

A Positive Legacy? UN Peace Operations and Renewable Energy

Victoria K. Holt 

Since the end of the Cold War, United Nations peace operations have adapted continuously to meet new challenges and operate more effectively.* After severe mismatches between UN mission mandates and the capacity of these missions to address intrastate conflicts in the 1990s, such as for missions deployed to Haiti, Rwanda, Somalia, and the Balkans, peacekeeping changed to match the demands of the operating environments. The United Nations Security Council (UNSC) innovated. New peace operations were authorized with Chapter 7 authority and redesigned to uphold political agreements, protect civilians, and support the rule of law and legitimate governance to prevent a return to conflict. The results were greater success and partnerships between host nations, UN missions, civil society, international organizations, and member states.

That partnership needs revitalization. Many UN missions operate in countries that are affected not only by conflict but by the impacts of climate change and from low access to electricity, an impediment to sustainable development. Those nations seek a stable peace, as well as reduced emissions and increased electrification. Today, peacekeeping missions have an opportunity to partner with their host nations to meet their aims. Rather than continuing their reliance on fossil fuels, missions can seek greater use of renewable energy to meet their mandates more

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effectively. Further, such a shift by peacekeepers could strengthen their ties to local communities, increase energy access, and support the climate goals of host nations.

This approach is new. Policymakers often overlook energy resources in designing peacekeeping missions in fragile contexts. When missions are first organized, the critical goals are to end conflict, save lives, and support governance; the UNSC and supportive nations are not thinking about the literal need for electricity and the other demands of deploying a new mission, such as operations, bases, logistics, budget, and energy supplies. Yet such logistics and planning are the backbone of a mission's function and critical for the successful deployment of peacekeepers. Supplying electricity to missions is a basic necessity, particularly in countries that lack functional national grids; yet it can also be a source of innovation. I argue in this essay that missions could increase their use of renewable energy for missions' electricity, reduce their dependence on fossil fuels, meet mission goals, and support mandate delivery. This approach would align with national and international climate aims, build a bridge to the host nation and population, and leave what the UN refers to as a "positive legacy" of delivering long-term benefits to populations after the missions are complete.¹

Using renewable energy may seem like an obvious choice. Worldwide, access to renewable energy has accelerated and become more widely available. The International Energy Agency projects that renewable energy will account for nearly half of global electricity by 2030, led by growth in solar photovoltaic and wind.² Yet three factors demonstrate why attention is needed to make renewable energy a priority for peace operations. First, peacekeeping missions' continued dependence on diesel fuel stems from its large global logistics system. That system was built during an earlier era of peacekeeping growth, before today's technology and capacity for renewable energy were options. Such systems are hard to change. While diesel is still needed for mobility and flexibility when deploying into insecure areas, many peacekeepers today work on secure bases and in offices where the ability to use renewable energy is an option, from hybrid generators to local solar fields to buying energy from a grid, even in fragile states.

Second, peace operations' reliance on fossil fuels is strikingly out of step with the goals of the UN and its member states' pledges to address climate change through more clean energy options, such as under the Paris Agreement. At the 2019 Climate Action Summit, the UN Secretary-General António Guterres called for radical change as part of a new UN Secretariat Climate Action Plan (UNSCAP), which sets forth guidelines for UN secretariat operations to transition to 80 percent renewable

energy usage by 2030 (and 40 percent by 2025). At the time, the UN was at just 4 percent. UN peace operations represent the vast majority of the UN secretariat's environmental footprint and emissions. The UNSCAP calls this out: "Within the UN system, the United Nations Secretariat is the largest contributor to climate change with approximately 60% of the total reported greenhouse gas (GHG) emissions, mainly from peace operations faced with difficult security, logistical and political conditions."³ The UNSCAP responded with a ten-year plan aimed at the transformation of missions, meeting dramatic shifts in GHG emissions, and generating benefits for "sustainable development efforts overall."⁴ Thus, the only way to meet these goals is by changing how peacekeeping missions source their electricity.

Third, peacekeeping missions are out of step with meeting their host nations' climate aims. Some missions account for large sources of GHG emissions within the host country; for example, in the Central African Republic (CAR), the United Nations Multidimensional Integrated Stabilization Mission (MINUSCA) is the country's largest emitter. Countries with UN missions that are highly climate affected include the CAR, the Democratic Republic of the Congo (DRC), Somalia, and South Sudan, as well as the Abyei area. Their populations have some of the lowest electricity access rates in the world, which serves as an impediment to sustainable development and economic growth. Peacekeeping missions are also major energy consumers.⁵ The UNSCAP goals and the missions' demand for clean electricity could be a way to spur partnerships with the host nation, other UN entities, and international actors to mitigate the effects of climate change and support access to energy, both of which are major aims in the Sustainable Development Goals (SDGs).⁶ Yet few host nations currently see UN peacekeeping missions as partners for investing in greater access to renewable energy.

With the right support and leadership, peace operations can adapt to better meet their mandates, achieve their core aims, and open up new ways of working for a longer-lasting positive effect in these missions' environmental policies.

WHY ENERGY MATTERS

Broadly speaking, policy and academic analyses of modern peace operations tend to focus on political strategies, protection of civilians, and conflict dynamics. Less attention is paid to the complex *ways* that they function—how they are set up, operated, and run—or to the longer-term impact of operations. Rare attention goes

to the role that energy plays in these operations, the demand and supply of electricity, and the ramifications for the peacekeeping missions and their host nations.

