



Climate Action Plan

2023 Status Report



Executive Summary

We are pleased to provide our 2023 Status Report on Toronto Hydro's Climate Action Plan. This report builds on our 2021 Climate Action Plan as well as our 2022 Status Report.

The path to net zero by 2040 requires millions of individual changes to what energy is used, and how it is used. Most of those changes will require expanded capacity and capabilities from Toronto Hydro's local grid. More local distribution infrastructure is required to get electricity from where it is generated to where it is needed every instant of every day. Toronto Hydro is actively planning for grid expansion and modernization to enable the energy transition in Toronto.

Since receiving a new mandate for climate action from City Council in July 2022, Toronto Hydro has turned this mandate into action by (1) building the capacity, partnerships and tools necessary to enable and actively encourage customers' pursuit of electrification projects at scale, and (2) beginning work on projects that remove barriers to climate action. These efforts include: establishing a permanent Climate Action department and team; developing new Climate Advisory Services offerings to actively support customers with their own climate action initiatives; and executing early climate action wins.

In this report, we highlight five Expanded Electricity Distributor and five Climate Advisory Services projects. These projects demonstrate our commitment to fulfil the mandates from our shareholder and provincial regulator. They are a sample of the many steps we are taking to respond to the increasing urgency for climate action. These projects span a broad range of activities but all have the same end goals in mind: make it easier, faster and more affordable for customers to electrify their vehicles and buildings; connect solar panels and energy storage; or improve the energy efficiency of their homes and businesses — all connected to and supported by the electricity grid.

Toronto Hydro is proud to play a significant role in helping achieve the City of Toronto's net zero 2040 vision.



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1. Toronto Hydro's Climate Action Plan





1. Toronto Hydro's Climate Action Plan

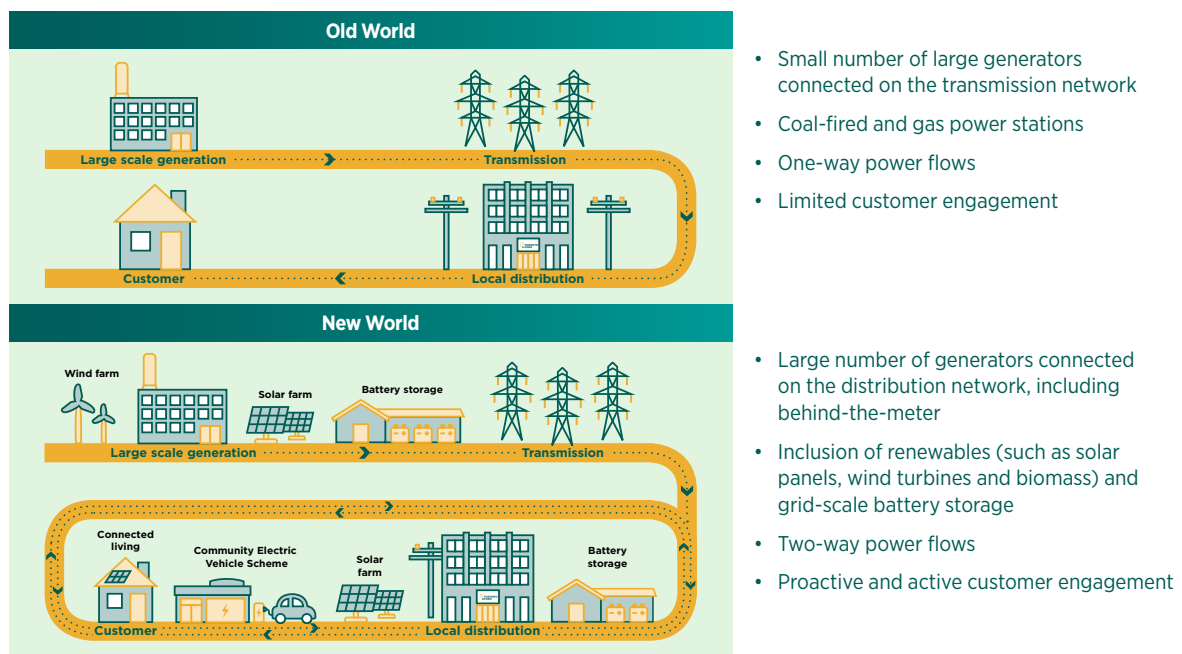
As residents and businesses prepare for the climate change challenges and opportunities ahead, Toronto Hydro¹ is ramping up to play a central role in supporting greenhouse gas (“GHG”) emissions reductions and helping customers be part of the shift to a sustainable economy.

To spur on this transition, Toronto Hydro developed a Climate Action Plan² that supports the City of Toronto’s (“City”) Net Zero 2040 vision³ and received expanded mandates for climate action from City Council in July 2022.⁴ Since then, Toronto Hydro has been working to turn this mandate into action by executing early climate wins; establishing a permanent climate action team and developing programs to support customers with their own climate action initiatives. As requested by City Council, this annual Status Report sets out Toronto Hydro’s achievements through Q1 2023 and previews future plans in two key focus areas: (1) the Expanded Electricity Distributor and (2) Climate Advisory Services.

1.1 Toronto Hydro: A Critical Player in Getting to Net Zero

Toronto Hydro was created to distribute electricity within the city of Toronto. This core mandate dates back to 1914, and was re-established in 1998–1999 through provincial legislation and a licence from the Ontario Energy Board (“OEB”), the independent regulator. Owned by the City of Toronto, but incorporated and operated as an independent business, Toronto Hydro is responsible for building and operating the grid that makes climate action via electrification possible for the approximately three million people who live, work and play in the city.

Figure 1: The Changing World of Electricity



Adapted from UK Power Networks’ “Changing world of electricity” (FutureSmart Consultation Report, 2019).

¹ Toronto Hydro Corporation and its subsidiaries.

² Toronto Hydro, *Climate Action Plan* (2021), available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e-58ae6df?t=1638298942821

³ City of Toronto, *TransformTO Net Zero Strategy: A climate action pathway to 2030 and beyond* (2021), available at: toronto.ca/legdocs/mmis/2021/ie/bgrd/background-file-173758.pdf

⁴ Appendix A and Appendix B contain a complete list of the City Council mandates and other Council requests from July 2022.



Approximately 75 per cent of the GHG emissions reductions in the City’s Net Zero 2040 Strategy depend on Toronto Hydro carrying out this existing mandate as an Expanded Electricity Distributor.⁵ This initiative is about building the backbone of the electricity grid to help ensure that electrification is an option for everyone in the city. This significant investment will enable increased electrification of major sectors such as transportation and buildings — an essential step for getting Toronto to net zero. This work involves roughly doubling the size of the electricity grid by 2040; modernizing and adapting the utility to make it more resilient to extreme weather; and making it easier for customers to install new technologies of their choosing, such as cold-climate heat pumps, electric vehicle (“EV”) chargers, solar panels and energy storage.⁶

For more detail on how Toronto Hydro is expanding and modernizing the grid to meet the net zero challenge, please see [section 2](#) of this report.

For its own operations, Toronto Hydro is taking a number of actions to protect the environment⁷ and achieve net zero emissions by 2040.⁸ To get to net zero, Toronto Hydro is replacing fossil fuel-powered cars, trucks, furnaces and hot water heaters with equipment that runs on clean electricity.⁹ As a demonstration of Toronto Hydro’s commitment to climate action, the company has implemented corporate key performance indicators directly related to achieving its emissions reduction goals, in addition to other important measures such as health and safety, reliability, responsiveness to customers, and financial performance.¹⁰ See Toronto Hydro’s 2022 Environmental Performance Report for further details.¹¹

1.2 Getting Customers to Net Zero

A key focus of Toronto Hydro’s Climate Action Plan involves partnering with customers and local cleantech businesses to meaningfully enhance Toronto’s collective capacity to achieve net zero.

Together with customers, local cleantech companies, governments and stakeholders, Toronto Hydro is committed to:



Delivering nationally significant emissions reductions.



Stimulating and facilitating the local cleantech economy.



Advancing social equity in Toronto.

To achieve these goals, Toronto Hydro is building a new offering where it will work directly with customers — free of charge — to encourage and help them find personalized, sustainable energy solutions tailored to their needs. This offering will aim to make it easier, faster and more affordable for all customers to adopt clean energy technologies. It will help dependable cleantech companies grow by promoting their products and services to customers. In sum, Toronto Hydro will help enable projects in Toronto that electrify buildings and transportation, build renewable generation capacity, and enhance energy efficiency in an effort to accelerate the shift to a sustainable economy.

For more detail on how Toronto Hydro will make it easier and cheaper for customers to reduce emissions and actively engage more customers to participate in climate action, please see [section 3](#).

⁵ Toronto Hydro, *Climate Action Plan* (2021), at page 24, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e-58ae6df?t=1638298942821

⁶ The timing and regulated process through which grid investments will be considered by the OEB is discussed in [section 2.1](#) of this report.

⁷ Toronto Hydro, *Climate Action Plan* (2021), at page 24, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e-58ae6df?t=1638298942821

⁸ Toronto Hydro’s net zero commitment.

⁹ More than 90 per cent of the electricity system in Ontario is emissions-free as per the IESO, available at: ieso.ca/en/Learn/The-Evolving-Grid/Decarbonizing-the-Electricity-Sector.

¹⁰ Toronto Hydro introduced two new performance metrics on its corporate scorecard relating to environmental performance: Building Emissions Reduction and Fleet Electrification. Toronto Hydro, *2022 Environmental Performance Report* (2022), at page 6, available at: torontohydro.com/documents/20143/134897762/2022-environmental-performance-report.pdf/1abbec74-7127-2432-81d8-a9bf6a0bbd2a?t=1683035740813

¹¹ *Ibid.*



2. Expanded Electricity Distributor: Building the Net Zero Grid





2. Expanded Electricity Distributor: Building the Net Zero Grid

The path to Net Zero 2040 requires millions of individual changes to what energy is used, and how it is used, in the city of Toronto. Most of those changes will require expanded capacity and capabilities from Toronto Hydro's local grid. Whether the supply to meet these needs comes from large facilities outside Toronto (e.g. nuclear power plants, hydro-electric dams, wind farms) or within its borders (e.g. rooftop solar panels), more local distribution infrastructure is required to get electricity from where it is generated to where it is needed every instant of every day.

