

Attachment 1



March 4, 2021

Additional input to the City Manager's Office, re: Report on EX17.1(19)

SUMMARY

Toronto Hydro is a green city builder. The utility's track record over the past 15 years is summarized in this submission. While numerous, transformational, environmentally beneficial projects are discussed, these are only some of the many performance highlights. Further, though many of the results are identified, they too are just a subset of the city-transforming impact that Toronto Hydro has had and continues to have improving the city.

This note provides additional input to the City Manager's Office ("CMO") in response to a Council motion passed in relation to EX17.1(19). Organized in two parts, this note will help clarify:

- Toronto Hydro actively contributes to the City's climate change goals, has a demonstrably strong record on environmental performance, and has been recognized as a top environmental performer, partner and leader.
- Toronto Hydro has an approved, integrated business plan for the future that does many of the things suggested by the City's Environment & Energy Division and the Toronto Atmospheric Fund.

PART 1: Toronto Hydro actively contributes to the City's climate change goals, has a demonstrably strong record on environmental performance, and has been recognized as a top environmental performer, partner and leader

Environmental performance is a core value of Toronto Hydro, both in terms of how it operates, and the attributes of the electricity that it delivers to customers across the City. This is embedded in the governance of the utility: as set out in the shareholder objective, environmental performance is to be balanced among financial performance, operational reliability, and diversity. This is consistent with the

City's expectation that Toronto Hydro operates as a commercial regulated business in accordance with those principles and objectives.

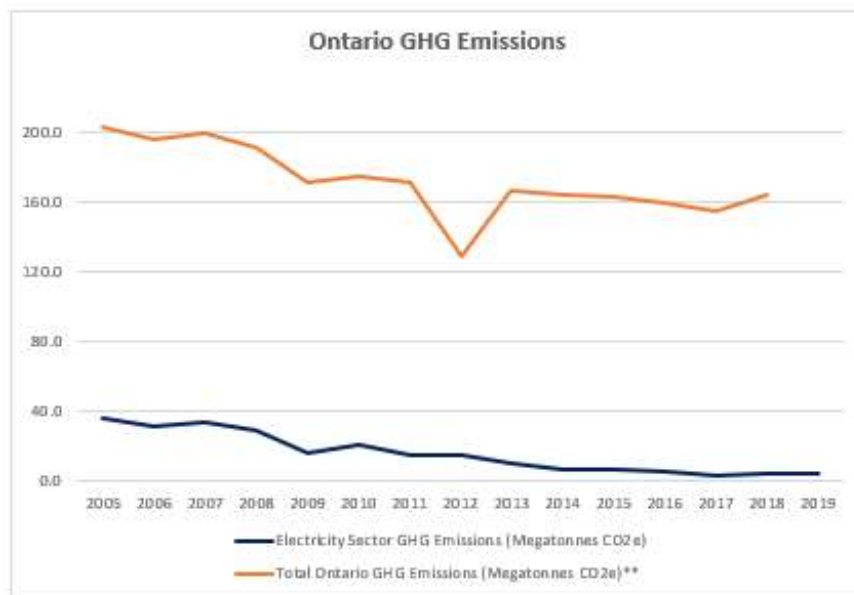
Investing in delivering decarbonized energy. Toronto Hydro actively contributes to the City's climate change goals in numerous ways. The utility is investing billions of dollars into an electricity grid that helps to decarbonize the energy that feeds the City, and serves Toronto Hydro's nearly 800,000 residential, commercial, industrial and institutional customers across a City of nearly 3 million residents. Toronto Hydro's core distribution infrastructure connects the City of Toronto to Ontario's bulk grid, which produces electricity that is 93% emissions free. By 2024, Toronto Hydro expects to have invested over \$9B over the prior two decades to renew and expand the electricity distribution system that delivers this clean source of energy to homes and businesses across the City of Toronto. Between 2006 and 2016, GHG emissions from electricity generated in Ontario decreased by approximately 80%. In absolute terms, that corresponds to just over 6 Mt CO₂e annually in Toronto. These reductions at the bulk system level – in large part due to the proliferation of renewable energy and phasing Ontario's coal generation on top of a large and established nuclear and hydroelectric fleet – accrue to the City by virtue of using power from the distribution system. Over roughly the same period (2004 and 2016), the City of Toronto reported annual emissions reductions of approximately 7.8 Mt CO₂e.

The transformation of Ontario's electricity grid to one of the cleanest in the world makes the electricity supplied by Toronto Hydro a critical product in a clean energy, net zero emissions future.



