3.7. Water and Energy Management Programs Update

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ATTACHMENTS: Nil

PURPOSE:

This report provides an overview of Council greenhouse gas emissions, energy and water consumption data for the period of 2004-2021.

EXECUTIVE SUMMARY:

This report provides an overview of Council greenhouse gas emissions, energy and water consumption data for the period of 2004-2021.

FINANCIAL IMPLICATIONS:

The water and energy programs discussed in this report are funded through a combination of Council's Environment Levy and property maintenance budget.

RECOMMENDATION:

1. THAT the report on Council's Water and Energy Management Programs is noted.

LINK TO COMMUNITY STRATEGIC PLAN

The relationship with the Community Strategic Plan is as follows:

1. Our Living Environment
1.4 Public open space and recreation facilities and services meet community needs

2. Our Built Infrastructure
2.1 Infrastructure and assets meet community needs

BACKGROUND

Council has been monitoring energy, greenhouse gas emissions and water reduction and consumption since 2004. Data is used to track our progress in meeting our targets as outlined in our relevant strategies and plans. The current document that sets out these targets is the Environmental Sustainability Strategy 2030 (ESS 2030).

CONSULTATION REQUIREMENTS

Community engagement is not required.

DETAIL

Following is a summary of greenhouse gas emissions and energy and water consumption data over the 18-year period from 2004-2021. Overall results show a decrease in greenhouse gas emissions and electricity consumption coupled with a considerable drop in potable water consumption, and the increasing use of rainwater and stormwater harvesting and reuse.

<u>Greenhouse Gas Emissions</u>

Figure 1. shows a declining trend in emissions in all operations sectors. Improved environmental performance is due to the following factors including the purchase of electricity from renewable electricity sources, energy efficiency measures across the organisation; increasing solar electricity capacity and the transition away from gas to renewable heat energy systems.

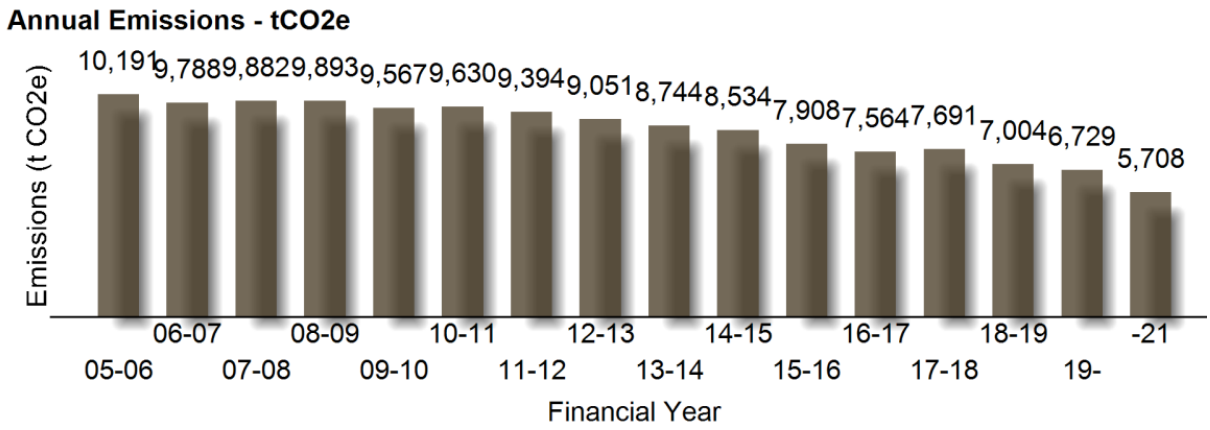

Fig 1. Council's Greenhouse Gas Emissions 2005-2021

Electricity

Highlighting the monthly consumption of electricity since 2004, Figure 2 shows a decreasing trend in consumption. Energy efficiency improvements and upgrades have limited the effect of rising electricity costs, and this is reflected in the decreasing costs associated with electricity usage in Council (Fig 3)