2.1 Investments in Grid Expansion

In its Climate Action Plan, Toronto Hydro used the City's net zero plan modelling to extrapolate that, between now and 2040, an additional investment of up to \$10 billion¹² may be required to expand the grid to enable the City's net zero vision. These investments, critical to combat climate change, are not unique to Toronto, Ontario or Canada and must be approved by the OEB, the independent regulator. Princeton University's Net Zero America study projects that approximately \$280 billion USD of additional investment in the electricity distribution system (compared to business as usual) will be required to support the aggressive electrification needed to achieve net zero GHG emissions in the United States.¹³

When considering the decarbonization of Canada's economy, the Royal Bank of Canada's Climate Action Institute and George Brown College estimate that \$350 billion will need to be invested into electricity distribution systems, with approximately 40 per cent of this spend supporting upgrades to existing infrastructure.¹⁴

Even with this investment, customers are expected to spend less of their income on energy over the long term as increased electricity costs are more than offset by savings from reducing or eliminating their use of fossil fuels, such as gasoline and natural gas.¹⁵

Toronto Hydro's system planning is focused on its distribution grid, not large-scale generation and transmission system planning which are overseen by the provincial Independent Electricity System Operator (IESO) and Hydro One Networks Inc. However, investments that enhance the ability to connect and integrate more local generation, such as solar and energy storage, may avoid or defer future investment in large-scale generation (including natural gas) and transmission resources.

¹² Toronto Hydro's Climate Action Plan (2021) extrapolated the required spend out to 2050, in line with the City's net zero target at that time. The subsequent Status Report to the Climate Action Plan (2022) revisited this outlook to align with the City's revised Net Zero 2040 target. The condensed timeline is not expected to materially alter the total investment required. See: Toronto Hydro, *Climate Action Plan* (2021), at page 41, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e58ae6df?t=1638298942821

¹³ Net Zero America Project — Potential Pathways, Infrastructure, and Impacts, at page 66, available at: [acore.org/net-zero-america-potential-pathways-infrastructure-and-impacts/#:~:text=December%2013%2C%202021-,Net%2DZero%20America%3A%20Potential%20Pathways%2C%20Infrastructure%2C%20and%20Impacts,to%20assist%20in%20that%20transition](https://www.acore.org/net-zero-america-potential-pathways-infrastructure-and-impacts/#:~:text=December%2013%2C%202021-,Net%2DZero%20America%3A%20Potential%20Pathways%2C%20Infrastructure%2C%20and%20Impacts,to%20assist%20in%20that%20transition)

¹⁴ High Rise, Low Carbon: Canada's \$40B Net Zero Buildings Challenge, available at: thoughtleadership.rbc.com/high-rise-low-carbon-canadas-40-billion-net-zero-building-challenge/?_gl=1*1cbw25y*_ga*NzYzNTI2MzAxLjE2ODQ1MDY4MzA.*_ga_89NPCTXQR*MTY4NDUwNjgzMC4xLjEUMTY4NDUwNjgzMS4yOS4wLjA.&_ga=2.252138570.23323340.1684506830-763526301.1684506830

¹⁵ climateinstitute.ca/wp-content/uploads/2022/05/Electric-Federalism-May-4-2022.pdf, at page 51



2.2 Grid Planning Underway

Toronto Hydro is committed to expanding and modernizing the electricity grid to power a growing city and prepare for the widespread electrification anticipated as part of the pathway to net zero by 2040.

Toronto Hydro's capacity investment plan starts with a long-term forecast of electricity demand and then adds up all of the specific local equipment upgrades required to meet that level of service. A new challenge is that, as Canada moves to a more sustainable economy, the pace and scale of electrification is not certain. Accordingly, in its system planning, Toronto Hydro must consider and be ready for a range of plausible futures with different levels of technology development, policy implementation and consumer adoption. Striking the right balance is key.

At the same time as the grid expands, it must be modernized to account for technological advancements that are changing how customers use technology and how Toronto Hydro operates the grid. Toronto Hydro is building a more intelligent and resilient grid that can more easily connect and integrate customer-owned equipment, like solar panels and batteries that are capable of sending electricity back to the grid. The grid must increasingly shift from a one-way system that only sends electricity to customers to a two-way system that also facilitates widespread, small-scale generation into the grid by customers. Grid modernization that allows the use of generation resources to help manage peak demand may avoid investment in new or expanded generation, such as natural gas plants, at the bulk system level ([see Etobicoke Demand Response Program](#)). Implementation of new pricing plans can also help to reduce peak demand while saving customers money. In May 2023, Toronto Hydro was among the first group of local utilities to introduce the ultra-low overnight pricing plan. Customers who take advantage of this rate class are expected to lower their bills when using electricity overnight to charge their EVs or electrically heat their homes.¹⁶

¹⁶ news.ontario.ca/en/release/1002916/ontario-launches-new-ultra-low-overnight-electricity-price-plan

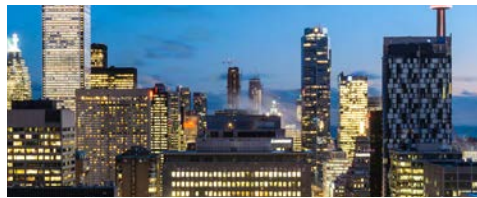
2.3 Expanded Electricity Distributor

PROJECT PROFILES

The following projects are examples of initiatives that are underway within Toronto Hydro’s electricity distribution business to expand the distribution system, thereby enabling the climate action goals of the City and customers. These initiatives demonstrate Toronto Hydro’s commitment to make it easier and faster for electrifying customers to get the power they need while investing in technology to get more use out of existing equipment and build a smarter, more efficient and reliable grid.



IMPROVING SOLAR AND STORAGE CONNECTIONS



ACCELERATING ELECTRIFICATION



ETOBICOKE DEMAND RESPONSE PROGRAM



BATTERY STORAGE FOR PEAK SHAVING AND RELIABILITY



ADVANCED METERING FOR EV AND SOLAR INTEGRATION

PROJECT PROFILE

Improving Solar and Storage Connections



Toronto Hydro has been reviewing its solar and storage connection processes to increase transparency and improve the overall customer experience. Following a technical assessment, Toronto Hydro is lifting solar and storage system size restrictions for most residential and small business installations, and has improved its Grid Connection Process web page to provide a list of feeders that are currently at capacity restrictions.

Next year, Toronto Hydro intends to roll out a new online platform that will make it easier for customers to submit solar and storage connection applications and get real-time visibility into the status of their project. To date, Toronto Hydro has connected more than 2,200 solar projects with a total nameplate capacity of over 110 MW.





PROJECT PROFILE

Accelerating Electrification



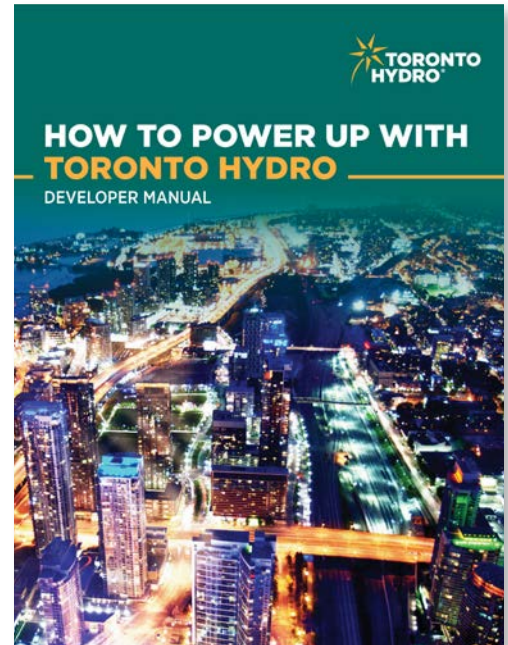
Toronto Hydro is making it easier and faster for customers interested in electrifying and connecting to the grid.

Electrification Connections Education and Improvements

Toronto Hydro developed and released a Developer Manual and a series of online guides of our service offerings to enhance understanding of our connection and application processes. These documents aim to make it easier for customers to understand the connection process related to:

- EV charging infrastructure
- Grid connections
- Distribution system expansion
- Transformation options
- Construction clearance requirements
- Application procedures

Toronto Hydro has also improved connection request response times through a revised triage process that redirects less complicated inquiries, such as construction precautions, transformer specifications and metering requirements. This new process has enabled Design & Construction staff to focus on critical customer needs and, in 2022, diverted over 4,500 inquiries — speeding up response times for everyone.



New Non-Binding Estimate for Large Customers

Toronto Hydro's new Non-Binding Estimate provides large customers and developers with estimated project costs earlier in the design process. These preliminary insights into available capacity and the work required to connect new or upgraded services improves customer project planning and design, allowing jobs to be completed faster.



