



GREEN BOND IMPACT REPORTING  
**MARCH 2024**

# 1.

## FOREWORD

### EUROFIMA'S MISSION

Since its establishment in 1956, EUROFIMA has extended EUR 92 billion of loans to its shareholder-clients for renewal and modernization of their rolling stock equipment, as such fulfilling its mission to support the development of public passenger rail transportation in Europe.

The contracting states that signed the EUROFIMA Convention ([read more](#)) recognized, already at that time, the importance that “the railway can play its role in the general economy [...] if it is in a position to effect investments corresponding to a normal renewal and to an indispensable modernization of rolling stock”.

Rail has always been one of the lowest, if not the lowest, carbon transport mode and has played a positive role in society, supporting economic development and offering congestion-free access to employment and leisure opportunities. Nevertheless, the awareness of railroad transport’s role as a key driver of sustainable development has increased significantly only in recent years, as a result of the increasing attention on sustainability at all levels of our society, among decision makers and investors.





Zug, Switzerland - Source : SBB CFF FFS

## SUSTAINABILITY

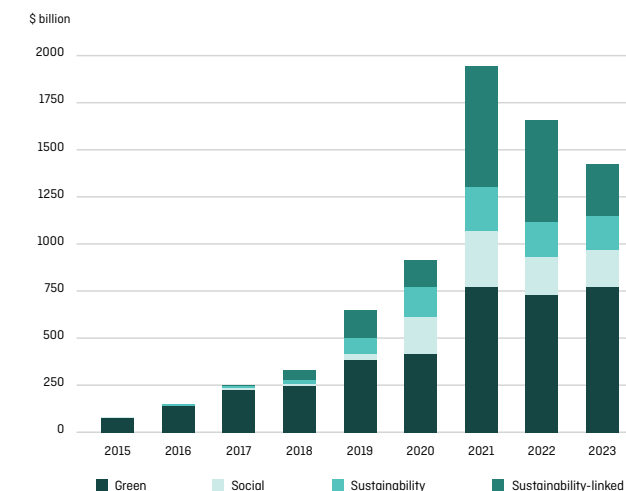
The concept of a sustainable society has been around for decades. In 1981, Lester Brown, founder of the Worldwatch Institute, defined a sustainable society as “one that is able to satisfy its needs without diminishing the chance of future generations.” Since then, the concept has evolved to include a broad range of social, economic and environmental elements that are supposed to work in harmony together and today it has become one of the most pressing topics in our society.

Sustainability has also been an increasingly important point on the political agenda, especially in Europe as highlighted by the principles included in art. 3 of the EU Treaty: “[The Union] shall work for the sustainable development of Europe based on balanced economic growth [...] aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment [...]”

In addition, the EU’s support of a transition to a low-carbon, more resource-efficient and sustainable economy has strengthened with the adoption of the UN 2030 agenda and sustainable development goals, the Paris climate agreement in 2015 and very recently culminated with the European Green Deal, a growth strategy aiming to make Europe the first climate neutral continent by 2050 and the European Green Deal Investment Plan, which is expected to mobilize at least EUR 1'000 billion of sustainable investments over the next decade.

At the same time, the role of the financial markets in promoting sustainability has increased considerably, as witnessed by an exponentially increasing green, social and sustainable bonds market.

## Global sustainable debt annual issuance, 2015-2023

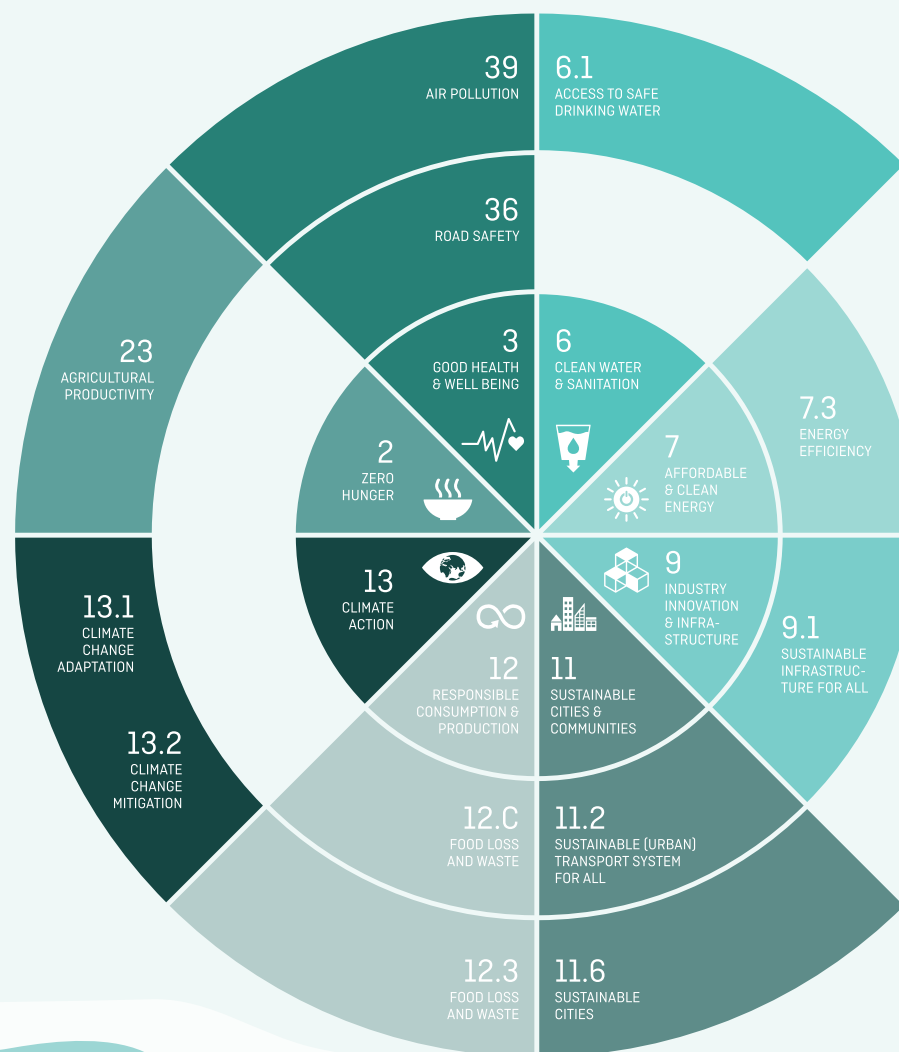


Source: Bloomberg

## THE CENTRAL ROLE OF THE RAILWAYS SECTOR IN THE DEVELOPMENT OF SUSTAINABLE TRANSPORT

About sixty years after EUROFIMA's establishment, clean transportation has become a central element of all sustainable development efforts. In the final report of the Open Working Group on Sustainable Development Goals (SDG)<sup>1</sup>, transport related targets are included in eight out of the seventeen SDGs (Goals 2, 3, 6, 7, 9, 11, 12, 13). Transportation makes also direct and indirect contributions to at least thirteen SDG targets and is directly related to five SDG indicators.

<sup>1</sup> The Sustainable Development Goals (SDGs), officially known as "Transforming our world: the 2030 Agenda for Sustainable Development", are a set of seventeen aspirational global goals, with 169 specific targets, adopted through a United Nations resolution in September 2015.





Transportation stimulates economic and social development, ensures accessibility to opportunities, but is also associated with a number of direct and indirect externalities, such as: traffic congestion, air pollution (responsible for about a fifth of global CO<sub>2</sub> emissions) and road accidents.

In this context, railroad transportation offers unparalleled energy efficiency and very low carbon emissions, when coupled with modern clean energy sources. Therefore, railroad transportation can play an important role in delivering a wide range of sustainable development goals and their supporting targets (e.g., overall economic development, social equality, poverty reduction, and enhanced sustainability).

Since its establishment EUROFIMA has made significant contributions to a sustainable society.

Up until year	Collateral mileage of the trains financed by EUROFIMA	Transported passengers on trains financed by EUROFIMA	CO <sub>2</sub> emissions saved
2023	321 billion km	32 billion passengers	163 million tons

In addition, EUROFIMA endeavours to make a long-term, active contribution to a sustainable society and to climate protection through its Green Bond and lending activity. The net proceeds from the Green Bond issuances are invested in Eligible Assets<sup>2</sup>, hence both incentivizing and supporting the development of sustainable mobility for our railway clients. Through its funding and lending activities EUROFIMA actively participates in development of long-term sustainable mobility as a financing source of rolling stock for the European railway administrations and as, effectively, a pure player in European public service railroad transportation.

<sup>2</sup> As defined in EUROFIMA GBF, published in 2018 and updated in 2021. [\[Link to Green Bond Framework\]](#)

Lisbon, Portugal - Source : AdobeStock

# 2.

## ABOUT THIS REPORT

### REPORTING FRAMEWORK AND GUIDELINES

Reporting is an important mechanism that demonstrates transparency and accountability to our stakeholders. This report has been produced in line with the requirements set out in our Green Bond Framework, the ICMA “Handbook - Harmonized Framework for Impact Reporting” issued in December 2020 [\[read more\]](#) and incorporates some of the elements included in the TEG Report “Proposal for an EU Green Bond Standard”, published in June 2019 [\[read more\]](#), the TEG final report on the EU taxonomy [\[read more\]](#) and its technical annex published in March 2020 [\[read more\]](#).

