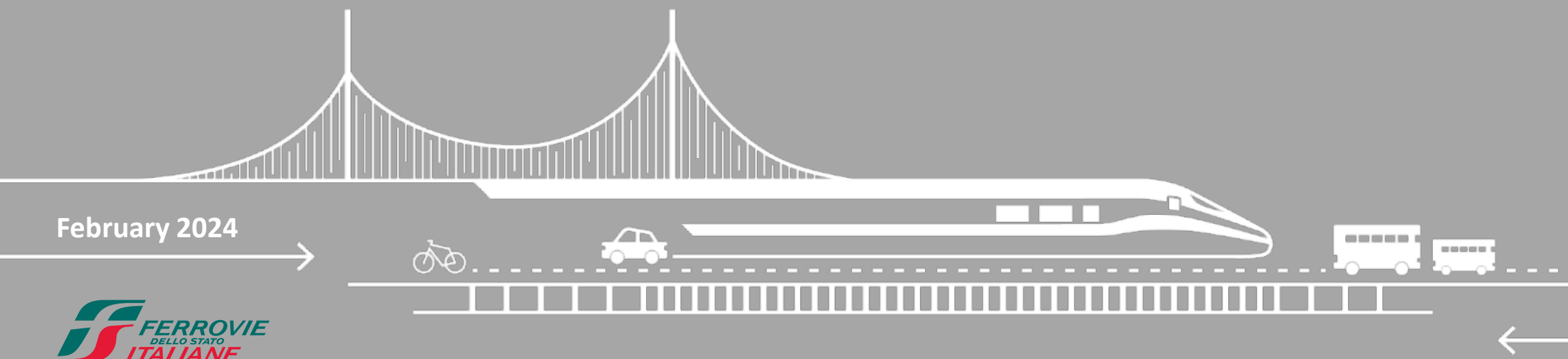


# GREEN BOND REPORT

## related to the EMTN bond Series 19 and Series 20

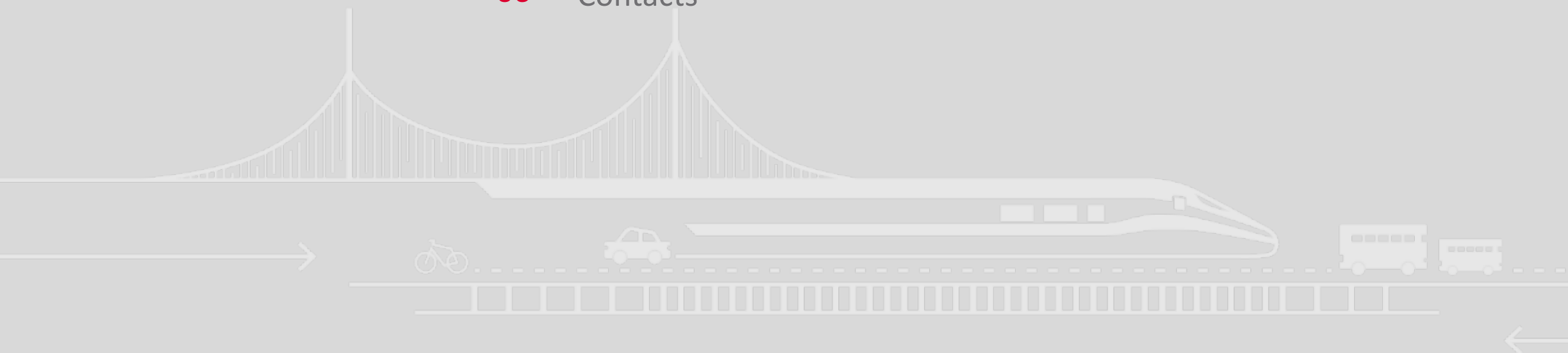


February 2024



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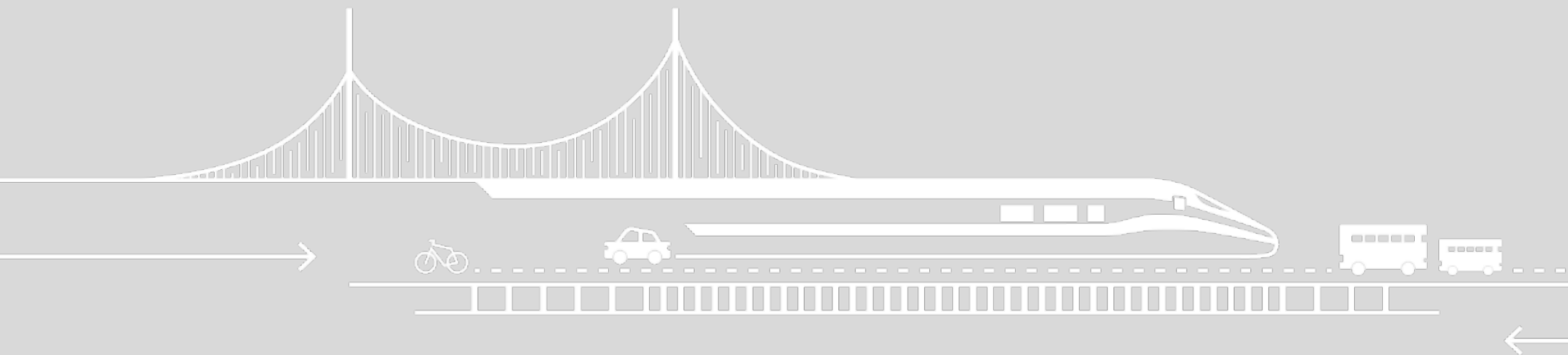
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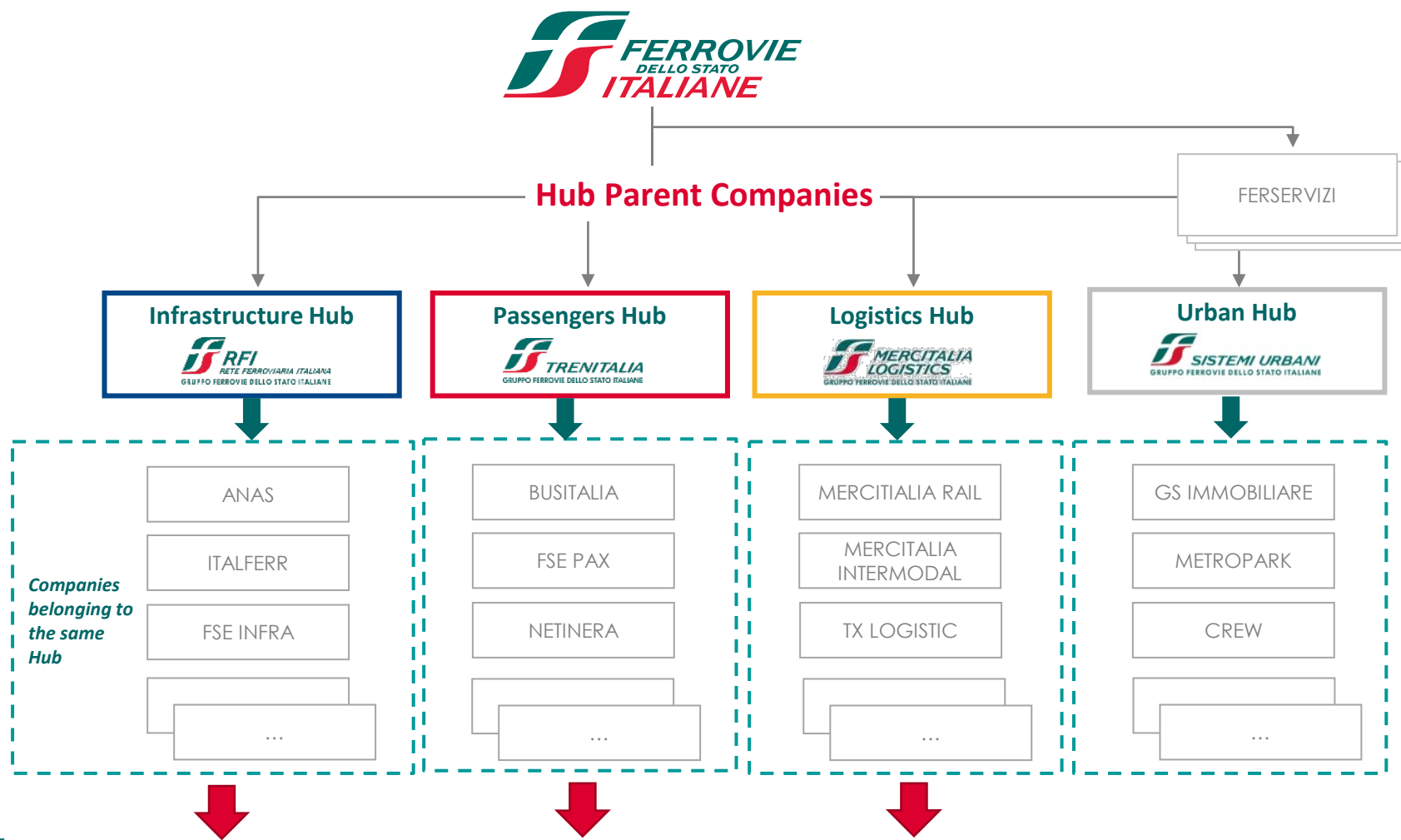
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# FS Group Overview and Sustainability



