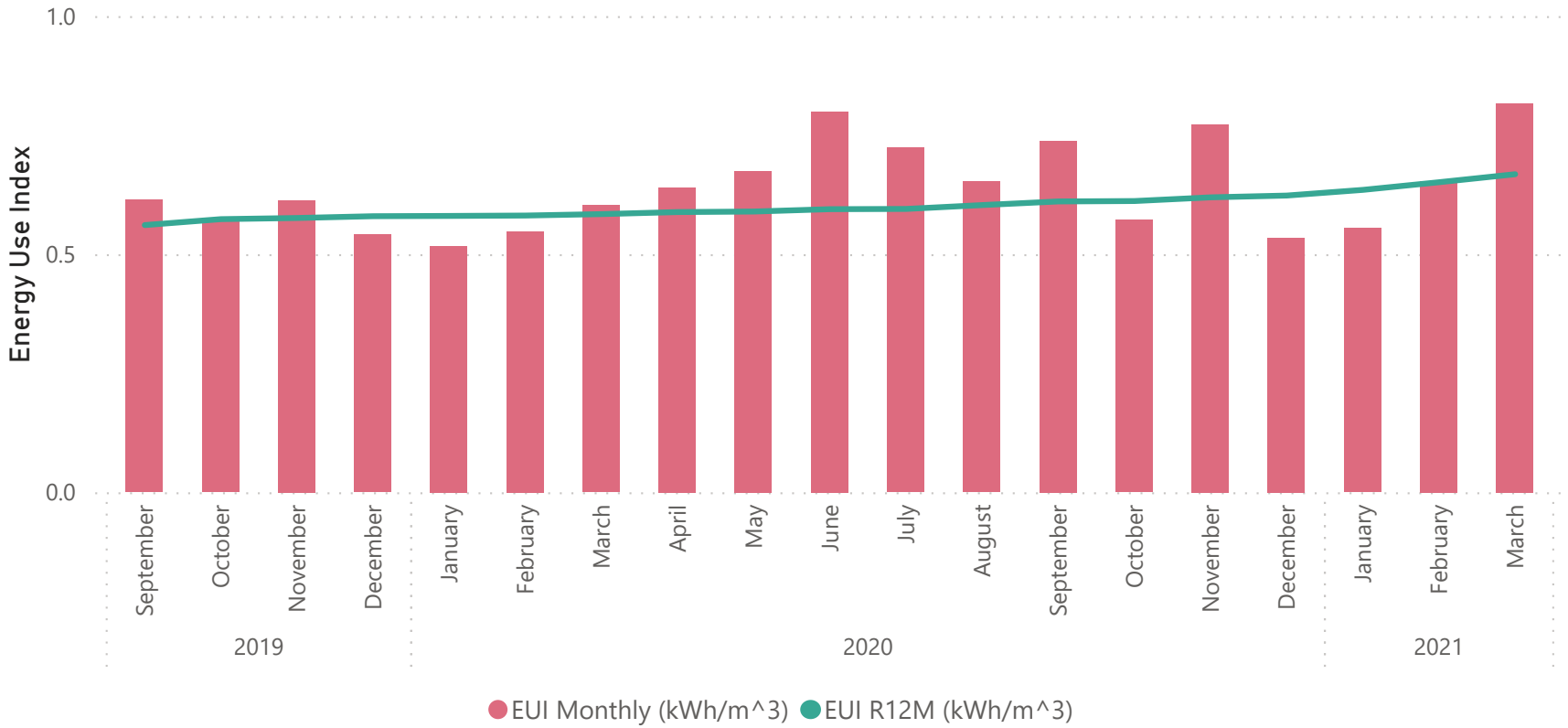
Johnson Rd Pumps Cumulative Rolling 12 Month Savings



Whakatane District Council

Johnson Road Pump Station

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



Whakatane District Council

Johnson and Braemar Rd Pump Stations

<p>\$785 Monthly Energy Cost Savings</p>	<p>8,249 Elec. Savings (kWh/mo)</p>	<p>11% Elec. Savings (%)</p>	<p>70,863 R12M Electricity Savings (kWh/yr)</p>	<p>1,072 CO2e Savings (kg/mo)</p>
<p>\$5,907 R12M Energy Cost Savings</p>				<p>9,904 R12M CO2e Savings (kg/yr)</p>

Comments:

Monitoring Johnson Road and Braemar Road pump stations together was a new addition to monitoring and targeting in February 2021. Baseline electricity is the sum of expected electricity for both pump stations and is adjusted for the volume of water pumped.

It is clear from the combined monitoring how the new, more efficient pumps (installed September 2020) at Braemar Rd. 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. Recently, the Braemar pumps are using approximately half as much energy to pump the same amount of water, on a kWh per cubic meter basis when compared to Johnson Road. In March, Johnson Rd's EUI has increased by 26%, some of which may be attributed to when the meter is read.

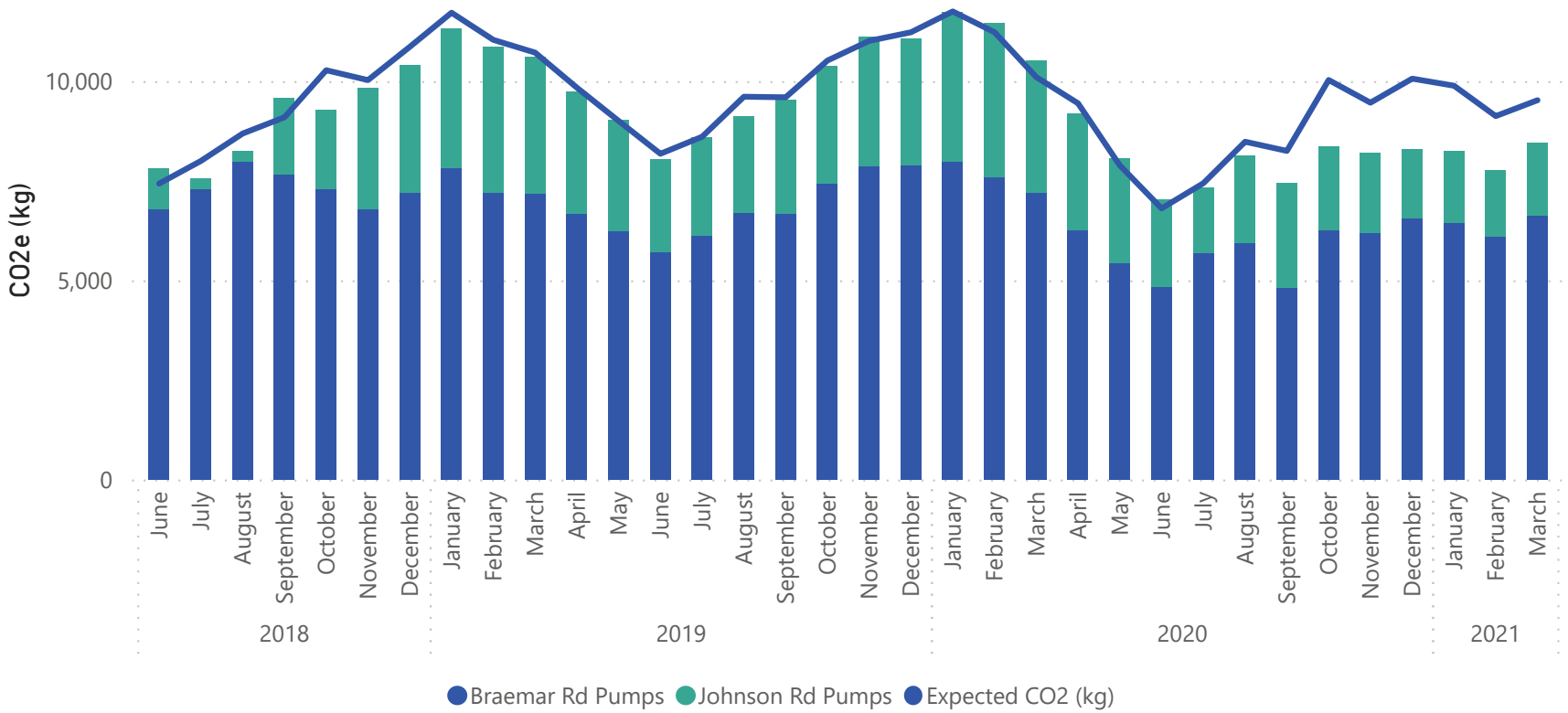
Johnson and Braemar Rd Pump Stations Electricity Use Compared to Baseline (kWh)