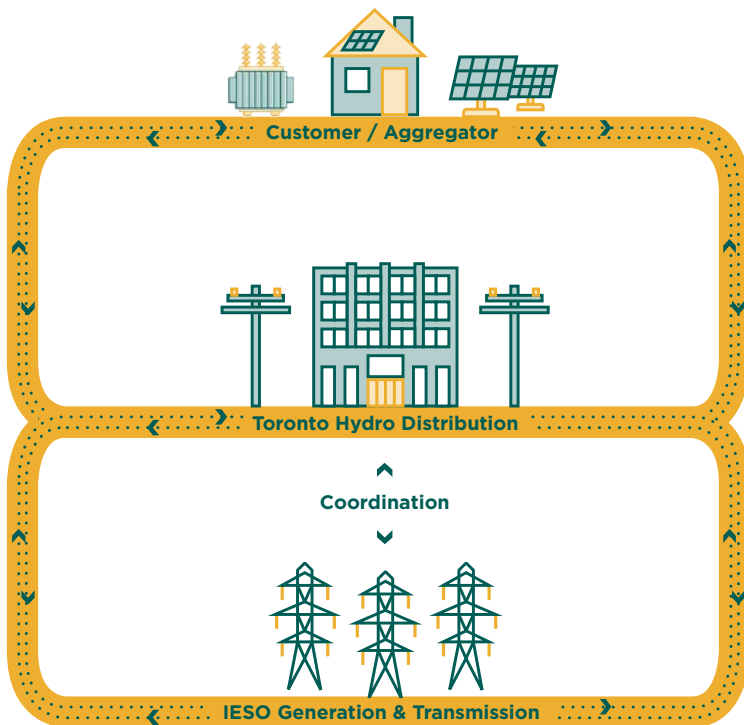
PROJECT PROFILE

Etobicoke Demand Response Program



The Partnership

Toronto Hydro is working to allow customers to use their own generation and storage systems to sell services to the local grid and to the broader Ontario power system. The program is being developed in partnership with the IESO, OEB, Toronto Metropolitan University and Power Advisory LLC.



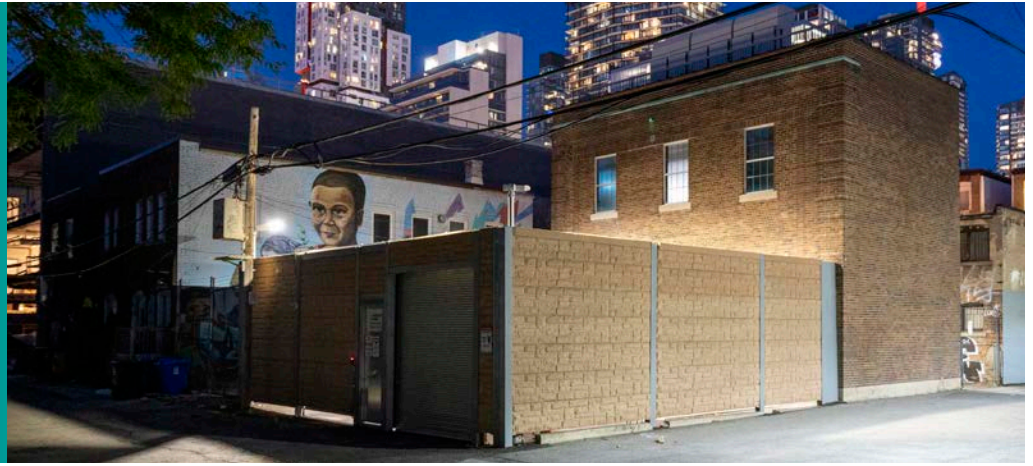
How It Works

This project targets two at-capacity transformer stations in Etobicoke to examine how Toronto Hydro can meet peak demand without building more infrastructure. Through a competitive process, customers are paid to reduce their power usage during peak periods. Participating customers benefit by earning extra money on their generation systems. Though non-renewable generation sources are currently eligible, future demand response programs are likely to be restricted to carbon-free sources. Through this program, the grid and other customers benefit from avoiding or deferring costly upgrades of existing infrastructure.



PROJECT PROFILE

Battery Storage for Peak Shaving and Reliability



Toronto Hydro is actively exploring new ways to integrate energy storage into our distribution system planning. The Bulwer battery energy storage project, commissioned in 2021, is a great example of how utility-owned storage systems can help complement conventional utility infrastructure. This project is located in a decommissioned downtown Toronto Hydro station near Queen and Spadina. The battery is a 2MW/2MWh system that's designed to extend the life of existing utility infrastructure by managing peak demand in the area.

Through this project, Toronto Hydro's control centre, engineering and field maintenance crews have gained first-hand experience operating the battery storage system and attained better insight into how battery storage can deliver value to customers and the distribution system as a whole. This knowledge will be critical as the electricity distribution industry transforms in response to the technology and policy forces reshaping the sector, as well as customer requests for their own solar and battery connections.

Toronto Hydro continues to investigate other locations where batteries can provide value to customers and the overall distribution system.



PROJECT PROFILE

Advanced Metering for EV and Solar Integration



Toronto Hydro is upgrading to the next generation of demand response-ready smart meters that support improved power outage and restoration notifications while facilitating EV and solar panel integration.

The project involves not only replacing the meters themselves, but also the underlying software that is used to communicate with Toronto Hydro's control and billing systems. Meter replacements are scheduled to begin towards the end of 2023 and, at its peak, 15,000 meters will be replaced each month.

Once deployed, this advanced metering infrastructure would lay a foundation that could allow participating customers to earn money by reducing their power consumption during peak periods in a future demand response program. Under this option, Toronto Hydro's grid and other customers would benefit from avoiding or deferring expensive grid investments.





3. Climate Advisory Services: Scaling-Up Climate Action in Toronto



3. Climate Advisory Services: Scaling-Up Climate Action in Toronto

3.1 Purpose: Removing Barriers to Customer Climate Action

A Memorandum of Understanding (MOU) between Toronto Hydro and the City of Toronto regarding climate advisory services was signed and approved in May 2023.¹⁷ In alignment with the City, Toronto Hydro will actively engage customers and partners to enable climate action. Toronto Hydro will help to overcome barriers to climate action faced by customers when they try to electrify their cars, trucks and buildings; connect solar panels and energy storage; or improve the energy efficiency of their homes and businesses. Toronto Hydro aims to actively encourage and enable projects that contribute to nationally significant GHG emissions reductions, promote the local cleantech economy and support social equity.

Toronto Hydro has an exceptional record of success in achieving positive environmental outcomes while stimulating the cleantech sector. During the 14 years when it had a provincial mandate to implement conservation programs, Toronto Hydro helped deliver over one million projects worth approximately \$1.9 billion that produced 3.06 TWh of electricity savings for customers.¹⁸ Leveraging Toronto Hydro's expertise and knowledge to facilitate large-scale climate action projects within the city of Toronto offers many benefits for residents and businesses.

Toronto Hydro is working to build the capacity and tools necessary to enable customers' pursuit of electrification projects at scale. Through Toronto Hydro's efforts and those of its climate action partners, the aim is to achieve electrification on a wide scale by assisting with over 400,000 building and transportation electrification projects by 2040 (see Figure 2 and [Appendix A.2 Business Profile](#)). These critical emissions reduction projects, such as eliminating gas, diesel and natural gas costs by electrifying buildings, cars and trucks or reducing energy usage through efficiency upgrades, are expected to result in customers spending less of their income on energy costs over the long-term, as well as contribute toward customers' own climate goals.

Figure 2: Summary of Climate Advisory Services Business Profile

Technology	Value-Added Climate Action Offerings Include	Program Size		Impact 2040
		2023-2040	Units	
Building Electrification	<i>Support customer access to products and services</i> <i>Connect customers with trusted clean tech service providers</i>	60,000+	Air source heat pumps + electric hot water heaters	15% of all buildings
Electric Vehicles	<i>Enable access to funding</i> <i>Help build personalized climate action plans</i>	50,000	Chargers	Serving 1 million+ EVs
Renewables + Storage	<i>Low-income program support</i> <i>Trade ally partnership</i>	300	Megawatts (MW) of local generation	300,000 projects

¹⁷ City of Toronto, *Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro's Climate Advisory Services*, City Council Decision 2023. EX4.2 (May 10, 2022), available at: secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2

¹⁸ Conservation Demand Management Settlement Records.



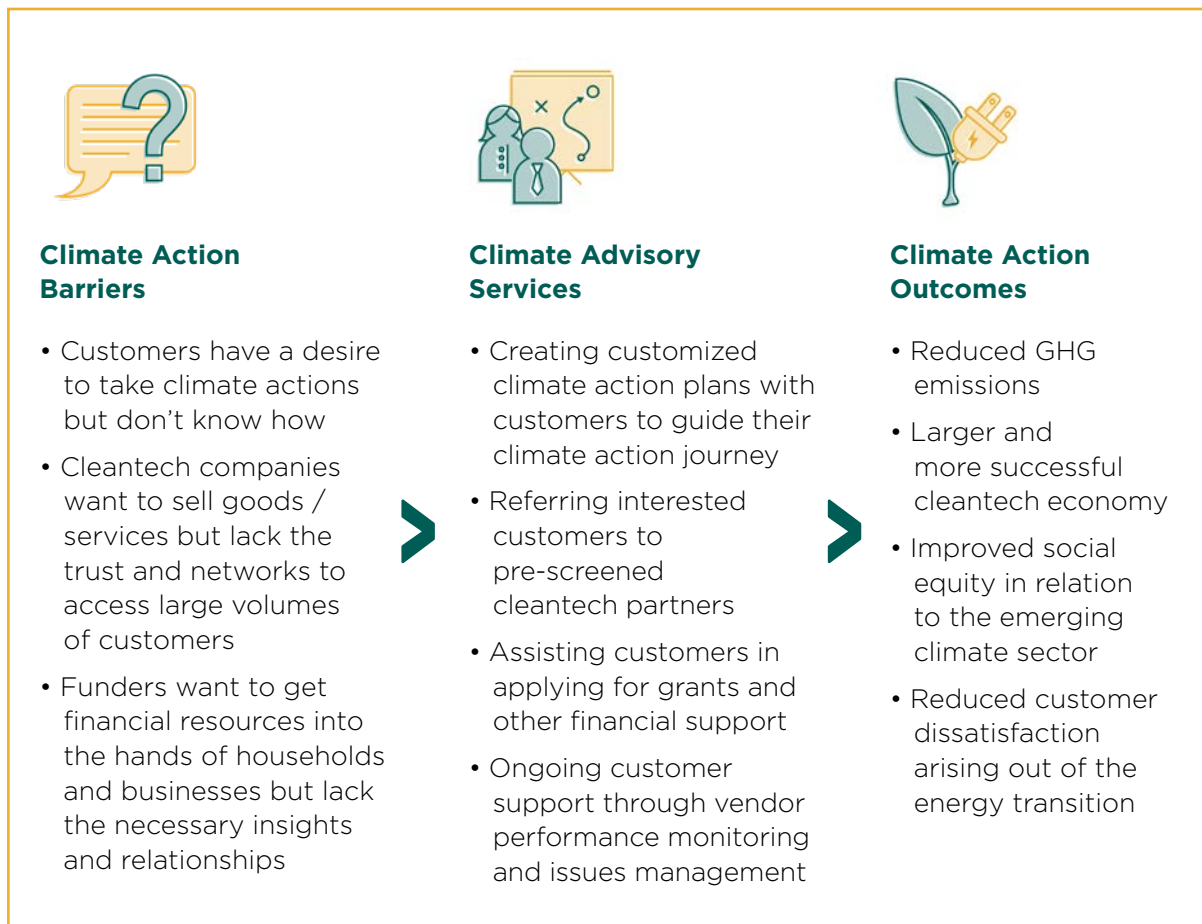
The City of Toronto is a key partner in this effort and has implemented a range of climate change-oriented programs and by-laws, such as the Toronto Green Standard for net zero construction. To coordinate efforts, avoid duplication and provide maximum value for taxpayers and ratepayers, the City and Toronto Hydro will operate in a complementary manner to get to net zero by 2040.¹⁹

