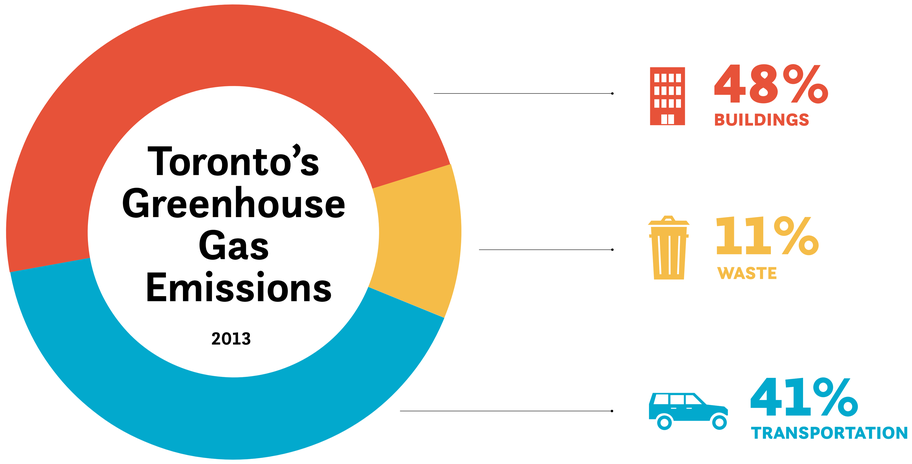
TransformTO:

Climate Action for a Healthy, Equitable, and Prosperous Toronto

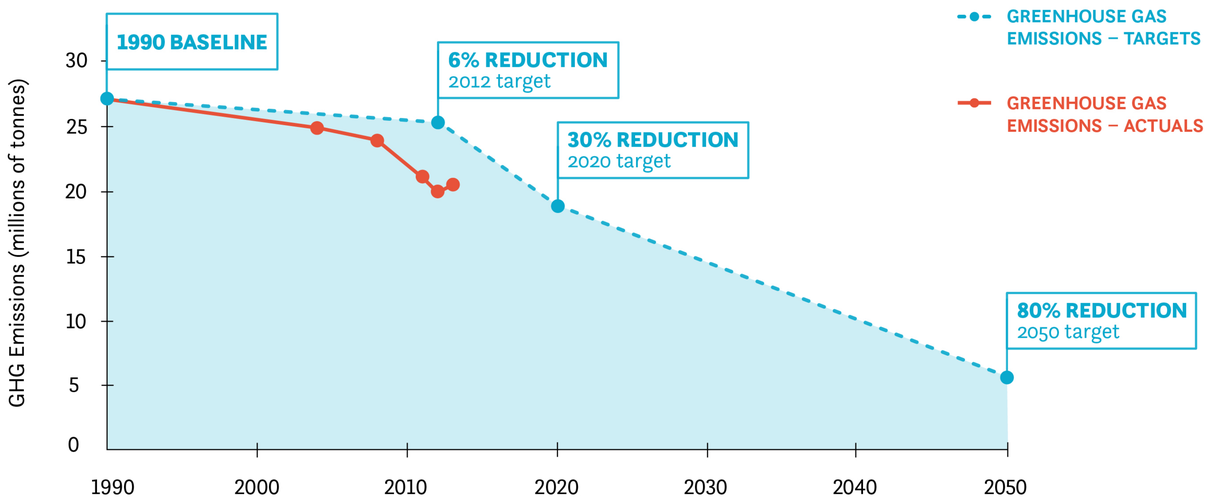
- TransformTO is engaging Toronto residents and businesses in imagining the transformative changes we will need to reduce our greenhouse gas emissions by 80% by 2050 while improving public health, enhancing our local economy, and reducing social inequality.

