RATP Green Bond
impact report

JUNE 2021

RATP GROUP

Moving towards a better city

Our five areas of expertise

RATP Group has developed unique time-honoured expertise as a multimodal operator and is one of the world's top four leaders in urban mobility. RATP Group relies on five areas of expertise to build the city of tomorrow.

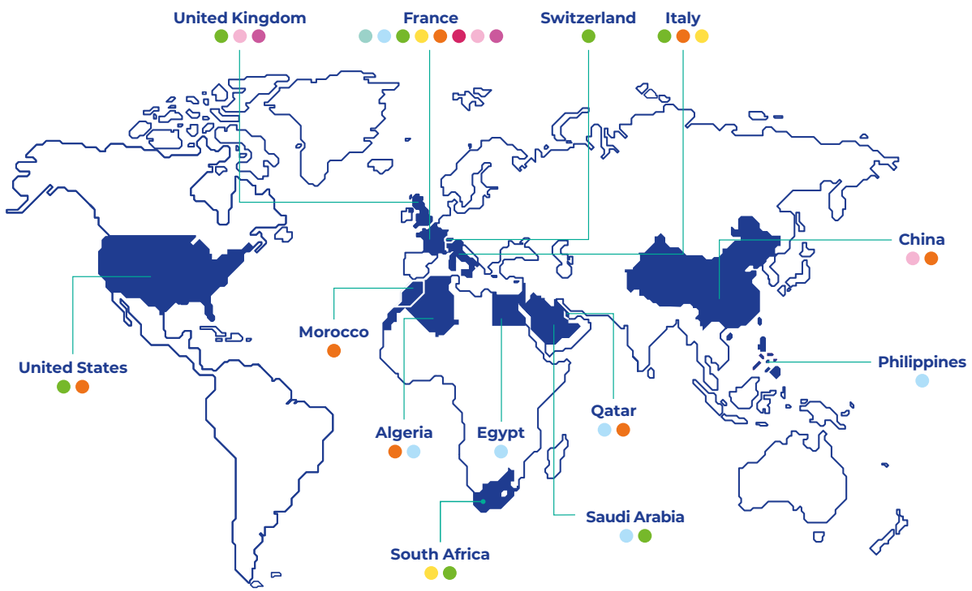
8 transport modes
operated

Metro · Tramway · Urban and interurban buses · Railway · Sightseeing · Demand-responsive transport · Cable car · Maritime shuttle

5 partnerships
in new forms of mobility

Scooters · Carpooling · Car sharing · Autonomous vehicle · Smart car park

13 countries
on 4 continents

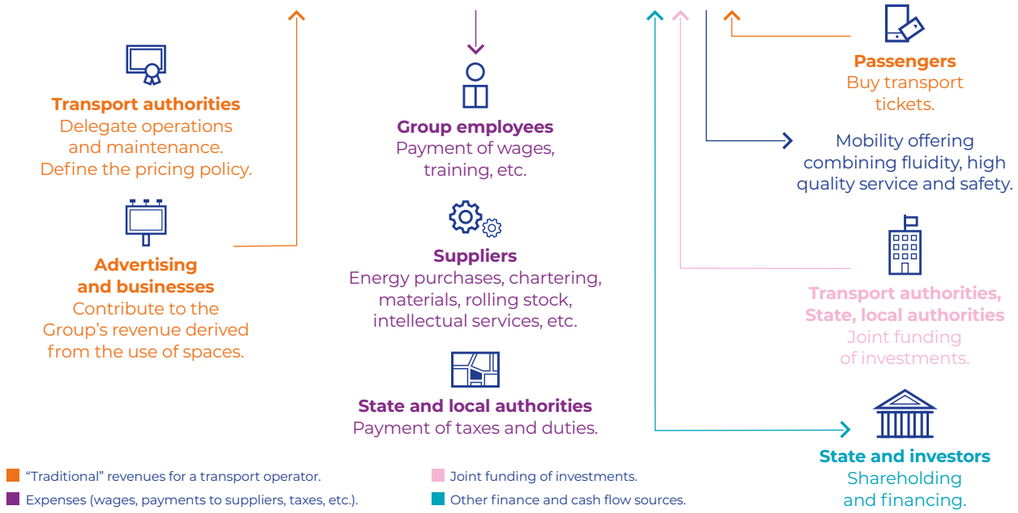


Urban mobility
An economic model integrating a vast ecosystem of stakeholders

RATP — **RATP** is a major player in urban public transport in the Île-de-France region and currently operates a multimodal network on which the company has the monopoly.

RATP CAP ÎLE-DE-FRANCE — **RATP CAP Île-de-France** is the subsidiary that develops and operates new urban and suburban transport markets in Île-de-France.

RATP DEV — **RATP Dev** is the subsidiary that develops and manages contracts for operating transport networks outside of RATP's traditional area, in France and internationally, via a hundred subsidiaries.



- "Traditional" revenues for a transport operator.
- Expenses (wages, payments to suppliers, taxes, etc.).
- Joint funding of investments.
- Other finance and cash flow sources.

Urban services

RATP Solutions Ville extends and completes RATP Group's core expertise by associating services dedicated to cities, which are overseen by four subsidiaries and exploring new activities (energy, urban logistics, etc.).

- **RATP Real Estate:** real estate management and engineering for RATP Group.
- **RATP Connect:** specialising in the roll-out of fibre optic.
- **RATP Habitat:** management and construction of social housing in Île-de-France.
- **RATP Capital Innovation:** acquisition of shareholding interests in targeted companies or investment funds in line with key innovation and development areas: new forms of mobility and smart cities.
- **RATP Smart Systems:** design, integration, operation, and maintenance of ticketing, multimodal information, and operational support systems.
- **RATP Travel Retail:** marketing and management of commercial spaces in transport networks.
- **RATP Maintenance Services:** maintenance of lifts and escalators and installation of security systems (airports, hospitals, large developments, etc.).