# FS Group in a snapshot

Ferrovie dello Stato Italiane SpA (“FS” or the “Issuer”) – 100% Italian State owned – is the holding company of the Italian railway group (FS Group). As one of the largest industrial groups in the Country, it manages rail and road networks and transport services by rail and bus both passenger and freight, contributing to develop integrated mobility and logistics in Italy and abroad.

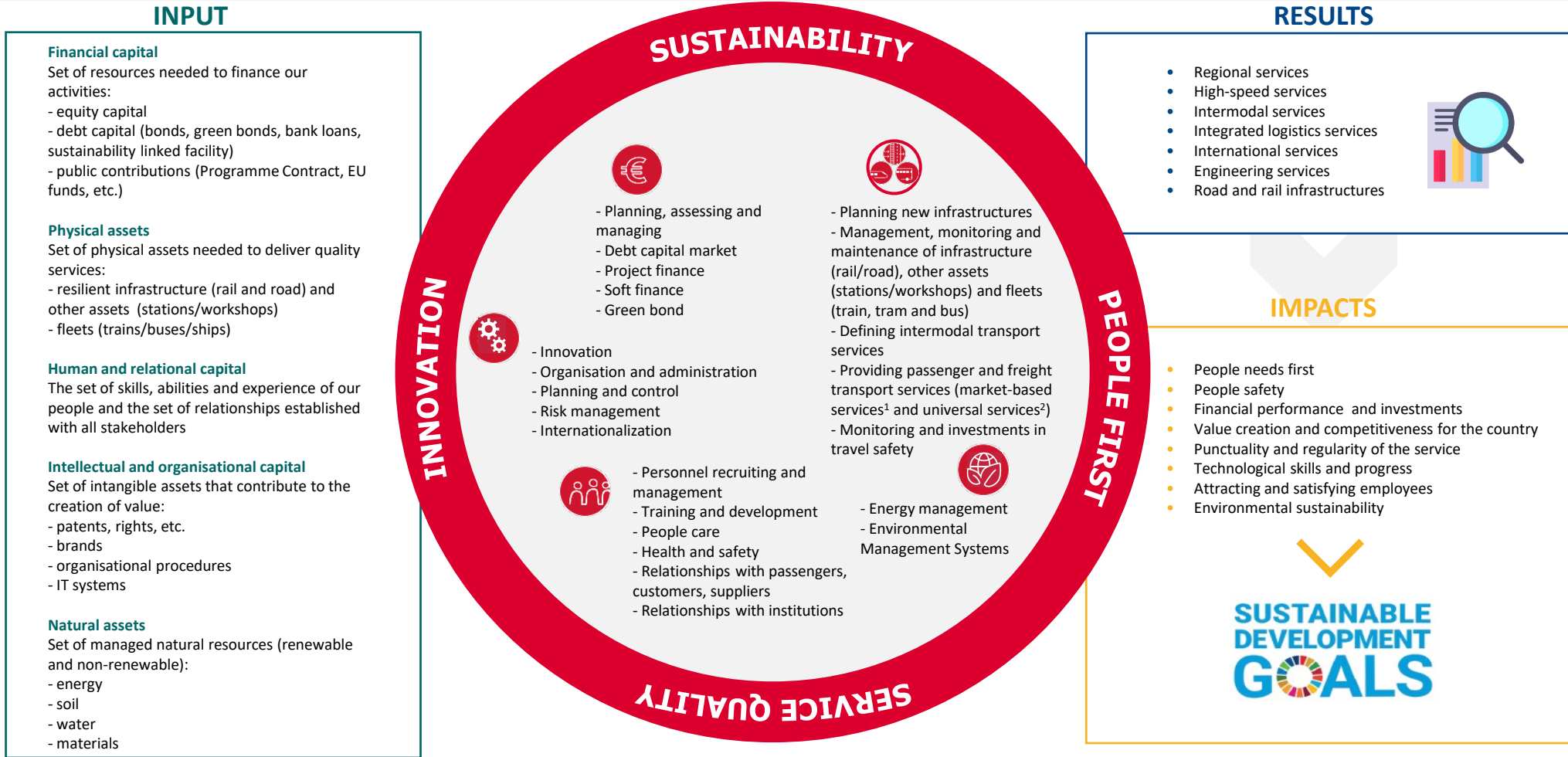


Trenitalia, Mercitalia Rail and RFI received and invested the proceeds of the Green Bonds issued by FS Italiane so far.

# A business model which fully integrates sustainability

## Group Vision

FS Group vision is to become the company that enables a system of resilient infrastructure, sustainable mobility and integrated logistics



<sup>1</sup> services carried out in full commercial autonomy and without public contributions  
<sup>2</sup> public transport services provided at the request of the State or the Regions which, on the basis of Service Contracts, pay the transport company a fee for compliance with established requirements (frequency, fares, performance levels and stops)

# FS Group Sustainability Commitment

## Our agenda for a sustainable mobility

The Group intends to place sustainability increasingly at the heart of its strategies. For this reason, the FS Group committed to 12 of the **Sustainable Development Goals (SDGs)** identified by the United Nations 2030 Agenda.



## Sustainability performance

The Group commitment is positively reflected in its sustainability ratings:

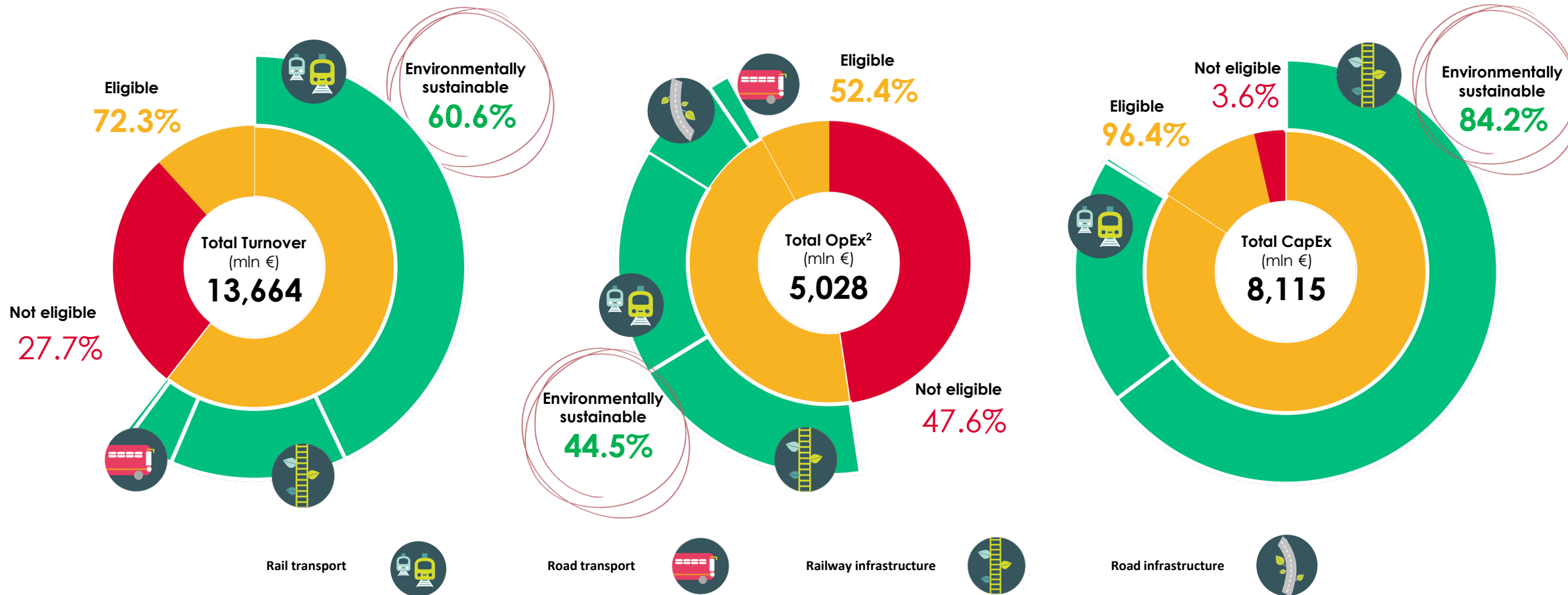
ENTITY	SCORE
CDP	Climate Change "A-"
MOODY'S ESG Solutions	Advanced
MORNINGSTAR SUSTAINALYTICS	ESG Low Risk
MSCI	Average
World Benchmarking Alliance	7th place out of 90

# European Taxonomy

## Turnover, Capex and Opex

In accordance with **EU Regulation 852/2020 (EU Taxonomy)** below is summarized the performance of the Group with regard to the shares of **2022 Turnover, Opex, and Capex<sup>1</sup> aligned to the two objectives of climate change mitigation and adaptation.**

- ✓ A total of **60.6%** of consolidated **turnover** is Taxonomy aligned
- ✓ A total of **44.5%** of consolidated **operating expenses** is Taxonomy aligned
- ✓ A total of **84.2%** of consolidated **capital expenditure** is Taxonomy aligned

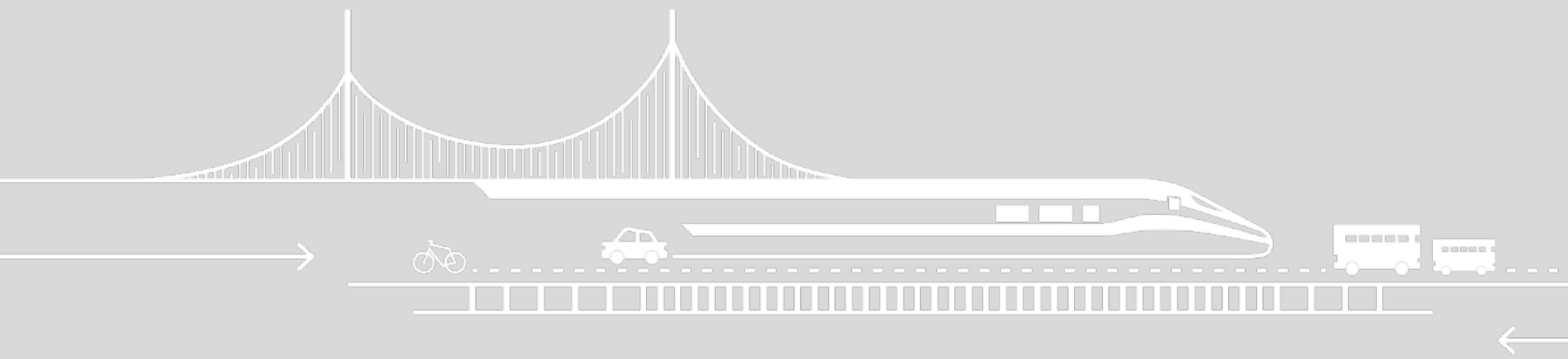


<sup>1</sup>Results refer to the share of turnover, operating expenses, and capital expenditures not related to intercompany activities.

<sup>2</sup>Total Opex as identified by the Delegated Regulations paragraphs 1.1.3.1. - 1.1.3.2



# Green Bond Framework Summary



# FS Green Bond Framework updated in 2022



First Green Bond Framework established in 2017. In 2022 FS has enlarged the list of Eligible Green Projects.



All the EGP are aligned with the EU Taxonomy categories

- Potential KPIs:
- Energy efficiency
  - Reducing CO<sub>2</sub> emissions
  - Modal shift vs railway

← **Eligible Green Projects**

↗ Look-back period: 2 years (vs. 3 years of the previous update)

↘ Look-forward period: 2 years

Trenitalia electric passenger trains and maintenance of the electric rolling stock.



MIR electric locos and freight wagons and related maintenance



RFI electric HS infrastructure and maintenance of the railway lines.



# Green Bond Framework – SDGs Mapping

- The FS Green Bond Framework addresses 3 of 17 **UN Sustainable Development Goals**.
- The mapping has been inspired by the **ICMA high-level mapping to SDGs** and existing practices of issuers of Green Bonds in the transportation sector.



**SDG 9.1:** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all



**SDG 11.2:** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport



**SDG 12.2:** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

**SDG 12.5:** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

## Best practice



In 2022 Sustainalytics provided a **Second Party Opinion** on the updated Green Bond Framework, certifying its alignment to the EU Taxonomy.



KPMG provided a **Third Party Opinion** on the 2022 Green Bond Report.

*“Ferrovie demonstrates a commitment to sustainability through its sustainability strategy, which is underpinned by three pillars: (i) **energy and emissions**, (ii) **sustainable mobility**, and (iii) **safety**”*

*“Sustainalytics is of the opinion that Ferrovie has implemented **adequate measures** and is **well-positioned to manage and mitigate environmental and social risks** commonly associated with the eligible categories.”*

*“Ferrovie dello Stato Italiane Green Bond Framework is aligned with the **overall sustainability strategy** of the Group and that the green use of proceed category will contribute to the advancement of the **UN Sustainable Development Goals 9, 11 and 12**”*

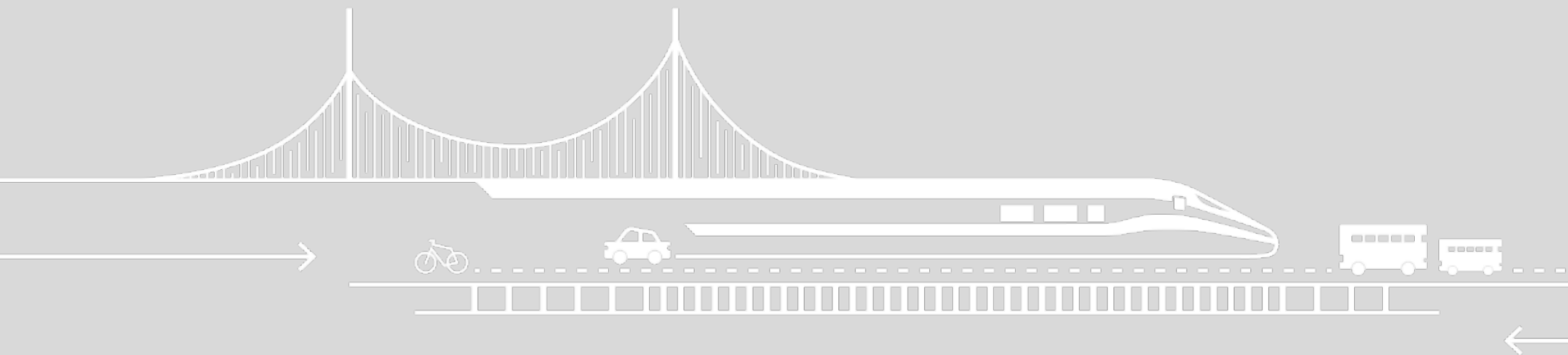
# FS's Green Issuances and Reporting perimeter

Reporting activity for Series 21, 22 and 23 is still ongoing and will be released one year after each issuance.

