

GREEN BOND NEWSLETTER

PROVINCE OF QUÉBEC

April 2019

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QUÉBEC GREEN BOND PROGRAM

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

Québec is a member of the GBP group since October 2018.

To demonstrate its commitment to protecting the environment, as to developing the Green Bond market, Québec put in place a Green Bond program in February 2017.

- Since then, the Québec government has launched four Green Bond issues, and has committed to being a regular issuer on the Green Bond market.
- Québec is promoting its Green Bond program in a dedicated section of the MFQ website: www.finances.gouv.qc.ca/Green-bond



Québec has committed to publishing an annual information bulletin for investors.





CICERO (Center for International Climate Research) issued an independent opinion on the framework and the selection process 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 our website.

Consult document¹
from CICERO

¹ http://www.finances.gouv.qc.ca/documents/Autres/en/AUTEN_Quebec_2nd_Opinion.pdf

QUÉBEC GREEN BOND ISSUES

	1 st issue 1.65% - March 3, 2022 (5-year)	2 nd issue 2.45% - March 1, 2023 (5-year)	3 rd issue 2.60% - July 6, 2025 (7-year)	4 th issue 2.25% - February 22, 2024 (5-year)
ISSUE SIZE	CAD 500 million	CAD 500 million	CAD 500 million	CAD 800 million
ORDER BOOK SIZE AND NUMBER OF INVESTORS	> CAD 1.1 billion > 60	> CAD 1.8 billion 50	> CAD 1.9 billion 55	> CAD 2.4 billion 55
PRICING DATE	February 24, 2017	February 22, 2018	June 28, 2018	February 14, 2019
REOFFER SPREAD	+57.0 bps (CAN 0.50% March 1, 2022)	+38.0 bps (CAN 1.75% March 1, 2023)	+52.5 bps (CAN 2.25% June 1, 2025)	+46.0 bps (CAN 2.25% March 1, 2024)
FORMAT	Global			
EXCHANGES	Luxembourg Green Exchange (LGX) - Euro MTF Market			
LEADS	HSBC, RBC and TD	CIBC, HSBC, RBC and TD		BMO, CIBC, HSBC and RBC
SENIOR CO-LEADS	SEB		SEB and BMO	SEB and TD
GREEN MANDATE OR UN PRI SIGNATORIES	> 90%	> 85%	> 90%	94%
DOMESTIC / INTERNATIONAL INVESTORS	60% / 40%	79% / 21%	86% / 14%	80% / 20%
PROJECT CATEGORIES	Public transit			
ELIGIBLE PROJECTS	AZUR métro cars, Réno-Systèmes, Réno-Infrastructures and hybrid bus purchase		Réseau express métropolitain (REM)	REM, Réno-Systèmes, Réno-Infrastructures and hybrid bus purchase
ALIGNMENT WITH THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (SDG)	<div> <div>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</div>  </div> <div> <div>11 SUSTAINABLE CITIES AND COMMUNITIES</div>  </div>			
INCLUSIONS IN GREEN BOND INDICES	Bloomberg Barclays MSCI Green Bond Index BofA Merrill Lynch Green Bond Index Solactive Green Bond Index S&P Green Bond Index			

