metrotenerife

GREEN BOND ALLOCATION AND IMPACT REPORT

2025

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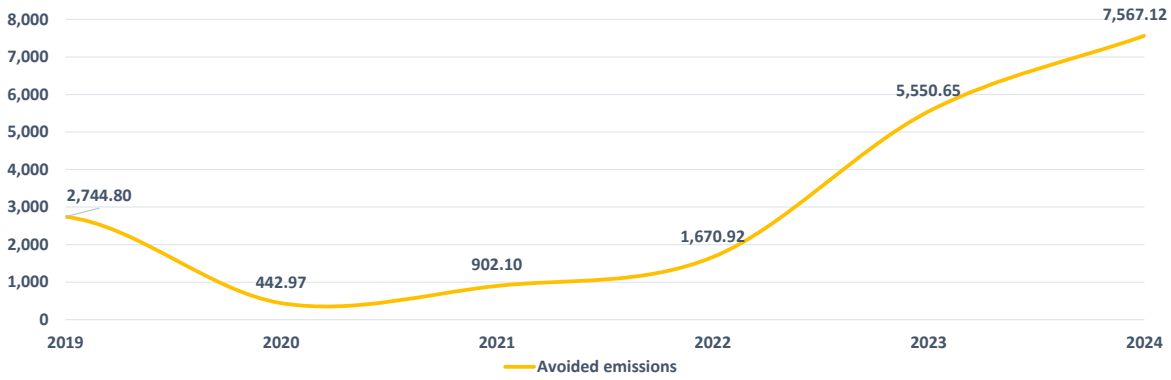
EXECUTIVE SUMMARY

At the end of July 2021, Metropolitano de Tenerife issued its first green bond with a volume of €130 million and a maturity of 15 years. The issue was made in accordance with Metropolitano de Tenerife's 2021 Green Bond Framework, designed in line with the ICMA Green Bond Principles (2018) and verified by Sustainalytics and S&P. The bond proceeds will be used to finance green projects, in particular the refinancing of tram line infrastructure and the financing of a photovoltaic plant integrated into the transport system infrastructure. The projects are linked to the categories of clean transport and renewable energy, respectively. The projects are expected to contribute to the achievement of Sustainable Development Goals 7 (Affordable and clean energy), 9 (Industry, innovation and infrastructure), 11 (Sustainable cities and communities) and 13 (Climate action).

Figure 1 shows the evolution of greenhouse gas (GHG) emissions avoided in the period 2019-2024. The lowest point occurred in 2020 due to the COVID-19 pandemic. Since then, tram ridership has risen exponentially, leading to an increase in GHG emissions avoided.

1 . Evolution of emissions avoided through tram use (tonnes of CO_2 e)



Source: Own elaboration

Therefore, the average value of GHG emissions avoided per year during this period was **3,146.42 tCO_2 e/year.**

1. INTRODUCTION

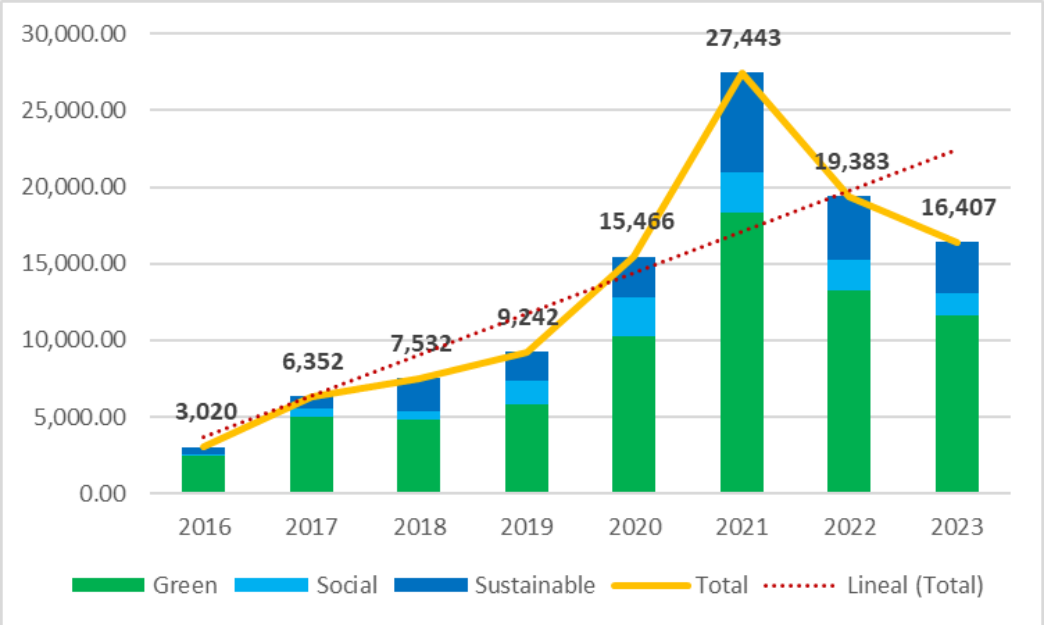
1.1 BR EVE DESCRIPTION OF THE CONTEXT

The European Investment Bank issued the first green bond in 2007. In Spain, within the public sector, the pioneer in issuing sustainable bonds was the government of the Community of Madrid, followed by many other regional and local entities. In terms of green bonds specifically, ADIF and the ICO were the first entities to launch this type of debt, until Metropolitano de Tenerife, S.A., the Spanish government and the Community of Madrid joined the market in 2021. In the private sector, there is greater diversity of issuers of sustainable and green debt, as various industrial, infrastructure, energy, telecommunications and engineering entities have joined the market as bond issuers in recent years.

There is a growing trend towards allocating financial resources to sustainable projects, as can be seen in the trend line in Figure 2. However, the volatility of the capital markets and the rise in interest rates in 2022-2023 have led to less dynamism in the bond market. At the end of 2024, the volume placed had increased by approximately 27% compared to 2023, but was still below the peak reached in 2021.

A detailed analysis of sustainable bond issues for 2024 shows that green bonds accounted for 80.40% of total issuance, far exceeding sustainable and social bonds, which accounted for 17.18% and 2.42%, respectively. The prevalence of green bonds over sustainable bonds remains, even though total issuance has increased. This may be due to the urgent need to accelerate the transition to sustainable development based on a decarbonised economy and to reduce dependence on fossil fuel resources.

Figure 2. Green, social and sustainable bond issuance in Spain (€ million).