### REPORTING SCOPE

This report presents the expected environmental impacts of projects financed with the Green Bonds proceeds fully allocated at the time of this report, the impact reporting methodology applied and the related governance process.

Unless otherwise indicated, the reported impacts are Scope 1 (i.e., direct GHG emissions) as defined in the Greenhouse Gas Protocol<sup>3</sup>. Impact is reported for the aggregated portfolio of eligible assets as of December 31, 2023 (i.e., on a portfolio basis<sup>4</sup>).

<sup>3</sup> Read more page 25, definition Scope 1: Direct GHG emissions. [\[Link\]](#)

<sup>4</sup> In line with recommendations included in the EU Taxonomy Technical Report by TEG, §4.2 page 59. [\[Link\]](#)



Annual GHG emissions savings

**3'171'187 tCO<sub>2</sub>**  
**2'317 tCH<sub>4</sub><sup>5</sup>**  
**10'278 tN<sub>2</sub>O<sup>6</sup>**  
**3'183'781 tCO<sub>2</sub> Eq**

Avoided annual emissions

**3'171'187 tCO<sub>2</sub>**  
**2'317 tCH<sub>4</sub>**  
**10'278 tN<sub>2</sub>O**

Reduced annual emissions

**0 tCO<sub>2</sub>**  
**0 tCH<sub>4</sub>**  
**0 tN<sub>2</sub>O**

<sup>5</sup> CH<sub>4</sub> is the chemical formula of Methane, a greenhouse gas, which is emitted in production, refinement, transportation, and storage of crude oil. The values here and in the entire document are always to be intended as CO<sub>2</sub> equivalent.

<sup>6</sup> N<sub>2</sub>O is the chemical formula of Nitrous Oxide, a greenhouse gas, which is emitted during the combustion of petrol and diesel fuel. The values here and in the entire document are always to be intended as CO<sub>2</sub> equivalent.



Annual reduction of fuel consumption

**468.1 MI**

3.

## OVERVIEW

As of December 31, 2023, EUROFIMA has allocated a total of EUR 5'531 million of net proceeds from its Green Bond issuance to investment projects aligned with the Green Bond Framework (GBF) [\[Link to GBF\]](#).

Energy annual savings

**4'341 GWh**

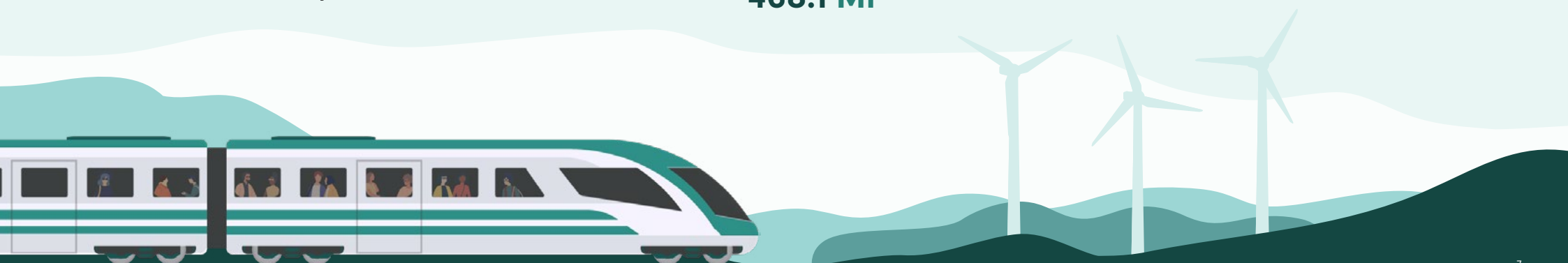
Avoided energy use

**4'341 GWh**



Reduced energy use

**0 GWh**



# 4.

## SDG MAPPING

While backing all of the 17 SDGs<sup>1</sup>, as defined by the United Nations in September 2015 for the period 2015-2030, EUROFIMA can mainly contribute to Goal 9 and Goal 11 according to its areas of competence, which is acknowledged by Second Party Opinion. The mapping has been inspired by the ICMA high-level mapping to SDGs [\[read more\]](#) and existing practices of issuers of Green Bonds in the transportation sector.

EUROFIMA's use of proceeds for electric rolling stock equipment shows its commitment to the two following SDG:



**Innovation and Infrastructure:** efficient, clean and environmentally sound mobility to enable development and employment.



**Sustainable Cities and Communities:** social development via access to inclusive transportation and mobility in rapidly urbanizing cities.

EUROFIMA strives to foster the procurement of rolling stock equipment for passenger transport to improve safety, air pollution and inclusive mobility, given the challenges of urbanization. EUROFIMA considers itself as particularly well positioned to facilitate innovation in and efficient use of resources of sustainable passenger railway transportation.





Spain - Source : Renfe

# 5.

## ENVIRONMENTAL OBJECTIVES

The projects financed with the proceeds of EUROFIMA Green Bonds are contributing to the climate change mitigation. [\[read more\]](#)

There are several principal climate mitigation options for the “greening” of the transport sector including, most relevant for EUROFIMA, the following:

- Increasing the number of low and zero emission vehicles;
- Improving vehicle efficiency;
- Substituting fossil fuels with alternative and net-zero carbon fuels; and
- Improving efficiency of the overall transport and mobility system. [\[read more\]](#)

EUROFIMA green projects contribute to some extent to all of the above objectives, as they finance electric rolling stock.

Passenger electric railway activity is already considered low carbon: it is a zero-direct emission mode of transportation. With near-to-zero carbon electricity generation it is already compliant with a 2050 net-zero carbon activity<sup>7</sup>.

EUROFIMA financing focuses on clean transportation projects through supporting the procurement and deployment of clean transportation via modal shift (i.e., moving people to more sustainable and less polluting means of transportation) and low emissions (i.e., reducing GHG emissions and air pollutants per unit of service provided).

<sup>7</sup> Read more page 329 of the EU Taxonomy Technical Report by TEG. [\[Link\]](#)

## 6.

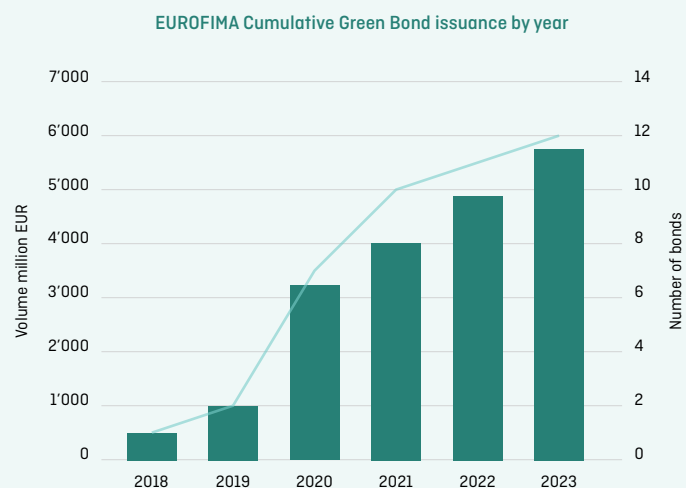
## EUROFIMA GREEN BONDS

As of December 31, 2023 total outstanding Green Bonds amounted to EUR 5'744 million equivalent principal. Green Bond ratio for outstanding bonds reached 50% (from 43% in 2022). EUROFIMA launched its inaugural Green Bond in 2018 with a EUR 500 million 2024 benchmark and subsequently issued another seven EUR Green Bonds maturing in 2026, 2028, 2030, 2031, 2033, 2034, 2041, three SEK Green Bonds maturing in 2024, 2025, 2028 and one CHF Green Bond maturing in 2031.

