



Modelling Advisory Group

SUMMARY REPORT

Monday, April 10, 2017

Overview

Launching in May 2015, TransformTO is advancing a pathway to reducing Toronto's greenhouse gas (GHG) emissions by 80% by 2050 while supporting a prosperous, healthy, equitable city. While the way forward requires significant alterations to our energy system, it is important to note that energy use patterns have transformed significantly over time – from firewood, to coal, to petroleum and natural gas. These changes have brought many benefits, and so can the shift to a low carbon energy system.

Informed by long-term scenario modelling of urban climate actions out to 2050, and drawing on current knowledge about low-carbon co-benefits, the preliminary goal of TransformTO is to identify where high-impact carbon reduction action coincides with opportunities to create multiple community benefits.

To support the process, a diverse group was assembled to provide advice to project co-initiators – City of Toronto Environment and Energy Division and The Atmospheric Fund. The resulting Modelling Advisory Group, or MAG, included 35 volunteer members representing multiple sectors within the community and multiple City of Toronto divisions and agencies. They met four times between July 2016 and March 2017. Their role was to support the scenario modelling process, to undertake multi-criteria analysis of proposed low-carbon solutions, and to offer advice to staff on how to create the TransformTO pathway for presentation to Toronto City Council in May of 2017.

MAG Members

The MAG members represented:

- Eleven different City of Toronto Agencies, Corporations and Divisions (Environment and Energy, City Planning, Economic Development & Culture, Toronto Public Health, Social Development Finance & Administration, Transportation Services, Solid Waste Management Services, Shelter Support & Housing Administration, The Atmospheric Fund, Toronto Transit Corporation, Toronto Community Housing Corporation);
- The Government of Ontario;

- Public agencies focused on waterfront redevelopment, transportation, and electricity (Waterfront Toronto, Metrolinx, Independent Electricity System Operators, Toronto Hydro);
- Academia (University of Toronto, Ryerson City Building Institute);
- Professional Associations (Registered Nurses' Association of Ontario, Toronto and York Region Labour Council);
- Environmental and climate change advocacy groups (Earth Day Canada, Toronto Environmental Alliance, Toronto Climate Action Network);
- Municipal and land use specialists (Federation of Canadian Municipalities, Neptis Foundation, Urban Land Institute);
- Community and socially-focused organizations (Community Benefits Network, Social Planning Council, South Riverdale Community Health Centre); and
- Individuals and organizations with specialized expertise (Khanna Research and Communications, Toronto Youth Cabinet, TorrieSmith Associates, TD Economics).

MAG Objectives

The objectives of the MAG were to:

- Build a common understanding of TransformTO and its relevance to the city;
- Help begin the development of a Toronto-specific approach to understanding the social equity, health, and prosperity impacts of various GHG emission reduction options;
- To help the City and TAF develop recommendations on how Toronto can reduce its emissions by 80% by 2050 while maximizing benefits for the City's health, prosperity and equity;
- To help shape TransformTO in a way that strengthens its relationship and relevance to the many other sectors and interests potentially influenced by its recommendations; and
- To help build a constituency of support for a transparent, collaborative, evidence-based, comprehensive, and meaningful process to becoming a low carbon city.

During – and in between – their four meetings together, the MAG reviewed the modelling process, assumptions, and results, undertook a comprehensive multi-criteria analysis initiative, and shared their thoughts and advice with the TransformTO team regarding key co-benefits opportunities and conditions for success in maximizing them. Detailed summaries of the materials shared and feedback received during each of these meetings is included here in Attachment 1. Please also see Attachment 2 for the MAG Terms of Reference, Attachment 3 for the full MAG membership list, Attachment 4 for the MAG timeline, and Attachment 5 for two "Notes from the MAG Facilitator" shared during the process.

Overall MAG Advice

The MAG developed overall advice about the modelling process as well as detailed advice on how to best approach the twelve “bundles” of low-carbon actions assessed in the modelling. They also reflected on general approaches the City might take to advance low-carbon action while maximizing related community benefits. All of this advice is provided within the notes of all four MAG meetings, attached to this report.

Beyond the individual meeting summaries, there are a number of over-arching pieces of advice that emerge when reflecting on the thoughts shared by the MAG throughout the process. They include:

1. How the City needs to think about GHG emission reductions:

- **Achieving emission reductions is an important opportunity.** There are significant public health, job, quality of life, risk mitigation, and city-competitiveness benefits that Toronto will enjoy as a result of emission reduction efforts. These returns need to be considered in a way that supports the short and medium term policy and resource steps required to get the city on a trajectory to meeting the targets by 2050.
- **It will need to be a team effort.** The scale and pace of action required to meet the 80% target, and to capture the multiple community benefits associated with this effort, will never be delivered by the City of Toronto alone. New partnerships with other cities, provincial and federal governments, institutions, business, community organizations, and the public will be critical to success.

