Council Report

penticton.ca

Date: September 10, 2024
To: Anthony Haddad, City Manager
From: Draydan Power, Manager of Energy & Environment
Subject: **Demand-Side Management Pilot**

Staff Recommendation

THAT Council authorize the Corporate Officer and Director of Finance & Administration to sign an agreement with TELUS for a Demand-Side Management pilot as outlined in this report.

Strategic priority objective

Safe & Resilient: A DSM program is one tool for reducing demand in the event of an emergency that requires curtailing power consumption throughout the City.

Organizational Excellence: As the City grows and electrification of heating and transportation add electric load to our system, reducing the amount of energy used through a DSM program can mitigate infrastructure upgrades and reduce the City's upstream energy bills from FortisBC.

Background

The Province is moving towards electrification with the CleanBC Roadmap to 2030, including programs like the Zero Carbon Step Code where new developments are built to escalating requirements limiting the use of greenhouse gas emitting sources for heating and cooking, and the Zero Emission Vehicles Act from 2019, which was updated in 2021 mandating new vehicle sales in BC to be 26% zero emissions in 2026, 90% in 2030, and 100% by 2035. The electric load accompanying these goals is substantial and has the potential to significantly increase our upstream cost of Energy from FortisBC. Reducing the costs of supply (i.e. the FortisBC bill) can be broken into two categories: energy reduction (to reduce energy costs) and demand mitigation (to reduce the demand charges, and in particular the peak demand that influences a large portion of the bill).

Energy reduction can be done by upgrading to more energy efficient equipment in homes and businesses and changing the behaviour of residents and business owners. This is known as Demand-Side Management (DSM). The City has some DSM tools in place such as billing for demand for commercial class customers, partnering with residents and business owners on loans for equipment upgrades (as done in the Home Energy Loan Program), and through educational efforts to reduce consumption. However, it became clear through our engagement discussions as part of the Utility Rate Review that more can be done, and additional DSM solutions are now being explored.

In British Columbia, DSM is governed by the Utilities Commission Act and the Clean Energy Act. The Demand-Side Measures Regulation (B.C. Reg. 326/2008) outlines the rules and guidelines for implementing DSM programs. FortisBC and BC Hydro have significant investments in DSM programs for regulatory requirements as well as extending the capacity and life of their upstream generation assets. Non-regulated municipalities such as Summerland, Nelson, Grand Forks, and New Westminster have varying levels of DSM in their territories. Nelson has an educational page on peak demand and promotes their Energy Retrofit Program, similar to the City of Penticton's Home Energy Loan Program. While the City of Penticton is not explicitly required to comply with the Utilities Commission Act nor the Demand-Side Measures Regulation, DSM programs are essential to manage energy demand, reduce costs, and promote sustainability, all of which benefit the City as a municipality and an electric distribution system operator.

This DSM pilot program will look for up to 1,000 customers to volunteer to install equipment in their homes that will monitor electrical energy usage, such as smart thermostats and smart plugs. Regular weekly events will be issued to ask these customers to reduce their energy usage by changing their thermostat by two degrees, or turning off electronics that are not in use at that time. Specific events will also be issued during expected utility peak demand windows to reduce the upstream demand charges by FortisBC. Rewards will be issued in the form of points for participation in these events, combined with the natural savings of reducing their energy costs.

To pilot this initiative, the City is proposing to partner with TELUS, as they near the release of their SmartEnergy service, which is a DSM platform and a subscription service for customers to reduce their energy consumption. TELUS is offering the DSM platform at a discounted cost for the purpose of the pilot, and will be responsible for subscriptions, hardware supply, customer support, and logistics. The City of Penticton and TELUS will be jointly responsible for customer sign-ups. Partnering with TELUS also has the potential to increase the number of participants given their existing presence in many resident's homes through other services such as internet, phone, and security. The points issued for participating in events can be redeemed for gift cards, reforestation efforts, or more smart plugs and other smart home equipment that will be onboarded throughout the pilot.

Financial implication

The City will pay the TELUS subscription fee on behalf of the residents for the duration of the pilot, at an estimated cost of $25k. The pilot DSM program is intended to result in an equal, if not greater saving in energy costs for the City. For simplicity, total demand costs (power supply and ratcheting wires charges combined) are $16.72 per kVA, meaning savings of roughly $16k for every month that the targeted reduction is achieved. There is sufficient funding in the Electrical Operating budget for this pilot program.

Analysis

The pilot is proposed to run over the course of winter, from November 2024 through March of 2025, with an option to extend through the summer of 2025 if a meaningful number of customers with electric heat do not participate during the winter peak. The City is setting a target of 1 MW of reduced demand per month. It would take 500 customers reducing their load by 2 kW during peak times to achieve this goal. The average central air conditioning unit and heat pump are estimated to be 3 kW. Heating and cooling electrical load will be the primary targets of the pilot.

The customer's cost of the subscription is fully covered for up to one year as part of the pilot, and the customer will be issued a hardware discount credit that can be used towards smart home equipment. Residents will own any of the equipment that they purchase through the pilot. Should residents wish to continue with the TELUS platform post pilot, they will pay whatever subscription costs TELUS charges for the service. Pilot participants will have a direct relationship with TELUS, and TELUS will share aggregate data with the City.

The City will support the pilot through communication efforts to educate residents and encourage behaviour modification. A strategic communications plan and marketing campaign are being developed. Campaign is expected to launch in fall 2024.

The intent of this pilot is to demonstrate that energy savings equal or greater than the cost of the investment of a DSM program are achievable, with the additional benefit of mitigating capital investment in the City's infrastructure by reducing demand during peak events. If successful, a City wide DSM program would be explored.

Alternate recommendations

Council may not wish to proceed with the pilot program.

Respectfully submitted,

Draydan Power
Manager of Energy & Environment

Concurrence

General Manager of Infrastructure	Director of Finance and Administration	City Manager
RD	AMC	SBC