### EUROFIMA Green Bonds issued up to December 31, 2023

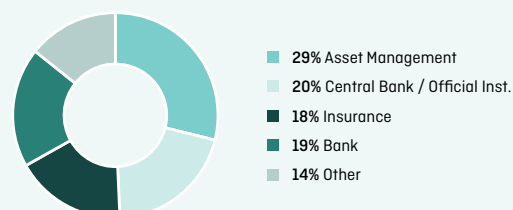
EUROFIMA Green Bond	ISIN	Currency	Issue Date	Maturity Date	Coupon	Amount issued LC (m)	Amount issued EUR (m)
EUROF 0 1/4 02/09/24	XS1919899960	EUR	10.12.2018	09.02.2024	0.25 %	500	500
EUROF 0.15 10/10/34	XS2055744689	EUR	10.10.2019	10.10.2034	0.15 %	2'000	2'000
EUROF 0.1 05/20/30	XS2176621253	EUR	20.05.2020	20.05.2030	0.10 %	800	800
EUROF 0 07/28/26	XS2210044009	EUR	28.07.2020	28.07.2026	0.00 %	300	300
EUROF 0.49 11/27/28	XS2264546917	SEK	27.11.2020	27.11.2028	0.49 %	1'500	135
EUROF 0.2125 12/03/25	XS2266970040	SEK	03.12.2020	03.12.2025	0.21 %	1'000	90
EUROF 0.1 12/04/24	XS2269162371	SEK	04.12.2020	04.12.2024	0.10 %	550	49
EUROF 0 1/2 04/23/41	XS2332851026	EUR	19.04.2021	23.04.2041	0.50 %	250	250
EUROF 0.01 06/23/28	XS2356409966	EUR	23.06.2021	23.06.2028	0.01 %	336	336
EUROF 0 12/22/31	CH1149985959	CHF	22.12.2021	22.12.2031	0.00 %	200	215
EUROF 3 1/8 11/09/31	XS2552880838	EUR	09.11.2022	09.11.2031	3.13 %	614	500
EUROF 3 1/8 30/03/33	XS2604370978	EUR	31.03.2023	30.03.2033	3.13 %	570	570
<b>Total</b>							<b>5'744</b>

### EUROFIMA cumulative outstanding Green Bonds up to December 31, 2023

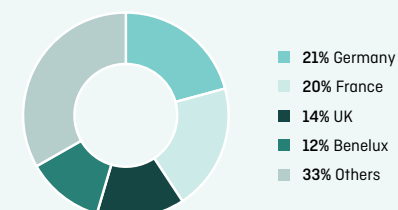


### EUROFIMA Green Bond Distribution

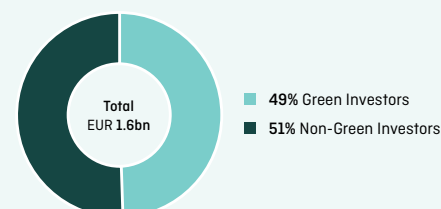
#### % by investor type



#### % by geographical region



#### Demand



## 7.

## ALLOCATION OF GREEN BONDS NET PROCEEDS

## Allocation of Proceeds

(amounts in EUR millions)

ISIN GB	Green Bond Proceeds	Proceeds Allocated	in %
XS1919899960	497	497	100%
XS2055744689	1'807	1'807	100%
XS2176621253	788	788	100%
XS2210044009	303	303	100%
XS2264546917	146	146	100%
XS2266970040	99	99	100%
XS2269162371	54	54	100%
XS2332851026	244	244	100%
XS2356409966	336	336	100%
CH1149985959	192	192	100%
XS2552880838	497	497	100%
XS2604370978	567	567	100%
<b>Total</b>	<b>5'531</b>	<b>5'531</b>	<b>100%</b>

Allocation reporting of our Green Bonds is following the EUROFIMA Green Bond Framework [\[read more\]](#) and has received an SPO [\[read more\]](#). Relevant pricing supplements can be found on our website. [\[Link\]](#)

## Green Bond Ratio

(amounts in EUR millions)

Bonds Issuance	2023	All Outstanding <sup>9</sup>	In %
Total Bonds	1'502	11'384	13%
Green Bonds	876	5'744	15%
Green Bond ratio in % <sup>9</sup>	58%	50%	

Financing vs. Refinancing<sup>10</sup>

(amounts in EUR millions)

Bonds Issuance	Proceeds	In %
New Financing	4'769	86%
Refinancing	761	14%
<b>Total</b>	<b>5'531</b>	<b>100%</b>



Budapest, Hungary - Source: MÁV

<sup>8</sup> As per EU TEG Report on EU Green Bond Standard (June 2019). The ratio is equal to the nominal value of all Green Bonds outstanding divided by the total amount of all debt outstanding, at the end of the reporting period.

<sup>9</sup> Total outstanding EUROFIMA debt as of 31.12.2023

<sup>10</sup> Refinancing is defined as Green Bonds proceeds being used to finance maturing loans.

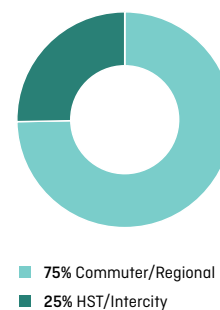


Tirano, Italy - Source : AdobeStock

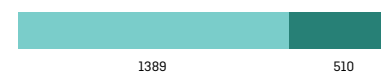
## Key highlights

- As of December 31, 2023 the EUR 5'531 million net proceeds of all outstanding EUROFIMA Green Bonds have been fully allocated to Electric Rolling Stock for passenger transportation according to EUROFIMA's Green Bond Framework.
- In total, 1'899 items of rolling stock equipment (Electrical Multiple Units, Locomotives, Coaches) were financed, as of the date of the reporting: 1'389 for Commuter/Regional traffic and 510 for Intercity traffic<sup>11</sup>.
- As of the date of the reporting, Green Bond ratio for all outstanding bonds reached 50% from 43% in 2022.

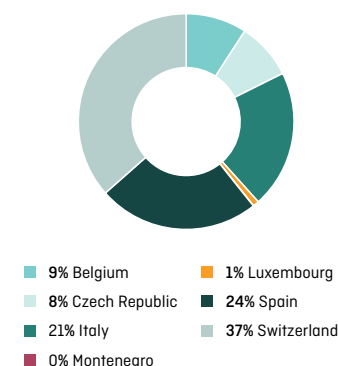
### Area of Operation<sup>11</sup> % proceeds



#### Number of trains



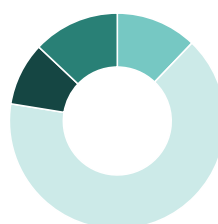
### Country % proceeds



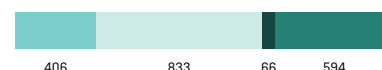
#### Number of trains



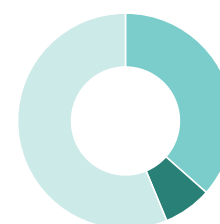
### Asset Type % proceeds



#### Number of trains



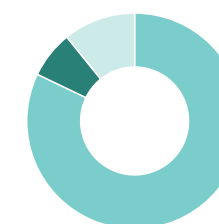
### Currency % proceeds



#### Number of trains



### Asset Condition % proceeds



#### Number of trains



<sup>11</sup> All items of equipment comply with the EUROFIMA policies on Public Service Obligation



## IMPACT INDICATORS

EUROFIMA reports on the following core indicators, with the goal of quantifying the savings generated:

1. Estimated annual Green-House Gas emissions (GHG) reduced or avoided, measured in tons of CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>
2. Estimated annual energy consumption reduced or avoided, measured in GWh
3. Estimated CO<sub>2</sub> emissions per passenger kilometer (gCO<sub>2</sub>/pkm), for each type of rolling stock
4. Estimated energy consumption per passenger kilometer (MJ/pkm), for each type of rolling stock
5. Number of clean vehicles financed and deployed (i.e., electric rolling stock).

# 8.

## IMPACT REPORT ON ALLOCATED NET PROCEEDS

The impact data refers to net proceeds of all outstanding EUROFIMA Green Bonds of EUR 5'531 million. All net proceeds have been fully allocated as per December 31, 2023.

In case Green Bonds proceeds were not fully allocated to Eligible Green Assets the funds are then held in accordance with EUROFIMA's liquidity management policy.

### Scope of eligible expenditures

Scope of eligible expenditures	
Capital expenditure	100%
Operating expenditure	0%
Working capital	0%
Tangible assets	100%
Intangible assets	0%
Percentage financed by EUROFIMA	100%

## Impact Report (1/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per ML€	Total annual	Total annual per ML€	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	ML Liter
SNCB Brussels	BE	Refinancing of 33 M6 coaches, mainly utilized in the domestic market and in some cross-country services with Luxembourg.	2017	10.0	55	33	14.6	83.7	0	0.32	16'187	11.8	52.5	16'252	295	22.8	0.4	2.5
SBB Bern	CH	Financing for 6 FLIRT EMUs utilized for suburban and regional traffic in across Switzerland (mainly around Leman Lake, canton Vaud and Zug S-suburban's lines).	2017	10.0	14	6	13.7	13.1	0	0.29	2'534	1.9	8.2	2'544	185	3.7	0.3	0.4
SBB Bern	CH	Financing of 2 High speed trains used in international traffic between Italy and Switzerland, in the line Zürich-Lugano-Milan.	2017	9.7	35	2	8.7	55.4	0	0.29	10'717	7.8	34.7	10'760	308	15.6	0.4	1.7
SBB Bern	CH	Financing for 3 FLIRT EMUs utilized for suburban and regional traffic in across Switzerland (mainly around Leman Lake) and cross-country services around Geneve.	2017	8.7	18	3	12.9	6.6	0	0.29	1'267	0.9	4.1	1'272	71	1.8	0.1	0.2
SBB Bern	CH	Financing for 30 FLIRT EMUs utilized for suburban and regional traffic services across Switzerland (mainly around Leman Lake) and cross-country services around Basel and Geneve to Germany and France.	2017	9.7	148	30	14.1	65.5	0	0.29	12'671	9.3	41.1	12'721	86	18.4	0.1	2.0
SNCB Brussels	BE	Refinancing of 45 M6 coaches, mainly utilized in the domestic market and in some cross-country services with Luxembourg.	2018	5.1	113	45	16.2	114.2	0	0.32	22'081	16.1	71.6	22'169	196	31.1	0.3	3.4
FS Rome	IT	Financing of 81 light, single-cab E464 locomotives and relevant 29 double-deck Vivalto coaches and 5 Alstom Minuetto 3-cars EMUs, which are utilized in the regional traffic in various Italian regions.	2019	14.8	134	115	15.0	960.0	0	0.39	185'606	135.6	601.5	186'343	1'395	242.7	1.8	26.2

