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SPAIN'S MILITARY CARBON FOOTPRINT

Greenhouse Gas Emissions of the Spanish military sector

Author: Pere Ortega Grasa

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Centre Delàs d'Estudis per la Pau
Bisbe Laguarda, 4
08001 Barcelona
T. 93 441 19 47
www.centredelas.org
info@centredelas.org

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Author: Pere Ortega Grasa

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EXECUTIVE SUMMARY

A massive 86% of all greenhouse gas emissions are generated by fossil energies (oil, gas and coal). Simultaneously, the world's biggest corporations, supported by national governments, are fighting over the control of fossil fuels. In many cases, these disputes are related to conflicts in areas of fossil fuels extraction, as local people oppose a process that contaminates their ecosystems: air, rivers, ground water supplies and lands, while others fight to control these fossil fuels.

The world's biggest corporations are therefore connected to the armed forces. These transnationals are based in the Global North and control 80% of all of the world's transnational companies. They exercise significant influence over the global economy. Such a powerful network requires military protection to ensure it can continue extracting fossil energies and the other mineral resources required to maintain and sustain the dominant economic system. In some cases, this is provided by national armed forces and in others by private security companies.

This nexus between major companies, fossil fuels and the military sector (armed forces and the arms industry) demonstrates the latter's significant responsibility for global warming and the resulting climate crisis.

To assess the military's actual carbon footprint, we need to consider every phase of the production cycle, from extraction of the raw materials needed to manufacture arms and military equipment, to their subsequent use, to management of the waste generated by the entire production cycle. However, the arms industry's greenhouse gas emissions are unknown, and attempts to prevent this information being made public argue that doing so could affect national security. This asser-

tion ignores the fact that like all emissions, military emissions affect the health of the planet and all her inhabitants. We urgently need to require national governments to report their military sector's greenhouse gas emissions, and to commit to reducing them, as they are one of the sectors most responsible for climate change.

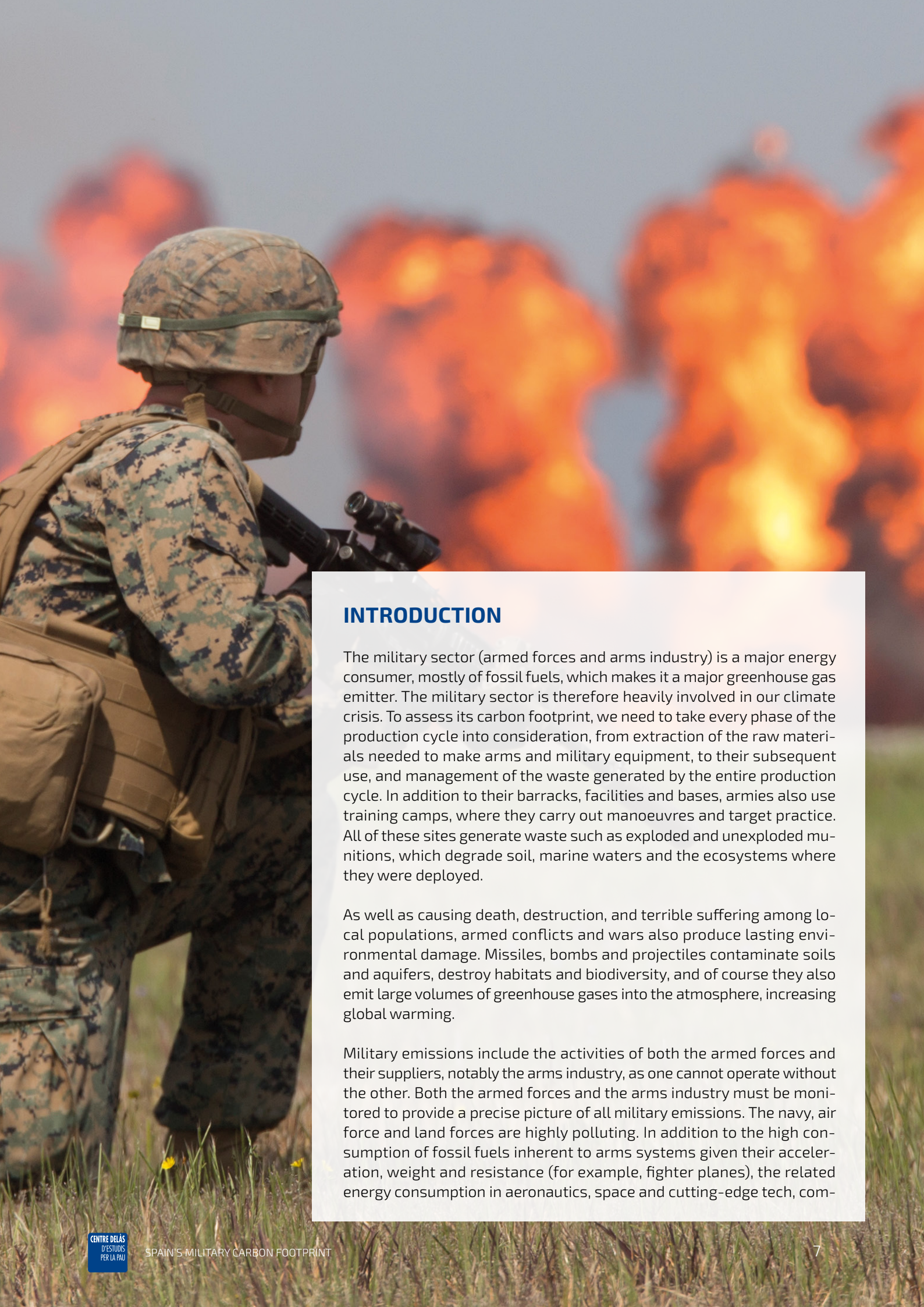
In 2023, 37,550 million tCO_2e [carbon dioxide equivalent tonnes] of greenhouse gases were emitted globally. The energy sector produced most of these emissions: 26%; followed by the transport sector and industry at 11%; with aviation representing 2%. Experts note that the military sector (armed forces and arms industry combined), could generate 4-8% of these emissions, representing on average 6% of all global greenhouse gas emissions or 2,253 million tCO_2e. These figures are only based on standing armies while in their bases, facilities, training camps, carrying out practice manoeuvres and target practice, plus the waste they generate; but do not consider the emissions produced by armed forces in action. For example, between 2022 and 2024, the war in Ukraine generated a carbon footprint far superior to that emitted by many countries: 2,700 million tCO_2e.

Other examples of military emissions that can help imagine the scale of the problem include:

- The US Defense Department's estimated 2017 greenhouse gas emissions were 59 million tCO_2e, while those related to arms production were 153 million tCO_2e. This means that 2017 US military activity emitted 212 million tCO_2e, placing it 47th in the table of the world's military CO_2e emissions, ahead of Belgium, Portugal and numerous others.
- As a military organisation, NATO emitted a total of 233 million tCO_2e in 2023, which is equivalent to the emissions produced by 8.2 million cars.
- Spain's military sector is another great CO_2e emitter. It produced 4.97 million tCO_2e in 2023, equivalent to the emissions produced by 2.9 million cars or 12.5% of all Catalonia's greenhouse gas emissions: 39.70 million tCO_2e.
- Spain's total 2023 greenhouse gas emissions were: 271.6 million tCO_2e, meaning that every Spanish citizen emitted an average of 5.72 t tCO_2e into the atmosphere, while every member of the Spanish armed forces emitted on average six times more: 34.7 tCO_2e; and every Spanish arms industry employee emitted 10.3 times more: 59.3 tCO_2e.