Source: Own elaboration based on Bloomberg, June 2025

1.2 MAIN OBJECTIVES OF THE REPORT AND DESCRIPTION OF THE BOND

This report is based on the premise conveyed by the International Capital Market Association (ICMA):

"*Green bond issuers are encouraged to report on the use of resources and the expected environmental impact at least annually.*"[1] .

Metropolitano de Tenerife S.A. (Metrotenerife) is a public transport company[2] founded in 2001 with the aim of developing new alternative public transport solutions in the form of railway lines and connecting the two major cities on the island by means of a light rail system. The Island Council of Tenerife recognised the need to address the transport problem in the metropolitan area of Santa Cruz de Tenerife and San Cristóbal de La Laguna, given the growing density and complexity of the road network, the increase in traffic intensity on urban and interurban roads and the resulting pressure on the island's environment. At the time, it was an ambitious project located in a geographical area with many technical difficulties (steep slopes, route along the main roads of the cities). It was also a novel project for citizens, but one that entailed a series of

[1] ICMA et al. (2018, 2020): Handbook. Harmonised Framework for Impact Reporting. Translation by Afi. https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Handbook-Harmonized-Framework-for-Impact-Reporting-December-2020-151220.pdf

[2] Wholly owned by the Island Council of Tenerife, Metrotenerife is a solid and self-sufficient company with income from the two tram lines covering all operating and maintenance costs.

positive externalities for the transport system, such as speed, reliability, punctuality and reduced environmental impact.

Metrotenerife is headquartered in Spain, on the island of Tenerife in the Canary Islands. In order to build a railway network serving the entire island, Metrotenerife is working on railway projects in the north and south. At the same time, the company is improving existing facilities and developing other projects to continue expanding and proposing innovative solutions for public transport.

The rail transport sector will play a key role in achieving the EU's commitments to reduce greenhouse gas (GHG) emissions by at least 40% by 2030, as well as the goal of climate neutrality by 2050. As a provider of public transport services in the metropolitan area of Tenerife, Metrotenerife aims to contribute significantly to this commitment at the local level. In fact, rail transport is the most energy-efficient means of transport. The development and use of trains can reduce air pollution and GHG emissions, thereby contributing to the fight against climate change.

Metrotenerife is aware of the importance of offering a transport service that contributes to sustainable development while meeting the travel needs of its citizens. It is firmly committed to moving Tenerife towards a more sustainable, accessible and intelligent mobility system. In this regard, the company aims to be a key player in sustainable public transport and one of the main pillars of the island's transport system.

In particular, Metrotenerife is deeply convinced that green bonds are an effective financing tool to cover the funding gap needed to combat climate change and, therefore, for the transition to a carbon-neutral world. Through its first green bond issue, it strives to contribute to the development of the Sustainable Debt Market by providing both itself and the investor community with an opportunity to channel proceeds towards the financing of green projects (see Use of proceeds).

In accordance with the Green Bond Principles (GBP; ICMA, 2018), this report follows the guidelines set out in its fourth component: the preparation of a fund allocation report. Although these principles are not mandatory, they are considered the benchmark and the framework in the sustainability debt market. This report also takes into account the Harmonised Framework for Impact Reporting (ICMA, 2020).

The purpose of this report is to provide information on the allocation of funds from the inaugural green bond issued by Metrotenerife on 20 July 2021. The issue volume was €130 million (for further details, see Table 1).

In November 2019, Standard & Poor's (S&P) assigned Metrotenerife its long- and short-term ratings of 'A/A-1' with a stable outlook, a rating that was confirmed in S&P's latest rating review in October 2024. This figure is equal to the rating of the Kingdom of Spain.

Table 1. Financial terms and conditions of Metropolitano de Tenerife's inaugural green bond

Terms and Conditions

Issuer	**Metropolitano de Tenerife.** *Ratings*: A (Negative outlook) by S&P
ISIN	ES0205597000
Pricing date	20 July 2021
Allocation date	30 July 2021
Maturity date	30 July 2036
Volume	€130 million
Coupon	1.229
Spread	SPGB[3] Interpolated curve (07/35 & 07/37) + 55bps
Listing	IBERCLEAR / AIAF

Source: Metrotenerife, Bloomberg, Afi

In accordance with the ICMA Green Bond Principles (GBP), Metrotenerife's Green Bond Framework[4] establishes the guidelines to be followed in its green bond issues, in the form of four key components:

i. Use of proceeds

[3] Spanish government bonds.

[4] https://inversor.metrotenerife.com/aptdo-elemento/marco-de-bonos-verdes/

This section defines the eligibility criteria for green expenditures and classifies them into two green categories: clean transport and renewable energy. This component also specifies:

- The eligibility criteria.
- The types of projects that could be included in each expenditure category.
- The contribution to the United Nations Sustainable Development Goals (SDGs).

ii. Project evaluation and selection process

Metrotenerife is responsible for the financing strategy for infrastructure projects to be developed by Metrotenerife, which must be approved in advance by the Island Council of Tenerife.

Metrotenerife has established a Green Bond Committee that proposes to the Metrotenerife Board of Directors the financing of new infrastructure or the refinancing of existing infrastructure in line with the eligibility criteria defined in the Green Bond Framework.

The Green Bond Committee builds and monitors Metrotenerife's green portfolio, which consists of eligible green projects. It is responsible for removing projects that are no longer eligible, which could be replaced by new eligible green projects if deemed necessary.

iii. Fund management

Annually, the Green Bond Committee will monitor the green portfolio to ensure that the total amount of eligible green projects exceeds the total amount of Green Bonds issued. If there are not enough eligible green projects in the portfolio, Metrotenerife will invest the balance of net proceeds in cash or cash equivalents in accordance with its treasury management policy.

In the event of refinancing, and given that the costs of the projects will have been fully disbursed in the past, no separate management of the proceeds is required.

iv. Reporting

Metrotenerife will provide investors and other interested parties with a report on the allocation of net proceeds and the environmental impact of the eligible green projects financed. This report meets the requirements of this fourth component.

The report will be available on Metrotenerife's website: https://metrotenerife.com/home/

The structure of this report is organised into three sections and an annex. Section 1 (point 2) describes the methodology used and the assumptions made in preparing this report. The second

section (point 3) is devoted to the description of the allocation of funds to green projects, together with relevant financial and qualitative information on the projects financed. It concludes with section 3 (point 4), which analyses the results and impact from a sustainability perspective, with Annex I providing further information.

