

2022 **Green securities report**

GROUPE 





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“ Foreword

In 2022, for the second year running, SNCF Group reported a reduction in its total debt, which now stands at €24.4bn, down €11.8bn from €36.2bn in 2021. This is mostly due to the second €10bn tranche of debt relief for SNCF Réseau from the French state. Other contributing factors include robust business, rigorous management (as part of the performance plan) and the sale of Akiem in December (€0.8bn).

We will build on this achievement and continue to fulfill our mission including, our commitment to the environment, to our customers, to our employees, to our shareholders and to our investors.

In 2022, our revenue topped €40bn for the first time, reaching €41.4bn despite challenging macroeconomic conditions.

With €500m in new green bond issues and three issues of green commercial paper—for USD141m, USD141m and €100m—2022 reflected SNCF Group's 100% greening strategy for sustainable finance.

Between 2016 and 2022, we issued the equivalent of €8.1bn in green bonds, or 30% of our total debt issues for the period. This avoided more than 38 million tons of CO₂e over 40 years, equal to the carbon footprint of nearly 80,000 people.

In 2023, in line with our performance plan, we will continue to strengthen operations and hold costs down to keep our finances on track and reach our goal of positive cash flow with debt under firm control.

This report documents the environmental impact of investments made in both green bonds and green commercial papers.

It has been externally reviewed and audited, and was prepared in accordance with the best practices we have defined and are committed to promoting as widely as possible.

And it illustrates our determination to quantify and report on the true impact of our operations.

Jean-Pierre Farandou
Laurent Trevisani

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Key figures Green Bonds issued in 2022

€500M

funds raised by Green Bonds
in 2022 (in 1 issue)

5 years

maturity

43%

allocated
to Dark Green
investors

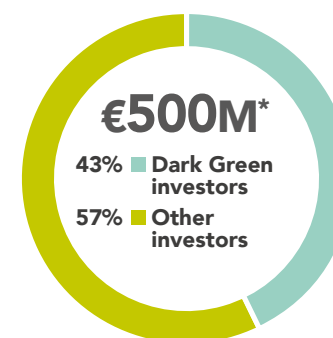
5.156 TCO₂e

emissions avoided per
€ million invested in
Green Bonds in 2022

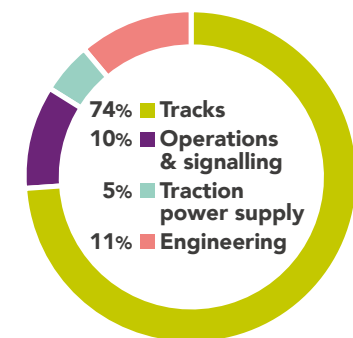
2.6 M TCO₂e

emissions avoided
through Green Bonds issued
in 2022

Investor typology



Allocation of funds raised



A1+VE
Moody's ESG

* €499M net proceed, the difference between €500M and €499M is the fees paid to the banks.

GRUPE **SNCF**



01 SNCF

A key player in sustainable mobility

We've been at the heart of French life for over 80 years—but we never stand still. As a champion of rail and sustainable mobility, we're playing a pivotal role in the transition to a cleaner, greener future.

Who we are: a champion of green mobility

SNCF is the world’s second-largest provider of mobility services by revenue, with operations spanning every aspect of rail, mass transit, logistics and multimodal freight transport.

SNCF, our fully state-owned parent company, oversees the following subsidiaries:

SNCF Réseau, which manages the French rail network

SNCF Voyageurs, which handles regional and long-distance passenger rail travel

KEOLIS, which operates commuter mobility services in France and worldwide

GEODIS, which specializes in freight transport logistics (supply chain optimization, freight forwarding, contract logistics, distribution & express delivery, and road transport)

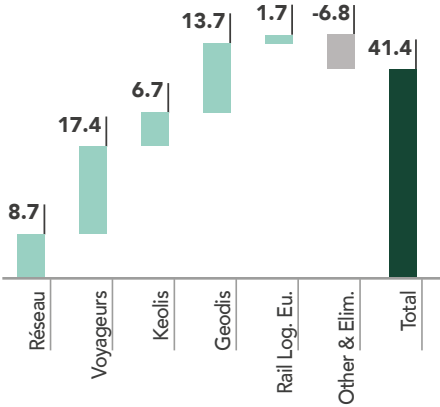
Rail Logistics Europe, which oversees our rail freight operations.

As one of France’s leading industrial groups, we invest €8-10bn each year, including €3-5bn of SNCF capital investment. Most of this is in rail, which is our core business line and the world’s lowest-carbon mode of transport.



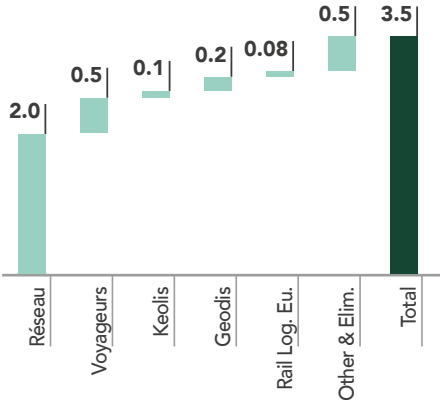
Revenue

per subsidiary in 2022, in €bn



CAPEX net

per subsidiary in 2022, in €bn



€41BN

in revenue in 2022, with nearly 40% from international markets



276,000

employees in France and around the world



15M

passengers carried daily, in France and worldwide



€10BN

invested every year



A CSR strategy integrated into the search for performance in 2022

In addition to record revenue in 2022, SNCF Group has also launched several CSR initiatives aligned with its 2030 carbon footprint targets.



Decarbonize all vehicles—our entire fleet

SNCF is working closely with organizing authorities in every region to develop green mobility solutions that work best for them. At the same time, Keolis is harnessing its expertise to deliver electricity-powered mobility and alternative energy for urban networks. In freight, Geodis is expanding its use of electric, biogas and biofuel vehicles for road haulage, along with biofuels to power air and sea transport around the globe.

Making energy-efficient trains a priority

Eco-driving can save up to 10% of total energy consumption with Opti-Conduite, a tool that guides drivers with live updates on optimum target speeds at each stage in a given journey, indicating where to cut traction and where to resume acceleration. In 2022, 100% of our passenger fleet drivers received training and this new technology was installed on all tablets.

Eurostar also relies on eco-driving for some of its trains. In 2022, it completed encouraging trials of a driver assistance system (DAS) on both its London-Paris and London-Brussels lines, with a reduction in energy consumption. Eurostar also made plans to install meters aboard all of its latest acquisitions—Siemens' high-speed Velaro trainsets—to measure both energy savings and carbon emissions avoided.

TGV M

In May 2021, SNCF unveiled the new TGV M's power train, and in September 2022 it introduced the full trainset at Alstom's production site. The 100 units on order will reduce energy consumption by 20% once in use on lines serving south-eastern France as planned for 2024. These new models are 97% recyclable and can carry up to 740 passengers each—20% more than the Duplex trains now in use, cutting CO2e per passenger by 32%.



Other systems deployed since 2021 promote eco-parking and reduce energy consumption when trains are stationary, without compromising regularity. These include:

- Switching off electric power supply or diesel engines once trains have been stationary for over 30 minutes
- Expanding use of energy-saving modes when trains must be kept in service for short periods or for maintenance/cleaning by reducing default values for air-conditioning and heating temperatures.
- Automating timed closing of doors and switch-off of interior lights.
- Connecting diesel-powered TER trains parked in station maintenance areas to external electrical outlets for auxiliary functions (air conditioning, heating, lighting).

