## Green Bond Newsletter

Province of Québec June 2023

Québec Green Bond Program	2
Québec Green Bond ssues	3
lse of proceeds from Québec Green Bonds	4
inanced projects – Update	7
stimated benefits or the environment	22





## Québec Green Bond program

Québec's Green Bond program draws on the Green Bond Principles (GBP).

A member of the GBP group since October 2018, Québec has committed to publishing an annual information bulletin for investors. To demonstrate its commitment to protecting the environment and developing the Green Bond market, Québec put in place a Green Bond program in February 2017, and updated its framework in July 2022.

- As at March 31, 2023, the Québec government had launched eight Green Bond issues; the government has committed to being a regular issuer on this market.
- Québec is promoting its Green Bond program in a dedicated section of the Ministère des Finances website: www.finances.gouv.qc.ca/department/environment\_green\_economy/green\_bonds.



#### Second Opinion on Québec's Green Bond Framework

- CICERO (Center for International Climate Research) issued an independent opinion on the framework of Québec's Green Bond program.
- Québec's Green Bond framework was awarded the highest possible rating dark green.
- The most recent version of CICERO's Second Opinion is available on the Ministère des Finances website.

Consult document<sup>1</sup> from CICERO

1 www.finances.gouv.qc.ca/documents/Autres/en/AUTEN\_SecondOpinionCICERO\_GB.pdf

## Québec Green Bond issues

#### 8 issues

#### Total amount of issues: CAD 5.1 B

Maturity date	Issue amount	Pricing date
November 22, 2032	CAD 800 M	November 15, 2022
May 20, 2032	CAD 1 B	May 13, 2022
May 27, 2031	CAD 500 M	May 19, 2021
February 13, 2027	CAD 500 M	February 6, 2020
July 6, 2025	CAD 500 M	June 28, 2018
February 22, 2024	CAD 800 M*	February 14, 2019
March 1, 2023 (matured)	CAD 500 M	February 22, 2018
March 3, 2022 (matured)	CAD 500 M	February 24, 2017

\* <u>Environmental Finance</u> Bond Awards 2020 – Green Bond of the Year – Local/Municipality Note: As at March 31, 2023.

#### **FORMAT : GLOBAL** (first 5 issues) **AND MTN CAN** (last three issues and upcoming issues)

#### Stock exchange

Luxembourg Green Exchange (LGX) -Euro MTF Market

#### Inclusion in green indexes

Bloomberg Barclays MSCI Green Bond Index ICE BofA Merrill Lynch Green Bond Index Solactive Green Bond Index S&P Green Bond Index

#### **Categories of projects funded to date:**

Clean transportation and energy efficiency (LEED Gold project)

## Alignment with the United Nations' sustainable development goals:



## Global statistics of Québec's eight green bond issues



signatories of the UN PRI



## Use of proceeds from Québec Green Bonds

#### Use of proceeds as at March 31, 2023

Balance as at June 30, 2022		CAD 0
Net proceeds from eight Green Bond issue	CAD 797 416 000	
Proceeds used for the Blue line extension	(CAD 467 185 000)	
Proceeds used for the Réno-Systèmes project	(CAD 136 255 000)	
Proceeds used for the Accessibility program	(CAD 100 000 000)	
Proceeds used for the Réno-Infrastructures project	(CAD 51 300 000)	
Proceeds used for the Québec city tramway project	(CAD 42 676 000)	
	CAD 0	
Balance as at March 31, 2023		CAD O

As soon as Québec's 8<sup>th</sup> issue was closed, the net proceeds were allocated in full to **5 clean transportation projects**.







#### Total cost of the projects and portion financed/refinanced with Green Bonds as at March 31, 2023

(in million \$)