As a result of the success of the transformation of provincial electricity supply, only 2% of Ontario's GHG emissions are caused by the electricity sector. This is a very different reality than many jurisdictions in neighbouring American states and countries. The challenge in Ontario, including here in Toronto, is to shift from the use of carbon-based energy sources to the low-emission electricity grid. As is discussed

further in this submission, much of Toronto Hydro’s work over the past 15 years has done exactly that. Toronto Hydro programs enhanced energy efficiency of its customers so that more electricity is available as a substitute for carbon-based energy sources. Toronto Hydro has deployed EV chargers to make it easier for car owners to get off gas.¹ Toronto Hydro has built solar photovoltaic (“PV”) generation and energy storage to prevent small-scale natural gas generation in the city, including at City-owned facilities.² Ontario as a whole, and Toronto itself, have a major environmental challenge at hand, and Toronto Hydro has been, and continues to be, a leading provider of pro-environmental solutions. Toronto Hydro’s current plans include continuing this critical work. Toronto Hydro is open to partnering with the City on additional initiatives to do even more.



Connecting renewable generation to the grid. Between 2015 and 2019, Toronto Hydro invested over \$13 million to safely and reliably connect distributed generation projects to the distribution system, including solar photovoltaic and bio-gas. These investments and others like them by Toronto Hydro facilitated an increase in the number of renewable energy projects in the City by nearly 10 times: from 216 in 2010 to 2,070 in 2019. In this period of intense growth, Toronto Hydro continues to meet service obligations established by its provincial regulator, the Ontario Energy Board (“OEB”), to complete Renewable Generation Connection Impact Assessments and connect New Micro-embedded Generation Facilities, scoring 100% on both metrics in four of the last five years.

¹ Transportation is the leading cause of carbon emissions in Ontario, accountable for 35% of GHGs.

² Buildings are the second largest cause of carbon emissions in Ontario, accountable for 24% of GHGs.

Driving energy efficiency, conservation, and demand management (“CDM”). Although electricity is 93% emissions free, Toronto Hydro has nevertheless played an active role in helping its customers to manage and reduce energy consumption, including by actively shaping provincial policy frameworks and program design, and securing hundreds of millions of dollars in funding for programs and partnerships. The company’s conservation efforts between 2006 to 2015 produced energy savings equivalent to taking 600 large condo towers off the grid: an average of more than one per week, every week, for 10 years. This was the most significant CDM achievement by any utility in Ontario.

Between 2015 and 2019, Toronto Hydro added to its role in CDM, taking on responsibilities for another utility - Oakville Hydro, and successfully developing a suite of Toronto-specific programs to complement provincial initiatives. In those five years alone, Toronto Hydro secured \$400 million for CDM programming in Toronto, to fund over 1.6 billion kWh of energy savings. This provincial investment in Toronto Hydro conservation programming was the largest in any electric or natural gas utility. The Province also appointed Toronto Hydro to the provincial governance body leading and overseeing CDM across Ontario. The funding and appointment were tangible recognition of Toronto Hydro’s exceptional performance during the prior period, and its capacity and capability to produce further results going forward, and lead others to similar results.

Integrating environmental sustainability into Toronto Hydro’s operations. Through its own operations, Toronto Hydro is reducing its own environmental footprint. In 2019, the utility reduced its GHG emissions by 44%. Toronto Hydro’s fleet was reduced by 10% in 2019 on top of a 72-vehicle reduction between 2014 and 2017. Anti-idling technology is increasingly pervasive since its initial adoption in 2014. As a result, fuel consumption, kilometers travelled, idling hours and GHG emissions from Toronto Hydro’s fleet are all down significantly. A recent consolidation of Toronto Hydro operating facilities reduced its footprint from 4.2 million to 2.6 square feet, a 43% improvement, and the company reduced facilities emissions by more than half over 5 years as a result. Toronto Hydro also successfully recertified under the internally recognized ISO Standard for Environmental Management Systems (ISO 14001:2015), improved its recycling rate to 65% and over the past four years has reduced its annual paper consumption by 38%.

Recognition of Toronto Hydro’s environmental achievements. In addition to its Environmental Management certification, Toronto Hydro has been regularly cited by Corporate Knights Magazine for its

sustainability leadership, including being ranked 1st among electric utilities and 2nd among all Canadian companies for sustainability (2020). The Canadian Electricity Association awarded the utility a Sustainable Electricity Company designation following a comprehensive evaluation process and meeting a range of requirements, including alignment with ISO 26000:2010 – Guidance on Social Responsibility, indicative of Toronto Hydro’s commitment to responsible environmental practices. Toronto Hydro work centres have been certified as meeting the Building Owners and Managers Association of Canada requirements for building environmental standards (“BOMA Best”). Toronto Hydro’s CEO has been personally recognized for his individual leadership, including as the first Canadian to receive the Responsible CEO of the Year Award from Corporate Responsibility Magazine (2017), and the Individual Leadership on Sustainability Award from the Canadian Electricity Association (2017), both of which he accepted on behalf of the efforts of the entire Toronto Hydro team.

