IMPACT REPORT | 2023

The Atmospheric Fund

April 2024

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1. GLOSSARY

This glossary provides the scope and definition of the indicators reported on in this document. Some indicators are supported by robust methodologies and project data, while others are emerging, and our reporting is more qualitative in nature at this time.

Carbon Emissions Reductions - Direct: Total lifetime carbon emissions reductions from projects initiated in a given calendar year. These reductions are based on verified impact that is projected over a 20-year lifetime of the project.

Carbon Emissions Reductions - Potential: Total carbon emissions reductions over a 20-year period from projects initiated in a given calendar year. These reductions are not yet realized and are based on *potential* impact.

Co-Benefits: Improvements achievable through climate action to other areas of need such as accessibility, affordability, biodiversity and ecology, community engagement, justice and rights (including Treaty rights), economic and industry development, mobility and access to transport, resilience and safety, skills development, waste, and water quality.

> **Economic Co-Benefits:** Includes the job-years created and changes in gross domestic product (GDP) resulting from a TAF investment, grant, or program.
>
> **Equity Co-Benefits:** Fairness and justice related benefits and outcomes to communities and individuals resulting from TAF efforts to improve representation, engagement, stake in assets, and other equity-building tactics in climate action.
>
> **Health Co-Benefits:** Reductions in criteria air contaminants (CACs) over a 20-year period. Additional program-level health co-benefits are also reported (e.g., exposure to extreme heat).

Financial Capital Mobilized: The sum of TAF's investment, TAF-raised operational revenue, and all externally mobilized capital in a given calendar year. The externally mobilized capital component is based on direct and indirect mobilization, calculated using methods recommended by the Organization for Economic Cooperation and Development (OECD), the Multilateral Development Banks (MDB), and European Development Finance Institutions (EDFI).

> **Capital Mobilization - Direct:** Where there is clear evidence a co-investor is participating because of TAF's presence or influence. TAF counts the entire co-investment as direct mobilization.

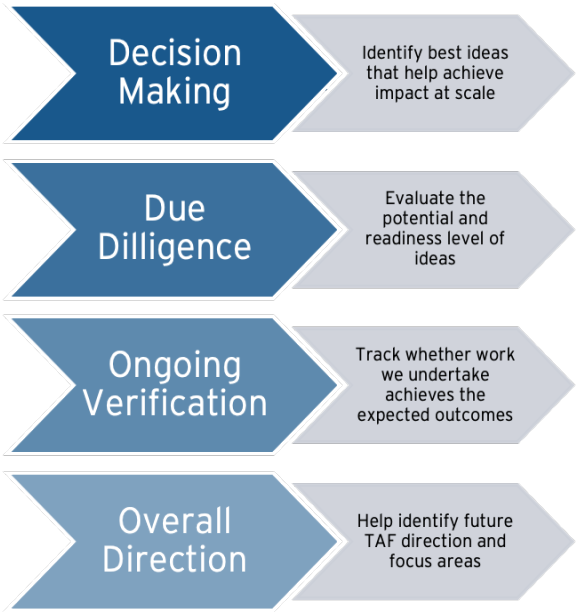
Capital Mobilization - Indirect: Where the project goes ahead because of TAF funding, but a co-investor was not directly influenced by TAF. TAF prorates indirect mobilization based on our contribution percentage.

Focus Areas: Based on the GHG Inventory for the GTHA, TAF sets "Focus Areas" to prioritize our work and efforts. Focus Areas can and do evolve when opportunities to catalyze more significant emissions reductions emerge. Currently TAF's focus areas are: Accelerating retrofits, Accelerating EV uptake, Decarbonizing the grid and Accelerating net-zero new construction.

Pathways: Strategies and activities that support carbon emissions reductions that are not directly quantifiable in terms of tonnes or megatonnes. There is an evidence-basis that they are critical to supporting development, uptake and success of effective, durable emissions reductions. Examples include: expanding workforce capacity, innovative program concept development, frameworks or platforms, or stakeholder engagement.

2. INTRODUCTION

TAF has a strong internal discipline of modelling impact, evaluating outcomes, and using data (qualitative and quantitative) and analytics, to support teams, focus areas and the organization. This approach enables us in the following areas:



When it comes to impact reporting, TAF's mandate sets out that we are to invest in low-carbon solutions for the Greater Toronto Hamilton Area and help scale them up for broad implementation. Therefore, we have been tracking and reporting on two "key" performance indicators to measure progress towards this:

- Financial capital mobilized to low-carbon solutions
- Carbon emissions reductions (potential and direct)

Since we started tracking these two KPIs in 2015, we have seen an upward trend in impact. We are mobilizing more capital, and we are supporting greater emissions reductions strategies and approaches with each passing year.

