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Policy Brief

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A European Green Deal for militaries to strengthen Europe's Defence

This Clingendael policy brief points out six wins for the EU when decarbonising the military. Currently the sector is largely omitted from European Green Deal policies, despite it generating considerable emissions and the existence of real advantages from becoming less dependent on fossil fuels. The low carbon energy transition can enhance strategic autonomy, reduce foreign import costs and improve operational effectiveness. It can help to modernise the army and stay ahead of the game in a time of geopolitical turmoil. For the EU, it can be an opportunity to innovate and strengthen its competitive edge in green military technology. Including the military in the European Green Deal would be a boost to the EU's international credibility on climate change.

The relevance of greening the military

As greening sweeps through the public and private sectors of societies, there is one sector that has been arguably left off the hook: the military. It has long argued that when lives are put at risk, other concerns become secondary, including their contribution to global carbon emissions from fossil fuels that currently still powers most of military mobility, infrastructure and weaponry. Moreover, a large share of its emissions is generated from overseas activities not accounted for in national reporting to the United Nations Framework Convention on Climate Change (UNFCCC) or EU climate policy.

Nevertheless, it is recognised that more energy autonomy in the field, achieved through renewables, could very well enhance operational effectiveness. This has been exposed by the oil supply problems of the Russian military operating in Ukraine. Simultaneously, the war exposed the strategic vulnerability of the EU's dependency on Russian oil and gas, requiring drastic interventions to diversify energy supply and accelerate the low carbon transition. On top of this, carbon consumption levels of the military are currently incompatible with the ambitious EU decarbonisation objectives of -55% by 2030 and achieving climate neutrality by 2050; a target firmly enshrined in the European Climate Law. New investments in the military, moreover, provide an opportunity to steer the military away from its high carbon consumption pattern.

According to the European Green Deal, accelerating the green transition, especially when combined with the digital transition, is considered crucial to re-invigorating the EU's international competitiveness. It could be argued that this will also be the case for the military, where modernisation is badly needed to stay ahead of the game. Therefore, the EU now needs to go beyond initial attempts to green the military, such as those included in its Climate Change & Defence Roadmap of 2021, and fully integrate the military into its Green Deal. New investments should avoid carbon lock-ins and radical innovation is needed to decarbonise heavier weaponry and military mobility, especially transportation.

From pacifism to military decarbonisation?

Traditionally, European climate constituencies have mainly focused on the challenge of decarbonising big oil, gas and energy-intensive industry sectors, such as steel and cement. The climate change movement has largely been seen as a civilian-led movement, with a pervading suspicion that allowing militaries to be part of the conversation may result in them misusing the climate agenda for their own agenda, including calls for more budget.[1] Green political parties, particularly in a country like Germany, tended to veer towards the side of pacifism, preferring less military instead of a decarbonised military.

Pacifism is now however rapidly losing its popularity. The rise of great power politics has brought Europe's security and enhanced European defence cooperation back on the political agenda.[2] Russia's ongoing invasion of Ukraine has shaken, for now, EU states out of their security apathy. The recent announcement of €100 billion for immediate upgrading of German defence capabilities presents a huge opportunity to foster a European Defence.[3] The establishment of a European Defence Fund is catalysing military Research and Development within the EU. Now is the time to make sure that Europe's lead in green technology also extends to the military.

On a practical level, there is typically limited information and expertise available on military emissions data, where it is made public. Poor reporting standardisation is due to a lack of systems in place, but also a reflection of the strategic information that could be derived from detailed energy data. Nevertheless, this argument is insufficient when looking at the aggregated data, and efforts are now being undertaken at EU (through the Roadmap) and NATO levels to work on methodologies to measure emissions.