2. METHODOLOGY AND ASSUMPTIONS

This section explains how resources have been allocated and their impact measured. Following the ICMA guidelines (Harmonised Framework for Impact Reporting), qualitative and quantitative indicators have been collected for each selected project. This analysis has therefore been carried out on a project-by-project basis, rather than at programme level. All the results described in the following sections are based on this methodology.

The set of **quantitative monitoring indicators** and **impact indicators** has been selected according to their ability to determine and show the extent to which an objective has been achieved. In particular, the indicators must be:

- **Relevant**: they must allow for analysis of the impact on the socio-economic environment by measuring the achievements or results generated by the funded projects.
- **Meaningful**: they must be capable of monitoring progress in such a way as to facilitate the communication of results to the main stakeholders.
- **Reliable**: they must allow information to be quantified and updated as it evolves over time. The reliability of indicators depends on how the information is collected and processed, the credibility of the sources and the quality control processes for the information.

In this report, we will distinguish between outcome indicators and impact indicators, where the former refer to the tangible services produced as a result of the projects and the latter to the long-term changes resulting from the projects. In the case of the selected impact metric, i.e. the estimate of annual GHG emissions avoided, the methodology used is detailed in section 4.2 and the assumptions adopted are set out in Annex I.

3. RESOURCE ALLOCATION AND IMPACT

3.1 QUALITATIVE ANALYSIS OF FUNDED PROJECTS

This section describes the list of refinanced and financed projects. In particular, it provides information on the name of the project; the green category of the project and the eligibility criteria; alignment with the SDGs; and the amount of green bond proceeds allocated to the selected projects. In addition, the target population is also indicated.

The funds are allocated to green projects in one of two eligible categories: clean transport and renewable energy. Thanks to the financial resources from the Metrotenerife green bond, two green projects related to the implementation of the Tenerife tramway have been developed:

1. Full and early repayment of the previous financial structure to finance the tram line infrastructure (see Figure 3).

   This project falls under the category of clean transport and contributes to SDG 9 (Industry, innovation and infrastructure; targets 9.1, 9.5), SDG 11 (Sustainable cities and communities; target 11.2) and SDG 13 (Climate action; target 13.2).

Figure 3. Lines 1 and 2 of the Tenerife tram.

Source: Metrotenerife Annual Report, 2020

Specifically, the funds have refinanced the infrastructure of the tram lines (lines 1 and 2 of the light rail system).

In the first few years after Metrotenerife was founded (see section 1), mobility studies, environmental impact studies, construction projects and territorial plans were carried out, so that the investment began to take shape as a real project. The economic quantification of the cost of implementation and the search for the necessary funds was

carried out in two ways: by signing collaboration agreements with all the corporations involved and through financing with banking entities.

The construction and commissioning of line 1 took place in 2007. Subsequently, in 2008, with the experience gained, Metrotenerife began construction of line 2 of the light rail system, which was completed in 2009, the year in which it entered into service.

2. Lease agreements for a photovoltaic plant (Phase I and Phase II)

   The second project concerns the lease agreements for the photovoltaic plant. This project falls under the renewable energy category and contributes to SDG 7 (Affordable and clean energy; target 7.2) and SDG 13 (Climate action; target 13.2).

   The photovoltaic plant is integrated into the transport system infrastructure. In 2008, Metrotenerife carried out the investment project for a photovoltaic plant, which was installed on the roof of the building that serves as workshops and garages for the tram infrastructure. In particular, the photovoltaic plant was installed in two phases. Installation of the first phase began in July 2008, while the second phase began in September of the same year. The photovoltaic plant became operational in September 2008 (phase I) and January 2009 (phase II).

   In 2023, the financial lease agreement signed to finance the photovoltaic plants expired.

3.2 FINANCIAL INFORMATION

Tables 2 and 3 summarise the main figures of the financing structure of the tram infrastructure, divided into four parts:

- Total costs of the tram infrastructure (lines 1 and 2) and the costs of the investment in the photovoltaic plants
- Previous financing agreements:
  - (A) Allocation of green bond proceeds: project (1) and project (2)
  - (B) Balance of unallocated revenue

Table 2. Preliminary financial structure.

Implementation costs for lines 1 and 2 of the Tenerife Tramway	
Total cost of line 1	€342,705,208
Total cost of line 2	€60,743,326
Cost of investment in the photovoltaic plant integrated into the transport system infrastructure	
Total cost of photovoltaic plant	€4,977,808.98
Total cost	€408,426,342.98
To partially finance these projects, several financing agreements were signed.	
Financing costs (financing agreement and syndicated bank loan)	€117,644,000.00
Financing costs to be amortised (at the time of issuance of the green bonds, 20 July 2021)	€93,838,350.00
Cost of interest rate hedging transactions (value as at 20 July 2021)	€33,900,000.00
Total financing costs	**€127,738,350**

Source: Prepared internally based on data from Metrotenerife

Table 3. Allocation of funds to projects 1 and 2 (A) and remaining funds (B).

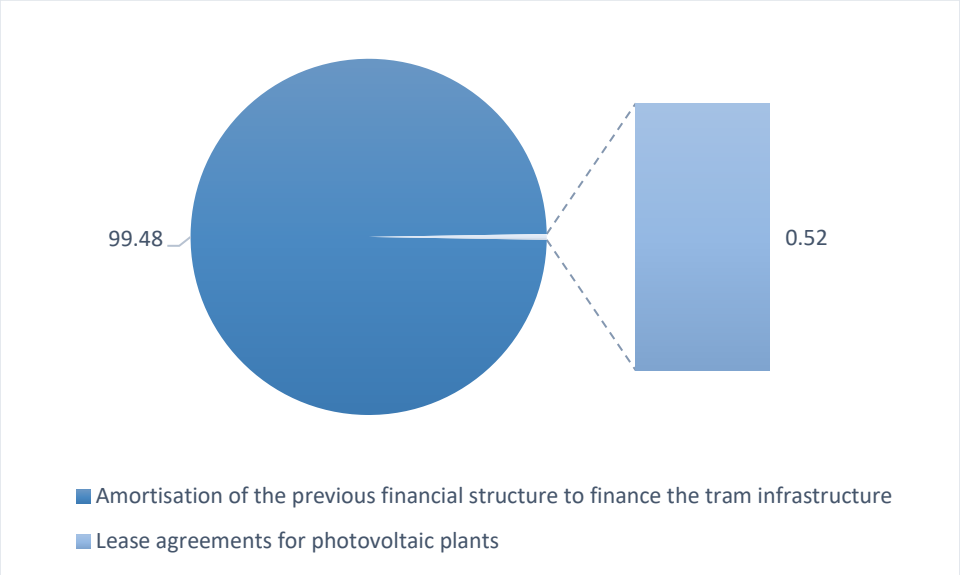
A. Allocation of funds from the green bond issue (€130 million)	
(1) Full and early repayment of the previous financial structure	
Debt cancellation of financing contracts	€127,738,350.00
Total allocated (1)	**€127,738,350**
(2) Lease agreements relating to the photovoltaic plant (phase I and phase II)	
Lease payments - Photovoltaic Plant Phase I	€396,806.43
Lease payments - Photovoltaic Plant Phase II	275,081.23 €
Total allocated (2)	**671,887.66 €**
Total funds allocated (1+2)	**128,410,237.66 €**
B. Balance of unallocated funds (remaining)	
Total balance*	**1,589,762.34€**