## Impact Report (2/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per ML€	Total annual	Total annual per ML€	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	ML Liter
CFL Luxembourg	LU	Financing of the 4 brand new double-deck EMUS (Class 2400 from Alstom) for cross country services to France and Belgium, procured to meet a growing passengers demand of 3/5% annually.	2019	6.0	26	4	0.0	21.9	0	0.32	4'225	3.1	13.7	4'242	163	6.0	0.2	0.6
CFL Luxembourg	LU	Financing of the 3 brand new double-deck EMUS (Class 2400 from Alstom) for cross country services to France and Belgium, procured to meet a growing passengers demand of 3/5% annually.	2019	10.3	24	3	0.0	16.4	0	0.32	3'169	2.3	10.3	3'181	133	4.5	0.2	0.5
RENFE Operadora Madrid	ES	Financing of 80 5-cars Civia from CAF/Siemens/Alstom, utilized in Regional and sub-urban/commuter traffic in several areas of Spain.	2019	15.0	300	80	15.4	1085.0	0	0.32	209'758	153.2	679.8	210'591	703	295.4	1.0	31.9
RENFE Operadora Madrid	ES	Financing of 58 of Civia trains from CAF/Siemens/Alstom, both in the 3,4 and 5-cars version, utilized in Regional and sub-urban/commuter traffic in several areas of Spain.	2019	9.6	175	58	20.0	699.4	0	0.32	135'207	98.8	438.2	135'744	776	190.4	1.1	20.5
SBB Bern	CH	Financing of 7 RABe 502 high-speed double-deck EMUs based on the Twindexx platform developed by Alstom (former Bombardier) and mainly running on the lines Geneve-St Gallen and Basel-Chur.	2019	5.0	179	7	3.2	265.3	0	0.29	51'289	37.5	166.2	51'492	287	74.4	0.4	8.0
SBB Bern	CH	Financing for 10 Siemens Rabe 514 EMUs utilized for suburban and regional traffic in canton Zürich (mainly Zürich Suburban's lines) and 6 Rabe 520 EMUs, recently modernized, utilized in the line Lenzburg-Luzern.	2019	9.4	73	16	17.0	62.5	0	0.29	12'088	8.8	39.2	12'136	167	17.5	0.2	1.9

## Impact Report (3/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per ML€	Total annual	Total annual per ML€	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	ML Liter
SNCB Brussels	BE	Refinancing of 33 Siemens Europrinter locomotives (22 Class HLE18 and 11 Class HLE19) that operates both in domestic traffic in Belgium and in intercity cross-country services; they are usually coupled with the type of coaches M6 and I11.	2020	14.4	90	33	11.4	196.7	0	0.32	38'019	27.8	123.2	38'170	423	53.5	0.6	5.8
SNCB Brussels	BE	Refinancing of 6 M6 coaches, mainly utilized in the domestic market and in some cross-country services with Luxembourg.	2020	14.4	16	6	16.1	15.2	0	0.32	2'941	2.2	9.5	2'953	185	4.1	0.3	0.5
FS Rome	IT	Financing of 82 light, single-cab E464 locomotives, 2 double-deck Vivalto coaches and 1 Alstom Minuetto 3-cars EMUs, utilized in the regional traffic across Italy, and 23 E403 multi system locomotives, mainly used in Intercity and night traffic along the Adriatic line.	2020	14.5	200	108	13.3	1638.8	0	0.39	316'828	231.4	1026.8	318'086	1'591	414.2	2.1	44.7
FS Rome	IT	Financing of 57 light, single-cab E464 locomotives and relevant 94 double-deck Vivalto coaches, which are utilized in the regional traffic in various Italian regions.	2020	9.9	200	151	10.8	881.2	0	0.39	170'364	124.5	552.1	171'040	855	222.8	1.1	24.0
FS Rome	IT	Financing of 26 single-cab E464 locomotives, 122 double-deck Vivalto coaches and 8 modern Alstom Jazz EMUs, utilized in the regional traffic across Italy and to serve the growing commuter traffic in Italy.	2020	14.2	239	156	9.4	705.9	0	0.39	136'479	99.7	442.3	137'021	574	178.4	0.7	19.2
RENFE Operadora Madrid	ES	Financing of 27 5-cars Class 449 from CAF, utilized in the Regional traffic and partly also as Intercity, in various area of Spain.	2020	9.9	94	27	17.0	347.7	0	0.32	67'215	49.1	217.8	67'482	720	94.6	1.0	10.2

## Impact Report (4/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per ML€	Total annual	Total annual per ML€	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	ML Liter
RENFE Operadora Madrid	ES	Financing of 32 of Civia trains from CAF/Siemens/Alstom, both in the 3,4 and 5-cars version, utilized in Regional and sub-urban/commuter traffic in several areas of Spain.	2020	14.3	85	32	15.7	320.3	0	0.32	61'924	45.2	200.7	62'170	728	87.2	1.0	9.4
RENFE Operadora Madrid	ES	Financing of 4 S-104 High Speed trains from Alstom and 13 S-114, which represent their more modern evolution; these specific ID numbers are mainly used to support the regional traffic, with also some seldom utilization for Intercity and High speed services.	2020	9.8	166	17	13.7	479.2	0	0.32	92'645	67.7	300.3	93'013	562	130.5	0.8	14.1
RENFE Operadora Madrid	ES	Financing of 16 S-104 High Speed trains from Alstom, mainly used to support the regional traffic and with also some seldom utilization for Intercity and High speed services.	2020	14.2	96	16	18.6	451.0	0	0.32	87'195	63.7	282.6	87'541	908	122.8	1.3	13.2
RENFE Operadora Madrid	ES	Financing of 152 fully modernized Class 447 that are mainly used for suburban and commuter services in the areas around the main Spanish cities.	2020	4.0	250	152	26.2	1741.4	0	0.32	336'673	245.9	1091.1	338'010	1'352	474.1	1.9	51.1
SBB Bern	CH	Financing of 34 FLIRT EMUs utilized for suburban and regional traffic in across Switzerland (mainly around Lemman Lake, canton Vaud and Zug suburban lines).	2020	7.0	189	34	9.6	74.3	0	0.29	14'360	10.5	46.5	14'417	76	20.8	0.1	2.3
SBB Bern	CH	Refinancing of 13 Stadler Kiss EMUs (4-cars version), utilized for suburban and regional traffic in canton Vaud and along the Lemman lake.	2020	10.0	104	13	11.1	59.5	0	0.29	11'493	8.4	37.3	11'539	110	16.7	0.2	1.8
SBB Bern	CH	Refinancing of 14 Stadler Rabe 526, based on the GTW family, that are operated by Thurbo in regionals services, mainly in the area around Zürich and St Gallen and of 28 Kiss utilized to serve the traffic in the Zürich S-suburban lines.	2020	6.0	279	42	13.1	233.5	0	0.29	45'135	33.0	146.3	45'314	162	65.5	0.2	7.1

## Impact Report (5/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per MLE	Total annual	Total annual per MLE	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	MI Liter
SBB Bern	CH	Financing of 1 Stadler Kiss used in the Zürich S-suburban lines and 18 Flirts running in cross country services in the area around Geneve.	2020	8.0	146	19	5.3	46.6	0	0.29	9'006	6.6	29.2	9'042	62	13.1	0.1	1.4
SBB Bern	CH	Financing of 11 tilting ICN trains utilized in Intercity traffic in Switzerland along the main lines.	2020	5.0	99	11	19.1	311.4	0	0.29	60'203	44.0	195.1	60'442	610	87.4	0.9	9.4
SBB Bern	CH	Refinancing of 9 FLIRT EMUs utilized for suburban and regional traffic in the area of Basel and cross-country services to Germany.	2020	9.0	19	9	17.3	19.7	0	0.29	3'801	2.8	12.3	3'816	201	5.5	0.3	0.6
SBB Bern	CH	Refinancing of 10 FLIRT EMUs utilized for suburban and regional traffic in the area of Basel and cross-country services to Germany.	2020	8.0	19	10	18.1	21.9	0	0.29	4'224	3.1	13.7	4'240	224	6.1	0.3	0.7
FS Rome	IT	Financing of 84 electric locomotives and 176 modernized coaches utilized mainly on long-haul public service transportation as "Frecciabianca" (Intercity services up to 200 km/h).	2021	20.0	228	260	29.7	2517.0	0	0.39	486'627	355.5	1577.1	488'559	2'138	636.3	2.8	68.6
RENFE Operadora Madrid	ES	Financing of 26 5-cars Civia from CAF/Siemens/Alstom, utilized in Regional and sub-urban/commuter traffic in several areas of Spain.	2021	6.6	85	26	16.5	352.6	0	0.32	68'171	49.8	220.9	68'442	801	96.0	1.1	10.4
SBB Bern	CH	Financing of 20 tilting ICN trains utilized in Intercity traffic in Switzerland along the main lines.	2021	7.0	128	20	23.0	566.2	0	0.29	109'460	80.0	354.8	109'895	856	158.8	1.2	17.1
SBB Bern	CH	Financing of 13 Stadler Kiss, mainly utilized as suburban lines in the great Zürich area.	2021	8.9	147	13	6.9	94.4	0	0.29	18'245	13.3	59.1	18'318	125	26.5	0.2	2.9
SBB Bern	CH	Financing of 31 Flirt EMUs (both 4-cars and 6-cars) operated by TILO, a JV between FNM and SBB, in Ticino and in cross-country services to and from Italy.	2021	10.0	192	31	14.6	87.6	0	0.29	16'942	12.4	54.9	17'009	89	24.6	0.1	2.7

