

CLIMATE IN THE CROSSHAIRS

The planetary impact of NATO's spending increases

Issue Briefing – June 2024

As NATO marks its 75th anniversary at its summit in Washington D.C. in July 2024, what will be the climate impacts of the world's most powerful military alliance? NATO spent \$1.34 trillion dollars on the military in 2023, an increase of \$126 billion in one year.¹ Our research shows that military spending increases greenhouse gas emissions, diverts critical finance from climate action, and consolidates an arms trade that fuels instability during climate breakdown. It is therefore accelerating the climate crisis in a decade that the UN Secretary General António Guterres has called 'climate crunch time', where urgent action is needed on 'every front'.²

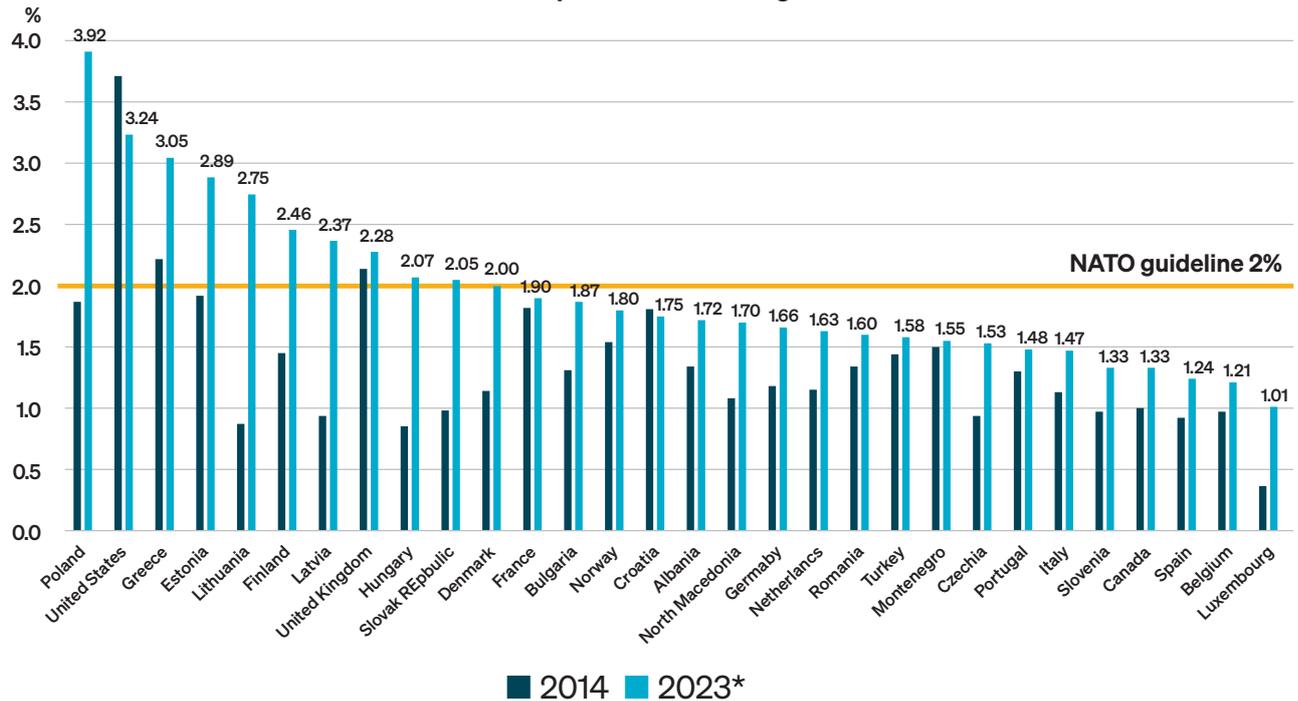
NATO's 2% GDP military spending commitment

NATO is currently responsible for 55% of total global military spending. In October 2023, TNI, Tipping Point North South and Stop Wapenhandel published, *Climate Crossfire - How NATO's 2% military spending targets contribute to climate breakdown*. This report examined the climate impact of NATO's 2% GDP target for spending on the military, and the related target of at least 20% of expenditure spent on equipment. It told the story of the target's adoption and consolidation, estimated the associated greenhouse gas (GHG) emissions, explored the related arms trade by NATO members to climate vulnerable countries, and looked at impacts on climate spending. Since then, more and more NATO members have adopted the 2% target and various countries have gone well beyond it including the US, Poland, Greece, Estonia, Lithuania, Finland, Latvia and the UK. In the UK general election campaign in 2024, two of the biggest parties have committed to a 2.5% minimum GDP spend, while reducing ambition on climate spending.