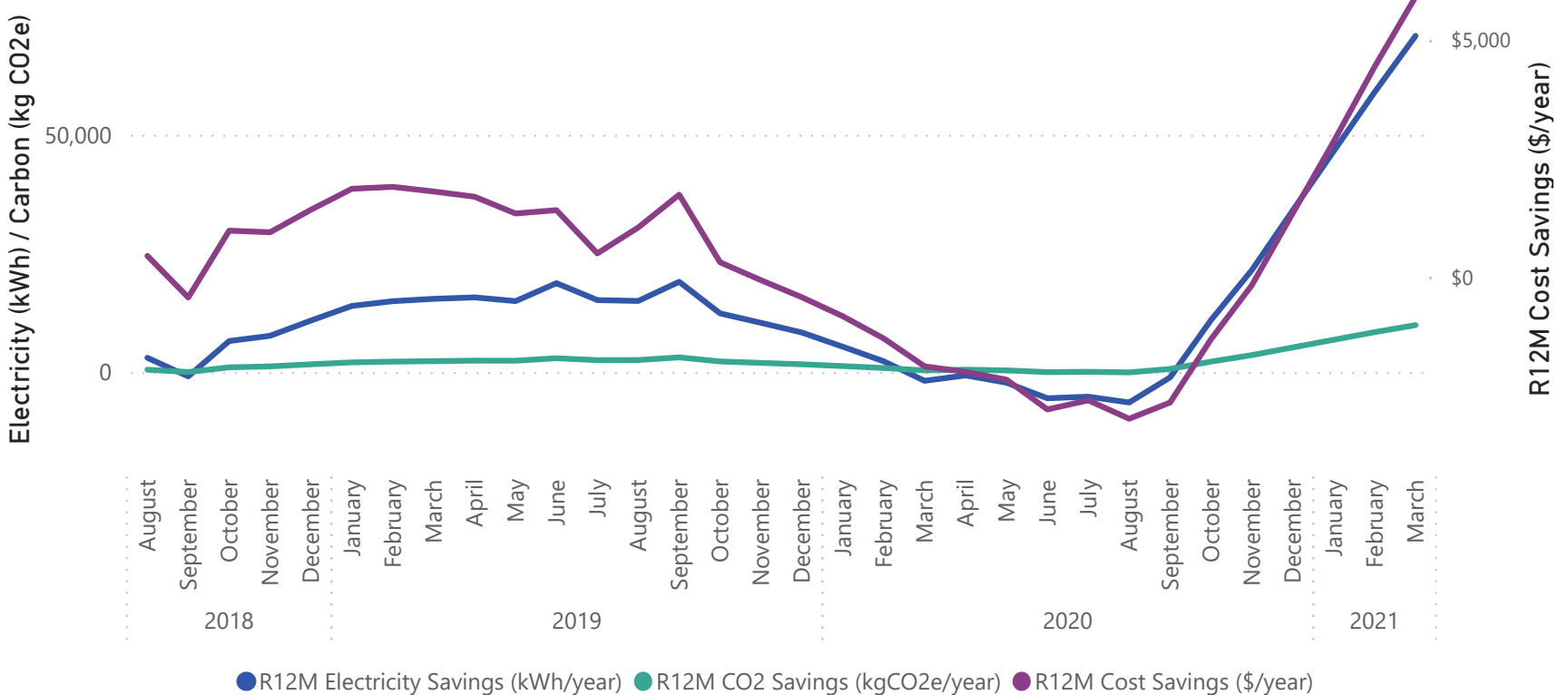
Whakatane District Council

Johnson and Braemar Rd Pump Stations

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



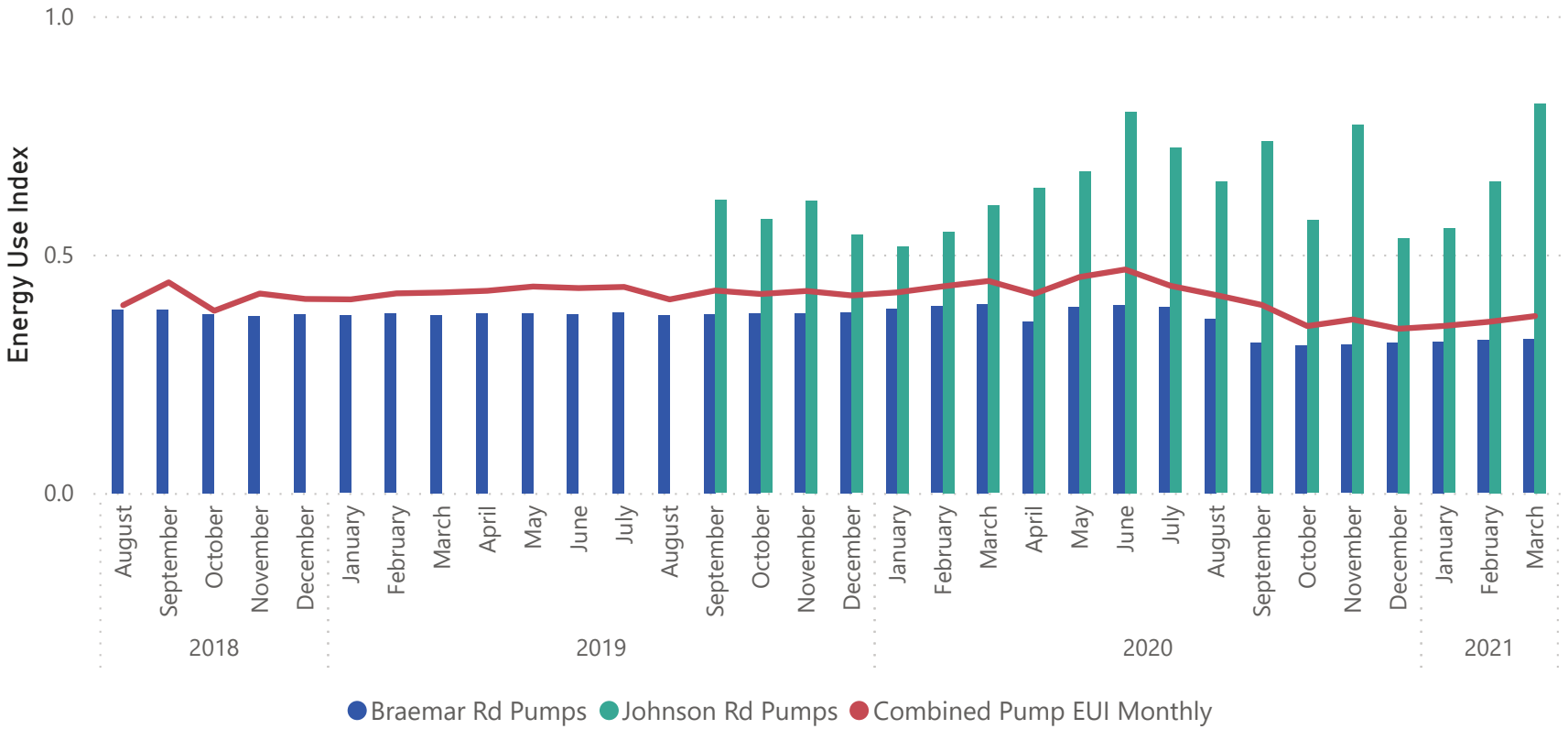
Johnson and Braemar Rd Pump Stations Cumulative Rolling 12 Month Savings