- TransformTO will examine actions to reduce GHG emissions through three lenses:
    - Health
    - Equity
    - Prosperity



Toronto's Greenhouse Gas Emissions & Targets

15 MILLION TONNES reduction is needed by 2050 from 2013 levels to hit targets.

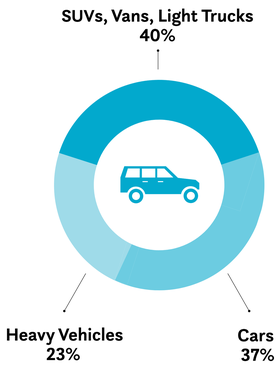


Breakdown of GHG emissions

BUILDINGS

WASTE

TRANSPORTATION



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What we've heard so far

- TransformTO Workbook Survey was available online between September 2015 and February 2016
- Over 200 community members shared ideas on the most important actions to help Toronto achieve our greenhouse gas emissions reduction goal

Transportation	Behaviour Change	Green Space	Energy	Buildings
Improve public transit (accessibility, affordability, reliability)	Provide resources and incentives for community networks	Plant more trees	Provide financial support for energy efficiency projects	Strengthen / enhance green building standards for new construction
Implement road tolls	Support stronger local & sharing economies	Support urban agriculture/ food production (allocate space, educate)	Install more renewable energy (geothermal, solar, deep lake water cooling)	Require energy retrofits to existing buildings
Invest more in cycling and pedestrian infrastructure	Support carbon pricing (e.g. carbon tax/ polluter pays)	Naturalize unused areas (hydro corridors, brownfields, lawns)	Install more district energy systems	Provide information/ incentives for less energy use in our homes and offices
Build complete, compact, walkable communities	Increase environmental education, awareness & research	Create more green spaces & parks	Switch from natural gas and car gasoline to electricity	Install more green roofs on existing buildings

TransformTO

Computer Scenario Modelling:
A tool to improve decision-making

Your ideas and suggestions will feed into a comprehensive computer scenario modelling process.

Computer modelling will help us to assess and select approaches to achieve a low-carbon future, and advance other City priorities including health, equity and prosperity. The computer modelling process will help connect these issues.

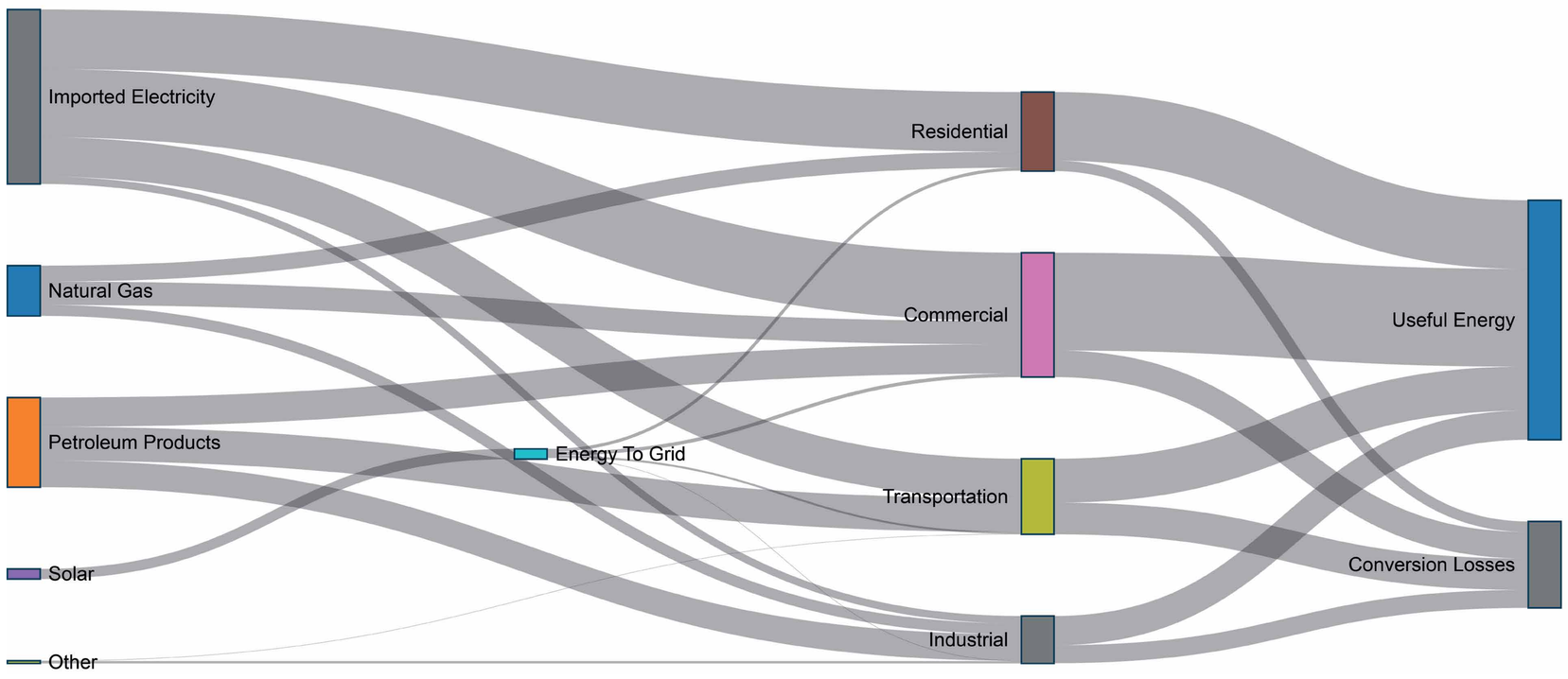
The model will include all sectors that relate to energy and emissions - including buildings, transportation, energy supply and infrastructure, land use, water, wastewater, and waste - and illustrate the relationships between these sectors.