Energy use during parking can account for up to 30% of total consumption on some trains. Together these initiatives are aimed at reducing this by 5 to 30%, depending on the function.

100% Sustainable Finance update

In 2021, SNCF Group launched a 100% Sustainable Finance strategy aimed at converting all of its financing and investment products to responsible investment criteria by 2025.



North of Paris, the solar panels at suburban Stains la Ceresaie station provide some of the electricity it needs to operate, and reduce its power bill.

To this end, in 2022 it undertook the following projects in addition to its €500 m Green Bond issue:

- a new sustainability-linked bank credit line for KEOLIS totalling €600 million,
- the first sustainability-linked private placement for KEOLIS, totalling €100 million,
- transformation of KEOLIS's €900 million RCF into a sustainability-linked loan,

In addition, after a first issue in 2021, SNCF shifted over 40% of its ECPs to a green format in 2022.

SNCF

ECOVADIS
79/100

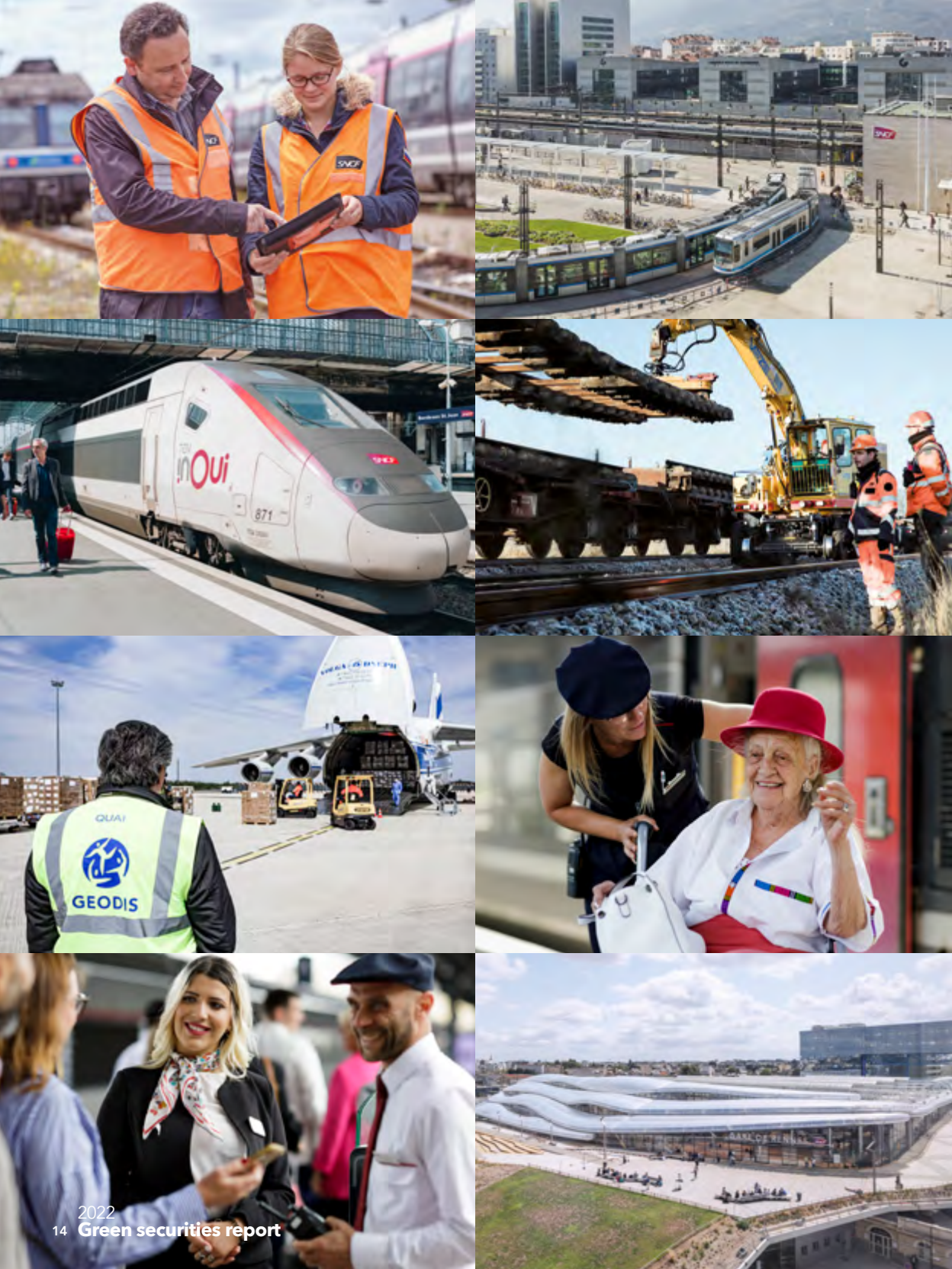


Rail transport
Top 1% of sector
companies rated

V.E
77/100



All categories combined
Ranked #1 worldwide by
Moody's ESG (former Vigeo-Eiris)



What we do: our core business lines



Mass transit — France

We deliver integrated public transport solutions that promote regional development and meet everyone's mobility needs.

[Transilien, TER](#)



Mass transit — Worldwide

We operate urban and intercity public transport services in France and around the world—bus, metro, light rail and coach networks, and more.

[Keolis](#)



Long-distance travel

We deliver cost-effective travel solutions—shared and door-to-door—that cater to all passenger needs and budgets, raise the bar for service, and help protect the planet.

[TGV & Intercités](#)



Freight transport and logistics

We deliver made-to-measure multimodal solutions that combine business performance with environmental protection and safety.

[Geodis, Rail Logistics Europe](#)



Network operation and maintenance

We manage, maintain, develop and sell access to the French rail network.

[SNCF Réseau](#)



Stations

We provide solutions for maintaining and deriving value from station assets, and boosting regional economic growth.

[SNCF Gares & Connexions](#)



02

Committed to the ecological transition

Eco-friendly rail and mass transit solutions play a vital role in the transition to a greener, sustainable economy, and are an integral part of reducing carbon footprints.



How rail helps fight global warming

Supporting a greener, more sustainable world

Rail is not just the world's safest large-scale mobility option—it also generates lower CO₂ emissions and less air and noise pollution than any other option. As a responsible corporate citizen, SNCF is dedicated to reducing carbon emissions and delivering seamless transport to one and all.

In France, rail accounts for 10% of freight and passenger transport, but generates only 1% of the transport sector's total greenhouse gas emissions.

This is to:

- less energy expended (wheel-rail vs. tyre-road contact)
- higher-capacity loads
- electric power (used by 78% of trains operating in France), keeping in mind that only 8% of electricity in France is generated by fossil fuels.

Since transport accounts for close to 30% of total GHG emissions in France (134.1 MtCO₂eq), any modal shift from air or road to rail has a dramatic impact on emission levels.

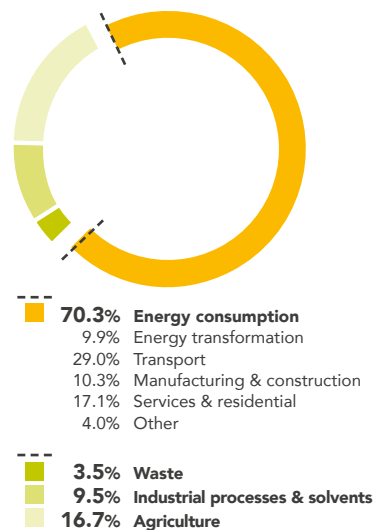
But low CO₂ emissions are not the whole story. Rail also generates less air and noise pollution than competing modes, has fewer accidents, and makes better use of land, with less impact on biodiversity.