With a recent decline in large UN peacekeeping missions, some could argue that it is too late to change the current missions. The UNSC last authorized a major new peacekeeping force in 2014. By August 2024, the UN led eleven peacekeeping missions, with roughly 68,792 personnel, down from roughly 120,000 before the closures of missions in Darfur and Mali (and earlier in Haiti, Côte d'Ivoire, and Liberia).⁷ Despite these closures, however, large missions continue in the CAR (MINUSCA, with 18,782 personnel); in the DRC (the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo, or MONUSCO, with 13,987 personnel); in South Sudan (the United Nations Mission in South Sudan, or UNMISS, with 18,118 personnel); and in Lebanon (the United Nations Interim Force in Lebanon, or UNIFIL, with 10,392).⁸ Even with the mission draw-downs of MONUSCO expected in the DRC and of the African Union Transition Mission in Somalia (ATMIS) in Somalia, peace operations comprise a substantive part of the UN's field missions, reputation, budget, and support for peace.

In addition to these reduced but substantial numbers, a renewed call for UN peacekeeping is imaginable. The levels of armed conflicts in the last decade have grown, with the Global Peace Index citing fifty-six conflicts for 2024, the most since World War II; efforts at peace will likely need the UN to play a role in some capacity.⁹ The African Union (AU) reached a new framework agreement with the United Nations, enabling it to tap into UN funding for its future operations, which are expected to grow, and could turn to the UN for logistics and material support as well. According to the Stockholm International Peace Research Institute, or SIPRI, dozens of additional peace operations are currently deployed and led by the European Union, the Organization for Security and Co-operation in Europe, the AU, NATO, and other regional organizations and coalitions beyond the United Nations.¹⁰ Few of these missions are as multidimensional as UN peace operations; many are observer and training missions or peace enforcement missions. When more comprehensive operations or greater support are needed for missions, a transition to a UN operation or a partnership with one is likely. Together, these trends demonstrate the importance of looking at mission energy use and how missions can shift to meet their goals while reducing reliance on fossil fuels.

Further, the bulk of UN peacekeepers are deployed in fragile, conflict- and climate-affected nations with low access to energy, such as South Sudan.¹¹ Those

conditions affect how missions operate, especially in remote locations that have long supply chains and little access to reliable energy grids. The job of supporting these missions falls to the UN Department of Operational Support (DOS), which leads UN field support. Since 2017, the DOS has increasingly pressed missions to be good stewards of the environment, to shift to renewable energy, and to consider links to more comprehensive climate mitigation and SDGs.¹² Meeting the UNSCAP goals, including 40 percent renewable energy usage by 2025, is a huge job. With its 2023 environment strategy plan, the DOS prioritizes the greater use of renewables by UN missions. That plan acknowledges that only 7 percent of electricity consumption by UN field missions comes from renewable sources, up from 3 percent in 2018.¹³ The DOS aims for operations to be “closer to the global share of renewables in power generation, which currently stands at around 29%.”¹⁴ Even as the DOS and missions have ramped up efforts to expand sources of UN electricity—including using mini-grids and solar energy, and buying local renewable energy—they are far from meeting their goals.

In addition, the ambitious policy effort to increase renewable energy must translate to the field. Mission personnel are deployed to multiple camps, bases, and offices across wide territories, often in locations with few roads. UN demand for electricity is often higher than country grids can provide when that option is available. So, the UN brings its own solutions, such as importing diesel fuel-powered generators and fuel for camps in remote locations. This system is standardized across UN operations, making it easier for troops, police, and civilians to deploy, either by using UN-owned equipment—primarily for personnel housed on UN compounds—or by bringing their own contingent-owned equipment that is reimbursed. In either case, the UN provides fuel for generators.

In Somalia, for example, the remote conditions facing the UN as it provided support to the African Union Mission in Somalia (AMISOM) were daunting. In a 2022 study,¹⁵ Abdi Aynte, Eugene Chen, and David Mozersky pointed out that only forty-six of seventy-nine locations could be reached by road, and the rest were only reachable by air “because AMISOM has not been able to secure the main supply routes within the country.”¹⁶ The result was that:

UNSOS flew more than 2.5 million liters of fuel by air in 2021, nearly 2 million of which was diesel. Even absent the threat of ambushes and improvised explosive devices, travel by road can be challenging in Somalia, as road conditions are generally poor, and many roads are impassible during the rainy seasons (mid-March through June and mid-September through November).¹⁷

The United Nations Support Office in Somalia (UNSOS), which supported AMISOM, sought to sponsor renewable energy projects, such as in Baidoa, where a deal between the UN, the World Bank, and the private sector supported electricity for UNSOS through a power purchase agreement (PPA), the first of its kind in Somalia. In 2023, the World Bank cited this project's benefits as follows: "Leveraging a creditworthy off-taker such as the UN enables investment in clean and modern energy infrastructure, addressing a key barrier to the expansion of renewable energy in many Fragile and Conflict-Affected Situations (FCS) contexts. The Project will replace existing diesel generators, significantly reducing green-house gas (GHG) emissions and the cost of electricity while increasing reliability of electricity supply within the green zone."¹⁸

IMPROVING MISSION OUTCOMES

Alongside increased data provided by the DOS and UN missions, a set of case studies of Somalia, South Sudan, the DRC, and Mali have expanded knowledge of energy's role in specific nations and how the missions use it.¹⁹ Each study explored whether or not peacekeeping missions could meet their mandate with renewable energy options, and if so, how renewable options could benefit the host nation and communities they deploy to serve. Even with different dynamics around the conflicts, economics, and politics of electricity, the case studies for the DRC, Mali, Somalia, and South Sudan found potential economic, development, security, and peacebuilding benefits for the missions if they were to shift to a greater use of renewable energy. Further, each study catalogues the challenges for the missions that result from reliance on fossil fuel for electricity: from vulnerable supply lines to fuel loss and the feeding of a war economy.

