2014 Environmental Performance Report

This report captures Toronto Hydro's environmental achievements in 2014, and demonstrates how the utility satisfies the environmental aspects of the Shareholder Direction, as well as the City of Toronto's energy, climate change and urban forestry objectives.

In January 2014, Toronto Hydro applied for the Canadian Electricity Association (CEA) Sustainable Electricity Company™ brand designation, passed the independent verification process and received the designation on June 17, 2014, making Toronto Hydro the third electrical utility in Canada to receive this recognition and only one of four in all of Canada to be awarded this seal to date. To receive the Sustainable Electricity seal a utility must demonstrate that is has an environmental management system aligned with ISO 14001; its business practices meet the intent and requirements of ISO 26000 (Social Responsibility) and other requirements established by the Canadian Electricity Association. Being designated as a Sustainable Electricity Company™ attests to Toronto Hydro's commitment to advance sustainable business practices in our operations.

In October 2014, Toronto Hydro underwent its annual integrated environmental, health, and safety management system certification maintenance audit. This audit is conducted by an independent third party auditor, Intertek, to verify that Toronto Hydro conforms to both ISO 14001 (Environmental Management) and OHSAS 18001 (Occupational Health and Safety). Toronto Hydro passed the audit as it was able to demonstrate that it meets all the requirements of these international standards and subsequently its ISO 14001 and OHSAS 18001 certificates remain in effect.

FORWARD-LOOKING INFORMATION

Toronto Hydro includes forward-looking information in this report within the meaning of applicable securities laws in Canada. The purpose of the forward-looking information is to provide management's expectations regarding the Corporation's future results of operations, performance, business prospects and opportunities and may not be appropriate for other purposes. All forward-looking information is given pursuant to the "safe harbour" provisions of applicable Canadian securities legislation. The words "aims", "anticipates", "budgets", "can", "committed", "could", "estimates", "expects", "focus", "forecasts", "goal", "intends", "may", "might", "plans", "projects", "schedule", "seek", "strategy", "target", "will", "would" and similar expressions are often intended to identify forward-looking information, although not all forward-looking information contains these identifying words. The forward-looking information reflects management's current beliefs and is based on information currently available to Toronto Hydro's management.

The forward-looking information in this report includes, but is not limited to, statements regarding the reduction of facilities' footprint, satellite work locations, box construction replacement, HydroStor project, investing in the grid, preventive asset maintenance and vegetation management, enhancing asset maintenance, and climate change adaptation. The statements that make up the forward-looking information are based on assumptions that include, but are not limited to, the future course of the

economy, the receipt of applicable regulatory approvals and requested rate orders, climate developments, and technological development.

The forward-looking information is subject to risks, uncertainties and other factors that could cause actual results to differ materially from historical results or results anticipated by the forward-looking information. The factors which could cause results or events to differ from current expectations include, but are not limited to, operating performance, changes to regulatory parameters, project approval and ongoing support, weather, economic and competitive conditions, supply and demand for commodities.

All forward-looking information in this report is qualified in its entirety by the above cautionary statements and, except as required by law, Toronto Hydro undertakes no obligation to revise or update any forward-looking information as a result of new information, future events or otherwise after the issuance of this report.

ENERGY USE AND GREENHOUSE GASES

Working to support the City's GHG targets

Toronto Hydro operates in an environmentally responsible manner consistent with Toronto's Climate Change and Clean Air Action Plan[1]. The City has established targets to reduce greenhouse gas (GHG) by 30% in 2020 and 80% by 2050. Toronto Hydro is supporting these goals by reducing its own GHG emissions associated with fleet, facilities, line losses and the use of sulphur hexafluoride (SF_6) gases.

GHG reductions through Conservation and Demand Management (CDM) activities with Toronto Hydro's customers is covered in the CDM section of this report.

GHG Accounting

Toronto Hydro's GHG inventory includes Scope 1 and 2 emissions, quantified in accordance with national and provincial GHG reporting guidelines[2], and the GHG Protocol – Corporate Accounting and Reporting Standard. As such, the organizational boundary of its GHG inventory includes all Toronto Hydro-owned and controlled (leased) facilities.

The operational boundaries include Scope 1 and 2. Scope 1 consists of direct emissions from stationary combustion (facilities), mobile combustion (fleet) and fugitive sources (SF_6 and refrigerant leaks). Scope 2 emissions include indirect emissions from the use of purchased electricity (facilities and line losses). Scope 3 emissions are not included in this GHG inventory.

[1] Climate Change and Clean Air Action Plan (2007)

[2] Environment Canada's Technical Guidance on Reporting Greenhouse Gas Emissions, Ontario's Guideline for Greenhouse Gas Emissions Reporting

The emission factors used to calculate the GHGs are the provincial values[3] representative of Ontario's energy supply mix, and measured in tonnes of carbon dioxide equivalent emissions per gigawatt-hour (t CO2e).