Since a train can carry more people and goods, it "consumes" less land area than travel by road at equal volumes.

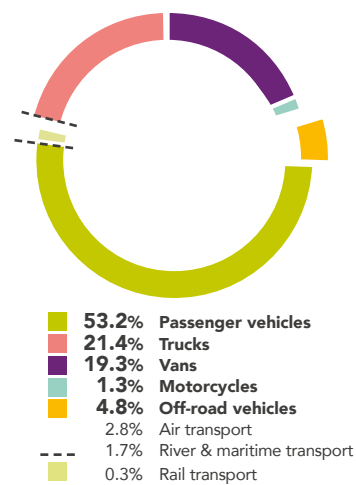
Nationwide, railways occupy a total of 87,000 hectares, compared with 1,230,000 hectares for French roads and motorways.

This lighter geographical footprint benefits natural environments by preserving biodiversity and agricultural activities.

Source of GHG emissions in France (excluding LULUCF), 2018 data



GHG emissions by transport mode in France (including FOD)



Doubling rail's share of total mobility

Trains have three decisive benefits for the planet: they emit less CO₂, they consume less energy, and they use less land than any other means of transport. There is simply no better way to reduce our carbon footprint, ease congestion and consume less green electricity, which is becoming more costly.

So how can we achieve eco-friendly mobility? By taking a fresh look at transport—the largest single source of human-generated greenhouse gas emissions (GHG). In 2019, transport accounted for 31% of all emissions in France, and some 25% of the world total. Today it represents more than housing, industry or agriculture in both France and Europe.

A massive shift away from heavily polluting to non-polluting or less polluting modes of transport is also in order. For short distances, bikes are an option; for longer journeys,

trains powered by decarbonized electricity offer scope for fast and meaningful gains.

Fast, because the technology is already available; innovations are just waiting to be deployed. And meaningful because rail currently accounts for 10% of total transport, vs 85% for cars and trucks, but just 0.3% of total emissions.

In other words, for the same journey, a TGV emits 50 times less CO₂ than a diesel or petrol-powered car. One tonne of freight carried by rail generates nine times less CO₂ than a



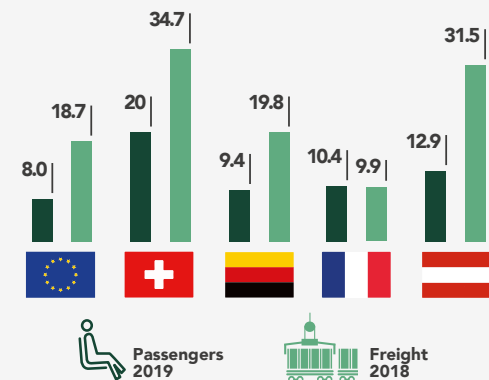
tonne carried by truck. Moreover, a freight train consumes six times less energy than road haulage for the same load—a factor worth considering, since green energy will be more scarce and more expensive.

What does this mean for France? That a 10% shift in passenger and freight transport from road to rail—a rise from 10% to 20%—would eliminate 8 to 12 tonnes of CO₂ equivalent a year, or 6% to 10% of total transport sector emissions. Which corresponds to 22-33% of the total reduction that France has pledged to make by 2030, opening a credible path to achieving carbon neutrality by 2050.

Modal share in Europe

How do passenger and freight rail measure up?

In Switzerland, a European benchmark for rail, trains account for 20% of passenger travel and 35% of freight. In the European Union as a whole, rail freight stands at 19%, with France at 10% compared with 20% for Germany and 31% for Austria. But in passenger rail, France is over 10% thanks to its TGV high-speed trains.





Stepping up to protect the environment

Energy

At SNCF, we've set two ambitious targets for 2030: reduce our transport operations' GHG emissions by 30% from 2015, and cut emissions at the properties we own, manage and use by 50%.

This will help France meet the long-term objective set by the Paris Agreement in 2015, which requires signatories to achieve carbon neutrality-net-zero emissions by 2050. But the first major milestone in this global strategy is clearly 2030.

30% cut in GHG emissions from transport by 2030

A TGV emits 80 times less CO₂ than a plane, and 50 times less than a car. But we can shrink our eco-footprint even further by reducing our energy consumption and adopting best practices to optimize what we do use.

Most of our GHG emissions are generated by traction-energy spent moving trainsets. While SNCF already scores high for its environmental performance, we are actively engaged in pioneering research to convert our diesel fleet to more sustainable alternatives.

Tests are now under way to introduce battery- and hydrogen-powered solutions, plus hybrids, for regional TERs, with 12 to 14 hydrogen trains scheduled to go into commercial service by the end of 2025.

Reducing energy consumption is another way to boost our performance. One solution is widespread use of eco-driving techniques by our conductors (using lines' natural topographies for braking and acceleration); Introducing energy-saving measures when trains are not moving is another.

50% cut in GHG emissions at properties by 2030

Our strategy starts with raising energy awareness across the company. This means tracking consumption, replacing older fuel-oil heating systems; replacing high-consumption light-bulbs with LEDs, and installing better insulation. But it doesn't stop there.

At a deeper level, we must make energy conservation a reflex—part of our everyday operations.

It can be as simple as turning off the heat in maintenance sites at the end of the day, or closing train doors and lowering pantographs at night. These practices will be gradually rolled out across SNCF Group.

Greener energy

Injecting more green energy into the SNCF energy mix will also lower our GHG emissions.

Solar panels already supply part of the power we use at maintenance depots and in stations. These panels and eco-design are also an integral part of building construction and refurbishment, at both SNCF Immobilier and SNCF Gares & Connexions.

Lastly, SNCF has signed several very long-term direct purchase agreements for renewable electricity. These serve as incentives for solar park construction, since SNCF guarantees owners that it will purchase their output for the next 15-20 years.

Carbon price included from 2022

Since 2022, a carbon assessment has been priced into all investment projects. The move will generate more data and make for clearer analyses—along with better, more sustainable choices, based on the per-tonne value assigned to CO₂ emissions.



Hybrid TER regional trains

Hybrid trains are more and are more energy efficient—and will soon be a reality. SNCF and Alstom are continuing their work on this innovative solution, including obligatory safety demonstrations. The first model, a Régiolis Occitanie train-set already in commercial service, was hybridized at Alstom's Reichshoffen plant in eastern France in 2021, and trials were completed in 2022.

France's 1st railcar hybridization project

This modified TER will begin commercial operation in December 2023 in four French regions—Grand-Est, Nouvelle-Aquitaine, Occitanie and Centre-Val de Loire—all partnering with SNCF.

Developed by Alstom, it represents a new generation train as France's first hybrid powertrain solution.

How hybrid trains work

Hybrid trains are powered by several different energy sources, depending on the situation:

- electrical power supplied by catenaries
- thermal engines
- energy stored in batteries

In dual-mode Régiolis units, which initially used a combination of electricity and diesel power, half of combustion engines are replaced by high-capacity lithium-ion batteries.

These batteries recover then braking energy instead of losing it as heat, and use it for train traction, lighting and heating.

The same batteries also top up train traction when catenary voltage falls below 1.5 kV.

This new storage system makes a substantial contribution to performance, with braking energy accounting for around 30% of traction power used on routes served by Régiolis trains.