2. How to achieve the 80% emission reduction target by 2050:

- **Maximizing conservation, in all of its forms, needs to be the priority.** Whether related to travel, waste, or buildings – we will need to maximize energy performance and reduce waste if we are to achieve our emissions reductions targets.
- **Continue supporting those activities that are already contributing to emission reductions.** The emission reduction modelling shows that Toronto is already reducing emissions as a result of public investments (and planned investments) for example in active transportation and transit infrastructure which are changing personal mobility patterns, in programs supporting energy efficiency in buildings, and through advanced waste management policy. Planning policies, guided by Toronto's Official Plan, that support complete communities and public transit/active transportation infrastructure lead to reduced emissions. Ensuring the successful application of these existing plans is essential.
- **Support bold, new moves required to achieve the emission reduction target.** MAG members identified public transit, active transportation, and land use changes as the most important opportunities the City has to achieve emission reductions that at the same time deliver other public benefits. There are also major emission reduction opportunities associated with a significant increase in the electrification of transportation options including transit, freight and personal mobility, and achieving dramatic energy efficiency and emission reductions in new and existing buildings. These big moves require serious City leadership and broad community support.
- **Recognize that it's possible, and necessary, to achieve significant emission reductions at the same time as achieving other public policy priorities – particularly social equity.** TransformTO actions need to proactively consider the needs of all of Toronto's communities, and must not unduly burden or unfairly advantage one segment of society over another, nor create inter-generational inequities. The Poverty Reduction Strategy identifies many objectives that

TransformTO also seeks to achieve and can support with climate actions. TransformTO must also continue to align with poverty reduction objectives.

3. Achieving other public policy imperatives:

- **Promote good green jobs.** The City should work with partners to identify key local employment opportunities related to long-term low-carbon strategies and create a workforce strategy to meet the needs of local workers and employers, with a special focus on providing good employment for people who face barriers to employment.
- **Improve public health.** There are numerous opportunities to improve public health while advancing low-carbon strategies. Energy efficiency retrofits can leverage overall housing renewal and improve the health of indoor environments and as such could be an important tool in supporting social housing renewal in particular. Low-carbon policies – such as walkable communities and improved access to transit can increase physical activity to aid in preventing inactivity-related diseases.

4. Engaging all the players:

- **The City of Toronto needs to lead by example.** The City of Toronto must lead by example to demonstrate the pace and scale of action needed to model the TransformTO Pathway, showcase its leadership on the world stage, and embrace opportunities to leverage this leadership to improve the City's global competitiveness.
- **The public needs to support, and participate in, broad-based behaviour change.** The emission reduction targets are ambitious, and millions of people living in Toronto will need to make different choices than they do today if we are to achieve those targets by 2050. The City needs to assess, shape, and support public engagement and behaviour changes required to meet the 2050 targets, considering current and emerging social norms, cultural diversity, and youth attitudes and culture.
- **Take advantage of synergies and interdependencies.** The City should be thinking about both the broader public co-benefits of GHG emission reductions and the reverse – the GHG emission reductions that can be achieved as a co-benefit to other public policy initiatives and should be enabling cross-divisional work. In particular, the City should be considering how to integrate the TransformTO work with work on resilience.
- **Work at community scale.** While many strategies and goals are expressed at the city level, we must consider how to enable local communities to advance and benefit from the work in their neighbourhoods. In a diverse city like Toronto there are no “one-size fits all” approaches, and innovative location solutions need to be encouraged and embraced.

5. Create new financial tools:

- **Major new investments and new long-term revenue tools are essential for meeting our 2050 emission reduction targets.** There is a compelling business case for these investments – given the very high financial, environmental, and social costs associated with inaction. The MAG

advised the City to sequence investments to optimize their emission reduction impacts and minimize increased costs later. New approaches to and sources of financing are essential to capitalize the actions needed for improving building performance and developing new infrastructure and upgrades. The City needs to build its internal capacity to explore sustainability finance in partnership with others.

6. Ongoing areas to explore:

- **The world is always changing in ways that can dramatically impact Toronto's pathway to 80% emissions reductions by 2050.** Global changes can have profound implications on the TransformTO pathway. It's important to continuously scan and consider disruptive technologies, social trends, the global economy, and their implications.
- **Continuously improve modelling inputs and analysis.** While scenario modelling can provide critical insights into understanding the emission reduction potential of different actions, interpretation of the results needs to be tempered by consideration of the limitations of the model. To the extent possible, future modelling needs to consider alternative scenarios and draw on updated assumptions and strengthened data sources.

Attachments

- Attachment 1. Summaries from MAG meetings #1, 2, 3, and 4
- Attachment 2. MAG Terms of Reference
- Attachment 3. MAG membership list
- Attachment 4. MAG Timeline
- Attachment 5. Notes from the MAG Facilitator shared during the process