All this should incite the Annual Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) to require national signatories to report their military sector emissions. Currently, under the 2015 Paris COP Protocol, this reporting is voluntary. Given the significant volume of military emissions, states should not only be required to report their military emissions, but also to reduce them.

The Spanish government must assume this requirement. There is no reason why the military sector should be exempt, when the government reports on all emissions from Spain's industrial, agricultural and service sectors. This must also be supported by a commitment to reduce the carbon footprint of both the arms industry and the armed forces, which will necessitate a reduction in military spending and arms buying, which will lead directly to reduced greenhouse gas emissions.



INTRODUCTION

The military sector (armed forces and arms industry) is a major energy consumer, mostly of fossil fuels, which makes it a major greenhouse gas emitter. The military sector is therefore heavily involved in our climate crisis. To assess its carbon footprint, we need to take every phase of the production cycle into consideration, from extraction of the raw materials needed to make arms and military equipment, to their subsequent use, and management of the waste generated by the entire production cycle. In addition to their barracks, facilities and bases, armies also use training camps, where they carry out manoeuvres and target practice. All of these sites generate waste such as exploded and unexploded munitions, which degrade soil, marine waters and the ecosystems where they were deployed.

As well as causing death, destruction, and terrible suffering among local populations, armed conflicts and wars also produce lasting environmental damage. Missiles, bombs and projectiles contaminate soils and aquifers, destroy habitats and biodiversity, and of course they also emit large volumes of greenhouse gases into the atmosphere, increasing global warming.

Military emissions include the activities of both the armed forces and their suppliers, notably the arms industry, as one cannot operate without the other. Both the armed forces and the arms industry must be monitored to provide a precise picture of all military emissions. The navy, air force and land forces are highly polluting. In addition to the high consumption of fossil fuels inherent to arms systems given their acceleration, weight and resistance (for example, fighter planes), the related energy consumption in aeronautics, space and cutting-edge tech, com-

munications and cybersecurity sectors, (especially if using artificial intelligence, as this requires supercomputers that consume vast amounts of energy) is significant. All these industries also use rare materials, whose mining requires major earthworks and is a highly polluting process.

Yet the armed forces and arms industry are not required to report their greenhouse gas emissions. Military emissions were exempt from the 1997 Kyoto Protocol. The 2015 Paris Protocol did away with this exemption, but each country remains free to decide whether to report its military emissions volumes.

The world's biggest corporations are connected to the armed forces. Some 737 of these major corporations, which include the world's main financial institutions, are located in the Global North. They control 80% of all the world's transnational corporations, which in turn exercise considerable influence on the global economy. This powerful network controls and often connects fossil fuels to the main military industries. Major transnationals require military protection to ensure they can continue extracting fossil fuels and the other mineral resources required to maintain and sustain the dominant economic system. Sometimes, this is provided by national armed forces, and sometimes by private security companies.[1] The connection between major corporations, the fossil fuels (oil, gas and coal) that cause global warming, and the military sector's safeguarding role, allows us to assign some of the responsibility for the current climate crisis to the armed forces and arms industry. We also know that struggles over the control of fossil fuels have often been a factor in recent wars. Yet, as mentioned above, attempts are made to prevent military reporting and transparency, using the vague argument that this could endanger national security, which conveniently overlooks the fact that military emissions affect the health of our planet, and therefore our safety.

For all these reasons, this report argues that we urgently need to achieve transparency and control over the military sector's greenhouse gas emissions. It echoes all those demanding that national governments report their military emissions and commit to reducing them, as this sector is one of those most responsible for the climate crisis.

1. Vitali, Stefania, Glattfelder, James, Battiston, Stefano, (2011) "The network of global corporate control". *Plos One*, 6, 10. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0025995_ Accessed on 10/10/2024

METHODOLOGY

The standard method used to measure the greenhouse gas (GHG) emissions in a carbon footprint is based on accounting for three Scopes:[2]

Scope 1: direct greenhouse gas emissions from sources owned or controlled by the organisation generating the activity, including combustion emissions from the boilers, ovens, machinery, facilities, and vehicles that it owns or manages. This Scope also includes methane (CH_4) leaks from air conditioning systems.

Scope 2: indirect greenhouse gas emissions from the generation of the electricity purchased and consumed at the organisation's facilities.

Scope 3: other indirect greenhouse gas emissions, including those from sources not belonging to or controlled by the organisation, such as the extraction and production of the materials purchased, journeys to work using external means, the transport of raw materials, fuels, products and logistics carried out by third parties, the use of products or services provided by others, and the emissions from and impact of waste.

This methodology is limited by the fact that those responsible for emitting carbon dioxide and other particles do not monitor or provide the relevant information. Figures for the direct emissions under Scope 1 are easier to obtain than those covered by Scope 2 (the organisation's energy consumption emissions). The emissions covered by Scope 3 require more in-depth research, as these range from extraction of the materials and energies required for production and use, to their transport and the waste produced by the activity. Scopes 1 and 2 only calculate the greenhouse gases emitted into the atmosphere, while adding Scope 3

2. https://www.miteco.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/guia_huella_carbono_tcm30-479093.pdf [Spain's Ministry for the Ecological Transition and the Demographic Challenge (MITECO) *Guide to calculating an organisation's carbon footprint and drafting its improvement plan*]. Accessed in Spanish on 15/02/2024

into the equation provides the total carbon or environmental footprint of all the production emissions.

Measuring the real environmental footprint of the polluting gases emitted into the atmosphere is therefore an extremely complex process, which requires a rigorous approach. The information provided by emitters, be these nations or companies, must be treated with a degree of scepticism, as many companies generally only provide Scope 1 data, while some provide information about Scope 2 and information about Scope 3's indirect emissions is rare. While nation states do report on all three carbon footprint Scopes, they do not necessarily provide it for every ministry or government body. This is true of Spain, meaning that we do not know the exact carbon footprint of the Ministry of Defence and it is impossible to know the greenhouse gases emitted by Spain's Armed Forces (SAF).

1. THE GREENHOUSE GAS EMISSIONS OF SPAIN'S ARMED FORCES

The 2021 study *Under the Radar. The Carbon Footprint of Europe's Military Sectors* commissioned by The Left Group in the European Parliament - GUE/NGL,[3] was written by renowned experts Stuart Parkinson and Linney Cottrell.[4] The report analyses the carbon emissions produced by the military sector in a few EU Member States: France, Germany, Italy, The Netherlands, Poland and Spain. It sheds some light on Spain's military greenhouse gas emissions.

As we have seen, countries are reluctant to report their military greenhouse gas emissions, fallaciously arguing that doing so would endanger national security. They assume that being transparent about their carbon dioxide emissions could lead to threats.

Nevertheless, for years, the Intergovernmental Panel on Climate Change (IPCC) has highlighted the need to reduce *all* greenhouse gas emissions by 55% in order to prevent an increase in average global atmospheric temperature of above 1.5ºC before 2030. Various climate change COPs have been unable to make reporting military greenhouse gas emissions compulsory, in the face of nations' refusal to do so. In 2015, the Paris COP recommended states voluntarily provide this information.