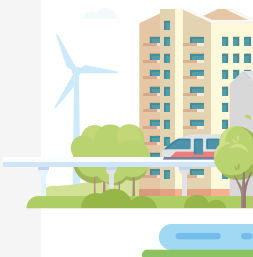
To ensure maximum availability, batteries can also be recharged via catenaries and diesel engines.

2050 SNCF Group target for reaching carbon neutrality



Project milestones

2020	2021	2022	2023
Testing of battery prototype	First Régiolis hybrid leaves the production site	Dynamic testing at Velim in the Czech Republic	Hybrid trains enter experimental commercial operation in 4 partner regions



Towards a sustainable railway

SNCF Réseau is charting its own course within SNCF Group, as it strives to serve a changing society built on social solidarity and sustainability. To this end, it works hard every day to pave the way to tomorrow's mobility, serving all regions, customers and their clients.

With 28,000 kilometers of track connecting nearly 10,000 towns and 3,000 stations, we are major player in rail mobility with a unique pool of expertise, energy and talent that is present throughout France.

Altogether over 50,000 men and women are hard at work maintaining, modernizing, developing and operating France's national rail network to benefit as many people as possible.

As leader of the nation's rail industry, we are at the forefront of our society's mobility challenges, committed to working with all of our stakeholders to reduce our environmental impact.

We pay close attention to customers' needs and are fully committed to serving the regions our network passes through.

Each day we work to strengthen rail infrastructures to deliver the reliability and safety of rail travel to one and all. Just as we work to reduce our environmental footprint further to give people a transport mode that respects the natural world around them.

We harness our industrial know-how to serve the ecological transition—reducing our carbon missions, developing the circular economy and eco-design, protecting and promoting biodiversity, and innovating to improve energy efficiency.

Our employees are dedicated to meeting the challenge of ever more responsible transport systems. In so doing, they contribute to their communities' quality of life and respect for the environment. Our willingness to take on this role is also our strength, fueling a powerful industrial, technological and human drive to bring sustainable mobility to life for one and all.

6 major commitments to sustainable development



Create value for our customers and stakeholders



Deliver safety and security for all



Improve our social performance



Deliver consistently high-quality products and services



Set an example in the way we conduct our business



Protect and promote the environment in all French regions

2022 Key figures

34.7%
Reduction in indirect greenhouse gas emissions through the circular economy



96.5%
of old track recycled, with 3.5% of rails reused



978
trackside neighbours benefited from special anti-noise installations



€46.7 M
Total procurement from the social and solidarity economy vs €38.4 million in 2021



74/100
Quality of workplace life at SNCF Réseau as rated by C'est à Vous in 2022



-14.7%
TCO2e Tonnage
Reduction in direct GHG emissions at SNCF Réseau (scopes 1+2)





03 Asset financing methods

Financing needs reduced, but innovative flair confirmed —this time with the world's first green CP issue. Allocation was based on a use-of-proceeds approach.

A new year towards 100% sustainable financing

Summary of green bond activity in 2022

Financing needs declined during the year following the sale of Akiem group and its subsidiaries for €0.8bn (SNCF SA share: 50%) and the transfer of a second tranche of SNCF Réseau debt to the French State (€10 bn). As a result, SNCF SA made a single long-term debt issue in 2022, in October.

By contrast, a significant rise is expected in 2023.



Recognized for our reliability and environmental commitment

We intend to become a global leader in green bonds, and to this end have carried out 23 green bond operations in six years, raising a total of €8.1 billion or 29.6% of total green bond debt issued from 2016 to 2022.

To meet the exacting standards in place for green financing and lead the global field in transport, our bond issues align with the 2018 version of ICMA's Green Bond Principles and we are certified under ISS-ESG's Climate Bonds Initiative.

SNCF has also received many awards. Among them:

- a prize for the quality of our Green Bond impact report in March 2016
- in 2019, the CBI's Green Bond Pioneer award in recognition of the transparency and quality of our investor communications,
- and in September 2022, an award for our Euro Commercial Green Paper programme, the world's first short-term issue of its type.

Lastly, as a GBP member and participant in Paris Europlace's Finance for Tomorrow initiative, SNCF is an active contributor to debate and adjustments in the green bond market and is also a founding member of the Corporate Forum for Sustainable Finance.

Our target: 100% sustainable finance by 2025

Sustainable finance has grown exponentially in the past decade, with new issues exceeding \$100bn a year. Today this market is essential for many issuers, with SNCF Group a leading player.

Against this dynamic backdrop, our group has embraced a 100% sustainable finance strategy and committed to converting all of the financial products we use to meet criteria for responsible investment.



1 – Expanding our asset base

Originally designed to finance the rail network, our issuance programme was expanded to include rolling stock in 2021 and we are currently working to develop indicators that will extend the pool of eligible assets further.

2 – Expanding short-term financing (Green CP)

In 2021, we launched the world's first issue of short-term green paper aligned with the allocation criteria in the ICMA's Green Bond Principles. We plan to renew this effort in 2023 and will strive for 100% in 2025.

3 – Greener cash investments

By 2025, we want 100% of our cash investments (UCITS, money-market and bond mutual funds) to be in SRI vehicles.

Greening the financing strategy of SNCF Group	2022 (current)		2025 (target)	
SNCF SA				
Long-term financing (debt issued)	€0.5bn	94%	≈ €1.0bn	100%
Short-term financing (debt issued)	€0.3bn	41%	≈ €1.5bn	100%
Cash	€5.7bn	63%	≈ €5.0bn	100%
Syndicated loan	€3.5bn	100%	€3.2bn	100%
KEOLIS				
Long-term financing (debt issued)	€0.6bn	100%	€0.6bn	100%
Syndicated Loan	€0.9bn	100%	€0.9bn	100%
Sustainability-linked Schuldschein (SSD)	€0.1bn	100%	€0.1bn	100%
GREEN SPEED				
Long-term financing (in €)	€1.1bn	0%	€1.1bn	100%

Issue in detail

Issue in 2022	
Issuer	SNCF SA
Rating	AA- (S&P) / Aa3 (MOODY'S) / AA- (FITCH)
Amount	€500 M
Tenor	2 November 2027
Issue date	31 October 2022
Maturity	5
Coupon	3.125%
Margin	OAT + 73 bps

2022 Investor typology and geographical distribution



43% Dark Green investors
57% Other investors



49 % UE
8 % United Kingdom
5 % Switzerland
4 % Belgium/Luxembourg/
Liechtenstein
20 % Asia
7 % Scandinavia
7 % USA/Canada/and other