Despite this progress we have also had to increase our ambition. In the face of rising emissions across the GTHA and an unambiguous need to address social priorities alongside climate protection, we have added to our performance indicators to ensure we are selecting emissions reduction programs and approaches with the greatest conditions for success, including:

- Co-benefits (also known as multi-solving): economic, health, equity and other
- Scale pathways: technology, policy, market, and social advancements

While we are just beginning to build knowledge and networks in these areas, we cannot let complexity slow us down. In fact, we believe multi-solving will help scale climate action.

This report summarizes our results from January 1 to December 31, 2023, based on activities covered in the 2023 Annual Report. It includes performance indicators we have been tracking for several years and new ones introduced with the launch of the Low Carbon Cities Canada (LC3) network, of which TAF is a member.

Assembling our Impact Report in this new format gives us an opportunity to review results all together and consider what it's telling us about the years—and work—ahead.

Our Research and Innovation team leads TAF's measurement and evaluation using the best available data and methodologies, including our GHG Evaluation Methodology. Our methodologies are occasionally updated as best practices evolve or as priorities direct us. We aim to be transparent and open in our approach and assumptions and welcome input or questions. research@taf.ca

We are pleased to share this with you and encourage any feedback and input to help us achieve our shared objective to achieve net-zero by 2050 in the GTHA.

3. CARBON IMPACT

Our mandate prioritizes scalable greenhouse gas (GHG, simplified as "carbon") emissions reductions in the GTHA. As such, our primary impact indicator is *potential* GHG reductions, although we also monitor *direct* GHG emissions reductions resulting from of our efforts. While we monitor reductions year-over-year, values from past years should not be added together as this introduces double counting when multiple projects are trying to address the same challenge or problem. TAF's Carbon Emissions Quantification Methodology contains more information on double counting and other quantification specifics.

Potential Carbon Emissions Reductions

Defined as total carbon emissions reductions over a 20-year period from projects initiated in a given calendar year. These reductions are not yet realized and are based on potential impact.

All quantifiable emissions reductions related to our projects, grants, investments, and policy development are included in this indicator. This excludes activities that support a "pathway" to emissions reductions as they are not directly quantifiable (e.g., expanding workforce capacity or public engagement). This indicator is useful when evaluating how well TAF continues to focus on the biggest carbon reduction opportunities each year.

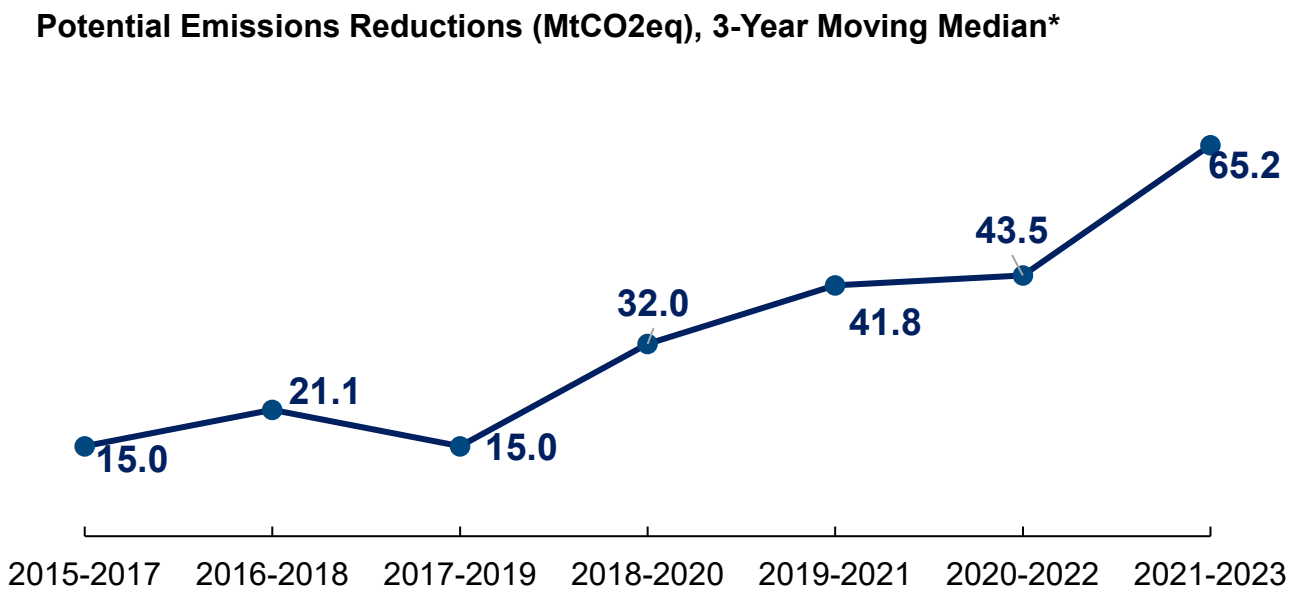
A unit cost ($/tCO2eq for potential emissions) is also calculated based on the mobilized financial capital for all quantifiable projects in 2023 (see Section 5).