The modelling will enable a better understanding of the nature and scope of the emissions reductions needed to meet our 2050 target, and illustrate the potential impact of multiple actions and strategies, exploring how and where these actions could be implemented in the city.

The modelling will also be spatially-integrated using GIS information, which will allow for the development of energy maps and visualization of the results in a spatial context.

The output of the modelling process will be one element that informs the final strategy and recommendations to City Council.

Sample CityInsight Sankey diagram showing energy flows for a municipality



TransformTO

Climate Action
for a *Healthy* Toronto

Climate change and health are connected

The effects of climate change on health may include: illness and premature death from extreme heat and cold; cardiac and respiratory illness from poor air quality; vector-borne diseases, including West Nile, a virus carried by mosquitoes, and Lyme disease, carried by blacklegged ticks; physical injuries sustained during extreme weather events and cleanups; food-borne illnesses following power outages.

How will reducing greenhouse gas emissions improve health?

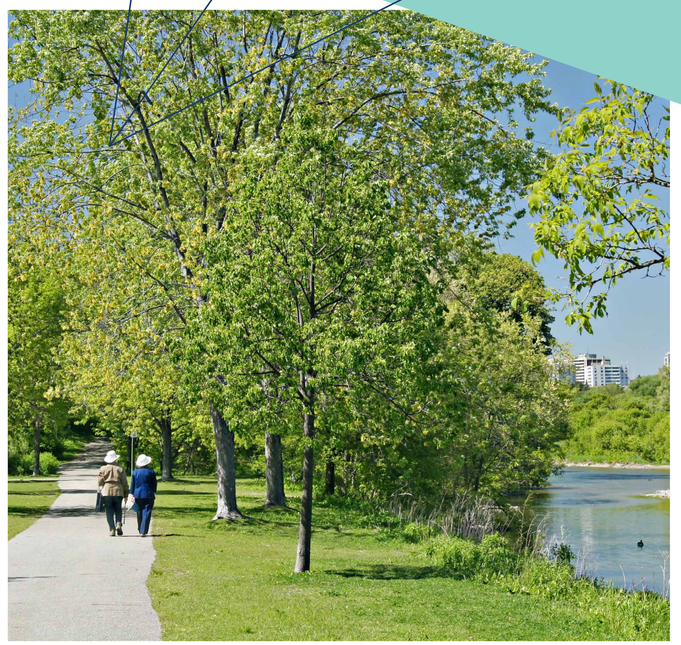
- **Cleaner air:** Planning transportation systems that minimize fossil fuel consumption can improve air quality and reduce cardiac and respiratory illness