Infrastructure management

RATP manages the infrastructure of the metro and RER lines it operates. It is responsible for the maintenance and upgrading of existing infrastructure and for the technical management of the future Grand Paris Express network.

Engineering

The Group's expertise in engineering allows it to deliver safe solutions for all transport modes in a timely and cost-effective manner.

Systra: RATP participation with a 43.4% stake through RATP Coopération.

Sponsorship

For over twenty years, the RATP Group Foundation has embodied the human values of RATP Group. It supports general interest projects in the heart of the locations where we operate, in France and abroad.

RATP Group: a long-term commitment to Corporate Social Responsibility

RATP Group continues to demonstrate its commitment to being a world leader in urban, sustainable and connected mobility. Its drive is to be the privileged partner of smart cities.
The Corporate Social Responsibility (CSR) policy is fully in line with this goal and emphasizes the proactive and ambitious role that RATP is playing in energy transition and sustainable development.

The Group's CSR commitment has always been long-term and on a voluntary basis. It has shown promising results in its performance so far. In 2017, in addition to a new and even more ambitious CSR policy, it was natural for the Group to consider launching an inaugural Green Bond. The operation was renewed in 2019.

RATP Group naturally contributes to the UN's sustainable development goals. There is detailed information available in the 2020 Financial and CSR report.

SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD

Below, are some of the emblematic dates of this commitment:

1996
Creation of the first body for continuous communication with approved passenger associations

1999
Signing of the International Association of Public Transport (UITP) development charter

2003
UN Global Compact membership

2006
First energy policy

2009
First sustainable development policy

2011
Adoption of the first code of ethics

2014
Group's first CSR report

2015
Signing of the CSR charter for the Grand Paris contracts

2017
First issuance of green bonds, update of the sustainable development policy

2018
"CSR Commitment" label, "confirmed" level obtained by RATP. RATP Group joins the Forum of Committed Companies convened by Transparency International

2019
Second issuance of green bonds, new code of ethics and code of business conduct and corruption prevention

2020
Launch of the programme to define the Group's driving purpose within the organisation and beyond

The Group CSR policy is based on three strategies

Be a major player in mobility and sustainable cities

- Establish a connected and accessible mobility offering
- Act in favour of environmental health
- Encourage urban integration and functional diversity

Reduce our environmental footprint

- Reduce the carbon footprint and save resources
- Develop the circular economy
- Promote continuous improvement and eco-design measures

Confirm our social responsibility

- Contribute to the economic vitality and solidarity in regions
- Promote management that encourages staff commitment
- Ensure fair practices in its value chain

It is set out in a roadmap that is made available to our internal stakeholders and regularly updated:

Extra-financial ratings

• **ISO 26000, an external recognition in 2018:** RATP is the 1st multimodal transport operator in the world to be certified "Committed to CSR – confirmed level" by Afnor Certification. In October 2020, a follow-up audit, meant to take place mid-term between two renewal audits, was carried out. This follow-up evaluation confirmed the previous evaluation and demonstrated improvements.

• **2019 Results of RATP's rating by Vigeo Eiris**
Rank in sector: 2/22
In September 2020, Vigeo Eiris carried out an unsolicited assessment, based on the publications issued by RATP since its last assessment. The evaluation results confirmed those obtained in 2019.

ENGAGÉ RSE MODÈLE AFAQ 26000 Confirmé ★★ AFNOR CERTIFICATION

vigeo eiris

66 / 100 Advanced

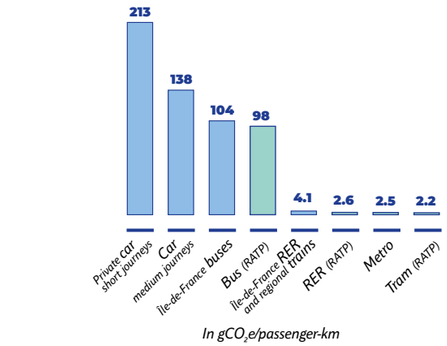
Energy transition and low carbon

Public transport is in and of itself the most ecological way to go from one place to another. Opting for public transport in the Île-de-France region means using only a fifth of the energy needed for the same trip by car. An RATP traveler using the metro, RER or tram emits 60 times less greenhouse gas than when they use a car.

1st network in the world to be 100% fitted with LEDs
1st multimodal network in the world to be ISO 50001 certified for all its operations
32% hybrid, electric or biomethane buses in the Île-de-France region fleet in 2020
2,000 managed bicycle parking spaces near metro and tram stations

Encouraging shared low-carbon mobility

CO_2e/passenger-km

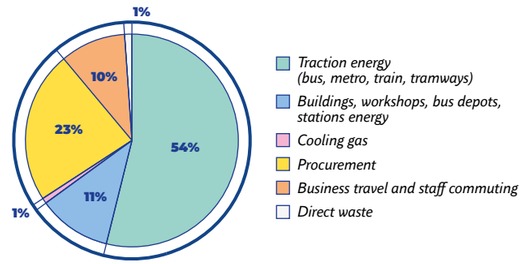


In gCO_2e/passenger-km

RATP has produced a carbon footprint report since 2005 (scopes 1, 2 and 3). This report is updated every three years. RATP's greenhouse gas emissions are broken down in the following way:

RATP's greenhouse gases emissions

Source: 2017 RATP parent company carbon footprint. The new version of the carbon footprint is in progress and will be based on 2019 data.

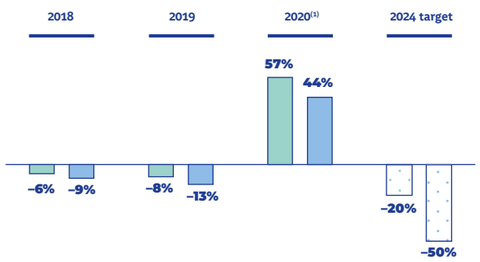


More details can be found on RATP's website: **ratp.fr.**

RATP introduced its energy policy in 2006. RATP Group obtained ISO 50001 certification for its energy management system for the first time in 2017 and became the first multi-modal transport operator in the world to receive this certification for all its activities. In 2020, it reconfirmed its commitment and renewed its energy management certification (ISO 50001).