Although no Spanish Armed Forces greenhouse gas emissions are reported, the information provided by the *Under the Radar* report allows a few extrapolations and evaluations. It follows the *United Nations Framework Convention on Climate Change* (UNFCCC)[5] instructions for calculating carbon footprints, assumes that the Spanish Armed Forces follow similar parameters to countries such as France and Germany, and uses the same criteria to determine Spain's

3. Parkinson, Stuart, y Cottrell, Linsey, (2021), *Under the Radar. The Carbon Footprint of Europe's Military Sectors.*
4. Parkinson, Stuart, Scientists for Global Responsibility (SGR), Cottrell, Linsey, The Conflict and Environment Observatory (CEOBS), United Kingdom.
5. https://www.unwomen.org/en/how-we-work/intergovernmental-support/climate-change-and-the-environment/united-nations-framework-convention-on-climate-change Accessed on 01/09/2024

greenhouse gas emissions. It distinguishes between armed forces kept stationary in their bases and barracks, and those carrying out training manoeuvres in Spain or military operations outside the country. These calculations result in emissions of 447,000 tCO_2e for both stationary and mobile units, resulting in a total of 894,000 tCO_2e in 2019. These results are relative and speculative, as the military powers of the six nations examined, notably France and Germany, are not comparable to those of Spain, whose military capabilities are much smaller. Nevertheless, this comparison calculates that Spain's Armed Forces emitted an average of 894,000 tCO_2e under Scopes 1 and 2 (direct emissions). Meaning that according to this report, every member of Spain's 117,356 strong armed forces emitted 7.62 tCO_2e in 2019. The report adds in Scope 3 indirect emissions to calculate the total carbon footprint, bringing total emissions to 1,900,000 tCO_2e, which raises the total emissions per member of the Spanish Armed Forces to 23,8 tCO_2e. This considerable figure places Spain's armed forces on a par with the others examined by this report (see Table 1).

This emissions data could be updated in the light of the 45% increase in Spain's military spending between 2019 and 2023 (see Table 1). If we increase emissions by this same percentage, the direct emissions produced by Spain's armed forces increase to 1,293,707 tCO_2e (11.02 per member of the armed forces), while indirect emissions reach 2,755,000 tCO_2e (23.67 per member), which brings the total emissions produced by Spain's armed forces to 4,048,707 tCO_2e, and the total produced per member of Spain's armed forces to 34.69 tCO_2e. While unquestionably an approximate figure, as it assumes that greenhouse gas emissions increase in parallel to military spending (which is not necessarily the case), this volume is also unquestionably significant. And Spain's government has not implemented any plan to reduce the carbon dioxide emitted by its armed forces. It is safe to assume that if military spending goes up, then military activity also goes up, and has been accompanied by an increase in military missions. Arms purchases have also increased and the 2023 budget reveals how military investments increased sharply (see Table 2):[6] they went up by 219% between 2019 and 2023.

None of which takes Spain's actual military spending into account. Every year, the Centre of Studies for Peace J.M. Delàs calculates the total of all unmistakeably military budget headings scattered across other ministries that should be included in the military spending figures. NATO advises its members to do this in order to ensure comparable figures. The military spending increase will in any case be around 45% as the vast majority occurred within the Ministry of Defence, meaning that we would reach a similar conclusion about Spain's military greenhouse gas emissions.

6. Ortega, P., Bohigas, X., Moya, X. *El colosal aumento del presupuesto militar del Estado en 2023* [Spanish Military Budget sees Massive Increase in 2023]. Report 58, Barcelona, Centre of Studies for Peace J.M. Delàs

Table 1. Spain's armed forces' emissions in tCO_2e (2019-2023)

GGH Emissions	Emissions (tCO_2e) 2019	Emissions tCO_2e/ member SAF* 2019	Emissions (tCO_2e) 2023	Emisiones tCO_2e/ member SAF** 2023	% Increase tCO_2e 2019-2023	Military Spending 20193	Military Spending 2023***
Armed Forces Emissions (Scopes 1 & 2)	894,000	7.62	1,293,707	11.02	45	19,813	28,671
Armed Forces Emissions (Scope 3)	1,900,000	16.19	2,755,000	23.67	46	19,813	28,671
TOTAL emisiones tCO_2e	**2,794,000**	**23.81**	**4,048,707**	**34.78**	**46**		

* Number of members of the Spanish Armed Forces (SAF) = 117,356; ** Number of members of the Spanish Armed Forces (SAF) 116,392;
*** in millon current euros
Own work. Sources: Under The Radar report & Spain's General State Budget

Table 2. Military Investments / Central Government Investments

Year	Ministry of Defence investments	Military R&D Ministry for Industry	Total Military Investment	Central Government Investments	% Defence/ Central Government Investments
2019	3,059.40	467.61	3,527.01	14,823.03	23.79
2020	3,059.40	467.61	3,527.01	14,823.03	23.79
2021	3,266.02	676.55	3,942.57	19,299.99	20.43
2022	3,875.36	708.20	4,583.56	21,434.14	21.38
2023	6,141.82	1,601.15	7,742.97	25,912.82	29.88
2024	6,141.82	1,601.15	7,742.97	25,912.82	29.88

Own work. Source: Spain's General State Budget *Millon current euros*

2. THE GREENHOUSE GAS EMISSIONS OF SPAIN'S ARMS INDUSTRY

There is also no data about the combined emissions of the companies that supply Spain's armed forces with defence equipment and other related materials. The Ministry of Defence notes around 400 of these companies.[7] The Centre of Studies for Peace J.M. Delàs has found and analysed data on the activities of 126 of them. Only nine report their emissions and carbon footprint (albeit some of the majors): Navantia - Spain's state-owned military shipbuilder; electronics and engineering majors Indra, Sener and GMV; Aernnova Aerospace – an aeronautical industry parts manufacturer; Industria de Turbo Propulsores (ITP Aero) - which manufactures engines for military planes; Expal/Rheinhmetall, who manufacture explosives and munitions in a range of calibres; and Airbus España, the largest of the nine, currently made up of four companies: Airbus Defence and Space, Airbus Military, Airbus Helicopters and Airbus Secure Communications. No specific carbon footprint data is available for Airbus España, but data is available for the French parent company, so we have calculated the proportion of Airbus España's production relative to all Airbus Defence and Space productions in order to calculate the greenhouse gases emitted in Spain, (without taking Airbus España's civil aeronautical manufacturing into account). We know nothing of the other military players, including major names such as General Dynamics/Bárbara Sistemas, SAPA, URO, Tecnobit and Escribano.

The CO_2 emissions reported by the above nine companies are examined below.

A) NAVANTIA

Navantia makes all kinds of military vessels (submarines, frigates, corvettes, etc.), along with engines, turbines, and control and combat systems for the

7. Ministerio de Defensa [Spain's Ministry of Defence], *2023-2024. Catálogo Industria Española de Defensa* [Spain's Defence Industry Catalogue] https://www.defensa.gob.es/Galerias/oficaex/documentos/DGM_Catalogo_Industria.pdf Accessed in Spanish on 14/11/2024

Spanish navy. Navantia is state-owned through the Sociedad Española de Participaciones Industriales (SEPI - State Company for Industrial Investments), and employs 4,939 people, 97% of whom work on military and only 3% on civilian projects. SEPI always makes a loss. In 2023 these ascended to EUR 121.85 million and were covered by the state.