Indicator	Value (2023)
Potential Emissions Reductions[1], $MtCO_2eq$	84.2
Cost per Potential Emissions Reductions, $/tCO_2eq$	0.05

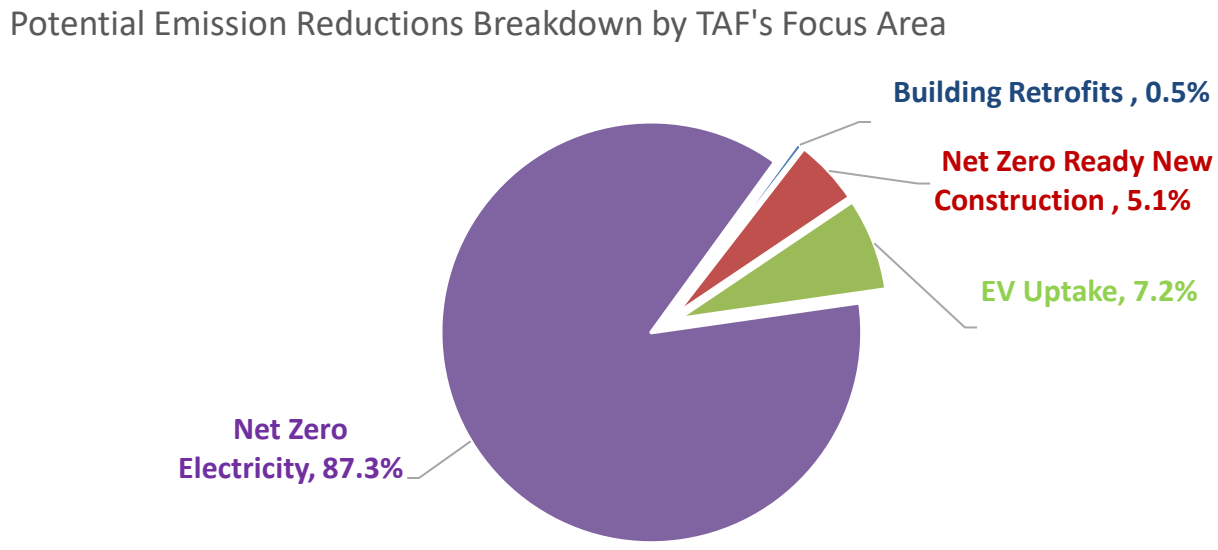
We use a three-year moving median to evaluate the long-term trends of potential emissions reductions. A median value is used to reduce the influence of outliers in any given year and better reflect the underlying trend. We continue with a strong upward trend in potential emissions reductions, marking a notable increase of 94% in 2023 compared to 2022. This large increase is driven by investments in electric rideshare, prefabricated mass timber construction, and a grant to Environmental Defence which aimed to build support for a phase-out of gas generated electricity in Ontario. Our investment in Kite Mobility tackles transportation emissions by using mobility-sharing solutions that displace traditional private car ownership. This also improves housing affordability by reducing capital costs associated with building parking spaces. Similarly, our investment in Assembly Corp. targets multiple benefits; scaling high-performance, prefab mass-timber solutions in the region

[1] Over a 20-year period.

has the potential to reduce operating and embodied carbon and accelerate urgently needed new affordable housing.



The next chart provides a breakdown of carbon emissions reductions potential, by TAF Focus Area.



Direct Carbon Emissions Reduction

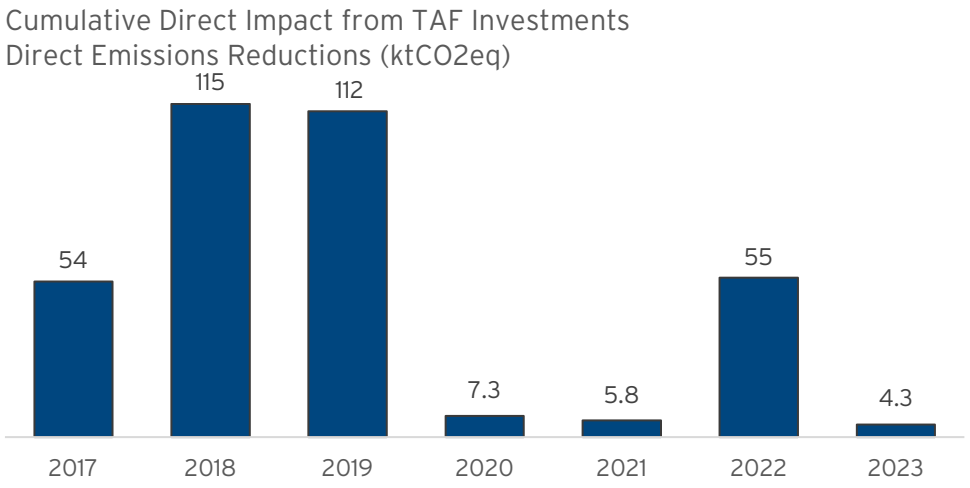
Defined as total lifetime carbon emissions reductions from projects initiated in a given calendar year. These reductions are based on verified impact that is projected over a 20-year lifetime of the project. To-date, TAF's direct emissions reduced have largely come from retrofit and investing projects.