FS's Green Bond	Issue Date	Allocation	Reporting
EMTN Series 10	09/07/2019	100%	Annually
EMTN Series 17	25/03/2021	100%	Annually
EMTN Series 18	23/12/2021	100%	Annually
EMTN Series 19	20/07/2022	100%	Annually
EMTN Series 20	14/09/2022	100%	Annually
EMTN Series 21	23/05/2023	100%	Annually
EMTN Series 22	23/05/2023	100%	Annually
EMTN Series 23	14/12/2023	100%	Annually

# Allocation and Impact Reports

Green Bond Series 19 and 20



# Description of the issuances

- Investments in high speed transport among the Eligible Green Projects
- Green Bond underwritten by EIB.



- Investments in new Trenitalia trains and relevant maintenance expenses and for the completion of the Turin-Milan-Naples high-speed network among the Eligible Green Projects;
- 1.9x oversubscription with Eur 2.1 billion orders coming from 150 investors, of which around 65% from ESG investors;
- final spread at the tighter end of the guidance, at m/s+158.5bps, fixing the final size at EUR 1.1 bn;
- CBI Certified.



	Series 19	Series 20
<b>Issuer</b>	Ferrovie dello Stato Italiane SpA	Ferrovie dello Stato Italiane SpA
<b>Issue Type</b>	Green Bond	Green Bond
<b>Issuer Rating (at Issue)</b>	BBB / BBB (S&P / Fitch)	BBB / BBB (S&P / Fitch)
<b>Format</b>	Senior Unsecured, Reg S Bearer	Senior Unsecured, Reg S Bearer
<b>Amount</b>	Euro 200m	Euro 1,100m
<b>Issue Date</b>	20 July 2022	14 September 2022
<b>Maturity Date</b>	20 July 2039	14 April 2027
<b>Coupon</b>	Euribor 6 months + 1.35%	3.75%
<b>Reoffer Price / Yield</b>	n.a.	n.a.
<b>Reoffer Spread</b>	n.a.	n.a.
<b>Listing / Docs</b>	Irish Stock Exchange / Green Bond Framework / EMTN	Irish Stock Exchange / Green Bond Framework / EMTN

# Allocation of the Proceeds

100% of the proceeds (Euro 1,299.1 million) allocated at the issue date, via intercompany loan from FS, the issuer, to Trenitalia and RFI.



Ultimate Beneficiary Company	Eligible Green Project	Issuance	Funded Asset's Value (€/mln)	Unit of Asset Funded
Trenitalia	HIGH SPEED – FRECCIAROSSA 1000 TRAIN	19	200 mln	6
	HIGH SPEED – FRECCIAROSSA 1000 TRAIN	20	173.4 mln	5
	REGIONAL - POP AND ROCK TRAIN	20	158 mln	17
	MAINTENANCE EXPENDITURES	20	568 mln	421 <sup>(1)</sup>
RFI	INVESTMENTS IN THE HIGH-SPEED PROJECT TO-MI-NA	20	199.7 mln	7.8 km equivalent length railway link HS Firenze

**(1,299.1)**  
**100% financing**  
**of new projects**

<sup>(1)</sup> Total equivalent trains maintained for 2020 and 2021. The criteria for estimating the number of equivalent trains per year is shown on slide 41



# Impact reporting as of year end 2022 - environmental performance

## «train vs. train» approach



Ultimate Beneficiary Company	Eligible Green Project	Issuance	Unit of vehicle funded (equivalent)	Energy Saving MWh	Baseline GHG emissions tCO <sub>2</sub>	Total GHG emissions tCO <sub>2</sub>	Total GHG emissions avoided tCO <sub>2</sub>	Total GHG emissions avoided %
Trenitalia	HIGH SPEED – FRECCIAROSSA 1000 TRAIN <sup>(1)</sup>	19	6	11,444	14,520	11,546	-2,973	-20.5%
	HIGH SPEED – FRECCIAROSSA 1000 TRAIN <sup>(2)</sup>	20	5	1,332	0	0	0	0
	REGIONAL - POP AND ROCK TRAIN <sup>(3)</sup>	20	17	9,862	11,831	9,269	-2,562	-21.7%



The Eligible Green Projects are considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as they comply with the criteria established for economic activity “6.1 Passenger interurban rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

<sup>(1)</sup> Data related to the ETR1000 (in service in Italy) are actual as the fleet is full in operation. The baseline for the calculation of energy saving and avoided GHG emissions is the previous generation High-Speed train “ETR 500” with 9 coaches in the fleet of Trenitalia.

<sup>(2)</sup> Data are related only to energy saving due to the fact that the trains will be in service in Spain where traction energy comes 100% from renewable sources, therefore without CO<sub>2</sub> emissions.

<sup>(3)</sup> Data related to the POP and ROCK are estimates based on the values stated by the suppliers in the tender procurement process according to the European technical specification TS 50591 “Specification and verification of energy consumption for railway rolling stock”. The baseline for the calculation of energy saving and avoided GHG emissions is the market average for comparable trains in operation stated by the suppliers in the tender procurement process.

# Impact reporting as of year end 2022 - environmental performance

## «train vs. car» approach



Ultimate Beneficiary Company	Eligible Green Project	Issuance	Unit of vehicle funded (equivalent)	Energy Saving MWh	Baseline GHG emissions tCO <sub>2</sub>	Total GHG emissions tCO <sub>2</sub>	Total GHG emissions avoided tCO <sub>2</sub>	Total GHG emissions avoided %
Trenitalia	MAINTENANCE EXPENDITURES	20	421 <sup>(1)</sup>	n.a	830,281	220,114	- 610,166	73.5%



The Eligible Green Projects is considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as it complies with the criteria established for economic activity “6.1 Passenger interurban rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

<sup>(1)</sup> Total equivalent trains maintained for 2020 and 2021. The criteria for estimating the number of equivalent trains per year is shown on slide 41

# Impact reporting as of year end 2022 - environmental performance

## «emission avoided» approach



Ultimate Beneficiary Company	Eligible Green Project	Issuance	Total Investement (€/mn) (A)	Funded Asset's Value (€/mn) (B)	Avoided emissions from road transport (tCO <sub>2eq</sub> )	Emissions from train transport (tCO <sub>2eq</sub> )	Total GHG emissions avoided (tCO <sub>2eq</sub> ) (C)	GHG emissions avoided by Funded Asset's (tCO <sub>2eq</sub> ) (B/A)*C
RFI	INVESTMENTS IN THE HIGH-SPEED PROJECT TO-MI-NA	20	2,870	199.7	- 686,877	+329,344	- 357,533	24,878



The Eligible Green Project is considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as it complies with the criteria established for economic activity “6.14 Infrastructure for rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

# Third Party Opinion



KPMG S.p.A.  
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## Independent auditors' report on the Green Bond Report

*To the Board of Directors of  
Ferrovie dello Stato Italiane S.p.A.*

We have been engaged to perform a limited assurance engagement on the Allocation of the Proceeds data and on the environmental performance data resulting from green projects financed with the Green Bonds (as defined below) included in the Green Bond Report – February 2024 (the "Report") of Ferrovie dello Stato Italiane S.p.A. (the "Company") prepared on the basis of the Green Bond Framework - June 2022 and available on the Company's website (the "Framework"), developed by the Company in accordance with the Green Bond Principles 2021 issued by the International Capital Market Association - ICMA (the "Principles") related to the Green Bonds issued on 20 July 2022 (EMTN Series 19) and on 14 September 2022 (EMTN Series 20) (the "Green Bonds").