Project name	Total cost authorized	Québec's participation	Financed with Green Bonds	% of the total cost of the project	Refinancings <sup>1</sup>	TOTAL
Réseau express métropolitain (REM)	6 900.00	1 280.00	1 199.02	17.4%	-	1 199.02
AZUR	2 623.60	1 788.50	1 086.70	41.4%	468.45	1 555.15
Blue line extension	6 164.70	4 436.70	710.84	11.5%	-	710.84
Réno-Infrastructures	1 045.10	748.00	484.30	46.3%	-	484.30
Réno-Systèmes	1 882.20	1 250.50	428.76	22.8%	-	428.76
Accessibility program	685.20	435.00	262.90	38.4%	-	262.90
Electric or hybrid bus purchase*	860.10	878.80	174.09	9.9%	-	174.09
Bellechasse bus garage	584.40	441.80	162.35	27.8%	-	162.35
Québec city tramway	3 965.00	2 197.50	108.61	2.7%	-	108.61
Bus garage electrification	673.70	415.20	-	0.0%	-	-
East end of Montréal bus garage	315.40	250.30	-	0.0%	-	-
	25 699.40	14 122.30	4 617.55		468.45	5 086.00

1 Québec can refinance unamortized borrowings from existing projects. For example, a project with a 15-year amortization period financed with a 5-year Green Bond issue could be refinanced with Green Bonds. Conversely, a project with a 5-year amortization financed with a 5-year Green Bond issue cannot be considered for refinancing. Consequently, matured Green Bonds will not be refinanced without the refinancing of a project being associated with it.

\* Since June 2022, the Green Bond program no longer finances hybrid buses, only electric buses.



## **Financed projects**

Update

- Réseau express métropolitain (REM)
- Acquisition of AZUR métro cars
- <u>Réno-Systèmes and Réno-Infrastructures</u>
- Purchase of electric or hybrid buses
- Extension of the Montréal métro's Blue line
- LEED project Bellechasse bus garage
- Accessibility program
- <u>Québec city tramway</u>



## Réseau express métropolitain (REM)

The Réseau express métropolitain (REM) is a light rail transit system under construction in the Greater Montréal area. The REM will serve 26 high-frequency stations 20 hours a day, 7 days a week.

CDPQ Infra, a subsidiary of the Caisse de dépôt et placement du Québec, is responsible for developing and operating the REM.

The REM is a project worth 6.9 billion Canadian dollars. The Québec government made an equity investment of \$1.28 billion. It has financed the investment, in total or in part, by issuing Green Bonds.

#### A few numbers

- \$6.9 billion for the construction of the project
- 100% electric
- 34000 direct and indirect jobs created in Québec during the construction phase and more than 1 000 permanent jobs once the REM starts running
- 67 km of tracks
- 4 directions from downtown Montréal (South Shore, Montréal's Pierre-Elliott-Trudeau Airport, Sainte-Anne-de-Bellevue, Deux-Montagnes)
- 26 stations
- 3 connections with the métro (Bonaventure, McGill and Édouard-Montpetit stations)
- 2023-2024: progressive commissioning of the REM

#### Main sustainability advantages

- Increase in public transit use, and reduction in car use and the associated social costs
- Decrease of nearly 2.5 million tonnes in GHG emissions over 25 years
- Significant reduction in noise levels, adverse visual impacts, and air pollution linked to the passing of cars
- Contribution to the electrification of transportation and improvement of the sector's energy efficiency to develop the economy and reduce GHG emissions
- Contribution to the academic, professional and social integration of people with mobility impairments, thanks to universally accessible stations and cars

See: SYSTRA Canada, Émissions de gaz à effet de serre du REM, phase d'exploitation (December 2022, in French only)



#### Updated commissioning schedule (October 2022)

- Phase 1, from South Shore to Central Station\*: spring 2023
- Phase 2, West Island, North Shore and Centre of Montréal segments: end of 2024
- Phase 3, Airport segment in collaboration with Aéroports de Montréal: 2027

#### 2023 calendar and commissioning schedule

Consult calendar<sup>1</sup>

For more information on the project's progress, you can visit the REM website: <u>rem.info/en</u>.

- Griffintown-Bernard-Landry Station will be commissioned at a later date.
- https://rem.info/en/work-schedule



## Acquisition of AZUR métro cars

#### **Project description**

- The project involves the Société de transport de Montréal's (STM) acquisition of 71 AZUR trains (639 cars), 38 of which are to replace the 1963 métro cars (MR-63), 7 of which are to replace the 1973 métro cars (MR-73) and 26 of which are additional métro cars. These new trains feature leading-edge design and technology.
- For Montréal métro users, the new rolling stock significantly improves service: an 8% increase in capacity, high-tech information systems, a new ventilation system, 27% wider doors than the previous ones and an optimized layout.
- Powered 100% by hydroelectricity, these cars manufactured with 60% Canadian content will be 92.5% recyclable at the end of their useful life.
- Thanks in part to the AZUR métro cars, the STM aims to increase electric-powered travel on its network from 69.5% in 2015 to 88.6% in 2025.