## Impact Report (6/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per MLE	Total annual	Total annual per MLE	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmkm	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	MI Liter
SNCB Brussels	BE	Financing of 1 Desiro Class MR08 3-Cars EMU, DC version, utilized for regional services across Belgium.	2022	8.1	4	1	10.8	7.0	0	0.32	1'362	1.0	4.4	1'367	375	1.9	0.5	0.2
SNCB Brussels	BE	Refinancing of 19 M6 coaches, mainly utilized in the domestic market and in some cross-country services with Luxembourg.	2022	9.0	50	19	16.0	47.8	0	0.32	9'240	6.8	30.0	9'276	186	13.0	0.3	1.4
FS Rome	IT	Financing of 58 passenger cars (57 are the double-deck Vivalto) and 16 Locomotives E464, utilized mainly in regional traffic in Italy.	2022	12.3	94	74	10.9	345.9	0	0.39	66'878	48.9	216.8	67'144	715	87.4	0.9	9.4
RENFE Operadora Madrid	ES	Financing of 30 5-cars Class 449 EMUs, similar to the Civia Family and therefore mainly utilized for Regional traffic, but also able to perform intercity services in Spain.	2022	9.0	86	30	13.9	386.3	0	0.32	74'684	54.6	242.1	74'980	869	105.2	1.2	11.3
SBB Bern	CH	Financing of 22 Flirt EMUs; 9 6-cars types are operated in Ticino and cross-country services with Italy, while the other 13 are the very modern version 3 and runs in canton Vaud.	2022	11.9	204	22	4.3	58.9	0	0.29	11'393	8.3	36.9	11'438	56	16.5	0.1	1.8
SNCB Brussels	BE	Financing of 34 Desiro Class MR08 3-Cars EMU utilized for regional services across Belgium (the 31 DC version) and along the Athus-Meuse line (the 3 MS version).	2023	11.5	128	34	9.9	239.5	0	0.32	46'294	33.8	150.0	46'478	363	65.2	0.5	7.0
SNCB Brussels	BE	Financing of 9 Desiro Class MR08 3-Cars EMU, MS versions, utilized along the Athus-Meuse line.	2023	7.0	35	9	9.3	63.4	0	0.32	12'254	9.0	39.7	12'303	356	17.3	0.5	1.9
SNCB Brussels	BE	Refinancing of 10 M6 coaches, mainly utilized in the domestic market and in some cross-country services with Luxembourg.	2023	11.5	15	10	14.7	25.2	0	0.32	4'875	3.6	15.8	4'894	326	6.9	0.5	0.7
CD Praha	CZ	Financing of 84 brand new Regio Panthers form Skoda, utilized in regional traffic services across the Czech republic	2023	10.0	470	84	0.5	367.9	0	0.32	71'119	52.0	230.5	71'401	152	100.1	0.2	10.8

## Impact Report (7/7)

Project main data			Project details						Values by pkm		Impact data- Reduced/Avoided Emissions					Impact data- Energy savings		
Borrower	Project location	Project description	Project start	Project lifetime*	Project costs	Vehicles deployed	Asset average age	Annual Passengers *km	CO <sub>2</sub> emissions	Energy consumption	Total annual CO <sub>2</sub>	Total annual CH <sub>4</sub>	Total annual N <sub>2</sub> O	Total annual CO <sub>2</sub> Eq.	Total annual CO <sub>2</sub> Eq. per ML€	Total annual	Total annual per ML€	Annual estimated reduction in fuel consumption
			Year	Years	EUR millions	In number	Years	Pmk	g/pkm	MJ/pkm	Tons	Tons	Tons	Tons	Tons/ML€	GWh	GWh/ML€	ML Liter
FS Rome	IT	Financing of 19 EMUs (Jazz, Minuetto, TAF) and 4 locomotives (E464) for the regional traffic in Italy.	2023	10.0	51	23	17.0	226.8	0	0.39	43'839	32.0	142.1	44'013	863	57.3	1.1	6.2
ZELJEZNICKI PREVOZ CRNE GORE A.D., PODGORICA (MONTENEGRO)	ME	Financing of 2 modern Civity 3-cars EMUs from CAF that provide a service along the Northwest line from Podgorica to Nikšić.	2023	7.0	2	2	10.2	3.6	0	0.32	687	0.5	2.2	690	345	1.0	0.5	0.1
SBB Bern	CH	Financing of 2 6-cars RABe 511 from Stadler and 1 4-cars RABe 514 from Siemens, both used in the suburban's lines around Zürich	2023	11.5	25	3	8.7	19.7	0	0.29	3'814	2.8	12.4	3'829	150	5.5	0.2	0.6
<b>Total</b>					<b>5'531</b>	<b>1899</b>		<b>16'403</b>			<b>3'171'187</b>	<b>2'317</b>	<b>10'278</b>	<b>3'183'781</b>	<b>576</b>	<b>4'341</b>	<b>0.8</b>	<b>468.1</b>

\* The values of the single project are different from the values showed last year, even if the rolling stock financed has not been modified, and the overall values by ML€ is slightly higher. The reasons are the following:

- 1) We have updated the rail market values, Pkm and Seats by country to the 2019 values and estimated with more accuracy the split by Regional/Commuter and Intercity/High speed in each single country (the later done with the consulting company SCI Verkeher); depending on the countries and area of operation, we may have seen an increase or a decrease in the Pkm of the single project (i.e. strong increase in ES and IT, clear drop in regional trains in CH)
- 2) We have modified the model to estimate the Pkm of the formation loco coaches, to make it more realistic and avoid that some project shows zero savings; that has a positive impact on IT and a negative on BE



Hauptbahnhof, Austria - Source : AdobeStock

# 9.

## SOCIAL CO-BENEFITS

Even if the main goal of issuing Green Bonds is to have a significant impact on the environment, such as reducing the CO<sub>2</sub> equivalent emissions and energy consumption, we would like to highlight the impacts on society.

### 1) Local employment support

All the financed trains are manufactured in Europe with a technology content that can be considered almost 100% European. The impact in terms of employment benefits would require a further and deeper analysis, but we can easily estimate the value in the range of hundreds of thousand jobs supported by EUROFIMA financing, if we include the entire supply chain.

### 2) Economic activities support

The European economy benefits in two main ways from the EUROFIMA's financings:

- a) The rail industry plays a very important role for the growth of the European GDP, with an estimated impact of more than EUR 100 billion. The European manufacturers have a worldwide footprint and compete effectively in terms of size and technology with the other players. The industry is also an innovation driver, given the complexity of the trains, the subcomponents and all the safety measurement behind, with a positive effect on the entire economy. Therefore, EUROFIMA's financings have a significant impact on the economic health of Europe, fostering investments and innovation.
- b) The development and the continuous improvement of rail transportation reduces times and cost of travelling, thus increasing the overall efficiency and competitiveness of the country/region.

### 3) Reduction of inequalities

Rail transportation improves the connections of underdeveloped regions with the rest of Europe, forming a basis for improving well-being and reducing the gap with the better developed areas; besides this, it gives low-income people sustainable and low-price access to effective means of transportation.

### 4) Local workers support

Rail is the mean of choice for commuters and the backbone of transportation in the large urban agglomerations. Around 324 million passengers are transported every year thanks to the EUROFIMA's green financings, 64% of whom are either commuters or use the trains to move around the local regions.

### 5) Traffic congestion reduction

In the latest years we have seen a growth of the big urban agglomeration in terms of size and population, with a clear upward trend. The development of a robust regional and commuter rail network is the key to prevent cities and their huge sub-urban areas from being congested or even blocked by car traffic. The financings of EUROFIMA play also here a pivotal role to guarantee a sustainable development of the big urban agglomerations.