The studies identified how the use of diesel fuel has unrecognized costs beyond its purchase price. Imported fuel is expensive for the United Nations; tracking the supply is not easy and it can also feed into corruption networks. Operating in fragile states brings risks of insecurity, and diesel fuel is attractive to steal. In Somalia, Mali, and South Sudan, the costs and human resources dedicated to supply lines for the transfer and delivery of fuel were high.²⁰ UN military peacekeepers are often tapped to provide security for convoys. In Mali, fuel transports for the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) experienced repeated attacks on convoys and peacekeepers. In 2019, the Cruz Report found that convoys were a primary source of insecurity. Missions with

large logistics requirements could end up using as much as 90 percent of their forces on security for convoys and self-protection rather than on (their primary role of) peacekeeping.²¹ In Somalia, the mission flew fuel to locations to avoid roads controlled by the terrorist group Al-Shabaab—and burned more fuel in the process of flying than it delivered—an outcome that supports looking into solar as an alternative option.²² Mission leadership recognized that renewable energy could further reduce the need to fly fuel over insecure roads, but that translating that ambition will take time. In their 2023 study *Renewable Energy and the United Nations: A Green Spark for Peace in South Sudan*,²³ Eugene Chen, Flora McCrone, and David Mozersky found that the UNMISS navigated a complicated supply chain to import diesel fuel for its use, with as many as fifteen checkpoints run by armed groups collecting bribes and stealing supplies just along the main import route to the capital of Juba.²⁴ The UN and UN mission leaders, recognizing this problem, have sought renewables to help missions meet their mandates more effectively. In its 2023 strategic plan, the DOS stated that “the value of renewables for the safety and security of peacekeepers was noted, in addition to other benefits, with attention placed on the centrality of mandate implementation and on the importance of ensuring cost efficiency and value for money.”²⁵ The DOS also pointed to the “important contribution” that troop and police contingents could make, with new projects to shift to hybrid generators and solar options.²⁶

So far, the shift toward using renewables for UN operations is still small. The DOS reports that since 2018, the renewable energy use by UN field missions increased at a rate of about 1 percent per year.²⁷ The *Environmental Strategy for Peace Operations 2023-2030* also reported that in 2024 about 7 percent of the energy used was from renewable electricity sources.²⁸ As cited earlier, the DOS is pressing to get to at least 29 percent, below the Secretary-General’s stated goal of 45 percent by 2025 and 80 percent by 2030.²⁹

EXPANDING MISSION PARTNERSHIPS

With the UN ambition to shift missions to renewable energy, it must identify how to source that supply, and where UN missions and the DOS should turn to partners to assist with meeting that goal. Practically, there are different ways to meet the immediate goal, but not all of them will accelerate change and increase electricity sources in the same way. The DOS prioritizes three approaches: connecting to local grids, where available; installing on-site renewable energy systems (such as a solar

panel field); and anchoring new investment in local energy by outsourcing the renewable energy supply.³⁰ Of the three options, the DOS assesses that site-hosted solar grids for the missions are likely the simplest path to expanding renewable energy but may have the least impact beyond the mission's benefit, with high initial costs that are paid back in two to five years.³¹ Despite challenges, UNMISS, for example, has made incremental efforts to expand its renewable energy sources, including installing large on-site solar systems to serve the UN bases in Juba and Wau. Another option is connecting to local grids, where possible. In the DRC, for example, hydropower-connected grids are available in Kinshasa and parts of the East, and MONUSCO has used them.³² With their vast potential for solar energy, Somalia and South Sudan could seek expansion. The third approach, working with host nations and partnering to support investment in additional sources of renewable energy, is the most ambitious to plan and achieve for the UN, but could minimize capital outlay and support a longer-term positive result in the host nation.

A potential PPA project model—which would involve a renewable energy company building a new project and the UN mission committing to purchase the clean energy—represents the most promising formula for developing projects that leverage the UN's purchasing power and could benefit both the UN and local communities. This is a complex model, however, and efforts will only succeed with additional partners for the UN peace operations. For example, local governments and development partners such as the UN Development Programme (UNDP), the UN Country Team (UNCT), the World Bank, and bilateral donors are mandated to work on issues of local energy access and development. The involvement of these partners enables planning and project development to incorporate local community needs and participation and can enable a better handoff of UN infrastructure to communities and those who could sustain energy production when a peace operation winds down. This PPA model should deliver cost savings on fuel for the UN, which could help persuade reluctant UNSC members and budget committees to support this transition.

As noted earlier, the World Bank reported that in South Sudan roughly 7 percent of the population had access to electricity in 2023. The country is a bad bet for most private investors, with its ongoing insecurity, weak economy, volatile currency, and low GDP. While South Sudan is an oil-producing state—the primary source of its wealth—it does not have domestic production facilities to refine oil into fuel and therefore still needs to import fuel to produce electricity; the war destroyed

infrastructure and reduced the population's access to energy. Investment in the country's electricity options will take more than an initial financial calculation to realize. A PPA-driven solar project in Malakal, South Sudan, and discussions of connecting to the grid in Rumbek with an electrification project have either stalled or moved at a glacial pace.³³ The UNCT could coordinate with the UNMISS mission to identify a common approach to meeting South Sudan's Sustainable Development Goal 7 (SDG7) objectives for gaining access to renewable energy in coordination with other development actors. For most missions, shifting to making renewable energy the standard way to do business means shifting how internal systems work.