Whakatane District Council

Johnson and Braemar Rd Pump Stations

Johnson and Braemar Rd Pump Stations Energy Use Index by Month



Whakatane District Council

Bridger Glade Pump Station

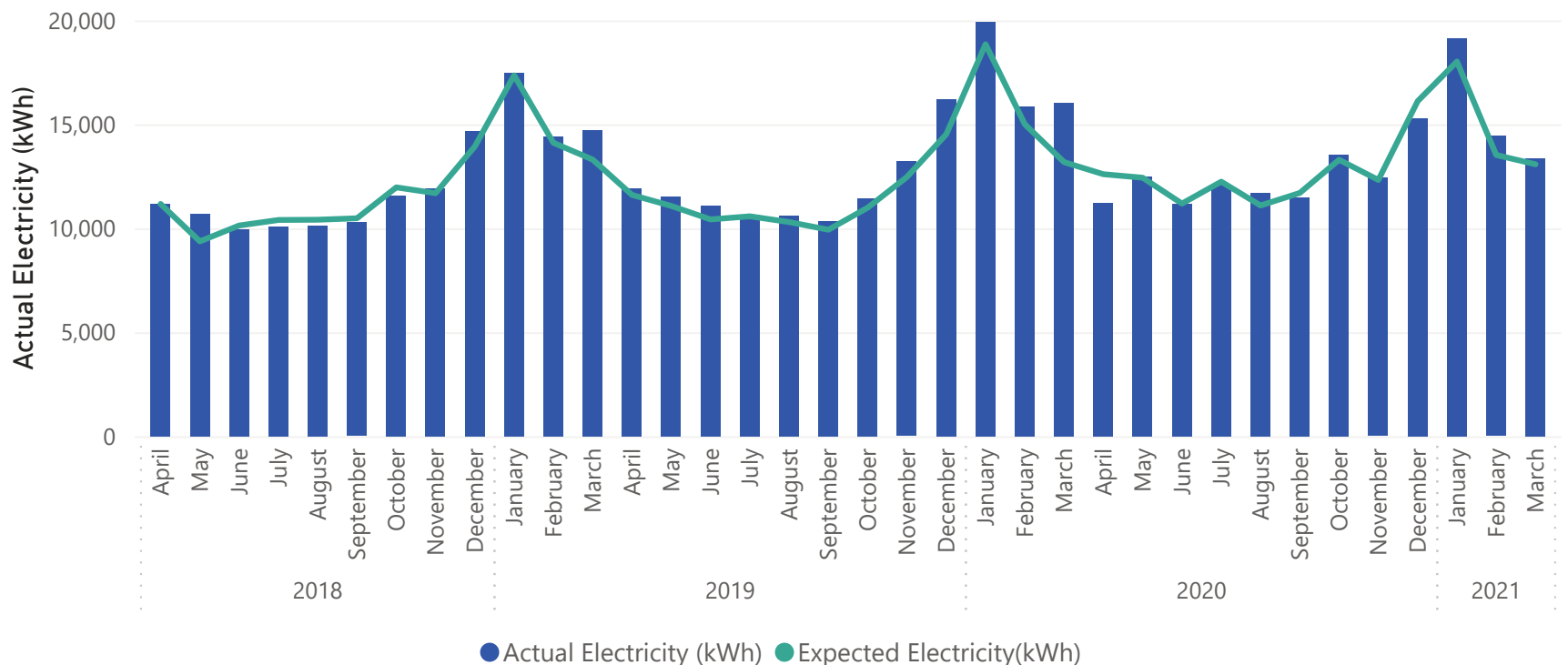
<p>-\$51 Monthly Energy Cost Savings</p>	<p>-282 Elec. Savings (kWh/mo)</p>	<p>-2% Elec. Savings (%)</p>	<p>-733 R12M Electricity Savings (kWh/yr)</p>	<p>-36 CO2e Savings (kg/mo)</p>
<p>-\$128 R12M Energy Cost Savings</p>				<p>-94 R12M CO2e Savings (kg/yr)</p>

Comments:

Electricity use was more than baseline for the month of March 2021 at Bridger Glade pump station. Compared to March 2020, the volume of water supplied by Bridger Glade pumps has decreased by 1% and electricity use has decreased by 17%.

Rolling 12 month savings have increased this month and are close to becoming positive savings.