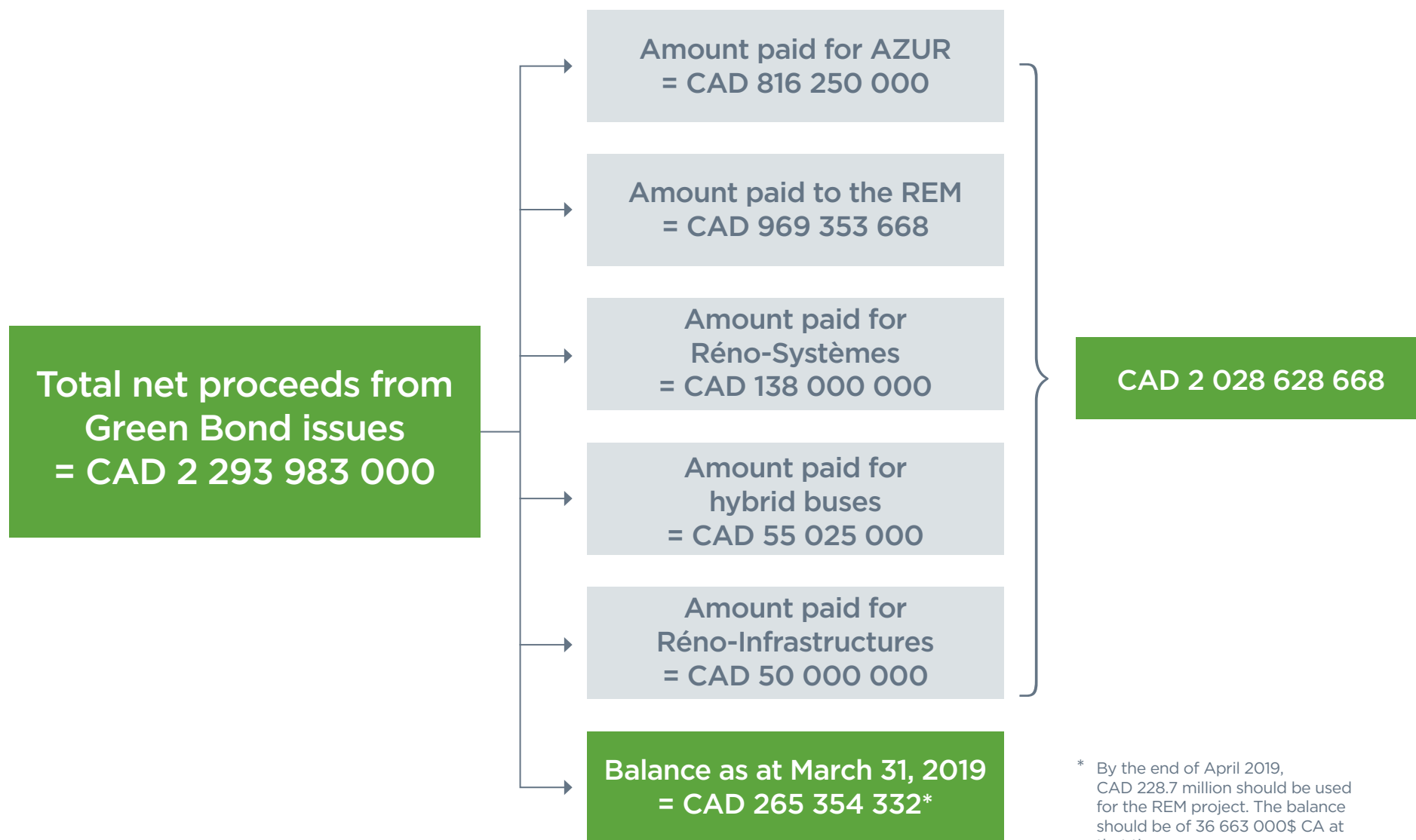
USE OF PROCEEDS FROM QUÉBEC GREEN BONDS

USE OF PROCEEDS AS AT MARCH 31, 2019

Balance as at January 31, 2018		CAD 975 000
Net proceeds from second Green Bond issue	CAD 498 525 000	
Proceeds used for the AZUR métro cars project	(CAD 318 500 000)	
Proceeds used for the Réno-Systèmes project	(CAD 75 000 000)	
Proceeds used for the hybrid bus purchase project	(CAD 55 025 000)	
Proceeds used for the Réno-Infrastructures project	(CAD 50 000 000)	
	CAD 0	
Net proceeds from third Green Bond issue	CAD 498 045 000	
Proceeds used for the REM project	(CAD 498 045 000)	
	CAD 0	
Net proceeds from fourth Green Bond issue	CAD 798 688 000	
Proceeds used for the REM project	(CAD 471 308 668)	
Proceeds used for the Réno-Systèmes project	(CAD 63 000 000)	
	CAD 264 379 332	
Balance as at March 31, 2019		CAD 265 354 332
Proceeds to be used for the REM project*	(CAD 228 691 332)	
Balance expected by the end of April 2019		CAD 36 663 000

* Amount that should be paid by the end of April 2019.

