
Transports publics genevois

Green Bond Framework

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1. Introduction

1.1. Background

Transports publics genevois (tpg), operational since almost two centuries (1833), is the leading public transport operator in the Geneva region, Switzerland. tpg are an autonomous agency under public law governed by the Geneva constitution and the law on Geneva public transport (Ltpg)¹. tpg act within the framework of a Service Contract renegotiated every five years with the State of Geneva. The current 2020-2024 Service Contract² is based on the Canton public transport action plan which reflects the 2030 Mobility strategy³ of the Canton of Geneva. This document sets the objectives for transport offer, implementation schedule and the associated budget.

The State ensures the proper performance of the services by checking at regular intervals the improvement in the transport offer and attendance, the improvement in the quality of customer service, the reduction in environmental impacts and financial control. In 2021, tpg generated revenues of CHF 484M. 70% of revenues stem from cantonal subsidies, the Swiss confederation, and municipalities, ticket sales and other revenues account for the remaining 30% of revenues. The Canton of Geneva provides guarantees for debt, underpinning the close relationship between the Canton and tpg.

The 2,180 tpg employees maintain and operate a network of 78 lines of which 60 cover the entire Canton of Geneva and 18 are cross-border lines between Geneva and France.

In 2021, due to the Covid-19 pandemic, tpg carried an average of around 445,000 passengers per day. Since mid-2020, indicators show a continuous resumption of passengers reaching 94% of the 611,000 daily average of 2019. In order to carry these passengers, tpg owns and maintain a fleet of 476 vehicles composed of 124 trams, 104 trolleybuses, 244 buses and 4 autonomous vehicles.⁴

The mission of tpg is to contribute to the management of mobility in their territory by offering a quality service in accordance with the principles of sustainable development. Through proactive management of customer and traffic flow data, the company invests a sizeable amount in its fleet every year, with the aim of providing innovative and environmentally responsible mobility solutions that meet the current and future needs of customers. However, mobility in the Greater Geneva area will change significantly in the coming years, based on the cantonal mobility plan, as well as on the freshly validated 2nd version of the Cantonal Climate Plan 2030 (*Plan climat cantonal 2030*).⁵ This aims to reduce direct and indirect GHG emissions of the Canton by 60% by 2030 compared to 1990 and to be carbon neutral by 2050, which is in line with the Intergovernmental Panel on Climate Change (IPCC) recommendations.

In order to be aligned with this transition we have positioned ourselves as the key pillar of the Canton in sustainable mobility, and are rolling out our business strategy CAP 2030.⁶ This strategy is articulated around three axes:

Developing the customer experience

Facilitate exchanges between people with common interests, through platforms bringing together communities able to co-create the optimal mobility solutions they need.

¹ <https://www.lexfind.ch/tolv/171895/fr>

² <https://ge.ch/grandconseil/data/odj/020207/L12546.pdf>

³ <https://www.ge.ch/document/transports-brochure-mobilite-2030-strategie-multimodale-geneve>

⁴ <https://www.tpg.ch/fr/nous-connaitre/publications/rapports-annuels>

⁵ <https://www.ge.ch/document/plan-climat-cantonal-2030s0-2e-generation-0>

⁶ <https://www.tpg.ch/sites/default/files/2021-09/CAP2030-Booklet-web.pdf>

Take an integrative approach to mobility systems

Develop a network of alliances and partnerships that share the same values as tpg, in order to offer “tailor-made” travel solutions. After creating our first multimodal ticket app zenGo, we want to develop our Mobility-as-a-Service offer to offer an integrated mobility solution (with self-service bicycles, parking, public transport, taxis, etc.), as a real alternative to using the car. Our strategy will be extended to other services that have a positive influence on the sustainable development and well-being of the inhabitants of Greater Geneva.

Contribute to regional development

Achieving neutrality in terms of environmental impacts is a major objective of our strategy. By optimizing the public transport network with “on-demand” services, new cleaner technologies and the active participation of the population, we will be as close as possible to their expectations, which will encourage them to make a modal shift.

1.2. Transports publics genevois’ commitment to sustainability

The future of the Geneva region depends among others on pragmatic solutions for mobility. With a dense network adapted to the needs of the population, tpg meets this key challenge every day. First of all by transporting the inhabitants of the region for all of their travel needs. Then, by preparing the future of public transport, which must take into account demographic changes (by 2050, the Swiss population will increase by +21%)⁷ and modal changes (more and more inhabitants are changing their habits in favour of public transport). The role of tpg is above all to support this growth. The evolution of technologies and information systems offers great prospects in the field of public transport. These innovations promote a better match between our offer and the expectations of our customers.