The direct emissions reduced calculated this year are attributed to one retrofit project at French Quarter condominiums, undertaken through our Retrofit Accelerator, and one direct investment commitment. The retrofit work included the first commercial installation of Mitsubishi's Climaventa air-to-water heat pump that helps to decarbonize the existing hydronic heating systems in a relatively inexpensive and non-invasive way.

A unit cost ($/tCO2eq for direct emissions) is also calculated based on the mobilized financial capital for all quantifiable projects in 2023 (see Section 5).

Indicator	Value (2023)
Direct Emissions Reductions, $ktCO_2eq$	4.3
Cost per Direct Emissions Reduction, $\$/tCO_2eq$	979

Direct emissions reductions in 2023 were lower than in 2022, however this is due to a change in methodology. Previously, we used building retrofit models to estimate direct emissions impact from retrofit activity. However, to improve accuracy, we are now using post-commissioned measurement and verification (M&V) data that is available once building retrofits are completed[2]. In 2023, while capital was spent on five retrofit projects, only one of these has post-commissioned M&V data. The remaining four projects will be counted in future years once they are completed.



[2] In situations where there is less than one year of post-commissioned M&V data, TAF will extrapolate to a full year. To minimize the amount of extrapolation done, direct emissions are allocated the following year if there is less than six months of M&V data available.

4. FINANCIAL IMPACT

"Financial capital mobilized" is the sum of TAF's investment, TAF-raised operational revenue, and all externally mobilized capital in a given calendar year.

In 2023, the total financial capital mobilized by TAF was $15,145,440. Approximately 37% of this is attributable to direct investments, 19% to Retrofit Accelerator projects, 16% to grants, and 8% to the EV Station Fund. The remaining 20% is from external funding raised for TAF programming[3].

Indicator	Value (2023)
TAF investment + TAF raised operational revenue	$13,829,562
Externally Mobilized Capital[4]	$1,315,878
Total Financial Capital Mobilized	**$15,145,440**

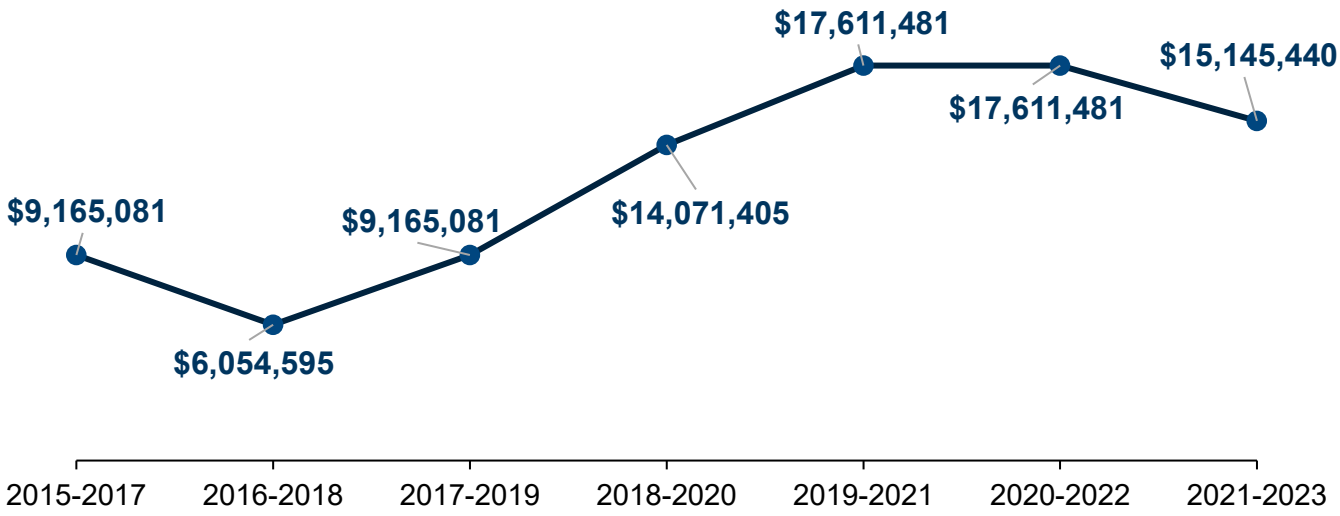
The externally mobilized capital ($1.31 million) consists of:

- $ 981,000 for two direct investments
- $ 323,000 for four grant projects
- $ 12,000 for the EV Station Fund program

The financial capital mobilized in 2023 ($15.1 million) marks a significant increase from 2022 ($9.7 million). The difference is driven by our retrofit work, the first tranche of funding for the GTHA EV Station Fund, and two direct investment commitments ($2.2 million). The downward trend in 2021-2023 is due to an update to the methodology for external mobilization estimation. We now prorate indirect mobilization based on our contribution percentage rather than counting the full value of indirect investments.