Missions alone cannot support and deliver new energy options, however, as they lack the mandate, financing, and expertise. They need to partner with the host government alongside economic and development leaders to lead and drive options.³⁴ In this vein, the *SDG7 Energy Compact of Renewable Energy for Peacekeeping* was launched in 2022 to identify specific projects and partners to expand renewable energy for missions.³⁵ Under the SDG compacts, it gave this rationale:

Some of the countries that are presently hosting peacekeeping missions have among the lowest energy access rates. At the same time, the UN is often among the largest single consumers of energy (and sources of greenhouse gas emissions) in the host country, potentially providing an anchor client for energy providers in the local market.³⁶

The International Renewable Energy Agency (IRENA), an intergovernmental organization that serves to support greater adoption and use of renewable energy, gave support to the compact. In January 2023, IRENA hosted a ministerial meeting with the United Nations, Denmark, Norway, and the United Arab Emirates, inviting energy ministers, UN and peacekeeping leaders, member states, and researchers to move the partnership forward and increase support for specific projects. The ministerial highlighted using UN peace operations as a reliable revenue basis to either strengthen existing renewable energy suppliers in nations or to attract new investments for projects to provide such energy, as well as the potential to leave a positive legacy.³⁷

Most energy projects in fragile contexts are hampered by the lack of appropriate de-risking. Despite the availability of funding especially blended finance in high impact projects, very few published tenders are considered bankable and therefore worth the investment. Private developers may face challenges related to the low energy

consumption of the local community and its limited ability to pay for energy services. On the other hand, UN peace operations are, in some cases, among the largest energy consumers in their host countries. The operations' creditworthiness and high energy demand make them reliable customers, providing a revenue basis to either strengthen existing renewables suppliers in host communities or attract investments for new projects. Therefore, the transition of peacekeeping missions to renewables offers a rare window to attract investments in renewable energy infrastructure for host countries that can outlast the presence of the mission.³⁸

In Somalia, the CAR, and South Sudan, national governments seek greater access to renewable energy to meet SDGs and climate goals, prioritizing it in their national strategies for doing so. The contradiction of well-supplied UN missions deployed alongside communities in need is easy to see. In some situations, UN camps are well lit and situated near population centers with less access to electricity. One senior official, Joseph Africano Bartel, the undersecretary of South Sudan's Ministry of Environment and Forestry, noted that only a small percentage of South Sudan's population had access to electricity, a figure that is officially cited as 7 percent.³⁹ That fact was visible, he noted, when he flew into the capital of Juba and could see the nearby UN compound lit up, but not Juba.

As missions plan to draw down, their aims for a positive legacy involve a transition to the UNCT and host nations and handing off programs and work that support longer-term peacebuilding. To improve that process, the UN Secretary-General laid out guidance in a 2022 report on transition planning that recognized the impact of the transition on peace operations.⁴⁰ Specifically, missions were cited as significant fuel consumers—through electricity generation and air and ground travel—and thus, that UN missions contribute not just to GHG emissions but also to air pollution and land contamination.⁴¹ For these reasons, work by missions to mitigate these hazards should be continued by the UNCT, as well as efforts to meet the UNSCAP goals to reduce carbon emissions, use less fuel, and increase the use of renewable sources. The 2022 report cites the importance of advance planning in having an effective mission handoff to support renewable energy projects:

In peace operations, the increased use of renewable energy can have other benefits. It can contribute to improved safety and security by reducing the frequency and requirement of fuel convoys in locations where the United Nations is actively targeted. In locations where no renewable energy infrastructure exists, the United Nations can leverage its market power to partner with other organizations and commercial suppliers to develop renewable energy infrastructure. In addition to meeting the electricity requirements of

the United Nations, the infrastructure would benefit local communities long after the departure of the mission. Such an approach is being pursued in Somalia, where a power purchase agreement was concluded in 2020 between the United Nations and a commercial renewable energy supplier. Because of the lead time required to develop such projects, planning for such projects should be initiated well in advance of the transition phases of missions.⁴²

A shift by missions could leverage their reliable purchasing power to attract investment in renewable energy infrastructure where the private sector may need to have a reliable client. Reducing diesel use would also reduce localized environmental and noise pollution—hazards of peacekeeping missions’ use of diesel fuel. This approach could thus support national goals and serve the populations that urgently need greater access to energy while also advancing the goal of mitigating climate change.

CLIMATE AIMS

Secretary-General Guterres’s fervent calls to address climate change, accelerate access to renewable energy, and articulate a moral argument to help lift millions of people from poverty demand consistent UN action. The Secretary-General has prioritized meeting the SDGs and addressing climate change, which he sees as cataclysmic, though he has yet to bring the same focused attention to changing how the United Nations itself operates in the field.

The year 2023 was confirmed as the hottest year on record; fossil fuel subsidies and GHGs reached a record high.⁴³ The 2024 *Sustainable Development Goals Report* found that the record-setting GHG emissions showed a “global failure to meet climate goals” and that the energy sector was responsible for 86 percent of global CO₂ emissions.⁴⁴ In launching the 2024 SDG report, the secretary-general decried that “our failure to secure peace, to confront climate change, and to boost international finance is undermining development,”⁴⁵ and reiterated that action for the SDGs must accelerate urgently. Guterres called for action “to bring peace to the major conflicts raging globally coupled with efforts towards a green transition. . . . ‘It means multiplying the lending capacity of multilateral development banks to provide more resources for climate action and sustainable development.’”⁴⁶

The SDG annual report noted that renewable energy increased to over 28 percent of electricity energy consumption in 2021, part of the dramatic growth in capacity for renewable energy: “This signals how the world’s capacity to generate renewable

power is expanding at an unprecedented rate, presenting a tangible opportunity to triple global capacity by 2030,” as agreed at the twenty-eighth session of the Conference of the Parties (COP28).⁴⁷ Yet the number of people lacking access to electricity grew for the first time in a decade, with most of the nations lagging in energy access in sub-Saharan Africa.

