June 27, 2019

Ms. Kirsten Walli
Board Secretary Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor Toronto ON M4P 1E4

Board File Number: EB-2019-0003

Dear Board Secretary:

I am writing to you on behalf of Google. Please accept this letter as an input into the Post-2020 Gas Demand Side Management Framework (Board File Numbers: EB 2019-0003).

Google manufactures the Google Nest Learning Thermostat and the Google Nest Thermostat E, both ENERGY STAR-certified smart thermostats equipped with sensors, Wi-Fi capability, and processors, to help customers consume less energy: they learn customers' preferences, adjust the temperature when the house is empty, and automatically lower air conditioner and/or furnaces runtime when humidity conditions permit, helping people lower their energy use without sacrificing comfort. These capabilities also allow residential customers to participate in demand response programs, which helps shift peak loads, reduce carbon, while helping residential customers save on their energy bills.

It is Google Nest's view that the principles, goals and objectives and scope as set out in the Demand Side Management Framework for Natural Gas Distributors (2015-2020) continue to be valid today and should be applied going forward. It is important to state that time is of the essence and a Post-2020 Demand Management Framework approval is essential to ensure continued progress in meeting stated goals and objectives.

Google Nest recommends that the OEB focus on establishing targets and budgets in order to deliver on the provincial government's policy direction in A Made-in-Ontario Environment Plan (the Plan). The Plan states that 18% (about 3.2 Mt) of planned carbon emissions reductions by 2030 are expected to come from natural gas conservation. Further, the Plan outlines the following goals pertaining to the DSM Framework set by the OEB:

- "The Natural Gas Conservation action reflects programs that are well established in Ontario to conserve energy and save people money. This case assumes a gradual expansion of programs delivered by utilities, which would be subject to discussions with the Ontario Energy Board." (https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf , pg. 23)
- "Work with the Ontario Energy Board and natural gas utilities to increase the cost-effective conservation of natural gas to simultaneously reduce emissions and lower energy bills." (https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf , pg. 32).

Leveraging technology advancements and products will be instrumental to reaching the residential sector to help increase energy savings and reduce carbon emissions to meet the goals of the Plan. For example, independent energy savings studies show Nest Learning Thermostat and the Nest Thermostat E save about 10%- 12% of heating usage and about 15% of cooling usage in homes with central air conditioning. In Ontario, this equates to 345 m3 of natural gas heating savings and 293 kWh electric savings, or approximately 0.5 tons of CO2 per thermostat per year.

An important DSM Framework principle is to ensure low income programs are accessible across the province. Google Nest has worked throughout North America with utilities and grid operators to implement programs to assist low-income communities through direct install programs. In particular, Google Nest has been involved in two pilots outlined below. Both pilots contained some observations that could be relevant Ontario's efforts as low-income programs are being reviewed and as the Post-2020 DSM Framework is being developed.

1. High Level Summary of the Colorado Pilot

The results of the low-income weatherization project conducted by the Colorado Energy Office are very encouraging. The pilot was designed to measure the incremental energy savings produced by smart thermostats and to assess how well the technology worked for the weatherization program and its clients in terms of installation logistics, acceptance, and operation. This pilot showed that installation of Nest thermostats led to a significant and substantive increase in energy savings compared to homes that received only traditional weatherization measures. Homes that received a Nest thermostat achieved average gas savings of 18.4% compared to 11.1% for comparable standard WAP clients.

In addition, cost-effectiveness analysis using the Weatherization Assistant National Energy Audit Tool (NEAT) showed Nest thermostats to be very cost-effective, with SIRs ranging from 4.3 – 8.6. The NEAT audit has a user-modifiable setting that can adjust the standard programmable thermostat savings estimates to be more consistent with actual client settings found from this pilot -- boosting savings and SIR to be more consistent with measured results

2. Oregon's ten-year plan

Oregon recently released a plan to reduce the energy use in their affordable housing stock. Oregon found:

> "Analyzing the natural gas savings measures, there was one measure that clearly stood out as having the highest cost-effective achievable potential savings – smart thermostats in homes with gas furnaces. This measure was cost-effective for all types of existing housing, including multifamily, manufactured housing and single-family. The total cost-effective achievable potential savings for this measure was about 3 million therms in savings." (p. 14)

And similarly, for electric savings:

> "The second highest potential was found to be installing smart thermostats in units with electric furnaces or heat pumps. The cost-effective achievable potential savings across all building types for this measure was 98 million kWh." (p. 15)

You can find Oregon's full plan here: https://www.oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf

Google Nest is keen to work with the Ontario Energy Board and the broader energy community to continue making progress and introduce new energy cost savings opportunities for residential customers that have grid and system benefits.

Sincerely,

Richard Counihan
VP, Regulatory and Government Affairs

Google | Hardware Partnerships
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