Navantia's annual report shows it emitted 12,361 tCO_2e into the atmosphere in 2022 (see Table 3), despite the fact that its 2018 emissions were 51,269 tCO_2e.[8] The company says this very significant 73% decrease is due to the adoption of environmental protection measures, including replacing fossil fuels with renewable energies. The fact that Spain's first dedicated Ministry for the Ecological Transition was established in 2019 and is committed to reducing global temperatures and encouraging public companies to assess their emissions with a view to reducing them, must have influenced this change. This explains the significant reduction in Navantia's emissions.

However, the Navantia report only covers direct emissions (Scopes 1 and 2), omitting indirect emissions (Scope 3). As previously explained, Scope 3 emissions cover those resulting from the procurement, extraction, transport and waste lifecycle of raw materials. Navantia will generate considerable Scope 3 emissions at its three main shipyards in the El Ferro, Cartagena and Bahía de Cádiz estuaries.

Navantia reported its Scope 3 indirect emissions for the first time in 2023. They totalled 575,459 tCO_2e.

8. Navantia's 2023 Sustainability Report, Navantia https://www.navantia.es/en/sustainability/environment/ Accessed on 20/09/2024

This means Navantia's total direct and indirect 2023 emissions were a colossal 585,463 tCO_2e, and as 97% of the company's manufacturing activities are military, this resulted in the emission of 567,899 tCO_2e, or 131.57 tCO_2e per arms industry employee. This is the highest environmental footprint in Spain's arms industry, as military shipbuilding requires materials with additional security and resistance to civilian vessels, and these need much more energy for their extraction and manufacture.

B) INDRA

Indra is a transnational that works on electronics, engineering, technology, surveillance, security and IT systems, critical infrastructure, cyber warfare, electronic warfare, and access control systems for ports airports and borders. Indra has been one of the companies most protected by the Spanish state ever since its foundation. SEPI is its main shareholder (28%), alongside two other military majors: Escribano (8%) and Sapa (7.94%) which is registered in the Basque Country. Indra itself holds a 7% stake in Hisdesat (the civilian and military satellite producer,) and 9.5% in ITP Aero (which manufactures engines for all Airbus' military planes). This national protection means that Indra's business is concentrated in the public sector and enjoys a very significant presence in all branches of the arms industry.

Indra's 2023 turnover topped EUR 4,343 million, 19% of which was in defence (i.e. EUR 825 million). It employs 56,866 people in offices all over the world, including 32,498 based in Spain.

Table 3. Navantia emissions in tCO_2e (2018-2022)

	2018	2019	2020	2021	2022	2023	Military Production	2023 Military Emissions (tCO_2e)	2023 Military Employees	2023 Emissions/ Employee (tCO_2e)
Navantia (Scopes 1 & 2)	51,269	13,659	13,839	19,811	12,361	10,004	97%	9,704	4,316	2.24
Navantia (Scope 3)						575,459	97%	558,195	4,316	129.33
Total						**585,463**		**567,899**		**131.57**

Own work

Table 4. INDRA emissions in tCO_2e (2018-2023)

	2018	2019	2020	2021	2022	2023	Military Production	2023 Military Emissions (tCO_2e)	2023 Military Employees	2023 Emissions/ Employee (tCO_2e)
Indra (Scopes 1, 2 & 3)	726,317	507,063	375,417	335,583	378,127	430,129	19%	81,724	1,512	54.05

Own work

Indra reports its carbon footprint and includes direct and indirect emissions (all three Scopes) in its calculations. It reports having emitted 726,117 tCO_2e into the atmosphere in 2018, decreasing to 430,129 tCO2e in 2023 (see Table 4).[9] Such a notable reduction is attributable to the fact that its main stakeholder (through SEPI) is the Spanish government, meaning it exercises the greatest degree of control over the company. Like Navantia, it is therefore more committed to transparency and to reducing greenhouse gas emissions, following the Ministry for the Ecological Transition's requirements for public companies.

We do not know the extent to which Indra's participation in defence systems takes place outside Spain, so have assumed that it is likely to be minimal, as the company's military business is concentrated at home. So, considering Indra declared 19% of its 2023 turnover was generated by the defence and security industry its annual reports, and that it emitted 430,129 tCO_2e globally in that year, its Spanish activities would have emitted 81,724 tCO_2e, which represents 54.05 tCO_2e per employee. (The percentage of its annual turnover reported as being from defence and security oscillates between 17-20% depending on the year).

C) AIRBUS ESPAÑA

The Airbus Group manufactures all of the Spanish Airforce's fighter and transport planes, and helicopters. Airbus is a European consortium with the following shareholders: BAE Systems (UK), Daimler-Chrysler Aerospace (Germany), Lagardère (France), and the governments of France and Spain. Spain has a 4% stake in Airbus' through SEPI. The aeronautical giant employs 148,893 people globally, including 35,000 in Europe. In Spain, 12,700 people are employed by its four major manufacturers: Airbus Defence and Space, Airbus Helicopters, Airbus Military and Airbus Secure Communications. The most important of these is Airbus Defence and Space, which dedicates 85% of its production to aeronautical military and space operations. It achieved a 2022 military turnover of EUR 4,838 million and employed 7,677 people in military manufacturing.[10]

Airbus España does not provide data on its greenhouse gas emissions, however its France-based military parent company Airbus Defence and Space, and Airbus Helicopters do report their direct and indirect greenhouse gas emissions (all three Scopes).[11] This means we can perform an approximate extrapolation for their Spanish subsidiaries, especially as together they form Spain's most significant military company. This comparison is based on their turnover and the number of employees employed in relation to their European production.[12] Please note that these figures are approximate, and therefore relative and calculated without emissions data for the other two Airbus companies working in Spain. This information is included as the emissions figures for Airbus Defence and Space and Airbus Helicopters will not vary significantly from the real numbers.

In 2023, Airbus Defence and Space and Airbus Helicopters emitted 231,502 tCO_2e into our atmosphere. Some 85% of these (or 196,776 tCO2e) were from military manufacturing, representing 25.6 tCO_2e per employee (see Table 5). Such a high figure demonstrates how aeronautical manufacturing is one of the industries that emits most greenhouse gases into the atmosphere.

