The Military and Climate Change

**"Fuel is the 'blood of the military'...
and is critical to the life of the theater of operation,"**
U.S. Army Petroleum and Water Department, Fort Lee.[6]

"Energy is the lifeblood of our warfighting capabilities,"
General David Petraeus[7]

The Carbon Intensive U.S. Military

Comprised of more than two million people and funded by an annual budget of more than $700 billion, the United States has a massive military presence across the globe. With extensive infrastructure and operations both domestically and abroad, the largest industrial military in the history of the world is also among the biggest polluters. The U.S. military produces about fifty-nine million metric tons of greenhouse gas emissions annually.[8] To put that in perspective, that's more greenhouse gas emissions than entire industrialized countries, such as Sweden, Denmark, and Portugal.[9] According to a recent study from Brown University's Cost of War Project, "The [Department of Defense] is the world's largest institutional user of petroleum and correspondingly, the single largest producer of greenhouse gases in the world."[10]

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Maintaining an expansive military sprawl requires significant investment in carbon-intensive infrastructure and gas-guzzling equipment. Domestic and overseas military installations account for about 40% of the DoD's greenhouse gas emissions.[11] There are 800 U.S. military bases in 90 countries and territories across the globe. The associated carbon footprint is tremendous. Massive, city-sized bases are equipped with everything from ports, airfields, and nuclear weapons installations to schools and shopping centers. A constellation of smaller sites across the map house drones, surveillance aircraft, and weaponry.[12] Land for military bases is often violently taken. The U.S. military has a long history of forcibly displacing Indigenous people to claim land and create bases.[13] People and places that bear the brunt of U.S. militarism are often the same ones that bear the brunt of climate change, including Native and Indigenous people, poor people, and the Global South.

Warfare is an extremely carbon-intensive aspect of the United States' militarized economy. Military operations, which include moving troops and carrying out missions, account for 70% of the U.S. military's energy consumption.[14] Just one of the military's jets, the B-52 Stratofortress, consumes about as much fuel in an hour as the average car driver uses in seven years.[15] According to the best available estimates, the U.S. military has emitted more than 1.2 billion metric tons of greenhouse

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NATIONAL PRIORITIES PROJECT AT THE INSTITUTE FOR POLICY STUDIES
Institute for Policy Studies
Source: *The Green Zone: The Environmental Costs of Militarism*

gases into the atmosphere since the present era of American conflicts began with the invasion of Afghanistan in 2001. To put that in perspective, that is the rough equivalent to the annual emissions of 257 million passenger cars, which is nearly twice as many cars than are on the road in the U.S. About one-third of those emissions, more than four hundred million metric tons of greenhouse gases, are directly due to war-related fuel consumption.[16] Beyond a significant carbon "boot print," U.S. military operations wreak havoc on the environments where it wages war. Toxic munitions and the burning of military
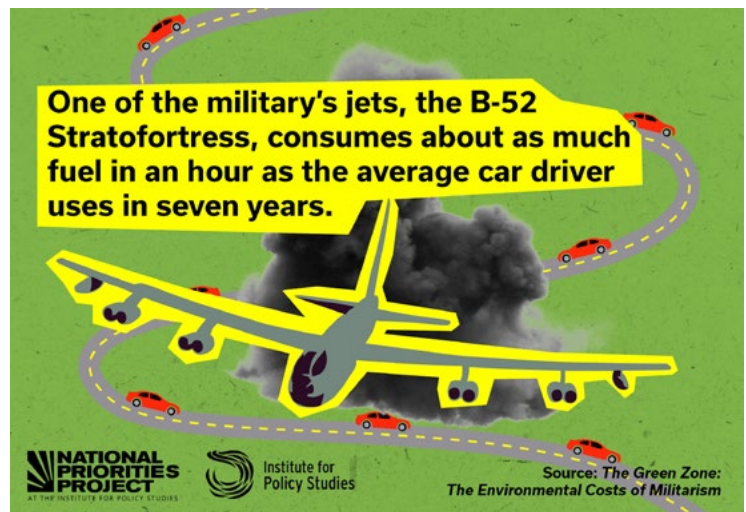
waste in Iraq, for example, contributed to widespread poisoning of the Iraqi environment that is linked to elevated rates of cancer and birth defects described as, "the highest rate of genetic damage to any population ever studied."[17]

"Greening the Military" and Climate Justice are Fundamentally at Odds

The military's carbon footprint has garnered attention from some progressive policymakers, including Senator Elizabeth Warren. She released a plan to reduce the military's carbon emissions by requiring the Pentagon to achieve net-zero emissions for all its non-combat bases and infrastructure by 2030 and commit billions of dollars to new Pentagon energy efficiency research.[18] And yet, even while characterizing the U.S. military as a major climate actor, calls to "green the military" should give us pause.