Toronto Hydro is a member of the City’s Net-Zero Climate Leadership Table and has regular monthly meetings with senior members of the City’s Environment & Climate Division, as well as The Atmospheric Fund to coordinate climate action efforts ([see City of Toronto Building Decarbonization Partnership](#)). Toronto Hydro is also an active member of the City’s Vehicle for Hire Net Zero Working Group, On-Street EV Charging Delivery Group, and Public EV Charging Infrastructure Plan Steering Committee.

3.2 Approach: Leveraging Cleantech Partnerships to Get to Net Zero

For Toronto Hydro to help customers more easily and efficiently pursue their net zero projects, it is critical to understand where, when and how customers need support. In developing the Climate Action Plan, Toronto Hydro engaged in broad consultations with customers, cleantech companies, non-profits, the City of Toronto and other governments to understand how it could efficiently spur significant emissions reductions. Building on this knowledge, Figure 3 sets out how Climate Advisory Services aims to overcome key barriers to customer action by leveraging its existing relationships to take a front-line role in encouraging and guiding customers through their climate action projects.

Figure 3: Climate Advisory Services Approach to Supporting Customers



¹⁹ City of Toronto, *Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro’s Climate Advisory Services*, City Council Decision 2023. EX4.2 (May 10, 2022), available at: secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2



The key to this approach is partnerships. To be successful, Toronto Hydro will need to forge partnerships with cleantech companies to provide the right technologies and quality service; with funders to get money into the hands of customers for climate action projects; and, most importantly, with customers to trust Toronto Hydro to guide them on their climate action journey.

To pro-actively encourage customers to take concrete climate action and get projects built, Toronto Hydro is working with a variety of organizations, including:

- Longstanding partner Plug'n Drive ([see Smart Charger Technology Retrofit](#))
- The City of Toronto ([see City of Toronto Building Decarbonization Partnership](#))
- The Toronto Parking Authority ([see On-Street EV Charging and Off-Street EV Installations](#))

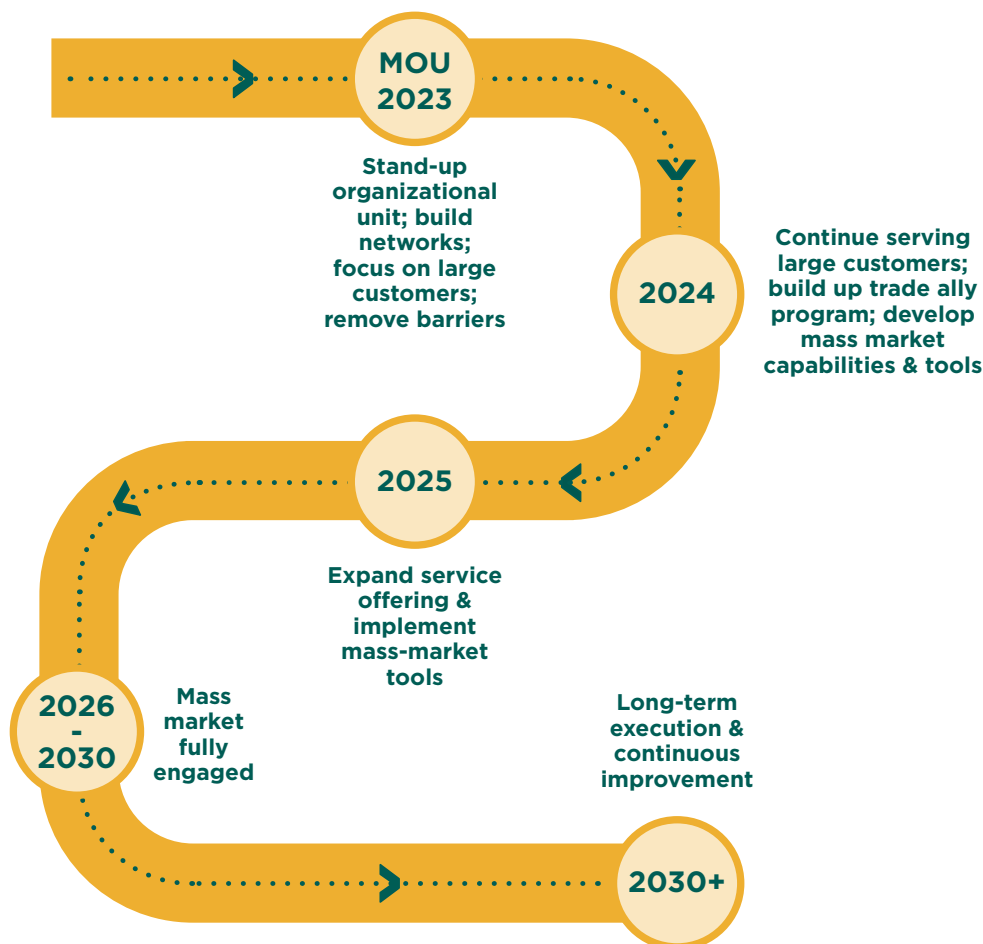
Toronto Hydro is also a member of the advisory committee for Toronto 2030 District, a private-public initiative committed to achieving a low-carbon future.

Throughout 2023, Toronto Hydro is setting up a permanent Climate Advisory Services team to improve capacity, expand the network of cleantech partners and support customers.

3.3 Development Roadmap

As Toronto Hydro's new team ramps up, its offerings will expand and mature over time, shifting both in scale and targeted market segments to build on successes, leverage relationships and reduce emissions as quickly and cheaply as possible. Figure 4 sets out the Climate Advisory Services multi-year development roadmap.

Figure 4: Climate Advisory Services Development Roadmap





Toronto Hydro's initial efforts target large customers that have high potential for significant emissions reductions, as well as strategic partners. This will be achieved in part by integrating climate action information into day-to-day Key Account engagements. Through this process, Toronto Hydro is proactively reaching out to selected customers with historically strong conservation management relationships, as well as supporting already interested customers in their climate journey. By way of example, in recent months, Toronto Hydro has been separately supporting a major financial institution and a major commercial developer on multiple solar rooftop projects across the city through their design-build contractors. All customer and partner engagements related to climate action are actively recorded in a Customer Relationship Management system to allow for improved planning, information-sharing and customer support.

As Toronto Hydro and its partners gain experience and increase capacity, Toronto Hydro will establish a standardized set of online and self-serve offerings to target its approximately 700,000 residential customers. Toronto Hydro will also develop a strategy for addressing the needs of equity-deserving groups across Toronto in our work.

3.4 Climate Advisory Services

PROJECT PROFILES

The potential for Toronto Hydro to affect real change by working with customers can already be seen in the early success of Toronto Hydro's nascent Climate Advisory Services.

The following projects are examples of the types of initiatives being designed, developed and, in some cases, already being delivered.



**CITY OF TORONTO BUILDING
DECARBONIZATION PARTNERSHIP**



HEAT PUMP MARKET SHIFT



ON-STREET EV CHARGING



OFF-STREET EV CHARGER INSTALLATIONS



SMART CHARGER TECHNOLOGY RETROFIT



PROJECT PROFILE

City of Toronto Building Decarbonization Partnership



Toronto Hydro is collaborating with the City of Toronto's Environment & Climate Division on the design of a new commercial building decarbonization initiative. The program aims to accelerate the rate at which commercial and institutional buildings become carbon-free by enhancing customer awareness and capabilities.

The proposed program will proactively solicit and support commercial and institutional building owners and operators in identifying building decarbonization opportunities. Participants will receive support from a pre-qualified engineering firm toward a customized step-by-step plan to decarbonize their own buildings.

Through this initiative, Toronto Hydro expects to reduce emissions while building the cleantech industry's capacity to advise and deliver on decarbonization capital projects for commercial and institutional buildings.





PROJECT PROFILE

Heat Pump Market Shift



Toronto Hydro has repeatedly heard from industry associations, cleantech companies, governments and non-profits that there's a persistent gap in contractor training around heat pump technology that's slowing its adoption.

In the current market, traditional natural gas furnaces remain the default recommendation for many contractors, despite their GHG emissions. With only a small number of installers actively promoting heat pumps and other clean water heating options, installation costs remain high, wait times are long, and many consumers don't even know that these options exist.