USE OF PROCEEDS FROM QUÉBEC GREEN BONDS



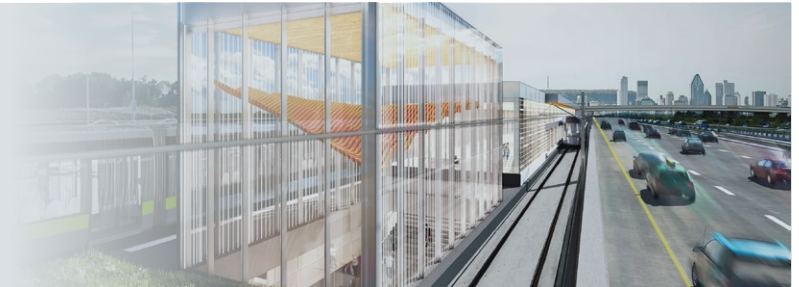
ALLOCATION OF GREEN BOND PROCEEDS



Project Name	Category	1 st issue: Final Funding Allocation	2 nd issue: Final Funding Allocation	3 rd issue: Final Funding Allocation	4 th issue: Potential Funding Allocation
New AZUR métro cars	Public transit	100%	64%	0%	0%
Réno-Systèmes	Public transit	0%	15%	0%	[0-15]%
Réno-Infrastructures	Public transit	0%	10%	0%	
Hybrid bus purchase	Public transit	0%	11%	0%	[0-10]%
Réseau express métropolitain (REM)	Public transit	0%	0%	100%	[75-100]%

FINANCED PROJECTS – UPDATE

RÉSEAU EXPRESS MÉTROPOLITAIN (REM)



REM IN NUMBERS

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

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

The REM is a project worth 6.3 billion Canadian dollars. The Québec government made an equity investment of \$1.28 billion. It will finance the investment, in total or in part, by issuing Green Bonds.

A FEW NUMBERS:

- **4 directions from downtown Montréal (South Shore, Montréal-Trudeau Airport, Sainte-Anne-de-Bellevue, Deux-Montagnes)**
- **26 stations**
- **3 connections with the métro (Bonaventure, McGill and Édouard-Montpetit stations)**
- **67 km of tracks**
- **100% electric**
- **2021-2023: progressive commissioning of the REM**
- **34 000 direct and indirect jobs created in Québec during the construction phase and more than 1 000 permanent jobs once the REM starts running**
- **\$6.3 billion for the construction of the project**

MAIN SUSTAINABILITY ADVANTAGES

- Increase in public transit use, and reduction in car use and the associated social costs
- Decrease of nearly 680,000 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

FINANCED PROJECTS – UPDATE



RÉSEAU EXPRESS MÉTROPOLITAIN (REM)

NATURE OF THE WORK

Implementation of a new technology: automated electric light rail transit on fully dedicated lines (dedicated corridor)

- Construction of the South Shore, Airport and Sainte-Anne-de-Bellevue branches
- Reconversion of the infrastructures to accommodate a light métro on the Deux-Montagnes line (which will gradually replace the current commuter train service)
 - Elimination of level crossings
- Modernization of the Mont-Royal tunnel
- Construction of three connections with the métro (McGill, Édouard-Montpetit and Bonaventure) and one intermodal station (Correspondance A40)

CONSTRUCTION OF THE REM'S 26 STATIONS

Station buildings will be enclosed, sheltered from the elements and universally accessible

TIMELINE

LESS THAN TWO YEARS AFTER ITS UNVEILING, THE REM PROJECT BECOMES A REALITY.

Construction began in April 2018:

- The mobilization of worksites, drilling and relocation of public utilities began in the first few months.
- In the spring of 2018, a team of engineers and workers came together to start work on the sites. This work consisted essentially on excavating, preparing future REM railway and starting the construction of infrastructures.

Since the summer of 2018, work has been taking place simultaneously on the four branches of the REM (South Shore, McGill and Édouard-Montpetit, Deux-Montagnes Line, and Airport and West Island).

The first tests will be carried out at the end of 2020.

The first commuters will be able to use the train at the end of 2021 (segment between the South Shore and downtown Montréal).