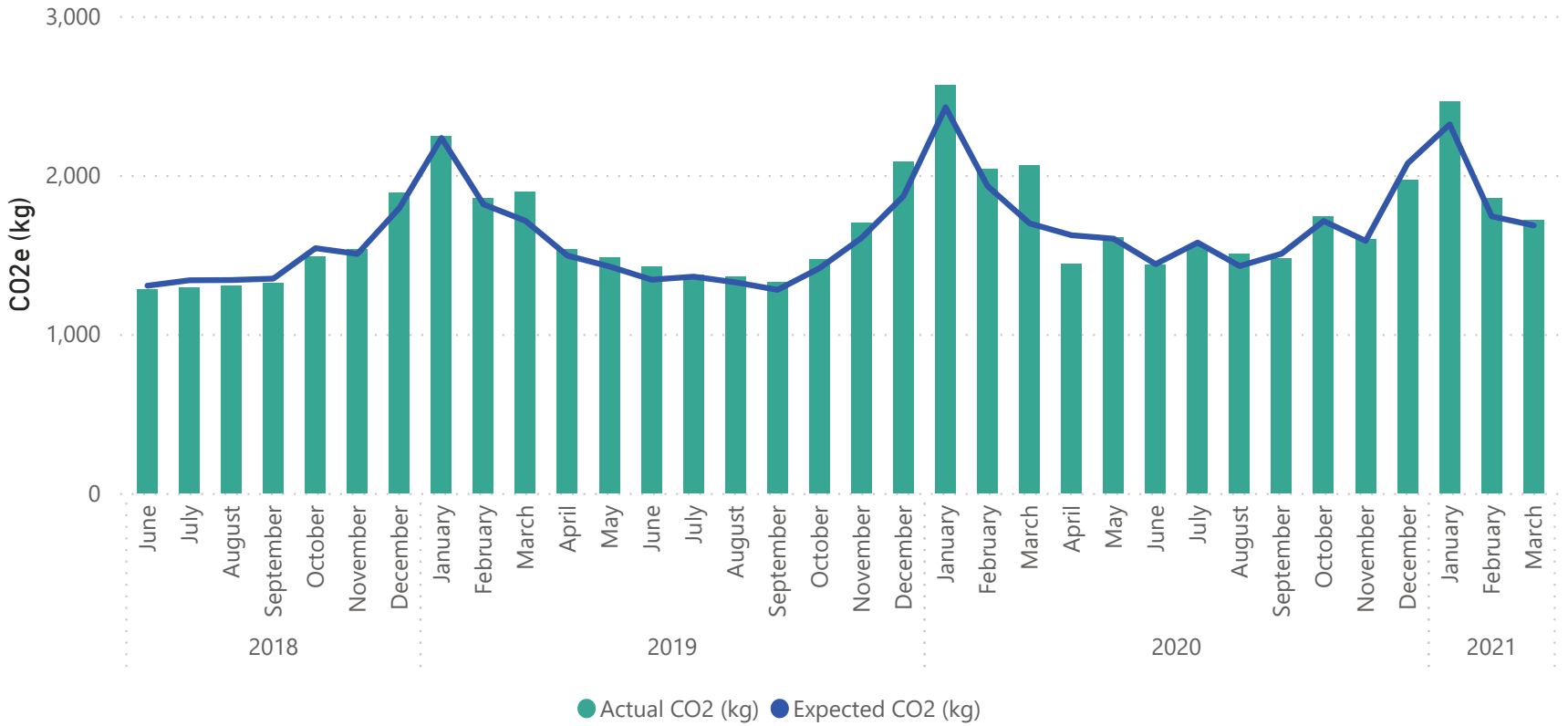
Bridger Glade Pumps Electricity Use Compared to Baseline (kWh)



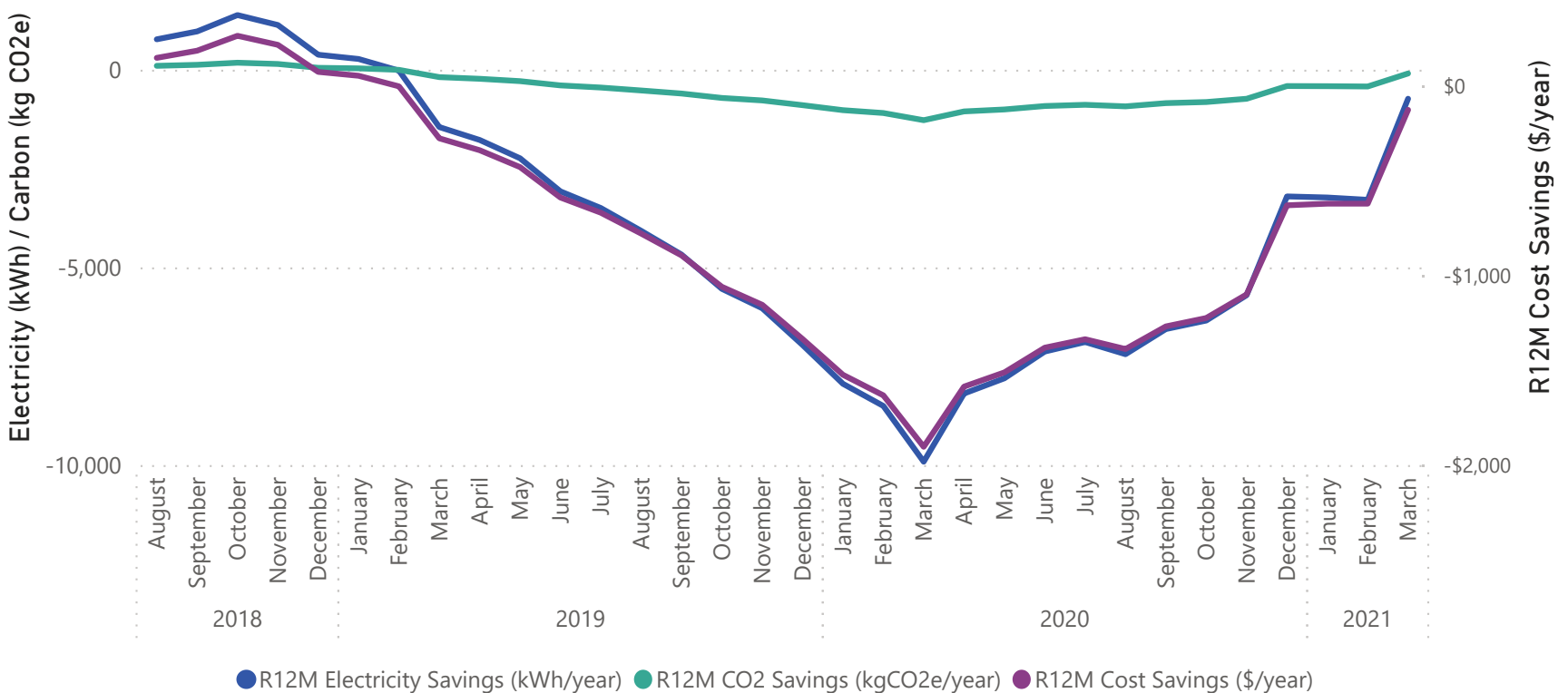
Whakatane District Council

Bridger Glade Pump Station

Bridger Glade Pumps Carbon Emissions Compared to Baseline (kg CO2e)