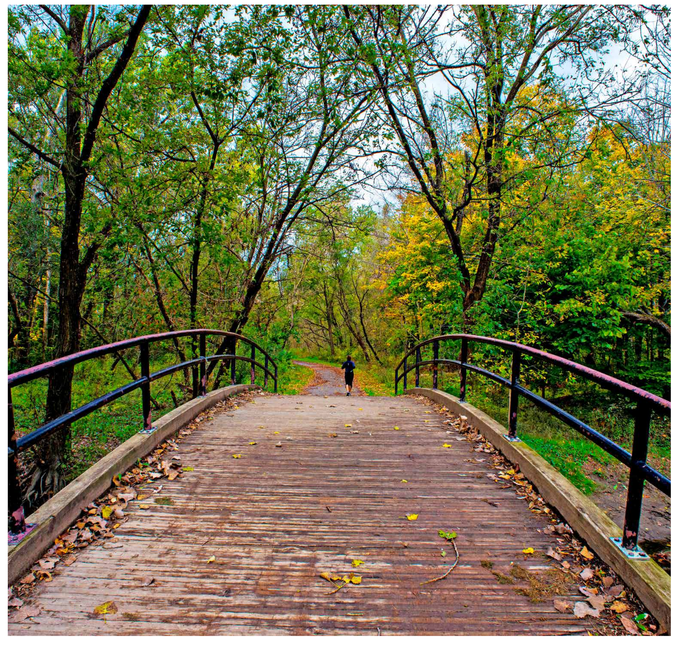
- **Active transportation:** Creating neighbourhoods and transportation systems that encourage more walking and cycling, and less driving, can reduce obesity, diabetes and cardiac illness

- **Healthy buildings:** Creating more energy-efficient buildings that have green roofs, good air quality and healthy temperatures, and making buildings more resistant to flooding and power outages caused by severe weather, can improve health and quality of life

- **Greenspace:** Increasing safe, appealing parks and natural areas in the city, can improve air quality, cool the city during extreme heat, and improve mental health

- **Local food:** Investing in infrastructure that supports local food production will promote more sustainable lifestyles, support the local economy and reduce the need for food transportation