9. https://www.indracompany.com/en/sustainability/environment/carbon-footprint Accessed on 14/11/2024
10. https://database.centredelas.org/military-industry-in-spain/?lang=en Accessed on 13/11/2024
11. https://www.airbus.com/sites/g/files/jlcbta136/files/2022-09/Airbus%20Defence%20and%20Space%20Ltd%202021%20-%20Carbon%20Reduction%20Plan.pdf Accessed on 14/11/2024
12. https://www.airbus.com/sites/g/files/jlcbta136/files/2024-02/EN-Press-Release-Airbus-FY2023-Results.pdf Accessed on 14/11/2024

Table 5. Airbus Defence and Space / Airbus Helicopters emissions in tCO_2e in Spain (2023)

	Emissions (tCO_2e)	Military Production	Military Emissions (tCO_2e)	2023 Military Employees	Emissions/ Employee (tCO_2e)
Airbus (Scopes 1, 2 & 3)	231.502	85%	196.776	7.677	25,63

Own work

D) THALES ESPAÑA

Thales España is a subsidiary of the Thales group, which is headquartered in France. This transnational works on industrial electronics and engineering and is present in numerous countries, employing 77,000 people on all five continents, of which around 1,000 are based in Spain. In 2022, its annual turnover was EUR 17,567 million. Thales España does not provide information about its greenhouse gas emissions, but the French parent company reports direct and indirect emissions,[13] allowing us to perform an approximate extrapolation of the numbers for its three Spanish subsidiaries: Thales Alenia Space, Thales Programas de Electrónica [Thales Electronics Programmes] and Thales Sistemas de Seguridad [Thales Security Systems], which had a 2022 turnover of EUR 102.5 million, of which 35% (EUR 36 million) was generated by military and security manufacturing. We can compare Thales España with the French parent company based on their turnover and number of employees working on military production. As we mentioned for Airbus, this comparison is approximate, and therefore relative. However, Thales España's emissions will not be very different from Thales' emissions in other countries.

Given Thales employs around 1,000 people in Spain and military manufacturing represents 35% of its total business, 35% of its total emissions of 54,493 tCO_2e would be 18,722 tCO_2e, which divided by its 350 military employees represents 53.4 tCO_2e per person (see Table 6).

13. https://www.thalesgroup.com/en/group/investors/press_release/thales-reports-its-2022-full-year-results Accessed on 14/11/2024

E) SENER

The Sener group develops engineering and technology solutions for a range of industrial sectors. It is involved in space exploration, astronomy, communications, air traffic control and defence technology. While it is headquartered in Spain's Basque Country, the company has become a transnational, with offices in many countries.

In 2023, Sener employed 2,153 people in Spain, generating a turnover of EUR 529.19, 16% of which (EUR 84.7 million) were dedicated to military manufacturing, which employed 344 people.

Sener only reported direct greenhouse gas emissions and only calculated staff transport emissions before 2022, which greatly reduced its emissions figures, but it started to include indirect emissions in its data from 2023. This led to a significant change in its reporting methods, with the inclusion of emissions derived from the purchase of capital goods and its entire supply chain's related procurement. It resulted in a massive increase in greenhouse gas emissions figures, from 8,265 tCO_2e in 2022 to 132,808 tCO_2e in 2023, which represents 61.7 tCO_2e per employee (see Table 7).[14]

F) GMV

GMV is a Spanish electronics and industrial engineering multinational registered in Madrid with offices in 12 countries. It works on aeronautics, automotives,

14. https://www.group.sener/comunicacion/publicaciones/estado-informacion-no-financiero/?doing_wp_cron=1730909708.5028259754180908203125 Accessed in Spanish on 14/11/2024

Table 6. Thales España emissions in tCO_2e (2022)

	Emissions tCO_2e	Military Production	Military Emissions tCO_2e	Military Employees	Emissions/ Employee (tCO_2e)
Thales (Scopes 1, 2 & 3)	53,493	35%	18,722	350	53.40

Own work

Table 7. Sener emissions in tCO_2e (2022-2023)

	2022	2023	Military Production	2023 Emilitary Emissions (tCO_2e)	2023 Military Employees	2023 Emissions/ Employee (tCO_2e)
Sener (Scopes 1 & 2)	1,715	2,689				
Sener (Scope 3)	6,550	130,119				
Total	**8,265**	**132,808**	**16%**	**21,249**	**344**	**61.77**

Own work

cybersecurity, defence and security, space and digital services. In 2023, turnover reached EUR 384.38 million, allowing it to employ 3,158 people, of whom 138 worked at GMV Aerospace and Defence, which is exclusively dedicated to military manufacturing.

GMV reports its direct and indirect greenhouse gas emissions annually.[15] Its reported 2023 emissions were 3,654 tCO_2e, or 26.4 tCO_2e per arms industry employee (see Table 8). Like Indra, Thales and Sener, GMV also works on electronics. However, its carbon dioxide emissions are noticeably smaller than its peers, suggesting there may be a distortion in its greenhouse gas reporting.

G) AERNNOVA

Aernnova Aerospace Corporation, SA is registered in Miñano Mayor, in Spain's Basque Country. It was established in 2006 with the acquisition of 100% of the shares in Gamesa Aeronáutica and designs and produces aerostructures and aeronautics industry components. Its main client is Airbus, for whom it produces elements including EF-2000 fighter plane and A400_M military transport plane structures and components. The company is present in eight countries outside Spain and employs 5,442 people, 3,233 are based in Spain. Its 2023 turnover reached EUR 875 million, 35% of which for military activities.

According to Aernnova's 2023 non-financial information statement,[16] the company's direct and indirect greenhouse gas emissions increased by 11% from 70,890 tCO_2e in 2022 to 78,559 tCO_2e in 2023, which means that its military emissions were 27,495 tCO_2e, representing 24.3 tCO_2e per employee (see Table 9). These numbers are very similar to the figures reported by Airbus (25.6), meaning that the military aeronautical industry produces around 25 tCO_2e of greenhouse gas emissions per employee.

H) ITP AERO

Prior to 2022, this company was controlled by Rolls Royce (the British manufacturer of aeronautical engines and turbines). After that it was purchased by Bain Capital (USA - 80%), Indra (9.5%) and the autonomous regional government of Spain's Basque Country (6%). Its military work includes the manufacture of engines for Eurofighter EF-2000s and A400M transport planes, military helicopters and other military transport planes, all of which are manufactured by Airbus. This company provides information about its greenhouse gas emissions, but only reports the direct emissions (Scopes 1 and 2) from its two factories in Zamudio and Ajalvir (Madrid): 5,159 tCO_2e in 2023. As military manufacturing represents 30% of its total business volume, its military emissions will have totalled 1,548 tCO_2e, which breaks down as 2.69 tCO_2e

15. https://www.gmv.com/sites/default/files/content/file/2023/11/14/111/certificadohco-2019-0002_es_2023-01-31.pdf Accessed in Spanish on 10/10/2024

16. https://www.aernnova.com/wp-content/uploads/2024/05/Estado-de-informacion-no-financiera-2023-ENG.pdf Accessed on 10/10/2024

Table 8. GMV emissions in tCO_2e (2023)

	Emissions (tCO_2e)	Military Production	Military Emissions (tCO_2e)	Military Employment	Emissions/ Employee (tCO_2e)
GMV (Scopes 1, 2 & 3)	3,654	100%	3,654	138	26.47

Own work

Table 9. Aernnova emissions in tCO_2e (2022-2023)

	2022	2023	Military Production	2023 Military Emissions (tCO_2e)	2023 Military Employment	2023 Emissions/ Employee (tCO2e)
Aernnova (Scopes 1, 2 & 3)	70,890	78,559	35%	27,495	1,131	24.31

Own work

Table 10. Emissions ITP Aero in tCO_2e (2023)

	2022	2023	Producción Militar	2023 Emisiones militares tCO_2e	2023 Empleo militar	2023 Emisiones empleado tCO_2e
ITP Aero (Scopes 1 & 2)	4,646	5,159	30%	1,548	576	2.69

Own work

per employee (Table 10).[17] However, as ITP does not report (Scope 3) indirect emissions, meaning all those related to the production of the materials and capital goods it uses, the greenhouse gas data it publishes is too incomplete to be accurate.

