



Ferrovie dello Stato Italiane Group

ANNEX

COMPANY HIGHLIGHTS

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Infrastructure Business Unit

	RFI	
Italferr	ANAS	Ferrovie del Sud Est e Servizi Automobilistici (Infrastructure)
Grandi Stazioni Rail*	Terminali Italia*	Blu Jet*

* RFI subsidiaries; Infrarail Srl, a subsidiary of RFI which provides engineering services, will be included in the sustainability reporting scope of the Infrastructure Business Unit as from 2024.

OUR APPROACH

Created to ensure the best integration of the rail and road infrastructure operated by the Group in an increasingly sustainable way and on an intermodal basis, the Infrastructure Business Unit brings together RFI, the lead company, ANAS, Italferr and Ferrovie del Sud Est (FSE)¹. The goal is to develop the greatest industrial synergies between the companies and their subsidiaries in order to improve the equipment, quality and performance of the transport infrastructure, raise its value as a fundamental asset of the country's mobility system, and a valuable tool for the social, economic and environmental enhancement of local areas.

Among the Business Unit's key priorities are the development of integrated rail/road management, optimization of investment timing and quality, continuous improvement of asset reliability, safety, and resilience, full integration of sustainability criteria, standards, and practices along the entire value chain, and the evolution of infrastructure from a connected & data-driven perspective by defining the roles of different infrastructures on a specialist basis (e.g., rail for long haul and mass transit, and road for widespread deployment and conveyance).

With about 40,000 people, including about 29,000 at RFI, the Business Unit Companies operate more than 49,000 km of network, including more than 17,000 km of rail network, and more than 32,000 km of road network, about 2,200 railway stations and 1,200 signal man's houses, nearly 4,000 tunnels, and more than 40,000 bridges, underpasses and viaducts. These are figures that already in themselves make clear the weight of the Business Unit in industrial terms, and the potential for transformation of our country, which can be activated by the synergies between the companies that make it up, including for the purpose of cohesion and development in local areas.

To this preamble must be necessarily added the plurality of areas in which it also acts through its subsidiaries, which, taking into consideration only RFI, are: Grandi Stazioni Rail (GS), active in the development and operation of Italy's fourteen main railway stations²; Terminali Italia, active in the integrated management of terminal services in the network of RFI terminals; Blu Jet, active in the continuity of passenger rail transport with Sicily, on the Messina-Villa San Giovanni route, by fast vessels.

The focus on the development, protection and environmental and social regeneration of local areas constitutes a founding and unavoidable element for the companies in the Business Unit with an ever-increasing integration into corporate strategies and operations. For the lead company RFI, which also leverages the natural vocation of the railway and its key role in the European Sustainable and Smart Mobility Strategy, sustainability has long been a goal to be achieved and, also thanks to its well-established Integrated Safety Management System, a method of a systemic approach to all business dimensions.

In presenting below the main energy and environmental performances, as well as the most representative industrial projects from a sustainability perspective of the Infrastructure Business Unit, it is highlighted that most of its values are related to the in-house operation and maintenance of the railway network, in particular due to the specific features of the assets of which it is composed, and their functions (e.g. technological equipment, signalling systems, lighting systems, station buildings, industrial workshops, rolling stock washing platforms, and out-of-use material removed during maintenance work).

¹ Ferrovie del Sud Est e Servizi Automobilistici (Infrastructure)

² Milan Central, Turin Porta Nuova, Genoa Brignole and Genoa Piazza Principe, Venice Mestre and Venice S. Lucia, Verona Porta Nuova, Bologna Central, Florence S.M. Novella, Rome Termini, Rome Tiburtina, Naples Central, Bari Central and Palermo Central stations.

Final energy consumption*

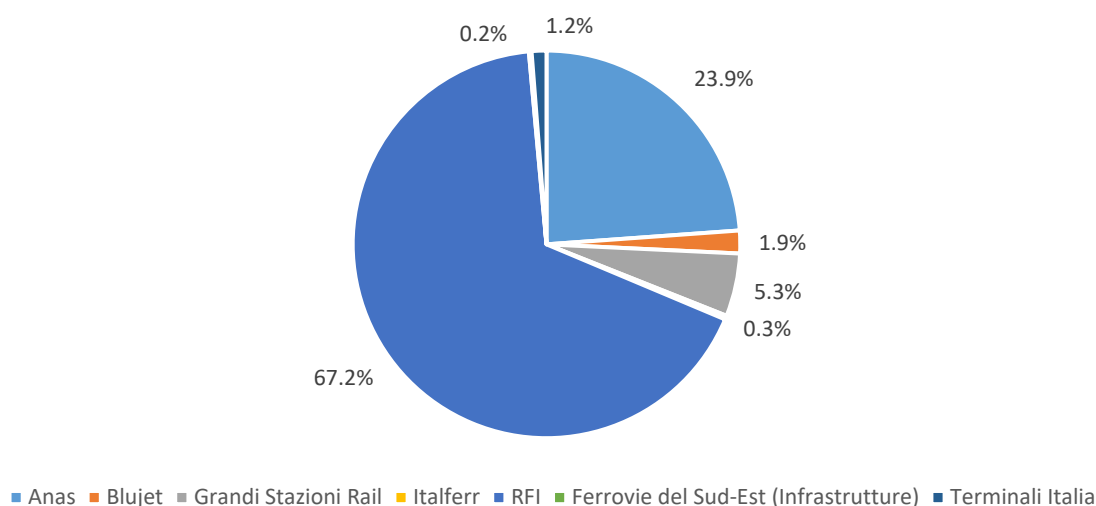
		2023	2022	2021
Electricity **	MWh	920,527	917,968	885,147
with Guarantee of Origin or self-produced solar energy		63%	61%	57%
self-produced solar energy	MWh	455	554	528
Transmission of electricity for railway traction (grid losses) ***	MWh	469,036	456,703	420,648
Diesel	Litres	29,166,812	30,404,155	29,817,163
Natural gas	Smc	10,820,923	12,683,463	13,974,651
Other consumption	GJ	73,435	75,910	67,396
Total consumption	GJ	6,446,629	6,499,153	6,267,958

* It excludes consumption by station customers (e.g., commercial establishments and shops)

** It includes HV (high voltage) electricity used by RFI's diagnostic trains and other working vehicles, and does not include HV electricity consumed by trains of railway undertakings operating on the network managed by RFI.

*** This is energy that dissipates along the electrical infrastructure serving rail transport to power trains travelling on the tracks operated by RFI. The value is estimated according to the guidance provided by the International Union of Railways (UIC) given in the UIC 2008 fiche 330 "Railway specific environmental performance indicators."

Final energy consumption in 2023 (% of total)



Comments on the trend

Over the three-year period 2021-2023 as a whole, there was an upward trend in the total amount of energy consumed by the companies in the Infrastructure Business Unit (about +3%), on which the increase in consumption between 2021 and 2022 (about +4%) weighs most heavily.

With regard to **electricity** consumption referred to in-house use, the three-year period showed an increasing trend (about +4%), mainly due to higher consumption in 2022 at both RFI (about +23 GWh) and ANAS (about +7 GWh), respectively for the activation of new technological systems and for the temporary extension of the reporting perimeter to Strada dei Parchi³, and the related consumption for lighting of roads and tunnels. The electricity balance at the Business Unit level remained almost unchanged in 2023 (+0.3%) with a reduction in consumption for efficiency upgrading both at ANAS, for lighting of roads and tunnels, net of Strada dei Parchi, and at Grandi Stazioni Rail.

Over the three-year period 2021-2023, there was an increase in the share of electricity covered by **Guarantee of Origin (GO)** (+6 p.p.) at the Business Unit level, confirming the commitment to pursue sustainable policies geared towards promoting the use of renewable energy technologies through the extension of green supply on the part of companies in the Infrastructure Business Unit. Specifically, the share of electricity with GO - arrived at around 100% at Grandi Stazioni, Italferr and FSE – rose up to 42% in 2023 (+13 pp compared

³From 7 July 2022 to 31 December 2023, the concession of Strada dei Parchi SpA, the concession company for the construction and operation of the A24 and A25 motorways, and their related services, was transferred to ANAS on a temporary basis.

to 2022)⁴ at RFI following the entry into full operation of the green energy supply contract for about 200 GWh/year activated in May 2022; and it decreased down to 84% (-12 pp compared to 2022) at ANAS due to a lower availability of green energy procurable through the central purchasing platform of the public administration Consip.

With regard to **diesel fuel** consumption, at the Business Unit level there was a decreasing trend (-2%) in the three-year period, albeit with opposite trends in the two-year periods under consideration. Specifically, an increase in consumption (+2%) in the two-year period 2021-2022 can be mainly attributed to the following causes: higher number of runs made by Blu Jet ships (about +300 thousand litres), higher use of cranes at terminals in Terminali Italia (about +300 thousand litres), higher use of construction vehicles and a higher number of journeys of ships at RFI (about +170 thousand litres). This increase was limited thanks to a reduction at ANAS (about -210 thousand litres) due to less use of generators in the tunnels and, at Grandi Stazioni Rail (about -56 thousand litres), to an optimization of consumption and rescheduling of the switching times of the thermal power plant at the Genoa Piazza Principe station.

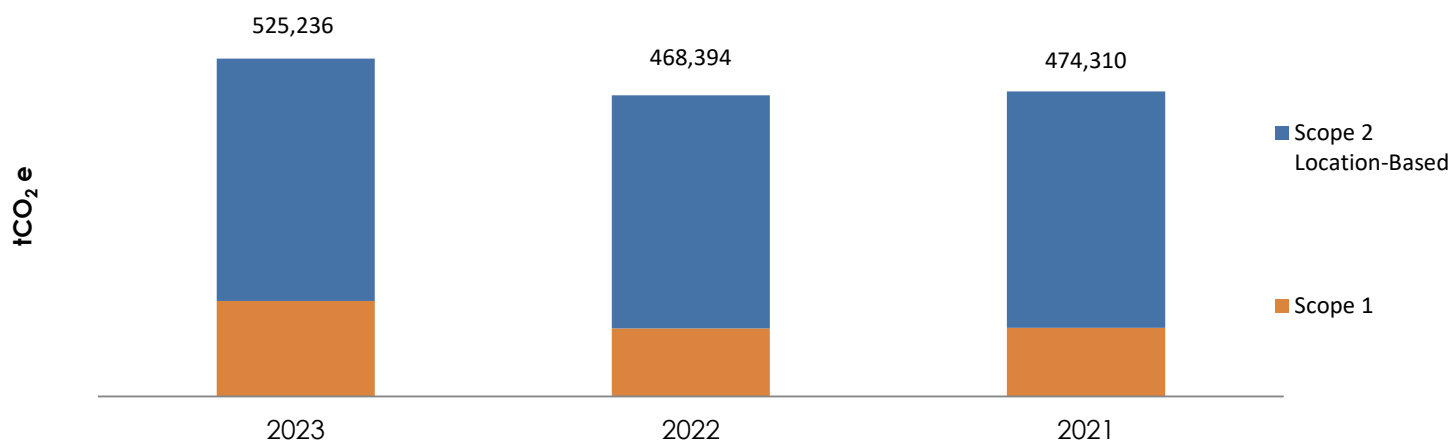
In the two-year period 2022-2023, on the contrary, there was a reduction in overall consumption (-4%), mainly due to: the use of more efficient ships, and a lower demand for ferry services by railway companies, as well as the continued replacement of heating systems with heat pumps (RFI, about -810 thousand litres); the termination of some ferry services on the Messina - Reggio Calabria route (Blu Jet, about -410 thousand litres); and the lower use of cranes (Terminali Italia, about - 220 thousand litres). On the other hand, there was an increase in diesel fuel consumption with regard to ANAS (+130 thousand litres), due to the extension of the reporting scope to Strada dei Parchi, Italferr (about 74 thousand litres), and FSE (about 38 thousand litres) due to greater movements along the network of diesel-powered cars and motor vehicles.

With regard to **natural gas** consumption, at the Business Unit level there was a steadily decreasing trend (-23%) over the three-year period. We must also note an overall reduction of about -9%, mainly due to RFI (approx. - 660 thousand smc) following the decommissioning of methane heating systems and gas diverters, and to Grandi Stazioni Rail (approx. -610 thousand smc) during the two-year period 2021-2022. The latter implemented the efficiency upgrading of the air conditioning system at Milan Central station by replacing the historical natural gas thermal plant with new high-efficiency heat pumps, and carried out consumption rationalization with consequent reductions in the turn-on period of heating plants. The two-year period 2022-2023 marked an even more pronounced overall efficiency in natural gas consumption (-15%), particularly related to a reduction at RFI (about -1.3 million smc) due to the lower switching on of heating systems in offices due to milder temperatures in the winter period. At Grandi Stazioni Rail, the new air conditioning system at Milan Central station inaugurated in 2022 has come into full operation, leading to a reduction in gas consumption of about -650 thousand smc.

With regard to **other energy consumption** (energy from district heating/cooling, LPG for heating and petrol for cars, and motor and work vehicles), there was an increase (+9%) at the Business Unit level over the three-year period due to the combined effect of the increase recorded in the two-year period 2021-2022 (+13%), mainly due to higher gasoline consumption at ANAS, and a reduction in the two-year period 2022-2023 (-3%). This can be attributed, for the most part, to the lower use of district heating energy at RFI, made possible by milder winter temperatures, and by interventions at the Parma station.