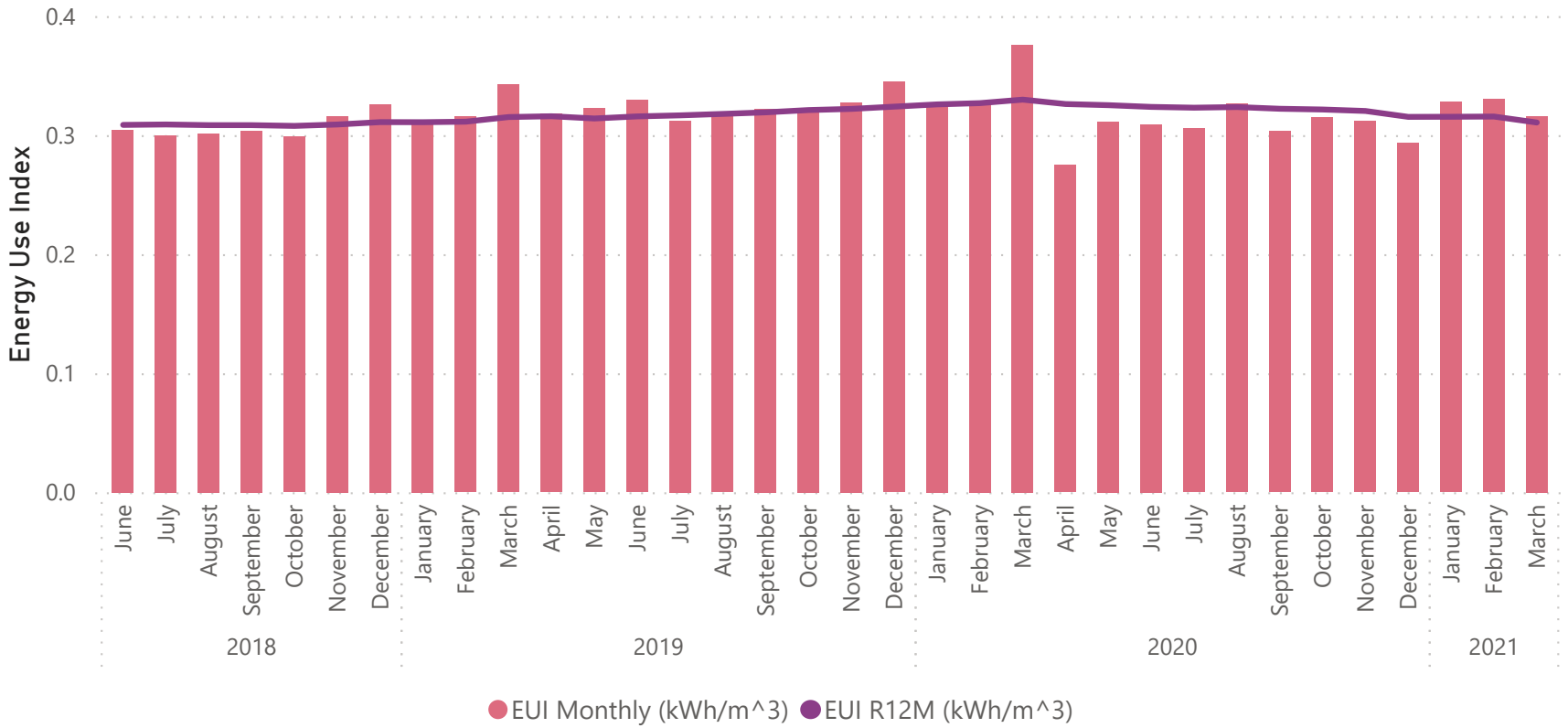
Bridger Glade Pumps Cumulative Rolling 12 Month Savings



Whakatane District Council

Bridger Glade Pump Station

Bridger Glade Pumps Energy Use Index by Month Compared to Rolling 12-Month Values



Whakatane District Council

Ohope Oxidation Ponds

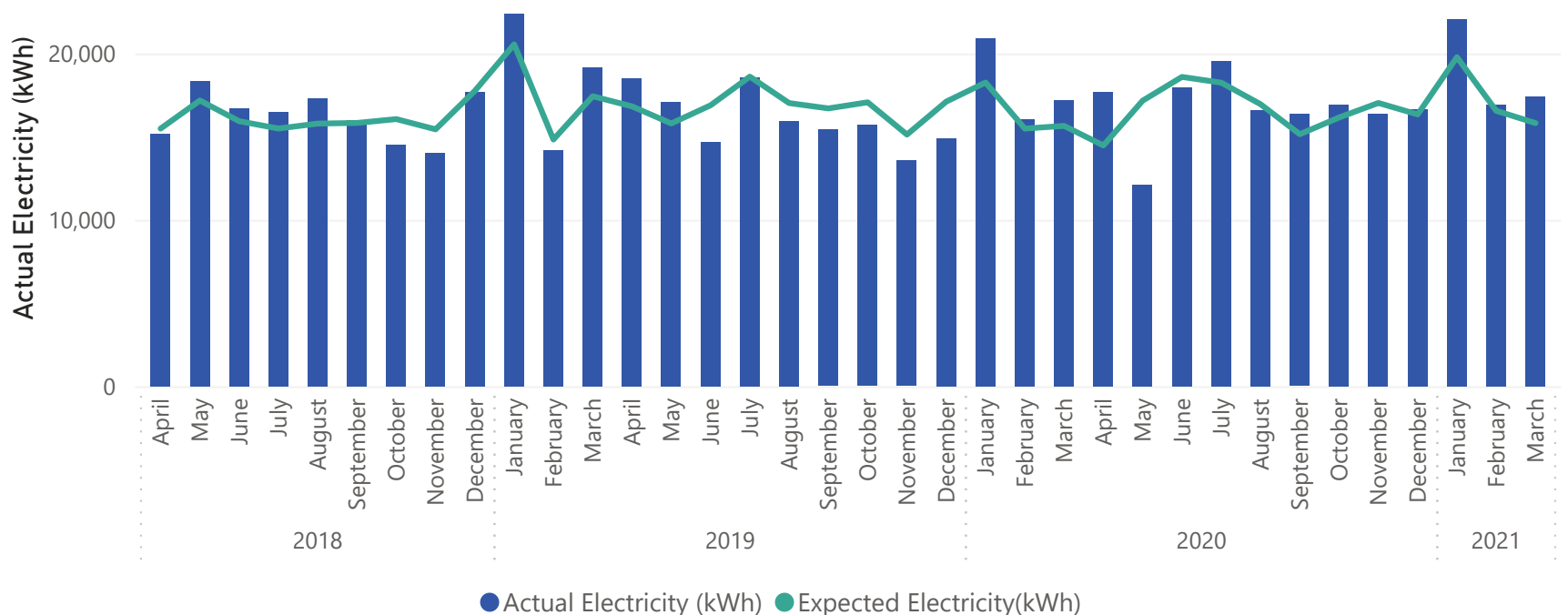
<p>-\$279 Monthly Energy Cost Savings</p>	<p>-1,602 Elec. Savings (kWh/mo)</p>	<p>-10% Elec. Savings (%)</p>	<p>-6,854 R12M Electricity Savings (kWh/yr)</p>	<p>-206 CO2e Savings (kg/mo)</p>
<p>-\$1,192 R12M Energy Cost Savings</p>				<p>-882 R12M CO2e Savings (kg/yr)</p>

Comments:

A baseline was established from Feb 2018 to Jun 2020 that uses the effluent water volume as an independent variable. Baseline expected electricity is adjusted based on total monthly volumes. Variability in electricity use may be partly due to when the electricity meter was read, although energy use is adjusted for the actual number of days in the month.

Although electricity use was 10% more than expected in March 2021, compared to March 2020, demand has increased by 3% and electricity has only increased by 1%, which is an improvement.

