



EX20.4.1

Julia Langer
Chief Executive Officer
416-392-0253
jlanger@taf.ca

75 Elizabeth Street
Toronto, ON M5G 1P4

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RE: EX20.4 — FEDERAL INFRASTRUCTURE FUNDING

Dear Committee Members:

The City of Toronto has taken early and ongoing leadership in addressing climate change. Council adopted ambitious greenhouse gas (GHG) reduction targets and City-wide emissions are down approximately 22 percent below 1990 levels. Meeting the City's 2020 GHG reduction target of 30% below 1990 levels, and 80% by 2050, will take significantly more effort, which must target the key sources: natural gas used for heating our homes, offices, industrial and institutional buildings; gasoline and diesel used in our cars and trucks; and methane from landfilling our waste .

Both the Provincial and Federal governments have also made action to protect our climate a priority, and recognize that urban action is critical; for instance, 60 percent of Ontario's GHG emissions originate in cities. To support transition to a low-carbon economy, the Federal budget has established a "green infrastructure" fund, with \$3 billion specifically allocated to climate change mitigation and adaptation in Budget 2016 alone; presumably additional resources in future years as well. Assuming that 50% of these funds flow through municipalities, Toronto's share based on the City's population would be over \$100M for 2016 alone, and presumably additional amounts in subsequent years. This is in addition to the Public Transit Infrastructure Fund (PTIF) and Clean Water & Wastewater Fund (CWWF).

TAF is an arm's-length City agency mandated to advance local solutions to climate change and air pollution. We provide grants to explore innovative policy, technology, financial and educational ideas for reducing urban GHG emissions, invest in projects that yield a financial and environmental return on investment, and partner with public and private colleagues to achieve our low-carbon mission. We believe that the City of Toronto should include low-carbon projects on its list of priorities for Phase I and II infrastructure funding, in addition to PTIF and CWWF requests. This would bring additional new resources to the City, help meet local energy needs and provide services in a cost-effective and low-carbon manner, and continue Toronto's tradition of innovation and collaboration to reduce climate pollution.

While not a comprehensive list of projects, the five outlined below have strong technical and business cases, fit with City priorities, have sources of matching funding, and would contribute quantifiable GHG reductions. These projects also exemplify partnership opportunities, including with Toronto Hydro which has a strategic and central role in achieving a low-carbon economy in Toronto.

1. Low-Carbon Thermal Networks. Development and operation of ground-source heating/cooling, capture and use of waste heat (from data centres and sewers), thermal storage, and inter-connection and controls of multiple existing and new buildings, providing low-carbon heating, cooling and potentially electricity. Detailed project plans have been developed for Liberty Village, East Bayfront, Yonge & Eglinton, and plans to be developed for additional (15+) energy districts throughout the City. Significant GHG reduction achieved by displacing natural gas for space heating and reducing cooling load (electricity) which can be used for heating and electric vehicle charging therefore displacing gasoline. Total cost \$280M; request \$170M from the Low-Carbon Infrastructure funds, with the balance funded by Enwave and City in-kind contribution of facilities and easements.

2. LED Streetlight Conversion. How much does it cost to change 160,000 inefficient lightbulbs to modern, adaptive LED technology? \$108M, with a 5.5 year payback! Because the lights (and poles) are owned by Toronto Hydro but City of Toronto pays the bills, an appropriate financial arrangement is needed between the parties to ensure capital recovery, whether that is provided by the City or Toronto Hydro. With half the capital cost from the Low-Carbon Infrastructure fund, the business case is extra bright. This initiative also has potential to improve traffic safety for drivers, pedestrians, and cyclists, while reducing light pollution.

3. Electric Vehicle (EV) Charging Stations. Access to medium- and high-speed charging is key to the adoption of EVs by individuals and fleets. While Toronto Hydro cannot (at this time) use ratebase funds for this infrastructure, there is no barrier to the for-profit arm, Toronto Hydro Energy Services, owning and operating charging stations. At approximately \$40,000 per high-speed charging station and \$8,000 for medium-speed units, significant City-wide deployment could be achieved quickly with \$5-10 million; half of this would likely be available via the Ontario climate action plan (cap & trade revenues), private co-investment and City in-kind contribution of public realm/transportation easements. The City has already developed a plan for the first phase of this work including identification of 78 high priority locations for charging stations as part of its application to the *Electric Vehicle Chargers Ontario* funding program.

4. Public Sector Building Retrofits. The City's council approved Energy Conservation and Demand Management plan for city facilities calls for \$142M in capital investments to reduce city annual utility costs by \$17M and GHG emissions by 32 kilotonnes per annum. This excludes the social housing sector, which operates approximately triple the gross floor area as the City itself, and would require about \$500M to implement standard energy efficiency retrofits in the entire stock; deeper retrofits including exterior cladding would require additional resources. These capital investments would reduce GHG emissions, improve comfort, address deferred maintenance, and pay for themselves through utility cost savings. Federal funding could be matched by Provincial funds being disbursed through the City under the SHARP program for social housing, city capital funds, and third party financing (potentially performance based financing (e.g. TAF, Efficiency Capital Corp., or ESCOs).

5. Deep Lake Water Cooling Expansion. Currently, 63 large buildings, representing over 25 million square feet in downtown Toronto, including City Hall and Metro Hall, are cooled by water from Lake Ontario, avoiding 79 MW of electricity use, which is especially critical during peak times. Expansion of the Enwave system, including a pumping station, intake pipe and connection of heating/cooling technology in existing and new buildings would more than double access to this low-carbon energy. Toronto faces electricity constraints and this will significantly reduce electric load for cooling which frees up capacity for heating and electric vehicle charging

therefore displacing gasoline, and will also displace natural gas for heating. (Enwave is currently developing a deep lake water cooling system for Mississauga.) Total cost is \$112 million; request half from the Low-Carbon Infrastructure funds, the balance funded by Enwave and City in-kind contribution of facilities and watermains.

TAF urges City Council to include low-carbon infrastructure projects on its list of priorities for federal funding. We would be pleased to work with the relevant City staff and Committees to advance this opportunity for securing capital for projects that can help achieve Toronto's, Ontario's and the federal government's climate protection targets.

Sincerely,

A handwritten signature in black ink, appearing to read 'Julia', written in a cursive style.

Julia Langer
Chief Executive Officer
Toronto Atmospheric Fund