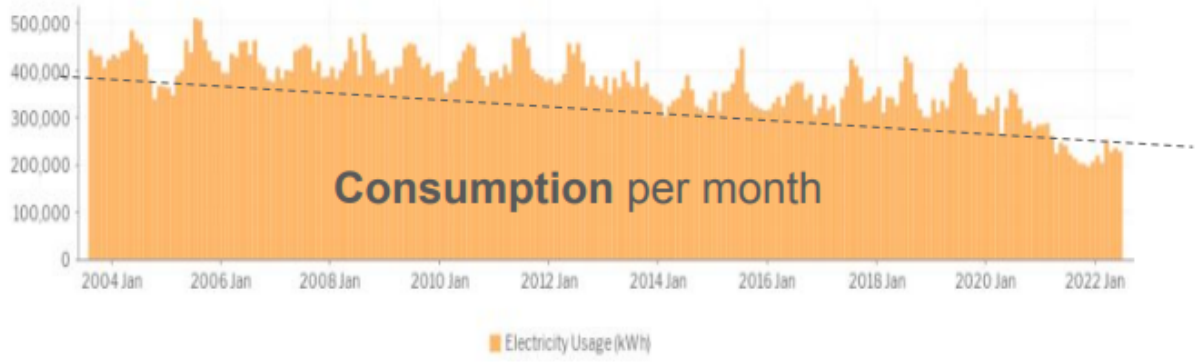

Fig 2. Electricity consumption 2004-2022

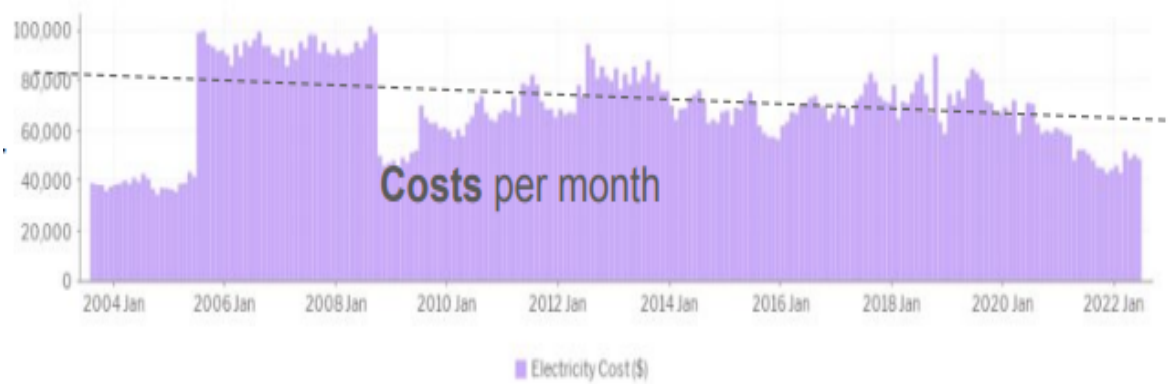

Fig 3. Council electricity costs 2004-2022

Water

Potable water consumption has reduced considerably due to water efficiency projects and stormwater re-use via the Cammeray Dam System (see Fig 4). This is of value as potable water costs to Council have increased over the same time period (see Fig 5). However, even with rising water costs, stormwater and rainwater reuse systems have enabled us to save significant amounts of money (see Fig 6).