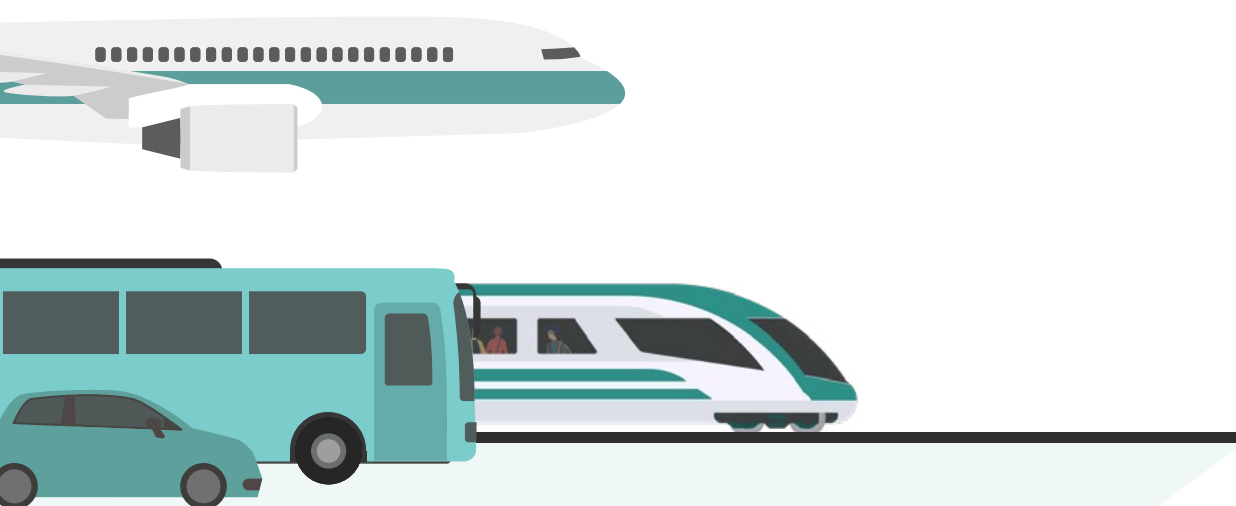
# 10.

## METHODOLOGY OVERVIEW

The approach followed to derive the impact indicators is based on the comparison between:

- a) the emissions and energy consumption of the green assets or projects, and
- b) the emissions and energy consumption of alternative means of transportation (i.e., those that would be used, in case the rolling stock were not financed).

Therefore, the “baseline” for impact assessment purposes is the “alternative means of transportation”<sup>12</sup>.



### MAIN ASSUMPTIONS AND OTHER CONSIDERATIONS

The estimation of the impact is based on the following main assumptions:

- a) The reported impact is the expected environmental impact (i.e. ex-ante), as opposed to the actual (i.e. ex-post)<sup>13</sup>;
- b) The reported impact is defined as “Avoided” (i.e., reduction compared to the scenario where the project was not financed) or “Reduced” (i.e., reduction compared to historical, actual values);
- c) The benefits are annual benefits and are not estimated as a total, cumulative amount over the project lifetime (i.e., duration of the financing) and are based on the assumption that the green rolling stock runs at the normal and planned operating schedule under steady operations and all passengers would move to different means of transportation, in case such rolling stock had not been financed. Therefore, the impact of Covid-19 has not been taken into consideration.
- d) The emissions considered for the financed rolling stock are assessed based on the standards of Scope 1, as defined in the Greenhouse Gas Protocol<sup>4</sup>, which considers only the “Tank-to-Wheel” (TtW) values (i.e., energy consumed, or emissions generated only by the train). This is also in line with the EU Taxonomy<sup>14</sup> that considers electric rail transport as a zero-direct emission means of transport.
- e) EUROFIMA commits to using the latest available parameters and keeps the right to modify the model, in order to improve the accuracy of the estimations.

A detailed methodology description is included in Annex 1 [\(Link\)](#).

<sup>12</sup> For the explanation of the methodology, the assumptions, the data sources and computations, please refer to the Annex 1 - Methodology [\(Link\)](#).

<sup>13</sup> The assessment of the impact indicators is based on assumptions, therefore the actual (ex-post) environmental impact of the projects may diverge from initial assessment and across projects. In addition, financed projects might also have other impacts than those captured in the impact assessment table.

<sup>14</sup> Page 329 of the EU Taxonomy Technical Report by TEG [\(Link\)](#).

# 11.

## FINANCED ASSETS

### PROJECTS DESCRIPTION

The equipment financed by EUROFIMA through the fully allocated proceeds of its Green Bonds, represents a mix of rolling stock types for the benefit of several railway companies located in different European countries. Such equipment aims to support the sustainable growth of passenger railway traffic.

The assets are either Electrical Multiple Units (EMUs), electrical locomotives or passenger coaches (combined with electrical locomotives). The seven corresponding countries (Belgium, Czech Republic, Italy, Luxembourg, Montenegro, Spain and Switzerland) and relevant state-owned Railways significantly contribute to climate change mitigation: all green eligible assets financed are up to the latest technology in terms of sustainability, digitalization, and energy consumption.

Annex 2 List of financed assets [\[Link\]](#).





SNCB, the national railway company in Belgium, which carried 227.4 million passengers in 2022, a 33.3% increase compared to 2021 and still slightly below 253.4 million carried in 2019 before the pandemic, received around 9% of the proceeds. The operator is also strongly focused on giving a green footprint to its operational activities: it has a clear sustainability plan till 2032, which aims at reducing the CO<sub>2</sub> per passenger\*km by 27%, increasing the material recyclability up to 50% and easing access to the whole rolling stock for people with limited mobility<sup>15</sup>.

The following rolling stock belonging to SNCB was financed/refinanced through the Green Bonds proceeds:

- **Class M6 (113 passenger cars)** EUROFIMA refinanced the purchase of 113 brand new double-deck coaches, which were originally financed in 2007 and 2008. At that time, the coaches were equipped with the latest technology in terms of comfort and digitalization. They are mainly utilized in the domestic market and in some cross-country services with Luxembourg. The coaches are utilized on electrified lines and pushed or pulled by an electrical locomotive, normally a Class 18 from Siemens.

- **Class HLE 18 (22 electrical locomotives)** Based on the Siemens family Eurosprinter, the Class HLE 18 is a multi-system locomotive used for intercity passengers' services, mainly in Belgium, but also for limited cross country services in the neighboring countries (Luxembourg). Class HLE 18 has a power of 5GW and can reach up to 200kmh.

- **Class HLE 19 (11 electrical locomotives)** Same as Class HLE 18, but equipped with an automatic coupling system.

- **Class MR08 (44 electrical multiple units)** Based on the popular Desiro family from Siemens, the class MR08 is a modern and environment friendly 3-car EMU and by far the biggest fleet of SNCB; Eurofima financed 32 DC versions, utilized for regional services across Belgium and mainly in the Great Brussels area and 12 MS versions, for the Athus-Meuse line and services to Luxembourg.



Brussels, Belgium - Source : AdobeStock



CFL, the national railway company of Luxembourg, received 0.9% of the proceeds; in 2022 it carried around 22 million passengers, slowly closing the gap to the pre-pandemic volume (24 million in 2019). The company is strongly committed to establish itself as a sustainable railway operator with a truly holistic approach and a strong green footprint, to the extent that 100% of the energy comes from renewable sources and they plan to reduce further the carbon footprint across the whole company<sup>16</sup>.

The following rolling stock belonging to CFL was financed through the Green Bonds proceeds:

- **Class 2400 (7 EMUs)** The equipment financed consists of 7 brand new Alstom 4-car EMUs (Coradia family) to be delivered in 2024. The trains are equipped with the latest technology in terms of sustainability features (e.g., low floor access, areas for bicycles and reading, easy travel for people with reduced mobility, dynamic PIS, WiFi and HVAC) and will be used both in Luxembourg and in cross country services in France and Belgium. According to the CFL expectations, the 334 seats per train should help to meet a growing passengers demand between 3% to 5% annually, with an additional positive environmental impact.

<sup>15</sup> Sustainability action plan SNCB ([Link](#))

<sup>16</sup> Sustainable development CFL ([Link](#))



In 2022, as the leader in the passenger rail transport sector in Italy with a volume of 234.6 billion passengers\*km, FS is committed to reducing its CO<sub>2</sub> emissions by 50% by 2030 and achieving carbon neutrality. In 2040, through facilitating the shift towards more efficient and less polluting means of transport, promoting the efficient use of energy resources, implementing more efficient energy technologies, selecting the suppliers based on their ESG values and extending the utilization of renewable sources<sup>17</sup>.