#### **Project progress**

The delivery of the new AZUR trains is now complete.

- The 71<sup>st</sup> and last AZUR train was put into service in December 2021 and completes the second phase of train acquisition.
- The delivery of the 54 trains of the first acquisition phase was finalized in June 2019.
- A total of 639 AZUR cars are now part of the STM's rolling stock.
  - The 360 MR-73 cars complete the fleet.
- 330 AZUR cars were financed with the proceeds from Québec's Green Bond program.





#### **Reclamation of MR-63 and MR-73 cars**

Following the arrival of the AZUR métro cars, the MR-63 cars were either sent for recycling (318 cars) or reused for artistic or conservation projects (15 cars). The reclamation rate of the MR-63 cars is 85%. More than 50 types of parts were reused on the MR-73 cars and the locotractors, which resulted in major savings. In total, more than 85% of the 8200 tonnes of MR-63 materials were reclaimed.

In order to free up parking space in the tunnel to accommodate the new AZUR métro cars, the STM also had to dispose of 63 MR-73 métro cars in 2021. On the strength of the high diversion rate obtained during the disposal of its MR-63 métro cars, the STM began the preparatory work for the disposal of these 63 cars in 2020; 62 cars were recycled and 1 car was sold for a second life project.

## Réno-Systèmes and Réno-Infrastructures

#### **Project descriptions**

The Réno-Systèmes program attends to the replacement, construction or refurbishment of Montréal métro network's operational stationary equipment, while the Réno-Infrastructures program attends to the replacement or refurbishment of the infrastructure related to the métro's network. These two programs aim to optimize investments by using them as leverage to improve service quality and safety as well as the financial and operational performance of the Montréal métro's network.

The two projects are essential to maintaining the métro service and are closely linked to the AZUR métro car acquisition project, partly funded through Québec Green Bond issues.

#### **Advantages**

#### **Réno-Systèmes**

- Improvement in the reliability, availability and safety of the métro network's operational stationary equipment (fewer service outages)
- Improvement in communications with clients (public address system and visual)
- Improvement in response times in the event of a service outage and reduced occurrence of outages
- Improvement in universal accessibility
- Upgrading of systems and equipment

#### **Réno-Infrastructures**

- Maintenance of the infrastructure's condition and reliability
- Maintenance of the métro network's availability and safety
- Improvement in universal accessibility
- Restoration of several works of art
- Upgrading of signage
- Upgrading of infrastructure

#### Financed projects - Update



## **Purchase of electric or hybrid buses\***

#### **Project description**

- The purchase of electric buses and hybrid biodiesel-electric buses is a key element in the STM's strategy toward electrification.
- Based on projections, the STM should hold a fleet of vehicles comprised entirely of electric and/or hybrid vehicles from 2030 onwards.
- In addition, the STM has committed to buying only 100% electric buses from 2025 onwards, and to have a fully electric fleet by 2040 at the latest. The planned acquisition projects are also aimed at meeting the government's ambitious target of having 55% of the fleet electrified by 2030.
- The 12-metre bus fleet includes a number of buses that are 16 years old or older. To reduce the age of the fleet, the STM will purchase up to 450 12-metre electric buses starting in 2025. This will not only reduce the average age of the fleet, but will also make it possible to reduce GHG emissions and increase the electrification rate of the bus fleet to 12% starting in 2026.
- Phase 2 of the 12-metre (electric or hybrid) bus acquisition project aimed, for the period 2019 to 2022, the acquisition of 562 buses:
  - 528 hybrid buses;
  - 30 electric buses with garage charging added to the fleet;
  - 4 fast-charging electric buses added to the fleet.

#### **Project progress**

- In 2022, the STM added to its fleet 104 hybrid buses and disposed of 82 diesel buses at the end of their useful life. As a result, the share of electric or hybrid buses in the bus fleet increased from 38.8% in 2021 to 43.2% in 2022.
- As of March 31, 2023, there were 41 electric buses and 837 hybrid buses on the road. Of these 878 buses, 871 were air-conditioned.
  - The acquisition and integration of 28 electric and 154 hybrid buses were financed with the proceeds from Québec's Green Bond program.