Fig 4. Potable water consumption 2006-2021

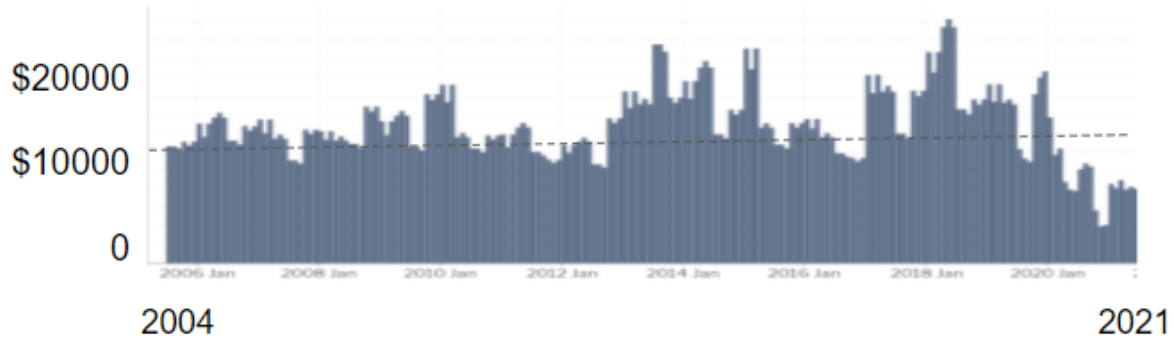

Fig 5. Water cost per month 2006-2021

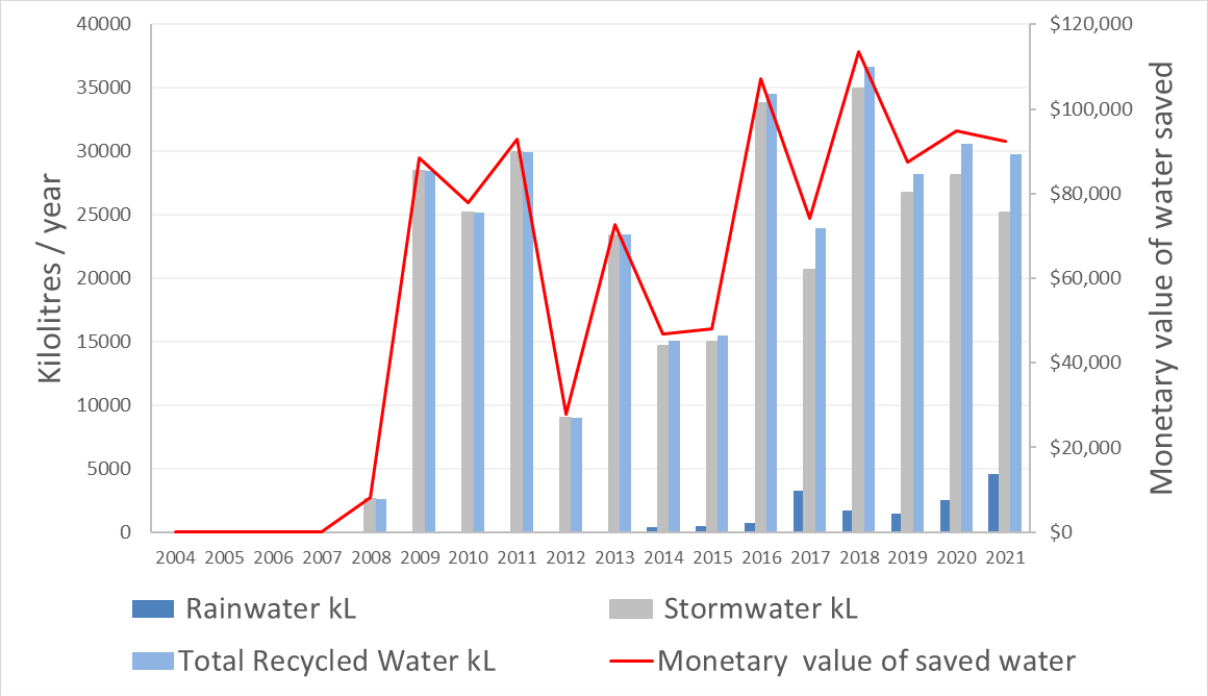

Fig 6. Monetary value of water saved from stormwater and rainwater re-use 2004-2021

Other

Whilst not currently a key performance indicator for Council, Figure 7 charts the installation of solar electricity and batteries on Council buildings from 2009.

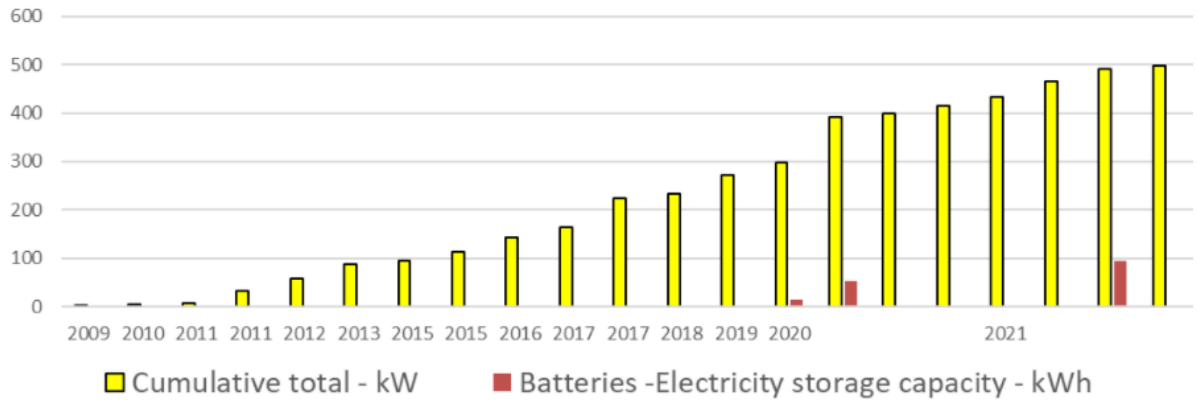

Fig 7. Solar electricity and battery capacity installed on Council buildings

Recently completed and current projects

Over the past 18 months a range of initiatives have been introduced and implemented to assist with achieving the ESS 2030 targets in the areas of carbon footprint, water conservation and sustainable transport.

- New solar power installations totaling 499kW at the following Council locations:
  - Bradfield Park Community centre 31kW
  - Council Chambers upgrade to 51kW + Battery installed.
  - Ros Crichton Pavilion upgrade to 10kW

- Replacement of gas hot water & hydronic heating system at Coal Loader. The 'Cottage' heating system has been replaced by reverse cycle air-conditioning and the gas boosted solar hot water system has been replaced by an electric heat pump hot water system. Following gas disconnection, the space heating and hot water systems operate on a hybrid of onsite solar electricity & renewable heat that is harvested by heat pumps.

- Currently working with consultants to deliver a report on the feasibility of transitioning away from gas cooking for a café on Council-owned commercial property. We have found that Café owners are beginning to recognize the multiple benefits of induction cooking and having all-electric premises, but don't understand the economics of changing.

- Continuation of the Futureproofing Apartments Program. Outcomes of the program include:
    - Approximately 200 buildings assessed. Many of those buildings currently undergoing upgrades including the following
    - Lighting upgrades to LED with smart controls
    - Transitioning from gas to heat pumps for hot water
    - Solar PV installations
    - Car park fan efficiency