At the same time, feelings of belonging to a community and solidarity are increasingly part of the considerations guiding consumer behaviour, with a growing interest in ecological and socially responsible consumption. These new behaviours, coupled with new technological perspectives, guide us in the transformation that tpg intends to implement, moving from a transport offer to a service offer.

Major Achievements by Environmental and Social Pillars⁸

tpg have been committed for many years to sustainable development, which is one of the driving values of the company. Below are main recent environmental and social achievements linked to our objectives. The environmental objectives are divided into five environmental pillars: water, energy, air, waste and noise.

Energy

Vehicles

tpg fleet is made up of more than 470 vehicles, half of which run on electric power. The electricity consumed by our vehicles and company operations is of 100% renewable origin from local hydropower and solar. We have included in our Cap 2030 corporate strategy our desire to operate a 100% electric fleet by the end of the decade. Note that the majority of our travellers already use an electric mode of transport (62.9% in 2021); this proportion will be increased with the development of tram lines and the evolution of the bus fleet.

⁷ <https://www.bfs.admin.ch/bfs/en/home/statistics/population/population-projections.assetdetail.12847543.html>

⁸ <https://www.tpg.ch/en/major-achievements-environmental-pillars>

The fleet of light service vehicles is in the process of being renewed with the purchase of electric vehicles replacing the diesel ones in order to achieve the target set by the Swiss federal Department of the Environment, Transport, Energy and Communications (DETEC) of an average of 130 g of CO₂ emissions per km, by 2022.

Buildings

tpg contribute to photovoltaic solar production in Geneva, with an overall capacity of more than 2 GWh per year, i.e. the equivalent of the consumption of 650 households:

- The “En Chardon” power plant has an area of 5,000 m² of solar panels, for an annual production of 1 GWh. The energy produced is used in its entirety for the operation of the site.
- The Bachet-de-Pesay solar power plant, with 5,500 m² of photovoltaic panels, produces more than 840 MWh per year.
- Since autumn 2019, we have doubled the production capacity of the photovoltaic plant installed on the roof of the Jonction site to reach an area of 2,300 m² of panels. This installation, which has been in operation since 1998, currently produces about 220 MWh per year. The particularity of this power station is that it is connected to the Plainpalais substation and directly supplies our electric vehicles. This energy allows a trolleybus to travel nearly 100,000 km or a tram to travel more than 50,000 km

The type of construction of our latest maintenance center “En-Chardon”, operational since 2020, meets high ecological standards, certified by the Minergie label. The En Chardon project was resolutely respectful of the principles of sustainable development. A 1.6 km long conveyor belt was put used to evacuate the excavated material from the construction site to the gravel pit in Epeisses, where it has been reused. It allowed 325,000 m³ of excavated material to be evacuated out of the total 505,000 m³ and avoided 30,000 truck trips.

The replacement of all the light fixtures with the latest LED generation lights in our Bachet maintenance center was completed in 2021. This replacement was accompanied by the implementation of a lighting control system that optimizes the brightness according to the environment by means of sensors. This renovation resulted in an estimated annual savings of ~557,000 kWh and CHF ~220 k with a payback period of around 15 years.

Gain in energy efficiency

tpg has been committed to eco21⁹, the energy saving program from the Canton of Geneva industrial services (SIG), since 2015. tpg has implemented energy performance actions aiming to reduce the company's electricity consumption and greenhouse gas emissions.

The company signed a universal objectives agreement for both Jonction and Bachet sites with the Swiss energy agency (AEnEC). These agreements set energy efficiency objectives and the commitment to reach them by a yearly control of the defined targets by the AEnEC. One of the objectives is linked to the more sustainable heating of our buildings :

- Since 2019, four out of five gas boilers at the Bachet site have been replaced by a wood boiler which allows the site to be heated with cleaner energy (⅓ wood, ⅔ natural gas)
- The En Chardon site is heated with the SIG district heating solution.
- The Jonction maintenance center is heated with natural gas.

Work on the balancing of radiators also started in 2019 on the Bachet site. Indeed, the circulators of our hydraulic network were not optimized, which generated overheating on some part of the building while other rooms were poorly heated. The optimization of this distribution by hydraulic

⁹ <https://ww2.sig-ge.ch/en/a-propos-de-sig/nous-connaitre/le-programme-eco21>

rebalancing and the replacement of circulators reduced electricity consumption by approximately 70% and thermal consumption by 10% to 20% with a return on investment over 15 years.