Finally, military leaders are often concerned about the costs of shifting to renewable energy throughout all operations and military equipment, also questioning whether renewable alternatives can in the short term replace the fossil fuels used for navy ships, airplanes and tanks. The costs of transition would also extend to the costs of retraining individuals to new equipment and their maintenance. Rather than investing in green energy technologies, they prefer to use their budgets for bolstering military capabilities and buying more of what is currently available, even if it is powered by fossil fuels. For smaller militaries or more budget-constrained states, they often do not have this choice and must procure whatever is available on the market.

Such arguments were and still are used also in other sectors which consider themselves the "exception" and "hard to abate". However, technological innovation has already caught up with many of them, showcasing that decarbonisation is possible in many more sectors than previously thought, very often coming with wider social side-benefits too. Had we started decarbonising the military a

1 Louise van Schaik, Tobias von Lossow & Maha Yassin, "Fears for Militarisation of Climate Change", *The Clingendael Institute*, October 2020: 2.

2 Louise van Schaik & Akash Ramnath, "Mission Probable: The EU's efforts to green security and defence", *The Clingendael Institute*, July 2021: 6.

3 DW News, "Germany commits €100 billion to defense spending", February 27, 2022.

decade ago, we would arguably have been in a much better shape now. Thus, the question becomes more and more whether the military wants to proactively prioritise decarbonisation instead of complaining about cost and technological constraints.

In the military, appetite to decarbonise is on the rise

In the past few years, interest is growing among European militaries as to how they can contribute to climate action, not in the least because they are increasingly confronted with the security implications of climate-related events. Growing emissions are part of the drivers of more climate phenomena, such as flooding, storm surges, intense heat waves and drought, and this will directly reflect in the risk matrix and pressures militaries will have to respond to.

Moreover, it has been realised that decarbonisation is also related to maintaining strategic, energy and operational autonomy. It can lower costs and strategic dependencies on fossil fuels and there are already situations where low carbon energy is used or even is a necessity in current activities, such as in space where solar and nuclear power are currently the only options to power satellites. There can also be benefits such as reducing noise and vulnerable supply lines. Additionally, not all investments into green military technology have to come from the traditional defence budget, given that such investments often fit within a wider framework of green industrial policy. This is particularly relevant for dual use technologies but may stretch beyond it.

The publication of the EU Climate Change and Defence Roadmap in that respect is a great start and sets out a framework to help push greening more generally through defence sectors. It adds to efforts by the European Defence Agency (EDA) and EU Directorate-General for Defence Industry and Space (DG DEFIS) regarding renewable energy uptake. The EU Climate Law technically does apply to militaries and its buildings and vehicles are covered by some of the EU climate policies in place or in the making. However, in the "Fit for 55" package, which implements the EU's emission reduction target for 2030, no specific proposals for the military were included.

Six Wins for the EU in decarbonising the military

Military decarbonisation equals a more serious climate policy commitment, as well as meeting the EU's focus at the twin transitions of green and digital, it holds tremendous potential to further autonomise military capabilities and lower the costs of imported fossil fuels. Moreover, there is a likelihood that green innovations in militaries will help the EU meet the overall desire to move towards strategic autonomy, as well recognising the fact the EU already has a framework in place to kickstart coordination on this issue. For these six reasons, that we will now outline in greater detail, the EU should invest more and align better the relevant authorities to accelerate the decarbonisation of the military sector.

1 Helping the EU holistically and practically meet climate-neutrality by 2050

Whilst overall emissions have been trending downwards, it is estimated that Europe's military sectors still produced just under 25 million tonnes of CO2 in 2019; that is the same as 14 million cars on the road annually and this figure is rising.[4] Emissions coming from military assets and activities abroad are not even included in such calculations. Furthermore, the EU's Monitoring Mechanism Regulation (EUMMR) does not list the military as a specific sector that countries need to report on, and EU military installations are not currently required to meet 'minimum… energy performance requirements'.[5] National emission reduction targets for the defence

4 Stuart Parkinson & Lindsey Cottrell, "Under the Radar: The Carbon Footprint of Europe's Military Sectors", *Scientists for Global Responsibility & Conflict and Environment Observatory,* February 2021: 7.