Visit toronto.ca/health to learn more

TransformTO

Climate Action
for an *Equitable* Toronto

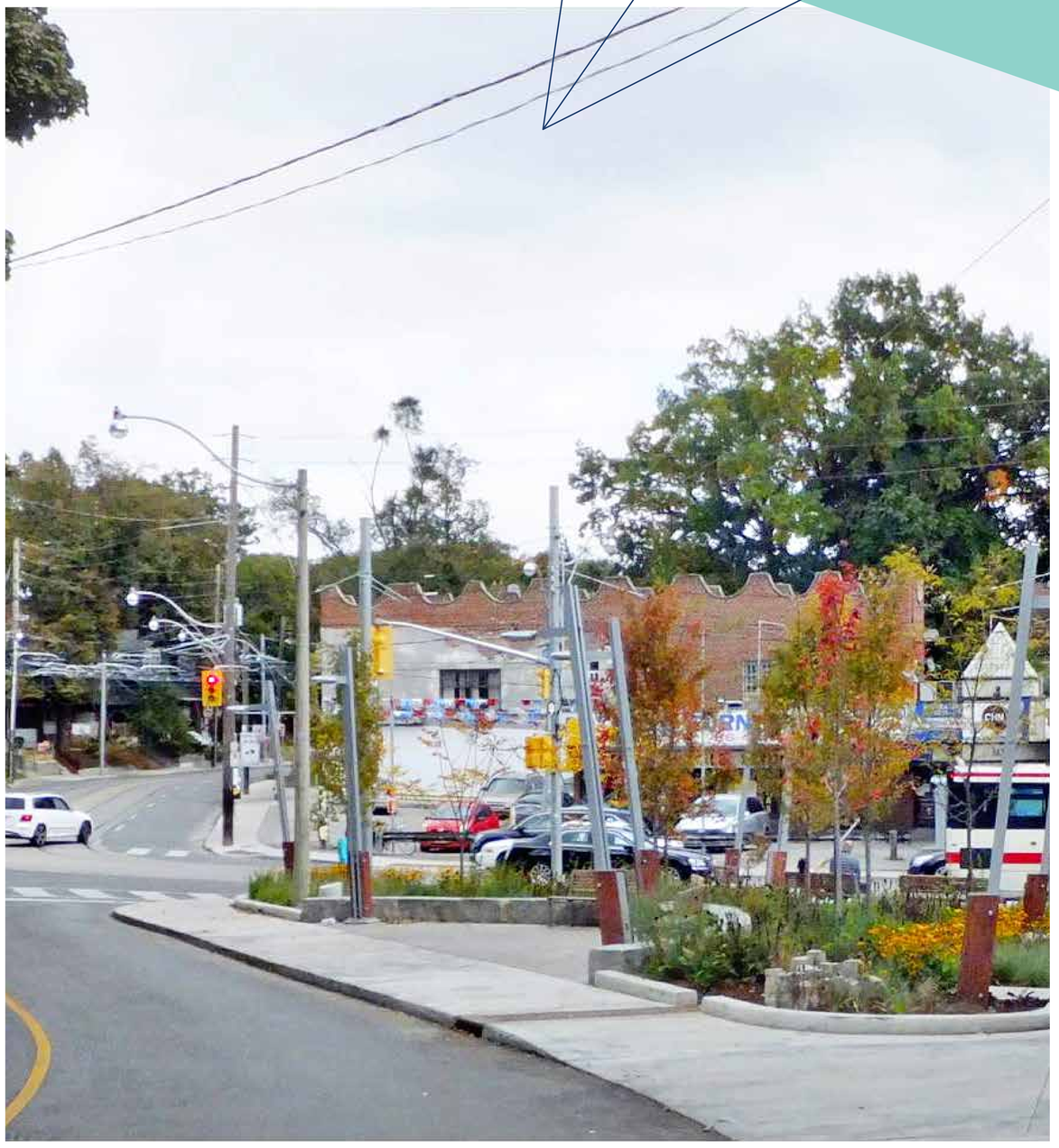
The City of Toronto ties together social equity, economic prosperity, and environmental sustainability through several Council approved policies and strategies.

These strategies promote programs and initiatives that together create opportunities for residents to participate in the city's economy and social fabric in ways that contribute to our collective prosperity and are mindful of our environment.

- **Toronto Strong Neighborhoods Strategy and Tower Renewal** support the revitalization and retrofitting of apartment buildings.
- **Toronto Seniors Strategy** advocates for accessible parks.
- **Toronto Agricultural Program** focuses on entrepreneurial development for food security.
- **Toronto Poverty Reduction Strategy** propelled the development of a transit fare equity program.

As these examples illustrate, the City of Toronto actively pursues social equity as an integral aspect of the overall development of the city.

We believe equity is everyone's business and that everyone can benefit from it.



Credit: Pat Cheung and Sheila Boudreau (City Planning Staff)

Visit toronto.ca/sdfa to learn more

TransformTO

Climate Action
for a *Prosperous* Toronto

Addressing climate change can provide economic opportunities and create new jobs.

A growing number of Canada's leading environmental innovators call Toronto home. More than 36,000 people are employed in over 1,700 Toronto-area companies that provide renewable energy and cleantech products and services across a wide range of sectors. Economic opportunity isn't just for "green" workers, the needed energy efficiency building retrofits could create employment across multiple sectors.

