



27 April 2021

Hon. Greg Rickford
Minister of Energy, Northern Development and Mines
10th Floor, 77 Grenville St.
Toronto, Ontario
M7A 1B3

RE: ERO Registry Number 019-3007 Review of Ontario's Long-Term Energy Planning Framework

Dear Minister Rickford,

On behalf of Enwave Energy Corporation ('Enwave'), thank you for the opportunity to comment on the ERO posting by your ministry regarding Ontario's development of a long-term energy planning framework. Enwave has continually appreciated your ministry's support of our operations in Ontario.

Enwave is an industry leader that provides innovative, sustainable energy solutions. A private corporation currently owned by Brookfield Infrastructure Partners with its headquarters in Toronto, Enwave is the largest owner-operator of district energy systems in North America. In each community, Enwave operates intelligent thermal energy systems that generate, store, and share energy across the district.

Our customers are residential, commercial, institutional, and industrial users, many of which are critical infrastructure providing services to cities, the province, and the country. Through local energy networks, district energy relieves the demands on the larger provincial grid's generation and transmission system while simultaneously reducing greenhouse gas emissions and improving local energy resilience in a cost competitive manner to the consumer.

The hallmark of our operations in Ontario is Enwave's world-renowned Deep Lake Water Cooling system. It is a unique, sustainable cooling system that began operation in 2004 and now provides cooling to over 90 buildings in downtown Toronto, including the Queen's Park campus, allowing them to remove or reduce reliance on electrical chillers.

Enwave supports the objectives of this consultation process, which are to build on the government's commitment to promote transparency, accountability, and effectiveness of energy-planning and decision-making in order to increase investment certainty. It is imperative for stakeholders – as well for government, IESO, and the OEB – to have a clear picture of which entity is responsible for making particular decisions.

The development of a long-term energy planning framework cannot rest solely within the two arms-length government agencies; in order to allow for ongoing innovation, the adoption of disruptive technologies, and alignment with other government priorities, there remains a critical role for government to play in long-term energy planning. Your ministry can ensure the goal is to maximize the efficiencies and potential of all types of energy and recognize how effective energy planning can also provide solutions in addressing climate change and its impacts. District energy is one of those solutions.





Provided that the roles and responsibilities of each entity are clearly defined from the outset, the exercise of developing a long-term energy planning framework should allow for a balance of consideration for the ratepayer, certainty in the market, and what is required for a safe, reliable, and resilient energy system.

To that end, Enwave suggests the following elements are used as guideposts for the development of the long-term energy planning framework.

1. Clearly defined principles:

The process should not get underway until there are agreed upon principles for the framework, including the need to reduce greenhouse gas (GHG) emissions in line with the 2030 Ontario emissions target of 30 percent below 2005 levels; the importance of expanded engagement beyond the traditional stakeholders; meaningful engagement and participation of Indigenous communities; and the use of sophisticated planning and forecasting models.

2. The framework must allow for integrated energy planning:

Greater emphasis on integrated energy planning will ensure the greatest efficiencies for the system and the ratepayer/customer. This means looking beyond the traditional silos and encouraging the use of new technologies, low carbon generation sources, and energy sharing opportunities. Enwave's district energy system is a key example of this approach. Our district energy systems displace the need for electricity and relieve pressure from the electricity grid, while either incorporating renewable energy and thermal storage as our supply or maximizing the efficiency of natural gas. District energy operators like Enwave are in a unique position as they fit within and complement the operations of utilities and private solutions; the Framework should encourage these solutions by avoiding being too prescriptive in its approach.

The Well thermal battery project is an excellent example of an innovative approach to integrated energy planning. The Well is a visionary mixed-use development in Toronto, covering more than 3 million square feet of retail, office, and residential space. Enwave designed and installed a new state-of-the-art thermal storage facility underneath The Well; the tank is fed by the DLWC system and has the capacity to hold 7.6 million liters of water. It can store energy at night during off-peak times, reducing the strain on the electricity grid and reducing costs. The potential for other projects like The Well thermal battery is massive; the framework should not only allow but facilitate and incentivize their development, where possible.

3. Mitigating the impacts of climate change - and its impacts - must be paramount:

An effective energy planning framework will recognize that the ability of Ontario's energy system to reduce GHG emissions must equally prioritize the need to increase non-emitting generation within the electricity grid with the imperative to encourage and incentivize low/no carbon energy solutions to reduce emissions from the built environment, industry, and transportation. This can be achieved by integrating low carbon technologies, storage, and smart/micro grids into our network, thereby reducing the need for natural gas. These solutions are being deployed in various projects across the province, but a more focused and deliberate approach would deliver a greater impact and economies of scale.

For example, Enwave is partnering with Mattamy Homes and the City of Markham in developing a community-scale, distributed geo-exchange energy system for heating and cooling. This innovative technology will be piloted on a neighbourhood of approximately 320 homes in the City of Markham,





Ontario, which is set to become a net-zero emissions city by 2050. Utilizing deep wells up to 820 feet below the ground, the community will be able to tap into geo-exchange energy that will be converted into heating and cooling delivered at the neighbourhood level and connected to each home.

The Framework should also outline steps to be taken now to ensure a resilient system that can withstand the impacts of climate change, by prioritizing localized generation and distribution which is more cost-efficient for communities and reduces inefficiencies from long transmission energy losses.

4. Conservation Demand Management (CDM) and Demand Side Management (DSM) must be strengthened and diversified:

There is a great deal of potential in building out existing approaches to CDM and DSM, particularly in the commercial and industrial sectors. Many technologies provide conservation savings but are not recognized or incentivized by the existing CDM and DSM frameworks; a key example of this is Enwave's Deep Lake Water Cooling system. Our innovative technology displaces 55 MW of energy a year from the grid – equivalent to powering eight hospitals – yet it is not incentivized under any conservation program. This type of technology should be encouraged given its significant value to both the ratepayer and the system's resilience.

In closing, I wanted to reiterate Enwave's support for this undertaking. A long-term energy planning framework will only be as effective as its parts and its deliberate implementation.

I would like to thank you again for the opportunity to provide our feedback into this important process. We will continue to keep your office informed of our developments and look forward to ongoing collaboration on our shared objectives.

Sincerely,

A handwritten signature in black ink, appearing to read "Carlyle Coutinho".

Carlyle Coutinho
President, North America
Enwave Energy Corporation



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