Data Sources and Assurance

The Operations Support Services department is responsible for gathering **energy consumption data** (electricity and natural gas) from utility providers for all Toronto Hydro facilities included in the organizational boundary described above. This building-specific energy consumption data is used to populate the facilities energy management database.

A similar process is involved in the **fuel consumption data** of the motor vehicle fleet. The fuel management database is populated with data from various databases from fuel suppliers and through paper billing statements. The **SF_6 data** is retrieved from an equipment inventory database, manufacturer datasheets and 3rd party recycling reports.

Facility energy billing data is comprised of digital files for electricity, paper bills from utility companies for natural gas, and consolidated billing files from a third-party for leased buildings. Given that our internal assurance process entailed a sample audit of select bill entries, there is a small potential for data entry errors. Additionally, the natural gas consumption for one of our leased buildings was not available. For this facility, 2012 data (the most recent information available) was used.

An error in the 2013 natural gas invoicing method at one of our leased facility has been identified and corrected. The analysis presented under "Results and Analysis" is based on the corrected energy/GHG values.

In September 2014, Toronto Hydro acquired a new facility (currently under renovation). Two satellite work locations have also been added in 2014. These changes are reflected in the modified organizational boundaries. The natural gas data prior to September, for the new facility, was not available, and as such the associated GHGs for this building cover only September through December, 2014. GHGs from refrigerant leaks are not included as they were deemed immaterial (0.05% of emissions).

In 2014, Toronto Hydro developed a new process to track SF_6 gas inventory and equipment emissions consistent with the joint Canadian Electricity Association (CEA) - Environment Canada SF_6 Estimation and Reporting Protocol[4]. Starting January 2015, Toronto Hydro's methodology for tracking SF6 emissions consists of weighing SF6 cylinders on an inventory basis. Emissions from decommissioned and retired equipment will be calculated by subtracting the Kg of SF6 gas recovered, values retrieved from approved recycling vendor reports, from the equipment nameplate capacity. Emissions from damaged but repairable equipment will be included in the total equipment use emissions.

[3] Emission factors published in Environment Canada's National Inventory Report 1990-2011: Greenhouse Gas Sources and Sinks in Canada

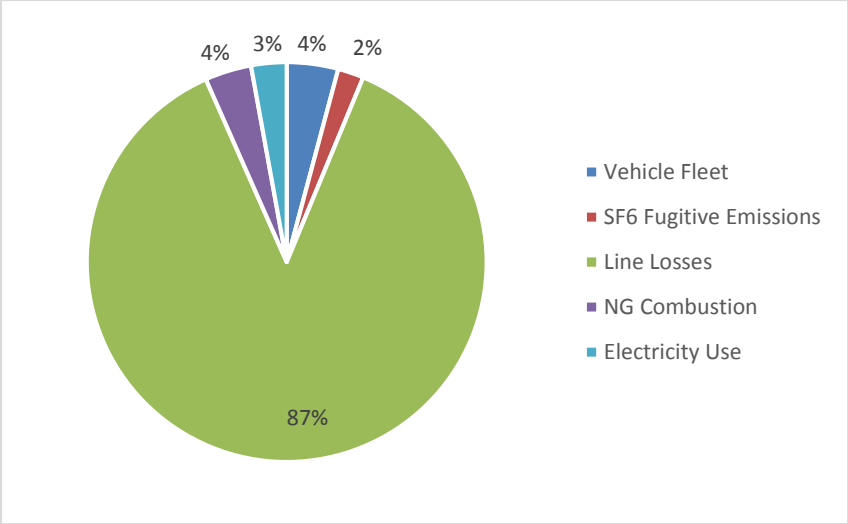
[4] Annex A: SF_6 Emission Estimation and Reporting Protocol for Electric Utilities

Since the new process has been partially implemented in 2014, this year's equipment use emissions were calculated based on vendor top-up reports including the Kg of SF6 gas used during a top-up request. For 2014 decommissioned emissions, a 100% leakage rate was assumed as recycling vendor reports were not available. As necessary, adjustments may be made in the next year's report.

Results and Analysis

Toronto Hydro's 2014 total GHG emissions were 84,053 t CO2e, a decrease of 2% relative to 2013.

Similar to 2013, the make-up of our carbon footprint is shown in the next figure: 87% of our emissions are attributed to the line losses, while fleet and facilities (electricity and NG use) are responsible for 4% and 7%, respectively. The remainder 2% is associated with SF6 fugitive emissions.