Total CO₂e emissions

Scope 1 + Scope 2 LB Emissions - Infrastructure BU



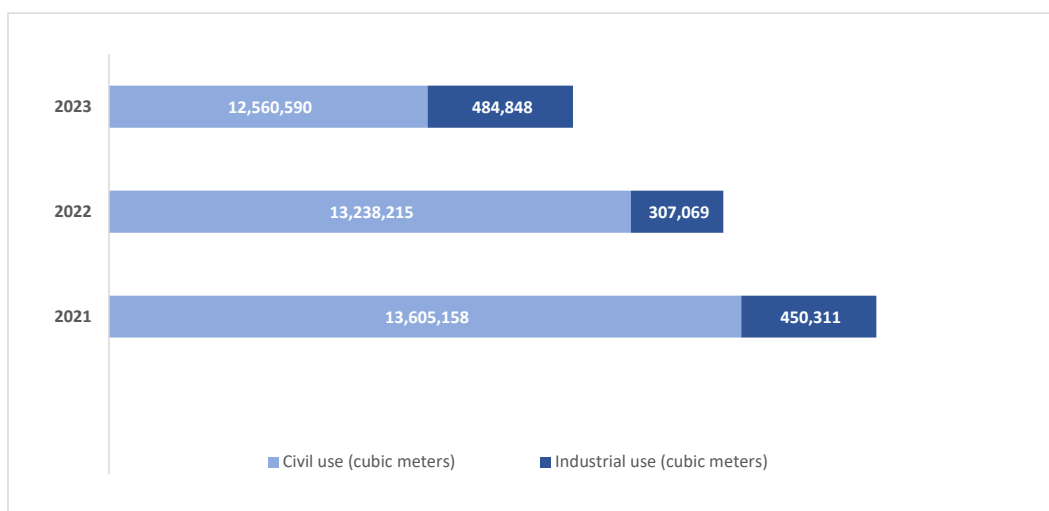
⁴ The remaining portion, as well as traction EE, is procured directly by RFI on the Power Exchange (GME) through a contract with GSE (Energy Services Manager).

The bar chart shows Scope 1 and Scope 2 location-based, direct (fuel use, fugitive emissions, land use change), and indirect (third-party generated energy consumption) emissions from the FS Group's operating activities.

GHG emissions		2023	2022	2021
Total Scope 1 emissions	tCO ₂ - eq	148,167	105,794	106,410
Total Scope 2 (location-based) emissions	tCO ₂ - eq	377,069	362,600	367,900
Total Scope 2 (market-based) emissions	tCO ₂ - eq	231,606	225,496	229,041
Total Scope 3 emissions*	tCO ₂ - eq	3,566,465	2,860,034	2,972,144
TOTAL (S1 + S2 LB + S3)	tCO₂- eq	4,091,701	3,328,428	3,446,455
TOTAL (S1 + S2 MB + S3)	tCO₂- eq	3,946,237	3,191,324	3,307,596

**Emissions from energy consumption are calculated by using the location-based approach.*

Water



During the three-year period 2021-2023, there was a downward trend in the total amount of water withdrawn by the companies in the Infrastructure Business Unit (-7%), with a steady reduction of about -4% in each two-year period under consideration, reflecting the continued commitment to the implementation of water asset efficiency projects, and a really rational use of water.

The decrease recorded in the two-year period 2021-2022 was due to a number of factors. At RFI, the decline (about -340 thousand m³) was linked to a reduction in consumption for civil use, and the closure of some wells, lower use of water for industrial use for train washing (related to the gradual restoration of standard washing cycles after the health emergency), and, finally, an increasingly precise measurement. At Grandi Stazioni Rail, the decrease (approximately -106 thousand m³) was attributable to a general reduction in consumption for civil use at stations, and consumption for industrial use, mainly attributable to a reduction in consumption for cooling of evaporative towers at Rome Termini station. At Anas, the decrease (approximately -81 thousand m³) was linked to a reduction in the volumes of water for civil use, obtained through rationalization and efficiency measures in the water networks, as well as withdrawals for industrial use related to reduced car washing activities. At Terminali Italia the decrease (-60 m³) can be linked to personnel awareness-raising campaigns on the proper use of water resources. On the other hand, there was an increase in FSE consumption (about +15 thousand m³), particularly for industrial use related to increased rolling stock washing activities.

There was also a decrease in the two-year period 2022-2023 in the overall budget of the Infrastructure Business Unit, with differentiated trends: down for RFI (approx. -413 thousand m³), mainly due to lower withdrawals from groundwater, and divestment of some wells, as well as to the refinement in the methods of consumption detection and management, including through water diagnostics; for Grandi Stazioni Rail (approx. -156 thousand m³), following efficiency upgrades on the water distribution networks, in particular at Milan Central, Turin Porta Nuova, and Venice Mestre. There was an increase in withdrawals for ANAS (approx. +63 thousand m³), in particular due to the inclusion of Strada dei Parchi in the reporting scope and a water leak, promptly resolved.

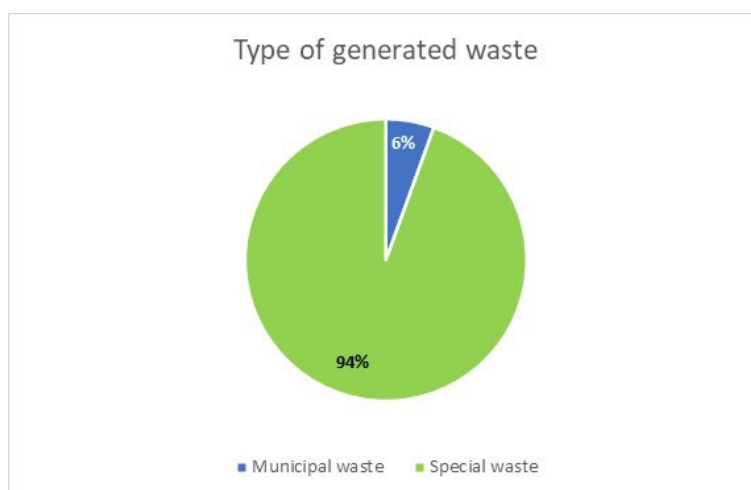
Water	2023	2022	2021
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RFI	m ³	10,774,207	11,186,972	11,526,152
Blu Jet	m ³	0	0	0
Grandi Stazioni Rail*	m ³	1,935,452	2,091,105	2,196,850
Terminali Italia	m ³	73	77	136
Italferr	m ³	7,428	7,174	6,989
ANAS	m ³	251,283	188,583	269,295
Ferrovie del Sud Est (Infrastrutture)	m ³	76,995	71,373	56,047
TOTAL	m³	13,045,438	13,545,284	14,055,469

*Water volumes withdrawn are considered, which are both used directly by the company, and intended for commercial establishments and shops at the station, as well as toilets, cleaning and hygiene services, and refuelling of rail vehicles.

Waste

Waste produced by the Infrastructure Business Unit is divided into special and municipal waste. The latter, produced especially in stations and offices, is a residual part in terms of weight compared to total waste. For this reason, as well as in terms of commodity type and specific weight, elements of analysis are provided below on the trend related only to special waste (both hazardous and non-hazardous), mainly generated by rail and road infrastructure maintenance and operation work.



During the three-year period, there was a reduction in the total amount of **special waste** generated by the companies in the Infrastructure Business Unit (-15%), which mainly characterized the first two years of the period under review.

In 2022 the reduction was mainly attributable to RFI (approx. -48 thousand tons), which saw a decline in both the share of non-hazardous waste (specifically, lower quantities of steel and copper cables), and the share of hazardous waste. The latter factor is the result of the progress of the campaign to replace creosote oil-impregnated wooden sleepers with eco-impregnated or prestressed concrete sleepers). Lower quantities were also recorded for ANAS (approx. -400 tons), related to lower needs for non-routine cleaning of roadside appurtenances, and for FSE (approx. -300 tons), in connection with different types of non-routine maintenance work carried out in 2022 compared to 2021. On the other hand, a significant increase, although very small in absolute values compared to the Business Unit as a whole, was recorded for special waste generated by Grandi Stazioni Rail (approx. +25 tons), due to an extraordinary production of sludge generated by some purification plants at the Venice Santa Lucia station, by Terminali Italia (approx. +145 tons), due to the non-routine demolition of two self-propelled cranes, and by Italferr (approx. +60 tons) due to the opening of two new local offices, and the disposal of obsolete office furniture.

In contrast, between 2022 and 2023 there was a substantially stable trend (+1%) with about +4 thousand tons more for RFI of non-hazardous waste due to increased maintenance work (equal to +2% company level), involving disposal of steel from end-of-life rolling stock, and other ferrous metals. Approximately -2 thousand tons for FSE (equal to -65% company level) were due to fewer activities involving disposal of iron and steel. Significant reductions in percentage with respect to each company were recorded at Terminali Italia (about -152 tons), Italferr (about -24 tons) and GS Rail (about -13 tons) due to a reduction in special waste referring in particular to the Rome and Venice stations.

Particularly positive was the figure for special waste sent for recovery, which, at the Business Unit level, increased by 1 percentage point in 2023 compared to 2022, reaching 99% thanks to the increased commitment in all companies to recycling with a view to circular economy and with a view to increasing the share of materials for reuse.

Special waste		2023	2022	2021
RFI	t	252,735	248,793	296,994
Blu Jet	t	8	9	76
Grandi Stazioni Rail	t	16	29	5
Terminali Italia	t	89	241	96
Italferr	t	48	72	13
ANAS	t	2,885	2,815	3,214
Ferrovie del Sud Est (Infrastrutture)	t	1,082	3,057	3,331
TOTAL	t	256,863	255,017	303,728
















Certified management systems













The table below shows the scopes of certification for the different companies of the Group while the column of “Integrated Systems” reports the information regarding the integration of the Quality, Environment, and Occupational Safety management systems. For the RFI and FSE infrastructure managers only, the Safety Management System (SMS) accepted by ANSFISA with the issuance of the Safety Authorization under Legislative Decree no. 162/2007 is reported.














Management systems certified by accredited body	ISO 9001:2015 (Q)	ISO 14001:2015 (E)	ISO 45001:2018 (S)	Integrated Systems
RFI	✓	✓	✓	✓
Blu Jet	-	-	-	-
Grandi Stazioni Rail	⚡	✓	-	-
Terminali Italia	✓	✓	✓	✓













Italferr	✓	✓	✓	✓
ANAS	✓	⚒	⚒	-
Ferrovie del Sud Est (Infrastrutture)	✓	✓	✓	-














The following are the main initiatives with strong sustainability value, as completed, underway, or planned by 2033, which is the term of the FS Group's Business Plan












Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Safety of transport, infrastructure and other assets	RFI FSE	Upgrading of present safety and signalling systems to the ERTMS (European Traffic Management System)	Infrastructure safety and reliability	~ 12,000 km of railway lines	Before 2023-2033	 In progress	  
Safety of transport, infrastructure and other assets	RFI	100% level crossings (LCs) subject to advanced technology protection / suppression (over 1,000 LCs suppressed; over 3,200 LCs protected)	Infrastructure safety and reliability	100%	Before 2023-2033	 In progress	  
Safety of transport, infrastructure and other assets	ANAS	Integrated system for remote dynamic monitoring and real-time management of any criticality of works of art (bridges, viaducts) and tunnels	Infrastructure safety and reliability	5,000 works of art; 600 tunnels	Before 2023-2033	 In progress	  
Safety of transport, infrastructure and other assets	ANAS	Smart Mobility Project: digitization and connectivity of roads (Smart and Digital Roads)	Transport safety	6,700 km	Before 2023-2033	 In progress	 







Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
							
Occupational health and safety	RFI	Training, information and awareness-raising initiatives aimed at employees and contractors, including with use of digital teaching methodologies and virtual and physical simulators	Occupational health and safety	3 new training centers with test training camps	Before 2023-2028	 In progress	  
Safety of transport, infrastructure and other assets Sustainable, resilient and integrated infrastructure	RFI	Nationwide connectivity through implementation of a fiber optic backbone (“Smart Rail”) for digital monitoring of rail infrastructure	Infrastructure safety and reliability; Climate change resilience	~ 80% km of rail infrastructure covered by fiber optic	2023-2033	 In progress	  
Sustainable, resilient and integrated infrastructure	RFI	Implementation of interventions for infrastructure resilience and adaptation to climate change (e.g., hydrological risk	Climate change resilience	1.300 mitigated single points	Before 2023-2033	 In progress	 


Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
		mitigation works and warning systems)					
Sustainable, resilient and integrated infrastructure	RFI	Construction of new infrastructure and development/upgrading of links between rail network and transport hubs	Passenger and freight modal shift; integration between mobility systems	~ 1,300 km of new infrastructure; development/upgrading of links with 14 airports, 12 ports, and 13 cargo terminals	Before 2023-2033	 In progress	 
Sustainable, resilient and integrated infrastructure	RFI	Continuation of station development plan for improving usability, accessibility, intermodality, public information, and the construction of new access points to the rail network	Passenger and freight modal shift; integration between mobility systems	Continuation of interventions at the remaining ~450 stations out of 620 busiest stations in the network; about 90 new stations	By 2033	 In progress	 
Sustainable, resilient and integrated infrastructure	FSE	Station redevelopment	Passenger and freight modal shift; integration between mobility systems	20 stations	By 2033	 In progress	 
Sustainable, resilient and integrated infrastructure	RFI Italferr	Adoption of sustainability standards, criteria and practices in the design and implementation of infrastructure interventions and services (e.g.,	Infrastructure sustainability and resilience	100% of projects with sustainability study, stakeholder engagement, and climate footprint	2031	 In progress	 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
		sustainability studies, stakeholder engagement, climate footprint, DNSH, LCA, Envision, LEED, GBC-HB, CAM)					
Climate change mitigation	RFI FSE	Electrification of diesel-powered lines	Line electrification	Over 2,000 km	Before 2023-2033	 In progress	  
Climate change mitigation	RFI	Construction and operation of self-generation power plants from renewable sources with installed capacity of approx. ~1.8 GW	Self-production of energy from renewable sources	Production of ~ 2.6 TWh/year in full operation	2023-2029	 In progress	  
Climate change mitigation	RFI	Construction of innovative Electric Substations (ESS) for braking energy recovery through storage system and for reduction of rail traction losses	Development of technologies allowing for a reduction in energy consumption	15 ESS	Before 2023-2030	 In progress	  