The REM station located at Édouard-Montpetit will open in 2022 and will allow users to travel between this station and downtown Montréal in three minutes.

The remainder of the transit system will gradually come into service by mid-2023.

FINANCED PROJECTS – UPDATE



2018-2019 TIMELINE (REM)

1. DOWNTOWN MONTRÉAL: CONSTRUCTION OF THE ÉDOUARD-MONTPETIT AND MCGILL STATIONS

Édouard-Montpetit Station

- Construction work on the REM's Édouard-Montpetit station began on July 23, 2018. The first phase of the project has been completed (demolition of the Édouard-Montpetit métro station aedicule and relocation of public utilities).
- From September 17, 2018 to the fall of 2019, phase 2 of the construction work will be carried out (excavation of the shaft, galleries and tunnel). The work requires digging the rock to reach the Mont-Royal tunnel, where the REM's platforms will be located, and to build the station's infrastructures. Construction work will continue until 2022.

McGill Station

- The first phase of the construction work started in mid-September of 2018 and was completed before the holidays (relocation of public utilities). The second phase of the work began in January 2019 on De Maisonneuve Boulevard West, between Robert-Bourassa and McGill College. This phase consists of the construction of the underground pedestrian corridor that will link the future REM station to the existing métro station.
- Commissioning is scheduled for 2022.

Lachine Canal area

- The first phase of work began in November 2018 and will continue until the fall of 2019 (installation of the beams and deck of the elevated structure).
- Work in this area will continue until commissioning in 2021.

Marc Cantin area

- The caissons for the pillars of the elevated structure will be installed by the summer of 2019.



FINANCED PROJECTS – UPDATE



2018-2019 TIMELINE (REM)

2. SOUTH SHORE: CONSTRUCTION OF THE FIRST PILLARS OF THE REM

Du Quartier Station

- REM pillars have been under construction on the South Shore since mid-October 2018.

Panama Station

- Major work is carried out at the Panama terminal to build a new terminal and a new REM station. This will be carried out in stages over the next few years. The construction of a temporary terminal and parking lot as well as new roads started in September 2018, which resulted in the closure of 500 parking spaces at the terminal. The existing bus service will not be affected during this time. These temporary infrastructures will be commissioned sometime around June 2019.
- The Taschereau ramp is being redeveloped to accommodate the lanes reserved for buses during the transitional period.

Chevrier

- A new bus access ramp will be put into operation at the end of April when the Chevrier tunnel closes. Until the REM's planned commissioning, in 2021, the existing Chevrier terminal will continue to operate.

Creation of right-of-way on the Highway 10 median

- A temporary reconfiguration of the lanes going east was implemented in September 2018. This lane reconfiguration will be in effect for about two years.

Rive-Sud terminal station and Montée Gobeil

- Deforestation work and relocation of public utilities have been carried out on Montée Gobeil since early September 2018. This will allow the construction of a new viaduct to access the Rive-Sud terminal station directly from the highway.
- On the site of the future Rive-Sud terminal station, 15 pillars have been completed or are in the process of being completed.
- Rome Boulevard was widened to allow the construction of the access road to the future station.



FINANCED PROJECTS – UPDATE



2018-2019 TIMELINE (REM)

3. DEUX-MONTAGNES LINE: CONSTRUCTION OF MONT-ROYAL AND CANORA STATIONS

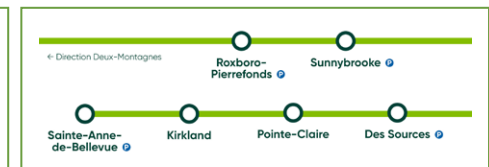
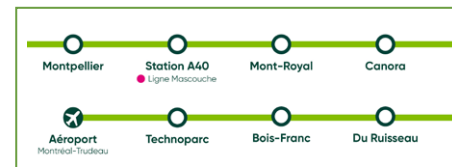
- Construction of the Canora and Mont-Royal stations, which will be among the first stations built, began on June 25, 2018 and is still ongoing. The Deux-Montagnes and Mascouche lines are now running on a single track (previously a double track) in the Ville de Mont-Royal sector to allow the construction of future stations.
- Other major works are planned in 2019: construction of the covered stations Canora, Mont Royal and Correspondance A40, and preparatory work for the future stations Du Ruisseau and Montpellier.
- Construction work on a temporary garage in Saint-Eustache has been underway since the summer of 2018.
- In January 2020, railway track replacement and the construction of engineering structures to replace level crossings will begin. The Gare Centrale – Du Ruisseau segment will be closed for about 24 months.
- In 2022, the segment from Du Ruisseau station to the Gare Centrale will be commissioned.