To start moving this market toward sustainable solutions, Toronto Hydro is developing partnerships to build capacity among contractors so they increase their level of understanding with the design, installation, performance and benefits of heat pumps over traditional gas furnaces. The aim of these partnerships is for contractors to make heat pumps a regular part of the services that are available to customers on an upgrade or emergency replacement basis.

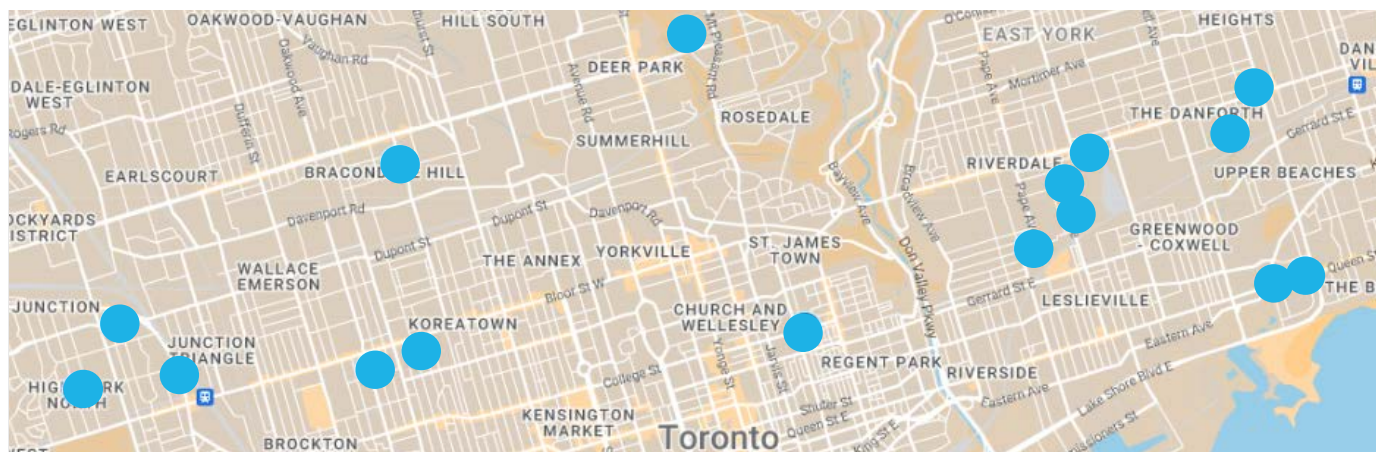


PROJECT PROFILE

On-Street EV Charging



Toronto Hydro exceeded City Council's directive to install 17 **on-street** EV charging stations in 2022, delivering 32 such stations.



● denotes two EV charging sites

Project Highlights

- On-street chargers help make EVs practical for many Torontonians who don't have a garage and rely on street parking
- Toronto Hydro raised funds to offset the upfront cost, used its design and construction knowledge, and leveraged existing utility poles to deliver the project on time and on budget
- The use of utility poles for EV charging was recognized in 2021 by Electricity Canada as "the best of Canadian electricity ingenuity, inspiration and aspiration"

✔ **Over \$400K in contributions for on-street charging via the City of Toronto, The Atmospheric Fund and Natural Resources Canada ("NRCan")**

✔ **32 on-street chargers installed, almost double the original 2022 commitment**




PROJECT PROFILE

Off-Street EV Charger Installations



In 2022, Toronto Hydro built or upgraded 29 Level 2 and three Level 3 **off-street** EV charging stations, in collaboration with The Toronto Parking Authority (“TPA”).

 **Off-street station funding included \$250K from NRCan for 20 Level 2 stations and three Level 3 stations**

Project Highlights

- These stations make it easier for customers to top up their EV batteries as they move around the city — all at a low cost and with zero emissions
- The upgraded stations also improve TPA's monitoring and data collection to gain greater value from each installation and better accommodate preferences
- Toronto Hydro is working with the TPA to accelerate EV charging installations in 2023 and beyond

PROJECT PROFILE

Smart Charger Technology Retrofit



Elocity Partnership

Toronto Hydro partnered with Elocity, a start-up offering a device that transforms a typical 240-volt EV charging station at a home or business into a networked smart charging solution. Through a partnership with Plug'n Drive, the program recruited EV owners likely to benefit from a smart charging solution and the program was quickly oversubscribed.

How It Works

- The device connects to a customer's WiFi account and allows the customer to monitor and control their charging through an app
- The initial phase of the project will help Toronto Hydro observe performance of the technology, understand charging behaviours and evaluate Demand Response prospects for EV charging
- As a pilot, the equipment has been installed in the homes of 30 Toronto Hydro customers and initial tests are being conducted

Customer and Grid Benefits

- Through 2022-2024, Toronto Hydro is offering participants the chance to partake in a Demand Response program
- Customers can opt in through the app in exchange for an incentive payment

Impact

- The program allows Toronto Hydro to schedule charging to reduce the peak demand on the grid, potentially deferring or avoiding costly infrastructure upgrades

- ✓ **GHG reductions**
- ✓ **Supporting cleantech partners**
- ✓ **Potential grid benefit**
- ✓ **Customer cost-savings**





Appendices





Appendix A: Background

A.1 Creation of the Climate Action Plan

On April 7, 2021, Toronto City Council requested that Toronto Hydro consider opportunities to respond to the climate emergency through climate action. The City requested that Toronto Hydro prepare a report on its current climate action and an action plan for what more it could do to support the objectives of the City's TransformTO vision and forthcoming Net Zero Strategy, including in the following areas:

- Electric vehicle charging infrastructure
- Modernization of outdoor lighting and streetlighting
- Renewable energy and energy storage

The City also requested that Toronto Hydro explore non-rate sources of funding, revenue, grants and financing. In the course of subsequent discussions, the City confirmed that Toronto Hydro should also report on building electrification and energy efficiency.²⁰

In September 2021, Toronto Hydro delivered its Climate Action Plan to the City Manager. The Climate Action Plan sets out three climate action opportunities that Toronto Hydro can pursue to continue to improve Toronto's environment and help the City achieve its net zero objective.

In November 2021, the City Manager issued his report to the Executive Committee on Toronto Hydro's Climate Action Plan.

In December 2021, City Council considered the recommendations of the City Manager and passed several resolutions.²¹ The resolutions included that the City Manager report back to City Council by the end of the second quarter of 2022 on recommendations regarding new climate action mandates for Toronto Hydro. Further, City Council requested that Toronto Hydro and the City continue to collaborate on the Climate Action Plan and Toronto's net zero targets, and provide recommendations with respect to the three business opportunities outlined in the Climate Action Plan.

In December 2021, the City also adopted a more aggressive 2040 net zero target, which superseded the net zero 2050 target that guided Toronto Hydro's development of the Climate Action Plan.²²

In January 2022, Toronto Hydro and City staff resumed collaboration to assess and maximize the alignment of the City's TransformTO Net Zero 2040 Strategy and Toronto Hydro's Climate Action Plan. The City and Toronto Hydro formed a joint City-Hydro Steering Committee, with senior representation from Toronto Hydro's dedicated Climate Action Project Team, as well as the City's Environment & Energy and Corporate Services Divisions.

The joint City-Hydro Steering Committee managed a process through which: (1) City Staff filed three rounds of written questions and received responses from Toronto Hydro; (2) the City and Toronto Hydro exchanged four outlines and drafts of their respective reports; and (3) topic-specific working groups examined and addressed detailed subjects requiring further discussion to establish the necessary awareness, understanding and, ultimately, alignment over 10 hours of meetings.

²⁰ City of Toronto, *Recommendations to Toronto Hydro on Climate Action*, City Council Decision 2021 EX22.5 (April 7, 2021), available at: app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.EX22.5

²¹ City of Toronto, *Toronto Hydro Climate Action Plan and Next Steps*, City Council Decision 2021 EX28.1 (December 15, 2021), available at: app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.EX28.1

²² City of Toronto, *TransformTO – Critical Steps for Net Zero by 2040*, City Council Decision 2021 IE26.16 (December 15, 2021), available at: app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.IE26.16



The collaboration between the City and Toronto Hydro leading up to the 2022 Status Report was substantial, with 39 meetings over the course of six months.

In July 2022, City Council considered recommendations regarding new climate action mandates for Toronto Hydro as described in the 2022 Climate Action Plan Status Report. City Council approved the recommendations with respect to two new unregulated climate action mandates (Climate Advisory Services and the LED streetlight conversion program) and deferred a decision on Climate Capital Investments.²³

Specifically, City Council approved the following new climate action mandates for Toronto Hydro:²⁴

Climate Advisory Services

2. City Council, on behalf of the City of Toronto as shareholder, request Toronto Hydro to expand its business activities beyond electricity distribution services by:
 - a. establishing a new stream of non-rate regulated operations within its regulated business, specifically Climate Advisory Services (the climate action opportunity that excludes Toronto Hydro owning and operating assets), in keeping with the proposal set out in Toronto Hydro's Climate Action Plan received by City Council at its meeting on December 2021 and the Toronto Hydro Climate Action Plan Status Report; and
 - b. working through the Council-approved Net-Zero Climate Leadership Table to ensure coordination and enhanced investment while avoiding duplication with City programs and services, such as the Home Energy Loan Program and the Mayors Green Will, when implementing Climate Advisory Services.
5. City Council, on behalf of the City of Toronto as shareholder, request Toronto Hydro to deliver publicly to the Executive Committee through the City Manager, the Chief Financial Officer and Treasurer, and the Deputy City Manager, Corporate Services, an annual report on the progress, key performance indicators, and next steps of Climate Advisory Services.

Climate Capital Investments: Streetlighting

6. City Council confirm its support in principal for proceeding with City-wide LED street and expressway light conversion, including the related enabling infrastructure investments.
7. City Council request the General Manager, Transportation Services, in consultation with the Chief Financial Officer and Treasurer, and Toronto Hydro, to develop implementation options for the City-wide LED street and expressway light conversion including applicable budget, and to report back with a recommendation by the end of the second quarter of 2023.