[3] Any recycling of capital, for example where returns are reinvested in a project or used to free up the recipients' own capital, is not included.
[4] Consists of direct and indirect capital mobilization. See Glossary for definitions.

Total Capital Mobilized from TAF Investments ($), 3-Year Moving Median*



A rolling median is used here to account for the large variance in potential reductions between projects and better reflect the underlying trend.

In 2023, we also raised funds from external partners to scale-up support climate action in the GTHA:

- Natural Resources Canada: $580,000 as part of its Zero Emission Vehicle Infrastructure Program (ZEVIP) towards the installation of new EV charging stations in the GTHA[5] for 2024.
- Natural Resources Canada: $13.2 million from the Deep Retrofit Accelerator Initiative (DRAI) for operating TAF's Retrofit Accelerator for March 2023 to March 31, 2027.

[5] $12,000 of this funding was used in 2023. Remaining majority is to be used in 2024.

5. CO-BENEFITS IMPACT

In 2023, we began tracking and monitoring the "co-benefits" of our climate activity, including economic, health, equity, and other co-benefits. Attention to these indicators provides an opportunity to mitigate potential negative outcomes, as well as build in sources of alignment that will support scale-up and success of climate action.

Economic Co-Benefits

Defined as the job-years[6] created and changes in gross domestic product resulting from an investment, grant, or program. At this time, estimates are based on energy efficiency projects only, where we have the best available data and reliable metrics.

In 2023, the job-years created and increase in GDP TAF achieved were 68% higher than in 2022. This increase is largely attributed to our Retrofit Accelerator work.

Impact Type	Job-Years Created (2023)	Increase in GDP ($) (2023)
Potential	3	$375,000
Direct	79	$10,915,377

We have also begun integrating economic impact assessments into our work, starting with analyzing the job creation impact of retrofitting to net-zero in the GTHA. Approximately a quarter of retrofit investment goes towards *direct job* creation (for the GTHA that is estimated at 33,300 jobs *per year*). For every direct job created, another 0.9 indirect and 1.3 induced jobs are also created, and jobs in energy efficiency and construction pay above average salaries.

Health Co-Benefits

Includes change in criteria air contaminants (CACs) over a 20-year period. Additional program-level health co-benefits have been reported on below, as our indicators in this area continue to develop.

Criteria Air Contaminants

Scientific evidence strongly links particulate matter ($PM_{2.5}$), nitrogen oxides, and sulphur oxides to adverse health effects, including mortality in many epidemiological studies[7-8]. Changes in CACs directly correlate to changes in fossil fuel consumption, and their trends closely follow changes in potential and direct carbon emissions reductions.

[6] Defined as the total employment created (i.e., total years worked across multiple employees).
[7] Health impacts of air pollution in Canada, 2021
[8] Connections between air pollution, climate change, and cardiovascular health, 2022

Potential reductions in particulate matter were 50% higher than in 2022, and reductions in NO_x and VOC gas emissions were six and 14 times higher than in 2022, respectively. This remarkable scale of CAC reductions is largely attributed to several grants, including the phase-out of gas generated electricity in Ontario grant (Environmental Defence), staff and community EV charging on Toronto District School Board lots (Toronto Lands Corporation), reducing energy consumption across Indigenous housing portfolios (Indigenous Clean Energy Social Enterprises), and green development incentive programs for higher performance tiers of municipal green development standards (Durham Region). These programs have played a crucial role in driving significant improvements in air quality and advancing environmental sustainability efforts.

Criteria Air Contaminant (CAC)	Emissions reductions (t) (2023)	
	Potential	Direct
Total Particulate Matter (TPM) (t)	6,377	0.4
Particulate Matter with diameter < 10 µm (PM_{10}) (t)	6,377	0.4
Particulate Matter with diameter < 2.5 µm ($PM_{2.5}$) (t)	5,705	0.4
Sulfur Oxides (SO_x) (t)	421	0.0
Nitrogen Oxides (NO_x) (t)	98,438	9.8
Volatile Organic Compounds (VOC) (t)	47,380	0.3
Carbon Monoxide (CO) (t)	747,593	3.3
Ammonia (NH_3) (t)	3,610	0.1

Protection from extreme indoor heat

We monitor the indoor environment in multi-family buildings that we retrofit. Exposure to extreme indoor heat is becoming more common as our climate continues to warm. In just one of our social housing retrofits that lacked air conditioning, we recorded indoor temperatures as high as 32.5 degrees Celsius. Low-income and renter communities are less likely to have access to adequate air-conditioning in their homes. To help address these growing challenges, we are introducing high-efficiency cooling with heat pumps in nearly every retrofit we support. In 2023, we began introducing cooling in 288 households across five buildings (215 of these are social housing). Heat pumps can eliminate the risk of exposure to extreme heat indoors while delivering energy efficiency, reducing carbon emissions, and providing comfortable winter heating.