** The remaining amount to be allocated will be used for projects to expand the current network and for the renovation and maintenance of the infrastructure of Lines 1 and 2.*

Source: Prepared internally based on data from Metrotenerife

In financial terms, as can be seen in Figure 4, the refinancing of the financial costs arising from the implementation of the tram (clean transport) has been particularly significant. However, the photovoltaic plant (renewable energy) has been equally important in terms of sustainability criteria, as it contributes 14.60%[5] of the total energy consumed annually by the Tenerife tram.

Figure 4. Allocation of funds by eligible green category.



Source: Own elaboration based on data from Metrotenerife

Finally, the remaining funds (1.22% of the bond funds) will be allocated to projects to expand the current network and to renovation and maintenance costs for the infrastructure of lines 1 and 2.

[5] Annual reports of Metrotenerife. Average for the period considered, 2010-2024.

4 RESULTS AND IMPACT REPORT

4.1 PERFORMANCE INDICATORS

This section includes quantitative information for monitoring the results of the investment in projects 1 and 2.

Project 1. Investment in the infrastructure of the Metrotenerife tramway, lines 1 and 2 of the light rail system.

- Kilometres of infrastructure built or renovated

Table 4: Kilometres of infrastructure built or renovated

Line 1 - km between Intercambiador and La Trinidad stations	12.45
Line 2 – km between La Cuesta and Tíncer stations	3.43
Total	15.88

Source: Own elaboration based on data from Metrotenerife

- Number of passengers transported annually

Table 5: Number of tram passengers

Year	**Passengers**
2019	15,554,855
2020	10,313,051
2021	12,543,185
2022	14,981,498
2023	22,676,315
2024	24,949,754

Source: Metrotenerife-Afi

- Number of jobs

Table 6: Number of employees at Metrotenerife

Year	**Number of employees**
2019	187
2020	194
2021	206
2022	202

Year	Number of employees
2023	206
2024	210

Source: Metrotenerife-Afi

Project 2. Photovoltaic plant integrated into the transport system infrastructure.

The solar panels were installed in two phases. First, Phase I was built, a 600 kW plant with a total surface area of 4,698.04 m². The plant consists of 3,680 photovoltaic modules with a maximum power of 175 W and six three-phase inverters with a nominal power of 100 kW.

In Phase II, the photovoltaic plant was expanded by 280 kW with a total surface area of 2,132 m². The expansion consists of 1,608 photovoltaic modules with a nominal power of 175 W and three three-phase inverters with a nominal power of 100 kW.

The average annual production of the photovoltaic plant, from the year of its installation until 2024, is 1,366,742.53 kWh/year. To feed all the energy into the grid, there is a 1,000 kVA transformer that supplies a three-phase voltage of 20 kV with a frequency of 50 Hz.

4.2 IMPACT INDICATOR

The impact indicator selected is the GHG emissions avoided (in tCO_2 e/year) resulting from the implementation of the tram in Tenerife (Figure 5).

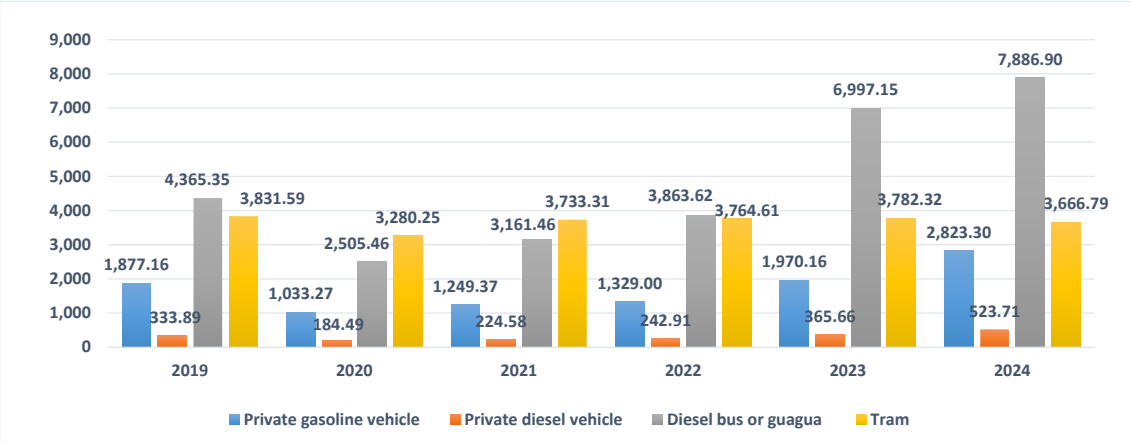
The methodology used to estimate the annual GHG emissions avoided as a result of the use of the Tenerife tram consists of comparing (differentiating) two scenarios: the counterfactual scenario or Base Project and the actual scenario or Tram Project. It is based on a set of assumptions included in Annex I.

The counterfactual scenario represents the scenario that would have occurred if the tram had not been built. This scenario considers the alternatives that existed before the tram was built - bus lines (owned by TITSA), private vehicles and taxis (diesel or petrol) and other options that do not generate GHG emissions (cycling or walking) - and emissions are estimated considering a distribution of the total number of tram passengers in these three categories of travel based on the preferences of tram users for the use of each means of transport. The calculation of GHG emissions for this scenario is summarised in the product of distance travelled by users for each mode of transport by the corresponding factor (see details in Annex I).

The real scenario considers that the tram exists and estimates the GHG emissions derived from its operation. In this case, the calculation is the multiplication of the annual energy consumed by the tram's traction (electricity consumption) and its emission factor.

The evolution of t CO_2 e emissions for each mode of transport is shown in Figure 5 for the period considered (2019-2024).