2018-2019 TIMELINE (REM)

4. WEST ISLAND AND THE AIRPORT: DEMOLITION OF PART OF THE DONEY RAILWAY SPUR

- The first phase of work (summer 2018 – start of 2020) is focused on the completion of the foundations for the elevated structure along Highway 40 and the former Doney railway spur (construction of the foundation units for the elevated structure along the route, installation of the superstructure, excavation in the Technoparc area, drilling of the airport tunnel).
- Since the summer of 2018, geotechnical drilling and relocation of public utilities have been underway in various industrial areas of the West Island, especially along the former Doney railway spur, which is currently being demolished.
- From mid-September to the end of October 2018, brush clearing and tree cutting work was carried out on different sites in Montréal's West Island in preparation for the construction work.
- Since the end of October 2018, the installation of caisson piles, the first step in the construction of the elevated structure, has begun.
- In November 2018, an old railway bridge over Highway 40 was dismantled. The work was coordinated with Mobilité Montréal.



FINANCED PROJECTS – UPDATE



ACQUISITION OF AZUR MÉTRO CARS

PROJECT DESCRIPTION

- On October 22, 2010, the Société de transport de Montréal (STM) signed a contract with the Bombardier-Alstom Consortium to purchase 468 métro cars (52 trains). This project, which spans several years, calls for a major investment of \$1.2 billion, financed jointly by the Ministère des Transports du Québec (75%) and the urban agglomeration of Montréal (25%). Following an agreement negotiated with the consortium for two additional trains, a total of 54 trains, consisting of nine cars, will be delivered to the STM.
- This project was designed to replace the 342 MR-63 cars and meet future needs related to traffic growth (63 cars) and métro extensions (63 cars).
- The replacement of the 342 MR-63 cars, which were running since the métro opened in 1966, marks a major change in the history of Montréal's public transit system. For 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. The last MR-63 métro cars were removed from the network on June 21, 2018.
- In November 2018, the governments of Québec and Canada announced that they would complete the acquisition of 17 additional AZUR trains to replace the MR-73 cars. These trains will be deployed on the Green Line. The delivery of these trains means that 90% of the service on this line will be provided by AZUR trains. The reception of these trains is scheduled for 2020 (7 trains) and 2021 (10 trains).
- Like trains in other major cities, including Munich, Berlin, Bangkok, Shanghai, Mexico, Delhi and Madrid, the nine-car AZUR trains are “boa”-type trains enabling passengers to move freely from one car to another.
- 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.

FINANCED PROJECTS – UPDATE

PROJECT PROGRESS

On April 28, 2014, the first AZUR prototype car, containing the driver's cab, arrived at the STM facilities.

In February 2016, after several months of testing, the first AZUR train was put into service on the Orange Line, the busiest line since the métro's extension to Laval.

By the end of 2016, the STM had put 12 trains into service.

In 2017, 22 trains were added to the 12 already received. The métro teams were thus able to put the new AZUR trains into service at a faster pace than expected. Indeed, 4 more trains than planned were put into service, and 2 trains were put in service for users on the Green Line, after being tested over the summer.