I) RHEINMETALL / EXPAL

Rheinmetall Expal Munitions SAU is Spain's biggest munitions manufacturer. It specialises in artillery ammunition, mortar and medium calibre rounds, grenades and air armaments as well as fuzes and rocket propulsion systems. It can also produce armoured vehicles. Rheinmetall also works on manufacturing missiles like the Iris-T for Spain's F-2000 fighter plane. The Spanish government has granted the company a license to replicate the Silam rocket launcher designed by Israeli arms manufacturer Elbit Systems in Spain.

Before they were banned in Spain, Expal manufactured anti-personnel mines and cluster bombs, which have been defined as weapons of mass destruction due to their indiscriminate impact on civilians. Expal is the Spanish armed forces' main supplier of projectiles of all calibres, in addition to grenades and bombs. In 2022 (most recent data available) its turnover reached EUR 196.2 million and it employed 720 people, with 96% of its production being for military purposes.

Expal is also a major arms exporter. It regularly supplies armies all over the world, but due to the secrecy surrounding the arms trade, we only have information on its sales to Morocco, the Republic of Türkiye, Israel and other countries in the Middle East. Anti-personnel mines manufactured by Expal plague areas of Colombia and the Western Sahara.

17. https://www.itpaero.com/media https://www.itpaero.com/en/publications/ Accessed in Spanish on 10/10/2024

Previously owned by the Maxam group, a civilian explosives giant whose products are used in mining and public works, Expal was sold to Rheinmetall (a German company) in November 2022 in a deal representing EUR 1,200 million.[18] The Spanish government had to authorise this deal as it involved a defence company that was also a Spanish armed forces contractor. As a result, Expal is now the Spanish division of one of the world's largest ammunition producers. It has over 5,000 employees manufactures several models of the Leopard tank, which it recently supplied to the Ukrainian army, as well as other heavy weapons. In Spain, Expal's factories are located in Trubia, Burgos, Albacete, Murcia, Abadiano, Amorebieta, Navalmoral and El Gordo.

After the October 2023 buyout, Rheinmetall commissioned Expal to manufacture 100,000 15 mm shells worth over EUR 1,000 million. This model is the most used in the war in Ukraine, and it's also the shell European munitions manufacturers are struggling to meet Ukraine's great demand for. The European Council approved a EUR 1 billion grant from the European Peace Facility to allow European manufacturers of this shell to increase production and supply Ukraine.[19]

Rheinmetall/Expal reports tCO_2e emissions in 2018 and 2022 of 2,224 tCO_2e, but these figures only include direct (Scopes 1 and 2) and not indirect (Scope 3) emissions, meaning that this data is partial and does not paint an accurate picture of its actual greenhouse gas emissions. They are nevertheless included in this report due to the unique nature of the company. Its military emissions totalled 2,135 tCO_2e, which divided by 691 employees represents 3.09 tCO_2e per worker (see Table 11).

18. Bayon, Alvaro. Cinco Días, 13/11/2022 https://cincodias.elpais.com/cincodias/2022/11/13/companias/1668365102_493189.html Accessed in Spanish on 29/11/2024
19. https://www.consilium.europa.eu/en/press/press-releases/2023/05/05/eu-joint-procurement-of-ammunition-and-missiles-for-ukraine-council-agrees-1-billion-support-under-the-european-peace-facility/ Accessed on 29/11/2024

Table 11. Expal/Rheinmetall emissions in tCO_2e (2018-2022)

	2018	2019	2020	2021	2022	Military Production	2022 Military Emissions (tCO2e)	2022 Military Employees	2022 Emissions/ Employee (tCO2e)
Expal (Scopes 1 & 2)	3,018	1,389	1,638	3,432	2,224	96%	2,135	691	3.09

Own work

3. THE COMBINED GREENHOUSE GAS EMISSIONS OF SPAIN'S ENTIRE ARMS INDUSTRY

Having analysed the greenhouse gas emissions produced individually by nine of Spain's biggest military players, we can see that, together, they produced the lion's share of Spain's military emissions. This assertion is based on the fact that three of the nine (Airbus, Navantia and Indra) act as an oligopoly, covering three of the major production sectors: aeronautics (Airbus), warships (Navantia), and the electronics for most of the arms produced by these two companies as well as other Spanish outfits (Indra). As we have mentioned, the state holds shares in all three companies through SEPI: it's the sole proprietor of Navantia, the majority shareholder in Indra and although it is only a minority shareholder in Airbus, this multinational is the main European civilian and military aeronautics consortium - so enjoys maximum Spanish government support when it comes to gaining European influence and prestige. These companies are all protected by Spain. All three receive Spain's Ministry of Defence's most substantial contracts, totalling up to 74% of Spain's military production. When we add figures from the other six companies studied individually in this report, the nine's combined total production represents 81% of all Spain's military manufacturing, and 2022 revenues of EUR 9,621.3 million, according to data the Delàs Centre gathered on 126 companies.[20]

These nine companies emitted 921,048 tCO_2e, representing an average of 59.35 tCO_2e per employee, based on calculations including direct and indirect emissions (see Table 12). Note that (as shown in Table 12) many more companies report their direct and indirect emissions, whereas only ITP Aero and Rheinmetall/Expal report only direct emissions, meaning that their exact carbon footprint is unknown. The greenhouse gases emitted by Spain's entire arms industry can be calculated proportionally as they represent the remaining 19% of national military production, which we can assume would be 174,999 tCO_2e. As a result, the total greenhouse gas emissions produced by Spain's entire arms industry would be 1,096,047 tCO_2e, or when divided by its 25,515 employees: 42.95 tCO_2e per worker.

This calculation is unquestionably speculative, as we don't know that the 19% emissions would be proportional to the remaining companies' total turnovers. In fact, it is probably a conservative figure, as most

20. https://database.centredelas.org/military-industry-in-spain/?lang=en Accessed on 28/10/2024

Table 12. Emissions (tCO_2e) emitted by Spain's arms industrials

Company	Emissions (tCO_2e)	Military Production	Military Emissions (tCO_2e)	Military Employees	Emissions/ Employee (tCO_2e)
Navantia (Scopes 1, 2 & 3)	585,463	97%	567,899	4,316	131.57
Indra (Scopes 1, 2 & 3)	433,346	19%	81,724	1,512	54.05
Airbus (Scopes 1, 2 & 3)	231,502	85%	196,776	7,677	25.63
Thales (Scopes 1, 2 & 3)	53,493	35%	18,722	350	53.40
Sener (Scopes 1, 2 & 3)	132,808	16%	21,249	344	61.77
GMV (Scopes 1, 2 & 3)	3,654	100%	3,654	138	26.47
Aernnova (Scopes 1, 2 & 3)	78,559	35%	27,495	1,131	24.31
Total			**917,519**	**15,468**	**59.35**
ITP Aero (Scopes 1 & 2)	5,159	30%	1,394	596	2.34
Rheinmetall/Expal (Scopes 1 & 2)	2,224	96%	2,135	691	3.09
Total emissions of companies analysed			**921,048**	**16,755**	**54.97**
Total emissions of other arms companies			**174,999**		
Total			**1,096,047**	**25,515**	**42.95**

Own work

work in engineering and new technology, which are the most contaminating sectors. It goes without saying that new information, communications, aeronautical, space, and cybersecurity technologies, especially those deploying artificial intelligence, use supercomputers that consume massive amounts of energy, along with rare materials that also require great mining earthworks, meaning that they too produce high levels of greenhouse gas emissions. For example, Sener emits 61.7 tCO_2e; Indra 54.4; Thales, 53.4; GMV 26.4; and Airbus 25.6 tCO_2e. Navantia is a long way out in front, emitting the exorbitant figure of 131.5 tCO_2e per employee (see Table 12).