The fleet fuel consumption and associated emissions decreased by approximately 13% relative to 2013. This is the result of our continued efforts to reduce the number of vehicles and optimize their use (see details in "Maximizing the efficiency of Toronto Hydro's fleet"), implementation of a new idle management system (GRIP), as well as by creating portable and satellite work sites in close proximity to new capital projects locations. The latter led to a reduction of approximately 17% in the distance travelled by large vehicles to first call events (see details in "Satellite Work Locations").

The total Facilities' electricity and NG use increased by 2.3 and 6%, respectively. One of the reason for this difference are the 3 buildings included in the 2014 organizational boundaries. Additional factors contributing to these variances were the colder winter conditions in 2014 (12% more heating degree days), employees relocation and major renovation projects - part of Toronto Hydro's Building Consolidation Program - that required longer operating hours for affected facilities. Despite the upward electricity variance, the facilities' GHGs remained constant due to the lower provincial emission factor

(the electricity mix in Ontario was less greenhouse gas intensive in 2014 relative to 2013, with less fossil fuel (coal) generated electricity).

While our line losses remained constant compared with 2013 values, the associated GHGs decreased by 2% due to the lower provincial emission factor.

The total SF6 fugitive emissions increased by 29% in 2014 compared to 2013 due to the new more accurate and comprehensive process for tracking SF6 gas inventory and equipment emissions (for details see Data Sources and Assurance).

Environmental Initiatives

Reducing facilities' footprint

In 2014, Toronto Hydro made progress towards reducing its facilities' footprint and energy consumption. Toronto Hydro improved the functionality of its buildings by closing its location at 5800 Yonge Street and making better use of existing spaces at 500 Commissioners Street. By December 2014, employees working in IT, Customer Care, and the Control Room at 5800 Yonge Street location were transferred to the building at 500 Commissioners Street.

To prepare for the move, Toronto Hydro renovated underused and redundant work spaces, converting locker rooms and labs to office facilities; downsizing and relocating the test lab; building an updated data centre; and building a state-of-the-art control room.

During the renovations, the Toronto Hydro facilities team took advantage of the opportunity to install more energy-efficient heating and cooling systems in the new control room, office space, test lab, fleet garage and data centre; and also conducted lighting and roof retrofits.

> ***Test lab*** – Relocated and downsized from **3,900 to 2,800 square** feet; installed a more efficient heating and cooling control system, which is expected to reduce energy consumption for this area by approximately **20%**
>
> ***New office space*** – Created from a converted locker room and a former facilities office, this space received an upgraded, energy-efficient heating and cooling system expected to reduce energy consumption for this area by approximately **20%**; built-in heat recovery wheels expected to save up to **24%** in cooling energy and up to **60%** in heating energy, and can reduce humidification and dehumidification costs
>
> ***Control room*** – Equipped with an energy-efficient heating and cooling system that is expected to reduce energy consumption by approximately **20%**

Data centre – Transferred from 5800 Yonge Street to 500 Commissioners Street, this serves as a key data centre and is operated 24 hours a day, seven days a week. Before it was connected, the data centre was overhauled to help reduce energy consumption and improve efficiencies. Energy savings were achieved by upgrading the cooling system and some of the IT equipment. Toronto Hydro reduced monthly energy demand by approximately **46.2 kW** and reduced energy consumption by approximately 32,749 kWh that is estimated will result in annual electricity savings of 404,909 kWh. These values are preliminary and subject to revision.

Fleet garage air curtain retrofit – The Facilities team set out to improve the heating system in the fleet garage by installing new air curtains. The original system was inefficient because it allowed too much hot air to escape. In addition, the sensors were not working properly. The new system is more energy efficient, saving up to **80%** of hot air from escaping and improving the overall efficiency of the heating system by approximately **80%**. Infrared heaters were also installed to improve the comfort of workers. These are **80%** more effective than forced air heating systems.

Fleet roof retrofit – The original roofing which was built in 1995 was upgraded with improved insulation to reduce heat loss by approximately **60%**.

LED lighting retrofit – At the 500 Commissioners Street location **693** inefficient lighting fixtures were removed and replaced with **798** new LED fixtures; all fixtures are dimmed to an average of **70%** of capacity; meeting rooms and closed offices have automated sensors that turn off lighting when rooms are not in use; LED fixtures also reduce maintenance efforts. This retrofit is expected to achieve a total peak demand energy savings of **17.4 kW** and annual energy consumption of **46,750 kWh**.

Recycling old carpet – Toronto Hydro diverted **16,200** pounds of old carpet from the landfill by sending its old carpeting from Commissioners Street to InterfaceFLOR's 2.0 Carpet Reclamation program.