### Responsibilities of the Company's Directors for the Report

The Directors are responsible for the preparation of the Report in accordance with the Framework, developed by the Company in accordance with the Principles. In particular the Directors are responsible for the preparation of the Allocation of the Proceeds data in accordance with the eligible green projects categories and of the environmental performance data resulting from green projects financed with the Green Bonds included in the Report as described in the "Green Bond Framework Summary" paragraph of the Report.

The Directors are also responsible for such internal control as they determine is necessary to enable the preparation of a Report that is free from material misstatement, whether due to fraud or error. It also includes identifying the content of the Report, selecting and applying policies, and making judgments and estimates that are reasonable in the circumstances.

### Auditors' independence and quality control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants (including International Independence Standards) (IESBA Code) issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. Our company applies International Standard on Quality Management 1 and, accordingly, maintains a system of quality management including policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### Auditors' responsibility

Our responsibility is to express a conclusion, based on the procedures performed, about the preparation of the Allocation of the Proceeds data and of the environmental performance data resulting from green projects financed with the Green Bonds included in the Report in accordance with the "Green Bond Framework Summary" paragraph of the Report.

# Third Party Opinion



Ferrovie dello Stato Italiane S.p.A.  
Independent auditors' report  
7 February 2024

We carried out our work in accordance with the criteria established by "International Standard on Assurance Engagements 3000 (Revised) - Assurance Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000 Revised"), issued by the International Auditing and Assurance Standards Board applicable to limited assurance engagements. This standard requires that we plan and perform the engagement to obtain limited assurance about whether the Report is free from material misstatement. A limited assurance engagement is less in scope than a reasonable assurance engagement carried out in accordance with ISAE 3000 Revised, and consequently does not enable us to obtain assurance that we would become aware of all significant matters and events that might be identified in a reasonable assurance engagement.

The procedures we performed on the Report are based on our professional judgement and include inquiries, primarily of the Company's personnel responsible for the preparation of the information presented in the Report, documental analyses, recalculations and other evidence gathering procedures, as appropriate.

Specifically, we carried out the following main procedures:

- reviewing the second party opinion;
- evaluating the design and implementation of the reporting processes and the controls regarding the Allocation of the Proceeds data and the environmental performance data;
- interviewing relevant staff at corporate and business level responsible for the Green Bonds management and reporting;
- interviewing relevant staff at corporate and business level responsible for providing and consolidating the Allocation of the Proceeds data and the environmental performance data;
- evaluating internal and external documentation, based on sampling, to determine whether the Allocation of the Proceeds data is supported by sufficient evidence in line with the eligible green projects and the environmental performance data resulting from green projects financed with the Green Bonds is prepared in line with the methodology included in the Framework.

## Conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the Allocation of the Proceeds data and the environmental performance data resulting from green projects financed with the Green Bonds included in the Green Bond Report – February 2024, are not prepared, in all material respects, in accordance with the "Green Bond Framework Summary" paragraph of the Report.

Rome, 7 February 2024

KPMG S.p.A.

Gabriele de Gennaro  
Director of Audit

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Screening criteria

Eligible Green Project	Substantial contribution to	Taxonomy activity	EU Technical Screening Criteria	Alignment with Technical Screening Criteria
<b>REGIONAL - POP AND ROCK TRAIN</b>  <b>HIGH SPEED - FRECCIAROSSA1000 TRAIN</b>  <b>MAINTENANCE EXPENSES</b>	<b>Climate change mitigation</b>	<b>Passenger interurban rail transport</b>	The activity complies with one of the following criteria: (a) the trains and passenger coaches have zero direct (tailpipe) CO <sub>2</sub> emissions; (b) the trains and passenger coaches have zero direct (tailpipe) CO <sub>2</sub> emission when operated on a track with necessary infrastructure, and use a conventional engine where such infrastructure is not available (bimode).	Eligible green projects fulfill criteria a). Regional trains “Pop & Rock” and High speed trains “ETR 1000” are electric and they have zero direct (tailpipe) CO <sub>2</sub> emissions. As for cyclic maintenance, only electric trains/locos and coaches in electric loco composition were considered (*).

\* Diesel-powered loco/trains were excluded, and coaches were curtailed by a correction factor to account for potential use in diesel composition. The criteria for estimating equivalent trains is given in the slide 41.



# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Screening criteria

Eligible Green Project	Substantial contribution to	Taxonomy activity	EU Technical Screening Criteria	Alignment with Technical Screening Criteria
HIGH SPEED PROJECT TO-MI-NA	Climate change mitigation	Infrastructure for rail transport	<p>The activity complies with one of the following criteria:</p> <p>a) the infrastructure is either: i. electrified trackside infrastructure and associated subsystems; ii. new and existing trackside infrastructure and associated subsystems where there is a plan for electrification, or where the infrastructure will be fit for use by zero tailpipe CO<sub>2</sub> emission trains within 10 years from the beginning of the activity; iii. until 2030, existing trackside infrastructure and associated subsystems that are not part of the TEN-T network and its indicative extensions to third countries, nor any defined network of major rail lines;</p> <p>b) the infrastructure and installations are dedicated to transshipping freight between the modes</p> <p>c) infrastructure and installations are dedicated to the transfer of passengers from rail to rail or from other modes to rail</p> <p>d) digital tools enable an increase in efficiency, capacity or energy saving.</p> <p>2. The infrastructure is not dedicated to the transport or storage of fossil fuels.</p>	The eligible green project is related to electrified trackside infrastructure and associated subsystems, thus fulfilling criteria (a) i.

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<p><b>REGIONAL - POP AND ROCK TRAIN</b></p> <p><b>HIGH SPEED - FRECCIAROSSA1000 TRAIN</b></p> <p><b>MAINTENANCE EXPENSES</b></p>	<p>Passenger interurban rail transport</p>	<p><b>Climate change adaptation</b></p>	<p>Climate risk and vulnerability assessment</p>	<p>Ferrovie dello Stato has a risk management approach that covers climate change adaptation. Consistently with the best practices (e.g. EU Climate ADAPT – The Adaptation Support Tool), FS Group indeed considers adaptation as a way to minimize climate change risk. Ferrovie dello Stato is a TCFD (Task Force on Climate-Related Financial Disclosures) supporter since May 2021, and its climate change risk management process aims to identify and evaluate climate hazards and the related adaptation measures according to best practices. In 2020, the Group set up an intercompany Program Team in order to define a tool to evaluate climate hazards (physical risks) and to develop an infrastructure adaptation plan. The Program Team carried out a first pilot project for climate vulnerability assessment and physical risk modeling to identify the areas with the greatest exposure to climatic events from a perspective view. The assessment used the Representative Concentration Path (RCP) scenarios adopted by the Intergovernmental Panel on Climate Change (IPCC).</p> <p>In 2022, to identify the share of turnover, operating expenses, and capital expenditures aligned with the objectives of the EU Taxonomy Regulation, the Group provided companies with a tool for climate analysis and vulnerability assessment of main assets to identify the related adaptation measures in the so-called Adaptation Catalogue. The tool allows to i) identify the prevailing asset types (i.e., rolling stock, vehicles, buildings, ships, etc.); ii) identify the climate hazards that can potentially affect the assets (in line with Appendix A of the Technical Annex of Delegated Regulation EU 2021/2139); iii) evaluate the degree of vulnerability of the prevailing asset to the climate hazard; iv) identify physical and non-physical solutions (adaptation solutions) that help reduce the effects of the hazards that weight on the specific economic activity.</p>
<p><b>HIGH SPEED PROJECT TO-MI-NA</b></p>	<p>Infrastructure for rail transport</p>			



# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<p><b>HIGH SPEED PROJECT TO-MI-NA</b></p>	<p><b>Infrastructure for rail transport</b></p>	<p><b>Sustainable use of water resources</b></p>	<p>Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential and a water use and protection management plan, developed thereunder for the potentially affected water body or bodies. Where an Environmental Impact Assessment is carried out in accordance with Directive 2000/60/EC, no additional assessment of impact on water is required, provided the risks identified have been addressed.</p>	<p>During the development of projects for infrastructure, particularly those subject to Environmental Impact Assessment (EIA), in-depth studies are conducted to assess the possible interactions of the work with the surrounding environment, with particular attention to the protection of surface and groundwater during construction and operation. Detailed analyses of the hydraulic and hydrogeological characteristics of the area involved are carried out to assess potential interferences during construction and operation, defining mitigation or improvement solutions. During the construction phase, contractors implement an Environmental Management System in accordance with UN EN ISO 14001 to manage Significant Environmental Aspects during construction and establish operational procedures for environmental surveillance in accordance with regulatory obligations. RFI's management of water withdrawals follows environmental, national, community and regional regulations, ensuring compliance with legislative requirements. In many cases, especially for public users, drinking water comes from the public aqueduct. RFI is committed to monitoring the water network it owns to maintain parameter values at the point of delivery. Periodically, potability analyses are carried out to monitor water quality, and if regulatory limits are exceeded, sanitization activities are implemented on the entire network through appropriate treatments.</p>

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<b>REGIONAL - POP AND ROCK TRAIN</b>  <b>HIGH SPEED - FRECCIAROSSA1000 TRAIN</b>  <b>MAINTENANCE EXPENSES</b>	<b>Passenger interurban rail transport</b>	<b>Transition to a circular economy</b>	Measures are in place to manage waste in accordance with the waste hierarchy, in particular during maintenance	<p>The Group's main subsidiaries are ISO 14001:2015 Environment Management System (EMS) certified. The guidelines of EMS are applied to all operations including, procurement of goods and services, waste management, water management, preparation of train and crew, and shunting and maintenance of trains, wagons and locomotives.</p> <p>The Group's waste management policy is included in the EMS and the generated waste is managed in accordance with the waste management hierarchy while ensuring compliance with national and European regulations.</p> <p>The ETR1000 and the Rock passenger trains obtained the Environmental Product Declaration (EPD) which shows that the Frecciarossa 1000 emits only 28 grams of CO<sub>2</sub> per passenger per kilometer and the Rock emits 5.7 grams of CO<sub>2</sub> per passenger per kilometer. The Pop train received a certification of recyclability which attest a recyclable rate of 96.2% in accordance with ISO 22628.</p>

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<p><b>HIGH SPEED PROJECT TO-MI-NA</b></p>	<p><b>Infrastructure for rail transport</b></p>	<p><b>Transition to a circular economy</b></p>	<p>Operators limit waste generation in processes related to construction and demolition and take into account best available techniques. At least 70 % (by weight) of the non-hazardous construction and demolition waste generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol. Operators use selective demolition to enable removal and safe handling of hazardous substances and facilitate reuse and high-quality recycling.</p> <p>For manufacturing of constituents assess and adopts techniques that support:</p> <ul style="list-style-type: none"> <li>(a) reuse and use of secondary raw materials;</li> <li>(b) design for high durability, recyclability, easy disassembly and adaptability;</li> <li>(c) waste management that prioritises recycling over disposal;</li> <li>(d) traceability of substances of concern.</li> </ul>	<p>As part of the construction of new rail infrastructure, the main waste materials are excavated soil and rocks. RFI adopts environmental principles aimed at encouraging reuse of these materials rather than disposal. Whenever possible, waste materials are reused in ongoing projects or at off-site sites, while those that cannot be reused are managed as waste and disposed of in licensed facilities. RFI's procedures have been modified to meet EU principles and promote high standards in the European construction context. The Civil Works Design Manual defines procedures to maximize the reuse of excavated soil and rock, reducing waste generation and promoting the circular economy. By-products that are not reused in railroad works can be used for environmental rehabilitation in agreement with local authorities. Only if the materials do not meet environmental requirements are they managed as waste, with a focus on recovery rather than disposal. The Procurement Agreements include specific clauses to promote circular economy principles. For waste management, the Contractor must define operating methods consistent with regulatory requirements and submit periodic reports. In rail infrastructure maintenance activities, the main wastes are copper, steel, sleepers, and crushed stone. Removed materials are evaluated for reuse, and unsuitable materials are managed as waste, with preference given to recovery. Between 2019 and 2021, more than 90 percent of the special waste produced by RFI was sent for recovery, as reported in the Sustainability Report. RFI has implemented a UNI ISO 14001-compliant Environmental Management System to manage environmental aspects and continuously improve environmental performance.</p>

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<b>REGIONAL - POP AND ROCK TRAIN</b>  <b>HIGH SPEED - FRECCIAROSSA1000 TRAIN</b>  <b>MAINTENANCE EXPENSES</b>	<b>Passenger interurban rail transport</b>	<b>Pollution prevention and control</b>	Locomotive propulsion engines (RLL) and railcar propulsion engines (RLR) meet the emission limits in Annex II of Regulation (EU) 2016/1628 of the European Parliament and of the Council.	Regional trains “Pop & Rock” and High speed trains “ETR 1000” are electric and they have zero direct (tailpipe) CO2 emissions. As for cyclic maintenance, only electric trains/locos and coaches in electric loco composition were considered (*).

*\* Diesel-powered loco/trains were excluded, and coaches were curtailed by a correction factor to account for potential use in diesel composition. The criteria for estimating equivalent trains is given in the slide 41.*

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<p><b>HIGH SPEED PROJECT TO-MI-NA</b></p>	<p><b>Infrastructure for rail transport</b></p>	<p><b>Pollution prevention and control</b></p>	<p>Where appropriate, given the sensitivity of the area affected, in particular in terms of the size of population affected, noise and vibrations from use of infrastructure are mitigated by introducing open trenches, wall barriers, or other measures and they comply with Directive 2002/49/EC of the European Parliament and of the Council. Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.</p>	<p>RFI is aware of major air pollution factors resulting from its activities, including air emissions, noise, and vibration. These impacts occur during the construction of new works, at maintenance sites, and in railroad operating areas. At the design stage of new infrastructure, RFI conducts targeted studies to prevent and reduce pollution by adopting mitigation solutions. To manage noise and vibration, the Construction Site Environmental Project (PAC) and the Environmental Monitoring Project (PMA) are prepared, which identify solutions and verify the effectiveness of the measures taken. With regard to railway operations, RFI conducts noise simulations at the request of relevant agencies to identify and mitigate impacts on sensitive receptors. RFI promotes sustainability through a Design Manual, which guides the design of new works and maintenance interventions, considering environmental aspects and specific authorizations. Contractually, contractors are required to adopt an Environmental Management System in accordance with UN EN ISO 14001, defining operating methods to manage materials, hazardous substances and waste to prevent pollution of environmental matrices. All necessary environmental permits are acquired, and operational and mitigation actions, such as wetting of tracks and installation of dust and noise barriers, are implemented to manage noise and air emissions.</p>