Climate Capital Investments: Other

9. City Council direct the Executive Director, Environment and Energy to continue to investigate with Toronto Hydro on other possible Climate Capital Investment opportunities (whereby Toronto Hydro owns and operates climate action assets such as EV chargers) to implement Transform TO: Net Zero goals.

Since receiving the new mandates, Toronto Hydro has established a new climate action department to shift the focus of its activities from planning to action.

The collaborative relationship that supported the development of the 2022 Status Report is ongoing and is being guided by an MOU signed in April 2023 and presented to City Council in May 2023.²⁵ This MOU sets out how the two parties will coordinate communications and marketing to customers, align key performance indicators, and develop an implementation plan in an effort to collaborate and achieve Net Zero 2040.

²³ City of Toronto, *Update: Toronto Hydro Climate Action Plan & Next Steps (2022)*, at page 3, available at: toronto.ca/legdocs/mmis/2022/ex/bgrd/backgroundfile-228414.pdf

²⁴ City of Toronto, *EX34.9 - Update on Toronto Hydro Climate Action Plan and Next Steps (2022)*, available at: secure.toronto.ca/council/agenda-item.do?item=2022.EX34.9

²⁵ City of Toronto, *Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro's Climate Advisory Services*, City Council Decision 2023. EX.4.2 (May 10, 2022), available at: secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2



A.2 Climate Advisory Services Business Profile

The table below, reproduced from the 2022 Status Report, provides a preliminary, high-level perspective on the Climate Advisory Services operating profile based on estimated program delivery costs.²⁶

The rate of electrification and associated project costs are based on the targets outlined in the City’s TransformTO Net Zero Strategy. The ultimate pace of climate action in the city of Toronto will be contingent on technological developments, customer preferences and climate policies at the local, provincial and national levels. The highlighted impacts represent the Climate Advisory Services estimated contribution to the City’s net zero goals.

TECHNOLOGY	PROGRAM EXAMPLES	OPERATING COST (\$M) ²⁷				PROJECT COST (\$M)		PROGRAM SIZE			IMPACT	
		2023	2024	2025	2023 - 2040	2023 - 2025	2023 - 2040 ²⁸	2023 - 2025	2022 - 2040 ²⁹	Units		
BUILDING ELECTRIFICATION												
Air Source Heat Pumps	Connection Accelerator											
	Enabling Access to Funding											
	Bulk Procurement	2	3	3.5	100	2	600	80	60,000	Air source heat pumps	15% of all buildings	
	Low Income Program											
	Trade Ally Partnership											
Electric Hot Water	Enabling Access to Funding											
	Bulk Procurement	0.5	0.5	0.5	15	TBD	TBD	TBD		Domestic hot water heaters	TBD	
	Trade Ally Partnership											
	Low Income Program											
Electric Vehicles	Connection Accelerator											
	On-Street Charger Expansion											
	Enabling Access to Funding	4	4.5	5.5	80	60	600		50,000	Chargers	Serving one million+ EVs	
	Bulk Procurement											
	Trade Ally Partnership											
Renewables + Storage	Connection Accelerator											
	Enabling Access to Funding											
	Solar + Storage	1.5	2	2.5	60	4	2,300	13	300	MW of local generation	300,000 projects	
	Bulk Procurement											
	Trade Ally Partnership											
	Supporting Local Demand Response											
TOTALS		8	10	12	255	66	3,500					

²⁶ Toronto Hydro, *Climate Action Plan Status Report* (2022), at page 36, available at: torontohydro.com/documents/20143/74105431/climate-action-plan-status-report.pdf/7fd07b3b-c0da-df7c-7815-2c464b5f8919?t=1658951621213#:text=Toronto%20Hydro%20projected%20operating%20costs,2023%2D2040%20is%20%24255%20million

²⁷ Toronto Hydro estimates that the impact to the dividend will be less than 50 per cent of the Climate Advisory Services annual operating costs.

²⁸ Toronto Hydro, *Climate Action Plan* (2021), at page 5, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e58ae6d-f?t=1638298942821

²⁹ Toronto Hydro, *Climate Action Plan* (2021), at page 5, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e58ae6d-f?t=1638298942821



Appendix B: Responses to City Council Requests

July 19, 2022 Council Resolutions³⁰

Regulated Electricity Distribution

1. City Council, on behalf of the City of Toronto as shareholder, request Toronto Hydro to include in the publicly available portion of its annual report to the City of Toronto the status of the provincially regulated expanded grid capacity for growth, electrification and incremental local renewable generation in relation to helping the City of Toronto achieve its TransformTO: Net Zero Strategy goals.

Implementation Update

This Status Report is filed as part of Toronto Hydro's annual report, pursuant to the resolution.

Climate Advisory Services

2. City Council, on behalf of the City of Toronto as shareholder, request Toronto Hydro to expand its business activities beyond electricity distribution services by:
 - a. establishing a new stream of non-rate regulated operations within its regulated business, specifically Climate Advisory Services (the climate action opportunity that excludes Toronto Hydro owning and operating assets), in keeping with the proposal set out in Toronto Hydro's Climate Action Plan received by City Council at its meeting on December 2021 and the Toronto Hydro Climate Action Plan Status Report; and
 - b. working through the Council-approved Net-Zero Climate Leadership Table to ensure coordination and enhanced investment while avoiding duplication with City programs and services, such as the Home Energy Loan Program and the Mayors Green Will, when implementing Climate Advisory Services.

Implementation Update

- a. Following City Council's direction in July 2022, Toronto Hydro established a new Climate Action department to offer programs to support the City of Toronto's TransformTO: Net Zero 2040 Strategy goals.

Please refer to [section 3](#) of this report for further details on Climate Advisory Services at Toronto Hydro.

- b. City staff and Toronto Hydro continue to coordinate program deployment, communications and educational resources in an effort to avoid duplication, including through the Net-Zero Climate Leadership Table and monthly meetings.

Please refer to [section 3.1](#) of this report for further details on removing barriers to customer climate action.

³⁰ City of Toronto, *Update on Toronto Hydro Climate Action Plan and Next Steps*, City Council Decision 2022.EX34.9 (July 19, 2022), available at secure.toronto.ca/council/agenda-item.do?item=2022.EX34.9



3. City Council direct the City Manager and Toronto Hydro, on behalf of the City of Toronto as shareholder, to negotiate terms and create an MOU, in a form satisfactory to the City Solicitor, related to Toronto Hydro's Climate Advisory Services — including City-Hydro coordinated communications and marketing to customers, alignment of key performance indicators, implementation plan with timelines and progress reporting — to ensure that the implementation of Climate Advisory Services and TransformTO are coordinated and provide value-for-money, in relation to any future impacts on the Toronto Hydro dividend to the City, and report back to City Council on the MOU in the first quarter of 2023.

Implementation Update

The MOU was signed in April 2023 and delivered to City Council on May 10, 2023.³¹

4. City Council request Toronto Hydro to develop targets for the Climate Advisory Services including, but not limited to, enabling the installation of heat pumps, solar panels and Electric Vehicle chargers, prior to signing of the memorandum of understanding between the City of Toronto and Toronto Hydro.

Implementation Update

Toronto Hydro will continue to align its climate action targets and associated performance indicators in support of the City's Net Zero 2040 targets and objectives. These indicators will evolve over time to best support customers and enable climate action outcomes. Pursuant to the May 10, 2023 resolution by City Council, Toronto Hydro will support the Environment & Climate Division in the development of a TransformTO reporting dashboard, as necessary.

5. City Council, on behalf of the City of Toronto as shareholder, request Toronto Hydro to deliver publicly to the Executive Committee through the City Manager, the Chief Financial Officer and Treasurer, and the Deputy City Manager, Corporate Services, an annual report on the progress, key performance indicators, and next steps of Climate Advisory Services.

Implementation Update

This Status Report is filed as part of Toronto Hydro's annual report, pursuant to the resolution.

Climate Capital Investments: Streetlighting

6. City Council confirm its support in principal for proceeding with City-wide LED street and expressway light conversion, including the related enabling infrastructure investments.

Implementation Update

No update required of Toronto Hydro.

7. City Council request the General Manager, Transportation Services, in consultation with the Chief Financial Officer and Treasurer, and Toronto Hydro, to develop implementation options for the City-wide LED street and expressway light conversion including applicable budget, and to report back with a recommendation by the end of the second quarter of 2023.

Implementation Update

Toronto Hydro is actively engaged with Transportation Services to support the development of a streetlighting LED conversion plan. Transportation Services will be submitting a separate report on the LED streetlight conversion program to City Council.

³¹ City of Toronto, *Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro's Climate Advisory Services*, City Council Decision 2023. EX.4.2 (May 10, 2022), available at: secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2



8. City Council authorize the City Solicitor to sign an amendment to the existing retainer agreement with Stikeman Elliott LLP (Purchase Order 6042019) for legal advice and support to negotiate amendments that may be necessary to the 2006 Street and Expressway Lighting Service Agreement between the City and Toronto Hydro Energy Services Inc. for LED conversion and other related matters under this agreement, increasing the current upset value of the retainer by \$475,000 so that it increases from a total \$305,000 (excluding Harmonized Sales Tax) to \$780,000 (excluding Harmonized Sales Tax), for a term that expires when the services are completed.

Implementation Update

No update required of Toronto Hydro.

Climate Capital Investments: Other

9. City Council direct the Executive Director, Environment and Energy to continue to investigate with Toronto Hydro on other possible Climate Capital Investment opportunities (whereby Toronto Hydro owns and operates climate action assets such as Electric Vehicle chargers) to implement Transform TO: Net Zero goals.

Implementation Update

Toronto Hydro will support this investigation, as necessary.

10. City Council direct the Executive Director, Environment and Energy to report back by the end of 2023 with recommendations on Toronto Hydro's role in Climate Capital Investment potential opportunities, and identifying any regulatory policy changes required from other levels of government to enable Toronto Hydro to own and operate climate action assets.