Key findings:

- NATO's overall military spending in 2023 produces an estimated 233 million metric tonnes of CO₂ equivalent (tCO₂e).³ This is more than Colombia or Qatar's annual GHG emissions.⁴
- NATO's military spending increase of \$126 billion in 2023 will lead to an estimated additional 31 million metric tonnes of CO₂ equivalent (tCO₂e). This is equivalent to the annual CO₂ emissions of around 6.7 million average US cars.⁵
- The Intergovernmental Panel on Climate Change (IPCC) says that a 43% reduction in emissions is needed by all sectors by 2030 compared to 2019 levels to have a chance to keep global average temperature increases to below 1.5 degrees Celsius. This would require an annual reduction of military emissions of at least 5%, yet NATO increased its military emissions by around 15% in 2023 and looks set to continue increasing emissions this decade.
- NATO's increase of military spending in 2023 would pay for minimal climate financing demanded by developing countries in UN climate negotiations this year.⁶ NATO's total military spending in 2023 would pay this financing for 13 years.
- NATO claims a record two-thirds of its members will meet the target of 2% minimum GDP spending on the military (up from only six countries in 2021). If all members meet the commitment, by 2028 this would lead to a total estimated collective military carbon footprint of 2 billion tCO₂e, greater than the annual GHG emissions of Russia. NATO would also spend an estimated additional \$2.57 trillion, enough to pay for what the United Nations Environment Programme (UNEP) estimates as the climate adaptation costs for low- and middle-income countries for seven years.⁷

Graph 1: Defence expenditure as a share of GDP (%)
(based on 2015 prices and exchange rates)



*Note: Figures for 2023 are estimates. Source: NATO (2024)

NATO's biggest military spenders and polluters

The US is by far the biggest military spender, making up more than two-thirds of total NATO spending. It is followed by the UK, Germany, France, Italy, Poland, Canada and Spain. The biggest military spending increases in 2023 were by the US, Poland, the UK and Germany with spending rising by \$55bn, \$16bn, \$10.9bn and \$10.7bn respectively. The average proportion of military expenditure spent on major military equipment also increased from 25.5% to 27.3% with many making substantial increases, especially Finland and Poland, who both spent more than 50% of their military expenditure on equipment in 2023.⁸

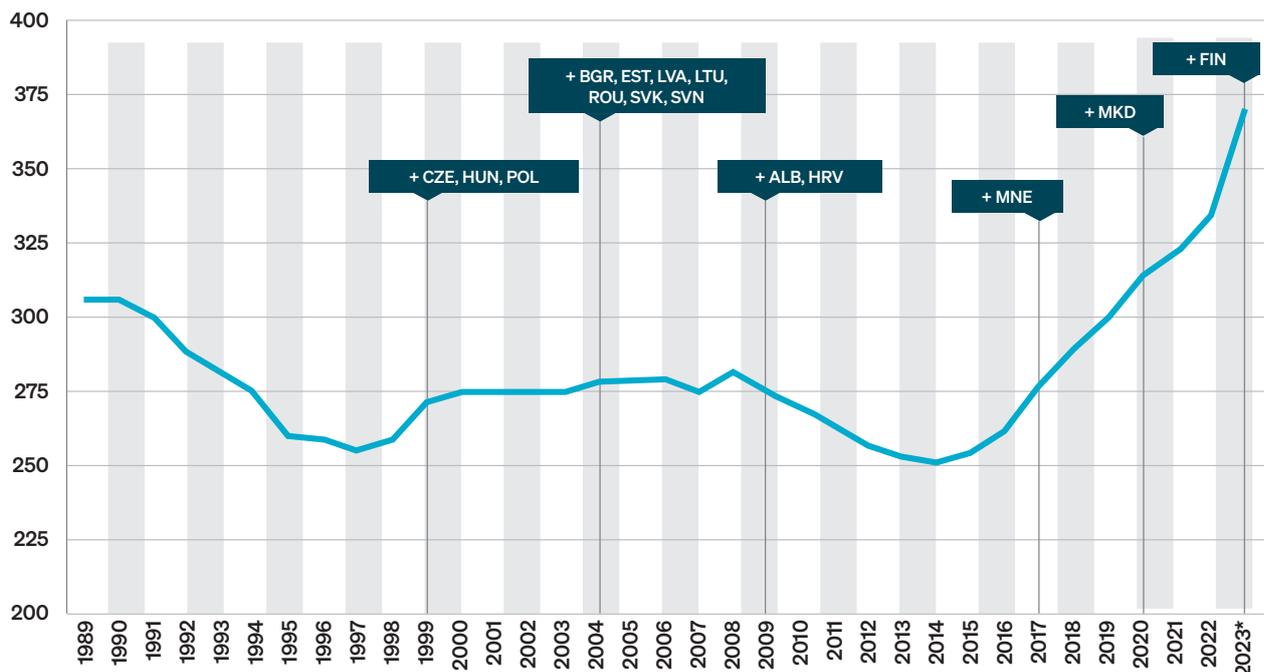
As a result eight NATO members increased their military carbon footprint by more than one million tCO₂e (equivalent to annual emissions of around a quarter of a million US cars), namely the US, Poland, Germany, the UK, Spain, Finland, the Netherlands and France. The US military is already the world's largest institutional greenhouse gas emitter.