RATP has set the goal to reduce its greenhouse gas emissions (GHG) by 50% between 2015 and 2025 and to reduce energy consumption by 20% within this same period.

Trends in energy consumption and GHG emissions – RATP



The indicators for 2020 are not representative of the energy and carbon performance actions undertaken. These indicators measure energy and carbon performance per passenger-kilometer travelled. As a result of the pandemic, RATP maintained its transport services at a high level to allow public transport mobility for essential workers. However, network passenger numbers (passenger-kilometers travelled) fell drastically (down 44% compared to 2015 and down 45% to 2019). The energy and climate trajectory will be re-examined when the situation is more stable, after the end of the pandemic (transport services and passenger numbers).

To achieve these goals, the Group has adopted an action plan implemented across its operations: passenger transport (metro, bus, RER, tram), management of the rail infrastructure network, engineering, maintenance and management of its real estate.

The RATP Green Bond issuance, dedicated to low-carbon and sustainable transport, is an opportunity to emphasize the group's strategy in terms of sustainability and climate change. It also enables RATP to diversify its investor base, thanks to a more action-oriented dialogue with Socially Responsible Investors.

Moreover, the RATP Green Bond will encourage other public transportation providers to fund rail investments and other low-carbon and sustainable transport investments, while complying with the highest standards of the Green Bond market.
The RATP Green Bond also encourage project management teams to integrate the carbon and energy criterion at an earlier stage in the design phase.

Our green bond program

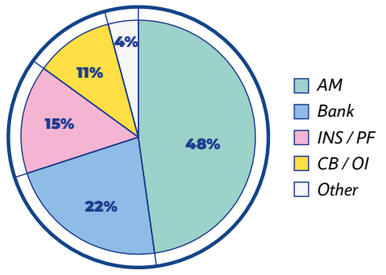
RATP is rated in compliance with standards from the French state on the following terms:

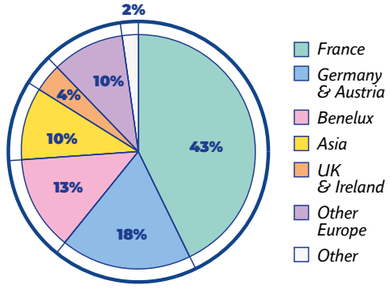
- Strategic importance as the owner and infrastructure manager of urban transport in Paris
- Strong state support – 100% state-ownership
- Legally protected from events such as insolvency and bankruptcy procedures by virtue of its Epic status (industrial and commercial public undertaking)
- Resilient budgetary performance and medium-term debt stabilization

Aligned with the Green Bond Principles

The Green Bond Principles

Typological and geographical distribution of investors





Main characteristics of the 2017 and 2019 operations

	2017	2019
ISSUER	**RATP**	**RATP**
RATING	Moody's: Aa2(St) Fitch: AA(St)	Moody's: Aa2(St) Fitch: AA(St)
ORDER BOOK	€1.6 billion	€1.8 billion
FINAL SIZE	€500 million	€500 million
ISSUE DATE	2017-06-22	2019-06-13
SETTLEMENT DATE	2017-06-29	2019-06-20
MATURITY DATE	2027-05-25	2029-06-20
PRICE/REOFFER YIELD	99.736% / 0.9030%	99.696% / 0.381%
COUPON	0.875%	0.350%
SPREAD	OAT interp + 30 bp	OAT interp + 26 bp

Eligible green projects summary

Projects financed by the RATP inaugural Green Bond in 2017

Renewal of rolling stock on RER line A, the busiest regional train in Europe

€250 million
financed by the bond
100% refinancing

Category: public transport rolling stock renovation and renewal

1 TWh energy savings
50,400 tCO_2e avoided

Automation of Paris metro line 4

€200 million
financed by the bond
100% new financing

Category: public transport infrastructures maintenance and renovation

140 GWh energy savings
6,700 tCO_2e avoided

Purchase of 100% electric maintenance RER shunters

€50 million
financed by the bond
100% new financing

Category: public transport rolling stock renovation and renewal

32 GWh energy savings
14,000 tCO_2e avoided

Projects financed by the RATP Green Bond in 2019

Bus2025: the ambitious RATP plan for a 100% ecologically friendly fleet in the Paris region

€250 million
financed by the bond (bus and depots)
56% new financing
44% refinancing

Category: other public transport low-carbon vehicles

143,000 tCO_2e avoided per year

Vaugirard Workshops: an industrial and urban project, an exemplary urban mix operation

€100 million
financed by the bond (workshops)
72% new financing
28% refinancing

Category: public transport infrastructures maintenance and renovation

Not available

New vehicles for metro line 14: more ergonomic vehicles with more capacity for an extended line

€150 million
financed by the bond (vehicles)
76% new financing
24% refinancing

Category: public transport rolling stock renovation and renewal

340 GWh energy savings
13,140 tCO_2e avoided

Description of projects financed and major benefits financed by bond proceeds in 2017

Project 1: automation of Paris metro line 4

Category 1
Public transport infrastructures maintenance and renovation
One project financed

€200 million
100% new financing

In the summer of 2013, RATP, the project owner, and Île-de-France Mobilités, the public transport authority, began the automation of metro line 4. The project should be completed in 2023. This automation project can be divided into five subprojects: infrastructure upgrades, platforms and platform doors, the automated system, rolling stock, and change management.

At the end of 2019, the infrastructure upgrades were complete: all the platforms had their height adapted and they had been reinforced to install platform doors. These steps were completed on schedule. More than half of the stations are now equipped with platform doors.

Unattended trains will be operated by a Communication Based Train Control system (CBTC) with a new Operation Control Center (OCC). The new OCC has been operational since May 2020.

Concerning rolling stock, predisposition works are finished for the first MP89C-MP05 and MP14 trains and automation mode trials have begun.