Fuel depot - Toronto Hydro retrofitted its fuel depot with two above-ground fuel storage tanks, a leak detection system and energy-efficient LED lighting fixtures equipped with photocell sensors. The tanks are equipped with a 360° double-wall design, to detect, contain and prevent leaks, as well as audible/visual alarms, and a leak detection system that is remotely monitored 24-hours a day. The lighting retrofit is expected to save 76,650 kWh and approximately $8,430 (at $0.11 per kWh) annually. Additional benefits of using LED lighting fixtures include better illumination and enhanced visibility of moving vehicles and employees in the depot's vicinity, lower maintenance costs due to the lamps' longer service life and a reduction of end-of-life environmental impacts as lamps are mercury-free.

Departmental metrics such as reduction of energy use, square footage and GHGs are monitored monthly as part of Toronto Hydro's balanced scorecards.

Improving our waste reduction efforts

In 2014, waste bins with receptacles for general waste, paper and mixed recycling streams were installed at all Toronto Hydro facilities to help increase the amount of waste that is recycled and reduce the waste going to landfill. Comprehensive waste audits were also conducted as required by the Ontario Environmental Protection Act. Based on the findings of the waste audits, a strategy has been developed to reduce waste across Toronto Hydro's facilities in 2015. This strategy includes monthly audits, employee education, increased awareness and employee feedback. Waste reduction and waste diversion targets have been established and progress will be reported to senior management on a regular basis.

Satellite work locations

As Toronto Hydro prepares for the sale and closure of its facility on Underwriters Road, we're introducing five permanent satellite work locations across the city to accommodate staff from the Underwriters location. The satellite sites are intended to reduce the time spent travelling to and from work centres to job sites by enabling crews to check in and pick up materials closer to the job site. In addition to a reduction in travel time, expected benefits also include improved response times, better customer service, increased productivity, a reduction in motor vehicle incidents, improved public safety, reduced fuel usage/costs and associated GHGs.

Toronto Hydro has already opened three of the satellite sites, and the remaining locations are expected to be in operation by the end of 2015. The Grid Response Department has reported a 17% or 3,316 km reduction in travelling distance to first call events, over a six-month period, calculated from one location only. This translates to an average annual fuel savings of 1,061 L[5] and a GHG reduction of 2.87 tCO_2e[6]

Maximizing the efficiency of Toronto Hydro's fleet

In an effort to maximize the efficiency of its fleet, Toronto Hydro re-allocated 35 vehicles to its pool vehicle program, bringing the total number of shared vehicles in our fleet to 95 (approximately 15% of our total fleet). The vehicles in the shared pool consist of speciality vehicles required to complete very specific tasks. Establishing the pool eliminates duplication and redundancies that might otherwise exist. Through this program, crews can sign out vehicles on an as-needed basis and make better use of existing resources. The program has helped Toronto Hydro reduce fuel consumption and emissions and has reduced the number of vehicles on road. In 2014, Toronto Hydro decommissioned 26 vehicles from its fleet which in part is due to this pool vehicle program.

[5] Fuel savings calculated using an average fuel use of 0.32 L of Diesel per km travelled.
[6] Canada's Greenhouse Gas Inventory 1990 - 2012 emission factors were used for this estimate

GRIP Idle Management System

The GRIP Idle Management System is designed to decrease the amount of time a vehicle spends idling while keeping all auxiliary functions of a vehicle in operation. In March 2014, Toronto Hydro installed 20 vehicles with the GRIP system. In its first 10 months of implementation, the GRIP system reduced idling-related fuel consumption by 18,382 L, avoiding 49.6 tonnes of CO_2e emissions and $26,290 of fuel costs[7]. The GRIP system keeps the cab environment comfortable for crews, maintaining operation of lighting bars, computer systems and safety features while the engine is off. This ultimately reduces engine use, and provides a better environment for the citizens of Toronto.

SF_6 Process

Toronto Hydro has developed a comprehensive process to track SF_6 gas inventory and equipment emissions in a manner consistent with the joint CEA - Environment Canada SF_6 Estimation and Reporting Protocol [8]. The new process defines procedures for acquisition of SF_6 gas (through the purchase of SF_6-filled equipment and gas cylinders for equipment "top-up"), inventory management (using Toronto Hydro's inventory management system and weigh scales to track gas use) and out-flow of gas from the system (through decommissioning of old equipment). The process establishes accountability within the organization, ensuring that the process is followed and that the necessary records have been generated. Full implementation will improve the accuracy and credibility of Toronto Hydro's annual SF_6 gas reporting.

Station Transformer Replacement

Toronto Hydro is working to replace aging station transformer assets. Station transformers contain a large volume of insulating mineral oil and as this equipment ages and deteriorates they are more prone to leaking into the environment. In 2014, six station power transformers were replaced and several others were permanently decommissioned.

Oil circuit breaker replacement

Toronto Hydro is working to replace mineral oil based circuit breakers with vacuum-based technology. In vacuum circuit breaker technology, the electrical current is interrupted inside a very low pressure vacuum chamber, versus mineral oil in an oil circuit breaker. While both circuit breaker technologies are reliable, failure of an oil circuit breaker poses a greater environmental risk due to the potential for oil release and fires.