5 Parkinson & Cottrell, "Under the Radar", 10.

sector only exist haphazardly with little coordination; France has planned cuts of 40% and the Netherlands aims to reduce fuel consumption as a whole by 20%, but Germany has no formal targets.[6] It has been argued that knowledge of energy use of the military is a strategically sensitive issue, but there might be ways to set-up a confidential monitoring system, and report publicly only on the aggregates.[7]

For the EU to convincingly reach net-zero greenhouse gas emissions by 2050, all sectors need to be included. Including military emissions in their reporting and kickstarting greening processes within the military sectors would underline the EU's commitment, and thereby enhance the international credibility of the European Green Deal.

2 Helping the EU fulfil its new 'twin agenda' of becoming a leader in green and digital technologies

Greater investment into green defence technologies would help the EU to become a world leader in digital and green technology as it aspires, particularly since in the military there seems ample opportunity to combine the two, for instance in the field of energy optimisation. The EU's 2021 Strategic Foresight Report highlighted a need to accelerate the bloc's levels and scope of investment in technological transformations and patents relative to global leaders such as Japan, China and the US.[8] With the rise of asymmetric warfare and greater threats on strategic supply lines, integrating digital and green agendas at the heart of defence policy makes a lot of sense.

Moreover, achieving greater autonomy by reducing fossil dependencies will enhance security for the bloc. Ramping up research in areas such as sustainable batteries, low-carbon fuels and renewable energy integration into bases, would help push the EU closer to leadership in both areas.[9] Of further note, green military technologies may also lead technological breakthroughs for society; World War II for example saw the advent of computers, radar and penicillin to name a few critical social technologies that came from the need to innovate during conflict. When engaging in green industrial policy, the military could just as well be a prominent part of it, if we take our note from history.

3 Helping the EU lower direct costs on the battlefield

An investment boost is also a vital step to help lowering direct costs on the battlefield. Currently, the Conflict and Environment Observatory estimated that in 2017, 53% of EU military emissions (including the UK) comes from mobility, or any activity which involves movements of troops, vehicles and other assets; the exact figures however are not consistently available.[10] The French military alone spent €667 million on oil[11] and with currently high oil prices, this expenditure is rising fast.

The often-cited criticality of militaries to national defence means that whilst other sectors push ahead with decarbonisation, EU militaries still depend on oil and gas, and in many cases, just on one supplier. By developing more fuel-efficient military vehicles and assets such as weaponry that uses renewable sources, the costs from overexposure to fossil fuel prices and supply volatility would reduce, as would the costs of transportation. It is also expected that renewable energy price points will continue to be cheaper than fossil fuels.[12]

6 Louise van Schaik, Dick Zandee, Tobias von Lossow, Brigitte Dekker, Zola van der Maas & Ahmad Halima, "Ready for take-off? Military responses to climate change", *The Clingendael Institute*, March 2020: 42.

7 This could be achieved through the Coordinated Annual Review of Defence (CARD); which forms part of the Common Security & Defence Policy (CSDP).

8 European Commission, "Strategic Foresight Report 2021", September 2021: 10.

9 European Commission, "Strategic Foresight": 21.

10 Parkinson & Cottrell, "Under the Radar", 43.

11 Ministère des Armées, "Stratégie Énergétique de Défense", 2020: 6.

12 Jon Woodman, "Sustaining Europe's Armed Forces", *European Defence Matters* (Issue 11), 2016.

4 Helping the EU move towards more strategic autonomy

Additionally, reducing dependency on oil and gas, especially from Russia, helps fulfil key strategic autonomy concerns. Approximately 27% of crude oil and 41% of natural gas imports came from Russia in 2020 and there is currently a clear realisation of the need to reduce drastically Europe's exposure.[13] The cancellation of the Nord Stream 2 pipeline by Germany and deals with alternative suppliers of gas and oil make this abundantly clear. However, the immediate need for strengthening of European militaries in light of Russia's aggression in Ukraine, may see dependency continue on fossil-based technologies as demand for available missile, rocket and air-defence systems skyrockets.