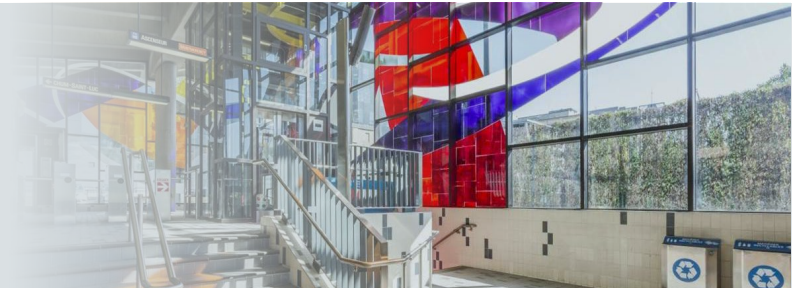
As at January 31, 2019:

- 52 AZUR trains had been transferred to the STM, and the last 2 trains should be delivered by the end of April 2019. Currently, 8 AZUR trains run on the Green Line and 44 on the Orange Line.
- 283 AZUR cars were financed with the proceeds from Québec's Green Bond Program.



FINANCED PROJECTS – UPDATE

ACQUISITION OF AZUR MÉTRO CARS



ESTIMATED BENEFITS FOR THE ENVIRONMENT

Thanks to the AZUR cars, the STM aims to:

- Reach 440 million public transit trips on the STM network by 2025:
 - real (2017): 429.5 million trips;
 - forecast (2018): 447.7 million trips;
 - target (2019): 452.9 million trips.
- Increase electric-powered travel on its network from 69.5% to 88.6% in 2025:
 - real (2017): 71.3%;
 - forecast (2018): 73.7%;
 - target (2019): 75.8%.
- Reduce GHG emissions per passenger-kilometre by 6% between 2015 and 2025:
 - real (2015): 47.5 g of CO₂ eq. per passenger-kilometre;
 - real (2017): 44.7 g of CO₂ eq. per passenger-kilometre;
 - forecast (2018): 43.7 g of CO₂ eq. per passenger-kilometre;
 - target (2019): 43.3 g of CO₂ eq. per passenger-kilometre.

RECLAMATION OF MR-63 CARS

Following the arrival of the AZUR métro cars, the 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 8 200 tonnes of MR-63 materials were reclaimed.



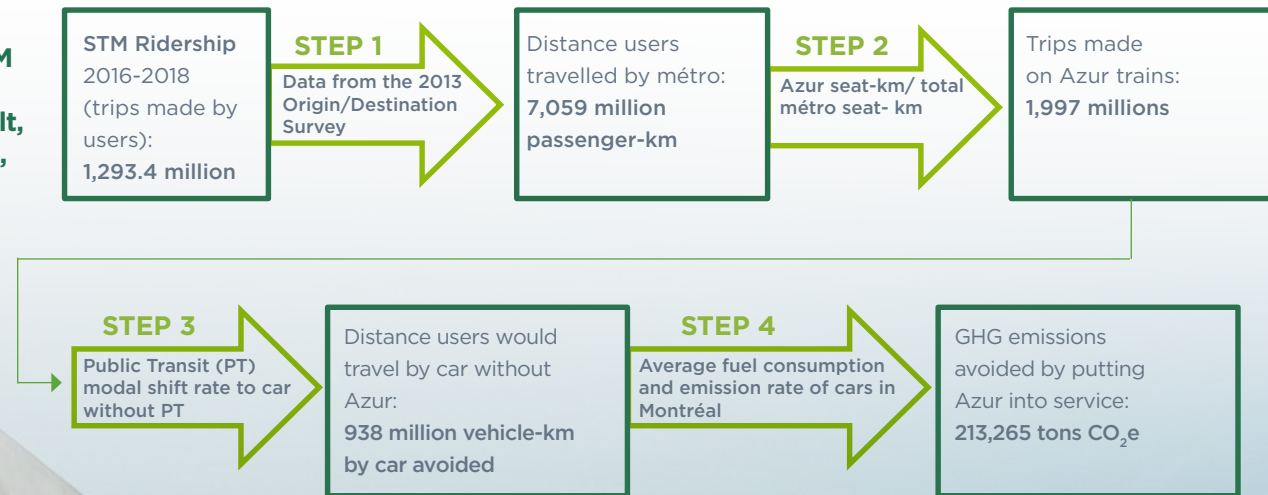
MR-63 RECLAMATION APPROACH HONOURED AT NOVÆ GALA

The quality of the work performed by the STM to ensure reclamation of the MR-63 cars, and its conclusive results, motivated the jury of the Novæ Citizen Enterprise Awards to present the STM with an award in the “Residual Materials Management” category. The Novæ Awards recognize best practices in sustainable development and social responsibility in Québec.