Finally, technical progress brought about by automation should also serve social progress: several social agreements were signed with the unions to organize the transition towards automation.

Major sustainable benefits

Line 4 main features

- North/south backbone of the Paris metro
- Built 1908-1910
- 1st sub-river crossing in 1910
- 14 km, 29 stations (27+2: extension in progress)
- The second busiest Parisian metro line after the line 1 with more than 700,000 passengers per day (172 million trips per year)
- Connected to all metro lines (13) and suburban lines (5)
- Sudden peaks in traffic demand
- Tourist areas, 3 major railway stations (TGV)

Project opportunities for line 4

- Redeployment of automatic 6-car trains from line 14
- Short-term renewal and/or modernisation needed on line 4 infrastructure
- Improvement of service quality offered by an automatic system (thanks to improved reliability, capacity, resilience and adaptability), for a line with an irregular and atypical traffic
- An opportunity that makes sense in the context of the Grand Paris Express project with its future connection to the South
- The project will improve the energy savings thanks to economic piloting of trains and the optimisation of regenerative breaking enabled by the automated system
- The project will reduce GHG emissions thanks to internal energy savings and modal shift

Project challenges

- A 100-year-old line and/or sensitive infrastructure
- No traffic interruption or works by night on a reduced time
- 3 different generations of automated rolling stock
- Line extension in parallel
- Difficult transition stages
- Exceptional concentration of worksites between 2015 and 2020
- Reduced schedule compared to line 1 automation
- Change management: technical progress should lead to social
- Progress and better service

Project benefits

- Improved safety (with platform screen doors and CBTC for train speed control)
- Improved security with CCTV in trains and stations
- Direct operational savings, energy savings
- Fewer delay related economic losses
- Improved capacity and reliability, and resilience
- Real time adaptability and/or tailoring the offer

140
GWh energy savings

6,700
tCO_2e saved

Description of projects financed and major benefits financed by bond proceeds in 2017

Project 1: renewal of rolling stock on RER line A

Category 2
Public transport rolling stock renovation and renewal.
Two projects financed

€250 million
100% refinancing

This project is part of a broad plan of modernization of the line, led by RATP and Île-de-France-Mobilités.

The challenge of this project is to modernize the vehicle fleet of the urban train line that gets the most use in Europe, with 305,000,000 passengers per year.
It consists of designing and supplying self-propelled elements with the group Alstom/Bombardier.
The first order of 130 pieces was placed in April 2009.

For the first time, RATP decided to draft a specification incorporating all the environmental issues considered necessary, going even beyond the regulatory constraints.

The first commercial commissioning in the presence of the President of the French Republic occurred in December 2011.

The Group placed an additional order of 10 items in July 2015.
The commercial operation of the 140th and last train ordered began in April 2017, i.e. six weeks ahead of contract schedule.

Major sustainable benefits

RER line A main features

- East/west backbone of the Paris regional train
- 1,200,000 passengers per day
- 109 km, 46 stations
- Connected to all the main metro and train station in Paris region

Project opportunities for line A

- Desaturation of a line victim of its success linked to the growing urbanism of the Paris region
- Further enhance the capacity of the line, in addition to the increased performance already made possible by automatic train control
- Modernise and standardise the materials used on the line
- Facilitate the operations in real time of trains injection in the network and maintenance, via a fleet of interchangeable rolling stock

Project challenges

- Renew the fleet in a minimum of time
- Adapting the infrastructure at the same time as the arrival of new vehicles

Project benefits

- Reduction of energy consumption
→ Energy savings and better regeneration (breaking energy recovery)
By transported traveller:
– 31% to 55% decrease in consumption of energy compared to the replaced trains
– 20% drop compared to the previous generation of trains at two levels of the RER A
- Reduction of consumption of used materials
→ Recyclability studies and analysis of the life cycle for what has changed compared to the previous generation of equipment to two levels according to ISO 22628
→ Recyclability rate reached
- 91.5%: reduction of noise emissions
→ Compliance with the TSI noise
- Several areas for wheelchair users
- Reducing the impact on the air
→ Work on the rate of wear of the friction material and braking by energy recovery privileged
- Controlled waste production
→ Sealing of the organs requiring oil/fat – reduction of waste in general

1
TWh energy savings

50,400
tCO_2e saved

Description of projects financed and major benefits financed by bond proceeds in 2017

Project 2: purchase of 100% electric maintenance RER shunters

Category 2
Public transport rolling stock renovation and renewal.
Two projects financed

€50 million
100% new financing

To improve the internal air quality in transport infrastructure, RATP Group decided to purchase fully-electric maintenance shunters for RER operations. The shunters are the locomotives used to tow the work trains in order to maintain the tracks and tunnels.

In March 2017, this led to the autonomous shunter contract for the design and the supply of 12 shunters with CAF/CAF France, and to placing an order for the first 12 items (6 more will be ordered later, if needed).

The studies are nearly finished. The production has started but quality management difficulties and the Covid crisis highly slowed down the project schedule.

CAF has committed to finalize production of the first 2 shunters by mid-2022 and, after a mandatory testing phase, to deliver them to RATP in April 2023.

The delivery of the last 10 shunters is scheduled at the rate of one per month in 2024. This will mark the end of the project, as far as the Green Bond proceeds extend.