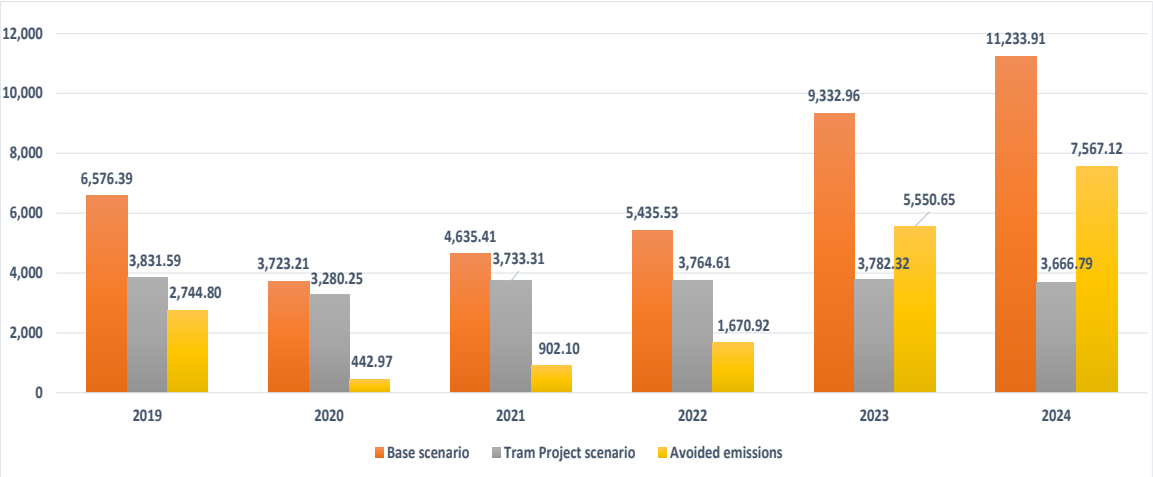
Figure 5. Evolution of GHG emissions (tCO_2 e) for each mode of transport.



Source: Metrotenerife, Afi

The estimate of annual GHG emissions avoided is the result of subtracting the GHG emissions generated in the counterfactual scenario (petrol vehicle, diesel vehicle, bus) from the emissions generated in the actual scenario (tram), in tonnes of CO_2 e (tCO_2 e). Figure 6 shows an **increase in GHG emissions avoided in 2024, 7,567.12 tCO_2e,** due to an increase in tram users.

Figure 6. Evolution of GHG emissions in each scenario and estimate of emissions avoided (tCO_2 e)



Source: Metrotenerife, Afi

ANNEX 1

To estimate the GHG emissions avoided by the use of the tram for the period 2019-2024, the methodology described below has been followed, which is based on methodologies for modal shift in road freight transport (MITECO, 2025).

Scenarios

The criteria for defining the scenarios are as follows:

Criterion 1 (C1): It is assumed that all passengers who use the tram would use other means of transport if it did not exist.

Criterion 2 (C2): It is assumed that the average distance travelled by tram passengers is the same for other modes of transport.

Based on these criteria, the following scenarios are proposed:

1. ***Base or counterfactual scenario***, which is the situation in which there is no tram and passengers travel by the following means of transport:
    a. Private diesel or petrol vehicle.
    b. Diesel or petrol motorcycles.
    c. Diesel and petrol taxi.
    d. Bus.
    e. Other means of transport with no GHG emissions: walking and cycling.
2. ***Tram Project scenario***: the tram exists and there are users who use this means of transport.

Methodology for estimating avoided GHG emissions

The calculation of avoided GHG emissions is carried out according to the following equation (EC.1):

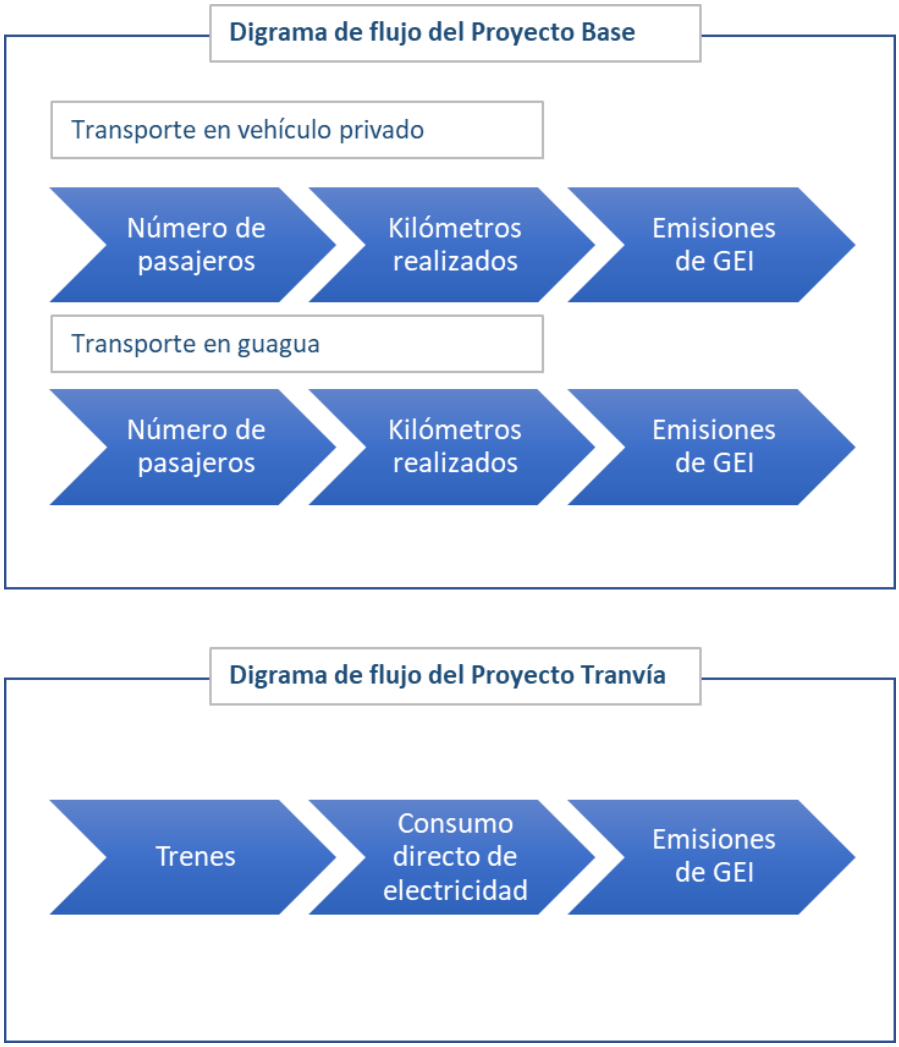
$$Emisiones\ de\ GEI\ evitadas = Emisiones\ GEI\ de\ Proyecto\ base - Emisiones\ GEI\ de\ Tranvía \quad \text{EC.1}$$

The following calculation method (EC.2) will be used to calculate emissions for each scenario:

$$Emisiones\ de\ GEI\ (kg\ CO_2) = datos\ de\ actividad\ (ud) * factor\ de\ emisión\ (\ {}^{kg\ CO_2}/_{ud}\ ) \quad \text{EC.2}$$

Figure 7 shows the flow chart of the methodology for quantifying GHG emissions for each scenario and estimating the GHG emissions avoided through the use of the tram.