Challenge of decarbonising the military

NATO has said that climate change is 'one of the defining challenges of our times' and committed the alliance to mitigating climate change, yet continues to increase emissions rather than reduce them. This is because increased military spending is largely spent on military equipment which remains highly dependent on fossil fuels. Significant switches to renewable energy such as alternative fuels for aircraft are either too costly, don't exist or have other large-scale negative impacts when done at scale (e.g. land-use change for 'Sustainable Aviation Fuel').

NATO's F-35 combat aircraft demonstrates the challenge. The aircraft is one of the most popular new 'big ticket' items for NATO members. The US arms manufacturer, Lockheed Martin, predicts that there will be more than 600 F-35s across NATO by 2030. Yet rather than reducing fuel-use, this jet consumes about 5,600 litres of oil per hour compared to 3,500 for the F-16 fighters that they are replacing. As military systems have a lifetime span of 30 to 40 years, this means locking-in highly polluting systems for many years to come.

Graph 2: NATO Europe and Canada – defence expenditure
(billion US dollars, based on 2015 prices and exchange rates)



* Figures for 2023 are estimates. Includes enlargements which took place in: 1999 (3 Allies), 2004 (7 Allies), 2009 (2 Allies), 2017 (1 Ally), 2020 (1 Ally) and 2023 (1 Ally).

Arms dealers are the only winners

NATO is actively seeking to support the arms industry through various initiatives including the Defence Production Action Plan, the NATO Innovation Fund and the Defence Innovation Accelerator for the North Atlantic (DIANA).⁹ Together with big spending increases, these plans promise arms companies record profits in coming years. Meanwhile, environmental regulations are increasingly pushed aside when they are judged to be obstacles to increasing arms production.

Airbus CEO Guillaume Faury is one of many arms and security corporate executives celebrating: ‘Defence budgets, which had been declining for 40 years, are recovering even if the budgetary equation is more difficult to solve in the wake of a health crisis. Defence is regaining its rightful place as a guarantee of sovereignty, independence and prosperity [...]’¹⁰

Since procurement decisions, production for arms purchases as well as scaling up production capacities are a lengthy process, military budget increases aren’t always immediately reflected in revenues and profits.¹¹ However, growing backlogs of orders show the effects of the NATO arms spending spree for the coming years (see Graph 3).

The legacy of this increased arms trade will be an ever more militarised world at a time of climate breakdown. This military expenditure will fuel wars and conflict that will compound the impact on those made vulnerable by climate change.

Table 1: Estimated Increase In NATO's Military Ghg Emissions 2022–2023**Military carbon footprint in tCO₂e**

Country	2022	2023	%	Total emissions increase	Equivalence in US car emissions
Albania	53,828	86,503	61%	32,675	7,103
Belgium	856,353	931,045	9%	74,692	16,237
Bulgaria	248,505	433,465	74%	184,960	40,209
Canada	1,884,409	2,423,532	29%	539,123	117,201
Croatia	285,609	253,797	-11%	-31,812	-6,916
Czechia	661,262	836,146	26%	174,883	38,018
Denmark	630,984	664,329	5%	33,345	7,249
Estonia	119,226	222,733	87%	103,507	22,501
Finland	949,114	2,148,949	126%	1,199,835	260,834
France	9,241,493	10,267,403	11%	1,025,910	223,024
Germany	6,084,192	9,436,461	55%	3,352,269	728,754
Greece	2,512,086	2,023,687	-19%	-488,398	-106,174
Hungary	926,247	1,012,979	9%	86,732	18,855
Iceland	0	0	0%	0	0
Italy	5,069,591	4,736,498	-7%	-333,093	-72,412
Latvia	144,730	180,515	25%	35,785	7,779
Lithuania	417,765	355,660	-15%	-62,105	-13,501
Luxembourg	127,343	151,149	19%	23,806	5,175
Montenegro	19,963	23,182	16%	3,219	700
Netherlands	1,279,286	2,468,522	93%	1,189,237	258,530
North Macedonia	57,884	77,195	33%	19,311	4,198
Norway	1,436,532	1,428,576	-1%	-7,955	-1,729
Poland	3,536,776	10,068,264	185%	6,531,488	1,419,889
Portugal	455,427	609,652	34%	154,225	33,527
Romania	1,040,448	977,555	-6%	-62,892	-13,672
Slovakia	476,591	414,114	-13%	-62,477	-13,582
Slovenia	121,668	145,087	19%	23,419	5,091
Spain	2,852,472	4,110,281	44%	1,257,810	273,437
Türkiye	3,916,584	4,749,244	21%	832,660	181,013
United Kingdom	11,473,218	14,056,251	23%	2,583,033	561,529
United States	145,031,333	157,665,227	9%	12,633,894	2,746,499
Total	201,910,921	232,958,003	15%	31,047,082	6,749,366