[7] Based on GRIP Idle Accumulative Data report, Feb 2, 1015

[8] Annex A: SF_6 Emission Estimation and Reporting Protocol for Electric Utilities

Box Construction replacement

Another program aimed at renewing assets is the box construction replacement program. Box construction consists of close-proximity circuit arrangements that limit crew accessibility. Electrical capacity is one third of 13.8kV feeders making it difficult to accommodate growing population, especially in the downtown core. Converting this configuration to the current overhead construction standards will help reduce safety hazards, lower outage duration, increase feeder capacity, and also reduce line losses, which in turn reduce greenhouse gases.

ENERGY CONSERVATION AND DEMAND MANAGEMENT

Consistent with the City of Toronto's Sustainable Energy Action Plan[9] to reduce electricity consumption by 550 MW and increase renewable generation by 550 MW, by 2020, Toronto Hydro is taking similar actions outlined in this section.

Fostering conservation conversations with our customers

Educating customers about conservation programs and incentives available to help manage electricity consumption remains an important area of focus for Toronto Hydro. The company is working with residential, small business, industrial and commercial customers to implement energy efficiency projects that translate into real conservation and cost savings. In 2014, Toronto Hydro's conservation and demand management (CDM) programs led to an estimated energy savings of 185,572 MWh and reduced summer peak demand by 65.8 MW. These initiatives helped to reduce its customers GHG emissions by 17,815 tCO2e[10]. Since 2009, through its CDM initiatives, Toronto Hydro helped its customers reduce electricity consumption by 827,993 MWh, energy demand by 486 MW, and GHG emissions by 79,487 tCO2e[11]. While Toronto Hydro has been the catalyst for these savings, the achievement is also attributed to the various programs offered by the municipal and provincial government, initiatives that shaped a stronger culture of conservation among Torontonians.

Shaping provincial conservation directives

Toronto Hydro was a leading member of the Conservation First Advisory Working Group (CFAWG) where we served as the co-chair with the former Ontario Power Authority. The OPA is now the Independent Electricity System Operator (IESO). This group of Local Distribution Companies (LDCs), OPA and other related industry representatives was formed to develop the Conservation First Directive, issued by the Ministry of Energy, into a contractual agreement and governance structure to carry conservation forward for the 2015 to 2020 period. The Energy Conservation Agreement (ECA) was released to the LDC community in November 2014. A plan to commence the implementation of this agreement was established by Toronto Hydro in November 2014.

[9] The Power to Live Green: Toronto's Sustainable Energy Strategy (2009)
[10] Canada's Greenhouse Gas Inventory 1990 - 2012 emission factors were used for this estimate.
[11] Ibid 10.

The ECA supports the Ministry of Energy's 2015-2020 "Conservation First" framework, which is an integral part of the province's Long Term Energy Plan (LTEP). The LTEP includes a 7 TWh reduction in electricity consumption by 2020, resulting from conservation programs delivered by LDCs. Toronto Hydro has been allocated the largest electricity savings target in the province at 1.58 TWh.

CDM highlights

One of Toronto Hydro's most successful programs was the **Equipment Replacement Incentive Initiative (ERII)**. The program offered incentives to business customers to encourage investment in more energy efficient equipment including lighting, space cooling, ventilation, controls and various other measures. Typical target segments for this initiative included commercial, retail, hospitality and entertainment, municipal, academic, health care, institutional and multi-residential customers. Toronto Hydro has a comprehensive team and related systems to support this initiative. As a result, in 2014, Toronto Hydro had 1,798 completed projects that resulted in 18.1 MW of net peak demand savings and 109,600 MWh of net energy savings. Verified results for 2014 will be available in September 2015 from the OPA (IESO). This initiative helped to reduce Toronto Hydro's customers' GHG emissions by 10,522 tCO2e[12].

Partnering with the TDSB to raise funds for bike racks in public schools

Last fall, Toronto Hydro launched the *Team Up for Green* program with the Toronto District School Board (TDSB) to drive up participation in some of our programs and services while raising money for new bike racks for schools. Customers were invited to sign up for paperless billing, pre-authorized payment or **peaksaverPLUS®** to earn Toronto Hydro incentives for TDSB public schools. The program generated more than 9,400 sign-ups for Toronto Hydro programs and services, and we donated approximately $78,500 towards bike racks for TDSB schools.

Educating customers about conservation

Toronto Hydro executed a number of initiatives throughout the year to raise awareness and participation in its conservation programs and online services. Toronto Hydro participated in the City of Toronto's Environment Days, community festivals and also coordinated in-store activities with Home Depot and Lowes.