The City is committed to the green economy sector in ways that reduce our greenhouse gas emissions:

- **Smart Energy & Smart Grid:** Using less energy to perform a task and being smart about how we use energy is helping many Toronto-based companies grow into world-class leaders.
- **Electric Vehicles & Green Transportation:** Toronto-based firms are developing the future of transportation. Through public and private partnerships firms are collaborating on research projects, pilot programs and post-secondary training programs.
- **Green Energy:** This sector, which includes solar, wind and bio-energy, has seen significant growth in recent years. Ontario's Green Energy Act includes North America's first comprehensive Feed-In Tariff Program, which offers a guaranteed pricing structure for renewable electricity production.
- **Green Buildings:** Toronto is becoming a global leader in green buildings. Over 25% of Canada's LEED (Leadership in Energy and Environmental Design) professionals are located in Toronto.

Visit toronto.ca/business to learn more

TransformTO

What is the City doing?

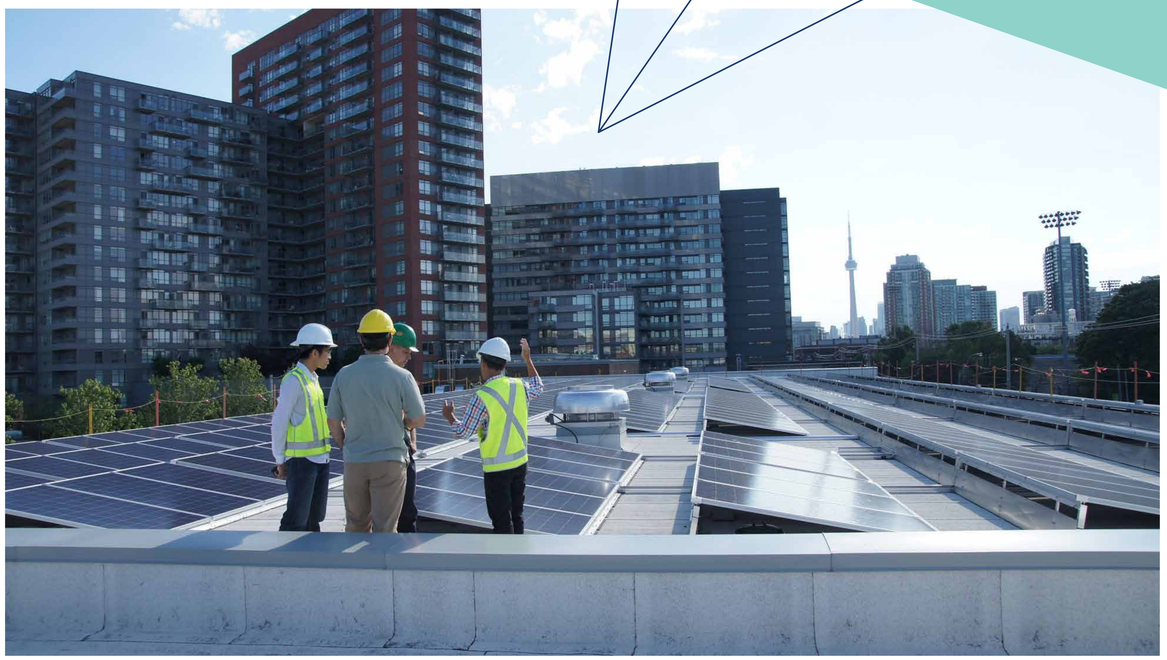
Urban Energy

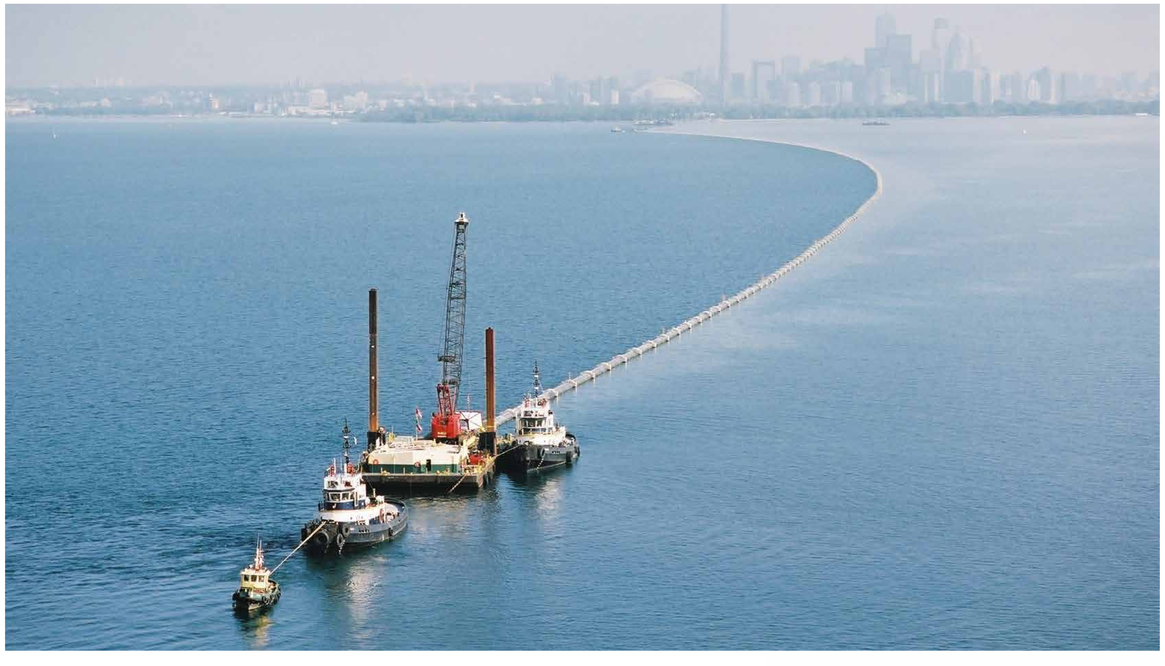
Toronto's efficient, resilient, low-carbon energy solutions include thermal networks, combined heat and power, renewables, and new approaches to local energy planning.

Community Energy Planning (CEP) is an area-based approach to energy planning that integrates resilient, low-carbon solutions directly into land use plans and infrastructure studies. Several areas across the city, including Mimico-by-the-Lake, Lawrence-Allen, and Scarborough Centre, have Council-approved Community Energy Plans. Developers with proposals for large buildings and/or buildings in CEP areas, will be required by the City to submit an energy strategy that identifies opportunities for efficient, resilient, low-carbon development.