Source: Estimates based on SIPRI & NATO (2024) figures.

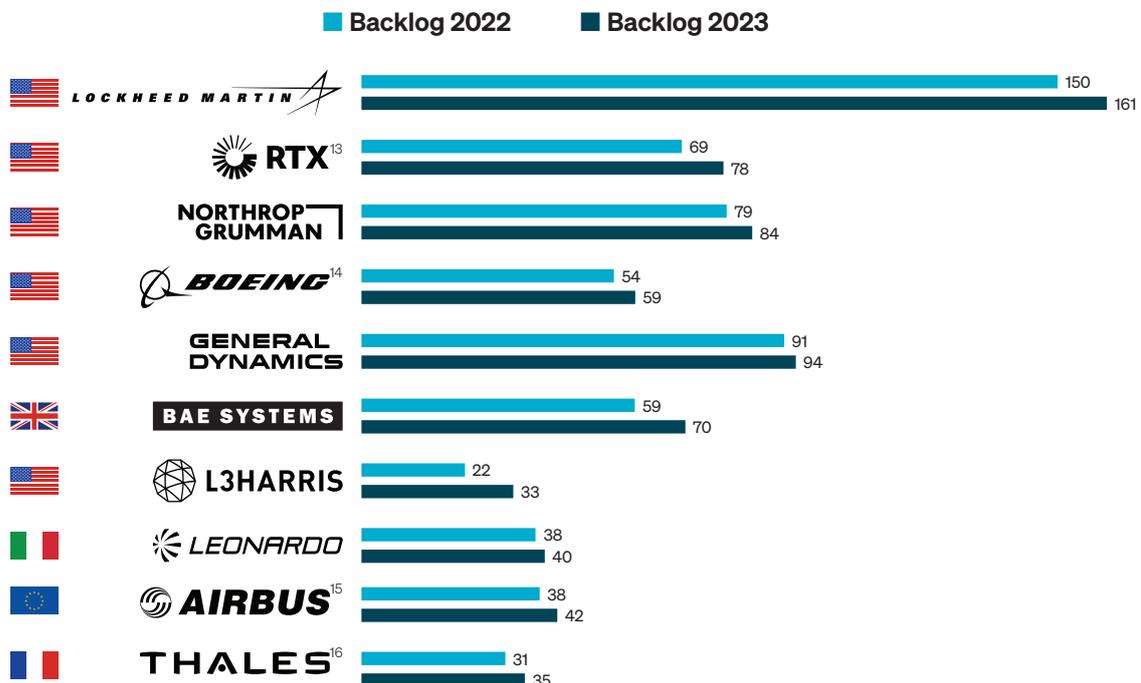
Table 2: NATO Military expenditure in 2022 and 2023