The commitment of tpg to reduce CO₂ emissions and improving energy performance has been recognized by the AEnEC. Our site in Bachel-de-Pesay received the reduced CO₂&kWh certificate in 2021.

Since 2022, tpg is also part of the energysaver Swiss association, which strives to work toward concrete actions to reduce the consumption of energy.¹⁰

Water

Vehicles washing

The maintenance of vehicles, in particular washing, requires a substantial water consumption. For examples, 300 liters are needed to clean a tram and 200 liters for a bus per wash.

- In order to optimize the use of washing water, a recycling process has been set up in our three maintenance centers (Jonction, Bachel and En Chardon).
- All our washing tunnels are equipped with a water recovery, purification and recycling system. We manage to recycle more than 70% of the washing water to be reused on other vehicles.
- Our washing strategy is to only wash vehicles when they are visibly dirty (eg rainy days, wet roads).
- Since 2020, dedicated counters for washing tunnels provide more precise information on weekly consumption and the number of washing cycles carried out.

Water treatment

To minimise the risks of environmental pollution by the various oils, fuels and products used for and by our vehicles, all the pipes of our maintenance centers collect waste water in retention tanks. Each maintenance center is thus equipped with a water treatment station in order to discharge only treated water into the sewage system.

Air

TOSA

The implementation of TOSA electric buses has been one of the major environmental challenges of recent years. In 2021, the 12 TOSA buses operating on our network line 23 covered 572,000 km (534,773 km for 2020). It is a saving of more than 70 tons of CO₂, if compared with the same line operated by diesel vehicles.

Autonomous vehicle

The project to put in place an autonomous electric vehicles XA line connecting Meyrin-Gare to Meyrin-Village, was completed in 2019. This opened the way to the new autonomous shuttle project on the Belle-Idée site which is running since 2021.

Company mobility plan

Our company offers mobility alternatives to individual motorized vehicles for our employees through the company mobility plan. The major contributions are :

- The annual public transport pass is offered

¹⁰ <https://www.energysavers.ch/>

- Dozens of covered bicycle parking lots available on all three sites.
- Carpooling app and subsidies
- Subsidies when purchasing a bicycle

Two electric car charging stations for our employees have been set up in the Bachet site car park.

Waste

Recycling

Chemicals and waste management are strong objectives in our environmental actions plan. The care we place in recycling and reusing professional materials is also required from our suppliers, with whom we share our values of sustainability.

- tpg has a waste collection center on each site which allows all waste to be sorted and recycled. This is how we reached 80% of recycled waste in 2021. The target requested by the Canton of Geneva Geology, Soils and Waste Service (GESDEC) of 80% recycled waste is therefore reached.
- Thanks to the numerous recovery areas on our sites, paper, batteries, aluminum, scrap metal, stainless steel, brass and copper are resold to various specialized companies. In 2021, the recovery of our waste generated an extra income of CHF 48,000.
- tpg are committed to reducing paper consumption. For example, over the last three years, the shift towards digitalization has been initiated, starting with the ticket by SMS, followed by the online sale of travel passes and other transport tickets, the evolution towards the SwissPass, the online settlement of statements or even real-time passenger information directly accessible on cell phones. Since 2018, digital transport tickets allowed us to reduce by 68% or 3.4 tons the use of paper based tickets.
- Access to multi-function printers via the badges allowed, through the number of pages launched for printing, but not printed, the equivalent saving of 133 trees in 2018 and 325 in 2019 and 2020, i.e. the equivalent of 10 tons of CO₂
- In 2019, some 729 m² of tarpaulins ordered as part of the annual schedule change were recycled. The 1,700 eco-responsible products created by Geneva associations were sold in tpg agencies.
- When a vehicle reaches the end of its life cycle and must be removed from the network, we recycle the various dismantled parts which can be transferred to other vehicles still in operation. Suppliers who recover retired vehicles undertake to manage their recycling in accordance with sustainable development.

Noise

The campaign to lubricate flanges on trams, as well as the actions taken to reduce the noise of the TOSA charging stations and the replacement of all auxiliary emergency units of the new trolleybuses with battery extensions led to a substantial decrease of complaints about noise pollution which is currently almost at zero.

Social

As part of its social agenda, tpg is focused on Sustainable Development Goals 3, 4 and 5. For example, a methodology has been developed to address the quality of life at work. Preventive measures have been put in place to guarantee the safety of our customers and drivers. The tpg is committed to encouraging the training of young people as well as the training of its employees. Finally, the equality and integrity of women at all levels of the company and in all professions are part of these objectives.