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	RFI	Renewal of work vehicle fleet with electric/bimodal drive vehicles	Development of means of transport allowing for a reduction in energy consumption	44 work vehicles	Before 2023-2029	 In progress	 
Climate change mitigation	Blujet	Replacement of Fast Vessel fleet with hybrid (diesel/electric) Ships	Development of means of transport allowing for a reduction in energy consumption	3 ships	2023-2026	 In progress	 
Climate change mitigation	GS Rail	Implementation of PV systems on station roofs: Rome Termini, Florence Santa Maria Novella, Palermo C.le, Venice Mestre, Venice Santa Lucia, Bari C.le, Turin Porta Nuova, Genoa Principe, Verona Porta Nuova, Rome Tiburtina, Bologna C.le, Milan C.le	Self-production of energy from renewable sources	50,000 m ² of roofs	Before 2023-2028	 In progress	  
Climate change mitigation	ANAS	Renewable Action Plan: construction of renewable (PV, wind, biomass and hydrogen) energy systems along the entire road and	Self-production of energy from renewable sources	7 MWp	2023-2029	 In progress	 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
		highway network under management					
Climate change mitigation	ANAS	Green Light 2.0 Project: plant engineering solutions in highly innovative tunnels with high energy performance	Reduced consumption and improved energy efficiency	75 GWh	2023-2028	 In progress	 
Environmental protection	Italferr	Studies and tests on sustainable infrastructure materials/elements to mitigate the impacts of works (e.g. Life Silent project for environmentally friendly noise barriers; sound-absorbing road paving with recycled materials; etc.)	Noise impact mitigation; impacts on soil and biodiversity; resource recovery	-	By 2028	 In progress	 
Environmental protection; Circular Economy	RFI	Studies/tests and initiatives to increase the circularity of processes/products (e.g., reuse of water from work vehicle washing platforms, reuse of foundry sands for rail superstructure, Ecoballast® crushed stone for railway ballast, synthetic rail sleepers,	Water saving, resource recovery	-	Before 2023-2033 (on an ongoing basis)	 In progress	  

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
		use of steel from recycled and/or low carbon footprint materials)					
Circular economy	RFI ANAS	Efficiency improvement of the excavated soil and rock management process in order to, among other things, maximize the reuse and recovery of recycled aggregates with synergies among the Business Unit Companies	Resource recovery	-	2023-2026	 In progress	
Circular economy	Italferr	Development of an automated tool, for integration into BIM, for sustainable management of construction and demolition waste with regard to the entire life cycle of buildings and infrastructure	Resource recovery	-	By 2026	 In progress	
Circular economy	ANAS	Environmentally friendly road barriers made of recycled rubber from end-of-life tires with technology setup for the Smart Road	Noise impact mitigation Resource recovery	-	By 2024	 In progress	

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
							

Indicators

RFI

Final energy consumption (*)

		2023	2022	2021
Electricity **	MWh	485,954	482,834	460,209
<i>with Guarantee of Origin or self-produced solar energy</i>	%	41.94%	28.68%	19.98%
Transmission of electricity for railway traction (grid losses) ***	MWh	469,036	456,703	420,648
Diesel	Litres	18,270,949	19,081,926	18,911,983
Natural gas	Smc	7,051,378	8,339,626	8,999,846
Other consumption	GJ	28,033	31,587	30,209
Total consumption	GJ	4,332,438	4,350,893	4,155,869

*It excludes consumption by station customers

** It includes HV (high voltage) electricity used by RFI's diagnostic trains and other working vehicles, and does not include HV electricity consumed by trains of railway undertakings operating on the network managed by RFI.

*** This is energy that dissipates along the electrical infrastructure serving rail transport to power trains travelling on the tracks operated by RFI. The value is estimated according to the guidance provided by the International Union of Railways (UIC, Union Internationale des Chemins de fer) given in the UIC 2008 fiche 330 "Railway specific environmental performance indicators."

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	78,440	66,383	67,229
Scope 2 location-based emissions	tCO ₂ -eq	258,903	247,495	247,892
Total emissions	tCO₂-eq	337,343	313,878	315,121

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	78,440	66,383	67,229
Scope 2 market-based emissions	tCO ₂ -eq	203,975	218,052	222,262
Total emissions	tCO₂-eq	282,415	284,435	289,491

Water

		2023	2022	2021
Civil use	m ³	10,401,777	10,969,210	11,167,916
Industrial use	m ³	372,430	217,762	358,236
Total withdrawals	m³	10,774,207	11,186,972	11,526,152

Waste

		2023	2022	2021
Hazardous special waste	t	25,982	26,520	35,782
Non-hazardous special waste	t	226,753	222,273	261,212
Special waste generated	t	252,735	248,793	296,994
<i>sent for recovery</i>	%	99.4%	98.4%	98.3%

Grandi Stazioni Rail

Final energy consumption (*)

		2023	2022	2021
Electricity	MWh	58,434	62,266	59,337
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100.00%	100.00%	100.00%
Diesel	Litres	98,660	136,725	192,702
Natural gas	Smc	3,148,706	3,801,098	4,411,913
Other consumption	GJ	16,968	20,686	19,445
Total consumption	GJ	338,864	380,128	391,300

*It excludes consumption by station customers.

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	10,638	7,961	9,286
Scope 2 location-based emissions	tCO ₂ -eq	16,761	17,526	17,757
Total emissions	tCO₂-eq	27,399	25,487	27,043

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	10,638	7,962	9,287
Scope 2 market-based emissions	tCO ₂ -eq	997	1,223	1,154
Total emissions	tCO₂-eq	11,635	9,185	10,441

Water

		2023	2022	2021
Civil use*	m ³	1,888,645	2,059,029	2,161,145
Industrial use	m ³	46,807	32,076	35,705
Total withdrawals	m³	1,935,452	2,091,105	2,196,850

*Water volumes withdrawn are considered, which are both used directly by the company, and intended for commercial establishments and shops at the station, as well as toilets, drinking fountains, cleaning and hygiene services, and refuelling of rail vehicles.

Waste

		2023	2022	2021
Hazardous special waste	t	0	0	0
Non-hazardous special waste	t	16	29	5
Special waste generated	t	16	29	5
<i>sent for recovery</i>	%	100,0%	100,0%	100,0%

Waste for third parties in station areas

		2023	2022	2021
Urban waste for third parties in station areas	t	12,725	12,165	8,369
<i>waste sorting</i>	%	37.6%	28.3%	27.4%

Terminali Italia

Final energy consumption

		2023	2022	2021
Electricity	MWh	2,266	2,372	2,248
<i>with Guarantee of Origin or self-produced solar energy</i>	%	79.52%	73.40%	84.06%
Diesel	Litres	1,953,751	2,177,384	1,883,060
Natural gas	Smc	17,516	14,835	17,673
Total consumption	GJ	79,439	87,818	76,742

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	5,367	5,965	5,188
Scope 2 location-based emissions	tCO ₂ -eq	612	621	629
Total emissions	tCO₂-eq	5,979	6,586	5,817

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	5,367	5,965	5,188
Scope 2 market-based emissions	tCO ₂ -eq	214	292	169
Total emissions	tCO₂-eq	5,581	6,257	5,357

Water

		2023	2022	2021
Civil use	m ³	73	77	136
Industrial use	m ³	0	0	0
Total withdrawals	m³	73	77	136

Waste

		2023	2022	2021
Hazardous special waste	t	1	2	10
Non-hazardous special waste	t	88	239	85
Special waste generated	t	89	241	96
<i>sent for recovery</i>	%	70.3%	89.8%	99.7%

Final energy consumption

		2023	2022	2021
Diesel	Litres	3,912,352	4,322,809	4,017,822
Total consumption	GJ	122,503	135,355	125,805

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	9,171	10,121	9,407
Scope 2 location-based emissions	tCO ₂ -eq	0	0	0
Total emissions	tCO₂-eq	9,171	10,121	9,407

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	9,171	10,121	9,407
Scope 2 market-based emissions	tCO ₂ -eq	0	0	0
Total emissions	tCO₂-eq	9,171	10,121	9,407

Waste

		2023	2022	2021
Hazardous special waste	t	8	9	76
Non-hazardous special waste	t	0	0	0
Special waste generated	t	8	9	76
<i>sent for recovery</i>	%	100.0%	100.0%	70.7%

Final energy consumption

		2023	2022	2021
Electricity	MWh	368,833	365,318	358,531
<i>with Guarantee of Origin or self-produced solar energy</i>	%	84.44%	96.49%	97.11%
<i>self-produced solar energy</i>	MWh	251	242	202
Diesel	Litres	4,513,693	4,379,936	4,591,817
Natural gas	Smc	556,225	474,675	501,084
Other consumption	GJ	28,182	23,394	17,456
Total consumption	GJ	1,538,280	1,513,205	1,491,144

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	43,316	14,421	14,602
Scope 2 location-based emissions	tCO ₂ -eq	99,435	95,602	100,273
Total emissions	tCO₂-eq	142,751	110,023	114,875

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	43,316	14,421	14,602
Scope 2 market-based emissions	tCO ₂ -eq	26,420	5,928	4,871
Total emissions	tCO₂-eq	69,736	20,349	19,473

Water

		2023	2022	2021
Civil use	m ³	236,391	177,580	249,426
Industrial use	m ³	14,892	11,003	19,869
Total withdrawals	m³	251,283	188,583	269,295

Waste

		2023	2022	2021
Hazardous special waste	t	17	15	130
Non-hazardous special waste	t	2,868	2,800	3,084
Special waste generated	t	2,885	2,815	3,214
<i>sent for recovery</i>	%	85.5%	81.8%	92.8%

Final energy consumption

		2023	2022	2021
Electricity	MWh	2,601	2,616	2,368
<i>with Guarantee of Origin or self-produced solar energy</i>	%	99.99%	99.97%	47.39%
Diesel	Litres	283,906	209,641	164,351
Natural gas	Smc	24,996	26,945	22,326
Other consumption	GJ	252	243	287
Total consumption	GJ	20,741	18,165	15,511

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	831	634	506
Scope 2 location-based emissions	tCO ₂ -eq	702	685	663
Total emissions	tCO₂-eq	1,533	1,319	1,169

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	831	634	506
Scope 2 market-based emissions	tCO ₂ -eq	0	0	585
Total emissions	tCO₂-eq	831	634	1,091

Water

		2023	2022	2021
Civil use	m ³	7,428	7,174	6,989
Total withdrawals	m³	7,428	7,174	6,989

Waste

		2023	2022	2021
Hazardous special waste	t	0	0	0
Non-hazardous special waste	t	48	72	13
Special waste generated	t	48	72	13
<i>sent for recovery</i>	%	100.0%	100.0%	99.9%

Ferrovie del Sud-Est e Servizi Automobilistici (infrastructure)

Final energy consumption

		2023	2022	2021
Electricity	MWh	2,439	2,563	2,455
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100.00%	100.00%	100.00%
Diesel	Litres	133,500	95,734	55,428
Natural gas	Smc	22,103	26,285	21,809
Total consumption	GJ	14,364	13,590	11,586

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	403	310	192
Scope 2 location-based emissions	tCO ₂ -eq	658	671	687
Total emissions	tCO₂-eq	1,061	981	879

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	403	310	192
Scope 2 market-based emissions	tCO ₂ -eq	0	0	0
Total emissions	tCO₂-eq	403	310	192

Water

		2023	2022	2021
Civil use	m ³	26,276	25,145	19,546
Industrial use	m ³	50,719	46,229	36,501
Total withdrawals	m³	76,995	71,373	56,047

Waste

		2023	2022	2021
Hazardous special waste	t	436	253	353
Non-hazardous special waste	t	646	2,804	2,978
Special waste generated	t	1,082	3,057	3,331
<i>sent for recovery</i>	%	97.4%	99.3%	96.6%

Passengers Business Unit

Trenitalia			
Netinera Group*	Trenitalia France*	Hellenic Train*	ILSA*
Trenitalia c2c*	Busitalia sita Nord	Busitalia Veneto**	Ferrovie del Sud Est e Servizi Automobilistici (Passengers)
Qbuzz**	Busitalia Rail Service**	Busitalia Campania**	

* Trenitalia subsidiaries/ Investees Trenitalia

** Busitalia subsidiaries

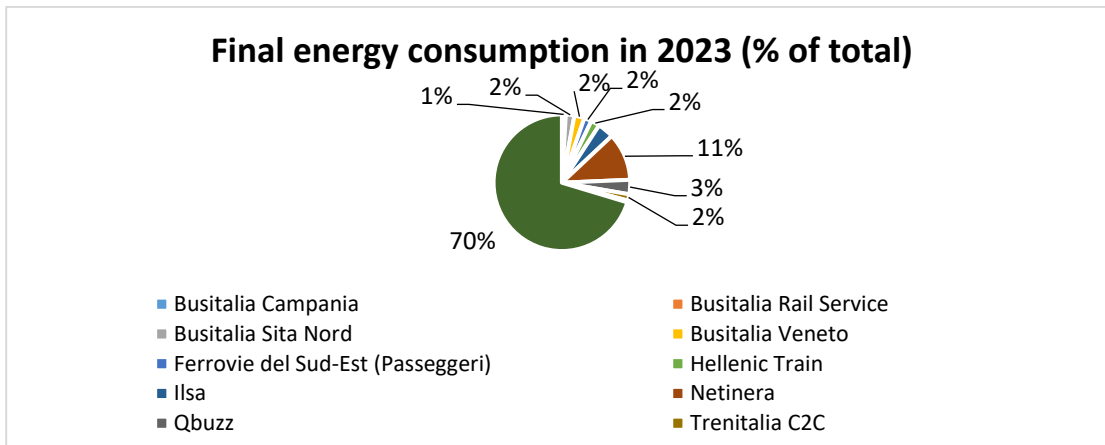
OUR APPROACH

The Passengers Business Unit's mission is to cover the passenger transport business, both nationally and internationally, through the promotion, implementation and management of products, services and initiatives, as well as the management of a structured mix of distribution channels.

