

Toronto Hydro Climate Action Plan and Next Steps

Date: November 23, 2021

To: Executive Committee

From: City Manager

Wards: All

REASON FOR CONFIDENTIAL INFORMATION

The Confidential Attachment to this report has been provided to the City of Toronto by Toronto Hydro Corporation in accordance with Section 4.4 of the Shareholder Direction and contains technical, commercial, financial or labour relations information of Toronto Hydro Corporation. The disclosure of this information may reasonably be expected to significantly prejudice Toronto Hydro's competitive position and result in undue loss to Toronto Hydro. In addition, any disclosure could give rise to a breach of law, including applicable securities laws.

SUMMARY

At City Council's request from its April 7, 2021 meeting, Toronto Hydro Corporation has submitted a report to the City Manager on its current climate action work and opportunities in key areas including electric vehicles, outdoor lighting, renewable energy, energy storage and non-capital sources of revenue.

This report responds to further Council direction that the City Manager report on Toronto Hydro's plan and the role Toronto Hydro has in enabling the City's climate change and equity objectives.

Accelerating climate action is essential for the health and prosperity of Toronto and requires all City divisions, agencies and corporations to advance this work. Toronto Hydro, as the City's wholly-owned electrical distribution company, is a critical enabler of many of the City's climate goals outlined in TransformTO and the staff-recommended Net Zero Strategy, given the significant greenhouse gas (GHG) reductions that can be realized through electrification to displace fossil fuel use in buildings and vehicles.

Toronto Hydro's Climate Action Plan (attached to this report with a cover letter and confidential appendix) offers a positive framework to enable the electrification necessary to achieve net zero emissions. It proposes opportunities that include:

- expanding regulated electricity distribution to build a grid that is capable of supporting Toronto's future zero-emission electricity demand;
- creating a new, unregulated "Climate Advisory Services" business to facilitate the growth of emerging local clean-tech markets; and
- making capital investments, focused on modernization of outdoor lighting.

Toronto Hydro submitted its Climate Action Plan to the City Manager on September 30, 2021. City staff have begun reviewing the framework with Hydro, divisions and agencies to determine alignment with the TransformTO Net Zero Strategy and other strategies and programs such as City-run climate advisory services, electric vehicles, and street lighting. Further review of financial, economic, environmental, regulatory and timing risks and opportunities is required. Thorough analysis and due diligence will enable City and Toronto Hydro staff to provide recommendations to City Council and the Toronto Hydro Board regarding any new mandates or shareholder direction to Toronto Hydro, City-funded investments, partnerships and other actions.

The City and Toronto Hydro will continue to collaborate on research and to consider specific investments, programs, policies and other measures to advance the objectives of the Climate Action Plan and a coordinated City-Hydro climate response. This report recommends consideration of specific priority areas and reporting back to Council in Q2 2022 on next steps.

RECOMMENDATIONS

The City Manager recommends that:

1. City Council as shareholder request Toronto Hydro Corporation, the Deputy City Manager, Infrastructure and Development Services and Deputy City Manager, Corporate Services, to continue a collaborative analysis of the Toronto Hydro Climate Action Plan and relevant City strategies and programs to determine specific goals, outcomes, actions and timelines for enabling Toronto's net zero climate targets.
2. City Council request the Deputy City Manager, Infrastructure and Development Services and Deputy City Manager, Corporate Services, and relevant divisions, agencies and stakeholders, in collaboration with Toronto Hydro, to refine the TransformTO spatial and temporal study of climate actions to include probabilistic adoption scenarios (for example, electric vehicles and heat pumps), resulting in corresponding electricity consumption and demand profiles.
3. City Council direct the City Manager to report to City Council by the end of the second quarter of 2022 with respect to the analysis referred to in Part 1 above and the consultation and climate adoption scenarios referred to in Part

2 above, and any recommendations regarding new climate action mandates such as a shareholder direction for Toronto Hydro.

4. City Council direct that the information contained in Confidential Attachment 3 remain confidential in its entirety, in accordance with Section 4.4 of the Shareholder Direction, as it contains technical, commercial, financial or labour relations information of Toronto Hydro Corporation.

FINANCIAL IMPACT

There are no financial implications arising from the approval of this report. The financial impacts of specific recommended actions will be included with future related reports from the City Manager.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

EQUITY IMPACT

The impacts of climate change disproportionately affect certain populations, including seniors, people with health conditions, people with low income, those experiencing homelessness, and Indigenous and racialized communities. In addition to this burden, in Toronto and cities around the world, these communities are facing disproportionate health and economic impacts from the spread of COVID-19 and the consequences of lockdowns.