Health-related financial benefits of EVs

In 2023, Canada also established the Electric Vehicle Availability Standard, for which we were an active advocate and stakeholder on behalf of GTHA municipalities. Our analysis indicates that achieving the targets in this policy will result 11,000 avoided premature deaths and $90 billion in health benefits through the reduction in air pollution.

Equity Co-Benefits

Defined as fairness and justice related benefits and outcomes to communities and individuals resulting from TAF efforts to improve representation, engagement, stake in assets and outcomes, and other equity-building tactics in, and through, climate action.

We recognize that communities are disproportionately impacted by climate change. Without proper consideration, consultation, and design, climate action has the potential to perpetuate or even worsen existing inequalities. In 2023, we formalized a process to track our efforts to integrate equity priorities across our four focus areas[9].

The process consists of three key phases:

- Initial analysis: Identifying how our work may impact equity-deserving and systematically disadvantaged communities across the GTHA. This includes identifying groups that may be impacted (positively or negatively), and how our work can be adapted.
- Re-visiting and updating: Throughout the year, review learnings and share.
- Reflection and evaluation: At year-end, reflect on experiences and evaluate progress. Use learnings to inform future work.

In 2023 we identified the following groups as impacted by programming and activities across our focus areas:

- Indigenous peoples
- Persons with disabilities
- Newcomers, immigrants, and refugees
- Persons with low-income
- Underemployed people and people facing barriers to employment
- Seniors
- Youth

Next year's Impact Report will include an initial baseline score and our first year of results from working more actively with these and other groups, using a scoring rubric developed by the LC3 network.

[9] TAF's four focus areas are: accelerating retrofits, accelerating EV uptake, accelerating net-zero ready new construction, and accelerating net-zero electricity.

6. EQUITY, DIVERSITY AND INCLUSION AT TAF

A commitment to Equity Diversity and Inclusion (EDI) is one way for TAF to be a stronger, more effective team and organization. We believe that a diverse team that can participate and engage equitably is critical to climate action that is innovative, effective, and durable. Our commitment is also an ethical one, set by the ambitions of our staff.

There is a history, still current today, of lack of representation, bias, and discrimination within the sustainability sector. Similarly, in the energy sector recent reporting on diversity and inclusion in the Canadian energy sector found that women are underrepresented at the C-Suite level, and racialized people experience significant barriers to career progression.

As such, we are taking the same impact measurement mindset we apply to our work, to evaluate our staff and volunteer EDI experiences and perspectives.

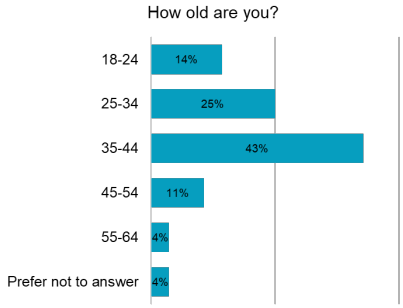
Two surveys were conducted in April 2023, one for staff and one for board and committee members. The staff survey had a 96.5% response rate. The board and committee survey had a 63% response rate.

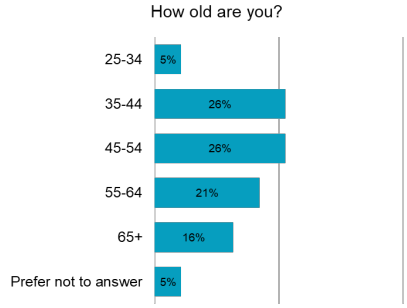
Representation (Diversity)

Survey responses for key representation metrics were gathered from TAF staff and board and committee volunteers. Survey response graphs are included for each of representation themes below.

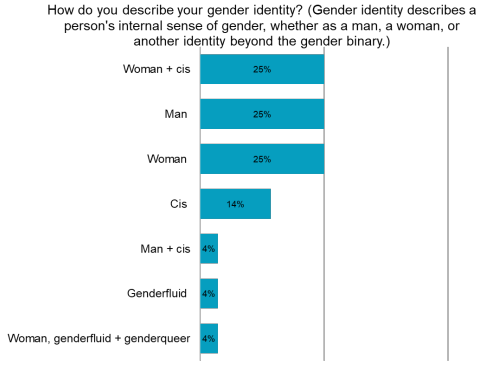
Staff responses are on the left and board and committee responses are on the right.