The FS Group aims to increase the share of environmentally friendly transport, such as rail, collective road transport, and shared systems, in order to also reduce the carbon footprint in the sector. This is in line with the general goal of the Passengers Business Unit: to develop integrated sustainable mobility solutions with offerings tailored to the needs of individual passengers. Through digital and transport system integration, passengers will be directed towards sustainable intermodal offerings. The synergy of the Business Unit companies will make it possible to make the rail/road intermodal offer - already a best practice in some cases - structural for the development of collective transport and, consequently, the reduction in pollution, emissions, traffic and accident rates in cities and urban areas.

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	3,849,824	3,423,133	3,129,128
Electricity for other uses	MWh	132,682	145,832	148,154
<i>with guarantee of Origin or self-produced solar energy</i>		87%	83%	82%
<i>self-produced solar energy</i>	MWh	6,922	5,881	4,182
Diesel	Litres	119,981,614	117,380,947	130,879,295
Natural gas	Smc	15,950,187	18,787,652	25,414,479
Other consumption	GJ	192,315	260,697	244,236
Total consumption	GJ	19,421,661	18,004,540	17,651,076



Comments on the trend

The Passengers Business Unit's energy consumption increased over the three-year period 2021-2023: while the increase was 2% between 2022 and 2021, the change was 8% between 2023 and 2022, driven by the increase in electricity used for railway traction (+12% compared to 2022). Over the three-year period, there was a decreasing trend in the use of natural gas while the reduction in the use of diesel, which occurred in 2022, was not followed up in 2023, where a slight increase was observed over the previous year (+2%).

The largest share of energy is allocated to railway traction: the increase in electricity withdrawals over the past year is largely justified by the entry of ILSA and ODEG (the latter company belonging to the Netinera Group) into the Passengers Business Unit, and the increase in train travel on Trenitalia's electrified lines; in 2022, too, there was an increase in consumption due to the resumption of post-pandemic rail traffic by all companies offering rail transport service, and the addition of new routes through Trenitalia France (e.g., the Milan's connection with Paris and Lyon). With regard to the consumption of electricity used for other purposes, there is a steady reduction attributable to energy efficiency measures on the part of the Business Unit companies. There also was an increase in the production of electricity generated by PV plants, mainly related to the commissioning of some new plants, such as, for example, that of the HS plant in Naples Gianturco, and Trenitalia's workshops in Foligno and Voghera.

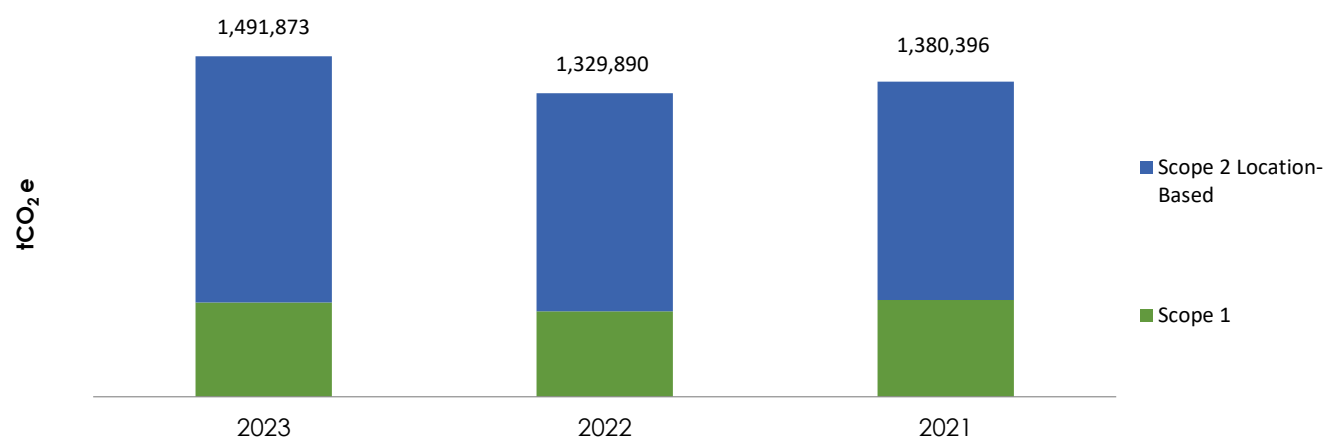
The consumption of diesel fuel, mainly for rail and road transport, increased from 130 million litres in 2021 to 119 million litres in 2023, despite a slight increase from the year 2022. The main intended use of energy is railway traction, the trend of which is almost constant with a slight overall decrease of approx. 4% in consumption, mainly due to the reduced consumption by Hellenic Train, and, to a lesser extent, to the reduction (approx. 2%) in consumption by Trenitalia. The increase in requirements in 2023 compared to the previous year was almost entirely attributable to increased use from wheeled vehicles for public transport (about 2,200 tons of diesel fuel).

The performance of natural gas combustion was consistently decreasing over the entire period (-26% between 2022 and 2021, and -15% between 2023 and 2022): the main reductions occurred in the use of natural gas for heating, mainly due to less severe winters, rationalization/containment of energy use for air conditioning of some areas (e.g. workshops, locker rooms, etc.), and simultaneous plant efficiency upgrades (e.g., modernization/optimization of plants, installation of temperature probes, etc.).

Consumption in other energy sources (district heating, fuel oil, biodiesel, petrol, LPG, hydrogen, and pellets), which increased in 2022 compared to 2021, showed a significant decrease in 2023 (-26%) down to lower values than in 2021 (192,315 GJ).

Total CO₂-eq emissions

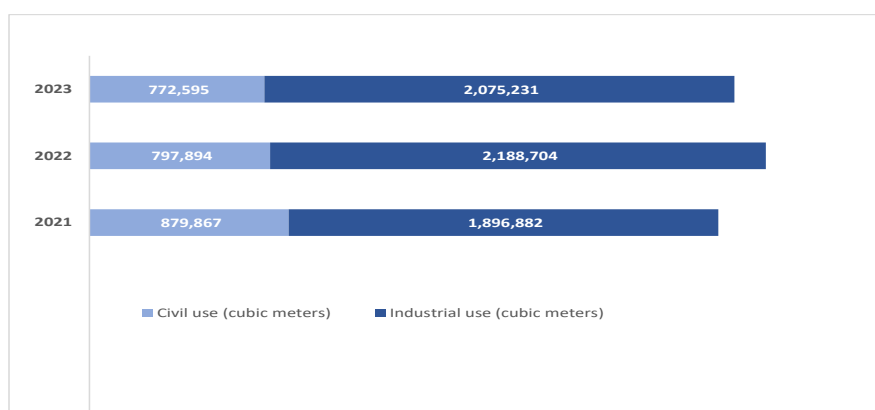
Scope 1 + Scope 2 LB Emissions - Passengers BU



The bar chart shows Scope 1 and Scope 2 location-based, direct (fuel use, fugitive emissions, land use change), and indirect (third-party generated energy consumption) emissions from the FS Group's operating activities.

GHG emissions		2023	2022	2021
Total Scope 1 emissions	tCO ₂ -eq	413,639	374,716	424,746
Total Scope 2 (location-based) emissions	tCO ₂ -eq	1,078,233	955,174	955,650
Total Scope 2 (market-based) emissions	tCO ₂ -eq	1,099,475	982,499	972,189
Total Scope 3 emissions*	tCO ₂ -eq	1,357,033	1,080,248	828,595
TOTAL (S1 + S2 LB + S3)	tCO₂-eq	2,848,905	2,410,138	2,208,991
TOTAL (S1 + S2 MB + S3)	tCO₂-eq	2,870,147	2,437,463	2,225,530

* Emissions from energy consumption are calculated by using the location-based approach. These values include all emissions belonging to the FS Italian Group's inventory perimeter (i.e. Category 1, 2, 3, 5, 6, 7, 11 and 13)

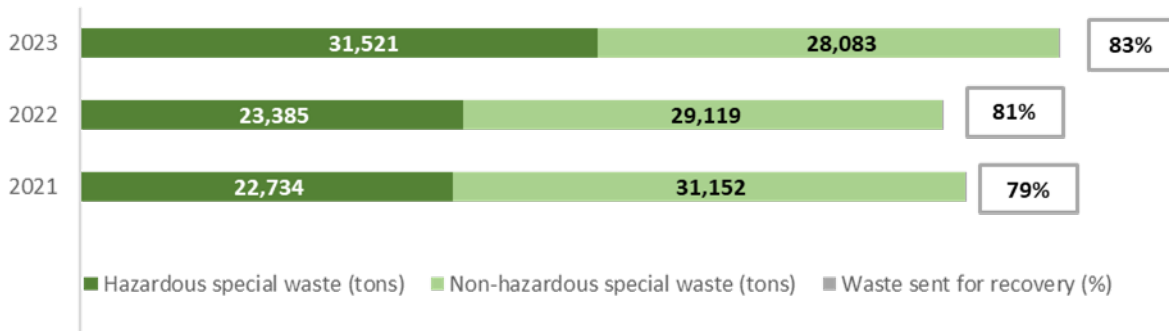


Comments on the trend

The trend for the last two years showed an overall reduction in the volumes withdrawn for both civil and industrial use. The reported decrease was more pronounced for the withdrawal from public waterworks for industrial use, attributable in particular to the adoption of network efficiency improvement measures, and the improvement in processes involving the water resource.

Water		2023	2022	2021
<i>Trenitalia</i>	m^3	2,600,001	2,701,324	2,378,242
<i>Netinera Group</i>	m^3	30,795	23,522	23,865
<i>Hellenic Train</i>	m^3	52,503	96,544	172,428
<i>Trenitalia c2c</i>	m^3	34,003	40,999	39,244
<i>Trenitalia France</i>	m^3	0	175	0
<i>ILSA*</i>	m^3	303	-	-
<i>Busitalia sita Nord</i>	m^3	37,967	28,758	58,329
<i>Busitalia Veneto</i>	m^3	18,249	17,721	25,503
<i>Busitalia Campania</i>	m^3	9,074	12,424	9,917
<i>Qbuzz</i>	m^3	15,684	19,489	18,308
<i>Busitalia Rail Service*</i>	m^3	10	-	-
<i>ATAF **</i>	m^3	-	-	16,712
<i>FSE</i>	m^3	49,237	45,642	34,201
TOTAL	m^3	2,847,826	2,986,598	2,776,749
*included in the reporting scope from 2023				
**included in the reporting scope until 2021				

Waste



Comments on the trend

The trend, which showed an overall increase compared to 2022, can be attributed mainly to the increase in hazardous special waste sent for recovery, which can be attributed to the scrapping activities of old rail and road vehicles under the fleet renewal plan. There was, among other things, a steady increase in the percentage of waste sent for recovery.

Waste		2023	2022	2021
<i>Trenitalia</i>	<i>t</i>	53,953	50,430	42,926
<i>Netinera Group</i>	<i>t</i>	1,613	125	4,609
<i>Hellenic Train</i>	<i>t</i>	1,347	336	2,047
<i>Trenitalia c2c</i>	<i>t</i>	3	3	3
<i>Trenitalia France</i>	<i>t</i>	0	3	0
<i>ILSA*</i>	<i>t</i>	0	-	-
<i>Busitalia sita Nord</i>	<i>t</i>	1,374	457	396
<i>Busitalia Veneto</i>	<i>t</i>	581	532	1,501
<i>Busitalia Campania</i>	<i>t</i>	129	227	233
<i>Qbuzz</i>	<i>t</i>	0	0	0
<i>Busitalia Rail Service*</i>	<i>t</i>	0	-	-
<i>ATAF**</i>	<i>t</i>	-	-	138
<i>FSE</i>	<i>t</i>	604	391	2,033
TOTAL	t	59,604	52,504	53,886
*included in the reporting scope from 2023				
**included in the reporting scope until 2021				

Certified management systems
















The table below shows the scopes of certification of the management systems certified by national accreditation bodies for the Business Unit companies. The column of “Integrated Systems” reports the information regarding the integration of the various standard schemes of management systems (Quality, Environment, and Safety). The adoption of















management systems has several benefits for organizations that implement them, such as, for example, continuous process and performance improvement, reduced impacts, regulatory compliance, and appropriate risk management⁵.


Management systems certified by accredited body	ISO 9001:2015 (Q)	ISO 14001:2015 (E)	ISO 45001:2018 (S)	Integrated Systems
<i>Trenitalia</i>	✓	✓	✓	✓
<i>Netinera Group</i>	✓	✓	-	-
<i>Hellenic Train</i>	✓	⚡	⚡	-
<i>Trenitalia c2c</i>	-	✓	-	-
<i>Trenitalia France</i>	-	-	-	-
<i>Busitalia sita Nord</i>	✓	✓	✓	✓
<i>Busitalia Veneto</i>	✓	✓	✓	✓
<i>Busitalia Campania</i>	✓	✓	⚡	✓
<i>Qbuzz</i>	-	-	-	-
<i>FSE</i>	✓	✓	✓	-
<i>Busitalia Rail Service</i>	✓	-	✓	-
<i>ILSA</i>	-	✓	-	-
<p><i>Key:</i></p> <p>✓ present and certified system;</p> <p>⚡ system under implementation.</p>				

















⁵ In addition, Trenitalia has been the first railway company in the world to obtain the Biosafety trust certification, which recognizes the best practices adopted in infection prevention and control in order to ensure safe travel conditions for the health of all people on board the train, as well as healthy and suitable working environments.