Toronto Hydro exceeded our paperless billing target by almost **50%**, achieving more than **40,000 sign-ups**. This amounts to over 80,000 sheets of paper[13] and 0.68 t CO2e[14]. Toronto Hydro also doubled our peaksaverPLUS® target, generating approximately **14,650** sign-ups. Through this program, Toronto Hydro shifted **7.7 MW** of peak demand and reduced strain on the grid.

[12] Canada's Greenhouse Gas Inventory 1990 - 2012 emission factors were used for this estimate.
[13] Assumptions for paper savings: bills issued bi-monthly; 2 sheets paper/bill.
[14] GHGs emission factor based on American Forest and Paper Association – Printing and Writing Paper - LCA Summary report

Renewable Energy

Toronto Hydro has been supporting renewable generation across Toronto by **enabling infrastructure** and **direct project investments**, consistent with the City's Shareholder Direction. The initiatives described in the following sections demonstrate Toronto Hydro' support of the City's renewable energy goals of installing 550MW of renewable generation by 2020, including 166MW of solar photovoltaic (PV) generation[15].

Enabling Infrastructure

Toronto Hydro provides enabling infrastructure for connecting renewable generation resources consistent with the Green Energy and Economy Act, Ontario Energy Board guidelines and the Distribution System Code. In general, system improvements (e.g. short circuit capacity, protection and communication upgrades) are provided for renewable generation resources under regulated rates.

Toronto Hydro has a dedicated interconnections group providing engineering support, pre-assessments and Connection Impact Assessments for renewable generation resources under a streamlined process. Between 2009 (the Feed-in Tariff (FIT) program's inception) and 2014, we've enabled **724** microFIT interconnections (each under 10kW capacity). This totals more than **4.125 MW** of generation and represents approximately **7%** of rooftop microFIT solar PV installed in Ontario. During the same period, we enabled a total of **206** FIT interconnections (each greater than 10kW capacity) totalling more than **33.53 MW** of generation. This accounts for an estimated **13%** of rooftop FIT solar PV installed in the province. When net metered and load displacement projects are included, Toronto Hydro has enabled 973 renewable generation interconnections totalling approximately **40 MW**. This accomplishment has been possible through:

- Dedicated interconnection team and streamlined process
- Investment in enabling infrastructure projects to address technical grid constraints
- Development of an energy centre to monitor/forecast/dispatch generation resources
- Education and outreach programs to stakeholders

Direct Project Investments

In addition to enabling the renewable energy infrastructure, Toronto Hydro is directly investing in renewable generation projects.

> ***Investment:*** Toronto Hydro is jointly investing with the City of Toronto on solar PV projects on City owned facilities. The first group consists of 10 projects, having an installed capacity of totalling 1MW, achieved 1,910 MWh of production in 2014. Under the FIT 3.0 program, Toronto Hydro and the City secured additional contracts and are moving forward with 10 additional projects with a total capacity of 1.5MW. These projects are scheduled for construction in Q2 2015 and are expected to

[15] The Power to Live Green: Toronto's Sustainable Energy Strategy (2009)

reach commercial operation in Q4 2015. Toronto Hydro has previously invested in three other renewable generation projects (ExPlace Wind Turbine, Better Living Centre Solar and 500 Commissioners Street) which have an installed capacity of 1.2MW and achieved 1,545 MWh of production in 2014. Collectively, these project investments have displaced approximately 533 tCO_2e in year 2014.

Development: Another 60 City owned buildings have been reviewed for feasibility for solar PV systems. Facilities were reviewed for electrical interconnection, roof age, roof condition, roof obstructions, and structural capacity. Of the 60 facilities, approximately 30 have been deemed feasible and will be submitted under the FIT 4.0 program, seeking contracts for approximately 3MW of total capacity during 2015. Development of Ashbridges Bay biogas, Dufferin/Disco biogas and Green Lane landfill gas renewable energy projects continues with the City pending suitable commercial arrangements and suitable contract opportunities in the Ontario market. These biogas and landfill gas projects represent a further 22MW of aggregate capacity and approximately 184,800 MWh of aggregate annual production.

HydroStor project

In addition to generation, Toronto Hydro has collaborated with industry leaders to develop innovative energy storage projects, including the world's first underwater compressed air energy storage (UWCAES) system in Lake Ontario. The project will focus on the unit's ability to accommodate renewable generation sources and provide firm on-peak energy, using low-cost, off-peak energy. Power quality and system congestion are also expected to improve using this system which is located on Toronto's Island. The system stores compressed air into an air cavity approximately 70m below the lake's surface approximately 4 km offshore. When energy is required, the system is reversed and air drives an expander onshore which provides electricity in on-peak periods. The system stores only air and is benign to the environment and aquatic life. The project developer is Hydrostor and is funded in part by Sustainable Development Technology Canada. We are providing engineering support, interconnection equipment and the onshore site for the compressor/expander for this pilot. Grid connection and major construction related activities were completed in December 2014. The storage capacity is 600kW/2000kWh and the system is expected to be operational in 2015.