Implementation Update

Toronto Hydro will support the development of this report, as necessary.

General

11. City Council, on behalf of the City of Toronto, direct the City Manager to submit the Net Zero 2040 greenhouse gas reduction targets and related TransformTO targets to Toronto Hydro for consideration in local capacity planning processes with Independent Electricity System Operator, and Toronto Hydro's 2025-2029 rate application to the Ontario Energy Board, in order to advocate technical capacity for necessary grid expansion, and City Council request Toronto Hydro to report back in their annual progress report on the status of local capacity planning to integrate Net Zero 2040 goals.

Implementation Update

Toronto Hydro is currently evaluating its long-term system capacity needs (up to 2040) and is taking a granular approach to forecasting electricity demand across the grid to inform the prioritization of specific localized upgrades. The goal of this effort is to provide a range of scenarios that consider different futures with varying levels of decentralized electricity generation, climate policies and decarbonization target achievement. The resulting scenarios may also inform regional electricity planning engagements.

Please refer to [section 2](#) of this report for further details.



12. City Council request City staff to intervene in regulatory proceedings as necessary to ensure that TransformTO Net Zero goals are recognized and realized.

Implementation Update

No update required of Toronto Hydro.

Confidential Attachment

13. City Council direct that Confidential Attachment 1 to the report (June 28, 2022) from the City Manager remain confidential in its entirety, in accordance with Section 4.4 of the Toronto Hydro Shareholder Direction, as it contains technical, commercial, financial or labour relations information of Toronto Hydro Corporation.

Implementation Update

No update required of Toronto Hydro.

May 10, 2023 Council Resolutions³²

Motion to Amend Item (Additional) moved by Councillor Lily Cheng (Carried)

1. City Council direct the Executive Director, Environment and Climate Division to work with Toronto Hydro on the development of the Environment and Climate led TransformTO reporting dashboard to support the provision of information on climate action and progress to residents and businesses.

Motion to Amend Item moved by Councillor Gord Perks (Carried)

1. City Council direct the City Manager to include a review of actions taken or not taken by Toronto Hydro as part of the annual reporting on TransformTO.

Implementation Update

Toronto Hydro will support City staff in addressing these motions.

³² City of Toronto, *Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro's Climate Advisory Services*, City Council Decision 2023. EX.4.2 (May 10, 2022), available at: secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2



Appendix C: Toronto Hydro's Climate Action Plan and the City of Toronto's Net Zero 2040 Strategy

The Climate Action Plan is responsive to the TransformTO vision and Net Zero 2040 Strategy

Toronto Hydro has adopted the assumptions, targets, specific goals and timelines used by the City in creating its climate action vision. As Toronto's sole electricity distributor, Toronto Hydro recognizes the significance of its role in supporting the City's vision.

Based on the City's specific Net Zero 2040 Strategy targets and objectives, Toronto Hydro expects that its Climate Advisory Services model will help deliver projects resulting in approximately 50,000 EV chargers, 60,000 building retrofits, and 300,000 solar panel and energy storage projects by 2040.³³

As the City develops additional specific targets to guide the transition to net zero, and as Toronto Hydro continues to develop its climate action programs in cooperation with partners, customers, funders and other stakeholders, Toronto Hydro will evolve its performance expectations and continue to report on those annually through its corporate reporting and Annual General Meeting.

Presently, the City's Net Zero Strategy provides a vision of the future: what it will take to get to climate impact neutrality. Certain other TransformTO reports that predate this Strategy (e.g. EV Strategy,³⁴ Net Zero Existing Buildings Strategy³⁵) offer some indication of the magnitude of investments required to make meaningful progress. However, significant questions remain, including whether the funding exists at any level of government to enable the required investments, and how to deploy enough qualified professionals and tradespeople to carry out the building-by-building, project-by-project work required over the next 17 years.³⁶

Toronto Hydro's Climate Action Plan is not only a commitment to work with the City to answer those questions, but to play a leading role in operationalizing these climate action projects. With the condensed timeline to reach net zero, Toronto Hydro is proud to play a significant role in helping: (1) achieve the vision; (2) expand the City's understanding of practical implementation challenges and opportunities; and (3) grow the community of action among energy and other cleantech companies as a leader in the sector.

The Climate Action Plan is necessary to enable the Net Zero 2040 Strategy

Toronto Hydro's Climate Action Plan is necessary to enable the City's low-carbon future, because the primary way the Net Zero 2040 Strategy seeks to reduce emissions is through electrification.

The City has determined that 100 per cent of new sales of long-lasting equipment, including furnaces and vehicles, need to be electric by 2030, as it takes at least 10 years for these items to turn over.³⁷ This net zero future in which customers overwhelmingly adopt clean electricity in place of fossil fuel sources of energy requires an expanded and upgraded grid capable of meeting these increasing demands.

³³ Toronto Hydro, *Climate Action Plan* (2021), at page 5, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e58ae6df?t=1638298942821

³⁴ City of Toronto, *City of Toronto Electric Vehicles Strategy* (2020) – IE11.17 – Attachment 1, available at: toronto.ca/wp-content/uploads/2020/02/8c46-City-of-Toronto-Electric-Vehicle-Strategy.pdf

³⁵ City of Toronto, *The City of Toronto's Net Zero Existing Buildings Strategy* (2021), available at: toronto.ca/legdocs/mmis/2021/ie/bgrrd/backgroundfile-168402.pdf

³⁶ Toronto Region Board of Trade, *Re-Imagining Trades: Building our Clean Economy from the Ground Up* (2022), available at: youtube.com/watch?v=fzcWitx89pA

³⁷ City of Toronto, *TransformTO Net Zero Strategy Technical Report* (2021), at page 17, available at: [TransformTO Technical Scenario Modelling – City of Toronto](#)



The most significant opportunity for Toronto Hydro to enhance its contributions toward net zero emissions by 2040 is to expand and upgrade its electricity distribution grid to be capable of supporting the expected substantial increase in electricity demand.³⁸ Indeed, with its focus on energy efficiency and electrification, approximately 75 per cent of the City's Net Zero 2040 Strategy depends on these investments by Toronto Hydro.³⁹

The central element of Climate Advisory Services is working directly with Toronto Hydro customers — to make timely transitions away from carbon-intensive fuels more cost effective and easier to implement — and, as the grid is progressively expanded, creating additional capacity for the incremental use of electricity in Toronto.

The Climate Action Plan is more urgent given the City's adoption of Net Zero 2040

Toronto Hydro also recognizes the need for urgent climate action, which is consistent with its own internal commitment to implement an ambitious enterprise-wide program to achieve net zero emissions by 2040. The expedited timeline from Net Zero 2050 to Net Zero 2040 makes Toronto Hydro's Climate Action Plan all the more urgent and important to achieve the trajectory necessary for these goals to be accomplished while assisting the community with the energy transition from fossil fuels to widespread electrification.

Climate Action Plan updates to reflect Net Zero 2040

As discussed above, the Climate Action Plan is aligned with the Net Zero 2040 Strategy. Though designed in the context of Net Zero 2050, the overall framework finalized by Toronto Hydro in September 2021 can accommodate Net Zero 2040. Accordingly, Toronto Hydro is not revising the Climate Action Plan document as filed. Key updates to how Toronto Hydro would execute the Climate Action Plan in light of Net Zero 2040 are discussed below.

Expanded Electricity Distributor

As a result of moving from Net Zero 2050 to Net Zero 2040, the utility has less time to create expanded grid capacity for growth, electrification and incremental local renewable generation. Toronto Hydro currently has assessments underway to examine how to create that capacity within the narrower window, recognizing that the capacity must exist before load and generation can come online.

While the timeline for creating additional capacity is compressed, the system peak demand that Toronto Hydro will need to meet is not impacted by the shift to Net Zero 2040. Likewise, the aggregate incremental investment of up to \$10 billion for the Expanded Electricity Distributor identified in the 2021 Climate Action Plan is not impacted by the shift to Net Zero 2040. However, there will now be a need for an even higher up-front capital investment within the first five-to-ten years (i.e. 2025–2035) than was the case with Net Zero 2050.

³⁸ Canadian Climate Institute, *The Big Switch: Powering Canada's Net Zero Future* (2022), available at climateinstitute.ca/reports/big-switch/

³⁹ Toronto Hydro, *Climate Action Plan* (2021), at page 3, available at: torontohydro.com/documents/20143/74105431/climate-action-plan.pdf/8fe4406c-7675-76a7-00c9-c0c4e-58ae6df?t=1638298942821



Importantly, Net Zero 2040 is one of several external drivers released since Toronto Hydro filed its Climate Action Plan with the City Manager that likely necessitate the Expanded Electricity Distributor. For example, the federal government has issued numerous climate-oriented policies⁴⁰ that potentially engage electricity distribution system investment, including the Clean Electricity Standard,⁴¹ the Emissions Reduction Plan⁴² and various announcements contained within the 2022 and 2023 federal budgets.⁴³ Other examples at the provincial level include the releases of the latest IESO Annual Planning Outlook and Annual Acquisition Report, and the establishment of an Electrification and Energy Transition Panel.⁴⁴

Climate Advisory Services

The City's goal to achieve Net Zero 2040 means Climate Advisory Services will need to be deployed more rapidly. Early efforts since July 2022 focus on (1) laying the ground work for partnerships with cleantech providers and both private and public funders; (2) scaling up climate action projects at a more rapid pace; and (3) working with the City to advocate for more urgent policy changes that are responsive to the practical needs of customers and cleantech firms based on on-the-ground experience.