The following are the main initiatives with strong sustainability value, as completed, underway, or planned by 2033, which is the term of the FS Group's Business Plan

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	Trenitalia	Renewal of the Regional fleet: 35 Rock trains, 34 Pop trains, and 39 Blues trains were introduced in 2023	Development of means of transport allowing for a reduction in energy consumption	>350 trains	By 2030	 In progress	  
Climate change mitigation	Trenitalia	Renewal of Intercity fleet with new hybrid bimodal trains, new electric trains, new coaches and locomotives	Development of means of transport allowing for a reduction in energy consumption	23 Blues trains, 194 coaches, 5 relief locomotives, and 12 EMUs (Electric Multiple Unit trains)	By 2028	 In progress	  
Climate change mitigation	Trenitalia	Renewal of High-Speed fleet with new ETR 1000 trains	Development of means of transport allowing for a reduction in energy consumption	>40 trains	By 2030	 In progress	  
Climate change mitigation	Trenitalia	Study and tests on the use of HVO as a replacement for conventional Diesel on ALn railcars and Blues trains	Use of low-carbon fuels	Involvement of 5 trains	2021-2024	 In progress	 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	Trenitalia	Introduction of batteries on E464 locomotives for Intercity transport	Development of means of transport allowing for a reduction in energy consumption	25 locomotives	2022-2025	 In progress	  
Climate change mitigation	Trenitalia	Installation of new air conditioning system on ETR 500 fleet	Development of means of transport allowing for a reduction in energy consumption	58 trains	2023-2024	 In progress	  
Climate change mitigation	Trenitalia	Installation/activation of PV systems with a peak power of 2,164 kWp, additional to the systems already in operation	Self-production of energy from renewable sources	Foligno, Voghera, Foggia and Milan plants	Deadline in 2023	 Completed	
Climate change mitigation	Trenitalia	Installation of radiant strips at Milan and Milan Greco Current Maintenance Plant, and efficiency upgrading of lighting systems at Milan Greco Current Maintenance Plant	Regeneration of the Group's buildings and their energy upgrading	2 buildings	Deadline in 2023	 Completed	
Climate change mitigation	Trenitalia	Installation of additional 20 PV systems	Energy upgrading	20 PV systems (approx. +11 MWp, additional to the systems already in operation)	By 2029	 In progress	

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	Netinera	Use of battery-powered trains on routes Kiel - Lubecca; Lubecca - Lüneburg; Kiel - Preetz; Kiel -Schönberger Strand	Development of means of transport allowing for a reduction in energy consumption	>20 trains	By 2024	 In progress	  
Climate change mitigation	Trenitalia c2c	Retrofit of the entire fleet of British Rail Class 357 trains using LED lighting	Development of means of transport allowing for a reduction in energy consumption	74 trains	2022-2025	 In progress	  
Climate change mitigation	Trenitalia c2c	Construction of a PV system on the roof of Barking station	Self-production of energy from renewable sources	1 PV system of 120 kWp	By 2024	 In progress	
Climate change mitigation	ILSA	Purchase of electricity for 100% traction from renewable energy sources with Guarantee of Origin	Purchases of energy certified by Guarantee of Origin (GO)	100% electrical supply for traction	By 2025	 In progress	
Climate change mitigation	Busitalia-Sita Nord	Use of HVO as a replacement for conventional diesel	Use of low-carbon fuels	The entire Diesel Euro 4-5-6 fleet	By 2033	 In progress	 
Climate change mitigation	Busitalia Veneto	Introduction of hybrid and electric buses, and simultaneous decommissioning	Use of low-carbon fuels Development of means	>200 buses	By 2033		 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
		of as many diesel cars	of transport allowing for a reduction in energy consumption			In progress	 
Climate change mitigation	Busitalia Campania	Introduction of buses with reduced environmental impact	<p>Use of low-carbon fuels</p> <p>Development of means of transport allowing for a reduction in energy consumption</p>	Introduction of 38 buses (including 31 CNG) and onerous usufruct of 120 buses (including 92 CNG, 12 electric)	By 2033	 In progress	   
Climate change mitigation	Qbuzz	Introduction of electric buses, and simultaneous decommissioning of as many diesel cars	<p>Use of low-carbon fuels</p> <p>Development of means of transport allowing for a reduction in energy consumption</p>	>500 buses	2022-2033	 In progress	   
Climate change mitigation	Ferrovie del Sud-Est	Renewal of train fleet for electrification of Salento lines	Development of means of transport allowing for a reduction in energy consumption	51 trains	2019-2027	 In progress	  

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	Ferrovie del Sud-Est	Purchase of electricity for 100% traction from renewable energy sources with Guarantee of Origin	Purchases of energy certified by Guarantee of Origin (GO)	100% electrical supply for traction	By 2024	 In progress	
Environmental protection	Hellenic Train	Renovation of workshops and warehouses: installation of industrial washing equipment with wastewater recovery and reuse	Water consumption efficiency Protection of freshwater bodies	2 washing systems	2019-2025	 In progress	
Environmental protection	Trenitalia c2c	Analysis on biodiversity at each station, identifying potential actions to improve it	Welfare of people and employees Prevention of biodiversity loss	Survey of 26 stations	2022-2023	 Completed	 
Circular economy	Trenitalia France	Extension of waste sorting at all Trenitalia France locations	Pollution prevention	>5 sites	2023-2024	 In progress	  

Indicators

Trenitalia

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	3,215,717	3,080,892	2,812,099
Electricity for other uses	MWh	71,232	76,087	79,518
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100%	100%	100%
<i>self-produced solar energy</i>	MWh	6,805	5,775	4,076
Diesel	Litres	40,060,926	41,425,986	43,185,866
Natural gas	Smc	10,705,050	13,027,503	18,406,144
Other consumption	GJ	10,635	180	109
Total consumption	GJ	13,662,973	13,313,747	12,606,552

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	162,034	147,771	163,706
Scope 2 location-based emissions	tCO ₂ -eq	884,906	825,053	807,944
Total emissions	tCO₂-eq	1,046,940	972,824	971,650

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	162,034	147,771	163,706
Scope 2 market-based emissions	tCO ₂ -eq	867,527	806,644	786,835
Total emissions	tCO₂-eq	1,029,561	954,415	950,541

Water

		2023	2022	2021
Civil use	m ³	671,982	687,502	727,926
Industrial use	m ³	1,928,019	2,013,822	1,650,316
Total withdrawals	m³	2,600,001	2,701,324	2,378,242

Waste

		2023	2022	2021
Hazardous special waste	t	28,561	22,147	16,044
Non-hazardous special waste	t	25,392	28,283	26,882
Special waste generated	T	53,953	50,430	42,926
<i>sent for recovery</i>	%	82.4%	80.6%	75.4%

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	272,498	165,424	168,570
Electricity for other uses	MWh	5,648	5,994	7,280
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0%	0%	0%
Diesel	Litres	32,098,036	27,641,048	31,680,032
Natural gas	Smc	677,417	611,946	765,170
Other consumption	GJ	4,836	4,063	4,205
Total consumption	GJ	2,192,909	1,644,081	1,811,627

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	99,354	82,463	94,680
Scope 2 location-based emissions	tCO ₂ -eq	105,684	58,409	66,856
Total emissions	tCO₂-eq	205,038	140,872	161,536

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	99,354	82,463	94,680
Scope 2 market-based emissions	tCO ₂ -eq	172,905	101,556	107,816
Total emissions	tCO₂-eq	272,259	184,019	202,496

Water

		2023	2022	2021
Civil use	m ³	6,247	5,516	6,344
Industrial use	m ³	24,548	18,006	17,521
Total withdrawals	m³	30,795	23,522	23,865

Waste

		2023	2022	2021
Hazardous special waste	t	1,221	77	4,597
Non-hazardous special waste	t	392	48	11
Special waste generated	t	1,613	125	4,609
<i>sent for recovery</i>	%	94.1%	100.0%	97.2%

Hellenic Train

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	53,912	77,748	64,384
Electricity for other uses	MWh	4,889	5,106	5,094
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0%	0%	0%
Diesel	Litres	5,307,709	8,318,583	8,288,046
Other consumption	GJ	166	96	101
Total consumption	GJ	404,227	599,903	550,638

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	16,876	24,390	24,353
Scope 2 location-based emissions	tCO ₂ -eq	20,818	35,727	40,116
Total emissions	tCO₂-eq	37,694	60,117	64,469

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	16,876	24,390	24,353
Scope 2 market-based emissions	tCO ₂ -eq	27,496	42,732	42,201
Total emissions	tCO₂-eq	44,372	67,122	66,554

Water

		2023	2022	2021
Civil use	m ³	10,516	16,669	17,776
Industrial use	m ³	41,987	79,875	154,652
Total withdrawals	m³	52,503	96,544	172,428

Waste

		2023	2022	2021
Hazardous special waste	t	256	161	179
Non-hazardous special waste	t	1,091	175	1,868
Special waste generated	t	1,347	336	2,047
<i>sent for recovery</i>	%	100.0%	93.5%	99.5%

Trenitalia c2c

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	74,012	75,105	79,185
Electricity for other uses	MWh	6,345	6,186	6,257
<i>with Guarantee of Origin or self-produced solar energy</i>	%	98.88%	1.16%	0.98%
<i>self-produced solar energy</i>	MWh	72	72	61
Diesel	Litres	2,412	2,319	0
Natural gas	Smc	34,343	41,705	99,052
Other consumption	GJ	135	60	0
Total consumption	GJ	290,685	294,158	310,986

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	86	94	197
Scope 2 location-based emissions	tCO ₂ -eq	17,864	15,970	19,378
Total emissions	tCO₂-eq	17,950	16,064	19,575

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	86	94	197
Scope 2 market-based emissions	tCO ₂ -eq	26,046	25,689	29,704
Total emissions	tCO₂-eq	26,132	25,783	29,901

Water

		2023	2022	2021
Civil use	m ³	34,003	40,999	39,244
Industrial use	m ³	0	0	0
Total withdrawals	m³	34,003	40,999	39,244

Waste

		2023	2022	2021
Hazardous special waste	t	3	3	3
Non-hazardous special waste	t	0	0	0
Special waste generated	t	3	3	3
<i>sent for recovery</i>	%	100.0%	100.0%	0.0%

Trenitalia France

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	23,608	21,522	2,695
Electricity for other uses	MWh	39		
Total consumption	GJ	85,128	77,485	9,700

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	0	1	0
Scope 2 location-based emissions	tCO ₂ -eq	1,006	1,146	542
Total emissions	tCO₂-eq	1,006	1,147	542

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	0	1	0
Scope 2 market-based emissions	tCO ₂ -eq	1,193	1,308	546
Total emissions	tCO₂-eq	1,193	1,308	546

Water

		2023	2022	2021
Civil use	m ³	0	175	0
Industrial use	m ³	0	0	0
Total withdrawals	m³	0	175	0

Waste

		2023	2022	2021
Hazardous special waste	t	0	0	0
Non-hazardous special waste	t	0	3	0
Special waste generated	t	0	3	0
<i>sent for recovery</i>	%	<i>71.6%</i>	<i>83.9%</i>	<i>100.0%</i>

ILSA

Final energy consumption

		2023
Electricity for railway traction	MWh	207,484
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100%
Electricity for other uses	MWh	110
Total consumption	GJ	747,338

Location-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	0
Scope 2 location-based emissions	tCO ₂ -eq	32,003
Total emissions	tCO₂-eq	32,003

Market-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	0
Scope 2 market-based emissions	tCO ₂ -eq	33
Total emissions	tCO₂-eq	33

Water

		2023
Civil use	m ³	303
Industrial use	m ³	0
Total withdrawals	m³	303

Busitalia sita Nord

Final energy consumption

		2023	2022	2021
Electricity	MWh	3,771	3,860	4,514
<i>with Guarantee of Origin</i>	%	99.70%	99.82%	100%
Diesel	Litres	9,925,247	9,268,172	11,923,364
Natural gas	Smc	658,380	1,220,103	1,946,453
Other consumption	GJ	24	23	22
Total consumption	GJ	394,676	390,508	513,172

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	28,364	27,668	36,250
Scope 2 location-based emissions	tCO ₂ -eq	1,017	1,011	1,263
Total emissions	tCO₂-eq	29,381	28,679	37,513

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	28,363	27,668	36,250
Scope 2 market-based emissions	tCO ₂ -eq	5	3	0
Total emissions	tCO₂-eq	28,368	27,671	36,250

Water

		2023	2022	2021
Civil use	m ³	16,139	10,475	42,290
Industrial use	m ³	21,828	18,283	16,039
Total withdrawals	m³	37,967	28,758	58,329

Waste

		2023	2022	2021
Hazardous special waste	t	724	274	113
Non-hazardous special waste	t	650	183	283
Special waste generated	t	1,374	457	396
<i>sent for recovery</i>	%	87.5%	62.2%	50.9%

Busitalia Veneto

Final energy consumption

		2023	2022	2021
Electricity	MWh	6,778	7,364	6,950
Diesel	Litres	8,637,134	8,799,086	8,645,803
Natural gas	Smc	3,669,306	3,635,598	3,394,253
Other consumption	GJ	78	77	89
Total consumption	GJ	462,666	469,447	453,651

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	35,584	30,895	29,978
Scope 2 location-based emissions	tCO ₂ -eq	1,831	1,928	1,945
Total emissions	tCO₂-eq	37,415	32,823	31,923