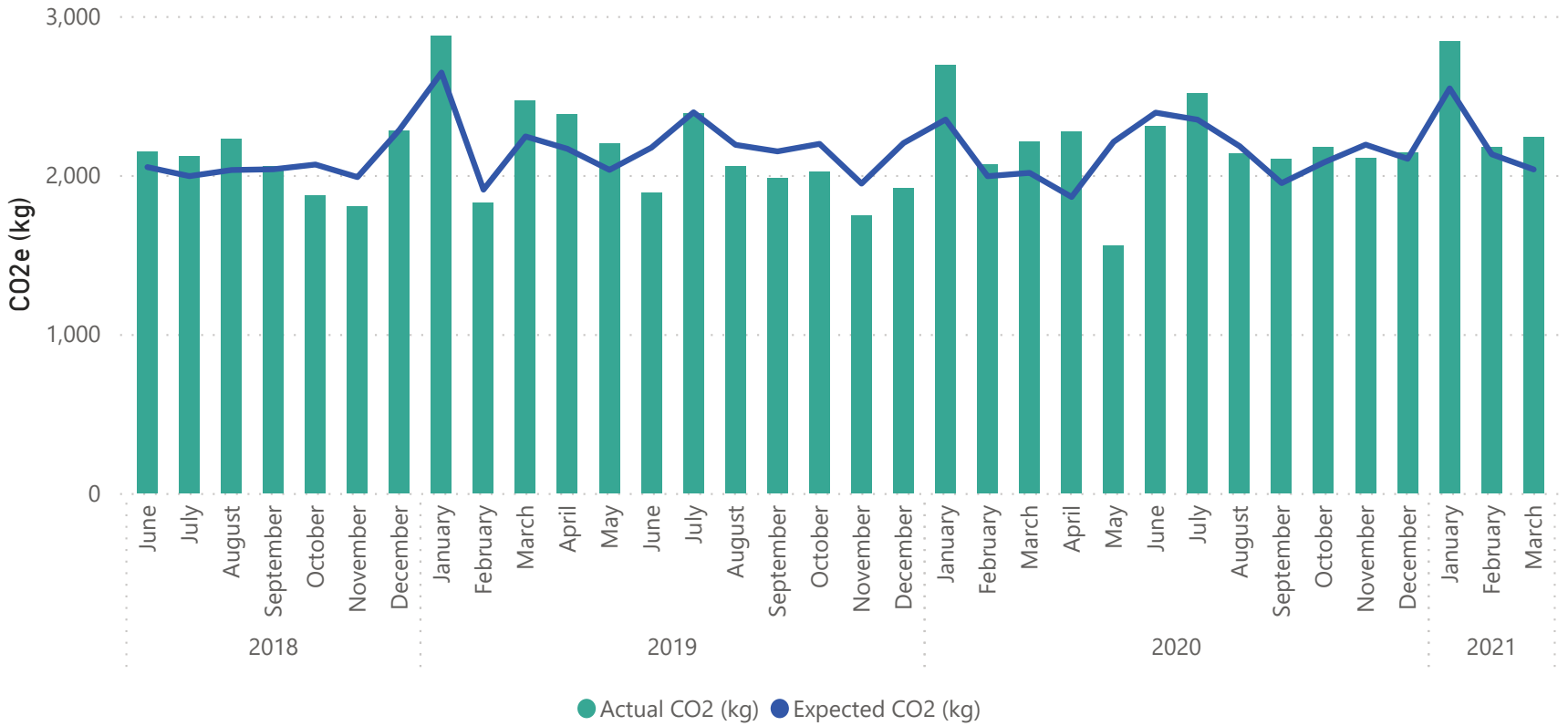
Ohope Oxidation Ponds Electricity Use Compared to Baseline (kWh)



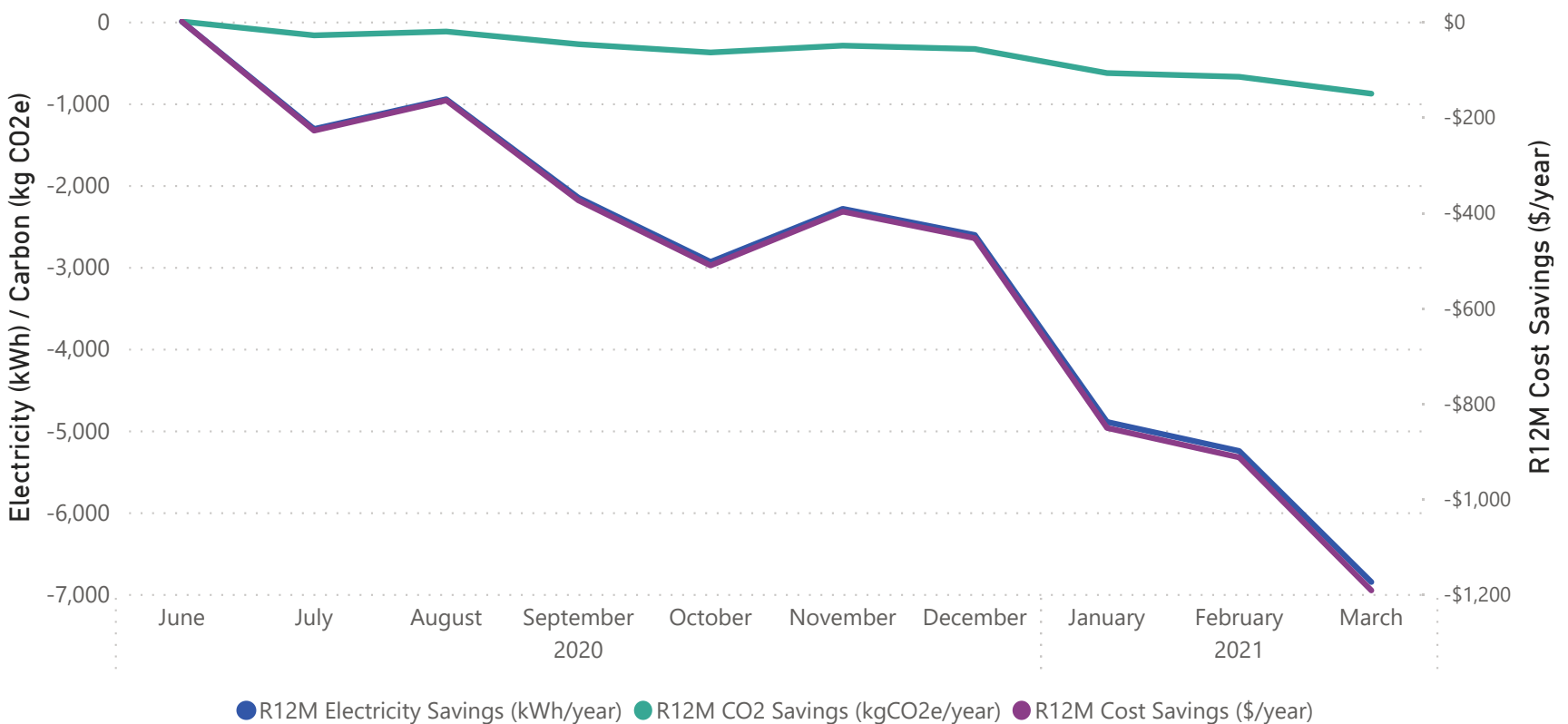
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Ohope Oxidation Ponds