The recommendations in this report are intended to identify and accelerate actions that Toronto Hydro, in collaboration with City divisions and agencies, can take to mitigate and adapt to climate change and support community resilience. These actions will lead to a reduction in greenhouse gases and mitigate the health impacts of extreme weather, air pollution and other consequences of climate change.

DECISION HISTORY

On April 7, 2021, City Council requested Toronto Hydro to report to the City Manager by the end of the third quarter of 2021 on current work and an action plan to achieve outcomes regarding electric vehicle-charging infrastructure, modernization of outdoor lighting, renewable energy and energy storage, and attracting revenue through non-rate sources of capital funding. Council also directed the City Manager to report to Council on the information submitted by Toronto Hydro by the end of the fourth quarter of 2021, in consultation with Toronto Hydro and relevant divisions and agencies.
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.EX22.5>

On October 27, 2020, City Council directed the City Manager, in consultation with the Environment and Energy Division and the Toronto Atmospheric Fund, to develop

recommendations for Toronto Hydro to achieve greater outcomes for energy efficiency, demand management and renewable energy within the service area, and report back to City Council by the end of 2020 on the proposed recommendations and how to implement them.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX17.1>

COMMENTS

The City of Toronto, as sole shareholder of Toronto Hydro Corporation, requested the Climate Action Plan. Toronto Hydro's regulatory strategy, planning, operations, and advocacy are arms-length activities, as a matter of law, governance, and market expectations. They are within the scope of activities which Toronto Hydro Corporation's regulated electricity distribution subsidiary, Toronto Hydro Electric-System Limited, routinely undertakes as part of its Ontario Energy Board-regulated utility business operations. This is also consistent with the Shareholder Direction from the City of Toronto to Toronto Hydro, which provides the Board the authority to manage the affairs of the Corporation (section 2.1(a)) including approving the overall business strategy and related Business Plan (section 4.1(d)).

The City of Toronto's Net Zero Strategy emphasizes the need for the City to work in step with Toronto Hydro to successfully support the growth and prosperity of Toronto through reliable, uninterrupted electric service provision. As the City's electricity distribution company, Toronto Hydro is uniquely positioned to enable rapid electrification necessary to respond to climate change, and the City and its divisions and agencies can be a strategic partner in achieving common objectives.

Toronto Hydro has presented a positive climate action framework that advances several key ideas for consideration, including:

- Expanding Hydro's existing, regulated electricity distribution business to build a grid that can sustain the future anticipated electricity needs from buildings and vehicles;
- Creating a new, unregulated business to provide climate advisory services to help customers and cleantech companies advance electric vehicle infrastructure, energy-efficient buildings, renewable energy and energy storage; and
- Modernizing streetlighting with a city-wide conversion to LED lighting, and/or creating a new, unregulated business to make unregulated capital investments directly into climate action where there is need.

Attachment 1 of this report is the Climate Action Plan cover letter from Toronto Hydro's President and Chief Executive Officer. The full Toronto Hydro Climate Action Plan and a confidential financial appendix submitted to the City Manager on September 30, 2021 are included with this report as Attachments 2 and 3.

Electrification is a critical part of the City's climate strategy

The staff-recommended TransformTO Net Zero Strategy sets a pathway and series of targets for Toronto to achieve net zero emissions by 2040. To reach a 65% reduction in 1990 emissions by 2030 and net zero by 2040, we will need to deepen our focus on energy efficiency and transition from fossil fuels, including gasoline and diesel used in transportation and natural gas used for space and water heating and industrial processes. In Ontario, shifting from the use of carbon-based energy sources to the electricity grid is a critical path to achieving these targets, since our current electricity supply relies on non-carbon fuels such as nuclear, hydroelectric, wind and solar.

The associated renewables, storage and electrification that will be required for this transition signify a looming change for urban electricity grids, as well as a paradigm shift from one-way, centralized generation to multi-directional and Distributed Energy Resources (DERs), where increasingly renewable electricity is stored and generated locally. The growth of DERs, especially at the local level, is increasing as technology costs decrease and customer preferences evolve. Electricity distribution companies will also have to meet increased electricity sales demands posed by the rapid adoption of electric vehicles, the switch to low-carbon thermal energy systems and changing building codes. Research and probabilistic multi-factorial scenario modelling can help predict how and where fuel switching away from fossil fuels will occur in favour of electricity.

