Feedback Form

Regional Electricity Planning in Toronto – April 16, 2024

Feedback Provided by:

Name: Katherine Sparkes

Title: VP, Grid Solutions

Organization: Enwave Energy Corporation

Email: [redacted]

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To promote transparency, feedback submitted will be posted on the Toronto region engagement webpage unless otherwise requested by the sender.

Following the Toronto Region electricity planning engagement webinar held on April 16, 2024, the Independent Electricity System Operator (IESO) is seeking feedback on the draft electricity demand forecast scenarios and Engagement Plan. A copy of the presentation as well as a recording of the session can be accessed from the engagement web page.

Please submit feedback to engagement@ieso.ca by **May 7, 2024.**

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What additional information, if any, should be incorporated in the proposed electricity demand scenarios? What are some of your key developments, projects or initiatives that should be considered in developing an electricity demand forecast for the Toronto region?	Enwave understands that the base case and high electrification demand scenarios included in the IESO's forecast of Toronto's future electricity needs are based on an approach to electrification that assumes that the decarbonization of heating loads of individual buildings occurs through stand-alone, in-building electric heat pumps. District energy is a proven solution that can provide a cost-effective, reliable, lower-electricity demand alternative to individual, in-building electric heat pumps for heating and cooling. When designed with clean/renewable combined heat and power generation as the heating/cooling source, these systems could provide even greater benefit to the electricity system in the form of new, clean, local generation. Additionally, as Enwave embarks on decarbonizing its district steam networks (traditionally powered by natural gas fired-steam boilers), construction of large-scale electric resistance boilers (potentially as large as 50MW) can provide a low-carbon steam service offering and a significant demand response resource in the congested downtown Toronto grid. As the largest developer, owner and operator of district energy in Toronto, Enwave has a long history of working in partnership with the City of Toronto and Enwave customers to realize the cost, decarbonization and reliability benefits of district energy for building heating and cooling needs. Enwave would welcome the opportunity to work with the IESO and the Technical Working Group (TWG) for the Toronto IRRP to evaluate the potential of district energy, clean/renewable combined heat and power generation, and thermal energy storage as options to a) reduce Toronto's future electricity needs relative to the base and high-electrification scenarios; and b) as a means to help supply future electricity needs by leveraging the electricity generation aspect of clean/renewable combined heat and power.
What local issues and concerns should be considered in the electricity planning?	It will be important that the planning process take into account how potential options for meeting Toronto's need for affordable, reliable, clean electricity align with the City of Toronto's goals including Transform TO and the current and future planned Toronto Green Standards (TGS). It will also be important to fully consider the ability of local

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	resources and capability – including local energy systems and solutions – to support Toronto's electricity needs.
What information is important to provide to participants throughout this engagement?	To fully assess the options that can be deployed to address Toronto's need for affordable, reliable and clean electricity, it will be important that engagement participants are provided with an objective assessment of and first-hand customer/building owner experience with the value of district energy, clean/renewable combined heat and power, and thermal energy storage. Enwave would be pleased to support the IESO and TWG with such an assessment.
Does the proposed Engagement Plan provide sufficient scope and opportunities for input?	Enwave welcomes the opportunity to have focused discussions with the IESO and the TWG about the potential value of district energy, clean/renewable combined heat and power generation, and thermal storage, as cost-effective, reliable options to help manage and meet Toronto's electricity needs and to support information and analysis about these options as part of the Toronto IRRP's broader public engagement.

General Comments/Feedback

Enwave expresses its appreciation to the IESO for the initiation of a comprehensive and inclusive engagement process for the development of Toronto's Integrated Regional Resource Plan (IRRP). Enwave is the owner and operator of the largest district energy system in Toronto, which provides heating and cooling to approximately 200 buildings in the downtown core. Enwave also owns and operates district energy systems in Windsor, London and Prince Edward Island (PEI). Enwave currently owns and operates ~40MW of combined heat and power (CHP) generation in Ontario as well as a biomass and energy from waste CHP facility in PEI. These facilities provide thermal energy to Enwave's district energy systems and electricity to local grids and customers. These systems are operated on a commercial basis, with customers (including existing and new buildings) making a choice to connect because of the affordability, reliability and clean energy benefits of district energy. In 2018 Enwave entered into a joint development agreement (JDA) with the City of Toronto to enable the development of new district energy systems across the city. This agreement was the result of a competitive process administered by the City. The new district energy system serving Etobicoke Civic Centre (ECC) is an example of a system created under this agreement. Enwave deeply values its partnership with the City of Toronto and its role in supporting the City's development goals, including they City's Transform TO net zero by 2040 goal and the benefits to affordable housing that district energy brings through reduced ongoing operational costs associated with building energy needs. While the JDA enables Enwave to develop district energy solutions to provide heating and cooling for new development on City-owned land, potential building owners on those lands retain the choice to connect to any district energy system that Enwave may develop. This

choice helps to ensure that the heating and cooling services offered by Enwave's district energy systems are competitive with the alternatives. There is significant potential to expand district energy across Toronto to support the decarbonization of heating and cooling needs for Toronto's buildings in a way that places less demand on Ontario's electricity system than stand-alone, in-building heating and cooling systems would. Enwave is in the midst of commissioning a fourth intake for its Deep Lake Water Cooling (DLWC) system, which provides cooling services to buildings connected to Enwave's district energy system in downtown Toronto. The largest of its kind in the world, Enwave's DLWC provides cooling services to buildings as an alternative to stand-alone cooling systems. The addition of the fourth intake will add 26,000 tons of cooling capacity and enable Enwave to cool an additional 40-50 commercial buildings bringing our total cooling capacity to approximately 100,000 tons. There is potential to expand DLWC even further. Given its reliance on the lake as the source of cooling rather than the electricity system, DLWC significantly reduces the peak demand associated with building cooling relative to stand-alone chillers or other electrical cooling solutions. While district energy and DLWC customers pay for the value of district energy and DLWC infrastructure development and ongoing operations, there is currently no way for the enduring avoided peak electricity system capacity value of district energy and DLWC to Ontario electricity ratepayers to be recognized. Enwave would welcome an opportunity to talk with the IESO and the TWG about how the value of district energy and DLWC to the electricity system can be quantified as part of the options assessment for the Toronto IRRP. Enwave would further welcome the opportunity to discuss with the IESO how the value of district energy and DLWC can be recognized in IESO procurements and programs. From the perspective of conservation and demand management (CDM) and efficient electrification (EE) programs, while district energy and DLWC cooling are cost-competitive, reliable and clean energy options for many buildings, there may be opportunities to leverage CDM and EE programs to encourage earlier adoption of DE/DLWC or adoption in buildings where unique circumstances (e.g. lower heating/cooling densities) may make these technologies beneficial to the electricity system relative to stand-alone electrification solutions but challenging from the perspective of the individual building owner. Enwave would also like to highlight for discussion with the IESO and TWG the potential for new clean/renewable combined heat and power generation to support Toronto's growing thermal and electrical generation needs in a way that reduces demand on Ontario's electricity system while providing new sources of clean/renewable local energy. Given its ownership and operation of the district energy system serving downtown Toronto, Enwave is uniquely positioned to leverage potential new clean/renewable CHP to reduce future demand on Ontario's electricity system associated with building decarbonization and new development in Toronto. Enwave welcomes the opportunity to discuss these options with the IESO and the TWG as part of the options assessment for the Toronto IRRP.