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	35,584	30,894	29,979
Scope 2 market-based emissions	tCO ₂ -eq	3,124	3,405	3,264
Total emissions	tCO₂-eq	38,708	34,299	33,243

Water

		2023	2022	2021
Civil use	m ³	3,648	3,541	5,087
Industrial use	m ³	14,601	14,180	20,416
Total withdrawals	m³	18,249	17,721	25,503

Waste

		2023	2022	2021
Hazardous special waste	t	479	435	1,395
Non-hazardous special waste	t	102	97	106
Special waste generated	t	581	532	1,501
<i>sent for recovery</i>	%	83.4%	78.7%	90.8%

Final energy consumption

		2023	2022	2021
Electricity	MWh	512	588	587
<i>with Guarantee of Origin</i>	%	100%	100%	100%
Diesel	Litres	4,137,816	4,245,489	4,026,769
Natural gas	Smc	120,243	170,744	324,573
Other consumption	GJ	5	0	0
Total consumption	GJ	155,603	161,497	158,633

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	12,784	11,741	11,463
Scope 2 location-based emissions	tCO ₂ -eq	138	154	164
Total emissions	tCO₂-eq	12,922	11,895	11,627

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	12,784	11,741	11,463
Scope 2 market-based emissions	tCO ₂ -eq	0	0	0
Total emissions	tCO₂-eq	12,784	11,741	11,463

Water

		2023	2022	2021
Civil use	m ³	4,003	6,056	5,520
Industrial use	m ³	5,071	6,368	4,397
Total withdrawals	m³	9,074	12,424	9,917

Waste

		2023	2022	2021
Hazardous special waste	t	76	217	170
Non-hazardous special waste	t	53	10	63
Special waste generated	t	129	227	233
<i>sent for recovery</i>	%	69.8%	98.7%	82.7%

Final energy consumption

		2023	2022	2021
Electricity	MWh	31,788	39,102	34,999
<i>with Guarantee of Origin or self-produced solar energy</i>	%	99.78%	99.92%	100%
<i>self-produced solar energy</i>	MWh	45	34	46
Diesel	Litres	10,155,466	8,782,374	9,043,751
Natural gas	Smc	71,313	64,015	66,425
Biodiesel	Litres	4,150,206	6,474,029	6,162,225
Hydrogen	kg	154,118	108,083	53,302
Other consumption	GJ	3,787	2,837	4,462
Total consumption	GJ	660,512	716,750	694,476

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	27,839	25,101	24,844
Scope 2 location-based emissions	tCO ₂ -eq	11,844	14,728	16,000
Total emissions	tCO₂-eq	39,683	39,829	40,844

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	27,840	25,101	24,845
Scope 2 market-based emissions	tCO ₂ -eq	49	33	106
Total emissions	tCO₂-eq	27,889	25,134	24,951

Water

		2023	2022	2021
Civil use	m ³	8,941	10,881	9,658
Industrial use	m ³	6,743	8,608	8,650
Total withdrawals	m³	15,684	19,489	18,308

Busitalia Rail Service

Final energy consumption

		2023
Electricity	MWh	2
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0%
Diesel	Litres	628,052
Other consumption	GJ	51
Total consumption	GJ	22,770

Location-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	1,687
Scope 2 location-based emissions	tCO ₂ -eq	1
Total emissions	tCO₂-eq	1,688

Market-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	1,687
Scope 2 market-based emissions	tCO ₂ -eq	1
Total emissions	tCO₂-eq	1,688

Water

		2023
Civil use	m ³	10
Industrial use	m ³	0
Total withdrawals	m³	10

Ferrovie del Sud-Est e Servizi Automobilistici (passengers)

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	2,593	2,442	2,195
Electricity for other uses	MWh	1,559	1,564	1,498
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100%	100%	100%
Diesel	Litres	9,028,815	8,897,701	8,490,723
Natural gas	Smc	14,134	16,039	13,308
Total consumption	GJ	356,539	350,554	332,246

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	29,436	24,902	23,642
Scope 2 location-based emissions	tCO ₂ -eq	1,778	1,720	1,720
Total emissions	tCO₂-eq	31,214	26,622	25,362

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	29,437	24,902	23,642
Scope 2 market-based emissions	tCO ₂ -eq	1,095	1,129	1,031
Total emissions	tCO₂-eq	30,532	26,031	24,673

Water

		2023	2022	2021
Civil use	m ³	16,803	16,079	11,927
Industrial use	m ³	32,434	29,562	22,274
Total withdrawals	m³	49,237	45,645	34,201

Waste

		2023	2022	2021
Hazardous special waste	t	202	77	215
Non-hazardous special waste	t	402	321	1,817
Special waste generated	t	604	391	2,033
<i>sent for recovery</i>	%	90.7%	93.9%	96.6%

Logistics Business Unit

Mercitalia Logistics

Mercitalia Rail*

Mercitalia Intermodal*

TX Logistik*

Mercitalia Shunting & Terminal*

Bluferries*

* *Mercitalia Logistics subsidiaries/ investees*

OUR APPROACH

The Logistics Business Unit was created with the aim of revitalizing the logistics and freight transport sector, both nationally and internationally, through the promotion, implementation, management and sale of low environmental impact initiatives and services. The companies' commitment to sustainability issues is evidenced by the use of the railway as the preferred mode of transport for the delivery of its integrated logistics services, thus achieving an advantage in terms of sustainable mobility and reduced emissions.

Doubling the share of freight traffic handled by rail, building new intermodal rail freight yards, and renewing the fleet of wagons and locomotives are the main goals of the Business Unit.

The Logistics Business Unit offers integrated logistics services, including first and last mile connections, and operation of terminals and logistics platforms, to enable full intermodality with road and sea transport. The sector's parent company is Mercitalia Logistics. Domestic and international operating companies are part of the business unit: Mercitalia Rail, the largest rail freight company in Italy, and one of the largest in Europe; Mercitalia Intermodal the largest combined road/rail operator in Italy, and the third largest in Europe; Mercitalia Shunting & Terminal, a captive company that operates first/last mile rail, intermodal terminals, design, construction, and maintenance services for superstructure, as well as transport services, including by road; TX Logistik, which expanded its perimeter with the acquisition of Exploris to become the second largest rail freight company in Germany; and Bluferries⁶, a company active in maritime transport on the Strait of Messina.

The Logistics Business Unit also includes Terminal Alp Transit (TerAlp), established with the aim of building and operating state-of-the-art rail terminals; the company has the task of equipping the country's most productive economic areas with new and technologically advanced inland terminals capable of satisfying - in the most effective, efficient and environmentally friendly way - the future demand for long-haul freight transport, initially between the Milan and Brescia areas, and the main Italian and European origins and destinations.

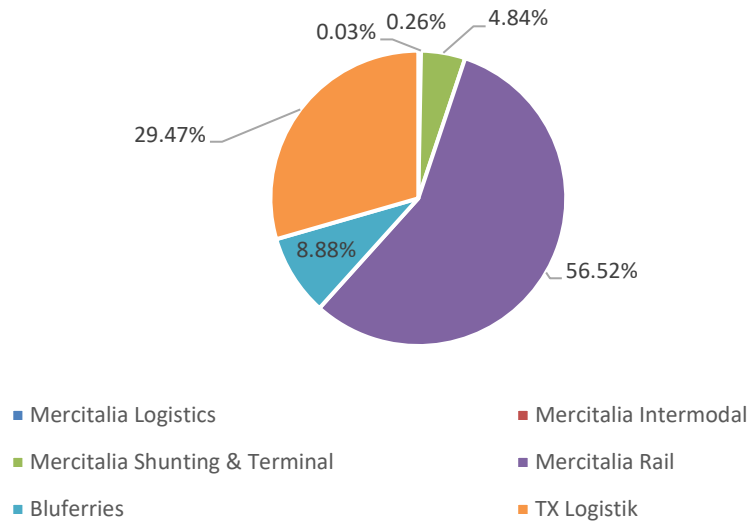
With the Logistics Business Unit, FS Italiane aims to make the freight transport and logistics sector more competitive, thus contributing to the achievement of the goals set by the UN Agenda 2030. Also for this purpose, the Logistics Business Unit has an important investment plan underway in rolling stock, new multimodal terminals, logistics platforms to innovate and digitise its industrial processes.

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	595,704	596,200	597,595
Electricity for other uses	MWh	4,885	5,260	5,840
<i>with Guarantee of Origin or self-produced solar energy</i>		72%	71%	68%
<i>self-produced solar energy</i>	MWh	235	264	276
Diesel	Litres	12,185,005	11,857,115	11,492,622
Natural gas	Smc	652,398	720,895	863,414
Other consumption	GJ	2,514	2,749	2,029
Total consumption	GJ	2,592,341	2,586,699	2,586,999

⁶ Included in the perimeter of the Logistics Business Unit from 1 November 2023.

Final energy consumption in 2023 (% of total)



Comments on the trend

The overall energy consumption of the Logistics Business Unit in 2023 was the highest in the three-year period, although the changes recorded during this period were always less than 1% in absolute value. Over the three-year period, the only energy source whose requirements had a steady upward trend was diesel fuel, whose consumption was higher than 2.8% between 2023 and 2022, and higher than 3.2% between 2022 and 2021.

The higher use of diesel fuel in 2023 was mainly attributable to the acquisition of a trucking business unit, the increase in Mercitalia Shunting & Terminal's logistics activities, the entry of Blufferries' diesel-powered vehicles into the Business Unit, and an increased use of motor vehicles, cars and work vehicles by TX Logistik. The increase in diesel consumption had already occurred between 2022 and 2021, mainly due to the increase in shunting operations that had begun in mid-July 2021, and continued throughout 2022.

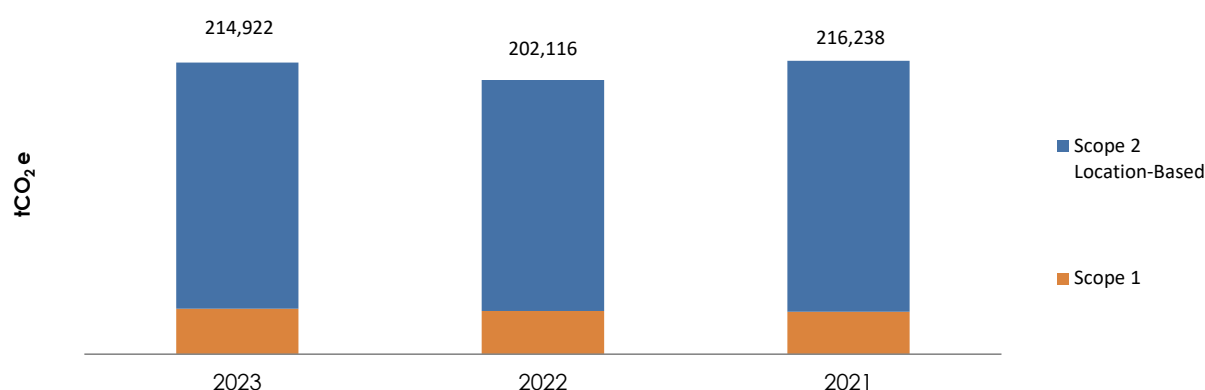
With regard to electricity withdrawals, the share allocated to rail traction experienced a slight decreasing trend while, for the share allocated to other uses, the decreases were more significant (-7.2% between 2023 and 2022, and -9.9% between the two previous years), generally attributable to a more rational use of energy, and the persistence of remote working. Electricity procurement with Guarantee of Origin has experienced a steadily increasing trend. This is due to the positive contribution given by almost all the companies in the Business Unit, including Mercitalia Intermodal, which since 2023 has been included in the Business Unit perimeter, and whose corporate electricity supply is fully certified as being of renewable origin. The share of self-consumed PV energy is characterized by a decreasing profile over the three-year period in favour of increased feed-in to the national grid.

Over the past year, natural gas demand has decreased by 9.5%, mainly due to lower use for heating given the milder weather conditions, and lower use for powering vehicles and work equipment attributable to the preference for petrol-powered vehicles. The gradual reduction in the use of natural gas was already underway between 2022 and 2021, when a decline of 16.5% was recorded.

The use of other energy sources (petrol and LPG) recorded insignificant changes (-235 GJ between 2023 and 2022, and +720 GJ between 2022 and 2021) over the three-year period and, in general, there was a decrease (-8.5%) in the last year compared to the growth that occurred between 2022 and 2021.

Total CO₂-eq emissions

Scope 1 + Scope 2 LB Emissions - Logistics BU



The bar chart shows Scope 1 and Scope 2 location-based⁷, direct (fuel use, fugitive emissions, land use change), and indirect (third-party generated energy consumption) emissions from the FS Group's operating activities.

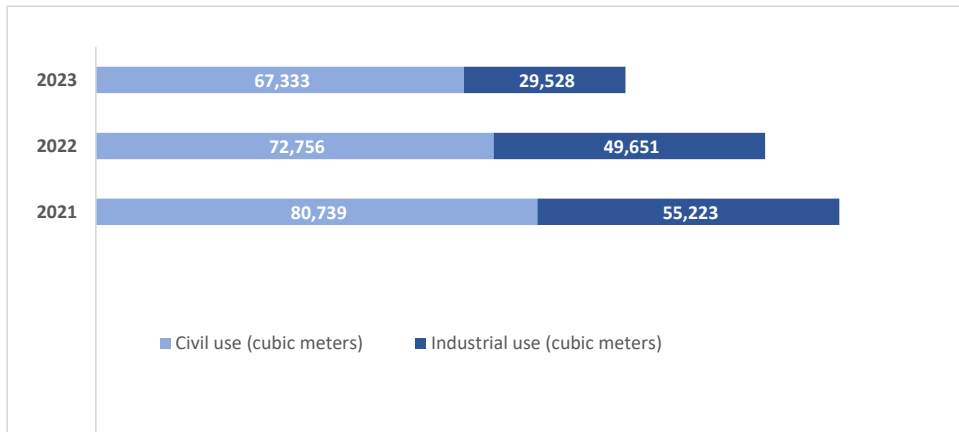
GHG emissions		2023	2022	2021
Total Scope 1 emissions	tCO ₂ -eq	33,514	31,984	31,425
Total Scope 2 (location-based) emissions	tCO ₂ -eq	181,408	170,132	184,813
Total Scope 2 (market-based) emissions ⁸	tCO ₂ -eq	223,331	198,133	124,249
Total Scope 3 emissions*	tCO ₂ -eq	188,605	128,342	134,928
TOTAL (S1 + S2 LB + S3)	tCO₂e	403,528	330,459	351,166
TOTAL (S1 + S2 MB + S3)	tCO₂e	445,451	358,460	290,601

* Emissions from energy consumption are calculated by using the location-based approach. These values include all emissions belonging to the FS Italian Group's inventory perimeter (i.e. Category 1, 2, 3, 5, 6, 7, 11 and 13)

Water

⁷ According to the location-based approach, emissions are accounted for by applying national average emission factors for the different countries where electricity is acquired.