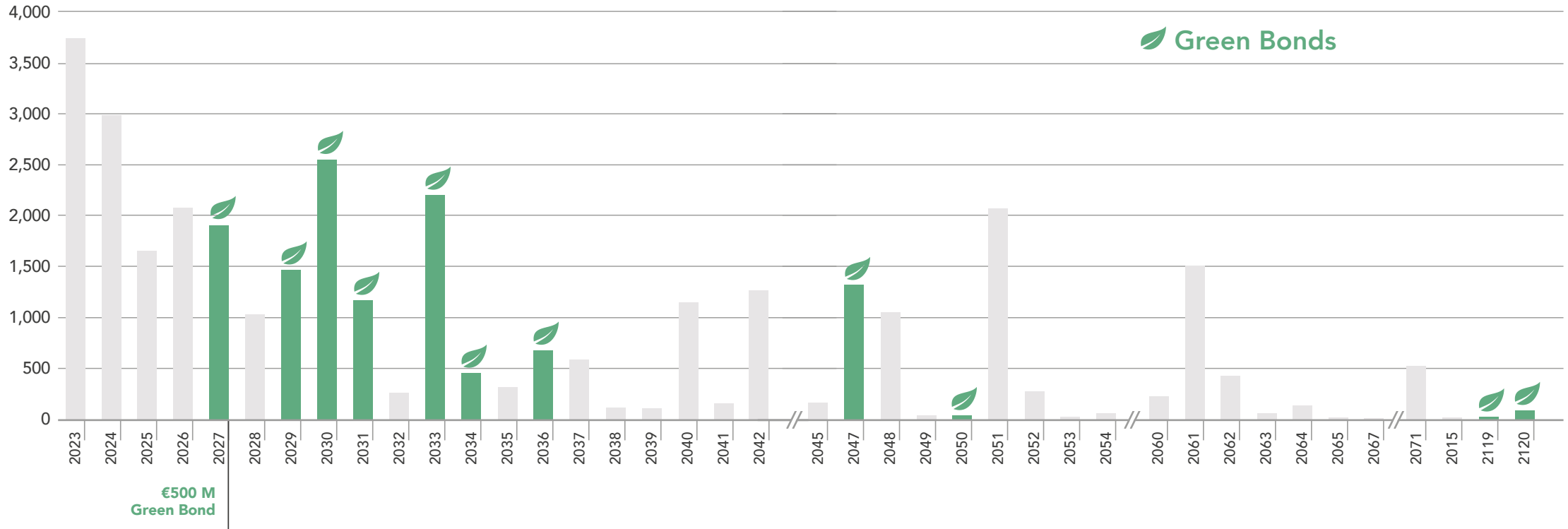
Issue placement by geographical area





SNCF Group Green Bond issues

€ millions
(at 31 December 2022)



Market's first green commercial paper subject to use-of-proceeds conditions

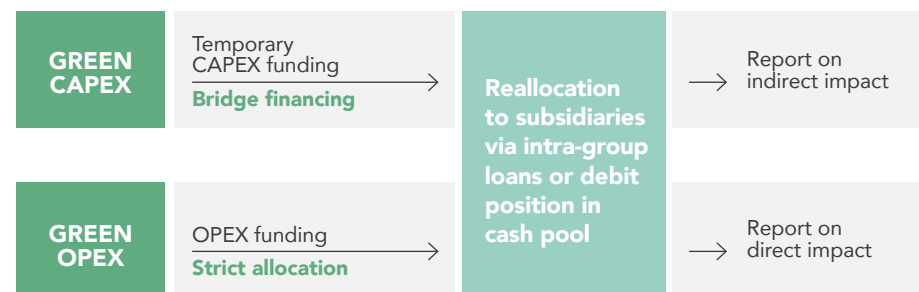
On 19 October 2021, SNCF launched the first green commercial paper subject to use-of-proceeds conditions.

Totalling €50m, these 3-month notes were designed to finance sustainable investments made by SNCF Group under our Green Commercial Paper Framework.

We plan to use funds from this new debt instrument to finance sustainable investments and operations contributing to our energy transition, including recycling, decontamination, power purchase agreements for renewable energy, and more.

We partnered with Mirova, a top-tier investor specialized in green finance, to ensure that the new financing programme met its demanding standards. By subscribing the full amount of the first issue, Mirova put its weight behind the success and growth of this breakthrough format.

Both SNCF Group and Mirova see the programme as a way to expand green finance and promote best practice to step up the pace of investment in the energy transition.





04 Taxonomy

A common definition of sustainability, and standardized, comparable information on environmental and social issues.

SNCF Group

For the 2022 financial year, the SNCF Group's activities had a very high level of eligibility, as shown in the table below.

Taxonomy activities	CA	CAPEX	OPEX
Total SNCF Group (€M)	41,449	9,682	4,270
Intercity passenger rail transport	17,059	613	152
Rail Logistics Europe rail freight transport	1,591	288	46
Urban and suburban transport, road passenger transport	5,573	307	465
Road freight transport	4,278	920	-
Rail transport infrastructures	2,658	6,380	1,455
Low carbon manufacturing technologies for transport	79	26	-24
Acquisition and ownership of buildings	176	498	1,305
% Eligibility	76%	93%	80%
% Alignment	44%	21%	8%

Green bonds' underlying assets

As with the SNCF Group's overall level of eligibility, the assets underlying its green bonds have an even higher level of eligibility.

Taxonomy activities	CA	CAPEX	OPEX
% Eligibility	94%	97%	87%
% Alignment	76%	19%	9%





05 Allocation report

We allocated the proceeds of SNCF green bonds to core network upgrades and modernization projects.

How we allocate our green bond proceeds

Although SNCF green bonds are identical to conventional bonds in terms of credit risk, they carry additional rules and requirements on reporting, eligibility, allocation and environmental impact assessment.

Key principles of SNCF Group's green bond programme

Our green bond programme meets the market's highest standards.
Key principles include:

– Additionality:

We only allocate the proceeds of our green bonds to new projects—in other words, we cannot finance the same project from the proceeds of separate issues.

– Whole life-cycle approach:

When assessing the carbon impact of projects, we consider emissions across the whole life cycle—from upstream, operational and downstream phases.

– Exhaustive impact assessment:

Wherever possible, our impact assessments include direct emissions from operations (Scope 1), indirect energy-related emissions (Scope 2), and indirect upstream and downstream emissions (Scope 3).

– Objective assumptions:

Any assumptions we make—about changes in France's energy mix or in the emission factors of competing modes of transport, for instance—are arrived at objectively.

– No double counting:

Our allocation rules are designed to ensure that we never count avoided emissions twice. In practice, this means that: (i) we allocate 80% of emissions to infrastructure and 20% to rolling stock for all projects, without distinction, (ii) where we're part-subsidizing or co-financing a project, we pro-rate our share of the avoided emissions based on our financial contribution.

– Strict allocation per project:

Funds raised through green bonds are used solely for the assets defined at the outset. They may not be used for other projects.

Change in assets eligible for green bond financing

Originally designed to finance rail lines carrying the heaviest traffic (UIC groups 1-4), the Green Bond programme was expanded to cover new asset types at the end of 2020. Changes included:

Expanding SNCF Réseau's (network) eligible assets to investment in regeneration and renovation of electrified UIC groups 5-6, justified by traffic heavy enough to make rail a viable transport option compared with competing modes.

Inclusion of HS fleet acquisitions and refurbishments (mid-life upgrades). These are naturally assets owned by the group that offer a clear carbon footprint advantage over competing transport modes.

As noted in Chapter 3 of this report, SNCF tracks opportunities for expanding this list to include new subsidiaries and asset types that qualify on environmental grounds.

Eligible projects

Network (SNCF Réseau)

Category 1

Investments in rail system maintenance, upgrades and energy efficiency

This category includes work to re-lay tracks, replace fixed electric traction installations (FETIs) and upgrade signalling systems **on the so-called "core" rail network, i.e., fully electric lines carrying the highest levels of traffic (UIC groups 1-6)**

Category 2

Investments in new rail lines and line extensions

This category includes the construction of new rail lines and line extensions that improve network access and enhance mobility for passengers and freight (examples include the LGV Est, LGV SEA and LGV BPL high-speed lines, and the LGV CNM high-speed bypass serving Nîmes, Montpellier etc.).