Pushing peacekeeping missions toward greater reliance on renewable energy requires resources, political will, and changing how missions deploy. It will also require working with governments, development agencies, and member states, especially to meet the secretary-general’s calls. With more attention and support from Secretary-General Guterres, UN missions could accelerate their efforts to move toward renewables, gaining efficiency, reducing costs, and improving the environment. Until that support manifests, however, UN missions cannot make this leap on their own. The DOS recognizes that a transition to renewable energy is necessary to reduce its environmental footprint and increase operational resilience, as highlighted in the *UN Environment Strategy for Peace Operations* (2017–2023, updated for 2023–2030), which identifies goals for UN missions to shift to renewable energy.

CHANGING MINDSETS

The call for a transition to clean energy could face pushback and be seen as a form of mission creep by those focused on the core reasons for peacekeeping missions—to support political solutions to a conflict, to protect civilians, and to strengthen governance and peace. Strengthening economic development and climate mitigation by peace operations could be cast as secondary aims. If missions can meet or exceed their core mandate goals by shifting to more use of renewable energy, however, that initial concern is met. Meeting those secondary aims could reinforce, not distract from, efforts at meeting the mandate goals. The ambition is multifold, coming from the secretary-general who initially called for peacekeeping missions to align with climate goals for renewable energy to IRENA, peacekeepers, and UN member states today.⁴⁸ Host nations and communities are keen to see positive results and increase access to energy. The UN has an opportunity to meet its broader aims by building new partnerships to achieve them. Such ambitious change may also help missions achieve longer-term goals for peace and leave a positive longer-term contribution.

The head of UN peacekeeping, Under-Secretary-General for Peace Operations Jean-Pierre LaCroix, briefed the UNSC in June 2023, laying out the links between

threats to peace and climate change, the correlation between countries at risk from climate change and where UN peacekeepers deploy, and the importance of acting. The United Nations notes that LaCroix suggested that

most United Nations peace operations have faced a deteriorating security and political environment within the past several years. Alongside other cross-border challenges, environmental degradation and extreme weather events—amplified by climate change—have increasingly challenged missions’ ability to carry out their mandates. . . . With the Intergovernmental Panel on Climate Change estimating that nearly 3.5 billion people live in climate hot spots, climate-related peace and security risks are only set to heighten. A strong correlation between Member States facing fragility and those facing climate change can already be seen, [LaCroix] pointed out, noting that the majority of the Organizations’ peace operations are deployed in highly climate-exposed contexts characterized by high levels of gender inequality. Of the 16 most climate vulnerable, 9 host a United Nations field mission.⁴⁹

Some member states have championed this view. As noted earlier, elected members of the UNSC, including the UAE and Norway, worked with IRENA to establish the *SDG7 Energy Compact of Renewable Energy for Peacekeeping* to accelerate an energy transition where UN missions operate. The energy compact’s projects span six countries and could expand further; at the 2023 IRENA Assembly, delegates from host nations cited a low rate of electrification and access and the need for investment. Leaders welcomed the buying power of UN operations and more public-private partnerships. They also agreed to support a research agenda, a financial derisking and financing analysis, increasing private sector engagement, linking national ministries and peacekeeping missions, and working with development and finance actors. That work expanded further, with nations hosting side events at both the COP28 and the high-level United Nations Peacekeeping Ministerial in Ghana to bring attention to expanding renewable energy use by peacekeeping missions.⁵⁰

Peace operations face tough field challenges that demonstrate the need to improve their relationships with host nations and to gain support from local leaders and communities, an essential part of pursuing peace. One way to do this is to work with them on climate and energy access in a new partnership that could improve outcomes for both parties. Since 2015, UN personnel and operations have decreased, but conflicts have become more prolonged and internationalized.⁵¹ Heightened geopolitical tensions in the UNSC have undercut its authority and support to missions and reduced the pressure on parties to conflicts to uphold their

commitments. That means UN missions experience obstacles—such as governments limiting their freedom of movement, using private security or mercenary forces, opposing democratic processes, and engaging in mis- or dis-information. Together, these factors can impede the protection of civilians and hasten a return to armed conflict. Accelerating the shifting of missions to renewable energy is one such creative solution that can both help peace operations meet their mandates and help nations meet their local and national goals.

THE WAY FORWARD

A shift from fossil fuels to renewable energy could help missions not only meet their objectives but also aim higher to meet climate goals, and possibly build better partnerships with host nations. This essay has argued that this shift would provide an important opportunity for missions to achieve three primary goals: first, to meet their mandates more effectively with reduced costs, increased security, and better environmental stewardship; second, to align with UN and international aims to reduce emissions and meet climate goals, including of their host nations; and third, to build better partnerships with communities, host nations, and other actors, and to expand electricity access for local benefit. Together, with imagination and partnerships, these efforts could strengthen the UN's legacy and meet aspirations for the SDGs.