Thermal networks, also called district energy systems, are being used to distribute energy, more efficiently, to multiple buildings. Enwave's Deep Lake Water Cooling system uses water from deep within Lake Ontario to cool buildings in the downtown core, reducing greenhouse gas emissions by 79,000 tonnes annually (equivalent to taking 15,000 cars off the road).

Renewable energy and combined heat and power (CHP) systems are being installed at City-owned facilities. Currently, 89 solar photo-voltaic systems installed at various City facilities reduce GHG emissions by about 400 tonnes annually.





Visit toronto.ca/eed to learn more

TransformTO

What is the City doing?
Transportation

The City of Toronto is focused on reducing auto dependency, improving air quality, and providing an integrated, accessible transportation system for all users.

A five-year review of the transportation and transit policies in Toronto's Official Plan, called **Feeling Congested**, is underway. The policies in the Plan aim to provide an integrated, accessible transportation system for all users that aligns population and employment growth with rapid transit infrastructure; improves walking, cycling, and transit use and reduces auto dependency; ensures streets are more vibrant and complete.

Building on Toronto's recently adopted **Complete Streets** Official Plan policy, the emerging Complete Streets Guidelines will outline a holistic approach to making decisions about space on city streets. The Complete Streets approach considers all users - pedestrians, cyclists, transit users, and drivers - and people of all ages and abilities, especially the safety of the most vulnerable: children, seniors, and people with disabilities. The approach also strives to make streets more attractive and vibrant.

Toronto's 2015 Cycling Network Plan builds on the 2001 Bike Plan to add bicycle infrastructure, increase bicycle use, and improve cycling safety.

