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Environment and Climate Change Canada

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***Re. Comments on Use of Proceeds from the Federal Output-Based Pricing System***

On June 28<sup>th</sup>, 2019, the Federal Government released a discussion paper inviting comments on how the proceeds from the Output-Based Pricing System (OBPS) component of the federal carbon pricing system should be re-invested. The undersigned representatives of the district energy industry appreciate this opportunity to provide their views.

We were disappointed to learn that district energy was not included as a covered sector under the OBPS regulations, released on June 28, 2019. As outlined in several letters, submissions and meetings, inclusion would have provided an opportunity to leap forward district energy, and thus Canada's sustainable energy future.

The treatment of district energy under the OBPS notwithstanding, we recognize that the Government is broadly supportive of district energy as evidenced by the following. The Government has:

1. incorporated strategic investment in district energy into its greening government strategy;
2. included district energy in the group of clean energy technologies afforded Accelerated Capital Cost Allowances under 43.1 of the Income Tax Regulations; and,
3. included district energy in the list of eligible projects under the SME Stream 2019-20 under the Climate Action Incentive Fund.

4. Supported district energy projects through the stream challenge of the Low-Carbon Economy Fund, such as Enwave projects including deep lake cooling system and the upgrade and expansion of a 35-year old system.

We believe there is a greater opportunity, a generational one, to support district energy as a means by which to propel forward Canada's sustainable energy future. The use of proceeds from the OBPS can support such an opportunity. If done right, district energy projects funded in part through OBPS reinvestments can bring additional value to facility owners who have led the way while providing a realistic pathway for facility owners using traditional means for heating and cooling to mitigate their carbon costs going forward. Additionally, district energy as a reinvestment strategy can help accelerate a generational energy pathway transition that moves beyond improved energy efficiency into fuel-switching at scale and systems-level innovation. District energy also supports the retrofit economy, which is a major opportunity for Canada but is stubbornly difficult to advance.

#### **Comments Specific to the Use of Proceeds**

In our experience, gained through years of encouraging facilities to move to district energy, there is a large barrier of entry for district energy. The growth of district energy in Canada has been slow, despite the broad support by technologists, climate scientists, city planners and policy makers. The latest data shows 178 district energy systems in operation across Canada. These systems service almost 3,000 buildings across Canada and deliver 5.9 terawatt hours of thermal energy per year. While this sounds significant – and it is – it accounts for only about 0.24% of total secondary-use energy, based on Canada's 2013 energy demand.

While the previously outlined Federal Government one-off investments on district energy are certainly welcome, a much more sustainable strategy is to use policy instruments, like the OBPS reinvestment of proceeds, as a means to help drive widespread energy system change and create effective tangible policy incentives to support entities seeking to deploy district energy systems for enhanced resiliency, carbon reduction and economic competitiveness.

Absent a long-term policy tool, we feel strongly that the positive attributes and contributions made by district energy deployment in rapidly de-carbonizing countries like Denmark, Finland, Sweden, Norway and Germany will not only be lost for Canada, but may actually be harmed and discouraged.

*To that end, we believe that the inclusion of district energy as a specifically eligible project type for funding through OBPS proceeds would provide a primary market signal that will incent wide-scale district energy system deployment.*

The district energy sector is of the view that those who have paid into the OBPS system should be the recipients of the redistributed revenues. What they do with that funding should be carefully guided in order to maximize the greening of operations and prioritize the most significant long-term carbon abatement opportunities. According to Canada’s Mid-Century Long-Term Low-Greenhouse Development Strategy, submitted to the United Nations Framework on Climate Change, major structural changes and transformation across all economic sectors over time will be required to address climate change.<sup>1</sup> As a central component of Canada’s climate plan, carbon pricing – and OBPS reinvestments in particular – can help set in motion and catalyze the kinds of transformative changes needed.

Canada’s 2050 roadmap notes that “substantial decarbonization by mid-century is possible with current technologies.”<sup>2</sup> Further, the International Energy Agency (IEA) says that a sustainable energy transition is possible with currently deployed or near-commercial technologies, but that the long-term transition will be eased with the near-term accelerated deployment of current clean energy options, paired with the development of more innovative technologies.

With this in mind, the district energy sector is of the view that the accelerated deployment of underutilized existing clean technologies with the capacity to significantly reduce greenhouse house emissions, such as district energy, ought to be incentivized through the reinvestment of OBPS proceeds. Specifically, this should include investments in district energy and further, consideration should be given to the inclusion of district energy into the OBPS system as a means to charge a cleaner energy future. Our sector will continue to advocate for the inclusion of district energy into the OBPS as the system is reviewed in years ahead.

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<sup>1</sup> Canada’s Mid-Century Long-Term Low-Greenhouse Gas Development Strategy, Government of Canada, 2016: [https://unfccc.int/files/focus/long-term\\_strategies/application/pdf/canadas\\_mid-century\\_long-term\\_strategy.pdf](https://unfccc.int/files/focus/long-term_strategies/application/pdf/canadas_mid-century_long-term_strategy.pdf)

<sup>2</sup> Ibid

## The District Energy Opportunity

District energy systems supply hot water or steam and chilled water to customer buildings via underground piping networks to be used for space heating, domestic hot water, air conditioning and industrial process energy. By aggregating the heating and cooling requirements of dozens or even hundreds of customer buildings, district energy systems leverage economies of scale to produce economic, environmental and reliability benefits to customers and the local economy. Increasingly, the addition of combined heat and power (CHP) enables production of three useful products (electricity, heat and cooling) from a single fuel which can enhance community energy resiliency, relieve strain on the electricity distribution grid, reduce downstream emissions and enable economic recovery and re-use of heat that would otherwise be wasted during electricity generation.