Milan, Italy - Source : AdobeStock

The following electrical rolling stock was financed through the Green Bonds proceeds:

- **Minuetto (14 trains)** This 3-car, low floor EMU was built in large numbers by Alstom and utilized as suburban and commuter traffic in almost all regions of Italy. It has a maximum speed of 160 km/h.
- **ETR Jazz (13 trains)** Based on the same Coradia Family of Minuetto, this train is the natural and more modern evolution, part of a plan to renew the regional transport and make the commuter travel better. They are low floor access EMUs, specifically designed to meet environmental and sustainability criteria; 95% of the material is recyclable and they guarantee 30% more energy savings than the previous generation. They also meet the latest requirements in terms of disability facilities (entrance, seats, toilets) and of the latest available technologies (video surveillance system, PIS, sound system, braille messages, 220V power sockets). EUROFIMA financed both the 4-car (3 units) and the 5-car (5 units) version.
- **TAF (6 trains)** This 4-car, double-deck EMU was built by a consortium of Italian companies to serve the regional and commuter market across Italy. It can carry up to 469 (seated) + 372 (standing) passengers. It is currently being modernized to increase the level of comfort and technology.
- **E464 (266 Locomotives)** E464 is a simple, low power (only 3.6 MW) single cab locomotive, built specifically by Bombardier for the regional passenger traffic: with more 700 units, this is the largest FS fleet and one of the largest of the same kind at European level and it is utilized in all Italian regions. It is mainly coupled with mid-distance coaches and Vivalto double-deck passenger cars. Based on the configuration (which coaches and how many) it can carry up to 800 seated passengers and can run at a speed of 160 km/h.
- **E403 (23 Locomotives)** E403 is a powerful (5.6 MW), multi-system locomotive, originally designed by Hitachi Rail to serve the freight traffic in Italy and across the Brenner Pass. After being simplified, it was assigned to Trenitalia, the passengers division of FS, which utilizes the loco, coupled with UIC-Z1 and IC-Gran Comfort coaches, in intercity and night services, covering mainly the line along the Adriatic coast.
- **E401 (21 Locomotives)** The E401 is an almost brand-new locomotive, derived from the old E402A through a deep modernization project, carried out from 2015 to 2019, which transformed it to a single-cab and upgraded the control and communication system. This loco is usually utilized in Intercity services across the main Italian cities and usually coupled with the modernized coaches UIC Z1.
- **E402 B (5 Locomotives)** The E402 B is a versatile (freight and passengers) and powerful (5.6 MGW) multisystem locomotive, able to run also under the 25 AC kV high speed line in Italy. It is today utilized only on Intercity passengers' services across Italy, either with the brand Intercity Giorno or Frecciabianca coupled either with the modernized UIC Z1 or the Gran Comfort coaches.
- **E414 (58 Locomotives)** The E414 is a Mono-tension (3 kV DC) loco derived from the old E404 High speed locomotive, through a deep modernization project, which transformed it to a single-cab and upgraded the control and communication system. It is mainly utilized under the Frecciabianca services (Intercity up to 200 km/h) coupled with the Gran Comfort coaches.
- **Vivalto (304 passenger cars)** Vivalto are low floor access, double-deck coaches, specifically designed for the regional and commuter traffic and are widely used across the entire peninsula, always coupled with a E464 locomotive. They can make available till 126 seats, run at a speed up to 160 km/h and have the latest technology in terms of PIS, comfort and provisions for disability. EUROFIMA financed both versions, the NCDP from Corifer and the CDPTR from Hitachi.
- **UIC Z1 (177 passenger cars)** UIC Z1 are old single-deck coaches which went through a major modernization project to improve comfort and safety and be compliant with the latest standard and technology. They are mainly used under the brand Intercity Giorno, to connect the main Italian cities across the country. They can make up to 66 seats available and run at a speed up to 200 km/h.

<sup>17</sup> FS Sustainability [\[Link\]](#)



Cadiz, Spain - Source : AdobeStock



With 5'000 trains running every day, more than 500 million passengers a year and about 15'000 committed employees, Renfe is working to make the train the star of mobility in [Spain](#); it received 24.2% of the proceeds. Sustainability and a green footprint are at the heart of the Renfe's strategy; since 2019 the energy to power all electric vehicles (80% of the fleet) came from renewable sources. Besides this, Renfe has implemented a Master Plan for the Fight Against Climate Change, structured in 4 strategic lines: energy management, energy efficiency, decarbonization and culture, with the goal to reduce 9.9 million tons of CO<sub>2</sub> by 2030<sup>18</sup>.

The following electrical rolling stock belonging to Renfe was financed through the Green Bonds proceeds:

- **Civia 463 (23 trains)** Based on the Civia modular family, partly built by a consortium of CAF and Siemens and partly by Alstom, these EMUs are the 3-car version: the trains were specifically built for the commuter traffic in several Spanish regions and are mainly used for the sub-urban traffic around, in and out of the main cities. The Civia train concept was created with passenger comfort and build quality in mind, and to meet the goals of reliability, frequency, punctuality, and a better provision for disabled passengers; the 3-car version has a speed of 120 km/h and makes available 169 seats.
- **Civia 464 (30 trains)** This is the 4-car version of the same Civia family with a total of 223 seats.
- **Civia 465 (143 trains)** This is the 5-car version of the same Civia family with a total of 277 seats.
- **Class 449 (57 trains)** Built by CAF under a design from Renfe, the Class 449 are mainly utilized in the regional traffic across all areas of Spain, covering distances higher than the Civia family and used from time to time also for Intercity services: they are a modern 5-car formation, with a maximum speed of 160 km/h and 263 seats. Like the Civia family, their design had the goal to improve comfort and reliability and a better provision for disabled passengers.
- **S-104 (20 trains)** This 4 motorized cars intercity train belongs to the first version of the Alstom Pendolino family, even though the version used by Renfe is not tilting: it can reach a speed of 250 km/h and has a capacity of 236 seats. Unlike most of the Spanish trains, it has the international gauge and not the Iberic one. Their utilization is mainly as mid-distance regional train, fulfilling a Public Service Obligation in various Spanish regions; however, it has also a limited utilization as Intercity.
- **S-114 (13 trains)** This high-speed train is the upgraded and better version of the S-104 and was built by a consortium of Alstom and CAF, based on the latest Pendolino family; even though the trains are similar from outside, the technology inside is different in order to be aligned with Spanish requirements in terms of voltage and signalling. The specific ID numbers financed by EUROFIMA are mainly utilized to fulfil the growing regional ridership in Catalonia, connecting Barcelona-Tarragona-Lerida Pirineois; they have also a limited usage as high-speed trains in the line Madrid-Valladolid.
- **Class 447 (152 trains)** The class 447 is an old 3-car EMU built by CAF and Siemens, which has been completely refurbished and upgraded to allow people with limited mobility to use the trains (low floor access, spaces for wheelchairs, universal toilets), to increase comfort (completely new interiors) and to enhance customers experience (modern Passenger Information System installation). They are utilized to support the growing rail traffic demand in the sub-urban areas of Spain's main cities, as commuting services.

<sup>18</sup> Sustainable development Renfe [\(Link\)](#)



SBB, which received around 36.5% of the Green Bonds proceeds, is the largest provider of sustainable mobility solutions in Switzerland: they transport 1.16 million passengers per day along 3'265 km of tracks. The company is strongly committed to delivering a sustainable and green strategy along the entire value chain – from procurement to production, use and disposal. Their trains already drew 90% of their energy from very low emissions sources (only around 10% comes from nuclear): they plan to have the entire rail network powered by renewables by 2025<sup>19</sup>.



Benzenschwil, Switzerland - Source : SBB CFF FFS

The following electrical rolling stock was financed through the Green Bonds proceeds:

- **Rabe 523 [64 trains]** Based on the Flirt family of Stadler, this is a 4-car regional train, which is operated by SBB on the regional connections in Canton Vaud (mainly around Lausanne) and on the central part of Switzerland (mainly in the cantons of Zug and Argau/Solothurn). 51 EMUS are based on the first version, originally developed 15 years ago, but nevertheless they meet the latest standard in terms of comfort and sustainability: the other 13 are based on the most modern version (Flirt 3). It can travel at the speed of 160 km/h and carry 180 passengers.

- **Rabe 521 [27 trains]** This train is the same as the Rabe 523, as far as comfort, capacity and mechanical features are concerned: its signaling feature makes it suitable to run also in Germany. It is therefore operated by SBB in the regional services around Basel and in cross-country services, connecting Switzerland with the southern part of Baden-Württemberg.

- **Rabe 522 [32 trains]** This train is the same as the Rabe 523, as far as comfort, capacity and mechanical features are concerned: its multisystem and signaling features make it suitable to run also in France. It is therefore operated by SBB in domestic lines around the lake Lemman, canton Vaud and for cross country operation with France.

- **Rabe 524 [40 trains]** This train is the same as the Rabe 523, as far as comfort, capacity and mechanical features are concerned: its multisystem and signaling features makes it suitable to run also in Italy. Unlike the other versions, 21 EMUs are equipped with 6-car. The trains are operated by TILO, a JV between SBB and Ferrovie Nord Milano (FNM), in the regional services in the southern part of Switzerland, and connecting Ticino with the Italian region Lombardia.

- **Rabe 514 [11 trains]** Based on the Desiro family from Siemens, this is a 4-car double-decker regional train operated by SBB as S-Bahn in the Zürich area. It has 378 seats and can run at a speed of 140 km/h.