Major Spanish companies that do not report their carbon dioxide emissions include: Tecnobit, Escribano, Amper, Oesia, Isdefe, Accenture. Along with mechanised vehicle specialists: General Dynamics/Santa Bárbara, SAPA, Uro. And projectiles producers: Nammo, Instalaza and Fábrica de Municiones de Granada. And finally, the space tech specialist, Hisdesat.

4. THE GREENHOUSE GAS EMISSIONS OF SPAIN'S MILITARY SECTOR[21]

Having analysed the greenhouse gas emissions of Spain's armed forces and her arms industry separately, we can now calculate the combined 2023 emissions of Spain's military sector. Adding both figures together produces a total of 5,144,754 tCO_2e, or an average of 34.7 tCO_2e per member of the Spanish armed forces and 42.95 tCO_2e per arms industry employee (see Table 13).

This data raises several questions. The first is whether the combined emissions of the entire military sector studied match the reality of the 2023 Ministry of Defence budget, which represented 1.13% of Spain's GDP (EUR 14,453.83 million).[22] The government agreed to increase its NATO contribution to 2% GDP by 2029 at the 2022 NATO Summit in Madrid. This means 2029 military spending should reach EUR 25,582 million, which represents a 56.5% increase from the 2023 budget. If we apply the same proportion to Spain's armed forces' greenhouse gas emissions, they could reach 6,336,226 tCO_2e in 2029, representing emissions of 54.4 tCO_2e per member of the armed forces (see Table 14).

These values are shown given the Spanish government's commitment to increasing military spending until it reaches 2% GDP by 2029, which in 2024 resulted in continuous increases in defence spending with new arms orders issued to the military industries.[23]

21. Clarifications about the military sector's greenhouse gas emissions: The limitations of a study attempting to analyse a sector's environmental footprint when that sector is deliberately opaque (with most countries concealing their greenhouse gas emissions), must be considered. As a result, the speculative nature of some calculations and the generalisations consciously applied to address some of the issues must be flagged. However, the data included in this report is from reliable sources. It can be used for extrapolations and conclusions, which while approximate, help gain an idea of the potential carbon footprint produced by Spain's armed forces and arms industries. Scientific method always requires that any methodological issues are clearly established and addressed in the most precise and rigorous way possible. As a result, we need to highlight the methodology used and its potential impact, and to amend any errors detected in further studies, complemented with new data. This report carries on from the September 2021 publication: *Climate Crisis, Armed Forces and Environmental Peace*. In the light of the new Spanish military sector greenhouse gas emissions data obtained, the author has corrected some of the results and data in this new study. This may be repeated in ensuing publications, as more data on the greenhouse emissions produced by a sector that remains eminently opaque may come to light.

22. Ortega, P., Bohigas, X., Moya, X. *El colosal aumento del presupuesto militar del Estado en 2023* [Spanish Military Budget Sees Massive 2023 Increase]. Report 58, Barcelona, Centre of Studies for Peace J.M. Delàs.
23. Ortega, Pere, (2024), *La escalada armamentista del Gobierno de España [Spanish Government Escalates Armament]*, Centre of Studies for Peace J.M. Delàs. https://centredelas.org/wp-content/uploads/2024/01/WP_EscaladaArmamentistaEspana_CAST_DEF.pdf

Table 13. Emissions of Spain's military sector in tCO_2e (2023)

SAF Emissions (tCO_2e)	Arms Industry Emissions (tCO_2e)	Total Military Sector emissions (tCO_2e)	Emissions tCO_2e/SAF Member	Emissions tCO_2e/ Arms Industry Employee
4,048,707	1,096,047	5,144,754	34.69	42.95

Own work

The number of soldiers may vary, but the trend in recent years has actually been to reduce their numbers.

If we apply this same 56.5% increase to Spain's military industries' emissions, the figures studied will reach 1,715,313 tCO_2e or 67.2 tCO_2e per employee in 2029 (see Table 14). This is an extremely speculative approximation as a range of variables are at play. For example, even if the production by Spain's military industries were to grow by 2029, such growth would not necessarily be a 56.5% increase from 2023. The number of employees may not remain stable from 2023 to 2029, it would be logical for them to increase with increased production. As a result, the values indicated are imprecise. However, they show the entire military sector's emissions. To give readers an idea of scale, these would reach the figure of 8,167,985 tCO_2e in 2029 (see Table 14).

Table 14. Military sector emissions in Spain in tCO_2e (2023-2029)

Year	SAF Emissions (tCO_2e)	Number of SAF Members	Emissions/ SAF Member (tCO_2e)	Arms Industry Emissions (tCO_2e)	Number of Employees in the arms companies studied	Emissions (tCO_2e)/arms industry employee in the companies studied	Total military sector emissions (tCO_2e)
2023	4,048,707	116,392	34.78	1,096,047	25,515	42.95	5,261,181
2029	6,336,226	116,392	54.44	1,715,313	25,515	67.22	8,167,985

Own work

5. COMPARISONS AND EXAMPLES OF MILITARY EMISSIONS

The above analysis of Spain's military sector can be used as a starting point for comparisons that help illustrate the scale of the issue:

- In 2019, Spain's total military emissions reached 2.79 million tCO_2e, which is equivalent to 78% of the total emissions of the city of Barcelona (3.6 million tCO_2e) and three times the emissions produced by all road transport (935,574 tCO_2e).[24]

- The United States Department of Defense emissions are estimated to be 59 million tCO_2e, while those resulting from her arms production are estimated to be 153 million tCO_2e. This means that US military activity was responsible for emitting 212 million tCO_2e in 2017, placing the US 47th in the global CO_2 emissions rankings, ahead of Belgium, Portugal and many others.[25]

- Spain's military sector produced 4.97 million tCO_2e in 2023, representing 12.5% of Catalonia's total greenhouse gas emissions: 39.7 million tCO_2e.[26]

- In 2023, Spain's military sector emissions reached 4.97 million tCO_2e, equivalent to the pollution emitted by 2.9 million vehicles.

- Spain's total 2023 greenhouse gas emissions were: 271.6 million tCO_2e,[27] meaning every Spanish citizen emitted an average of 5.72 tCO_2e into the atmosphere, while every member of Spain's Armed Forces emitted six times more on average: 34.7 tCO_2e, and every Spanish arms industry employee emitted 10.3 times more at 59.3 tCO_2e.