Major sustainable benefits

Project opportunities

- Ensure coherence with the company's virtuous and eco-responsible approach towards air quality improvement and the environmental impact of public transport in Paris region reduction programme
- Participation to the Paris City policy "diesel fuel eradication by 2020"
- Anticipation in case of future indoor air quality regulations
- Studies and manufacturing of tractors are carried out by the French subsidiary of CAF based in Bagnères-de-Bigorre (Hautes-Pyrénées). This contract has allowed a hundred jobs to be kept in France for three years on the site and among subcontractors

Project challenges

- The development of a completely electric dual mode shunters: catenary 1,5 kV and embedded traction batteries
- At the time of the definition of the needs, there was no equipment available to be carried out on RATP sites
- Those devices are intended to intervene on the building rights that the catenary fed or not, they can also evolve on infrastructures not equipped with catenary

→ Routings and set-ups are carried out with the catenary feed whenever it is possible

→ The capacity of the traction batteries allows the execution of circulations on an infrastructure site. These circulations take place mainly during the period of interruption of the operation i.e. at night

Project environmental benefits

- Pollution prevention and control by a total eradication of diesel engine pollutant gas due to the actual shunters – 4 different diesel engines types – especially in tunnels
- Total suppression of diesel pollution in tunnels
- Improvement of the air quality to all passengers
- Improvement of health and safety and employment conditions by the reduction of RATP staff exposure to pollutant gas

32
GWh energy savings

14,000
tCO_2e saved

Description of financed projects and major benefits financed by bond proceeds in 2019

Project 1: Bus2025

Category 4
Other public transport
low-carbon vehicles
One project financed

€250 million

56% new financing
44% refinancing

The European Commission granted a €23 million subvention for the purchase of electric buses and the conversion of bus depots to electric power (for the Lagny, Corentin, Pleyel, Lilas and Lebrun bus depots) and to NGV-power (for the Massy, Bussy, Thiais and Nanterre bus depots) by 2025. With the funding, the Commission supports Île-de-France Mobilités' and RATP's commitment to their energy transition set out in the Bus2025 programme.

It is a 3-phase project:
• 2015: real-life trials;
• 2017: first deployment with the first huge bid to acquire electric buses;
• 2019: large scale deployment.
This is a double challenge: the depots must be transformed, and the minimization of the impact on the electric grid must be taken into account.

After the study phase, the site conversion projects are now being launched: at the beginning of 2021, 24 out of the 25 sites are in the project phase, with the aim of completing construction by mid-2024 (except for the Charlebourg site, which is undergoing a property development project):

• Construction in Créteil, Massy (biomethane), and Lagny and Corentin (electric) is completed. Construction in Bussy (biomethane) is partially operational.
• Construction has started on 6 additional sites: Thiais and Nanterre (biomethane), Pleyel, Lilas, Lebrun and Malakoff (electric).
• The other sites are under study, from the programme and AVP phases to the purchasing phases.

Rapid deployment of buses (600 buses per year from 2021 to 2025) is now in progress. RATP has implemented the necessary changes in the organization of operation and maintenance at the level of operational teams and central support teams to allow this process.

At the end of January 2021, the fleet of own buses consisted of 1,105 hybrid buses, 174 electric buses and 248 biomethane-powered buses.

Major sustainable benefits

• To stand out by meeting increasingly high expectations in terms of service level, performance and environmental impact.

• To be a pioneer in the operation of a fleet of large-scale clean energy buses.

• To offer a reliable, comfortable service, in line with the expectations of the passenger.

143,000

tCO_2e saved per year

Description of financed projects and major benefits financed by bond proceeds in 2019

Project 2: Vaugirard workshops

Category 1
Public transport infrastructures maintenance and renovation

€100 million

72% new financing
28% refinancing

The Vaugirard project involves redeveloping the maintenance workshops for metro line 12 while allowing them to continue their activities. The workshops will combine housing (including social housing), local shops, green spaces, and public and cultural facilities.
The innovative proposals devised by RATP will lead to the birth of a new district, with the creation of an urban road and a pedestrian alley way:
• two maintenance workshops: rolling stock and equipment;
• 285 housing units (50% social housing);
• a daycare center for children, food shops;
• 700 m² dedicated to urban agriculture and the largest green rooftop in Paris with 15,000 m².

The main phases of the project are:
• February 2019: laying the first stone;
• end of 2022: delivery of social housing, equipment maintenance workshops;
• 2023-2024: delivery of private dwellings;
• 2029: restructuring the train maintenance workshop, and delivery of other parts of the social housing units.

Work on phase 1 is in progress (12,000 m² of equipment maintenance workshop, a building with 35 private dwellings, another with 100 private dwellings also comprising a daycare center, and 104 social housing units). Phase 2 will consist of building the train maintenance workshop and a final set of 50 social housing units.

Major sustainable benefits

• A decrease to one third of the regular energy consumption between the new RATP workshops and the old ones, i.e. avoided GHG emissions of around 580 tCO_2e per year.
• The entire project is part of an "Environmental approach to urban planning" implemented by RATP Group in partnership with the Ademe (French Agency for the Environment and Energy Management).
• Thermic Regulation (RT 2012): –30% targeted energy consumption for dwellings
• Housing units are certified "habitat environment" and meet the requirements of eco-design. 50% are social housing.
• The project maintains employment of blue-collar workers in dense areas and the urban mix.

Description of financed projects and major benefits financed by bond proceeds in 2019

Project 1: new vehicles for metro lines

Category 2
Public transport rolling stock renovation and renewal

€150 million

76% new financing
24% refinancing

This project is funded equally by Île-de-France-Mobilités and RATP.

Metro line 14 was the first high-capacity automated metro line commissioned worldwide in 1998.
As the future backbone of the Grand Paris Express, and on the occasion of its extension to Mairie de Saint-Ouen in 2020 (Covid-19 impact), rolling stock will be renewed across the entire line (first order of 35 trains).
Three trains were put into service in 2020.

Major sustainable benefits

Energy savings
Thanks to the new generation of energy recovery braking systems and motors, 17% energy will be saved with the new vehicles on the line overall.

Air quality
Thanks to the electrical braking, there is a reduction in the emission of particles.

Social impacts and comfort
Each train will offer 48 seats for people with reduced mobility and 2 for wheelchairs. The vehicle will be completely accessible (wide circulation areas, new ergonomic seats).