In million \$US, current prices and exchange rates

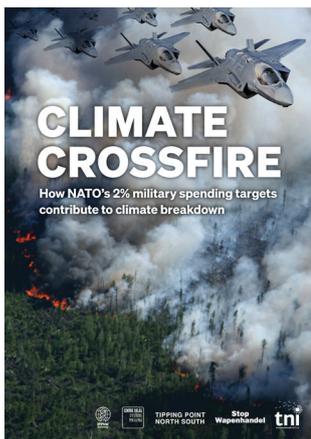
Country	2022	2023	Difference	%
Albania	229	398	169	74%
Belgium	6,890	7,629	739	11%
Bulgaria	1,437	1,918	482	34%
Canada	25,568	27,222	1,654	6%
Croatia	1,282	1,439	157	12%
Czechia	4,005	5,056	1,051	26%
Denmark	5,475	8,145	2,670	49%
Estonia	818	1,189	371	45%
Finland	4,446	7,348	2,902	65%
France	53,639	61,301	7,663	14%
Germany	56,153	66,827	10,674	19%
Greece	8,745	7,730	-1,016	-12%
Hungary	3,257	4,355	1,099	34%
Iceland	0	0	0	0
Italy	34,692	35,529	837	2%
Latvia	856	1,045	189	22%
Lithuania	1,734	2,161	426	25%
Luxembourg	510	662	153	30%
Montenegro	98	115	17	17%
Netherlands	13,632	16,625	2,992	22%
North Macedonia	220	267	46	21%
Norway	8,698	8,669	-29	0%
Poland	15,341	31,650	16,309	106%
Portugal	3,567	4,223	657	18%
Romania	5,188	5,611	423	8%
Slovakia	2,086	2,663	577	28%
Slovenia	775	908	132	17%
Spain	20,307	23,699	3,393	17%
Türkiye	10,780	15,828	5,048	47%
United Kingdom	64,082	74,943	10,861	17%
United States	860,692	916,015	55,323	6%
Total	1215202.7	1341169	125,966	10%

Source: SIPRI (2024)

Graphic 3: Backlog of orders (in \$ bln) – ten largest arms companies in NATO member states¹²



FURTHER RESOURCES



Lin, H.C., Buxton, N., Akkerman, M., Burton, D., de Vries, W. (October 2023), *Climate Crossfire: how NATO's 2% military spending targets contribute to climate breakdown*, Transnational Institute

www.tni.org/climatecrossfire



Arms, Militarism and Climate Justice Working Group website

www.climatemilitarism.org

Endnotes

- 1 SIPRI (22 April 2024), Trends in World Military Expenditure, 2023. <https://www.sipri.org/publications/2024/sipri-fact-sheets/trends-world-military-expenditure-2023>
- 2 UN (5 June 2024), Secretary-General's special address on climate action "A Moment of Truth". <https://www.un.org/sg/en/content/sg/speeches/2024-06-05/secretary-generals-special-address-climate-action-moment-of-truth%C2%A0>
- 3 This estimation is based on a spend-emission conversion factor of 0.000534 tCO₂e per US dollar. The full explanation for the calculation can be found in Appendix 1 of <https://www.tni.org/files/2023-10/NATOs%20Climate%20Crossfire.pdf>
- 4 European Commission, EDGAR - Emissions Database for Global Atmospheric Research. https://edgar.jrc.ec.europa.eu/report_2023
- 5 EPA, Greenhouse gas emissions for a typical passenger vehicle. Available at <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>
A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year.
- 6 \$100 billion is considered the floor – the minimum required climate financing for the New Collective Quantified Goal (NCQG) – currently being negotiated at the UNFCCC. It was the former goal that developed countries committed to deliver by 2020 at UNFCCC's 2015 Paris summit, and which they failed to do in real terms. In reality, trillions of dollars are needed to deal with climate costs.
- 7 Lin, H.C. et al (October 2023), Climate crossfire: how NATO's 2% military spending targets contribute to climate breakdown, Transnational Institute <http://www.tni.org/climatecrossfire>
- 8 NATO (14 March 2024), Defence expenditure of NATO countries: 2014-2023). https://www.nato.int/cps/en/natohq/news_223304.htm
- 9 NATO (8 May 2024), NATO's role in defense industry production: https://www.nato.int/cps/en/natohq/topics_222589.htm; NATO – The Nato Innovation Fund: <https://www.nif.fund/>; NATO – Defence Innovation Accelerator for the North Atlantic (DIANA): <https://www.diana.nato.int/>
- 10 Le Monde (23 May 2024), Guillaume Faury: It's once again legitimate to finance the defense sector. https://www.lemonde.fr/en/international/article/2024/03/23/guillaume-faury-it-is-once-again-legitimate-to-finance-the-defense-sector_6648064_4.html
- 11 SIPRI (4 December 2023), Rise in SIPRI Top 100 arms sales revenue delayed by production challenges and backlogs, <https://www.sipri.org/media/press-release/2023/rise-sipri-top-100-arms-sales-revenue-delayed-production-challenges-and-backlogs>
- 12 Ten largest companies according to SIPRI Top 100 Arms-producing and Military Services Companies, 2022 (December 2023, <https://www.sipri.org/publications/2023/sipri-fact-sheets/sipri-top-100-arms-producing-and-military-services-companies-2022>); backlog figures from annual reports of the companies
- 13 Defense backlog only
- 14 Defense, Space & Security backlog only
- 15 Airbus Defence and Space backlog only
- 16 Order book Defence and Security segment only