Pro-environmental energy policy leadership and advocacy. Senior Toronto Hydro leaders are engaged as board members on a wide array of organizations that advance environmentally sound energy policies and initiatives (e.g. Plug ‘N Drive, Energy Storage Canada, Canadian Renewable Energy Association), and are instructors at leading academic institutions on topics like energy conservation (e.g. Osgoode Hall Law School, Ryerson University). As a utility, Toronto Hydro is an omnipresent advocate in public consultations and working groups at the Ontario Energy Board, the Independent Electricity System Operator, and the Ministry of Energy, Northern Development and Mines. Through its submissions, individually and jointly with other utilities (e.g. Hydro One, Alectra, Hydro Ottawa) and industry associations (e.g. Canadian Electricity Association, Ontario Energy Association), and its participation in governmental and regulatory working groups, Toronto Hydro drives evidence-based policy development. Toronto Hydro advocates for energy policies that enable outcomes that are good for its customers and other key stakeholders, including with respect to the environment in which they live and do business.

Partnerships with the City to support the City’s environmental objectives. Toronto Hydro developed a joint-venture project with the City to install dozens of solar generation projects. 20 projects that were completed between 2012 and 2016 generated 3.1 million kWh in 2019, and an additional 52 projects were completed at the end of 2018. The utility constructed and is presently operating on-street EV charging pilots downtown and in residential areas which are traditionally underserved by conventional EV charging facilities, and is exploring opportunities to partner with the Toronto Parking Authority

("TPA") on EV charging stations at their parking facilities. This latter opportunity includes the replacement of TPA's current chargers with smart chargers, the installation of new level 2 chargers, and the installation of level 3 chargers with battery support. In 2019/2020, Toronto Hydro provided project management in bringing solar/battery projects to the City's EMS-46 station (increasing resiliency for this important emergency service), and the Waterfront Neighbourhood Centre (similarly eliminating the need for fossil fuel back-up generators). Further, Toronto Hydro staff work closely with the City of Toronto staff on a number of policy initiatives, including the 2020 EV Strategy, the design and development of elements of the Toronto Green Standard, and in an advisory capacity on the Existing Building Advisory Committee and District 2030.

Through the service it delivers, the way in which it operates, policy advocacy, and partnerships with the City, Toronto Hydro is a top environmental performer. As Toronto Hydro continues to focus on the future, the City can rely on the existing corporate governance framework, and this excellent track record, to be sure that environmental objectives will continue to play a central role at Toronto Hydro, and that this high performing utility will continue to deliver strong environmental results for the City and its other stakeholders.

PART 2: Toronto Hydro has a regulator-approved, integrated business plan for the future that does many of the things suggested by the City's Environment & Energy Division and the Toronto Atmospheric Fund.

Toronto Hydro and its predecessors have met the electricity needs of the residents, businesses and institutions of the municipality for over 100 years, performing a critical role in the community. In planning and carrying out its work, the utility is further guided by the needs, preferences, and priorities of its customers and other stakeholders. Toronto Hydro does this by employing a robust planning process tailored specifically to address the significant challenges of distributing power in Toronto. Operational complexities, City growth, climate change, and technology advancements are all core to how the utility develops and executes its plans in an efficient, and environmentally-progressive manner.

Toronto Hydro has an approved plan for 2020 to 2024. In late 2019, following extensive public scrutiny, Toronto Hydro received approval from the Ontario Energy Board for its 5-year business plan spanning 2020 to 2024. The plan was the result of thorough business planning in which customers' needs and

preferences were integrated from start to finish. The plan is expected to produce performance outcomes aligned with customer expectations in terms of investment prioritization, reliability, safety, and at a cost that customers are willing to financially support through their distribution rates.

Toronto Hydro's approved plan includes action on conservation, demand management and renewable energy. Within Toronto Hydro's OEB-approved plan for 2020 to 2024 are a number of initiatives that overlap directly with many of the ideas suggested by the City's Environment & Energy Division and the Toronto Atmospheric Fund. As discussed in detail in the previous section, and detailed further in this section, Toronto Hydro is already very active in fuel switching, energy efficiency, demand management, and renewable energy integration.