40%

quieter:
–2dBA inside

Recyclability

95%

Allocation
of borrowed funds

Allocation report at category level

	Total amount of proceeds Target 2017	Total allocated amount in 2017 and %	Total allocated amount in 2018 and %	Total amount of proceeds Target 2019	Total allocated amount in 2019 and %	Total allocated amount in 2020 and %
Category 1: public transport infrastructures maintenance and renovation	€200 million	€44.85 million 22%	€104.52 million 52%	€300 million	€186.81 million 62%	€242.29 million 81%
Category 2: public transport rolling stock renovation and renewal	€300 million	€255.24 million 85%	€258.17 million 86,06%	€450 million	€298.55 million 66,35%	€301.98 million 67%
Category 3: modernisation of public transport stations and facilities	–	–	–	–	–	–
Category 4: other public transport low-carbon vehicles	–	–	–	€250 million	€110.12 million 44.04%	€250 million 100.00%
TOTAL inaugural Green Bond	€500 million	€300 million 60%	€362.69 million 73%	€1,000 million	€595.48 million 59%	€794.27 million 80%

Allocation report at project level

INVESTMENTS	2017		2018		2019		2020	
	Total amount of proceeds	Total allocated amount in 2017 and %	Total amount of proceeds	Total allocated amount in 2018 and %	Total amount of proceeds	Total allocated amount in 2019 and %	Total amount of proceeds	Total allocated amount in 2020 and %
Automation of Paris metro line 4	€200 million	€44.85 million 22%		€104.52 million 52%	–	€158.54 million 79%	–	€200 million 100%
Renewal of rolling stock on RER line A, the busiest regional train in Europe	€250 million	€250 million 100%		€250 million 100%	–	€250 million 100%	–	€250 million 100%
Purchase of 100% electric maintenance RER shunters	€50 million	€5.24 million 10%		€8.17 million 16%	–	€13.16 million 26%	–	€16.95 million 34%
Bus2025	–	–	–	–	€250 million	€110.12 million 44,05%	–	€250 million 100%
Vaugirard workshops	–	–	–	–	€100 million	€28.27 million 28%	–	€42.29 million 42%
New vehicles for metro lines	–	–	–	–	€150 million	€35.40 million 24%	–	35.03 million 23%
TOTAL inaugural Green Bond	€500 million	€300 million 60%		€362 million 73%	€1,000 million	€595.49 million 59%		€794.27 million 80%

Methodology
of the green bonds program indicators

For each investment, the potential energy savings and greenhouse gas (GHG) emissions avoidance has been estimated. The aim is to highlight the impact of each investment on the reduction of greenhouse gas (GHG) emissions and on the energy transition.

Only the direct effects of the operation phase of the projects have been taken into account. Thus, indirect effects such as emissions avoided when a passenger uses public transport instead of using their car are not included.

In the absence of reliable data, the GHG emissions and energy consumption associated with the equipment and rolling stock construction phase have not been included in the calculation.

GHG emissions measured are emissions associated with energy use.

Project: automation of Paris metro line 4

140	6,700
GWh energy savings	tCO_2e avoided

The automation of metro lines can directly generate energy savings. The automation offers the opportunity to create various types of circulating depending on the needs: "tight running" for peak hours and "coasting" for off-peak hours. These changes are aimed at optimizing:
- the acceleration and braking phases (eco-driving) and
- the synchronization of the train's departures and arrivals in stations in order to recover braking energy.

This impact has been estimated at:
- energy savings of 5 GWh per year;
- avoidance of 220 tCO_2e per year;
- 34 tCO_2e avoided/euro million invested.

Methodology

Ex ante evaluation
The evaluation is done ex-ante since the automation project for line 4 is currently being implemented.
The evaluation is based on RATP's experience in operating automatic lines. On Paris metro line 14, RATP measured the impact of similar implementations (eco-driving on an automatic line), based on its actual energy consumption. Three measurement campaigns were carried out by RATP in 2010 to evaluate the energy consumption of line 14.
The energy savings resulting from the implementation of these provisions on line 14 is estimated at 16%.
By analogy, the potential gain associated with the automation of line 4 is estimated at 10% of the consumption of the line (low hypothesis).

Emission factors used
Electricity consumption (France, transport use):
48 gCO_2e/kWh
Source: Ademe, April 2018, http://www.bilans-ges.ademe.fr/

Air quality
The automation of line 4 improves air quality by reducing the particles emissions of rolling stock.
In this way, automation offers the opportunity to increase electric braking with energy recovery, as a substitute for mechanical braking. In the braking phase, trains are able to restore their kinetic energy in the form of electricity to other trains: this is the electric braking energy recovery.
Synchronism (train pulling while another one is braking) is necessary for the energy exchanges to take place.
An ex-ante evaluation is carried out based on the feedback from RATP following the automation of line 14.
On line 14, RATP measured the impact of the consumption of friction materials (the main source of dust in underground railway enclosures) before and after implementing eco-driving. According to the calculations made, the implementation of eco-driving reduces the number of braking equipment by 53%.
Therefore, this calculation highlights a reduction of more than 50% of the main particle sources on line 14.
By analogy, following the automation of line 4, a significant decrease in the consumption of friction materials is expected and therefore a reduction of the concentration of particles associated in the station.

Social benefits
Many social co-benefits are also created as part of the metro automation projects "by RATP". In fact, the success of the automation of line 4 relies as much on its technical quality as on the control of the social subject associated with the project. The installation of automatic systems is more reliable but can also be more complex. Consequently, new skills and technicality need to be acquired both at the level of operations and maintenance. Therefore, the automated metro induces new work organizations creating new and more rewarding professions, with a greater variety of tasks. These jobs are higher-skilled and therefore better paid.

Line 14 was designed without a driver and inaugurated in 1998. Since it was a successful "managerial experiment", the automatic system has been integrated into the modernization program of the Paris metro as a whole. In regard to the unions, the modernization of the network was apprehended at a global level in which the automation of line 1 – in 2011 –, and the one of line 4 – currently taking place, was integrated. In addition, RATP is able to carry out the automation without major interruption of operations. Jobs must be adapted as work progresses. In addition to negotiations with the trade unions, a constructive dialogue has been set up between engineering, operations and maintenance departments. Staff members of the line benefit from an ongoing training program and specific supervision during the time they acquire the necessary skills to exercise their new profession in a constantly evolving context.