⁸ According to the market-based approach, emissions are calculated from electricity that an organization has intentionally chosen with contractual form. Emission factors are derived from contract forms, which include any type of contract between two parties for the purchase and sale of power in which the mode of power generation is certified. The market-based calculation may involve the use of a residual mix if the organization's level of emission intensity is not specified in its contract forms.



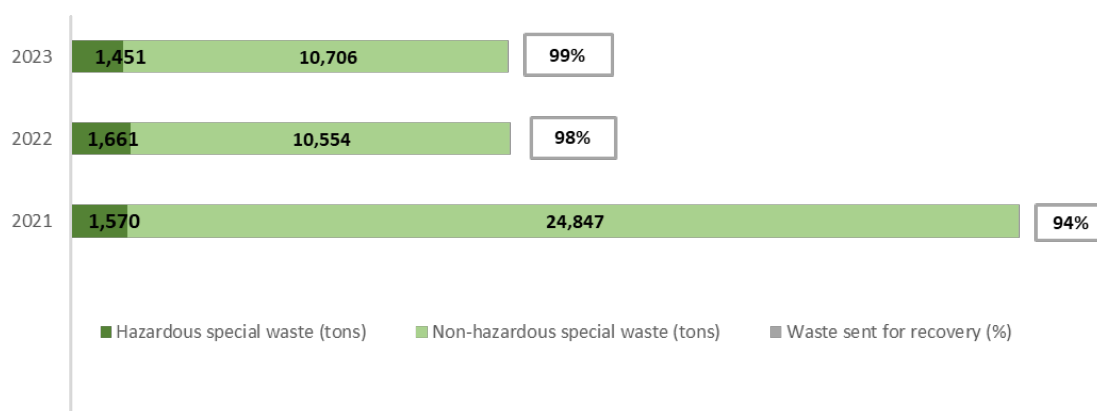
Comments on the trend

In 2023, the trend of reducing water withdrawals for both civil and industrial use was confirmed.

The reduction was mainly attributable to Mercitalia Rail, which, by type of activities and processes, uses the water resource more consistently than the other companies in the Business Unit. This decrease was related both to the efficiency and modernization interventions of the water networks, and to a lower consumption of the resource related to process improvement.

Water		2023	2022	2021
<i>Mercitalia Logistics</i>	<i>m³</i>	6,977	6,903	7,391
<i>Mercitalia Shunting & Terminal</i>	<i>m³</i>	1,927	970	800
<i>Mercitalia Rail</i>	<i>m³</i>	87,291	114,033	126,794
<i>TX Logistiek</i>	<i>m³</i>	621	501	977
<i>Mercitalia Intermodal*</i>	<i>m³</i>	45	-	-
<i>Blufferries</i>	<i>m³</i>	0	0	0
TOTAL	m³	96,861	122,407	135,962
<i>*included in the reporting scope from 2023</i>				

Waste



Comments on the trend

The trend recorded over the last two years showed a decline in the total amount of waste produced, and an increase in the share of waste sent for recovery. The generation of waste is affected both by the demolition campaigns of decommissioned railway vehicles, since they are no longer suitable for transport service, and by the construction site activities dedicated to the maintenance of the infrastructure and in owned assets, which have been progressively initiated over the years by the companies in the Business Unit.

Waste		2023	2022	2021
<i>Mercitalia Logistics</i>	<i>t</i>	0	18.16	3.28
<i>Mercitalia Shunting & Terminal</i>	<i>t</i>	2,603.94	5,810.00	6,939.63
<i>Mercitalia Rail</i>	<i>t</i>	9,254.74	6,361.99	19,433.35
<i>Mercitalia Intermodal*</i>	<i>t</i>	249.85	-	-
<i>Blufferries</i>	<i>t</i>	48.19	25.33	39.97
TOTAL	t	12,156.72	12,215.48	26,416.23
<i>*included in the reporting scope from 2023</i>				
















Certified management systems















The table below shows the scopes of certification of the management systems certified by national accreditation bodies for the Business Unit companies. The column of “Integrated Systems” reports the information regarding the integration of the various standard schemes of management systems (Quality, Environment, and Safety). The adoption of management systems has several benefits for organizations that implement them, such as, for example, continuous process and performance improvement, reduced impacts, regulatory compliance, and appropriate risk management.

Management systems certified by accredited body	ISO 9001:2015 (Q)	ISO 14001:2015 (E)	ISO 45001:2018 (S)	Integrated Systems
<i>Mercitalia Logistics</i>	✓	✓	✓	✓
<i>Mercitalia Shunting & Terminal</i>	✓	✓	✓	✓
<i>Mercitalia Rail</i>	✓	✓	✓	✓
<i>TX Logistik Transalpine GmbH</i>	✓	✓	✓	✓

<i>Mercitalia Intermodal</i>	✓	✓	✓	✓
<i>Bluferries</i>	✓	✓	✓	✓

The following are the main initiatives with strong sustainability value, as completed, underway, or planned by 2033, which is the term of the FS Group's Business Plan

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	Mercitalia Shunting & Terminal	Purchase of no. 7 shunting locomotives	Development of means of transport allowing for a reduction in energy consumption	New locomotives in operation	2023	 Completed	  
Climate change mitigation	Mercitalia Shunting & Terminal	19 (out of 25) interventions carried out on shunting locomotive revamping 2.0 (D245 - 6000 series)	Development of means of transport allowing for a reduction in energy consumption	Revamping of no. 25 locomotives	2014-2025	 In progress (76%)	  
Climate change mitigation	TX Logistik	Replacement of electric locomotives with better means in terms of efficiency and sustainability	Development of means of transport allowing for a reduction in energy consumption	40 (+ possible additional 25) new Vectron locomotives with state-of-the-art equipment	2023 - 2032	 In progress (10%)	  
Environmental protection	Bluferries	Installation of desalinators on board two units in the fleet	Water consumption efficiency Protection of freshwater bodies	-700 m ³ /year	2018-2023	 Completed	 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Circular economy	Mercitalia Logistics	Start of testing for the reuse of ballasts and other materials (e.g., landfill materials)	Implementation of circular business models that enable responsible and sustainable use of raw materials and materials used		2022-2033	 In progress	
Integrated mobility systems	Mercitalia Intermodal	Improved efficiency of the Renewal of the wagon fleet with characteristics of efficiency and sustainability of transport service	Adoption of sustainable, resilient and integrated transport systems	486	2022-2031	 In progress (21%)	  
Safety of infrastructure and transport	Mercitalia Intermodal & TX Logistik	Smart Train. Installation of sensors on wagons to monitor safety and operational parameters. Testing took place on 5 wagons during 2023	Increased safety and reliability of means of transport		2023-2031	 In progress	  
Safety of infrastructure and transport	Mercitalia Intermodal	Upgrading of the wagon fleet braking system with installation of higher performance systems on 95% of the fleet	Increased safety and reliability of means of transport Prevention and limitation of noise and vibration emissions	1,093 wagons	2020-2025	 In progress	  

Indicators

Mercitalia Logistics

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	0	0	0
Electricity for other uses	MWh	1,728	1,845	2,214
<i>with Guarantee of Origin or self-produced solar energy</i>	%	76.46%	74.77%	69.75%
<i>self-produced solar energy</i>	MWh	191	214	231
Diesel	Litres	791	565	596
Natural gas	Smc	16,976	15,966	30,641
Other consumption	GJ	14	7	9
Total consumption	GJ	6,847	7,216	9,051

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	37	34	63
Scope 2 location-based emissions	tCO ₂ -eq	415	427	555
Total emissions	tCO₂-eq	452	461	618

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	37	34	63
Scope 2 market-based emissions	tCO ₂ -eq	188	215	315
Total emissions	tCO₂-eq	225	249	378

Water

		2023	2022	2021
Civil use	m ³	6,977	6,903	7,391
Industrial use	m ³	0	0	0
Total withdrawals	m³	6,977	6,903	7,391

Waste

		2023	2022	2021
Hazardous special waste	t	0	0	0
Non-hazardous special waste	t	0	18	3
Special waste generated	t	0	18	3
<i>sent for recovery</i>	%	-	100%	0%

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	924	989	985
Electricity for other uses	MWh	425	408	482
<i>with Guarantee of Origin or self-produced solar energy</i>	%	10.30%	12.25%	9.35%
<i>self-produced solar energy</i>	MWh	44	50	45
Diesel	Litres	3,305,665	3,048,906	3,015,689
Natural gas	Smc	0	0	0
Other consumption	GJ	891	1,332	1,259
Total consumption	GJ	125,506	116,852	115,798

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	9,587	8,952	8,859
Scope 2 location-based emissions	tCO ₂ -eq	352	352	398
Total emissions	tCO₂-eq	9,939	9,304	9,257

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	9,587	8,952	8,859
Scope 2 market-based emissions	tCO ₂ -eq	425	424	481
Total emissions	tCO₂-eq	10,012	9,376	9,340

Water

		2023	2022	2021
Civil use	m ³	1,871	919	770
Industrial use	m ³	56	51	30
Total withdrawals	m³	1,927	970	800

Waste

		2023	2022	2021
Hazardous special waste	t	1,300	1,476	1,443
Non-hazardous special waste	t	1,304	4,334	5,497
Special waste generated	t	2,604	5,810	6,940
<i>sent for recovery</i>	%	<i>98%</i>	<i>99%</i>	<i>99%</i>

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	384,296	401,322	405,484
Electricity for other uses	MWh	2,132	2,307	2,384
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100.00%	100.00%	100.00%
<i>self-produced solar energy</i>	MWh	0	0	0
Diesel	Litres	1,440,371	1,459,968	1,592,562
Natural gas	Smc	635,423	704,929	832,774
Other consumption	GJ	169	149	37
Total consumption	GJ	1,465,303	1,530,299	1,554,632

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	6,289	5,667	6,299
Scope 2 location-based emissions	tCO ₂ -eq	104,249	105,679	114,123
Total emissions	tCO₂-eq	110,538	111,346	120,422

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	6,289	5,667	6,299
Scope 2 market-based emissions	tCO ₂ -eq	103,674	105,075	113,456
Total emissions	tCO₂-eq	109,963	110,742	119,755

Water

		2023	2022	2021
Civil use	m ³	57,819	64,433	71,601
Industrial use	m ³	29,472	49,600	55,193
Total withdrawals	m³	87,291	114,033	126,794

Waste

		2023	2022	2021
Hazardous special waste	t	103	170	92
Non-hazardous special waste	t	9,151	6,192	19,341
Special waste generated	t	9,255	6,362	19,433
<i>sent for recovery</i>	%	99%	97%	99%

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	210,485	193,888	191,126
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0.00%	10.32%	82.76%
Electricity for other uses	MWh	563	680	737
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0.00%	0.00%	0.00%
<i>self-produced solar energy</i>	MWh	0	0	0
Diesel	Litres	74,369	99,234	95,683
Natural gas	Smc	0	0	0
Other consumption	GJ	1,393	1,260	724
Total consumption	GJ	763,855	705,296	694,886

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	304	361	311
Scope 2 location-based emissions	tCO ₂ -eq	76,382	63,668	69,732
Total emissions	tCO₂-eq	76,686	64,029	70,043

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	304	361	311
Scope 2 market-based emissions	tCO ₂ -eq	119,036	92,409	9,987
Total emissions	tCO₂-eq	119,340	92,770	10,298

Water

		2023	2022	2021
Civil use	m ³	621	501	977
Industrial use	m ³	0	0	0
Total withdrawals	m³	621	501	977

Final energy consumption

		2023
Electricity for railway traction	MWh	0
Electricity for other uses	MWh	17
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100.00%
<i>self-produced solar energy</i>	MWh	0
Diesel	Litres	16,237
Natural gas	Smc	0
Other consumption	GJ	47
Total consumption	GJ	694

Location-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	47
Scope 2 location-based emissions	tCO ₂ -eq	4
Total emissions	tCO₂-eq	51

Market-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	47
Scope 2 market-based emissions	tCO ₂ -eq	0
Total emissions	tCO₂-eq	47

Water

		2023
Civil use	m ³	45
Industrial use	m ³	0
Total withdrawals	m³	45

Waste

		2023
Hazardous special waste	t	0
Non-hazardous special waste	t	250
Special waste generated	t	250
<i>sent for recovery</i>	%	100%

Final energy consumption

		2023	2022	2021
Electricity for railway traction	MWh	0	0	0
Electricity for other uses	MWh	20	21	23
<i>with Guarantee of Origin or self-produced solar energy</i>	%	0.00%	0.00%	0.00%
<i>self-produced solar energy</i>	MWh	0	0	0
Diesel	Litres	7,347,572	7,248,442	6,788,091
Natural gas	Smc	0	0	0
Other consumption	GJ	0	0	0
Total consumption	GJ	230,137	227,036	212,631

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	17,250	16,970	15,892
Scope 2 location-based emissions	tCO ₂ -eq	5	6	7
Total emissions	tCO₂-eq	17,255	16,976	15,899

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	17,250	16,970	15,892
Scope 2 market-based emissions	tCO ₂ -eq	9	10	11
Total emissions	tCO₂-eq	17,259	16,980	15,903

Waste

		2023	2022	2021
Hazardous special waste	t	47	15	34
Non-hazardous special waste	t	1	10	6
Special waste generated	t	48	25	40
<i>sent for recovery</i>	%	98%	92%	90%

Urban Business Unit

FS Sistemi Urbani

FS Park*

* FS Sistemi Urbani subsidiary

OUR APPROACH

The mission of the Urban Business Unit is to enhance assets no longer functional for rail services with a view to sustainable regeneration of the city, offer intermodal solutions, operate parking in an integrated way, and establish new partnerships to develop the strategies of the Business Unit.