Passenger rail transport (SNCF Voyageurs)

Category 1

Purchases of HS rolling stock (electric)

Purchase of electric-powered high-speed rail trainsets, taking into account any advance payments made in years prior to delivery.

Category 2

Mid-life renovation of HS rolling stock

Renovation of electric-powered high-speed rail trainsets, taking into account any advance payments made in years prior to return to service.

1. The International Union of Railways (UIC) classifies rail lines into groups according to traffic levels and types, ranging from group 1 for the heaviest traffic to group 9 for the lightest traffic. In France, busy main lines fall into groups 1-4, while main lines carrying less traffic come under groups 5 and 6. groups 7-9 typically cover low-traffic local and regional lines.
2. (1) Mitigation of climate change, (2) Adaptation to climate change, (3) Sustainable use and protection of water and marine resources, (4) Transition to the circular economy, (5) Prevention and reduction of pollution, (6) Protection and restoration of biodiversity and eco-systems.

Fund management

The funds we raise through green bond issues are held in SNCF Group's cash accounts pending allocation.

Any unallocated proceeds are invested in cash, cash equivalents, bank deposits and other money-market products in line with SNCF's cash management policies and guidelines.

An independent audit firm (currently KPMG France) carries out retrospective checks on how we've used and managed these funds.

SNCF Réseau investments

In (€M)

		2016-2020		2021			2022		
Investments		Green Bonds Invested	Green Bonds: Allocated	Green Bonds Invested	Green Bonds: Allocated	Balance	Green Bonds Invested *	Green Bonds: Allocated	Balance
UIC 1 to 4	Maintenance and upgrades	5,884	5,649	676	0	676	665	0	665
	Tracks	4,318	4,153	433	0	433	428	0	428
	Sidings & key sites	3	3	8	0	8	1	0	1
	Operation and signalling systems	895	857	35	0	35	28	0	28
	Central Network Control facilities	31	29	72	0	72	74	0	74
	Traction power supply infrastructure	370	351	68	0	68	93	0	93
	Tunnels, bridges and earthworks (engineering)	268	256	60	0	60	40	0	40
	Other	0	0	0	0	0	0	0	0
UIC 5 to 6	Upgrades and performance	782	249	145	0	145	167	0	167
	Tracks	615	195	107	0	107	121	0	121
	Sidings & key sites	2	1	0	0	0	0	0	0
	Operation and signalling systems	28	5	3	0	3	3	0	3
	Central Network Control facilities	8	5	4	0	4	7	0	7
	Traction power supply infrastructure	24	7	5	0	5	9	0	9
	Tunnels, bridges and earthworks (engineering)	107	36	25	0	25	27	0	27
	Other	0	0	0	0	0	0	0	0
	New lines and line extensions	402	402	0	0	0	0	0	0
TOTAL		7,068	6,300	821	0	821	832	0	832

Allocation of proceeds in 2022

In 2022, the proceeds of our green bond issues once again financed investments in network regeneration and upgrades.

Allocating funds exclusively to the network was done for three reasons:

- Our desire to channel outstanding eligible proceeds into infrastructure
- Our ability to transfer green bond cash flow to assets following the creation in 2022 of intragroup loans linking SNCF Réseau as debtor to parent company SNCF SA as creditor
- By the transfer of green bond proceeds.

The table below shows how we allocated the proceeds of our 2022 green bond issues by investment category:

Definitions

- **"Green Bonds: Invested"** means the amount we've actually invested.
- **"Green Bonds: Allocated"** means the amount allocated to each category from 2022 issues.
- **"Balance"** means eligible investments that we haven't yet financed as of 2022.

For reporting purposes, we consider net investments in a project (i.e., allocated subsidies) without factoring in payment delays (i.e., received subsidies). We adopted this approach in 2018 to help us better track net investments over time.

* Real GB scope initially calculated for 2022 was reduced by €1,761m in subsidies received from the French State under the France Relance recovery plan. These were included in EU Next Generation eligible assets to avoid any risk of double counting of green assets by SNCF and this supranational entity.



SNCF Voyageurs investments

In (€M)

Since 2022, the scope of green bond has been extended to cover assets belonging to SNCF Voyageurs.

Investments	2016-2020			2021			2022		
	Green Bonds Invested	Green Bonds: Allocated	Balance	Green Bonds Invested	Green Bonds: Allocated	Balance	Green Bonds Invested	Green Bonds: Allocated	Balance
New rolling stock	294	0	294	145	0	145	223	0	223
New 3UFC-TO trainsets (40 units)	0	0	0	0	0	0	21	0	21
New 3UFC-TC trainsets (15 units)	294	0	294	29	0	29	0	0	0
New 3UFC-MC trainsets (15 units)	0	0	0	116	0	116	202	0	202
New TGV du Futur trainsets (100 units)	0	0	0	0	0	0	0	0	0
Major industrial operations / TGV trainsets	27	0	27	0	0	0	197	0	197
OPMV Duplex	14	0	14	0	0	0	97	0	97
Duplex retrofits	6	0	6	0	0	0	100	0	100
OUIGO retrofits	7	0	7	6	0	6	0	0	0
OPMV & Renov Recompo R Duplex/POS	0	0	0	0	0	0	0	0	0
OPMV / Transfo TANGO	0	0	0	0	0	0	0	0	0
OMV / Transfor NEODUPLEX	0	0	0	0	0	0	0	0	0
TOTAL	321	0	321	145	0	145	420	0	420

Allocation of green commercial paper in 2022

In 2022, SNCF made 3 Green Commercial Paper issues (Euro CP):

First issue: USD 141 million

- Euro Commercial Paper
- Currency: USD
- Value date: 21/04/2022
- Maturity: 27/07/2022

Second issue: USD 141 million

- Euro Commercial Paper
- Currency: USD
- Value date: 29/08/2022
- Maturity: 27/09/2022

Third issue: €100 million issue

- Euro Commercial Paper
- Currency: Euros
- Value date: 08/12/2022
- Maturity: 09/01/2023

Proceeds were used to temporarily finance assets eligible for green bond funding under SNCF Réseau (network). Their transfer to eligible assets took place when intragroup loans between SNCF Réseau and SNCF SA were set up for an amount higher than the combined total of Green Bond and Green CP financing.

The impact of Green CP will be addressed in our 2023 Green Bond report once an equal amount has been raised through green bonds and once again allocated to SNCF Réseau.

Impact review and certification

SNCF's green bond programme meets the market's highest standards and is framed by the four core components of ICMA's Green Bond Principles, published in 2016.

Our 2022 Green Bond Framework is available on our website.

The Second Party Opinion, issued by ISS ESG, confirms that our green bond programme aligns with the 2018 version of ICMA's Green Bond Principles.



[Green securities framework](#)



[Second party opinion \(SPO\)](#)





06

Green bond programme indicators: Reporting and methodology

We've developed a proprietary method for measuring how our investments reduce greenhouse gas emissions and help protect resources.