District energy system thermal output typically displaces less efficient single-building boilers, which often operate at part-load and cycle frequently, especially during the shoulder months of March, April, May and September, October and November. The electricity output from district energy CHP systems displaces marginal plants across Canada, which are typically the most carbon intensive, including coal and natural gas. This displacement should be recognized and valued within the carbon pricing regulation design.

District energy systems also enable energy sharing, even without power production, where the surplus heat from a large data center, industrial plant or process user can be captured as primary heat supply for the district energy network and again, avoid multiple smaller sources of combustion.

As a broad societal benefit, district energy systems with thermal storage help relieve stress in the existing energy infrastructure, pave the way for new building construction and directly support the retrofit economy. Widespread use of local and regional district energy systems has been a fundamental and primary contributor to low-carbon built environments in countries like Denmark and Finland. The United Nations Environment Program has identified district energy systems as “vital infrastructure for more sustainable cities and communities” and specifically recognizes those countries, cities and communities for strategic investments in district energy as “a most effective means to de-carbonize urban energy infrastructure.”<sup>3</sup>

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<sup>3</sup> UN Environment Program report: [\*District Energy in Cities: Unlocking the Potential of Energy Efficiency and Renewable Energy\*](#)

Another key advantage of thermal networks compared to individually heated and cooled buildings is that networks make fuel switching more cost-effective. District energy systems create the economies of scale necessary to integrate local, low-carbon/renewable energy sources (e.g. lake water cooling, geo-exchange, solar thermal, sewer heat recovery, biomass, waste heat capture, etc.) in order to achieve large-scale, cost-effective emission reductions that individual homeowners and buildings cannot achieve individually.

Even without fuel switching, district energy systems are materially more fuel efficient as compared to heating and cooling individual buildings. In a 2009 report, the International Energy Agency found that in northern Europe and climates similar to Canada, more than 50% of primary energy was used for heating and cooling buildings and domestic hot water.<sup>4</sup> Thermal energy is too often overlooked in policy assessments and we encourage you to fully consider district energy as a covered source in this framework.

Finally, district energy systems have been shown to boost resilience and energy access through their ability to improve the management of electricity demand, reduce the risk of brownouts and adapt to pressures such as fuel price shocks (for example, through cost-effective decarbonization, centralized fuel switching and affordable energy services).

As of 2016, 2,863 buildings in Canada were served by district energy, resulting in 5.9 million MWh of delivered thermal energy annually. The Canadian Energy and Emissions Data Centre at Simon Fraser University notes that “half of all district energy systems in Canada have been commissioned since 2000, with one-quarter of all facilities constructed in the past five years.” 28% of the district energy systems are owned by public institutions, such as academic institutions and healthcare campuses. Common customer types include government offices, commercial buildings, hospitals, educational campuses, data centres, community centres and industrial facilities.

## **Conclusion**

It remains our position that district energy systems are good for Canada and good for Canadian building owners. We must move the MUSH sector, commercial buildings and the industrial sector to district energy systems quickly and at a massive scale if we are to achieve Canada’s climate commitments. There is simply no getting around this fact.

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<sup>4</sup> International Energy Agency report: [Cogeneration and District Energy](#)

Guided reinvestment of OBPS proceeds can expedite this change. We implore the Government not to miss this opportunity to set Canada's buildings on a realistic and achievable path to decarbonization. Inclusion will help building and facility owners manage carbon cost in the short term while enabling a successful energy transition for our local economies.

Thank you again for the opportunity to submit comments and trust that they will be carefully considered in the weeks ahead.

Yours sincerely,

Robert P. Thornton



President & CEO  
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The **International District Energy Association (IDEA)** is a 501(c) (6) non-profit industry association founded in 1909 with headquarters near Boston, MA, USA. IDEA represents nearly 2,400 members from 26+ countries around the world, with a majority in North America. IDEA members own, operate, design and optimize district energy systems that supply steam, hot water, chilled water and energy services to multiple buildings in cities, communities, campuses, airports, military bases, industry and healthcare. Working with global partners, IDEA specializes in highly reliable and resilient thermal networks, combined heat and power, thermal storage, microgrids and clean energy management to optimize energy efficiency, reduce harmful emissions, and provide sustainable solutions for mission-critical and community-scale markets.

**Enwave Energy Corporation** is the largest core-competency district energy provider in North America and an industry leader in providing innovative, sustainable energy solutions. A private corporation owned by Brookfield Infrastructure Partners and its institutional partners, Enwave has assets in Toronto, Chicago, New Orleans, Houston, Las Vegas, Los Angeles, Seattle, Portland, Windsor, London and Charlottetown. In each community, Enwave operates intelligent thermal energy systems that generate, store, and share energy across the district.