Toronto Hydro's ongoing environmentally-progressive energy initiatives come despite a dramatic change in provincial energy policy. On March 20, 2019, Ontario's Minister of Energy, Northern Development and Mines issued a Ministerial directive that transferred the responsibility for designing and administering Conservation and Demand Management ("CDM") programs from local distribution companies like Toronto Hydro to a provincial agency, the Independent Electricity System Operator. This terminated the previous Government's 2015-2020 CDM framework. The change in policy was significantly disruptive to Toronto Hydro's CDM offerings by requiring, among other things, all customized programs designed by Toronto Hydro for Toronto customers to be cancelled.

Despite the change in provincial policy, Toronto Hydro's business strategy continues to pursue and achieve innovations in energy efficiency, demand management and renewable energy integration that remain within the scope of Toronto Hydro's OEB license and program-specific regulatory approvals.

For example, the utility's Local Demand Response ("DR") project at Cecil Transmission Station ("TS") in the Spadina-College area is deferring station upgrades through a novel use of battery storage that has been pointed to by the OEB as a leading innovation in the sector. This non-wires alternative ("NWA") solution is funded through a blend of cost-effective capital and operational spending. It is successfully delaying the need for much larger capital investment at that location. This benefits ratepayers through lower costs in the near and medium term. Like CDM, demand response reduces energy consumption at critical times.

Toronto Hydro intends to continue on this sort of initiative into the future to face the challenge of meeting the needs of a growing, global City. Toronto Hydro plans to continue Local DR at Cecil TS, and to apply this NWA approach at other locations on the distribution system. In doing so, the utility expects to defer additional millions of dollars in capital investment that would otherwise be needed to avoid reliability risks and to meet its obligations to its customers.

Partnerships with Toronto Hydro are delivering new CDM and renewable energy initiatives. Earlier this fall, the on-street EV charging pilots – a collaboration between the City and Toronto Hydro – officially launched with 17 chargers located across the City in operation for a 12-month pilot. The pilot will provide valuable information to Toronto Hydro about charging patterns, and adds to the fabric of hundreds of other publicly-accessible charging stations Toronto Hydro has connected to the distribution system across the City.

Toronto Hydro has also partnered with the Province to build an innovative battery energy storage system that will provide back-up power to the Eglinton Crosstown light rail transit (“LRT”) line to increase reliability, lower operating costs and avoid emissions. The facility, located at Mount Dennis Station, displaces previous plans for a back-up natural gas generator at the same site that was objected to vigorously by local constituents. The battery project will store energy generated by solar PV generation on-site, as well as sourced overnight from the provincial or local grid during off-peak hours. It will supply energy the following day to reduce peak energy use, lowering the Crosstown's overall emissions and operating costs. The facility will also provide emergency power to the Crosstown in the event of a power interruption, creating a better experience, and public safety function for transit riders.³

In addition, Toronto Hydro recently partnered with the Ontario Energy Association and a company specializing in demand response to apply for an Independent Electricity System Operator (“IESO”) innovation fund pilot that was designed to shift funding away from large centralized generation and toward local CDM and renewable generation initiatives in Toronto. Though Toronto Hydro offered to commit significant personnel and financial resources to the project, the IESO rejected the strategically significant proposal.

³ <https://news.ontario.ca/en/release/48220/ontario-reducing-emissions-on-eglinton-crosstown-lrt>

Grid modernization is central to Toronto Hydro's plan. Investments in grid-side technologies are making the distribution system more resilient to climate change and more capable to handle the operational challenges of managing increasing volumes of renewable energy projects expected to come online.

Elements of this initiative include:

- Improving the distribution system's ability to connect and enable the deployment of distributed energy resources without creating safety or reliability concerns to crews or nearby customers.
- Reinforcing Toronto Hydro's control room operations to better monitor and manage distribution-connected loads, energy delivery and energy management needs.
- Deploying SCADA-enabled remote monitoring, sensing, protection, and control capabilities that modernize the grid and improve reliability and resilience.
- Hardening the grid against the risk of extreme and severe weather caused by climate change.
- Preparing the distribution system proactively for planned transit expansion projects across the City through novel partnership agreements.

Toronto Hydro's plan was developed in extensive consultation with its customers and is aligned with outcomes that customers value. It is underpinned by extensive expert engineering analysis and to meet its legal and regulatory obligations. The plan was heavily scrutinized by customer groups, external subject matter experts and third parties in an open, public process that lasted nearly two years. The result is an approximately \$4B OEB-approved and customer-funded balanced plan that meets the needs of a growing city.