Such a positive legacy, however, requires concerted efforts by those who have argued for such a change, including the SG, UN, and international actors, to support changes in mission design; to recognize and bring attention to the opportunity in fragile states; to develop serious partnerships with host nations that tap development, finance, and philanthropic actors; to expand the peace-building research agenda; and to press the actors focused on the multiple goals of peace, climate, and development to work together.

Five areas could support that acceleration. First, the case for change needs greater attention and collaborative support. Secretary-General Guterres should lead the way for the UN to meet its 80 percent renewable energy goal by 2030, as well as galvanize implementation of the DOS strategy and alignment of UN bodies, including the UNSC and member states. His attention is needed to stimulate support for missions to shift to renewable energy options and highlight the costs saved in personnel, transport, insecurity, and budget. Freeing peacekeepers from the need to conduct convoy security could alone save human lives and financial resources.

Second, the UN should call on institutional partners to work on the shift to renewables in fragile states. The DOS plans are ambitious, but other institutions also need to engage in supporting UN missions and work with host nations, the UNCT, the UNDP, international financial institutes, and development organizations to support leveraging and sustaining energy options. UN missions can partner with the host nations, the UNDP, and development agencies to support what a country needs and incorporate that plan into longer-term transitions after mission drawdown. That work can build on the progress made at the 2023 side event at the COP28 and the high-level Peacekeeping Ministerial in Ghana.

Third, economic modeling could help conflict-affected countries served by peacekeeping missions consider how to use the UN missions as an anchor client or a reliable buyer for renewable technology.⁵² Such analysis, like that regularly offered by IRENA and the World Bank to national governments, could assist national calculations and accelerate country-based planning. As noted earlier, Guterres called for action to help address major conflicts by expanding multilateral development banks' lending capacity for climate action and sustainable development.⁵³ Such analysis could help the private sector understand risks, and possibly spur collaborations that link climate, development, and finance actors in sub-Saharan Africa. Additional research into the political economy of host nations, financial derisking and financing, and public- and private-sector engagement could assist national ministries and peacekeeping missions to identify how to collaborate on energy options. Planning that includes climate and development funding could jumpstart projects such as those identified by the Energy Compact of Renewable Energy for Peacekeeping.

Fourth, scholars and practitioners in the field of peacebuilding should look at how peacebuilding is affected by greater access to energy and its affiliated economic growth, use of electricity, and longer-term effects in fragile states. As the United Nations has put more emphasis on peacebuilding⁵⁴ as an institutional approach, as seen in the renamed Department of Political and Peacebuilding Affairs, the role that energy can play in supporting longer-term peacebuilding needs to be better understood in relation to community engagement, the SDGs, and infrastructure development.

Finally, in addition to stronger leadership and better analysis, there needs to be a partnership to connect peacekeeping missions with UN development and finance actors, such as the UNDP, as well as the World Bank, the UNCT, and other entities.

The future of peace operations is not predictable, but it always requires that missions innovate to meet their core goals. Together, those who support peace operations could clarify what is a positive energy practice and ethical legacy for UN operations in fragile states. That includes considering how missions align with other aims, meet the SG's goals on renewable energy, reduce a country's emissions, and support the SDGs. Such changes can also help build a positive legacy, reduce missions' dependence on fossil fuels, increase energy efficiency, and improve mission security while supporting the growth of sustainable energy infrastructure in host nations with very low electrification rates. Given the increase in conflict, climate effects, and energy needs worldwide, efforts at innovation and partnership should not lag; they should accelerate. Whether the overall footprint of peacekeeping missions continues to decline or whether the pendulum swings back to increased deployments, these missions can and should leverage renewable energy technology to chart a more ethical, sustainable, and effective path for addressing fragility and supporting peace and prosperity.

NOTES

- ¹ The reference to positive legacy captures the UN intention to benefit a country and its population in a way that is lasting after the UN mission completes its mission, such as in the context of environmental impact. See, for example, "Advancing Renewable Energy and Positive Legacy in the United Nations' MINUSCA," Department of Operational Support, United Nations Global Service Centre, May 24, 2024, www.ungsc.org/news/advancing-renewable-energy-and-positive-legacy-united-nations-minusca; and "Responsibility, Ambition and Legacy' Promoted as Environmental Management Priorities at 2023 UN Peacekeeping Ministerial," UN Peacekeeping, December 5, 2023, peacekeeping.un.org/en/responsibility-ambition-and-legacy-promoted-environmental-management-priorities-2023-un-peace-keeping#:~:text=Responsibility%3A%20continuing%20to%20do%20no,positive%20impact%20on%20local%20populations.
- ² International Energy Agency, *Renewables 2024: Analysis and Forecast to 2030* (Paris: IEA, 2024), www.iea.org/reports/renewables-2024.
- ³ The plan goes on to say: "The UN Secretariat is responding to the climate challenge with a 10-year plan that sets out the fundamentals of transforming its operations to achieve ambitious reduction in GHG emissions while generating long-term efficiencies and benefits to sustainable development efforts overall." United Nations, *United Nations Secretariat Climate Action Plan 2020–2030* (September 2019), p. 2, www.un.org/management/sites/www.un.org.management/files/united-nations-secretariat-climate-action-plan.pdf.
- ⁴ *Ibid.*, p. 2.
- ⁵ Missions generate their own electricity when there is no local grid. If they do tap into a grid, they are mindful of competing for electricity access with the local population. Accordingly, the annual electricity demand for key missions (using 2019/2020 data) is as follows: the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) uses 75 gigawatt hours (GWhs); the United Nations Mission in South Sudan (UNMISS) uses 71 GWh; the United Nations Support Office in Somalia (UNSOS) uses 59 GWh; MINUSCA uses 48 GWh; the United Nations Interim Force in Lebanon (UNIFIL) uses 48 GWh; and the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) uses 40 GWh. In 2022, the International Renewable Energy Agency noted that MINUSMA had "seven large camps with energy consumption between 2–26 GWh per year; UNMISS [had] nine large camps with energy consumption between 2–15 GWh per year; and other missions [had] large HQ sites with energy consumption between 2–22 GWh per year." United Nations Energy, *SDG7 Energy Compact of Renewable Energy for Peacekeeping: A Next Decade Action Agenda to Advance SDG7 on Sustainable Energy for All, in Line with the Goals of the Paris Agreement on*