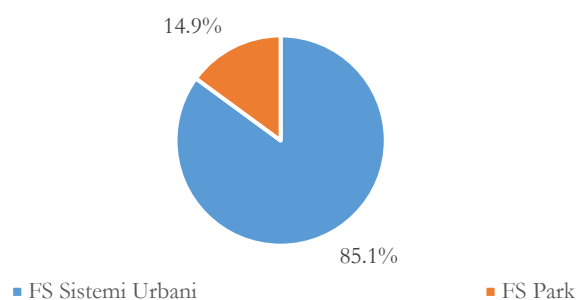
Substantial investments are aimed at the redevelopment of disused real estate assets in areas adjacent to roads and railway areas, which could be used to produce renewable energy, carry out planting, create green corridors and bike paths.

To this must be added the integrated management of the Group's parking lots, which sees an increase in the number of spaces, and the installation of electric charging stations.

Final energy consumption

		2023	2022	2021
Electricity	MWh	6,229	4,448	4,545
<i>with Guarantee of Origin or self-produced solar energy</i>		95%	100%	100%
<i>self-produced solar energy</i>	MWh	0	0	0
Diesel	l	0	0	0
Natural gas	Smc	299,324	385,858	232,645
Total consumption	GJ	32,688	29,244	24,339

Final energy consumption in 2023 (% of total)



Comments on the trend

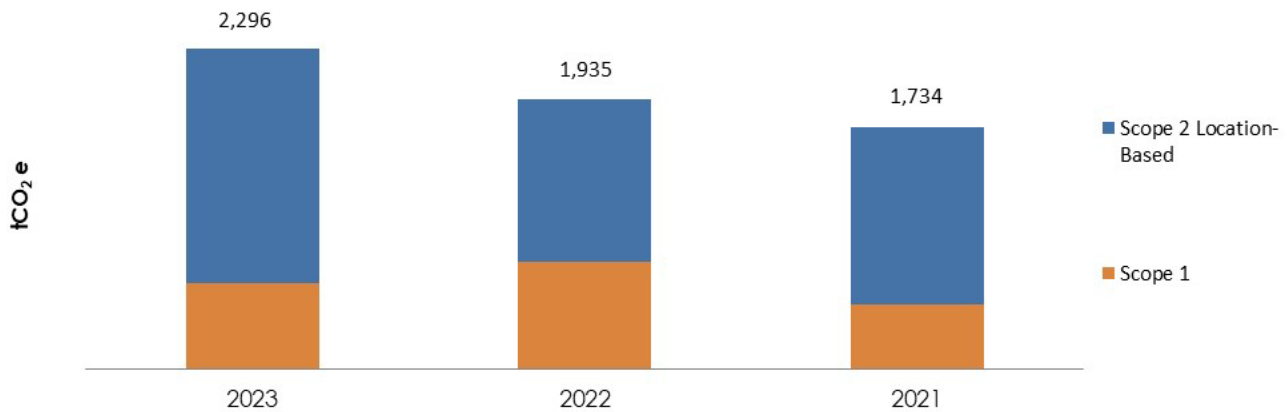
While between 2021 and 2022 the Urban Business Unit's total energy consumption increased by 20%, there was a smaller increase (+12%) in 2023 compared to 2022, due to the entry of FS Park into the company's perimeter. The extension of the Business Unit's perimeter resulted in a higher electricity withdrawal in 2023; however, this did not translate into a growth in thermal energy (methane) consumption compared to 2022, but on the contrary a decrease of 22%.

The higher electricity withdrawal observed in 2023 was attributable to the entry of FS Park. In fact, it is observed that, net of the 1,356 MWh withdrawn by the company in 2023, the Business Unit's consumption remained roughly constant over the three-year period. The share of energy with Guarantee of Origin reduced in 2023 due to a lower supply of green energy by FS Sistemi Urbani.

Methane consumption by FS Sistemi Urbani increased between 2021 and 2022 (+66%), unlike in 2023 there had been a decrease in thermal energy use despite the entry of FS Park into the Business Unit. This reduction was due to a milder winter, and the concurrent modernization and efficiency upgrading of FS Sistemi Urbani's heating systems.

Total CO₂-eq emissions

Scope 1 + Scope 2 LB Emissions - Urban BU

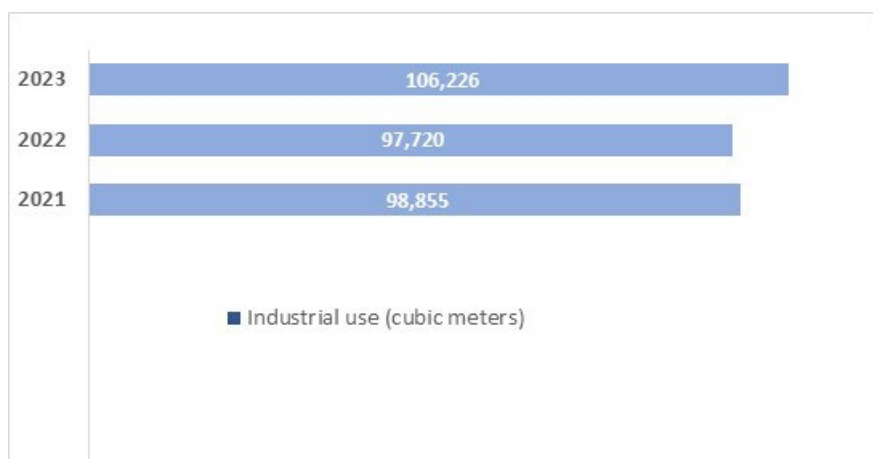


The bar chart shows Scope 1 and Scope 2 location-based, direct (fuel use, fugitive emissions, land use change), and indirect (third-party generated energy consumption) emissions from the FS Group's operating activities.

GHG emissions		2023	2022	2021
Total Scope 1 emissions	tCO ₂ -eq	616	771	462
Total Scope 2 (location-based) emissions	tCO ₂ -eq	1,680	1,165	1,272
Total Scope 2 (market-based) emissions	tCO ₂ -eq	141	-	-
Total Scope 3 emissions*	tCO ₂ -eq	995	322	299
TOTAL (S1 + S2 LB + S3)	tCO₂e	3,291	2,258	2,033
TOTAL (S1 + S2 MB + S3)	tCO₂e	1,751	1,093	761

*Emissions from energy consumption are calculated by using the location-based approach. These values include all emissions belonging to the FS Italian Group's inventory perimeter (i.e. Category 1, 2, 3, 5, 6, 7, 11 and 13)

Water



Comments on the trend

The increase recorded during 2023 was attributable to the inclusion of FS Sistemi Urbani's consumption in the reporting scope of the KPI under consideration.

Water		2023	2022	2021
<i>FS Sistemi Urbani</i>	m^3	106,126	97,720	98,855
<i>FS Park*</i>	m^3	100	-	-
TOTAL	m^3	106,226	97,720	98,855
<i>*included in the reporting scope from 2023</i>				

Waste

Waste		2023	2022	2021
<i>FS Sistemi Urbani</i>	<i>t</i>	0.33	0.70	-
<i>FS Park*</i>	<i>t</i>	0	-	-
TOTAL	<i>t</i>	0.33	0.70	-
<i>*included in the reporting scope from 2023</i>				
















Certified management systems

















The table below shows the scopes of certification of the management systems certified by national accreditation bodies for the Business Unit companies. The column of “Integrated Systems” reports the information regarding the integration of the various standard schemes of management systems (Quality, Environment, and Safety). The adoption of management systems has several benefits for organizations that implement them, such as, for example, continuous process and performance improvement, reduced impacts, regulatory compliance, and appropriate risk management.










Management systems certified by accredited body	ISO 9001:2015 (Q)	ISO 14001:2015 (E)	ISO 45001:2018 (S)	Integrated Systems
<i>FS Sistemi Urbani*</i>	-	✓	-	-
<i>FS Park</i>	✓	✓	-	-

*FS Sistemi Urbani has an Environmental Management System complying with ISO 14001:2015 integrated with the Asset Management System complying with ISO 55001 :2014.

The following are the main initiatives with strong sustainability value, as completed, underway, or planned by 2033, which is the term of the FS Group's Business Plan

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Support to communities and development in local areas	FS Sistemi Urbani	Urban regeneration of disused railway areas both for the purpose of boosting Group business, and for the purpose of creating value in local areas	Reuse and regeneration of assets	6 million sq.m. at the end of the plan period	2021-2033	 In progress	   
Integrated mobility systems	FS Sistemi Urbani	Regeneration projects for freight yard expansion/reactivation in order to enhance first- and last-mile logistics supply	Decreasing the level of traffic on road infrastructure by upgrading links between stations and the freight mobility system	1.6 million sq.m.	2021-2033	 In progress	 
Support to communities and development in local areas	FS Sistemi Urbani	Promotion of initiatives with high social impact on communities by granting areas for social and/or environmental and/or cultural initiatives	Reuse and regeneration of assets	30 gratuitous loan for use agreements signed or renewed for social, environmental and/or cultural purposes	2021-2033	 In progress	  
Environmental protection	FS Sistemi Urbani	Inclusion of green areas in projects for the development of areas not functional to railway operations	Prevention and biodiversity restoration	2.3 million sq.m.	2021-2033	 In progress	 

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
							 
Environmental protection	FS Sistemi Urbani	Integrated design between reclamation and regeneration through planting of trees useful for soil remediation, which will remain as a legacy of the park	Regeneration and restoration of compromised areas	Implementation of experimental devices within the scope of the National Biodiversity Future Center operations	2022-2025	 In progress	  
Climate change mitigation	FS Park	Installation of electric charging stations at parking lots operated by FS Park in order to encourage sustainable mobility	Sustainable mobility	8,000 parking spaces	2022-2033	 In progress	  
Climate change mitigation	FS Park	“PV systems in Parking Lots” Project. Installation of PV shelters in parking lots for renewable energy generation	Self-production of energy from renewable sources	Installation of 1,125 sq.m. of PV panels	2022-2032	 In progress	    

Title	Company	Project	Sustainability impact	Target	Period	Project status	Contribution to SDGs (Agenda 2030)
Climate change mitigation	FS Park	Regulatory compliance and efficiency upgrading of electrical and water systems in parking lots	Energy efficiency upgrading	46 interventions	2022-2032	 In progress	    
Integrated mobility systems	FS Park	Increasing the number of parking lots in disused areas close to stations or interchanges in order to encourage the modal shift from road to rail	Decreasing traffic levels on road infrastructure by upgrading links between stations, and the urban and integrated passenger mobility system	42,000 parking spaces by the end of the plan period	2022-2033	 In progress	 

Indicators

FS Sistemi Urbani

Final energy indicators

		2023	2022	2021
Electricity	MWh	4,873	4,448	4,545
<i>with Guarantee of Origin or self-produced solar energy</i>	%	93.72%	100.00%	100.00%
<i>self-produced solar energy</i>	MWh	0	0	0
Diesel	Litres	0	0	0
Natural gas	Smc	299,324	385,858	232,645
Other consumption	GJ	0	0	0
Total consumption	GJ	27,806	29,244	24,339

Location-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	616	771	462
Scope 2 location-based emissions	tCO ₂ -eq	1,315	1,164	1,272
Total emissions	tCO₂-eq	1,931	1,935	1,734

Market-based CO₂-eq emissions

		2023	2022	2021
Scope 1 emissions	tCO ₂ -eq	616	771	462
Scope 2 market-based emissions	tCO ₂ -eq	141	-	-
Total emissions	tCO₂-eq	757	771	462

Water

		2023	2022	2021
Civil use	m ³	106,126	97,720	98,855
Total withdrawals	m³	106,126	97,720	98,855

Waste

		2023	2022	2021
Hazardous special waste	t	0.09	0.11	0
Non-hazardous special waste	t	0.24	0.59	0
Special waste generated	t	0.33	0.70	0
<i>sent for recovery</i>	%	100%	100%	-

Final energy consumption

		2023
Electricity for other uses	MWh	1,356
<i>with Guarantee of Origin or self-produced solar energy</i>	%	100.00%
<i>self-produced solar energy</i>	MWh	0
Diesel	Litres	0
Natural gas	Smc	0
Other consumption	GJ	0
Total consumption	GJ	4,882

Location-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	0
Scope 2 location-based emissions	tCO ₂ -eq	366
Total emissions	tCO₂-eq	366

Market-based CO₂-eq emissions

		2023
Scope 1 emissions	tCO ₂ -eq	0
Scope 2 market-based emissions	tCO ₂ -eq	0
Total emissions	tCO₂-eq	0

Water

		2023
Civil use	m ³	100
Industrial use	m ³	0
Total withdrawals	m³	100