Project: renewal of rolling stock of the RER A

1	50,400
TWh energy savings	tCO_2e avoided

Rolling stock fleet modernization is an important lever for continuing to improve the energy performance of the transport networks operated by RATP.
The modernization of the RER line A rolling stock fleet with the arrival of MI09 has led to very significant advantages both in terms of energy consumption and associated GHG emissions.
The recovery and reuse of braking energy on the line is made possible thanks to the new equipment.
The environmental balance sheet on the depreciation period of the investment (30 years and 140 elements) is estimated at:
- energy savings of 1 TWh;
- 50,400 tCO_2e avoided;
- 202 tCO_2e avoided/euro million invested.

Methodology

Ex post evaluation

The evaluation is done ex-post. Energy savings and GHG emissions avoided by replacing the arrival of MI09 equipment had been estimated from measurements on a sample of the fleet.
The calculation is made over the life of the investment, i.e. 30 years.

Project: purchase of 100% electric maintenance RER shunters

32	14,000
GWh energy savings	tCO_2e avoided

RATP currently maintains the RER rail lines (line A and line B) with maintenance equipment running on diesel. With this investment, all of this maintenance will now be performed by electric locomotives. The project will therefore have a direct benefit in terms of both energy transition and GHG reduction.
The environmental balance sheet on the depreciation period of the investment (30 years and 12 locomotives) is estimated at:
- energy savings of 32 GWh;
- 14,000 tCO_2e avoided;
- 279 tCO_2e avoided/euro million invested.

Methodology

Ex ante evaluation

The evaluation is done ex-ante. Energy savings and avoided GHG emissions due to the replacement of diesel locomotives by electric locomotives are based on theoretical calculations. These calculations are carried out at the preliminary design studies stage. The calculation is made over the life of the investment, i.e. 30 years.

Air quality

By replacing the fleet of diesel tractors with electrical tractors, we obtain a 100% reduction in carbon monoxide emissions, hydrocarbons emissions, nitrogen oxides emissions and particles. Consequently, the impact is significant and immediate on air quality; especially underground (the main place of use of electrical tractors).
Indeed, the standard(1) emission on "phase 2" of diesel tractors in the current RATP fleet gives a maximum threshold of the net power category comprised between 130 and 560 KW:

Phase II: 01/2002	Mass of carbon monoxide – CO (g/kWh)	Mass of hydrocarbons – HC (g/kWh)	Mass nitrogen oxides – NOx (g/kWh)	Mass of particles (g/kWh)
Threshold	**3.5**	**1**	**6**	**0.2**
For 12 locotractors respecting the standard	**42**	**12**	**72**	**2**
Impact of the 12 electric locators of the investment as soon as they are used	**0**	**0**	**0**	**0**

(1) Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) no. 1024/2012 and (EU) no. 167/2013, and amending and repealing Directive 97/68/EC.

Project: MP14

Rolling stock fleet upgrades are an important lever for continuing to improve energy performance on the transport networks operated by RATP.
The upgrade of the fleet of metro rolling stock with the arrival of MP14 has led to very significant advantages both in terms of energy consumption and associated GHG emissions.
The new generation MP14-tyre rolling stock will circulate on lines 4, 11 and 14. The first trainsets were put into service on metro line 14 in 2020.
The recovery and reuse of braking energy on the line is made possible thanks to the new equipment.
The environmental balance sheet on the depreciation period of the investment (30 years) is estimated at:
- energy savings of 340 GWh;
- 13,140 tCO_2e avoided;
- 178 tCO_2e saved/euro million invested.

Methodology

Ex ante evaluation

The evaluation is done ex-ante. Energy savings and avoided GHG emissions due to the replacement of rolling stock are based on theoretical calculations. These calculations are made at the design study stage. The calculation is made over the life of the investment, i.e. 30 years.

Project: Bus2025

As a pioneer in energy and climate issues, RATP contributes to the energy transition and to improving outdoor air quality with the Bus2025 plan, which aims to provide a 100% low-carbon bus fleet. It is the first transport operator of this size to implement such an ambitious action plan.
In the long term, approximately half of the bus fleet will be electric, and the other half powered by renewable gas.
Bus GHG emissions represent around 72% of RATP's energy consumption-related GHG emissions. The Bus2025 plan, which is part of the Île-de-France region urban travel plan, thus has a big impact on RATP's carbon footprint.

Strictly considering the electric part of Bus2025 plan, the environmental balance sheet is estimated at 143,000 tCO_2e saved per year when the bus fleet will be fully converted (compared to the initial diesel bus fleet).

Methodology

Ex ante evaluation

The evaluation is done ex-ante. Avoided GHG emissions due to the replacement of buses are based on theoretical calculations.

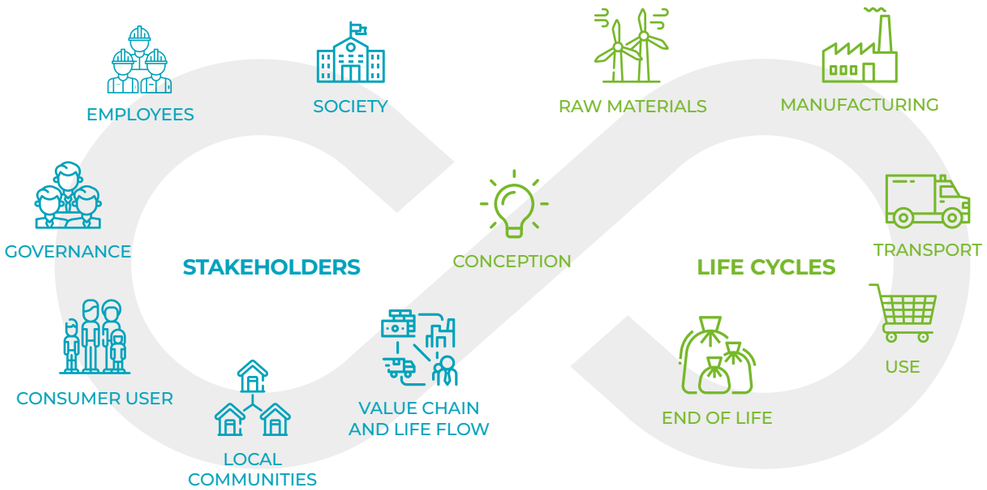
Project: Vaugirard

The Vaugirard workshops adaptation project should make it possible to accommodate new, more efficient rolling stock, particularly in terms of energy consumption, on Paris metro line 12.
An eco-design approach is implemented for this project.
Eco-socio-design is an approach to integrate environmental and social criteria from the design phase of a project.
This project is based on two approaches:
- infrastructure life cycle analysis;
- the integration of stakeholders.