Achieving net zero emissions by 2040 requires rapidly scaling up climate action programs, policies and investments, as well as an unprecedented mobilization and collaboration among key actors. Those with a significant role to play include the City, Toronto Hydro, other levels of government, cleantech providers, financial institutions and customers. There's so much to do in such a short period of time that each organization will need to focus on what it does best. For example, based on discussions with the Environment & Climate Division, and as outlined in the MOU between the two organizations, Toronto Hydro expects that a key role of that City division will be building momentum for climate action on a city-wide basis and coordinating the efforts of dozens of major climate action companies and key community stakeholders, as well as leading advocacy at the federal and provincial levels. By contrast, Toronto Hydro's Climate Advisory Services will be directed at working with its customers (households and businesses) and cleantech companies on getting projects identified, designed, funded and implemented.⁴⁵

Recognizing the challenge of Net Zero 2040 and the urgency of the climate crisis, in January 2022, Toronto Hydro seconded existing staff to a Climate Action Plan Project Team to begin developing Climate Advisory Services on a goodwill basis in anticipation of a mandate. Since receiving the mandates in July 2022, the Project Team has been dedicated to creating the new Climate Action department, establishing the organizational structure to enable efficient ramp-up of program development while pursuing strategic, targeted near-term collaborations. Through these initiatives, Toronto Hydro's climate action project work is underway, some of which is highlighted in [section 3.4](#) of this report. The Climate Action department is also working closely with the operations groups responsible for OEB-regulated activities, contributing an incremental perspective to their work, some of which is explored in [section 2.3](#).

⁴⁰ Natural Resources Canada, *Ministers Wilkinson and O'Regan Host a Roundtable to Formally Launch the Next Round of Consultations on Ensuring a Just Transition Through the Creation of Sustainable Jobs* (2022), available at: canada.ca/en/natural-resources-canada/news/2022/03/ministers-wilkinson-and-oregan-host-a-roundtable-to-formally-launch-the-next-round-of-consultations-on-ensuring-a-just-transition-through-the-creat.html

⁴¹ Environment and Climate Change Canada, *Canada launches consultations on a Clean Electricity Standard to achieve a net-zero emissions grid by 2035*, available at: canada.ca/en/environment-climate-change/news/2022/03/canada-launches-consultations-on-a-clean-electricity-standard-to-achieve-a-net-zero-emissions-grid-by-2035.html

⁴² Environment and Climate Change Canada, *2030 Emissions Reduction Plan – Canada's Next Steps for Clean Air and a Strong Economy*, available at: canada.ca/en/environment-climate-change/news/2022/03/2030-emissions-reduction-plan--canadas-next-steps-for-clean-air-and-a-strong-economy.html

⁴³ Government of Canada, *Budget 2022: A Plan to Grow our Economy and Make Life More Affordable*, available at: budget.gc.ca/2022/home-accueil-en.html and Government of Canada, *Budget 2023: A Made-in-Canada Plan: Strong Middle Class, Affordable Economy, Healthy Future*, available at: budget.canada.ca/2023/home-accueil-en.html

⁴⁴ Independent Electricity System Operator, *Annual Planning Outlook Ontario's electricity system needs: 2023-2024* (2022), available at: ieso.ca/en/Sector-Participants/Planning-and-Forecasting/Annual-Planning-Outlook and Independent Electricity System Operator, *Pathways to Decarbonization* (2022), available at: ieso.ca/en/Learn/The-Evolving-Grid/Pathways-to-Decarbonization

⁴⁵ Electricity Distributors Association, *The Power of Sustainability: How Local Distribution Companies can enable a Net-Zero Future* (2022), at page 1, available at: eda-on.ca/Portals/81/Documents/Policy%20Reports/Net-Zero%20Policy%20Paper_FINAL.pdf?ver=RsMA8rvj-U-XwDegi6zn_w%3d%3d



Appendix D: Jurisdictional Scan – Climate Action Targets and Major Initiatives

D.1 Federal and Municipal Energy-Related Climate Targets

	CANADA ^{46 47 48 49}	TORONTO ⁵⁰
Economy-wide GHG reduction target	<ul style="list-style-type: none"> • 20% below 2005 levels by 2026 • 40 to 45% below 2005 levels by 2030 (470 MtCO₂e) • Carbon pricing to reach \$170/tonne by 2030 • Joined the global methane pledge to reduce methane emissions by at least 30% below 2020 levels by 2030 • Net zero by 2050 	<ul style="list-style-type: none"> • 65% below 1990 levels by 2030 (8.8 MtCO₂e) • Net zero by 2040
Buildings	<ul style="list-style-type: none"> • Projected sectoral emission reductions of 29% below 2005 levels by 2030 • Net zero by 2050 	<ul style="list-style-type: none"> • 100% of new buildings are designed and built to be near zero GHG emissions by 2030 • GHGs from existing buildings reduced by 50% from 2008 levels by 2030 • Retrofit all existing residential, commercial and institutional buildings to be net zero by 2040
Electricity	<ul style="list-style-type: none"> • Projected sectoral emission reductions of 87% below 2005 levels by 2030 • Coal phase-out by 2030 • 90% from clean sources by 2030 • Clean Electricity Standard draft regulation to be released in spring/summer 2023; originally planned for release in late 2022 • Net zero by 2035 	
Heavy industry	<ul style="list-style-type: none"> • Projected sectoral emission reductions of 38% below 2005 levels by 2030 • Net zero by 2050 	
Energy		<ul style="list-style-type: none"> • 50% of community-wide energy comes from renewable or low-carbon sources in 2030 • 25% of commercial and industrial floor area is connected to low carbon thermal energy sources in 2030
Transportation	<ul style="list-style-type: none"> • Projected sectoral emission reductions of 7% below 2005 levels by 2030 • Light Duty Vehicle sales targets: 20% by 2026, 60% by 2030, 100% by 2035 • Medium-Heavy Duty Vehicle sales targets: 35% by 2030, 100% by 2040 	<ul style="list-style-type: none"> • 75% of school/work trips under 5 km are walked, biked or by transit in 2030 • 30% of registered vehicles in Toronto are electric by 2030 • Install 220 Level 3 chargers and 3,000 Level 2 chargers in public locations by 2025 • Install 650 Level 3 chargers and 10,000 Level 2 chargers in public locations by 2030 • 35% of commercial vehicles in Toronto are electric by 2030



	CANADA ^{46 47 48 49}	TORONTO ⁵⁰
Oil and gas	<ul style="list-style-type: none"> • Clean Fuel Regulations • Framework for oil and gas emissions cap released in fall 2022; draft regulations to be published in 2023 • At least 75% reduction in oil and gas methane emissions by 2030 relative to 2012 per framework released in Fall 2022; draft regulations to be published in 2023 	

The Government of Canada will review progress under the 2030 Emissions Reduction Plan through progress reports produced in 2023, 2025 and 2027. Additional targets and plans will be developed for 2035 through to 2050.

D.2 Selected Federal, Provincial and Municipal Energy-Related Climate Initiatives

	CANADA	ONTARIO	TORONTO
Major initiatives underway	<ul style="list-style-type: none"> • Smart Renewables and Electrification Pathways Program supports projects that will lower emissions by investing in clean technologies • Canada Electricity Advisory Council is an independent, electricity sector-focused advisory body that provides advice to the Minister of Natural Resources on sustainable, affordable and reliable electricity systems • NRCan’s Advisory Committee provides expert advice to the federal government on delivery of the Natural Climate Solutions Fund • NRCan’s Clean Growth Hub works with clean technology producers and adopters to advance cleantech projects • Canadian Infrastructure Bank Growth Plan includes \$20 billion in Budget 2023 for building major clean electricity projects • NRCan’s Zero Emission Vehicle Infrastructure Program provides \$680 million in funding for EV chargers and hydrogen refuelling stations 	<ul style="list-style-type: none"> • The Electrification and Energy Transition Panel provides advice to the Minister of Energy on integrated long-term planning and electrification • The Cost-Effective Energy Pathways Study will inform the Electrification and Energy Transition Panel recommendations and the government’s long-term energy planning decisions • OEB’s Distributed Energy Resources (DER) Connections Review initiative is reviewing requirements for connecting DERs by licensed electricity distributors • OEB’s innovation sandbox supports pilot projects testing new activities, services and business models in Ontario’s electricity and natural gas sectors • IESO’s Grid Innovation Fund supports projects that either enable customers to better manage their energy consumption or that reduce grid operating costs • Regional Planning Process Advisory Group deals with regional electricity planning and coordination issues • Framework for Energy Innovation explores ways to promote or employ innovative and cost-effective energy solutions to solve grid issues 	<ul style="list-style-type: none"> • Toronto Green Standard sets sustainable design requirements for new buildings • Net Zero Existing Buildings Strategy focuses on emission reductions in existing buildings • Net-Zero Carbon Plan (City-owned facilities) • Electric Vehicle Strategy supports transition to EVs

⁴⁶ Government of Canada, *2030 Emissions Reduction Plan: Canada’s Next Steps for Clean Air and a Strong Economy* (2022), available at: canada.ca/en/environment-climate-change/news/2022/03/2030-emissions-reduction-plan--canadas-next-steps-for-clean-air-and-a-strong-economy.html

⁴⁷ Government of Canada, *Proposed Frame for the Clean Electricity Regulations* (2022), available at [Proposed Frame for the Clean Electricity Regulations — Canada.ca](https://www24.intelcom.gc.ca/proposed-frame-for-the-clean-electricity-regulations)

⁴⁸ Government of Canada, *Oil and gas emissions cap* (2022), available at: canada.ca/en/services/environment/weather/climatechange/climate-plan/oil-gas-emissions-cap.html

⁴⁹ Government of Canada, *Proposed regulatory framework for reducing oil and gas methane emissions to achieve 2030 target* (2022), available at:

canada.ca/en/services/environment/weather/climatechange/climate-plan/reducing-methane-emissions/proposed-regulatory-framework-2030-target.html

⁵⁰ City of Toronto, *TransformTO Net Zero Strategy: A climate action pathway to 2030 and beyond* (2021), available at: toronto.ca/legdocs/mmis/2021/ie/bgrrd/backgroundfile-173758.pdf