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



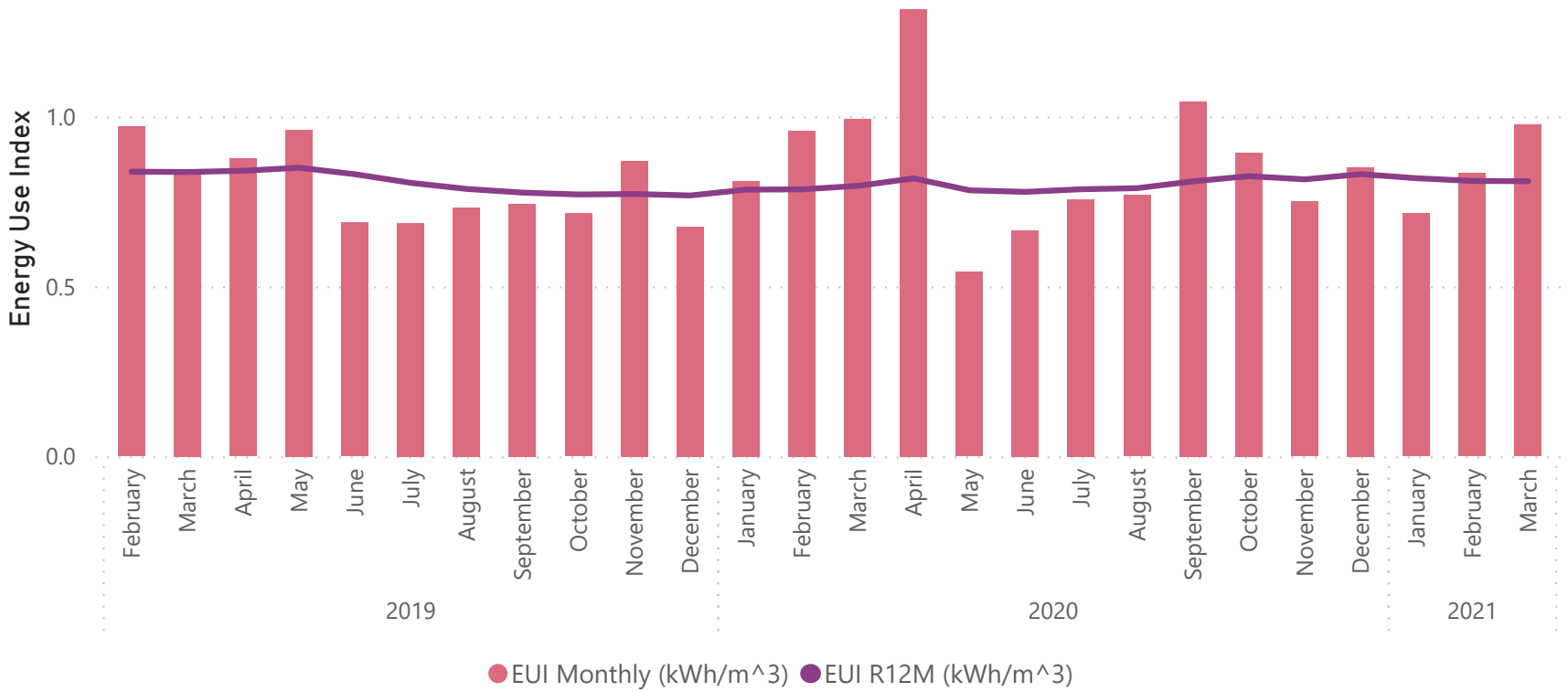
Ohope Oxidation Ponds Cumulative Rolling 12 Month Savings



Whakatane District Council

Ohope Oxidation Ponds

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



Whakatane District Council

Whakatane Oxidation Ponds

\$159 Monthly Energy Cost Savings	1,123 Elec. Savings (kWh/mo)	3% Elec. Savings (%)	46,942 R12M Electricity Savings (kWh/yr)	144 CO2e Savings (kg/mo)
\$6,371 R12M Energy Cost Savings				6,041 R12M CO2e Savings (kg/yr)

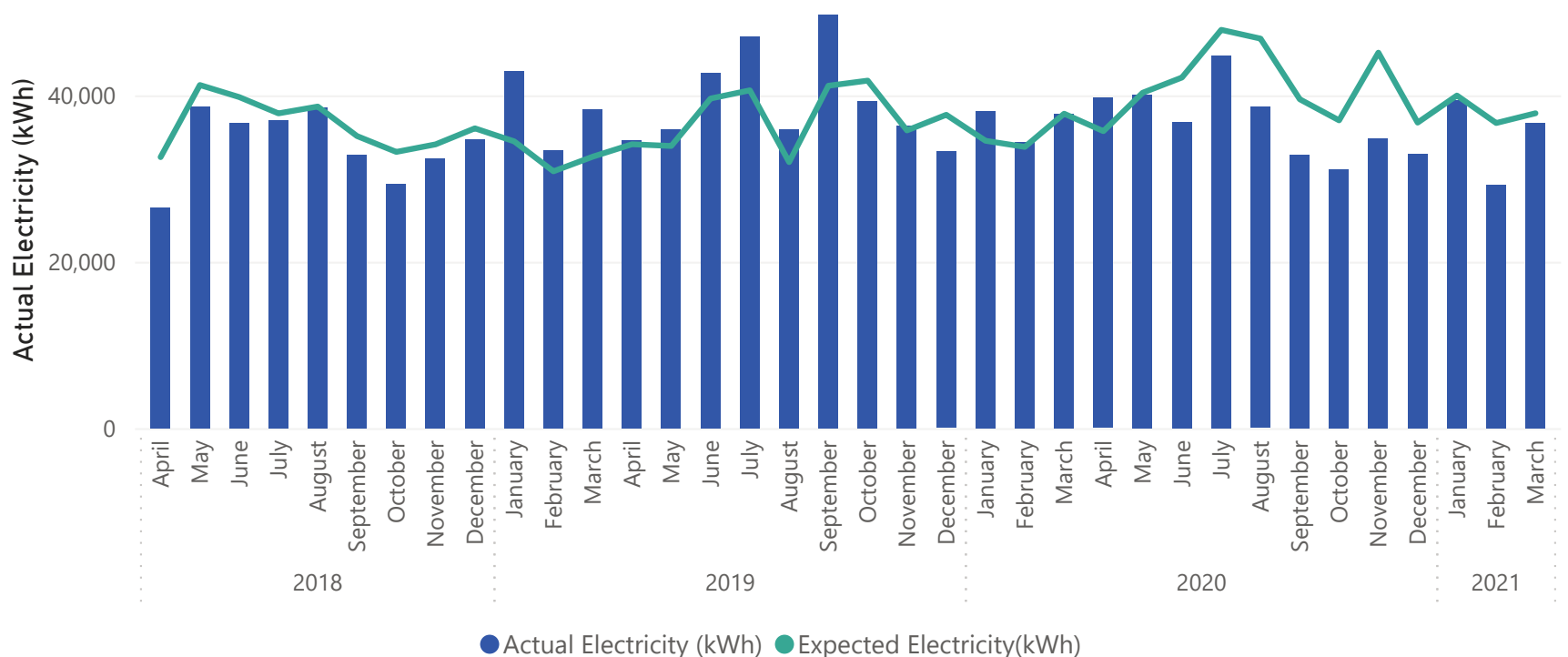
Comments:

A baseline was established from Feb 2018 to Jun 2020 that uses the effluent water volume as an independent variable. Baseline expected electricity is adjusted based on total monthly volumes. The correlation between electricity and effluent flow has an R squared value of 0.364 which suggests that only 36.4% of electricity use is related to the volume of effluent flow.

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 March 2021, the oxidation ponds have achieved a 3% savings compared to baseline, down from 20% savings in February 2021.

