

# Growing military spending, growing carbon emissions

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Scientists  
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*These slides will be made available at: <https://www.sgr.org.uk/>*

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(All references listed at the end)

## Growing military spending

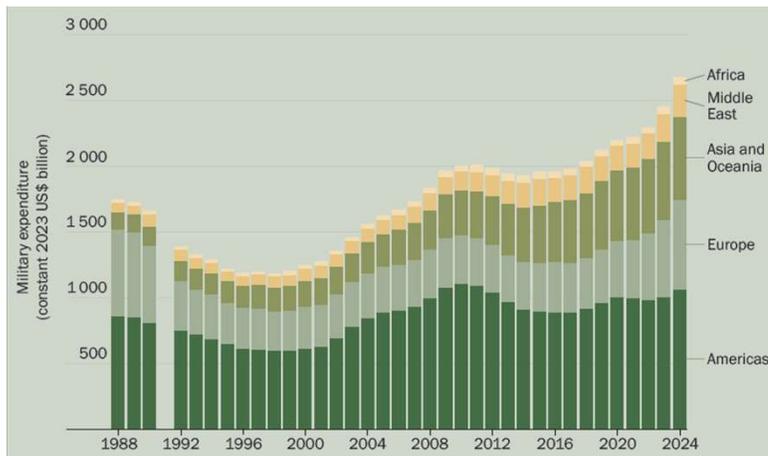


Figure 1. World military expenditure, by region, 1988–2024

SIPRI (2025)

- 2024: \$2.7 trillion
- 2025: new NATO targets agreed: 3.5%+1.5% GDP
- UN projections for 2035:
  - Low: \$4.4 tr
  - High: \$6.6 tr

- Historical data from SIPRI (2025)
- Details on 5% GDP target: NATO (2025)
- UN projections for 2035 (UN (2025):
  - Low estimate extrapolated from trend of past 5y
  - High estimate assumes 5% of global GDP spent on military activities

## Links between military spending and carbon emissions

Aim of additional funding	Effect on core emissions (scope 1,2)	Effect on wider emissions (scope 3)
Extra fuel for increased military activity	High	Low
Increased numbers of personnel	Medium	Medium
Increased wages for personnel	Low	Low
Increased stockpiles of ammunition	Low	High
Increased numbers and capability of military craft	Mixed	High

Based on SGR (2025a)

- In these slides, 'carbon emissions' and 'greenhouse gas emissions' are used interchangeably.
- Defn of scopes: scope 1: direct emissions; scope 2: (mainly) electricity emissions; scope 3: (mainly) supply-chain emissions
- Table summarised from information in SGR (2025a)
- Increases in emissions hard to monitor: data on core emissions is poor; data on wider emissions is almost non-existent (SGR, 2025b)

## SGR review of 11 studies

Study	Lead publisher	GHG emissions categories	Geographical coverage
Thombs et al (2025)	PLOS Climate	scopes 1,2 only	USA
Lin et al (2023)	Transnational Institute	scopes 1,2,3	NATO (32 nations)
Lin et al (2024)	Transnational Institute	scopes 1,2,3	NATO (32 nations)
Lin et al (2025)	Transnational Institute	scopes 1,2,3	NATO (32 nations)
Huibregtsen (2025a)	Leiden University	scopes 1,2,3	EU-NATO (23 nations)
Bigger et al (2025)	Climate and Community Institute	scopes 1,2,3	USA
Greenly (2025)	Greenly	scopes 1,2,3	NATO (32 nations)/ EU-NATO (23 nations)
Subran et al (2025)	Allianz	scopes 1,2,3	NATO Europe (30 nations)
Marko (2024)	Research Gate	wider economy	NATO+
Kinney et al (2025)	Conflict & Environment Observatory	wider economy	NATO ex-USA (31 nations)
Dong et al (2025)	Nature	wider economy	Global

SGR (2025a)

Studies reviewed in SGR (2025a)

## SGR review: findings

- For *increase* in military spending of \$100bn, carbon emissions rise by 32 million tonnes (range: 4-59 Mt)
- For *decrease* in military spending of \$100bn, carbon emissions fall by 43 Mt (range: 26-59 Mt)
- NATO
  - 2019-2024: +64 Mt (equivalent to Bahrain)
  - 2024-2035: +132 Mt (equivalent to Chile)
- *Additional findings*
- UN projections for 2035
  - Low projection: +540 Mt (equivalent to Pakistan)
  - High projection: +1,250 Mt (equivalent to Brazil)

- SGR review: SGR (2025a)
- NATO projection for 2035 based on all NATO nations reaching 3.5% GDP spending on military (currently only USA, Poland, Estonia close to this level)
- Additional findings based on SGR (2025a) and UN (2025) – see slide 2
- Pakistan is 18<sup>th</sup> highest emitting nation in world, while Brazil is 6<sup>th</sup> highest (European Commission et al, 2025)

## Conclusions

- Military carbon emissions – direct and indirect – very likely to be rising rapidly with military spending rises
  - Rise of 500-1,250 Mt projected for next 10y
- Data on militaries is too poor to monitor this increase effectively
- Lack of data should not be excuse not to curb military emissions
- Cutting military spending is most effectively way to reduce emissions
- Need more research to track emission rises more accurately

## References

European Commission et al (2025). EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database. Version EDGAR\_2025\_GHG. [https://edgar.jrc.ec.europa.eu/report\\_2025](https://edgar.jrc.ec.europa.eu/report_2025)

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SGR (2025a). Military spending rises and greenhouse gas emissions: what does the research say? <https://www.sgr.org.uk/publications/military-spending-rises-and-greenhouse-gas-emissions-what-does-research-say>

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