1.3. Sustainability Governance

The tpg integrated management system including quality, environment, health and safety and security is certified by ISO 9001 and ISO 14001. These topics are steered by the corporate management staff unit within the general management department. The sustainability governance is embedded in this system through quarterly reviews of key indicators to the executive board. An annual report containing tpg's key accomplishments and results is available on tpg's website.¹¹

In accordance with the law on Geneva public transport (Ltpg),¹² tpg submits an annual report on the performance of the transport offer to the Canton of Geneva. This report contains all the targets set by the Canton of Geneva through our Service Contract, including the sustainable development (E&S included). This specific part is supervised by the sustainable development platform of Geneva's autonomous public establishments, of which tpg is a member.

1.4. Rationale for a Green Bond issuance

Transport is the activity that contributes the most to Switzerland's greenhouse gas (GHG) emissions. According to the Swiss Federal Office for the Environment, in 2021, it accounted for 32% of Switzerland's GHG emissions.¹³ Low-carbon transport therefore has a key role to play in the climate transition in Geneva and more widely in Switzerland and the region.

Based on the most recent carbon footprint report (2020) that tpg produces every four years, the inventory covering scopes 1, 2 and 3 shows that 59% of the source of GHG is emitted by our diesel vehicles. 51% of our fleet already consists of electric vehicles powered by 100% renewable energy, and our ambition is to have a 100% electric vehicle fleet by 2030 as per our corporate Cap 2030 strategy and Canton climate plan 2030. The electrification of our vehicles will improve air quality in the Geneva conurbation and reduce the noise recorded on our streets.

The tpg Green Bond Framework is dedicated to the accessibility and promotion of low carbon and sustainable transport. It is an opportunity to highlight our sustainability strategy and initiatives that contribute to climate change mitigation.

2. Green Bond Framework

In order to meet the commitments described above, and finance projects that will deliver environmental benefits to support tpg's strategy and vision, tpg has elected to create a Green Bond Framework ("the Framework"), under which it can issue Green Bond(s).

This Framework is in accordance with the ICMA Green Bond Principles (GBP) 2021. In alignment with these Principles, for each Green Bond issued, tpg asserts that it will adopt the following, as set out in this Framework:

1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting
5. External Review

¹¹ <https://www.tpg.ch/fr/nous-connaître/publications/rapports-annuels>

¹² <https://www.lexfind.ch/tolv/171895/fr>

¹³ <https://www.bafu.admin.ch/bafu/fr/home/themes/climat/en-bref.html>

We may review this Framework from time to time to align with industry best market practices and future market developments and expectations. Any updated version of this Framework will be published on our website and reviewed by a Second Party Opinion Provider.

2.1. Use of Proceeds

An amount equivalent to the net proceeds raised from any tpg Green Bond issued under this Green Bond Framework will be allocated, in part or in full, to finance or refinance the following eligible projects.

tpg will strive to allocate the proceeds within 36 months after the respective issuance. Additionally, proceeds may be used to refinance Eligible Asset expenditures that occurred not longer than 24 months prior to the respective issuance.

Eligible Green Projects

Clean Transportation (public passenger transport in Geneva)

Eligible sub-category	Eligible assets / projects	Eligibility criteria
Renovation, renewal and extension of surface public transport rolling stock (bus, trolleybus)	<ul style="list-style-type: none"> Acquisition and renovation of clean buses, trolleybuses 	<ul style="list-style-type: none"> Direct (tailpipe) CO₂ emissions of the vehicles are zero
Renovation, renewal and extension of public rail transport rolling stock (tramway)	<ul style="list-style-type: none"> Acquisition and renovation of electric trams 	<ul style="list-style-type: none"> Direct (tailpipe) CO₂ emissions of the vehicles are zero
Renovation, renewal and extension of infrastructure enabling low-carbon public transport	<ul style="list-style-type: none"> Financing infrastructure necessary for the transportation network (e.g. stations, hubs, depos, etc.) 	<ul style="list-style-type: none"> The infrastructure is dedicated to vehicles with zero direct (tailpipe) CO₂ emissions

tpg's eligible projects will contribute to the Sustainable Development Goals defined by the United Nations, as follows:

- SDG 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation
- SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- SDG 13: Take urgent action to combat climate change and its impacts

List of exclusions:

tpg has defined a list of exclusions for projects to be financed under this Green Bond Framework:

- The purchase of any vehicle linked to fossil fuels are excluded from eligible assets
- The share of assets already financed by another financier or operator (e.g. via Canton of Geneva's issuance) are excluded from eligible assets. The Canton of Geneva is expected to participate in 50% of the financing of buses/trams

2.2. Process for project evaluation and selection

The Eligible Green Projects will be subject to the following due diligence, which ensures they meet the criteria set out above. The process is designed to ensure that an amount equivalent to the net

proceeds raised from Green Bond issues are allocated to finance tpg's capital budget for eligible projects.

tpg has established a Green Bond Committee that is responsible for the selection of projects and is made up of the following representatives and their responsibilities within the committee:

- Chief Financial Officer – *chairwoman*
Presidency and supervision of the system
- Treasurer
Financial monitoring and allocation of funds
- Head of enterprise management / Risk manager
Control of the management system and related risks, regular reporting to the board of directors through the quarterly board cockpit review
- Environmental officer
Monitoring and updating of environmental indicators related to green bonds
- Head of Engineering buildings and equipment
Operational monitoring of investments related to buildings and equipment
- Head of Engineering vehicles
Operational monitoring of investments related to vehicles

The Committee will meet at least once a year, after the closing of the accounts for year n corresponding to the year of the green bond issue.

The process of eligible project adjudication will be as follows:

- 1) The Treasurer will be in charge of the pre-selection of eligible projects. In case one project is partially financed by tpg, the Treasurer is responsible to ensure that the eligible expenses will be net of financing received, such as specific financing from the Canton of Geneva.
- 2) The Treasurer presents the project to the Committee providing the financial rationale. The Committee will select projects in adherence with tpg's environmental and social risk management practices, including internal policies, external certifications and Cantonal/Federal legislation. The Committee finally decides about the eligibility of the project for year n on the basis of these elements. It will also validate any changes to the framework in line with developments in tpg's projects.

2.3. Management of proceeds

tpg's funds are managed by the tpg treasurer. The net proceeds of each Green Bond, or an equivalent amount, is allocated to one or multiple eligible projects by following their expenses. Cashflow monitoring is in place and allows for accurate tracking of the eligible projects. tpg intends to reach full allocation of the proceeds within 36 months of issuance.

In the case of potential unallocated proceeds, tpg will not use these for temporary financial investments, nor for investments, instead they will be integrated into the cash pooling system used to manage tpg's current cash requirements as cash equivalent. The proceeds will not be used to fund carbon-intensive activities.

All funds, allocated and unallocated, are thus integrated into the centralised management of tpg's cash pooling, which itself is integrated into the cash pooling system of the Canton of Geneva.

Should a project become ineligible, be cancelled or postponed, tpg undertakes to reallocate the amount to one or more eligible projects as soon as possible and in accordance with this Framework.

2.4. Reporting

Each year, tpg will publish an allocation report and an impact report on its Green Bond issues, as detailed below. These reports will be updated annually until the net funds raised by all Green issues are fully allocated, or until tpg's Green Bonds are no longer on the market.

Allocation reporting

tpg will provide information on the Eligible Green Projects on tpg's website¹⁴. The information will contain at least the following details:

1. The total amount of proceeds allocated to the Eligible Green Projects
2. Breakdown of allocation by eligible project sub-category
3. Allocation of geographic location
4. Refinancing versus new financing
5. The balance of unallocated proceeds

Impact reporting

Where feasible, tpg will provide reporting on tpg's website regarding relevant potential impact metrics for Eligible Green Projects. This may include, but is not limited to:

Clean Transportation:

- GHG emissions per passenger km travelled (gCO₂eq / pass.km)
- Total GHG emission reductions (tCO₂ eq)
- Reduction of air pollutants: particulate matter
- Number of buses/trams deployed
- % km traveled in electrical energy vs total traveled km

If a project is co-financed, the indicators specify the proportion of the impact attributable to tpg's Green Bond, depending on the co-financing rate of the project.

2.5. External review

Pre-issuance verification

Sustainalytics was appointed as an independent third party to provide a Second Party Opinion on tpg's Green Bond Framework and its alignment with ICMA Principles. This Second Party Opinion will be made available alongside this Framework on tpg's website¹⁴.

Post issuance verification

The tracking and allocation of funds post issuance will be verified both internally by tpg and by an independent external third-party auditor until full allocation, and in case of any material changes.

¹⁴ <https://www.tpg.ch/fr/developpement-durable#telechargements>