Movement towards green energy would be a strategic offset that would reduce dependency and increase capacity for EU militaries to work around and maintain European security amidst any further escalation in tension.

5 Helping the development of more robust and autonomous EU military

Of greatest importance to military planners and stakeholders is the fact that switching from transnational oil and gas supplies to local or self-generated renewable sources could make EU military operations more autonomous from central command structures and thus more robust to meet more complex security challenges. Energy is relied on just as much as food and water for individual units, especially those in advanced settings and there are huge security and logistical risks of last-mile resupplying energy to a front-line, especially as military assets become more energy-intensive.[14]

An example of this are Small Modular Reactors (SMRs), which are portable nuclear-energy generation units capable of ending dependency for roving, typically front-line units. France recently announced a €1 billion investment in SMRs.[15] Progress is also being made in integrating renewable energies such as solar power into Unmanned Aerial Vehicles (UAVs), more commonly known as drones, utilising battery packs instead of diesel generators for submarines and nuclear isotopes to help fuel satellites.[16] Making missions and operations more robust and independent from central command and supply structures is a vital step into better shaping the EU's capabilities amidst significant changes to the way war is fought.

6 Taking advantage of a strong infrastructure and coordination system

The recently established Commission DG for Defence Industry and Space (DG DEFIS) holds great potential to coordinate military decarbonisation efforts and funding is already available for green innovation. Moreover, through the EDA and PESCO (Permanent Structured Cooperation), the EU already has existing highways for coordination across member states militaries, since these organisations are tasked with facilitating integration between defence departments. The EDA has already been facilitating a Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS III). This Forum was launched in 2021 and aims to craft strategies to operationalise recommendations on renewable energy uptake in militaries.

Successful examples of innovation integration include programmes dedicated to securing key components for EU competitiveness, infrastructure mobility and an Energy Operation Function (EOF), designed to remove boundaries between military units accessing the nearest energy

13 Eurostat, "From where do we import energy", 2020.

14 Woodman, "Sustaining Europe's Armed Forces", 2016.

15 Lisa Louis, "Do France's plans for small nuclear reactors have hidden agenda", *DW News*, October 2021.

16 Harry Bowcott, Giacomo Gatto, Alaistair Hamilton & Erik Sullivan, "Decarbonizing defense: Imperative and opportunity", *McKinsey & Company: Aerospace & Defence Insights,* July 2021.

source.[17] In addition, the EU can call on extra financing from the European Defence Fund (€8 billion for 2021-27 cycle), as well the coordinating ability of DG DEFIS, where military industry can be stimulated to decarbonise.[18] In short, the EU's ability to coordinate and promote military decarbonisation is strong with the presence of existing frameworks and a strong track record of integration across other sectors.

Turning decarbonisation from an additional burden to an opportunity for strengthening European Defence

Whilst critics may say that any energy transition in the military sector might compromise operational effectiveness, the military can no longer ignore its own contribution to climate change. Taking responsibility and accelerating change can not only help in bringing climate goals closer, but also to modernise European defence capabilities, making them more innovative and strategically autonomous. This will align with the recent developments vis-a-vis European security and Russia and may accelerate political will in this area. While some promising developments to green the military are already in motion, defence sectors are still largely excluded from the European Green Deal and this needs to change sooner rather than later.

17 Permanent Structured Cooperation (PESCO), "Projects", 2021.

18 European Commission, "European Defence Fund", 2021.

About the Planetary Security Initiative
The Planetary Security Initiative sets out best practice, strategic entry points and new approaches to reducing climate-related risks to conflict and stability, thus promoting sustainable peace in a changing climate. The PSI is operated by the Clingendael Institute in partnership with Free Press Unlimited and The Hague Center for Strategic Studies.

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