- **Rabe 511 [57 trains]** Based on the Stadler KISS family, it is the evolution of the Rabe 514; a double-decker, both in the 6-car and 4-car version that can carry up to 535 sitting passengers and around 800 standing. The train is new and equipped with all the features (e.g., PIS, HVAC, low entrance floor, area for bicycles) that make it sustainable and comfortable to attract the increased ridership in the greater Zurich area. The 4-car version is mainly used as regional traffic in the area around lake Lemman.

- **Rabe 526 [14 trains]** This is a peculiar and articulated EMU, based on the GTW family, with a power module between cars; EUROFIMA financed both the 2-car and 3-car versions. The train is a modern low floor access EMU, operated by Thurbo (a JV owned by SBB and Canton Thurgau) to serve the regional traffic in the north-eastern part of Switzerland, mainly in the cantons St Gallen, Thurgau and Zurich, and has up to 162 seats.

- **Rabe 520 [6 trains]** Similar to the Rabe 526, the 6 articulated 2-car EMUs operate on the regional line Lenzburg-Luzern. They were refurbished between 2018 and 2021 to mainly improve accessibility for passengers with limited mobility and install a modern PIS.

- **Rabe 503 [2 trains]** This is a high-speed train built on the Pendolino platform developed by Alstom; they are used in the international traffic in the line Milan-Zurich under an agreement between FS and SBB. With a speed of 250 km/h, multi-system, and multi-signalling features, latest PIS and a tilting mechanism, the train has a level of technology and comfort second to none.

- **RABDe 500 [31 trains]** This is a high-speed, tilting train, which can run at the speed of 200 km/h train; it is utilized in Intercity services across Switzerland along the main lines and makes up to 431 seats available.

- **Rabe 520 [7 trains]** This is a high-speed, double-deck train, developed by Alstom (former Bombardier) on the Twindexx platform in 3 versions, that differ in length and formation. The train has up to 682 seats, can travel at a speed of 200 km/h and is used in Intercity traffic in Switzerland, mainly on the lines Geneve-St Gallen and Basel-Chur.

<sup>19</sup> Sustainability strategy SBB [\(Link\)](#)



CD is the national operator of the Czech Republic that carries 2.5 billion passengers every year and received 8.5% of the proceeds. They are currently focusing on delivering on the 2030 strategy, that is based on the modernization of the rolling stock fleet, supporting the Czech economy, digitization of the customers interface and establishing the rail transportation as means of choice to improve the green footprint of the country<sup>20</sup>.

The following electrical rolling stock was financed through the Green Bonds proceeds:

- **Class 640/2 (47 trains)** This is the 3-car version of the rolling stock better known as Regio Panther, dual voltage EMUs designed and manufactured by the local producer Skoda. They will be in service in several regions in the Czech Republic to specifically meet the growing demand of regional and commuter rail services and are specifically designed to guarantee the highest level of comfort and to ease the access and the journey for people with disabilities.

- **Class 650/2 (37 trains)** This is simply the 2-car version of the rolling stock better known as Regio Panther, see above.



Liberec, Czech Republic - Source : AdobeStock



ZPCG is the national and only passenger operator of the Montenegro, one of the states that emerged after the dissolution of the form Yugoslavia, that has received the mandate to develop further the rail transportation in the country and integrate with the one of the surrounding states<sup>21</sup>.

The following electrical rolling stock was financed through the Green Bonds proceeds:

- **Class 6111 (2 trains)** Based on the CAF Civity family, this modern and low floor 2-car EMU was designed to provide maximum user comfort and to offer the best accessibility conditions for persons with reduced mobility. Its sophisticated aerodynamic design, lighter weight and its recyclability allows ZPCG to improve its green footprint. Both trains provide a service on the Northwest line that runs from Podgorica to Nikšić.

<sup>20</sup> About CD Group [\(Link\)](#)

<sup>21</sup> About ZPCG [\(Link\)](#)

# 12.

## DO NO SIGNIFICANT HARM

The railway operators, recipient of the financing, commit to keep the financed items of equipment in good conditions for the entire life cycle, carrying out the proper maintenance activities according to the maintenance plan suggested by the manufacturer and approved by the National/ European Rail Safety Agency, as prerequisite to be authorized to operate them. The dates of the latest and the next main revisions, as communicated by the recipients of the financing for each green item of equipment are properly added to the Report (see Annex 2, list of financed assets) [\[Link\]](#).

The assets covered by the EUROFIMA Green Bond Framework are fully aligned with the EU taxonomy. Green projects are classified according to the environmental objectives of the «Taxonomy» Regulation (EU Regulation (EU) 2020/852, article 9) [\[Link\]](#) and to the NACE classification 49.10, N77.39 Passenger rail transport, interurban [\[Link\]](#).



Spain - Source : Renfe

Category	Clean transportation		
Project	Low carbon public transport rolling stock		
EU taxonomy	6.1 passenger rail transport interurban		
EU Objective	DNSH criteria	Considerations for alignment with DNSH criteria	EUROFIMA alignment
Climate change adaptation	The activity complies with the criteria set out in Appendix A <a href="#">[Link]</a> .		Aligned
Sustainable use and protection of water and marine resources	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed, in accordance with a water use and protection management plan provided by relevant stakeholders.	In line with the relevant directive 200/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.	We are engaging with our railway counterparties.  Our own emissions to water as defined in PAI no. 8, are limited to employee water consumption and other office workspace-related utilisation.
Transition to a circular economy	Measures are in place to manage waste in accordance with the waste hierarchy in particular during maintenance.	<a href="#">SBB circular economy</a>	We are engaging with our railway counterparties.
Pollution prevention and control	Engines for the propulsion of railway locomotives (RLL) and engines for the propulsion of railcars (RLR) comply with emission limits set out in Annex II to Regulation (EU) 2016/1628 of the European Parliament and of the Council <sup>[235]</sup> .	<a href="#">FS Sustainability report</a> <a href="#">SNCF Sustainability report</a> <a href="#">CFL Sustainability report</a>	<a href="#">Renfe Sustainability report</a> <a href="#">SBB Sustainability report</a> <a href="#">Ceske Drahi Sustainability report</a>
Protection and restoration of biodiversity and ecosystems	Mitigation measures have been implemented to avoid wildlife collisions.	<a href="#">SBB nature conservation</a>	We are engaging with our railway counterparties.  EUROFIMA itself does not have any sites or activity in biodiversity sensitive areas (PAI no.7).



Switzerland - Source : SBB CFF FFS

# 13.

## MINIMUM SAFEGUARDS

Procedures implemented by an undertaking that is carrying out an economic activity to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.

# 14.

## GOVERNANCE

### SUSTAINABILITY COMMITTEE

In March 2021, EUROFIMA established a Sustainability Committee composed of representatives across all units. Besides coordinating cross-units activities related to sustainability, the Sustainability Committee is responsible for project evaluation according to the Green Bond Framework and to recommend projects to the Management Committee composed of the CEO and the CFO. Moreover, the committee oversees the management of proceeds process and ensures best practices in terms of alignment of the framework with EU standards and ICMA principles for Green Bonds. It also develops and ensures a risk framework for green assets.

The Management Committee reviews and approves the Allocation and Impact Report, on an annual basis or more often, as required until full maturity of the Green Bonds. The Board of Directors is notified of the Management Committee approval after disbursement.

### INTERNAL STAKEHOLDERS

The process of Green Bond issuance, project selection, loan disbursement, proceeds allocation and related reporting cuts across several functions: Capital Markets, Middle Office, Treasury & Asset Management, and Information Technology. The guidelines are set by the Sustainability Committee, which ensures that impact and allocation reporting are in line with EUROFIMA GBF and other market standards and best practices.

Middle Office with the Rolling Stock Manager is responsible for the collateral selection (i.e., rolling stock) that forms the asset pool of Eligible Assets, as defined by EUROFIMA GBF. It is also responsible for the green net proceeds allocation, the development of the impact methodology and corresponding impact measurement.

Treasury & Asset Management ensures that any balance of Green Bonds proceeds not yet allocated to eligible Green Assets is held in accordance with EUROFIMA's treasury policy, until such funds are disbursed.

The Capital Markets and Treasury & Asset Management units are responsible for the conclusion of loans with the railways and specifying the collateral requirements, in line with Green Bonds issuance activity.

Information Technology is responsible for the tools for collateral management (rolling stock register) as well as for EUROFIMA accounting, reporting and asset management system that tracks bond issuances, proceeds investment, loan disbursements and related collateral.

### DATA & OTHER INFORMATION

The Railways companies are important partners for EUROFIMA both in terms of push and pull of the sustainability policy. The data and information in this report is either from publicly available sources or provided by the railways on a best effort basis.

EUROFIMA maintains a register of Eligible Assets up-to-date at any time, through its collateral management system, where the eligibility criteria are set up. EUROFIMA engages with its railway clients to receive rolling stock collateral in line with the GBF over the life of the allocated Green Bonds proceeds. Nevertheless, it is at the railways' discretion, whether to provide EUROFIMA with impact data or other related information by specific green rolling stock item.



Luxembourg - Source : AdobeStock

# CONTACTS

For further information about EUROFIMA Green Bonds or if you have any questions regarding this report or other sustainability-related queries, please contact:

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