Figure 7: Flow chart of the estimation of avoided emissions



Below is a detailed explanation of how each of the variables requested in EC2 was obtained and the flow chart in Figure 7.

Activity data for the "Base Project" scenario

To estimate the GHG emissions of the Base Project, it is necessary to know the distance travelled (in kilometers) for each means of transport: private vehicle and bus (EC3):

$$Distancia\ recorrida\ (km) = nº\ de\ pasajeros * distancia\ media\ recorrida\ \left(\frac{km}{pasajero}\right)$$ EC.3

The available data are the number of tram passengers and the average kilometers travelled by each passenger on the tram. This situation requires the use of modelling to estimate the kilometers travelled for each means of transport.

To obtain the desired data, the model is based on criteria C1 and C2 described in this document and uses information on trends in the change of transport mode used if the tram did not exist.

The steps to follow to obtain the average distance travelled for each mode of transport are as follows:

1. Estimate the number of passengers for each mode of transport using the surveys published in Metrotenerife's Annual Reports on the quality of the service provided.
2. Estimate the average distance travelled for each mode of transport.

Each of these steps is explained below.

Estimating the number of passengers for each mode of transport

Starting in 2020, Metrotenerife includes in its service quality surveys the trend in the use of other modes of transport by passengers if the tram did not exist. This information can be used to estimate the number of passengers for private vehicles, buses and other modes of transport.

This data is only available for the period 2020-2024. In order to provide the information for 2019, it is necessary to apply the models developed in Figures 8, 9 and 10, which are estimates based on linear regression using the following data:

- Number of surveys conducted[6] .
- Percentage of people who would use another means of transport if there were no tram[7] .

[6] Complete data since 2013

[7] To estimate this figure, information available for 2020, 2021 and 2022 has been used, with data available in 2023 to define the model.

With this input data, equations are developed (Figures 8, 9 and 10) that will allow the percentages for each mode of transport to be estimated for 2019 (Table 8).

Figure 8: Model for quantifying the percentage of passengers who would use private vehicles

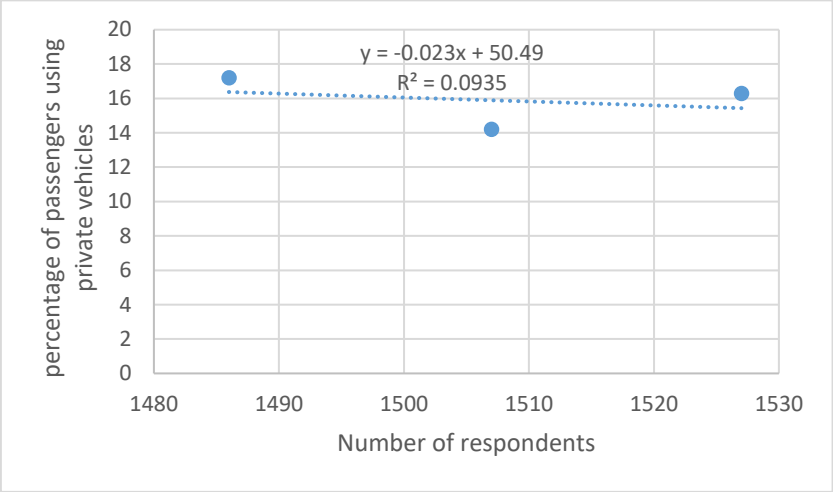


Figure 9: Model for quantifying the percentage of passengers who would use the bus.

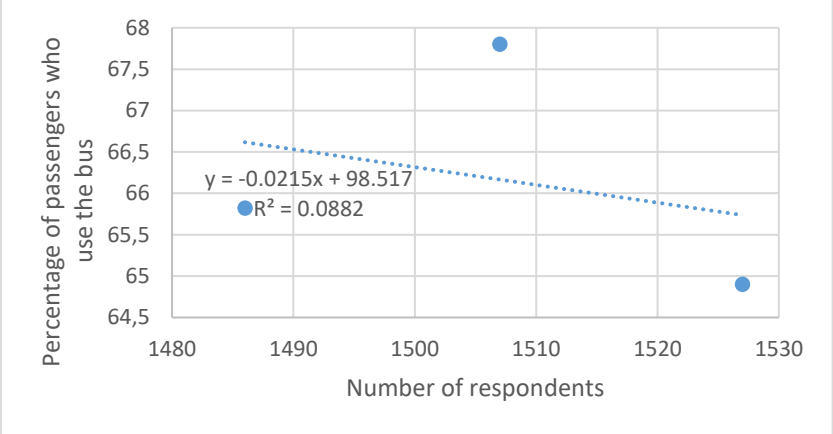
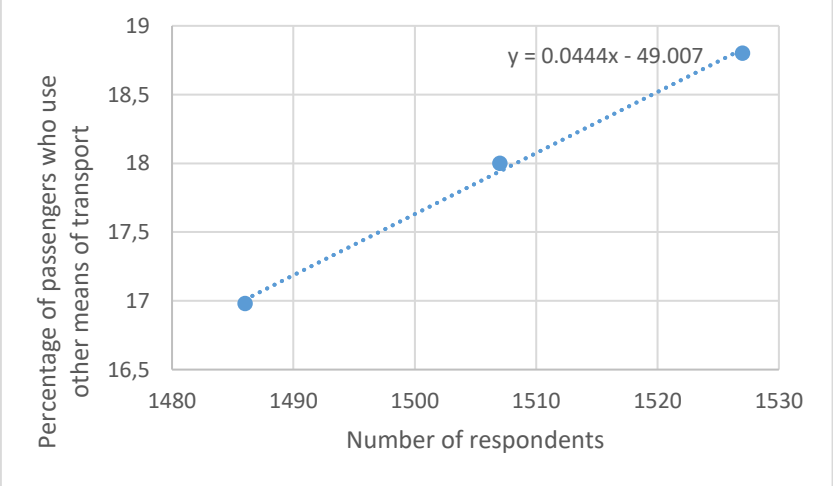


Figure 10: Model for quantifying the percentage of passengers who would use other means of transport



As there are two types of private vehicle, petrol and diesel, the distribution has been carried out by applying the percentage for each mode of transport, taken from the vehicle inventory of the Directorate General of Traffic (DGT) (Table 7).