ENERGY SECURITY AND SUPPLY

The following section explains how Toronto Hydro is supporting the City's objective to ensure the adequacy of capacity, infrastructure renewal, and mitigating high-risk events that could result from the unplanned loss of either Leaside or Manby transmission station supply points for the City.

Building Clare R. Copeland Station

To help take some of the pressure off of some downtown stations, Toronto Hydro began construction on a new underground Municipal Transformer Station (TS) known as Copeland Station in the spring of

2013. It is located on Bremner Boulevard between the CN Tower and the Roundhouse. This is the first new downtown transformer station to be constructed since 1955[16]. The project involves the construction of an underground station building, a tunnel for the high voltage transmission connection, installation of electrical equipment and site landscaping work. Excavation of the main site was in 2013. Cable tunnel mining is complete and concrete placement is ongoing. Manufacturing, factory acceptance testing and delivery of most of the major equipment occurred in 2014 and it is currently awaiting station readiness for installation. When complete, Copeland TS is expected to provide an initial installed capacity of 144 MVA (equivalent to approximately 70[17] high rise buildings), with provisions for future expansion to a total 288 MVA. In addition to providing much needed capacity relief to the downtown core, the station will also facilitate infrastructure renewal at nearby Windsor TS and provide additional contingency support to the area.

The station, which is adjacent to the Roundhouse, will be built with a "living roof" consisting of grass and walking paths providing a green space for pedestrians in this area of the city. Extensive consultation with local business and residents was undertaken to help ensure the finished structure is aesthetically in tune with the neighbourhood.

Investing in the grid

Toronto Hydro continues to invest in its system to both renew aging infrastructure and modernize the grid. Toronto Hydro is investing in four key categories in order achieve these objectives including System Access, System Renewal, System Service, and General Plant. In 2014, the net sum for all of this work was about $575 million with greater details provided below.

Investments in the System Access category are aimed at addressing obligations that Toronto Hydro has in providing customers with access to power from Toronto Hydro's distribution system including programs such as customer connections, metering, and externally initiated work. Toronto Hydro had a planned investment for 2014 of approximately $76 M.

Investments in the System Renewal category continue to allow Toronto Hydro to target assets that are at or beyond their useful life criteria or are functionally obsolete in the distribution system through activities such as direct buried cable replacement and Fibertop network unit replacements. Toronto Hydro had a planned investment for 2014 of approximately $286 M.

Investments in the System Service category addresses critical system issues such as capacity, operational constraints, safety concerns, and system reliability deficiencies. Programs in this category include replacement of Polymer SMD-2 fuses, handwell replacement, as well as the continuation of construction

[16] Toronto Hydro News Release "Powering the Future: Construction Begins on Toronto's News Downtown Transformer Station" http://www.newswire.ca/en/story/1169945/powering-the-future-construction-begins-on-toronto-s-new-downtown-transformer-station

[17] Toronto Hydro News Release "Powering the Future: Construction Begins on Toronto's News Downtown Transformer Station" http://www.newswire.ca/en/story/1169945/powering-the-future-construction-begins-on-toronto-s-new-downtown-transformer-station

activities for Copeland Municipal Transformer Station. Toronto Hydro had a planned investment for 2014 of approximately $104 M.

Finally, investment in the General Plant category target investments into assets that support Toronto Hydro's operational activities. Toronto Hydro had a planned investment for 2014 of approximately $109M.

Improvements on a system level can be seen from the improvements in System Average Interruption Frequency Index (SAIFI) or the average number of outages a customer experiences in a year. Toronto Hydro's 2014 SAIFI results have shown a 12% improvement when compared to its five year average.

Preventive Asset Maintenance and Vegetation Management

Toronto Hydro conducts proactive inspection and maintenance work to mitigate a wide variety of risks. Every year, the company inspects over 8,000 underground transformers to prevent equipment failures that may adversely impact the environment. In 2014, Toronto Hydro identified and took corrective actions on 100 transformers that if left unattended may have leaked oil into the environment.

To help mitigate tree contacts with Toronto Hydro wires and subsequent outages, the company employs modern arboriculture techniques to ensure proper care of the trees as part of its Vegetation Management program. For example, when trees adjacent to a distribution line are pruned, that distribution line experiences a 20% to 40% reduction in power outages due to tree related events. On average, Toronto Hydro has been pruning approximately 47,000 trees annually (that are adjacent to distribution lines) in a manner that minimizes injury to the tress but improves system reliability. These vegetation management practices are helping to harden the system against inclement weather because we are removing vulnerable sections of the tree canopy that may break during high winds or from the accumulation of ice and snow.