This approach does not only seek to reduce negative impacts throughout the life cycle of the infrastructure, it must also make it possible to work on positive outcomes for its stakeholders and the environment.
In the case of the Vaugirard project, the 4 main lines of action of the approach are:
- quality of life at work *(qualité de vie au travail)*;
- enhanced thermal comfort in summer in the workshop, integrating the effects of climate change;
- improvement of the workshop's natural lighting conditions;
- eco-design;
- improving the future building's energy performance;
- limiting the carbon impact on the future building's life cycle.

At the design stage, the measures envisaged include the green roofs or the installation of equipment (BMS) allowing the regulation of installations and thus the reduction of energy consumption.
The project is designed in accordance with the prescriptions of the low carbon E + C– label.

A forecast carbon assessment was carried out. Overall, and over its entire lifespan, including deconstruction, the workshop restructuring project presents a greenhouse gas emission balance of approximately 23,000 tons of CO_2 equivalent (direct and indirect).
RATP wishes to optimize this carbon impact as much as possible. It includes taking action during the design phase to reduce the CO_2e emissions that will be generated as a result of the site's energy consumptions during the operation phase and the products and materials used in its construction.



Attestation
by one of RATP Epic's Statutory Auditors

Attestation by one of RATP Epic's Statutory Auditors on the Allocation of Proceeds, as at 31 December 2020 from the Green Bonds issuances of 22 June 2017 and 13 June 2019

In our capacity as Statutory Auditor of RATP Epic and in response to your request, we have prepared this attestation on information relating to the allocation, on 31 December 2020, of the proceeds from the Green Bonds issuances of 22 June 2017 and 13 June 2019 (the Green Bonds), as reported in the document "RATP Green Bond Impact Report – June 2021" (the Document), attached to this attestation.

This Document, including the information regarding the Green Bonds of RATP Epic according to the terms and conditions of the issuance agreement and the Green Bond Framework (the Framework), is intended for green bond holders.

This Document states that €794.27 million of proceeds have been allocated (the Allocated Funds) to eligible projects as at 31 December 2020.

The Document was prepared under your responsibility. The methods and eligibility criteria used to determine the Allocated Funds are defined in the Framework.

It is our responsibility to report on the following information presented on page 9 and 23 of the Document regarding:

- the appropriate allocation of proceeds from the green bond issuances and the amount allocated to each Eligible Green Project;
- the share of proceeds allocated to financing or refinancing each project.

However, it is not our responsibility to provide an opinion on the:

- eligibility criteria of projects, which were validated in the Second Party Opinion by Vigeo Eiris prior to the inaugural issuance;
- compliance, in all significant aspects, of projects with the eligibility criteria defined by RATP Epic in the Green Bond Framework;
- effective enforcement of the policy for managing proceeds before being earmarked or allocated to the identified projects;
- use of proceeds allocated to eligible projects after allocation;
- non-financial indicators specific to projects.

Our assignment, which constitutes neither an audit nor a review, was performed in accordance with the professional doctrine of the French national auditing body (Compagnie nationale des commissaires aux comptes).

Our work consisted in:

- identifying the people responsible for the data collection disclosed in the Document within RATP Epic and, where appropriate, for the internal control and risk management procedures implemented;
- assessing the appropriateness of the data collection procedures in terms of their relevance, completeness, reliability, neutrality and understandability;
- verifying the existence of internal control and risk management procedures implemented by RATP Epic;
- verifying the concordance of the information disclosed in the Document, with the accounting and the underlying accounting data, as at 31 December 2020;
- examining the processes used for data collection, compilation, processing and control, particularly the procedures relating to the allocation of the Allocated Funds set out as at 31 December 2020.
- based on a representative sample of eligible projects:
  - verifying the concordance of the allocation of the net proceeds to the eligible projects with the accounting and the underlying accounting data, as at 31 December 2020;
  - verifying the share of proceeds allocated to financing or refinancing each project.

Based on our work, we have no comments on the following information presented on page 9 and 23 of the Document regarding:

- the statement of allocation of proceeds presented on page 23 of the Report;
- the share of proceeds allocated to financing or refinancing each project presented on page 9 of the Report;

This attestation has been prepared for you in connection with the context mentioned in the first paragraph and it may not be used, disclosed or referred to for any other purpose.

In our capacity as Statutory Auditor of RATP Epic, our responsibility towards RATP Epic is defined by French law and we do not accept any extension of our responsibility beyond that set out in French law. We do not owe or accept any duty of care to any third party, including green bond holders, in connection with the Green Bond final terms agreement (including the Green Bond Framework) to which we are not party. In no event, we shall be liable neither for the execution of the Green Bond final terms agreement (including the Green Bond Framework) nor for any resulting damage, loss, cost or expense.

This attestation is governed by French law. The French courts shall have exclusive jurisdiction in relation to any claim, difference or dispute which may arise out of or in connection with our engagement letter or this attestation report.

Each party irrevocably waives any right it may have to object to an action being brought in any of those Courts, to claim that the action has been brought in an illegitimate court or to claim that those Courts do not have jurisdiction.

Paris-la Défense, 25 June 2021
KPMG SA

Stéphanie Millet
Partner

Anne Garans
Partner Sustainability Services

ratpgroup.com

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