The U.S. military is deeply entwined with the fossil fuel industry. Jet fuel is the military's most heavily-used fuel and a major source of greenhouse gas emissions. Each air mission produces hundreds of tons of CO2 pollution.[19] The U.S. wars against ISIS in Syria and Iraq, for example, have entailed tens of thousands of air missions since 2014, from reconnaissance, to airlift, refueling, and weapons strikes.[20] While it may be possible to power military bases or even drones with solar energy, there is no viable prospect for electrifying a majority of the military arsenal. Decarbonizing aviation is particularly challenging, as there is no comparable alternative to energy-dense jet-fuel, and at current trends, climate chaos far outpaces technological innovation in the electrification of air travel. Among the most ambitious attempts to transition military machinery from fossil fuels, the so-called "Great Green Fleet" is made up of planes, submarines, and ships powered by biofuels and nuclear power—which may be alternatives to fossil fuels but not without their own ecological footprint and hefty price tag.[21] Considerable controversy surrounds the extent to which biofuels can even be characterized as carbon neutral, undermining the supposed benefits of a biofuel-powered-arsenal.[22]

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What's more, plans to make the U.S. war machine more fuel-efficient miss the point entirely. Besides the fact that such proposals tend to only address a fraction of the U.S. military's fossil fuel consumption and emissions, the reality is that solar energy, electric vehicles, or aspirations of "carbon neutrality" may promise fuel-efficiency but do nothing to make the U.S. military any less violent or oppressive. The climate justice movement calls for a restructuring of an extractive economy that is harming people and ecosystems. Such aspirations and militarism are fundamentally at odds.

It's also worth examining the motivations of the U.S. military's supposed climate leadership. The Pentagon has published reports documenting climate risks since 2003. Describing climate change as an "urgent and growing threat to our national security," the Department of Defense's concern with climate change is rooted in a desire to sustain its own operations rather than meaningfully confront the causes or impacts of climate chaos.[23] According to a 2016 Department of Defense Directive that requires climate change considerations to

be included in all military strategic planning, "The DoD must be able to adapt current and future operations to address the impacts of climate change in order to maintain an effective and efficient U.S. military."[24]

The U.S. incorporates climate change into military planning in three significant ways. First is accounting for climate impacts—like rising sea level and wildfires—on military infrastructure. Second is the development of "green fuels" to power the military arsenal. As the world's largest institutional consumer of petroleum, keeping military machinery fueled-up can be a major vulnerability to military operations. The military's strategic interest revolves around safeguarding fuel transit routes and reducing the military's oil dependency. Third, the military is preparing for new "security threats" in a warming climate. The DoD projects resource scarcity and climate destabilization to cause more armed conflict and mass migrations to follow. Each of these problems are rooted in concerns about the military's operability and invite "solutions" that justify expanded militarization and bigger military budgets, not a renegotiation of priorities to shift funds away from the war-machine and towards climate solutions.

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With a record of capitalizing on insecurity rather than seeking to resolve it, the industries who profit off of war and militarization are also motivated by commercial opportunities in the growing field of environmental security. The arms industry thrives on insecurity and perceptions of it, and has already begun promoting itself as a solution to climate chaos. With tight collaboration between the military and the corporations who profit off its expansion, climate chaos offers new business opportunities in expanding markets.

The DoD's Destructive Environmental Legacy

While the Department of Defense publicizes a supposed commitment to addressing climate change, it keeps a record of environmental destruction out of the spotlight. The U.S. military leaves contamination in its wake wherever it goes. As military base expert David Vine explains, "By definition, most bases store large quantities of weapons, explosives, and other inherently dangerous tools of war; nearly all of them contain toxic chemicals and other hazardous waste. Pollution, contamination, and other forms of environmental harm are found at nearly every base."[25] In the United States alone, there are tens of thousands of polluted sites linked to military contamination in every U.S. state and territory. The total amount of land affected by military contamination is larger than the entire state of Florida—and that's not even accounting for the toxic legacy left abroad where there is often little-to-no oversite or accountability.[26]Some of the worst cases are in U.S. territories, which lack the full protections of the Constitution but are also denied the possibility of a sovereign government to stand up for its people.

There's a long history of "colonial contamination" in Guam, for example, where unremediated environmental damage dates back to WWII.[27] Since then, the military has used the island in the Pacific to store toxic materials and dump toxic waste with known carcinogens or that is otherwise harmful to humans. There are clear correlations between illness and base pollution for the people in Guam and across the Marianas Islands. The Chamorros

people, who are Indigenous to the Marianas islands, have significantly higher cancer rates than other ethnic groups.[28] With two major U.S. military complexes, the DoD maintains about 30% of Guam's land today.[29] Across the 30-mile long island there are 26 military installations with at least one hazardous site, nearly half of which have been designated as medium to high risk.[30] As the federal government attempts to broaden control of the island by expanding military bases, Indigenous people continue to resist the military occupation of their land.[31] Alongside militarization, the Chamorros people are also on the frontlines of the climate crisis. The island's marine ecosystem has been ravaged by climate change in recent years, as warming ocean temperatures have resulted in significant losses of the island's surrounding coral population. Coral reefs are a foundation of Guam's economy and of great cultural significance to Guam's Indigenous populations. As both are rooted in racist and colonial mindsets, militarism and climate change disproportionately impact Black, Brown, Indigenous communities, and the Global South.

The military spends more than one billion dollars a year to manage sites contaminated with its toxic waste and explosives—and still fails to adequately manage land restoration projects.[32] Considering the DoD's significant environmental impact, there's no reason to believe they're motivated by real concern over climate change beyond how it affects their own violent operations.

Plans to confront climate change must address militarization. With that said, "greening the military" or finding ways to wage eco-friendly war miss the boat. As we'll outline in the sections that follow, recognizing the relationships between war and violence, imperialism, the military industrial complex, and the fossil fuel industry demands far more transformative solutions than greenwashing militarization. Instead, let's find ways of framing climate change and national security that challenge old conceptualizations of national security and national interest. Let's dramatically shift budget priorities.