



The Greening of Defence

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The time to act is now

Extreme weather events show just how vulnerable the world is to climate change.

The upcoming international climate talks, the 26th UN Climate Change Conference of the Parties known as the COP26, to be held in Glasgow in November, will be a seminal turning point in the fight to save the planet.

Without a sharp decline in greenhouse gas (GHG) emissions by 2030, the U.N.'s Intergovernmental Panel on Climate Change (IPCC) has warned that global warming will surpass 1.5 degrees Celsius in the following decades, resulting in irreversible loss of the most-fragile ecosystems, and crisis after crisis for the most-vulnerable people and societies.ⁱ

Many are calling COP26 the "last best chance" to set international policies that would prevent the planet from warming more than 1.5 degrees Celsius from pre-industrial levels and avoiding the worst impacts of climate change.ⁱⁱ



The G20, which includes some of the world's military nations, accounts for almost 80 per cent of the world's carbon emissions.ⁱⁱⁱ While the defence forces of some countries have significantly reduced their fossil fuel consumption since the 2000s, many still have a long way to go.^{iv}

Defence forces account for a considerable portion of governments' total carbon dioxide emissions. For example, in the U.S., the armed forces emit over 56 million metric tons of CO₂ equivalents – about as much as the entire country of Serbia alone – of which nearly two thirds (63 per cent) emanates from vehicles, vessels, aircraft and other equipment used in combat, tactical or relief operations, law enforcement, emergency response, or spaceflight.^v

DND ACCOUNTS FOR HALF OF FED EMISSIONS

In Canada, the Department of National Defence (DND), which manages nearly 2.1 million hectares of land and 20,000 buildings, accounts for almost half of the federal government's fleet and facilities emissions.^{vi} Similarly, The Ministry of Defence (MOD) also accounts for 50 per cent of the U.K. central government's emissions.^{vii}

It will take decades – well beyond 2030 – to green global defence.

Some of the biggest questions include, can decarbonizing defence happen fast enough to help fight climate change? What are the tradeoffs? How feasible is it to decarbonize mission-critical or combat capabilities? By how much can the armed forces around the world lower GHG emissions without impacting operational capability?

Many other questions arise:

- What expectations have the forces communicated to OEMs?
- What are the environmental impacts from the manufacturing, testing, usage, and disposal of various military equipment?
- Is managing equipment or product life cycle emissions, including emissions from raw materials, manufacture, transport, storage, use, decommissioning, and end-of-life disposal being appropriately and accurately quantified?
- Are net-zero emission goals currently being factored into long-life large-equipment purchase decisions?
- Has all equipment that will be deployed or in field in the coming decades been reviewed for its emissions?
- Are the purchasing decisions being made today locking in carbon-intense technology that will delay decarbonization efforts?
- Will regulations need to change? Will government subsidies or incentives be needed to help suppliers meet your sustainability objectives? Are future innovation programs that target energy efficiency being funded?

There are other issues too:

- Are sustainable aviation bio or synthetic fuels, fuel cells, and electric vehicles realistic and reliable in combat zones?
- What are their indirect emissions or environmental impacts? What about the climate warming impacts from contrails left by aircraft?
- What are the environmental impacts on military training lands, waters, and testing areas?
- Is enough being done internally to promote sustainability and decarbonization among military personnel? Is there buy-in?

TRANSITIONING TO A SUSTAINING DEFENCE FORCE

Finally, a key question is how much will it cost to transition to a sustainable defence force? Is purchasing carbon offsets an option? How will that go over with the public?

We could go on. The questions are endless.

One approach is to categorize emissions into those not linked to mission-critical capabilities and those that are linked.

The international corporate accounting and reporting standard, the GHG Protocol, can be used by government agencies including defence forces to prepare a GHG emissions inventory, enabling them to build an effective decarbonization strategy. The protocol categorizes emissions into three groups:

- Scope 1 emissions - direct emissions from owned or controlled sources (such as non-combat vehicles);
- Scope 2 emissions - indirect emissions from the generation of purchased energy, such as heating and cooling buildings; and
- Scope 3 emissions -all indirect emissions not included in scope 2 that the organization is indirectly responsible for, up and down its supply chain.^{viii} Scope 3 is by far the-most complex and requires close coordination and partnership.

This is a start. A lot more is involved. For when it comes to decarbonizing defence, it's highly complex. But, it is decipherable and doable. The time to act is now.

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ⁱ <https://www.ipcc.ch/>

ⁱⁱ [John Kerry: UK climate summit is world's 'last best chance' - BBC News](#); [Cop26: China, India and Russia must 'do more' to tackle climate crisis, says Alok Sharma | The Independent](#)

ⁱⁱⁱ "Emissions Gap Report", United Nations, December 9, 2020 <https://www.unep.org/emissions-gap-report-2020>

^{iv} "Indefensible: The true cost of the global military to our climate and human security", Transform Defence, Dr. Ho-Chih Lin and Deborah Burton, October 2020 <https://transformdefence.org/publication/indefensible/>

^v "Comprehensive Annual Energy Data and Sustainability Performance", U.S. Department of Energy, Energy Efficiency & Renewable Energy, 2019,

<https://ctsedweb.ee.doe.gov/Annual/Report/ComprehensiveGreenhouseGasGHGInventoriesByAgencyAndFiscalYear.aspx>; "CO₂ and Greenhouse Gas Emissions", Our World in Data, <https://ourworldindata.org/co2/country/serbia#what-are-the-country-s-annual-co2-emissions>

^{vi} "Government of Canada's Greenhouse Gas Emissions Inventory", Government of Canada <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/government-canada-greenhouse-gas-emissions-inventory.html> and "Defence Energy and Environment Strategy 2020-2023", National Defence, https://www.canada.ca/content/dam/dnd-mdn/images/dees2020/2020-23%20Defence%20Energy%20and%20Environment%20Strategy_EN%20-%20Signed.pdf

^{vii} "Climate Change and Sustainability Strategic Approach", U.K. Ministry of Defence, March 30, 2021

<https://www.gov.uk/government/publications/ministry-of-defence-climate-change-and-sustainability-strategic-approach>

^{viii} GHG Protocol, World Resources Institute and the World Business Council for Sustainable Development, <https://ghgprotocol.org/>