Using the equations obtained through linear modelling and the information obtained from the DGT (Table 7), the number of passengers for each mode of transport can be estimated (Table 8).

Table 7: Number of private vehicles in Santa Cruz de Tenerife extracted from the vehicle inventory of the Directorate General of Traffic

Type of vehicle	Type of fuel	2019	2020	2021	2022	2023	2024
Tourism	Petrol	466,274	469,676	473,105	480,518	482,836	484,274
	Diesel	108,093	109,575	111,426	112,826	113,339	114,775
Motorcycle	Petrol	68,662	71,982	75,794	80,679	87,344	95,155
	Diesel	40	46	50	49	50	55
Other vehicles	Petrol	2,300	2,319	2,361	2,455	2,545	2,651
	Diesel	7,817	8,361	9,155	9,861	10,624	11,594
Total	Petrol	537,236	543,977	551,260	563,652	572,725	582,080
	Diesel	115,950	117,982	120,631	122,736	124,013	126,424
Total percentage	**Petrol**	**82.25**	**82.18**	**82.05**	**82.12**	**82.20**	**82.16**
	Diesel	**17.75**	**17.82**	**17.95**	**17.88**	**17.80**	**17.84**

Table 8: Number of passengers per mode of transport for the Base Project

		2019	2020	2021	2022	*2023*	*2024*
Number of respondents		1,369	1,486	1,527	1,507	1,478	1,488
Tram users	A	15,554,855	10,313,051	12,543,185	14,981,498	22,676,315	24,949,754
Private vehicle (%)	B	19.00	17.2	16.3	14.2	12.7	16.4
Infant mortality (%)	C	69.08	65.82	64.9	67.8	68.60	64.2
Other non-emitting means of transport (%)	D	11.78	16.98	18.8	18	18.7	19.4
Number of passengers in private vehicle	**E=A*B**	2,955,889.10	1,773,844.77	2,044,539.16	2,127,372.72	2,879,892.01	4,091,759.66
Number of passengers in private petrol vehicles	***(1)***	***2,431,175.858***	***1,457,689.611***	***1,677,463.539***	***1,746,968.021***	***2,367,297.533***	***3,361,634.46***
Number of passengers in private diesel vehicles	***(2)***	***524,713.24***	***316,155.16***	***367,075.62***	***380,404.69***	***512,594.472***	***730,125.20***
Number of passengers on the bus	**F=A*C**	10,745,838.25	6,788,050.17	8,140,527.07	10,157,455.64	15,555,952.09	16,017,742.07
Number of passengers other modes	**G=A*D**	1,831,833.05	1,751,156.06	2,358,118.78	2,696,669.64	4,240,470.91	4,840,252.28

(1) These values are the product of multiplying the number of passengers in private vehicles by the percentage of petrol vehicles in Table 7.
(2) They are the result of multiplying the number of passengers in private vehicles by the percentage of diesel vehicles in Table 7.

The data in blue are estimated using the equations in Figures 8, 9 and 10.

Estimation of the average distance travelled per passenger for each mode of transport

The average distance travelled per passenger is estimated based on criterion C2, which assumes that all passengers, regardless of the mode of transport used, travel the same average distance as the tram.

As with the data used to estimate the number of passengers per mode of transport, only quality data on average distances travelled is available for 2019, 2020 and 2021. Linear regression is therefore used again to obtain data for 2022, 2023 and 2024.

The results obtained can be seen in Table 9.

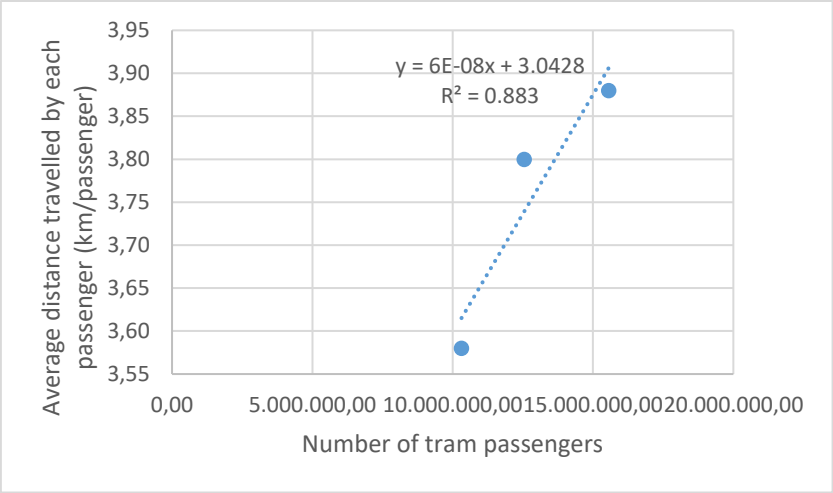
Table 9: Average distance travelled per passenger

Year	Total number of passengers	***Average distance travelled per passenger (km/passenger)***
2019	15,554,855	3.88
2020	10,313,051.00	3.58
2021	12,543,185.00	3.80
2022	14,981,498.00	3.94
2023	22,676,315.00	4.40
2024	24,949,754.00	4.54

The data in blue are estimates

The data in blue are the result of applying the equation in Figure 11.

Figure 11: Model for quantifying the average distance travelled per passenger (km/passenger)



Estimation of the distance travelled by each means of transport

To estimate the distance travelled for each mode of transport, equation 3 (EC3) must be applied, the results of which can be seen in Table 13.

$$Distancia\ recorrida\ (km) = \ número\ de\ pasajeros\ * distancia\ media\ \left(\frac{km}{pasajero}\right)$$ EC3

Activity data for the "Tram Project" scenario

Electricity consumption data is provided by Metrotenerife and represents the energy used to power the tram, subtracting the energy produced by solar panels from the total energy consumed. The result can be seen in Table 10.