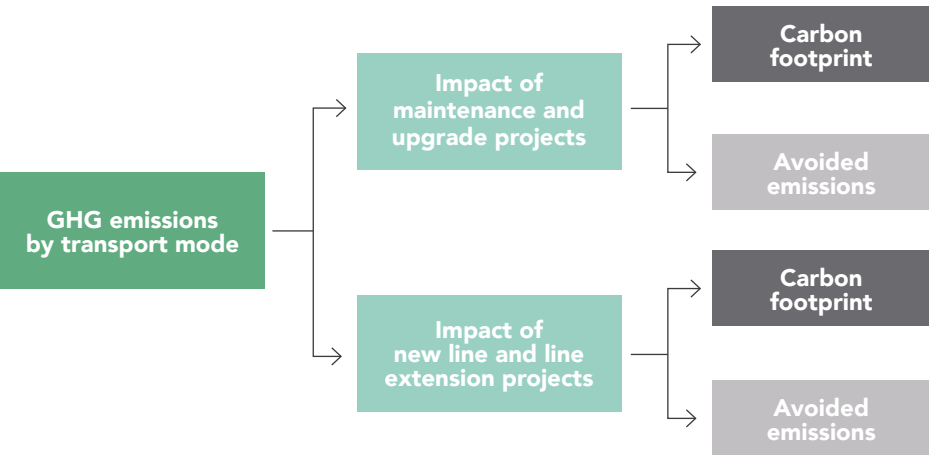
Category-by-category reporting

We wanted to build a clear picture of how the projects we finance through our green bond issues help reduce greenhouse gas (GHG) emissions. So we teamed up with Carbone 4¹ to develop a **proprietary methodology**² for measuring the carbon impact of these projects.

We calculate a project's carbon impact by comparing its **carbon footprint**—the emissions it generates—against **avoided emissions** in the operation phase:

- To calculate the **carbon footprint**, we use established carbon assessment methods to determine **the total emissions produced by a maintenance, upgrade or new line project**.³
- To calculate **avoided emissions**, we **compare transport-system emissions in two scenarios: the first where we complete the project, and the second where we do nothing**.

Under this method, **the carbon impact of a green bond-financed project is defined as project-generated emissions minus avoided emissions**.



Given the sheer number of projects we carry out each year, we can't measure the impact of each one separately. Instead, we use a basket of representative projects and extrapolate these values across our portfolio, reporting per million euros (€m) invested.

For extrapolation purposes, we employ a series of ratios (per €m invested) to calculate the carbon impact of our projects. Note that these ratios are liable to change from one year to the next, based on in-house analysis and research.

Carbon footprint ratios

We divide green bond investments in maintenance and upgrade projects into three sub-categories: track, catenary and signalling works.

Track ratio:

This ratio covers the replacement of worn track, ballast and sleepers. The value of the Track ratio is 456 tCO₂e per €m invested. This figure is based on a carbon footprint assessment of replacement works carried out between Gevrey and Sennecey in eastern France in 2017. The Track ratio is also used for engineering works (tunnels, bridges and earthworks).

Lineside Equipment ratio:

This ratio covers the replacement of lineside equipment (i.e., points and junctions). The value of the Lineside Equipment ratio is 95 tCO₂e per €m invested. This figure is based on a carbon footprint assessment of works carried out at Paris-Austerlitz station in 2018.

Fixed Electric Traction Installations (FETI) ratio:

This ratio covers the replacement or maintenance of FETIs—a category that includes all systems that supply power to trains on the network (such as overhead lines, masts and substations). The value of the FETI ratio is 90 tCO₂e per €m invested. This figure is based on a life-cycle analysis carried out in 2016.

Signalling ratio:

This ratio covers the replacement or maintenance of rail signalling systems. The value of the Signalling ratio is 380 tCO₂e per €m invested. This figure is based on monetary emission factors from the Base Carbone, a public database administered by the French Environment and Energy Management Agency (Ademe).

Avoided emissions ratio

The avoided emissions ratio is calculated by analyzing modal shift from financially representative maintenance and upgrade projects.

The 2022 ratio is based on 32 renewal projects carried out between 2016, 2017, 2018 and 2021 for a cumulative of around €1.5 billion. The value applied in 2022 was 140 tCO₂e avoided/M€.

The calculation methodology for 2022 is in line with the methodological choices made in the 2021 (emission factors, induction values, long-term rail traffic growth, etc.). Given the uncertainties surrounding the upturn in rail traffic, in the absence of definitive values published at the time of valuation, the calculation has made the conservative assumption of a stabilization loading factors for 2022 compared with 2019.

1. Carbone 4 is an independent consulting firm specialized in low-carbon strategy and climate-change adaptation.
 2. The methodology is available at: www.sncf-reseau.com/fr/documentation/finance/carbon-methodology-green-bond-programme.
 3. The assessment covers all upstream and downstream emissions (direct and indirect) but excludes emissions from infrastructure operation and routine maintenance.

* ADEME is the French Environment and Energy Management Agency, founded in 1991.
 A public service company with a commercial and industrial mission (EPIC) owned by the French State, it helps define public policy for the environment, energy and sustainable development.
 ** The International Union of Railways (UIC) classifies rail lines into groups according to traffic levels and types, ranging from group 1 for the heaviest traffic to group 9 for the lightest traffic.
 *** Works in Portet-Muret-Boussens and Moulins-St-Germain-des-Fossés.

Investments in rail system maintenance, upgrades and energy efficiency

We calculated the carbon impact of expenditures financed by Green Bonds issued in 2022 by deducting total avoided emissions from the carbon footprint of related sites.

Altogether Green Bonds issued in 2022 prevented **2.6 million tonnes of CO₂ equivalent** from GHGs being released into the atmosphere.

Carbon impact of green bond-financed maintenance and upgrade expenditures

	Tracks	Lineside	FETIs	Signalling	Engineering	TOTAL
2022 green bond-financed expenditures (€m)	369	NR	27	51	52	499
Carbon footprint (thousands of tCO ₂ e)						
... Allocated to green bond-financed expenditures	168	NR	2	19	24	214
Avoided emissions (thousands of tCO ₂ e)						
... Allocated to green bond-financed expenditures	2,061	NR	151	285	290	2,787
Carbon impact (footprint minus avoided emissions) (thousands of tCO ₂ e)						
... Allocated to green bond-financed expenditures	-1,892	NR	-148	-265	-267	-2,573
Average time to carbon neutrality for maintenance and upgrade projects	3.32 YEARS					

Other impacts of 2022 green bond-financed expenditures

Category	Indicators	Results
Investments in rail system maintenance, upgrades and energy efficiency	Resource conservation	
	% of track rail recycled and re-used	96.5%
	Share of ballast reused by high-output renewal trains	30 to 50%
	Volume of wooden sleepers recycled for energy purposes (tonnes)	47,300 t

Summary of carbon impact, 2016-2022

Through projects funded by our green bond issues between 2016 and 2022, we've prevented **37.8 million tonnes of CO₂ equivalent** from being released

into the atmosphere over 40 years—around the same footprint as **79,000 people** over the same period.

Allocation of proceeds to eligible projects (€M)

	Tracks	FETIs	Signalling	Engineering	New lines	TOTAL
2016	590	20	100	0	175	885
2017	1,169	40	215	83	0	1,507
2018/19	2,223	271	530	157	0	3,181
2020	1,069	123	254	96	0	1,542
2021	285	12	17	47	0	361
2022	369	27	51	52	0	499
TOTAL	5,705	493	1,167	435	175	7,975 *

* Some projects can be financed or refinanced.