- Climate Change*, p. 2, www.un.org/sites/un2.un.org/files/2021/11/energy_compact_template_version_renewables_for_peacekeeping.final.pdf. See also International Renewable Energy Agency, *Report of the Thirteenth Session of the Assembly of the International Renewable Energy Agency, A/13/SR/1* (thirteenth session of the Assembly Abu Dhabi, St. Regis Hotel, Saadiyat Island, Abu Dhabi, January 14–15, 2023), www.irena.org/-/media/Files/IRENA/Remember/Assembly/Thirteenth-session-of-the-Assembly/A_13_SR_1_Report_Final.pdf. The compacts are included in larger reports published by the United Nations, such as the “Energy Compacts Annual Progress Report,” third edition, UN-Energy, 2024, www.un.org/en/energy/page/energy-compacts-annual-progress-report-shows-continued-investment-and-impact-more-needed.
- ⁶ Victoria K. Holt and Anaise Boucher-Browning, *Peacekeeping and Clean Energy: Can Climate and Development Goals Align in Fragile States?*, Case Studies: Central African Republic, Democratic Republic of the Congo, and South Sudan (Hanover, N.H.: John Sloan Dickey Center for International Understanding at Dartmouth, 2024).
- ⁷ United Nations Peacekeeping, “Peacekeeping Operations Fact Sheet,” DGC/1634/Rev. 274.1, August 31, 2024, peacekeeping.un.org/sites/default/files/peacekeeping_fact_sheet_english_august_2024.pdf.
- ⁸ *Ibid.*
- ⁹ Institute for Economics & Peace, *Global Peace Index 2024: Measuring Peace in a Complex World* (Sydney: IEP, June 2024), www.economicsandpeace.org/wp-content/uploads/2024/06/GPI-2024-web.pdf; International Institute for Strategic Studies, 2023 Armed Conflict Survey, (London, UK: Routledge; 1st edition, December 6, 2023), www.routledge.com/Armed-Conflict-Survey-2023/StrategicStudiesIISS/p/book/9781032736709?srsltid=AfmBOooOCjswRS5FB-vvbWmTlibZjLZXkN-IHVtVsNfEcGo7Dug92Rr49; Peace Research Institute Oslo, *Conflict Trends: A Global Overview 1946–2023* (Oslo, Norway: PRIO, 2024), cdn.cloud.prio.org/files/92a7aad5-3572-4886-9e9c-8aa15fidof4/Conflict_Trends-2024_DIGITAL.pdf?inline=true.
- ¹⁰ Claudia Pfeifer Cruz and Timo Smit, “Multilateral Peace Operations 2024,” Stockholm International Peace Research Institute, May 2024, www.sipri.org/publications/2024/other-publications/sipri-map-multilateral-peace-operations-2024.
- ¹¹ See Andrew Hyde, “Understanding the Energy-Climate-Security Relationship: Examining how energy access, climate sensitivity, and state fragility combine and interact to generate insights into developing solutions,” on-line publication, (Washington, DC: Stimson Center, updated June 2023), www.stimson.org/project/powering-peace/understanding-the-energy-climate-security-relationship/.
- ¹² Department of Operational Support (DOS), United Nations, *Environmental Policy for Peacekeeping Operations and Field-Based Special Political Missions*, DOS/2022.01, April 1, 2022, operationalsupport.un.org/en/202201-environmental-policy-peacekeeping-operations-and-field-based-special-political-missions.
- ¹³ DOS, United Nations, *The Way Forward: Environment Strategy for Peace Operations 2023–2030*, p. 3, operationalsupport.un.org/sites/default/files/the_way_forward_-_environment_strategy_2023-2030.pdf, 2023.
- ¹⁴ *Ibid.*, p. 11.
- ¹⁵ Abdi Aynte and Eugene Chen with David Mozersky, *Powering Ahead: The United Nations and Somalia’s Renewable Energy Opportunity* (Washington, D.C.: Stimson Center, March 2022), www.stimson.org/wp-content/uploads/2022/03/PoweringPeaceSomaliaFinalMarch2022.pdf, www.miga.org/press-release/miga-supports-ground-breaking-solar-project-somalia.
- ¹⁶ *Ibid.*, p. 23, citing UNSOS, *Energy Infrastructure Management Plan*, sec. 2.3.
- ¹⁷ Aynte and Chen, *Powering Ahead*, pp. 26–27.
- ¹⁸ “Kube Energy Baidoa,” Project | Somalia, World Bank Group, www.miga.org/project/kube-energy-baidoa. See also “MIGA Supports Ground-Breaking Solar Project in Somalia,” World Bank Group, February 1, 2023, www.miga.org/press-release/miga-supports-ground-breaking-solar-project-somalia.
- ¹⁹ Victoria K. Holt and Alexander R. Hopkins with David Mozersky and Sherwin Das, *Shifting Power: Transitioning to Renewable Energy in United Nations Peace Operations* (Washington, D.C.: Stimson Center, January 2021), www.stimson.org/wp-content/uploads/2021/01/Shifting-Power_Transitioning-to-RE-in-UN-Peace-Ops_January-2021.pdf; Eugene Chen, Flora McCrone, and David Mozersky, *Renewable Energy and the United Nations: A Green Spark for Peace in South Sudan* (Washington, D.C.: Stimson Center, February 2023), www.stimson.org/wp-content/uploads/2023/02/Stimson_RenewableEnergy_Feb13.pdf; Aynte and Chen, *Powering Ahead*; Dirk Druet and Rida Lyammouri with David Mozersky, *From Renewable Energy to Peacebuilding in Mali: MINUSMA’s Opportunity to Bridge the Gap* (Washington, D.C.: Stimson Center, 2021), www.stimson.org/wp-content/uploads/2021/06/Stimson_FinalRelease_June25.pdf; and Gregory Mthembu-Salter with David Mozersky and Sherwin Das, *Renewable Energy & UN Peacekeeping: Untapped Potential in the DRC* (Sausalito, Calif.: Energy Peace Partners, 2019), www.stimson.org/wp-content/files/file-attachments/Renewable%20Energy%20and%20UN%20Peacekeeping%20DRC.pdf.