\* Since June 2022, the Green Bond program no longer finances hybrid buses, only electric buses.

## **Extension of the Montréal métro's Blue line**



#### **Project description**

The Blue Line extension project includes:

- 5 new universally accessible métro stations, for a tunnel length of approximately 6 kilometres
- 2 bus terminals
- 1 pedestrian tunnel providing a link to the new Pie-IX bus rapid transit (BRT)
- 1 pedestrian connection under Highway 25 to join the two access buildings of the Anjou station
- Equipment and operational infrastructure:
  - seven auxiliary structures containing equipment necessary for operation;
  - a district post;
  - a service centre for infrastructure maintenance;
  - a métro garage.

The Project aims to obtain Envision recognition in sustainable development. Compliance with this framework makes it possible to reduce the impacts during the construction and operation of the extension of the blue line (consumption of resources, energy, water, reduction of GHG emissions, etc.) while maximizing the benefits for the environment and community.



#### New infrastructure plan

#### **Benefits**

- Improvement in mobility in the metropolitan region of Montréal
- Promotion of sustainable
  mobility
- Support for urban and economic development
- Consolidation of the public .
  transportation network .



## Main sustainability-related advantages

- Increase the modal share by increasing its service offer and increasing ridership
- Reduction of GHGs per passenger-kilometre



#### **Project progress**

- Geotechnical study and archeological excavation at targeted locations
- Preparatory work and building deconstruction at several sites
- Tender period for tunnel construction by tunnel boring machine ongoing
- Start of excavation work for future stations and auxiliary structures planned for early 2024
- Inauguration of the entire section postponed to 2029

Find out the details of the progress of the extension works<sup>1</sup>

1 <u>http://www.stm.info/en/info/service-updates/stm-works</u>

## LEED Project – Bellechasse bus garage



#### **Project description**

- The Bellechasse bus garage will be the STM's first garage designed to accommodate a fleet of 100% electric buses. This new centre will thus contribute to the Québec government's electrification plan.
- This project, as part of the STM's strategy to add 300 new air-conditioned hybrid buses to its fleet, announced in January 2018, will also allow an increase in the service offer.
- This bus garage will accommodate up to 250 buses-equivalent. The layout of the building will be planned to accommodate new technologies, which will allow the maintenance of all types of vehicles (standard, hybrid and electric). This concept of multistage underground building with indoor circulation will also reduce noise in the neighbourhood.
- The innovative concept of the bus garage will improve working conditions and quality of life in the area. The administrative sections and certain zones dedicated to employees will be universally accessible.

In addition, the STM aims to obtain LEED Gold level certification for this new building, one of the highest certification in the industry, in order to meet the objectives of sustainable development.

## Main sustainability-related advantages

- Energy savings of more than 60% and reduction in GHG emissions of approximately 85%, thanks to a high energy efficiency system
- Reduction of heat islands thanks to significant greening, part of which will be accessible to the public
- Reduction in drinking water consumption thanks to efficient equipment and the recycling
   of water from the bus wash
- Maximized diversion rate from the landfilling of construction, renovation and demolition residues/waste

#### **Project progress**

- Work began in spring 2019.
- The first phase, during which the STM carried out the preparatory work, i.e., the demolition of the building, the removal of materials and residues, the decontamination of the soil and the excavation of the rock, is completed.
- The second phase, i.e., the construction of the new transportation centre, is underway.
- As of March 31, 2023, work is at 75% physical progress.
- The completion of the building is currently scheduled for 2024.





Financed projects - Update

## Accessibility program

# Photo: Julien Perron-Gagné

#### **Project description**

- In 2016, the STM launched the Accessibility program. It seeks to enhance physical access to the STM's métro infrastructure, facilitate vertical travel, further build customer loyalty and improve customer service.
- What is more, the Accessibility program, together with the ongoing initiative of the "programme d'apprentissage au transport collectif destiné à la clientèle ayant des limitations fonctionnelles", should facilitate the transfer of part of the clientele for paratransit to the regular network.
- The STM aims to make more stations accessible by 2028:
  - The stations to be made accessible have been chosen according to passenger traffic and their distribution on the network.\*
  - These new stations will contribute to providing coverage that meets the main needs of passengers with functional limitations, while helping to tend towards a balanced distribution in the network.