These and other imperatives, including extreme weather, to build grid resiliency are driving creative ways and opportunities to do things differently. Although solutions exist and costs of renewable energy technology and energy storage are falling rapidly, there are barriers to scale solutions at the rate necessary to meet climate mitigation timelines. To address barriers and achieve a just transition, technology innovation needs to be accompanied by new partnerships, new alliances and an unprecedented level of collaboration

Priorities for Ongoing Analysis and Collaboration

City staff have begun analysis of the Climate Action Plan. Further analysis in collaboration with Toronto Hydro, the City and external partners is required to more fully consider details such as:

- Areas of alignment between the Climate Action Plan and the City's TransformTO Net Zero Strategy, and strategies and programs such as City-run climate advisory services, electric vehicles projects, and street lighting;
- Additional investments for expanded electricity distribution, including estimates on their timing and phasing;
- Innovative business models in and outside of the rate base, and the potential role of energy solution companies and innovative technologies to contribute to TransformTO goals and complement City and Hydro investments and programs;
- Grid-connection availability tools for electrification solutions by residents, businesses and institutions, such as electric vehicle charging, energy storage, and on-site solar;

- Quick-start projects to rapidly electrify key City programs, such as TTC electric bus charging, and specific medium and longer-term actions that can be taken as part of a coordinated electrification and climate action approach; and
- Opportunities for regulatory innovation that will support the development of a resilient, modern electricity system in Toronto.

A key area of further research and modelling is the refinement of preliminary cost estimates in the Climate Action Plan to inform the appropriate scale and timeline of potential capital investments. Toronto Hydro's plan includes an order-of-magnitude estimate of up to \$10 billion for expanded electricity distribution. Toronto Hydro has clarified with City staff that this estimate is preliminary, with a high degree of uncertainty, as it looks far into the future and is premised on factors such as the City's future scenario modelling for a net zero future by 2050 and associated electricity consumption. This estimate does not reflect the revised staff-recommended target of achieving net zero emissions by 2040. Toronto Hydro will continue to refine this estimate in collaboration with City staff to determine any impacts on potential City equity investments, rates and associated liabilities.

This report recommends specific areas of further analysis by Toronto Hydro and City staff, including a spatial and temporal study of climate action adoption scenarios in Toronto, to help understand where and when increased electricity consumption and demands will take place, and how to best meet that demand locally. Such a study can help plan for the likelihood that the rapid step up in electrification will not be uniform across the City -- certain neighbourhoods will see earlier consumption than others through the early climate action, including adoption of electric vehicles and heat pumps in homes and buildings, for example -- and the certainty that grid consumption and demand will continue to be influenced by changing daily and seasonal weather patterns, evolving economic conditions and customer preferences, changes in distributed energy resource innovation and more. Hydro and City expertise, along with relevant experience in other jurisdictions, can help inform Toronto's set of approaches.

City and Toronto Hydro staff will continue to explore the opportunity for innovation, regulatory evolution and new mechanisms and business models to achieve net zero and build collaboration. This includes involvement from a wide range of stakeholders across system operators, governments, utilities, energy experts, innovators, investors, social enterprise and more. There are opportunities address the looming step-change in electricity demand by aggregating resources across stakeholders, matching energy solution companies and innovators with building owners, exploring incentives for DERs, evolving supports to innovative cleantech companies, and implementing decision-matrixes that will facilitate energy decisions.

While recognizing that the regulatory, governance, and scale of electricity distribution in Toronto is unique, there are leading practices in other jurisdictions that can inform Toronto's approach to rapidly meeting electricity demand in step with climate change. City staff will work with Toronto Hydro to explore these practices and opportunities to leverage them to help achieve Toronto's climate goals. Toronto Hydro and City expertise, along with relevant experience in other jurisdictions, can help inform Toronto's set of approaches.

City divisions, agencies, and corporations were consulted at a high level on the Toronto Hydro Climate Action Plan, and look forward to continued collaboration on considering details and opportunities. Examples of common interest include the TTC's fuel-switching project to expand its fleet of electric buses, deploying electric vehicle charging in collaboration with Toronto Parking Authority, fuel-switching to battery-backed solar generation at City facilities, and converting streetlights to energy efficient LEDs with Transportation Services.

Next steps

This report recommends Toronto Hydro and City divisions and agencies continue to collaborate on thorough analysis of the Climate Action Plan and related strategies, including in particular areas to assist in this review, and report back to Council through the City Manager by the second quarter of 2022 with specific actions and implications.

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SIGNATURE

Chris Murray
City Manager

ATTACHMENTS

Attachment 1. Letter from Toronto Hydro President and Chief Executive Officer (November 29, 2021)

Attachment 2. Toronto Hydro Climate Action Plan - submitted to the City Manager on Sep 30, 2021.

Confidential Attachment 3. Confidential Climate Action Plan "Appendix H" - submitted to the City Manager on Sep 30, 2021