Table 10: Electricity consumption of the tram

Year	Calculation of consumption for traction minus photovoltaic energy
2019	6,312,346.05
2020	5,665,368.60
2021	6,763,235.94
2022	6,783,087.96
2023	6,778,343.77
2024	6,715,734.76

The data in blue are estimates

In 2021 and 2022, actual total electricity consumption data could not be calculated due to measurement recording errors by the electricity supplier. For this reason, it was decided to use

electricity consumption from another year with a similar number of passengers, so that the energy consumed could be considered equivalent:

- For 2021, consumption for 2014 is used.
- Year 2022: the same consumption as in 2018 is considered.

Emission factor

Base project

The emission factors used are as follows (Table 11):

- For private vehicles*,* the *Emission Factors* have been used*. Carbon Footprint Register, Offsetting and* Carbon *Dioxide Absorption Project* (2025).

  The emission factors for petrol and diesel for passenger cars have been updated retroactively by MITECO (Ministry for Ecological Transition and Demographic Challenge). This represents a change in the data compared to the July 2024 report and will result in a variation in the calculation of GHG emissions generated by these emission sources (Table 13 and Table 15). In any case, the difference in values is less than 5%, which shows that the change is not significant and does not alter either the trend in emissions generated in the baseline scenario or the conclusions on emissions avoided.
- For buses (Guagua), the factors provided by DEFRA (Department for Environment, Food and Rural Affairs, 2025) have been used.

  It is important to note that the reason for choosing these emission factors is the quality of the data, and DEFRA is an internationally recognised body on climate change issues because it offers guarantees and reduces uncertainty about the final result.

Table 11: Emission factors (EF) for private vehicles and buses

Year	***EF for private vehicles (kg CO2e/km)***		***EF for buses (kg CO2e/km per passenger)***
	diesel	**petrol**	
2019	0.164	0.199	0.1047
2020	0.163	0.198	0.1031
2021	0.161	0.196	0.1022
2022	0.162	0.193	0.0965
2023	0.162	0.189	0.10215
2024	0.158	0.185	0.10846

Source: MITECO (2025); DEFRA (2025)

Tram

To calculate the GHG emissions generated by tram use, the emission factor provided by Red Eléctrica de España for electricity generation in the Canary Islands was used (Table 12).

Table 12: Electricity consumption emission factor

Year	*FE Canary Islands (tCO2 e/MWh)*
2019	0.607
2020	0.579
2021	0.552
2022	0.555
2023	0.558
2024	0.546

Source: Red Eléctrica (https://www.ree.es/es/datos/aldia)

Quantification of avoided GHG emissions

To calculate avoided GHG emissions (Table 15), Equation 1 (EC1) is applied, and to calculate emissions from the Base Project and the Tram, Equation 2 (EC2) is applied using activity data (Tables 7, 8 and 9) and the corresponding emission factors (Tables 11 and 12). The results are:

- GHG emissions from the Base Project (Table 13)
- Tram GHG emissions (Table 14)

Table 13: GHG emissions from the Base Project

Private petrol vehicle		**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
number of passengers	A	2,431,175.86	1,457,689.61	1,677,463.54	1,746,968.02	2,367,297.53	3,361,634.46
km/passenger	B	3.88	3.58	3.80	3.94	4.40	4.54
Mile	C=A*B	9,432,962.33	5,218,528.81	6,374,361.45	6,886,006.17	10,424,108.01	15,261,098.50
Kg CO_2 e/km**	D	0.199	0.198	0.196	0.193	0.189	0.185
VP emissions from petrol (t CO_2 e)	**E=C*D**	**1,877.16**	**1,033.27**	**1,249.37**	**1,329.00**	**1,970.16**	**2,823.30**

Private diesel vehicle		**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
number of passengers	A1	524,713.24	316,155.16	367,075.62	380,404.69	512,594.47	730,125.20
km/passenger	B1	3.88	3.58	3.80	3.94	4.40	4.54
km	C1=A1*B1	2,035,887.36	1,131,835.47	1,394,887.34	1,499,437.34	2,257,147.68	3,314,611.59
Kg CO_2 e/km**	D1	0.164	0.163	0.161	0.162	0.162	0.158
VP diesel emissions (t CO_2 e)	**E1=C1*D1**	**333.89**	**184.49**	**224.58**	**242.91**	**365.66**	**523.71**

Bus or coach		**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
number of passengers	A2	10,745,838.25	6,788,050.17	8,140,527.07	10,157,455.64	15,555,952.09	16,017,742.07
km/passenger	B2	3.88	3.58	3.80	3.94	4.40	4.54
Passenger kilometres	C2=A2*B2	41,693,852.43	24,301,219.60	30,934,002.85	40,037,540.12	68,498,751.20	72,717,109.02
Kg CO_2 per passenger kilometre	D	0.1047	0.1031	0.1022	0.0965	0.10215	0.10846
Bus emissions (t CO_2 e)	**E2=C2*D2**	**4,365.35**	**2,505.46**	**3,161.46**	**3,863.62**	**6,997.15**	**7,886.90**

Total emissions of the base project t CO_2 e	**F=E+E1+E2**	**6,576.39**	**3,723.21***	**4,635.41**	**5,435.53**	**9,332.96**	**11,233.91**

** This data is not representative due to COVID-19*

*** The data on emission factors have been updated retroactively by MITECO, which modifies the emission results for 2023*

Table 14: GHG emissions from the tram

Tram		2019	2020	2021	2022	2023	2024
Energy consumption (kWh)	A3	6,312,346.05	5,665,368.60	6,763,235.94	6,783,087.96	6,778,343.77	6,715,734.76
FE Energy (tCO_2 e/MWh)	B	0.607	0.579	0.552	0.555	0.558	0.546
Tram emissions (t CO_2 e)	**C3=A3*B3**	**3,831.59**	**3,280.25**	**3,733.31**	**3,764.61**	**3,782.32**	**3,666.79**

Using the results in Tables 13 and 14 and applying equation EC1, we obtain the GHG emissions avoided by using the tram (Table 15).

Table 15: GHG emissions avoided by using the tram.

		2019	2020	2021	2022	2023	2024
GHG emissions avoided (t CO_2 e)	**G=F-C3**	**2,744.80**	**442.97***	**902.10**	**1,670.92**	**5,550.65 ****	**7,567.12**

** This figure is not representative due to COVID-19.*

***The data on emission factors have been updated retroactively by MITECO, which modifies the emission results for 2023.*