## Main sustainability-related advantages

- Broader reliance on public transit through the regular network, which will reduce travel-related airborne emissions
- A diversion rate of at least 75% of construction, renovation and demolition waste
- LED lighting in new entrances
- Limitation of heat islands by means of exterior layouts that can maximize greening with low-maintenance species
- The creation of a green roof is contemplated when new entrances must be built

\* For more information on the station under construction and on the various selection criteria, you can consult the <u>STM website</u>.

#### **Main social benefits**

- Public transit is made accessible to the greatest number of users, especially passengers with functional limitations, the elderly and families with young children travelling with strollers
- Commitments by STM stakeholders:
  - consider the needs of passengers with functional limitations expressed in recent years
  - evaluate social acceptability by means of feasibility studies
  - adopt mitigation measures during the work to limit nuisance for the clientele, residents and vehicle traffic



## Evolution of the proportion of buses with a front ramp from 2016 to 2022

Year	2016	2017	2018	2019	2020	2021	2022
Proportion of buses with a front ramp	55.6%	59.8%	67.7%	73.4%	81.9%	85.2%	89.2%

## **Evolution of the number of buses with two wheelchair spaces for customers from 2018 to 2022**

Year	2018	2019	2020	2021	2022
Number of buses with two spaces	100	314	536	616	861

#### Evolution of the number of stations accessible by elevator

Year	2021	2022	2025
Number of stations equipped with elevators	19/68	25/68, i.e., 37% of the network	Revised target: 30/68

#### **Project progress**

As of March 31, 2023:

- 26 stations are universally accessible
- 5 are under construction for the installation of elevators
- 5 are in planning (engineering) for future accessibility work

By 2025, 30 stations should have been made accessible

#### Financed projects - Update

Photo:

Le tramway de Québec Ville de Québec

## Québec city tramway

#### **Project description**

- The city of Québec is implementing the tramway, the biggest infrastructure project in its history. It reflects the priorities of the governments of Québec and Canada with respect to sustainable mobility:
  - improve travel
  - reduce air pollution
  - bolster communities
  - spur economic growth
- Spanning 19.3 km, this modern, all-electric tramway will serve as the backbone of an enhanced public transit network throughout the city.
  - 29 stations, i.e., 5 transit hubs, 22 surface stations and 2 underground stations
  - a 1.8-km tunnel
  - 1 operations and maintenance centre
- The comfortable tramway will operate on a fixed schedule with frequent service. It will offer an attractive transportation solution that will alleviate road conditions, reduce environmental impact, and enhance the quality of life of residents.
- The Québec city tramway will be integrated into the proposed Réseau express de la Capitale (REC) and service offerings of the Réseau de transport de la

Capitale (RTC). The tramway will benefit the residents of the Québec city agglomeration and those of neighbouring municipalities. For example, it will be possible to park free of charge in a Parc-O-Bus before entering heavily congested zones. The routes of many of the buses using these reserved lanes will connect with the tramway's stations and transit hubs.

• Depending on the sectors, the new network will thus capitalize on transportation solutions adapted to travel needs in the agglomeration.





Note:

Data taken from the RTC's <u>Analyse des temps de parcours</u> (2019) and Rapport d'achalandage 2022 (both documents in French only).

#### **Project progress**

#### 2029

Tramway commissioning

#### 2024-2029

Tramway construction work

- Municipal and transportation infrastructure work
- Acquisition and delivery of the rolling stock (tramway) and its related systems
- Completion of compliance tests

#### 2020-2024

#### **Preparatory work**

For more information on the main stages of the project, ongoing and upcoming work, environmental benefits and more, visit the Québec city tramway website at: <u>tramwaydequebec.info</u> (in French only).