Carbon impact of maintenance, upgrade, new line and line extension projects (thousands of tco (KT CO₂e)

	Tracks	FETIs	Signalling	Engineering	New lines	TOTAL
2016	-2,326	-90	-312	0	-190	-2,918
2017	-4,500	-179	-671	-332	0	-5,682
2018/19	-12,072	-1,501	-2,785	-816	0	-17,174
2020	-5,876	0	-1,261	-469	0	-7,606
2021	-1,461	-66	-88	-241	0	-1,856
2022	-1,892	-148	-265	-267	0	-2,573
TOTAL	-28,127	-1,984	-5,382	-2,125	-190	-37,809

For details of calculations, assumptions, estimates and extrapolations, as well as source data per year, refer to the SNCF methodological guide "Evaluer l'impact carbone d'un programme Green bonds dédié aux investisseurs dans les infrastructures ferroviaires", which is available (in French only) at www.sncf-reseau.com/en

KPMG assurance report

Moderate assurance report on selected Public information in the «2022 Green Securities Reporting « report on «Green Bonds» and «Green Commercial Papers» issued by SNCF S.A.

In our capacity as independent third party, appointed by SNCF S.A. (hereinafter «the Company»), and in response to your request, we have performed procedures to provide a moderate level of assurance on the conclusion on the audited information presented in the Appendices («the Information») set out in the «2022 Green Securities Reporting « (the «Report») of the Company available on the Company's website, and prepared in accordance defined below.

The Guidelines comprise the following documents

- The **Green Bond Framework** prepared by SNCF S.A. and included in the Second Party Opinion issued by the non-financial rating agency ISS ESG prior to, and after the Green Bond issue; and
- The methodological guide for the Green Bonds program "Evaluer l'impact carbone des investissements d'infrastructures ferroviaires - Septembre 2017" (hereinafter "**the Methodological Note**") prepared by SNCF S.A. with the consulting firm Carbone 4.

The Information has been prepared within the «Green Securities Framework (hereinafter the «Framework») developed by and in accordance with the basis of preparation set out in the Report, available on the Company's website¹.

Conclusion

Based on the procedures we have performed, as described in the "Nature and scope of our work" and the information we have gathered, we have not identified any material misstatements that might call into question the fact that the information has been prepared, in all material respects, in accordance with the Framework and the basis of preparation set out in the Report, available on the Company's website.

Preparing information

The absence of a generally accepted and commonly or established practices on which to base to evaluate and measure sustainability information allows the use of different, but acceptable measurement techniques, which may affect comparability between entities and over time.

Consequently, the Information must be read and understood with reference to the Framework and the basis of preparation set out in the Report.

Responsibility of the entity

Management is responsible for:

- select or establish appropriate criteria for the preparation of Information;
- select eligible projects in accordance eligibility criteria;
- prepare Information in accordance with the Framework and the basis for preparation set out in the Report ;
- and implement the necessary internal controls for the preparation of the Information, that are free from material misstatement, whether due to from fraud or error.

Our responsibility

Our responsibility is to express a conclusion to express a conclusion of moderate conclusion as to whether the information is free from any material misstatement of such a nature as to call into question the fact that it has been prepared, in all material respects, in accordance with the Framework and the basis of preparation set out in the Report. As it is our responsibility to express an independent conclusion on the information, we are not authorized to be involved in the preparation of this Information, as this could compromise our independence.

It is not our responsibility to:

- Question the eligibility criteria defined in the Framework, and, in particular, we do not provide any interpretation the terms of the Framework;
- Mention a conclusion related the effective use of funds allocated to eligible projects after these funds have been allocated.
- Question the calculation method described in the Methodological Guide and developed by SNCF S.A. with the Carbone 4 consultancy.

Independence and quality control

We apply the international ISQC1 standard, and as such have implemented a quality control system comprising documented policies and procedures designed to ensure compliance ethical rules, professional standards and applicable laws and regulations.

We have complied with the Code of Ethics and independence rules of the Code of Ethics for Professional Accountants (code of Ethics for Professional Accountants) issued by the International Ethics Standards Board for Accountants.

Professional standards applied

We performed a moderate assurance engagement in accordance with standard ISAE 3000 (revised)² and international standard ISAE 3410³.

Resources

To assist us in the performance of our work, an independent independent, multidisciplinary team with experience in sustainable development and social responsibility.

Nature and scope of work

We planned and performed our work taking into account the risk of material misstatement in the Information.

In carrying out this risk assessment, we have taken into account the Company's internal control procedures relating to the preparation in order to define procedures that are appropriate in the circumstances, and not for the purpose of expressing a conclusion on the effectiveness of the Company's internal control procedures.

We believe that the procedures we have performed in the exercise of our professional judgment enable us to express a conclusion of moderate assurance.

1. Available on the SNCF website:

<https://www.sncf.com/en/group/finance/green-bonds>

2. ISAE 3000 (revised) - Assurance engagements other than audits or reviews of historical financial information

3. ISAE 3410 - Assurance Engagements on Greenhouse Gas Statements

Our work consisted of:

- identify and conduct interviews with the people responsible for collecting information from departments in charge of the information-gathering processes and, where responsible for internal control procedures internal control and risk management;
- assessed the appropriateness of the reporting procedures used by the Company to establish the Information with regard to their relevance, completeness reliability, neutrality and comprehensibility and understandable, taking into account, where appropriate, industry best practices;
- verify the existence of internal control and risk management implemented by the Company;
- verify the consistency of the information with the accounting records and data underlying the accounts;
- examine the processes used for the collection, aggregation, processing monitoring and control of data, in particular procedures relating to allocation of funds at end of December 2022;
- on the basis of a representative sample of projects: verify the eligibility of these projects eligibility criteria defined in the Framework;
- verify that project amounts at December 31, 2022, with the accounting and the data underlying the accounts;

- verify that the amount of funds allocated to projects is less than or equal to the amount projects at December 31, 2022;
- verify, without calling it into question the correct application of the methodology for calculating the carbon of Green Bond projects described in the the Methodological Guide, by reconciling in particular:
input data from the calculation file developed by SNCF S.A. and the Carbone 4 research firm with the funds allocated on December 31, 2022, broken down by eligible categories of eligible projects;
other sources that were necessary for the calculations ; the results of the calculation file with indicator «Total carbon impact of expenditures financed by Green Bonds at December 31, 2022».

The procedures implemented within the framework of a moderate assurance engagement are less extensive than those required for a reasonable assurance engagement a higher level of assurance would have required more extensive engagement.

This report has been prepared in the context described above and may not be used, distributed or referred to for any other purpose.

Management's responsibility with regard to the verified information

Verified information	Relevant section of the annual report	Relevant section of the guidelines
Project compliance with the Green Bonds eligibility criteria which comply with the criteria of the Climate Bond Standard	§ "Impact review and certification" on part "Allocation report", page 46	Green Bond Framework - § « Use of Proceeds »
Allocation of proceeds from the Green Bonds to eligible projects	§ "Allocation of proceeds 2021" on part "Allocation report", page 42, 43, 44 and 45	Green Bond Framework - § « Use of Proceeds » et § « Selection Process »
Description of proceeds management policy	§ "Fund management" on part "Allocation report", page 42	Green Bond Framework - § « Management of Proceeds »
"Total carbon impact of the expenses financed by Green Bonds" indicators	Table of § "Carbon impact of green bond-financed maintenance and upgrade expenditures" on part "05/Green Bond programme indicators", page 52	Methodological Note



07

Further reading

Find all our sustainable finance documentation on the SNCF Group websites

Download all our green bond programme documentation (Green Bond Framework, Second Party Opinion and more) from the “Sustainable finance” section of the SNCF SA website



Green Securities Framework

For full details of the SNCF Group CSR policy, see the relevant section of the SNCF Group website



SNCF Group CSR policy

Read the SNCF Responsible Business Report



2022 Responsible Business Report

ESE policy and sustainable development



SNCF ESE policy and sustainable development

Learn more about the SNCF SA green bond programme



Green bond programme methodology

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