The City is working with Metrolinx to implement a variety of major rapid transit projects across the city including, SmartTrack, the Scarborough Subway, the Relief Line, the Finch West LRT, Sheppard East LRT, extensions of the Eglinton Crosstown LRT. This transformational rapid transit network expansion is already underway as construction continues on the Eglinton Crosstown and Toronto-York Spadina Subway Extension.

Visit toronto.ca/transportation to learn more

TransformTO

What is the City doing?
Buildings

The City is committed to transforming our built environment to address over 40% of Toronto's greenhouse gas emissions caused by building operations.

Toronto Green Standard (TGS) is a two-tier set of performance measures for new development that includes guidelines to improve air and water quality, reduce greenhouse gas emissions, enhance urban ecology and reduce solid waste. Tier 1 requires new construction to be 15% more energy efficient than required by the Ontario Building Code. Tier 2 is a higher, voluntary level with a financial incentive that requires buildings to be 25% more efficient.

Residents can get incentives and loans for home renovations through the Eco-Roof Incentive Program to install green and cool roofs on their homes, and the Home Energy Loan Program (HELP) to improve the energy efficiency of their homes. Business owners can also access the Eco-Roof Incentive Program for existing buildings, and are required under Toronto's Green Roof By-law to install green roofs on buildings greater than 2000 m^2.

The Better Buildings Partnership (BBP) also helps owners, managers and developers of new and existing large buildings to improve energy efficiency and reduce emissions.

Energy efficiency improvements required by the Toronto Green Standard have avoided 115,000 annual tonnes of greenhouse gas emissions since 2010.

Visit toronto.ca/livegreen to learn more

TransformTO

What is the City doing?

Resilience

The success of Toronto and its quality of life will be influenced by how resilient the City of Toronto, its residents and businesses are to the direct and indirect effects of a changing climate and associated extreme weather events.

Recent events, such as the record-breaking rain storm, extreme heat alerts, and ice storm of 2013 demonstrate the need for the City to prepare for future extreme weather and the other impacts of climate change.

A resilient city is one that plans for and designs its infrastructure and services to reduce the impacts of a changing climate and extreme weather and ultimately recover quickly.

Toronto has already adopted a broad range of strategies and initiatives such as the Toronto Green Standard, the Wet Weather Flow Master Plan, the Hot Weather Response Plan and the Strategic Forest Management Plan that support Toronto's resilience building efforts.

The Climate Change Risk Management Policy is integrating climate change resilience into decision-making across City operations, and the City is collaborating with public and private sector organizations to identify and manage broader climate change risks to infrastructure and services. In addition, the City is supporting residents and businesses in taking actions that enhance their personal resilience through channels such as the new resilience-focused Extreme Weather website.

Visit toronto.ca/livegreen to learn more

TransformTO

What is the City doing?

Waste

Waste accounts for 11% of Toronto's greenhouse gas emissions. A number of innovative initiatives are underway across the city to minimize waste and its impact.

The City is developing, with public input, a Long Term Waste Management Strategy that will guide the City's waste management programs and policy decisions for the next 30 to 50 years. The Waste Strategy prioritizes reducing, reusing, recycling, and recovering any remaining resources to minimize the amount of waste sent to landfill. Reducing greenhouse gas emissions is also one of the guiding principles that will help in developing a Waste Strategy that is environmentally friendly, socially acceptable and economically feasible.

A large portion of the City's Waste Collection Fleet is being converted to run on natural gas, which is the cleanest burning fossil fuel. In addition, the Solid Waste Division is currently exploring opportunities to produce renewable natural gas from its organic waste in order to adopt a closed-loop collection and fueling strategy.

In 2014, 53% of residential waste was diverted through the City's waste diversion programs including Blue Bin recycling, Green Bin organics, Yard Waste, Household Hazardous Waste and E-Waste. The Waste Strategy's goal is to continue to improve diversion but it will also recommend other performance metrics such as measuring reduction and reuse, and reduction of greenhouse gas emissions.

Visit toronto.ca/recycle to learn more

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