# Other ESG indicators – EU Taxonomy assessment

## Summary of Alignment with the EU Taxonomy– Do No Significant Harm «DNSH» criteria

Eligible Green Project	Taxonomy activity	Environmental objectives	DNSH Criteria	Alignment with DNSH Criteria
<p><b>HIGH SPEED PROJECT TO-MI-NA</b></p>	<p><b>Infrastructure for rail transport</b></p>	<p><b>Protection and restoration of biodiversity and ecosystems</b></p>	<p>An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU. Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented.</p> <p>For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.</p>	<p>With reference to the protection and restoration of biodiversity and ecosystems, RFI has a special procedure "Management of interventions in protected natural areas and/or subject to landscape constraints" that applies to cases in which an organizational structure of the company operates as Principal, as Technical Subject or as executor in investment or maintenance projects that may result in interference, even indirectly, with protected areas and/or on areas or assets subject to constraints. In the event that the implementation of the interventions affects territories or assets subject to protection regimes related to the presence of protected areas and/or landscape constraints, the company preliminarily assesses the feasibility of the interventions or the conditions to which they are subjected in order to acquire the appropriate authorizations required by the regulations in force. Where an Environmental Impact Assessment has been carried out, the necessary mitigation and compensation measures for environmental protection are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and major biodiversity areas, and other protected areas), an appropriate assessment is conducted, where applicable, and, based on its conclusions, the necessary mitigation measures are implemented.</p>

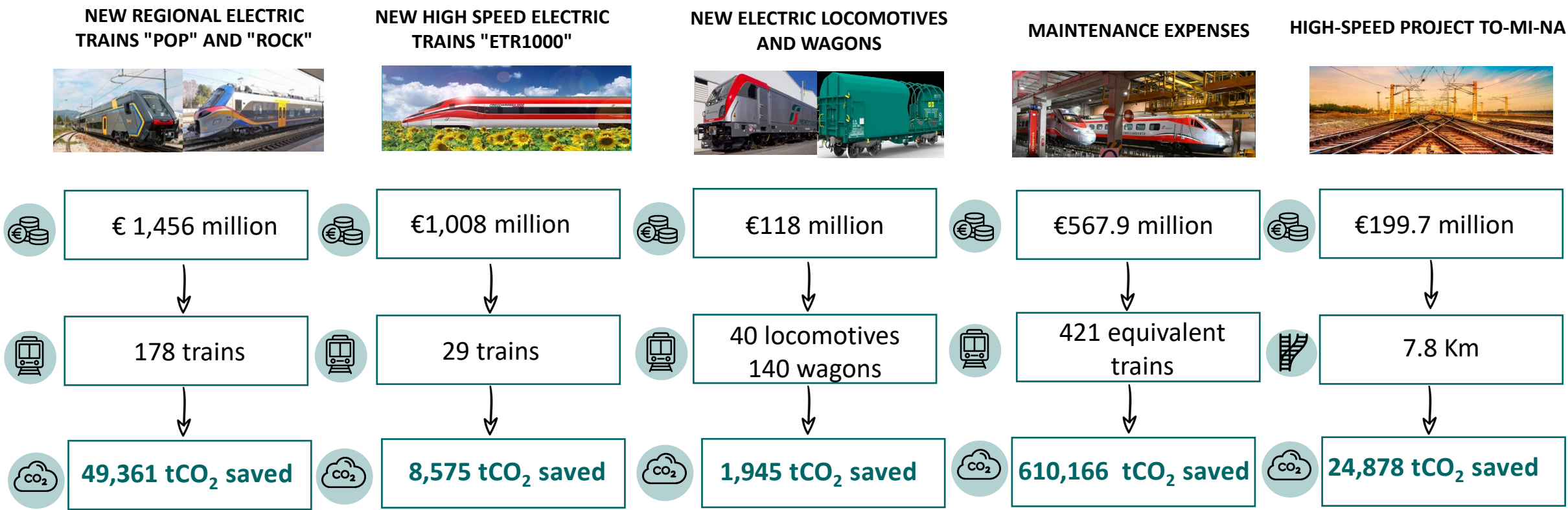
# Other ESG indicators – EU Taxonomy

## Summary of Alignment with the EU Taxonomy - Minimum safeguards assessment

Eligible Green Project	Minimum safeguards
ALL	<p>FS Italiane promotes the protection of human rights for its employees, customers, citizens, suppliers and business partners, helping create a responsible supply chain and operating in accordance with the United Nations' Universal Declaration of Human Rights and the fundamental conventions of the International Labour Organization.</p> <p>The principles on which the Group operates include respect for human rights and the commitment to contribute to the creation of a responsible supply chain, also established in the Code of Ethics (which guides the Group in its relationships with stakeholders). Furthermore, the Group promotes open and inclusive employment relationships and rejects any type of discrimination or harm against people, prevents any form of illegal labour and endorses policies aimed at the psychological and physical well-being of personnel. Since 2017, the Group has joined the UN's Global Compact ("GC") network.</p>

# 6 Green Bonds for a total Eur 3.95 bn issued until September 2022

## Total allocation and environmental impact (Series 10, 17, 18, 19 and 20)

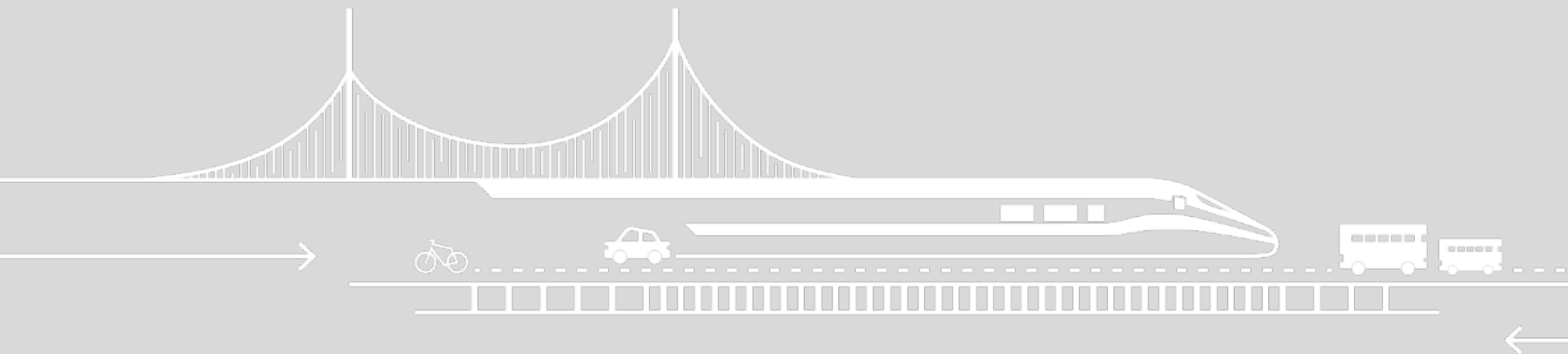


..... in the period 2019-2022 thanks to the Series 10, 17,18, 19 and 20

Furthermore, the Bond issuance Series 7 allocated €549.64 million and €49.78 million to fund respectively 17 High Speed Electric Trains "ETR1000" and 7 Regional Electric Trains "POP" and "ROCK". Total 13,491 tCO<sub>2</sub> saved\* in 2018 thanks to the Series 7.



# Allocation & impact report details



# Series 19 allocation of the Proceeds

100% proceeds allocated at the issue date, via intercompany loan from FS to Trenitalia

## PROCEEDS ALLOCATION

ELIGIBLE GREEN PROJECT	Funded Asset's Value (€/mln)	Unit of vehicle funded (equivalent)
New High Speed Trains "Frecciarossa1000"	200 mln	[6]
<b>100% financing allocated</b>		



# Series 19 impact reporting as of year end 2022 - environmental performance

## «train vs. train» approach

Ultimate Beneficiary Company	Eligible Green Project	Unit of Vehicle funded	Energy Saving MWh	Baseline GHG emissions tCO <sub>2</sub>	Total GHG emissions tCO <sub>2</sub>	Total GHG emissions avoided tCO <sub>2</sub>	Total GHG emissions avoided %
Trenitalia	HIGH SPEED - FRECCIAROSSA1000 TRAIN (1)	6	11,444	14,520	11,546	-2,973	-20.5%



The Eligible Green Projects are considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as they comply with the criteria established for economic activity “6.1 Passenger interurban rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

<sup>(1)</sup> Data related to the ETR1000 (in service in Italy) are actual as the fleet is full in operation. The baseline for the calculation of energy saving and avoided GHG emissions is the previous generation High-Speed train “ETR 500” with 9 coaches in the fleet of Trenitalia.