FINANCED PROJECTS – UPDATE

GHGS AVOIDED BY AZUR BETWEEN 2016 AND 2018

Mode shift to transit effect associated with AZUR: If AZUR had not been put into service from 2016 to 2018, the STM considers that a part of the métro service could not be offered. As a result, trips made on AZUR trains would have, in part, been made by car.



Note: More information on the STM's calculation methodology can be found at the following address http://www.stm.info/sites/default/files/media/doc/2019/ov_ghg_azur_hybrid_buses.pdf

FINANCED PROJECTS – UPDATE



RÉNO SYSTÈMES

PROJECT DESCRIPTION

The Réno-Systèmes program attends to the replacement, construction or refurbishment of the métro's network operational stationary equipment:

- Escalators, ventilation, elevators
- Rail equipment and switches
- Signaling and power supply equipment
- Telecommunications and operational control systems

ADVANTAGES

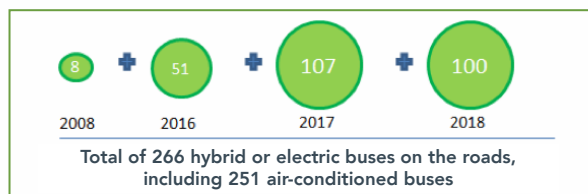
- Improvement in the reliability, availability and safety of the métro's network operational stationary equipment (fewer service outages)
- Improvement in communications (public address system)
- Improvement in response times in the event of a service outage
- Improvement in universal accessibility

FINANCED PROJECTS – UPDATE

PURCHASE OF HYBRID BUSES

PROJECT DESCRIPTION AND PROGRESS

- The purchase of hybrid biodiesel-electric buses is a key element in the STM's strategy toward electrification.
- In 2008, the STM began its shift to hybrid technology. Their vision was realized in 2016, and the park has been growing since then. In 2017, there were 166 buses using this technology on the city's roads, including 151 air-conditioned buses.
- In January 2018, the Québec government and the Ville de Montréal announced the acquisition of 300 additional air-conditioned hybrid buses by 2020.
- In 2018, there were 263 hybrid buses, of which 248 were air-conditioned, and 3 electric air-conditioned buses on the roads.
 - Of these, 48 buses were financed with the proceeds from Québec's Green Bond Program.
- In 2019, 146 new air-conditioned hybrid buses and 4 midibuses will replace diesel buses.
- Based on projections, the STM should hold a fleet of vehicles comprised entirely of hybrid and/or electric vehicles from 2029 onwards.
- In addition, the STM aims to buy only 100% electric buses from 2025 onwards, and to have a fully electric fleet by 2041.



ESTIMATED BENEFITS FOR THE ENVIRONMENT

- Thanks to hybrid buses, the STM aims to reduce GHG emissions per seat-kilometre from buses by 6.5% (from 33 g of CO₂ eq. per seat-kilometre in 2015 to 31.1 g of CO₂ eq. per seat-kilometre in 2025).
- Hybrid buses offer two main GHG-related benefits:
 - The GHG emissions avoided that correspond to car trips avoided by public transportation users. These benefits are quantified using the same method as for AZUR's benefits. Direct emissions from hybrid buses are deducted from these avoided GHGs.
 - Replacing diesel buses with hybrid buses reduces STM fuel consumption per km travelled.

Data in tons of CO ₂ e	Total 2016-2018
1. GHG emissions avoided by users (mode shift from car to hybrid buses)	-26 084
2. GHG emissions of hybrid buses	20 314
3. The STM's GHG emission reduction (fuel savings of hybrid buses vs. diesel buses)	-4 068
GHG Benefits of Hybrid Buses	-9 838

Note:
More information on the STM's calculation methodology can be found at the following address:
http://www.stm.info/sites/default/files/media/doc/2019/ov_ghg_azur_hybrid_buses.pdf

GREEN BOND NEWSLETTER

PROVINCE OF QUÉBEC – April 2019

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