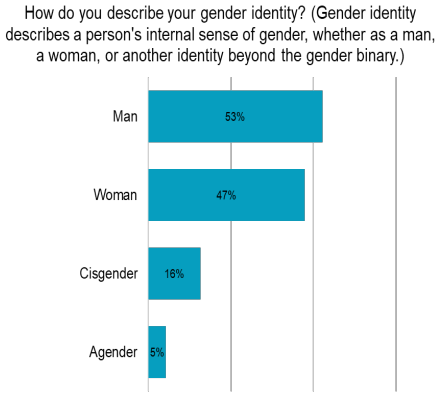
Age



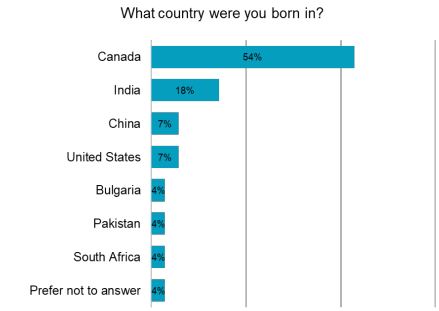


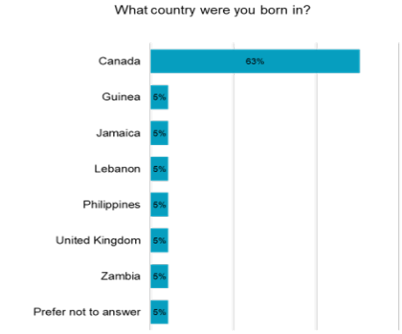
Gender Identity[10]



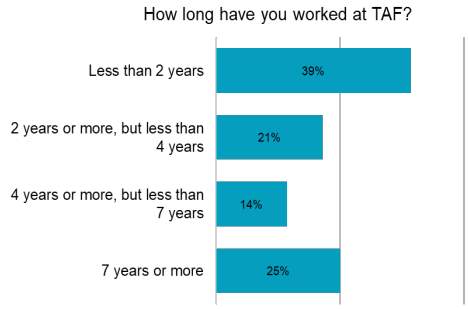


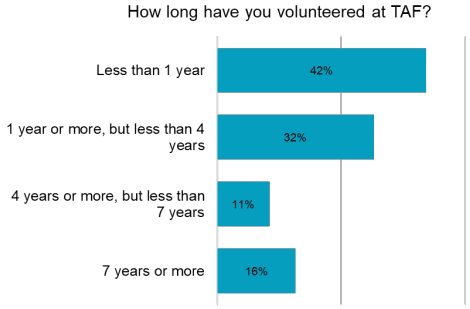
Place of Birth





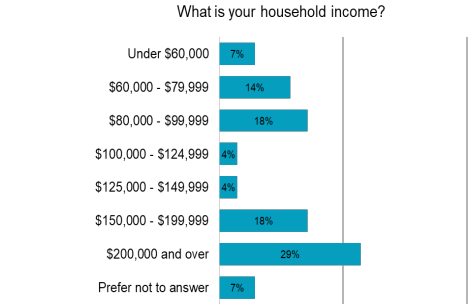
Tenure

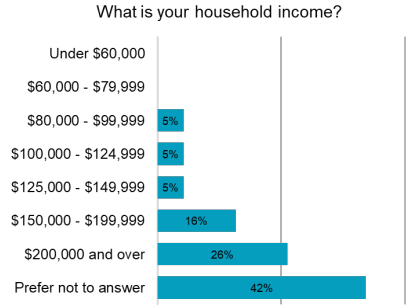




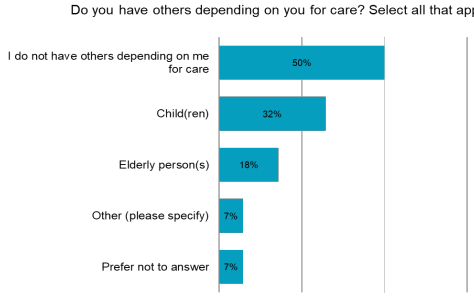
[10] Respondents approached this question differently. It was not clear if respondents who chose only 'cis' or 'genderfluid' also identify as another gender. TAF will work to clarify the answer options for future surveys.