# Series 20 allocation of the Proceeds

100% proceeds allocated at the issue date, via intercompany loan from FS to Trenitalia and RFI

## PROCEEDS ALLOCATION

ELIGIBLE GREEN PROJECT	Funded Asset's Value (€/mln)	Unit of asset funded (equivalent)
1. New Electric Multiple Unit (EMU) Trains For Regional Passenger Transport: "Pop" and "Rock"	158	2 Pop, 15 Rock
2. New High Speed Trains "Frecciarossa1000"	173.4	5
3. Maintenance expenses	568	421 <sup>(1)</sup>
4. Investments in the high-speed project TO-MI-NA	199.7	7.8 km equivalent length railway link HS Firenze
<b>TOTAL</b>	<b>1,099.1</b>	<b>100% financing allocated</b>

<sup>(1)</sup> Total equivalent trains maintained for 2020 and 2021. The criteria for estimating the number of equivalent trains per year is shown on slide 41

# Series 20 impact reporting as of year end 2022 - environmental performance

## «train vs. train» approach



Ultimate Beneficiary Company	Eligible Green Project	Unit of vehicle funded	Energy Saving MWh	Baseline GHG emissions tCO <sub>2</sub>	Total GHG emissions tCO <sub>2</sub>	Total GHG emissions avoided tCO <sub>2</sub>	Total GHG emissions avoided %
Trenitalia	HIGH SPEED – FRECCIAROSSA 1000 TRAIN <sup>(1)</sup>	5	1,332	0	0	0	0
Trenitalia	REGIONAL - POP AND ROCK TRAIN <sup>(2)</sup>	17	9,862	11,831	9,269	-2,562	-21.7%



The Eligible Green Projects are considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as they comply with the criteria established for economic activity “6.1 Passenger interurban rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

<sup>(1)</sup> Data are related only to energy saving due to the fact that the trains will be in service in Spain where traction energy comes 100% from renewable sources, therefore without CO2 emissions.

<sup>(2)</sup> Data related to the POP and ROCK are estimates based on the values stated by the suppliers in the tender procurement process according to the European technical specification TS 50591 “Specification and verification of energy consumption for railway rolling stock”. The baseline for the calculation of energy saving and avoided GHG emissions is the market average for comparable trains in operation stated by the suppliers in the tender procurement process.

# Series 20 impact reporting as of year end 2022 - environmental performance

## «train vs. car» approach



Ultimate Beneficiary Company	Eligible Green Project	Unit of vehicle funded (equivalent)	Energy Saving MWh	Baseline GHG emissions tCO <sub>2</sub>	Total GHG emissions tCO <sub>2</sub>	Total GHG emissions avoided tCO <sub>2</sub>	Total GHG emissions avoided %
Trenitalia	MAINTENANCE EXPENSES	421 <sup>(1)</sup>	n.a	830,281	220,114	- 610,166	73.5%



The Eligible Green Projects is considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as it complies with the criteria established for economic activity “6.1 Passenger interurban rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

(1) Total equivalent trains maintained for 2020 and 2021. The criteria for estimating the number of equivalent trains per year is shown on slide 41

# Series 20 impact reporting as of year end 2022 - environmental performance

## «emission avoided» approach



Ultimate Beneficiary Company	Eligible Green Project	Total Investement (A) (€/mn)	Funded Asset's Value (B) (€/mn)	Avoided emissions from road transport (tCO <sub>2eq</sub> )	Emissions from train transport (t.CO2eq)	Total GHG emissions avoided (tCO <sub>2eq</sub> ) (C)	GHG emissions avoided by Funded Asset's (tCO <sub>2eq</sub> ) (B/A)*C
RFI	INVESTMENTS IN THE HIGH-SPEED PROJECT TO-MI-NA	2,870	199.7	- 686,877	+329,344	- 357,533	24,878



The Eligible Green Project is considered **environmentally sustainable** in accordance with **EU Regulation 2020/852**, making a significant contribution to the objective of **climate change mitigation** as it complies with the criteria established for economic activity “6.14 Infrastructure for rail transport”. For further details refer to the “Other ESG indicators – EU Taxonomy assessment” section.

# Series 19 and 20: Note on Calculation Methodology

## Estimated avoided emissions «train vs. train» approach and «train vs. car» approach

### Purchase of new trains

### Cyclic Maintenance

#### Baseline



*Comparison with market average trains offered in bidding process (similar to previous series)*

*Comparison with road transport (benefit calculated in terms of modal shift car-to-rail)*

#### Calculation algorithm

$$\left( \frac{kWh}{trkm} \text{baseline} - \frac{kWh}{trkm} \text{train} \right) * f_{conv} * trkm_{avrg \text{ train}} * n^{\circ} \text{train}$$

Labels above the equation: Specific saving, Production factor, Green Bond Scope

$$\left( \frac{CO_2}{paxkm} \text{car} - \frac{CO_2}{paxkm} \text{train} \right)_{2022} * \frac{paxkm_{train2022}}{train_{tot2022}} * train_{eq \ 2020/21}$$

Labels above the equation: Specific saving, Production factor, Green Bond Scope (4)

$F_{conv}$ : 259.8 gCO<sub>2</sub>/kWh is the CO<sub>2</sub> emission factor related to the Italian electricity production mix as calculated by ISPRA (1)

**CO<sub>2</sub> car**: is the ratio of 161,9 gCO<sub>2</sub>/km car's average emission per passenger-km in 2022 (2) and the 1,5 pax/car average load factor (3)

**CO<sub>2</sub> train**: is the product between train's average specific consumption and the 259.8 gCO<sub>2</sub>/kWh CO<sub>2</sub> emission factor related to the Italian electricity production mix (1)

(1): Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) - "Emission factors electricity production and consumption 2021 V2"- Table 14, column "Gross electricity production," year 2020 (so in year N, the value of year N-2 is used)

(2) ISPRA - The database of average emission factors of road transport in Italy

(3) EcoPassenger - Environmental Methodology and Data Update 2016

(4) The criteria for estimating the number of Green Bond Scope's equivalent trains is shown on slide 41



# Estimated avoided emissions

## Green Bond Scope's Equivalent Train Definition

**Blocked composition trains**

**Locomotives + coaches\***

$$train_{eq_{2020/21}} = train_{comp.blocked} + (loco_{el} + coach_{el} + coach_{prom} * f_r) / comp_{avg}$$

- $train_{comp.blocked}$  = trains with blocked composition (e.g. ETR1000, TAF, etc.)
- $loco_{el}$  = electric-powered locomotives
- $coach_{el}$  = coaches used exclusively in electric loco composition
- $coach_{prom}$  = mixed-use coaches used in both electric and diesel loco compositions
- $f_r$  = corrective reduction factor that takes into account the mixed use of coaches
- $comp_{avg}$  = average composition of trains composed of loco + coaches per Business

\* The different types of locos and coaches are considered as a homogeneous whole. For precautionary purposes, the number of equivalent trains will be rounded down.

## Series 20: Note on Calculation Methodology

### Emissions avoided thanks to infrastructure investments that lead the modal shift to rail transport

Emissions avoided during the operation of a railway project are generally calculated using the **differential approach** determined by comparing the "project" scenario involving the construction of the project and the "reference" scenario not involving the investment. The calculation is performed along a **30-year operating phase**.

Through specific transportation study, it was possible to estimate the **number of vehicles.km** diverted from road to rail mode and the related CO<sub>2</sub> saved.

This value is netted by the CO<sub>2</sub> emitted for the production of electricity needed to run the extra number of trains that result from the investment. On the right side, the tons of CO<sub>2</sub> avoided are reported.

**-357,533 tCO<sub>2</sub>e**  
**EMISSION AVOIDED**

CO<sub>2</sub> emissions avoided during the operation of the railway work thanks to the modal shift to rail transport

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