#### **Benefits**

- Enhanced travel
  - Improved transportation offerings
  - Enhanced mobility and accessibility
  - Limitation of the deterioration in traffic conditions
- Substantial positive economic spinoff for the city of Québec
  - More than 18 970 jobs created (through the construction of the tramway)
    - Nearly 12 000 direct jobs
    - Nearly 7 000 indirect jobs
  - An incentive for active transportation
- Improved urban infrastructure
- Redevelopment of public spaces and vegetation contributing to the quality of life

## Main sustainability-related advantages

- Reduced GHG emissions
- Improved air quality
- Mitigation of heat islands in urban environments

For more information on the benefits of the project, you can consult the Québec city tramway website (in French only): tramwaydequebec.info/benefices.



## Estimated benefits for the environment

- Electric or hybrid buses
- Métro AZUR and electric or hybrid buses
- Société de transport de Montréal
- Québec city tramway

## **Electric or hybrid\* buses**

#### **Estimated benefits for the environment**

- Thanks to electric or hybrid buses, the STM aims to reduce GHG emissions per seat-kilometre from buses by 6.0% (from 33.0 g CO<sub>2</sub> eq. per seat-kilometre in 2015 to 31.1 g CO<sub>2</sub> eq. per seat-kilometre in 2025).
- GHG emissions from buses (fuel and refrigerant leak) per seat-kilometre decreased by 2% in 2022 due to a 4.4% decrease in GHG emissions from buses, which is greater than the 2.2% decrease in seat-kilometres.
- Electric and hybrid buses have the advantage of replacing diesel buses, which reduces fuel consumption and GHG emissions for every kilometre travelled.



The 2025 target has been exceeded since 2019.





2019

2020

2021

2022 2020

#### Bus GHG emissions per seat-km

2016

2017

2018

2015

\* Since June 2022, the Green Bond program no longer finances hybrid buses, only electric buses.

2025

## Métro AZUR and electric or hybrid\* buses

#### **Estimated benefits for the environment**

Thanks to, among other things, AZUR cars and electric or hybrid buses, the STM aims to:

 Reach 440 million public transit trips on the STM network by 2025:

**Ridership based on sales** 



## Increase electric-powered travel on its network from 69.5% to 88.6% in 2025:

#### Percentage of trips made using electricity



• Reduce GHG emissions per passenger-kilometre by 6% between 2015 and 2025:

#### Total GHG emissions per passenger-km

 $(g CO_2 eq.)$ 



Note: The emission factors used for the GHG emissions inventory were updated following the publication of the National Inventory Report 1990-2020: Greenhouse Gas Sources and Sinks in Canada and the document CO<sub>2</sub> Emissions and Hydro-Québec Electricity, 1990-2021. The emission factors used for fugitive emissions as well as all combustion emission factors (for all years) were updated using data from the "Fifth Assessment Report" of the Intergovernmental Panel on Climate Change (IPCC).

\* Since June 2022, the Green Bond program no longer finances hybrid buses, only electric buses.

## Société de transport de Montréal

#### GHG emissions per passenger-kilometre

GHG emissions per passenger-kilometre, that is, the ratio between the STM's total GHG emissions and the cumulative distances travelled by its customers on the network in a year, decreased from 83 g CO<sub>2</sub> eq. in 2021 to 56.6 g CO<sub>2</sub> eq. in 2022. This decrease is primarily due to an increase in ridership from 2021 to 2022. However, the post-pandemic rebound in ridership is not yet significant enough to allow a return to the 2019 level.



#### **Total GHG emissions (STM)**

The STM is a major player in the fight against climate change. In the Montréal region, for every tonne of GHG emitted by the STM's operations, 20 can be avoided. In addition to this regional contribution, the STM aims to set an example by reducing its own emissions and by being a leader in the field of electromobility.

The STM's GHG footprint decreased slightly in 2022; total GHG emissions decreased by 2.3% compared to 2021, to 139 985 t  $CO_2$  eq.

These results are mainly due to:

- the 4.4% decrease in GHG emissions from buses related to fuel consumption, which account for 75% of all STM emissions, particularly due to the fact that the total number of kilometres travelled by buses decreased by 3% and the proportion of electric or hybrid buses is increasing;
- the proportion of renewable fuel, which increased from 3.6% to 5%;
- the 13% decrease in GHG emissions from paratransit minibuses due to the lifting of restrictions on the number of passengers per minibus imposed under COVID-19;
- the 24.4% increase in GHG emissions from paratransit cabs due to increased trips;
- the 4% increase in gas consumption for heating surface buildings, mainly due to the increase in the surface of three transportation centre expansions and the Crémazie plant;
- the 34.9% increase in fugitive refrigerant emissions, which represent 1.2% of total GHG emissions, primarily due to a breakdown in air conditioning equipment in one building and, to a lesser degree, the addition of air-conditioned buses and their estimated refrigerant leaks.