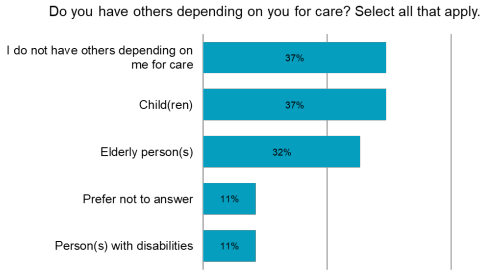
Household Income



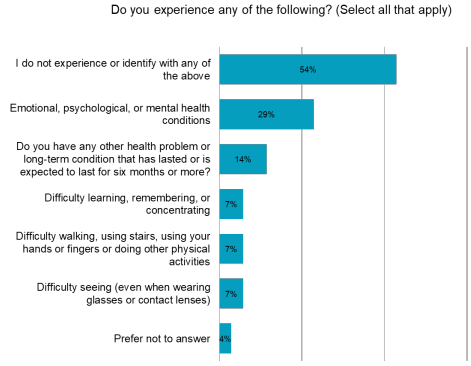


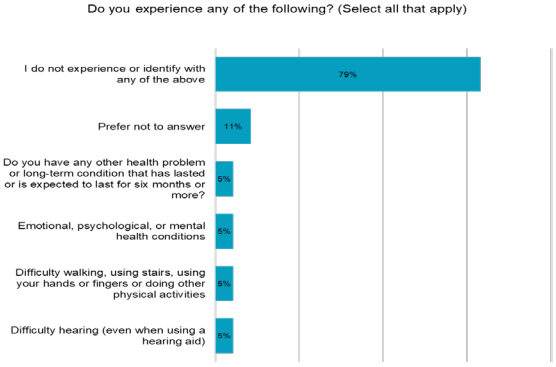
Dependants



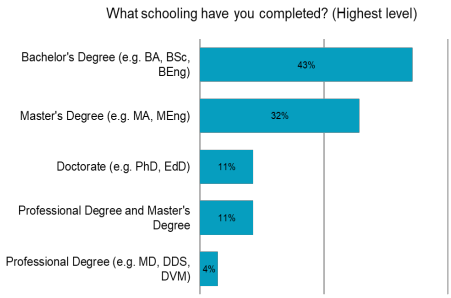


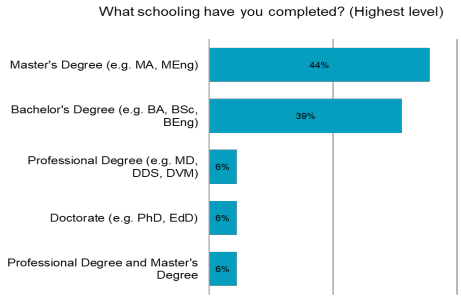
Accessibility





Education[11]





Equity and Inclusivity

Our 2023 EDI Survey also included questions specifically designed to capture equity and inclusivity experiences at TAF. Respondents were invited to indicate their level of agreement or disagreement with several equity and inclusivity statements, as well as share anonymous, open-ended feedback on their feelings of inclusion, fairness and engagement. This included in areas such as: team/manager/organizational expectations, compensation, access to resources, openness, access and transparency, ability to participate/contribute, leadership behaviour, safety, workplace culture, and processes for hiring or nominating. In fall 2023, the survey responses were assembled and shared with all staff, board and committee members. We also hosted engagement opportunities in different settings to discuss findings. This will be used to develop and implement actions to improve our working environment. Future EDI surveys and other engagements and processes for feedback will be leveraged to monitor improvements and other changes.

7. UPCOMING AREAS OF IMPACT REPORTING

Additional Co-Benefits

In addition to health, economic and equity-related co-benefits, improvements can be achieved in other areas through climate activity (including accessibility, affordability, biodiversity and ecology, community engagement, justice and rights [including Treaty rights], industry development, mobility and access to transport, resilience and safety, skills development, waste, and water quality).

In November and December 2023, we initiated a first exploration of co-benefits as they relate to each of our focus areas. This is being supported by activities in 2024 to advance our knowledge, define our scope, and update workplans and approaches accordingly.

[11] Based on the highest level of institutional education reported by each respondent.

Next year's impact report will include an initial baseline score and our first year of results from working more actively in these areas, using a rubric developed by the LC3 Network.

Scale Pathways

This effort is being developed to track and evaluate the readiness and resources integrated into an idea or approach to accelerate change and increase reach, towards scale-up.

We consider four pathways to scale-up of climate solutions:

- Policy advocacy and institutional change: Enabling through policy reform, incentives, new standards and regulations, or engagement of stakeholders and decision makers.
- Market development: Market-level strategies (e.g., stimulating demand, providing financing) to drive interest, supply and uptake of low carbon infrastructure, products and services.
- Technology diffusion: Uptake of low carbon technologies and innovations, through demonstration and de-risking, product improvements, and other pathways.
- Social change: Through social buy-in/license, adjustments to behaviours, beliefs, practices and norms.

Scale pathways are being identified at each focus area level. For each, the approach, associated barriers, challenges, and opportunities/drivers will be explored and described. We will start reporting on scale pathway results in our 2024 impact report.