- In 2023, Spain's military emissions totalled 4.97 million tCO_2e, representing 4.8% of the total aviation emissions in Spain in 2022 (103 million tCO_2e).[28]

24. https://www.barcelona.cat/infobarcelona/es/tema/medio-ambiente-y-sostenibilidad/el-paro-y-la-disminucion-de-la-actividad-durante-la-pandemia-permite-reducir-824-310-toneladas-de-co2_1119546.html Accessed in Spanish on 20/11/2024
25. Crawford, Neta C., (2019), *Pentagon Fuel Use, Climate Change, and the Costs of War*. Watson Institute. https://watson.brown.edu/costsofwar/papers/ClimateChangeandCostofWar Accessed on 20/11/2024
26. *Las emisiones de gases de efecto invernadero bajaron un 5,5% en 2023 en Catalunya [Catalonia's Greenhouse Gas Emissions Drop 5.5%]*, La Vanguardia newspaper, Accessed in Spanish on 18/01/2024
27. https://www.informacion.es/medio-ambiente/2024/01/26/fuerte-bajada-emisiones-co2-atmosfera-97367641.html Accessed in Spanish on 14/11/2024
28. https://www.energias-renovables.com/movilidad/la-aviacion-duplica-sus-emisiones-de-co2-20230412 Accessed in Spanish on 14/11/2024

- The war in Syria has destroyed 19% of its forest cover, which is equivalent to Barcelona's entire metropolitan area: 636 km^2.[29]

- The first 12 months of war in Ukraine emitted 150 million tCO_2e into the atmosphere, this figure is similar to Belgium's total emissions.[30]

- In 2023, the European Union emitted 2,500 million tCO_2e, representing an average of 7.25 tCO_2e per EU citizen, while members of the Spanish armed forces emitted 4.8 times as many emissions: 34.7 tCO_2e and Spanish arms industry employees 8.2 times as many: 59.3 tCO_2e.[31]

- As a military organisation, NATO emitted 233 million tCO_2e in 2023, which is equivalent to the emissions produced by 8.2 million cars.[32]

- Global civil aviation emissions make up 2% of all greenhouse gas emissions,[33] while military emissions represent 4-8% of the total.

- In 2023, global greenhouse gas emissions reached 37,400 million tCO_2e,[34] and considering that the military sector emits an average of 6% of this amount (4-8%) of the total, its emissions reached 2,253 million tCO_2e. This figure is eight times higher than Spain's total greenhouse gas emissions that year: 271,6 tCO_2e.

- Cars consume between 4-6 litres of fuel per 100 km, while a Leopard tank uses 80-100 times more: 300-500 litres of diesel per 100 km.

- Cars consume between 4-6 litres of fuel per 100 km, while the EF-2000 Eurofighter plane uses 600-1,100 times more: ranging between 2,300 - 7,000 litres of kerosene for every hour's flight time.

29. Daiyoub, A., Gelabert, P., Saura-Mas, S., Vega-Garcia, C., (2023), *War and Deforestation: Using Remote Sensing and Machine Learning to Identify the War-Induced Deforestation in Syria 2010–2019.* Center for Ecological Research and Forestry Applications, Universidad Autónoma de Barcelona (UAB).
30. https://climatefocus.com/publications/ukraine-war-climate-damage-updated/ Accessed on 20/11/2025
31. https://www.statista.com/statistics/450017/co2-emissions-europe-eurasia/ Accessed on 20/11/2025
32. Parkinson, Stuart, y Cottrell, Linsey, (2021), *Under the Radar. The Carbon Footprint of Europe's Military Sectors*
33. Climate Trade, https://climatetrade.com/why-is-it-so-hard-to-decarbonize-aviation/
34. https://www.iea.org/reports/co2-emissions-in-2023/executive-summary

6. CONCLUSIONS

As we have shown, countries do not report the greenhouse gas emissions from their military activities, despite the fact that the 2015 Paris COP encouraged (not required) them to report and reduce military greenhouse gas emissions.

In 2023, 37,550 million tCO_2e [carbon dioxide equivalent tonnes] of greenhouse gases were emitted globally. The largest proportion of these came from electricity (26%), followed by industry (11%), and mobility (11%) while aviation generated 2%. According to this data, experts note that the military sector (armed forces and arms industry), could represent 4-8% of these emissions, representing on average 6% of all global greenhouse gas emissions or 2,253 million tCO_2e.

This should encourage the COP to require nations to report their military emissions and consequently require their reduction.

The Intergovernmental Panel on Climate Change (IPCC) proposed reducing greenhouse gas emissions to prevent average global temperatures increasing by more than 1.5°C. At the 2015 Paris Climate Change Conference (COP), the European Union committed to ensuring greenhouse gas emissions are kept at levels that mean global temperatures will not rise by above 1.5-2.0°C by 2030. However, EU and NATO Member States are not considering reducing their military spending. They actually foresee increasing them to a minimum of 2% GDP. This will increase military greenhouse gas emissions and make it harder to achieve the IPCC recommended reductions approved at the Paris COP.

The EU's European Climate Law set a new 2030 target of reducing net greenhouse gas emissions by at least 55% compared to levels in 1990, with a view to achieving net zero greenhouse gas emissions (climate neutrality) by 2050. Following these regulations, Spain's Climate Change and Energy Transition Act (officially Law 7/2021 of 20 May, on climate change and energy transition, establishes the 2030 target of reducing

national greenhouse gas emissions by 23% compared to 1990 levels. Its first additional provision excludes any activities, facilities, infrastructure, equipment and arms designed to protect the essential interests of national defence and public security.[35] This contradicts the EU agreement. It also contradicts Spain's revised National Energy and Climate Plan (NECP), which aims to reduce greenhouse gas emissions by 39% in 2030.[36]

The 2009 Copenhagen Climate Change Conference agreed that USD 100,000 million would be disbursed a year to help countries with less resources to reduce their fossil fuel combustion and prepare for the impact of global warming and climate catastrophes. (This petition has not been met). At the most recent 2024 COP in Azerbaijan, their demand increased to USD 300,000 million a year, in order to mobilise USD 1.3 billion by 2035. Given the wealthiest countries' reticence, it's not going to be easy to achieve this figure. Where can these resources be found? In the world's military spending, which reached USD 2.443 billion in 2023,[37] and is one of our most perverse forms of expenditure (as it encourages armament, arms races between nations and sucks resources away from civilian development).

All these considerations encourage us to demand that Global North countries (Spain included) start reporting and reducing the carbon footprint of both their armed forces and their arms industries, to reduce military spending, the number of soldiers and the arms trade.

Spain's lack of transparency in reporting its military greenhouse gas emissions has led three organisations: the Centre of Studies for Peace J.M. Delàs, Ecologistas en Acción [Ecologists in Action] and Extinction Rebellion to implement the *Desmilitarizar es Descarbonizar* [Demilitarization is Decarbonisation][38] campaign, in which they were joined by 56 organisations and associations, all demanding that the Spanish government comply with the following demands (which this report fully endorses):

1. Full and detailed reporting of Spain's armed forces greenhouse gas emissions.

2. Defence and security companies must be required to report specifically on the greenhouse gas emissions generated by their arms and defence equipment manufacturing activities.

3. Armed forces' and arms industry' greenhouse gas emissions must be included in the reports submitted to the various international bodies.

4. Spain must push for an agreement making it compulsory to report (and reduce) the military greenhouse gas emissions generated by the armed forces and arms industry at the following COPs.

5. The resources used to protect against climate migration and energy insecurity must be reassigned to promoting social and environmental justice.

35. https://www.boe.es/boe/dias/2021/05/21/pdfs/BOE-A-2021-8447.pdf Accessed on 20/11/2024
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