Toronto Hydro works closely with the City of Toronto's Urban Forestry and the Major Capital Infrastructure Coordination Office (MCIC) to identify opportunities to implement more sustainable, efficient, and environmentally-friendly practices throughout our operations. For example, in the aftermath of the 2013 Ice Storm, working groups have been struck and are currently reviewing and considering opportunities to improve the Vegetation Management program, construction standards, and plans to renew infrastructure, particularly when it is prudent to bury overhead distribution lines.

Enhancing Asset Maintenance

In 2014, Toronto Hydro piloted an oil reclamation program for use on large power transformers. As the oil in a transformer ages, the insulating properties of the oil decline. Historically, these changes would require Toronto Hydro to either replace the transformer entirely or replace its insulating oil. Starting in 2015, Toronto Hydro is seeking to more broadly apply oil reclamation, which is a filtering process that enables oil to be reused, thereby minimizing waste and extending the life of the transformer.

Emergency Preparedness

We understand the importance of keeping electricity flowing to Torontonians during emergencies. That's why we have been updating our emergency management protocols to reflect best practices in the utility industry. In 2014, we made progress towards formalizing our corporate emergency management governance documents and received executive approval for the majority of our plans.

Training exercises

Last year, to help ensure that the utility is adequately prepared to respond to events, Toronto Hydro conducted internal and external training exercises. The training exercises were designed to help the organization review our crisis management plans and to practise responding to different emergency scenarios.

The 2015 PanAmerican/Parapan American Games were an important area of focus for training, and Toronto Hydro coordinated an internal and external drill to help prepare for the international event and identify opportunities to strengthen its procedures. The internal drill's main objective was to focus on the roles and responsibilities of the CMT (Crisis Management Team) and working through an incident using the Toronto Hydro's Crisis Management process and plan. To facilitate this exercise, the Disaster Preparedness Team simulated a number of potential emergency scenarios with a Pan Am Games theme. The external training exercise – organized by the City of Toronto and the provincial government – was aimed at assessing and validating the readiness and interoperability of Games-related policies, plans, and protocols across Games organizations. Outcomes from these discussions will be used to inform further Games planning as well as the final Exercise in April 2015.

Mutual Aid

Calling on mutual aid resources significantly sped up restoration efforts during the ice storm. Since then, we have been working to join and establish mutual aid groups across North America. In 2014, we joined the North Atlantic Mutual Aid Group (NAMAG) made up of more than 20 member utilities. We're also working with the Canadian Electricity Association to establish a national electrical utility mutual aid group across Canada. Establishing agreements prior to an emergency will allow us to bring in additional resources more quickly and help us respond to storms more effectively.

CLIMATE CHANGE ADAPTATION

We're collaborating with a number of stakeholders and leading important initiatives to study the effects of climate change and help improve our system's resiliency to severe weather. We're also working to formalize our climate change adaptation action plan.

PIEVC - Assessing our system for vulnerabilities to extreme weather

In 2014, we conducted a vulnerability assessment study as part of the pilot phase of our Public Infrastructure Engineering Vulnerability Committee (PIEVC) project. The objective of the project was to evaluate the vulnerability of key components of our distribution infrastructure against current climate

trends. We focused our attention on the most common infrastructure configurations in our grid, and analyzed equipment standards against current climate factors such as extreme temperatures and flooding. The study concluded that overhead infrastructure is more vulnerable to climate events than underground infrastructure, although underground equipment is not entirely sheltered from extreme weather.

Following the case study, we launched phase two of the PIEVC project with Engineers Canada, AECOM and Risk Sciences Canada to evaluate our distribution system against future climate trends. Through this project, we developed a risk assessment matrix for our infrastructure, and are in the process of mapping out areas of our distribution system that are expected to be impacted by future climate change. This information will be used to inform further research on climate adaptation and will help identify pilot projects.

Resilient City Project- Collaborating with the City of Toronto on climate change

The Resilient City Project is aimed at improving coordination with the City of Toronto to mitigate the impacts of widespread outages. We're working with the City to identify areas of our grid that are vulnerable to extreme weather events and to improve our information-sharing processes to better prepare for major weather events that could negatively impact the operation of the City. We have identified hospitals, public infrastructure providers and customers who depend on electrically powered life support equipment as key areas of planning. Knowledge gained from the PIEVC are being incorporated into this initiative to shape action plans.

Participating in industry discussions

The Canadian Electricity Association led industry discussions about the awareness of climate change impacts in the electricity generation and transmission sectors. Toronto Hydro participated in these roundtable discussions aimed to help educate members and gain consensus on common climate change issues and possible adaptation measures.