#### Total GHG emissions from 2015 to 2022 by type of emissions (STM)

(tonnes CO<sub>2</sub> eq.)

	Reference year 2015	2019	2020	2021	2022	Difference 2021-2022
Level 1 emissions	160 156	154 000	142 727	140 676	136 714	-2.8%
Level 2 emissions	402	200	230	232	234	0.6%
Level 3 emissions	3 804	4 473	2 110	2 442	3 037	24.4%
Total emissions	164 362	158 673	145 068	143 350	139 985	-2.3%

#### STM 2022 - A few numbers 🖹 🛲 🌣 🛉 🛉 Y 2.3% 43.3% 85.8% reduction in total GHG of trips using electricity emissions compared to 2021 of buses are electric or hybrid 87% **3** ongoing **75.7%** construction of residual materials are of the value of current contracts that incorporate sustainability criteria projects aim for LEED certification or Envision recognition \$3.4 billion 6714 Envision Gold level sustainability recognition for the Vendôme project psychosocial intervention for homeless people in Green Bonds for STM projects

#### STM - as at December 31, 2022

Notes: The emission factors used for the GHG emissions inventory were updated following the publication of the National Inventory Report 1990-2021: Greenhouse Gas Sources and Sinks in Canada.

In order to align the data with the *Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*, the global warming potential of all emission factors has been retroactively updated.

#### 10 464 38.2% from ethnic, visible and Aboriginal minorities

Number

of employees

**23.4%** 

#### Find out more:

- More information on the STM's calculation methodology
- Sustainable Development Reports for 2022 (French only)
- Complete Table of Sustainable Development Indicators for 2015-2022 (French only)
- GRI Content Index 2022 (French only)

## Québec city tramway

#### **Estimated benefits for the environment**

The implementation of the Québec city tramway will have prevented the emission of 89 000 tonnes of  $CO_2$  in 2041, that is, after 15 years of operation. This gain will be due almost exclusively to modal shift, in other words, people switching from the automobile to other modes of public transit, including the tramway. The project will reach carbon neutrality in the 11<sup>th</sup> year of the tramway's operation.

## Objective: 35% of the tramway's platform must be vegetated

This vegetated corridor, combined with a selection of varied tree species, will promote biodiversity while reducing heat islands.

#### GHG footprint according to the median scenario

Tonnes of  $CO_2$  avoided exclude  $CO_2$  capture from reforestation efforts. The city's ambitious revegetation strategy to offset the 1584 trees that will be cut down for the tramway will generate a significant additional gain for the environment. In fact, to offset the cutting down of these trees in terms of  $CO_2$  capture, a total of 3 492 trees would have to be planted. However, 30 000 trees will be planted, a ratio of 20 trees for each tree removed in the targeted neighbourhoods, resulting in a net carbon capture of approximately 583 tonnes of  $CO_2$  per year. If this figure were included in the project's GHG assessment, the project's carbon balance could be achieved two years earlier, in the 9<sup>th</sup> year of the tramway's operation.

#### See:

Nouveau bilan GES du tramway : 89 000 tonnes de CO<sub>2</sub> évitées (in French only)

SYSTRA Canada, <u>Bilan GES du tramway en phase travaux</u> <u>et en phase exploitation</u> (April 2022, in French only)

Work	127 330 t CO <sub>2</sub> emitted during construction						
Operation	1 <sup>st</sup> year of commissioning	7 years after commissioning	9 years after commissioning	12 years after commissioning	15 years after commissioning		
	t CO <sub>2</sub> avoided	t CO <sub>2</sub> avoided	t CO <sub>2</sub> avoided	t CO <sub>2</sub> avoided	t CO <sub>2</sub> avoided		
	12 685	99 134	140 543	170 039	216 809		
Balance		89 479					

Source: According to SYSTRA Canada, "Bilan GES du tramway en phase travaux et en phase exploitation", 2022.

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## Green Bond Newsletter

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