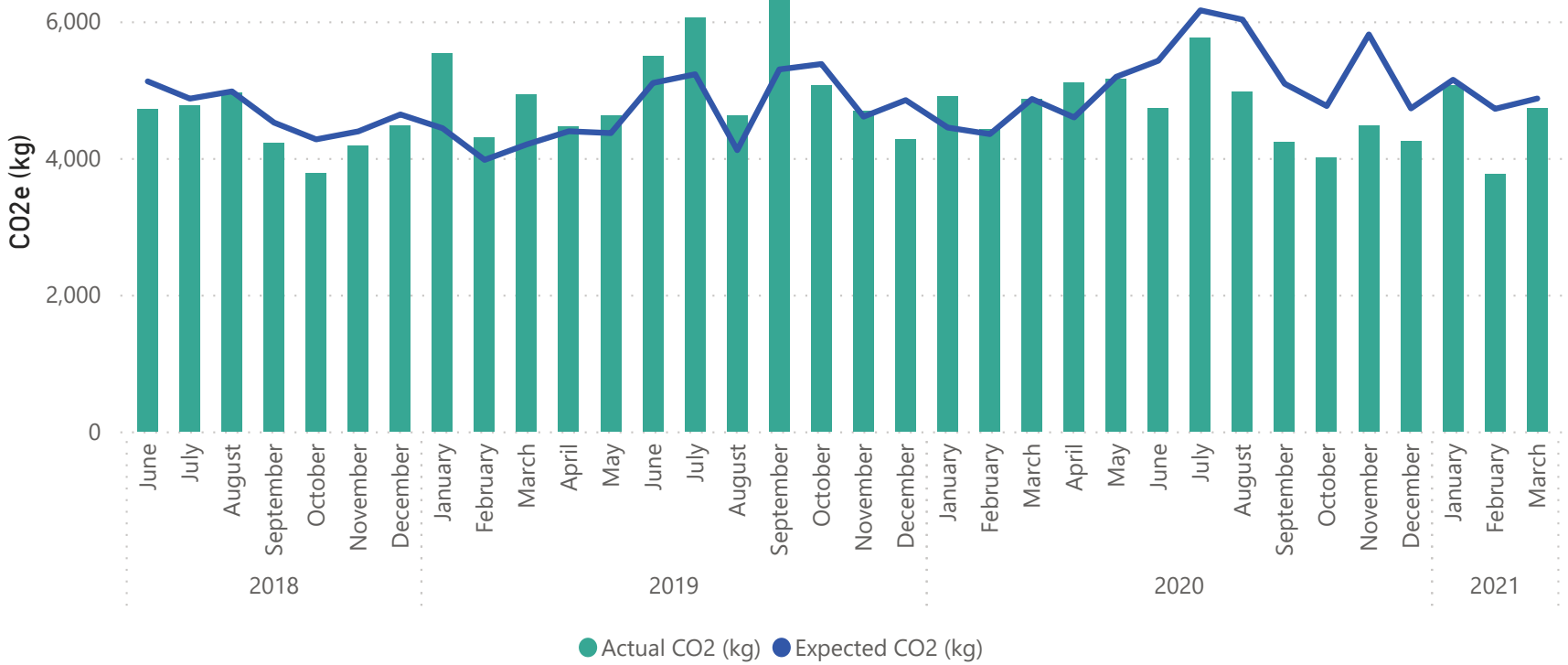
Whakatane Oxidation Ponds Electricity Use Compared to Baseline (kWh)



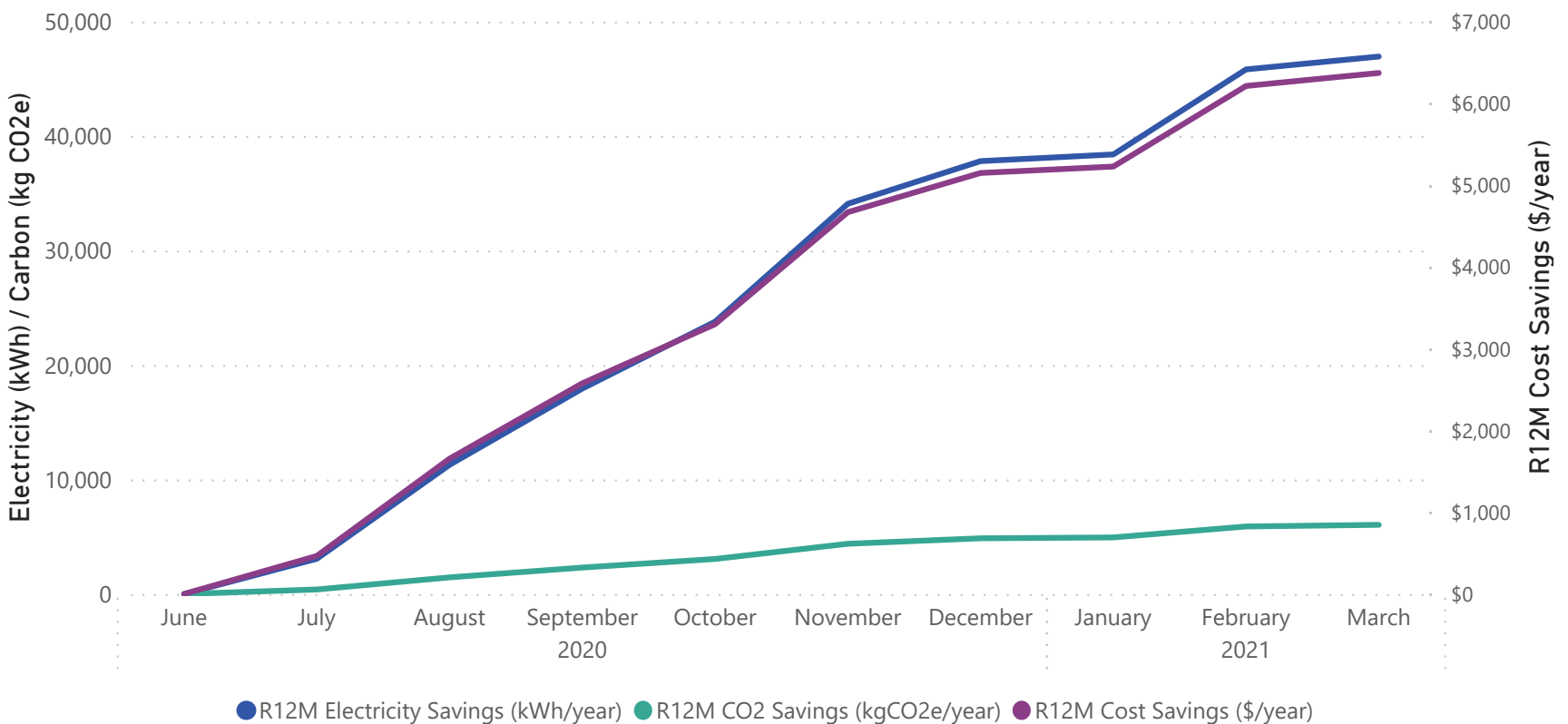
Whakatane District Council

Whakatane Oxidation Ponds

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



Whakatane Oxidation Ponds Cumulative Rolling 12 Month Savings



Whakatane District Council

Whakatane Oxidation Ponds

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

