

Energy Management Team Reduces Electricity use by 21% at Corporate Office

Western Bay of Plenty District Council implemented an Energy Management Policy, reduces electricity use by 87,000 kWh, carbon emissions by 8,500kg, and Council expenditure by \$16,000 per year at the corporate office.

The Opportunity

The Western Bay of Plenty is home to approximately 54,000 people and the Western Bay of Plenty District Council (The Council) uses approximately 8.5 GWh of electricity annually to meet the region's needs. The Council has approximately 300 employees and the corporate office, located at Barkes Corner, Tauranga, uses approximately 328,000 kWh/year.

In 2019, Olive McVicker, the Council's Business Improvement Advisor, commissioned Emsol to undertake a Type 2 Energy Audit. The goal of the energy audit was to identify how energy is used at the Council, to understand its energy-related carbon emissions, and to identify opportunities to improve energy efficiency as well as reducing carbon emissions. The audit focused on the Council's largest energy-using facilities, such as water treatment plants and bore pumps, as well as the corporate office.

Emsol discovered that there were significant opportunities for the corporate office to achieve savings. Some of the saving opportunities would require investment in new technology, while others could be achieved through staff education and awareness, as well as formal energy efficiency practises.

The Solution

In 2019, following the energy audit, the Council formalised an energy management programme (EMP), with the help of Emsol. As part of the EMP, an energy policy and plan was created, an energy management team was formed, and regular energy monitoring was introduced.

The energy management policy helps guide strategic decisions and demonstrates a commitment to decreasing energy use and carbon emissions. The energy policy and plan uses a framework that is based on ISO 50001, which aligns sustainability with energy and carbon management. ISO 50001 uses the Plan-Do-Check-Act cycle which is an effective method for continuous improvement.

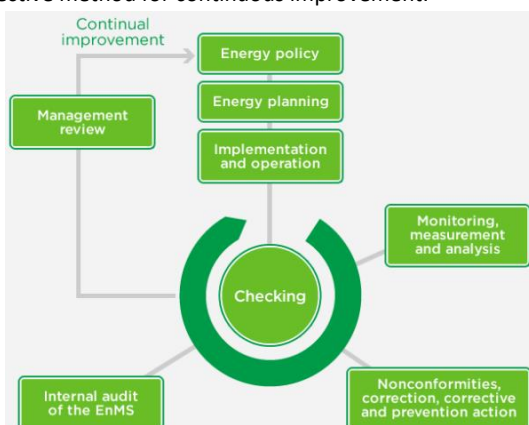


Figure 1 ISO 50001 as part of an energy management programme

The energy management team meets monthly to discuss progress of energy saving ideas that were discovered during the energy audit and identify new opportunities where performance can be improved.

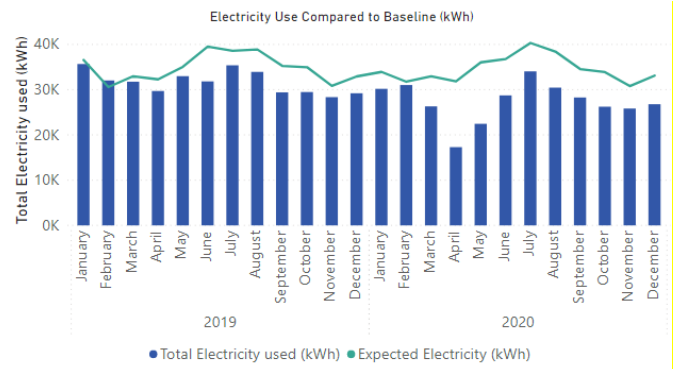


Figure 2 Expected electricity compared to actual electricity use at the WBOPDC Corporate Office over the past two years

The Savings

With the support of Emsol, the Council regularly monitors its facilities' energy use in accordance with an international protocol (IPMVP). This enables the Council to monitor energy use while accounting for factors which drive energy consumption, such as ambient temperature or the volume of water supplied or treated. This approach enables true energy and carbon savings to be calculated.

Since committing to the EMP, significant savings have been achieved compared to the baseline energy consumption established during the audit, most notably at the corporate office, which has saved 87,000 kWh (21%) during 2020. The impact of the electricity savings will reduce carbon emissions by 8,500kg each year and save the Council \$16,000 annually. The savings were achieved by reducing direct electric heating, upgrading lights to LEDs, replacing window heat pumps with wall mounted heat pumps, and switching off equipment after use.

The Future

Building off momentum from savings achieved at the corporate office, the Council is looking to improve the performance of its other large energy-using assets. Trials are being scheduled to determine the most efficient operating points for several bore pumps, to optimise the pump network.

Going forward, quality data collection from monthly monitoring along with the energy management policy will allow the Council to make informed decisions. Under this plan as a part of the ISO 50001 Plan-Do-Check-Act cycle, the Council will demonstrate its leadership in energy efficiency and promote good practice.