- ²⁰ Chen et al., *Renewable Energy and the United Nations*; Aynte and Chen, *Powering Ahead*; and Druet and Lyammouri, *From Renewable Energy to Peacebuilding in Mali*.
- ²¹ According to the Cruz Report: “By pinning down the Force to logistics and self-protection, an incoherent mission footprint that emphasizes maintaining presence contributes to insecurity by preventing the mission from eliminating security threats. In some missions, interlocutors estimated that 90% of the capacity of the Force is spent on logistics (e.g. convoy escort) and self-protection. This allows security threats in the form of armed and terrorist groups to widen their areas of operation and take the initiative, because uniformed components are unable to conduct operations to eliminate threats and deter attacks.” Carlos Alberto dos Santos Cruz, William R. Phillips, and Salvator Cusimano, *Improving Security of United Nations Peacekeepers: We Need to Change the Way We Are Doing Business* [aka, the “Cruz Report”] (United Nations, December 2017), p. 16, peacekeeping.un.org/sites/default/files/improving_security_of_united_nations_peacekeepers_report.pdf.
- ²² James Swan (panelist, Powering Peace workshop, Dickey Center, Dartmouth College, Hanover, New Hampshire, May 2023).
- ²³ Chen et al., *Renewable Energy and the United Nations*.
- ²⁴ Ibid.
- ²⁵ DOS, *The Way Forward*, p. 8.
- ²⁶ Ibid., p. 8.
- ²⁷ DOS, United Nations, *The Way Forward: Environment Strategy for Peace Operations 2023–2030*, p. 3, operationalsupport.un.org/sites/default/files/the_way_forward_-_environment_strategy_2023-2030.pdf.
- ²⁸ DOS, *The Way Forward*.
- ²⁹ Ibid.
- ³⁰ DOS, *The Way Forward*, p. 11.
- ³¹ The DOS notes that, “Installation of renewable energy systems by the missions is constrained by budgetary resources, due to the relatively high initial capital outlay. However, the investment is recouped through lower operating costs, and this payback period can be as little as 2 years (although 2–5 is more usual).” DOS, *The Way Forward*, p. 11.
- ³² Mthembu-Salter, *Renewable Energy & UN Peacekeeping*.
- ³³ Chen et al., *Renewable Energy and the United Nations*.
- ³⁴ This is highlighted by the DOS; namely, that this approach, “by anchoring external investments (which is the focus of the *Energy Compact of Renewable Energy for United Nations Peacekeeping . . .*), has considerable benefits in that it can minimize upfront capital outlay and has the potential to leave a positive legacy through supporting investment in climate resilient infrastructure in locations where the mission site is near a community in need of electrification. However, these projects are complex in nature and dependent on partnerships with host governments and others, meaning that missions are unable to act in the lead role and therefore to drive the timeline for projects.” DOS, *The Way Forward*, p. 11.
- ³⁵ “The largest energy consumers among field missions—accounting for over 75% of consumption—are MINUSCA (CAR), MINUSMA (Mali), MONUSCO (DRC), UNFICYP [the United Nations Peacekeeping Force in Cyprus] (Cyprus), UNIFIL (Lebanon), UNMISS (South Sudan), and UNSOM [the United Nations Assistance Mission in Somalia]/UNSOS (Somalia), five of which are hosted by LDCs.” United Nations Energy, *SDG7 Energy Compact of Renewable Energy for Peacekeeping*, p. 2.
- ³⁶ Ibid.
- ³⁷ International Renewable Energy Agency, Concept Note, “High-Level meeting on the Energy Compact on Renewable Energy for United Nations Peacekeeping,” Thirteenth session of the IRENA Assembly, January 13, 2023.
- ³⁸ IRENA Concept Note, p. 1-2.
- ³⁹ Joseph Africano Bartel (remarks, “High-Level meeting on the Energy Compact on Renewable Energy for United Nations Peacekeeping,” Thirteenth session of the IRENA Assembly, Abu Dhabi, January 13, 2023).
- ⁴⁰ The report noted the aim of a positive legacy: “The experience of recent and ongoing transitions provides ample evidence of the need for improved planning for and adequate resourcing of transitions, as well as the need to consider implications for the post-mandate period, to ensure that the hard-won gains of peace operations mandates are safeguarded and that the countries hosting peace operations are placed on a sustainable footing towards durable peace and prosperity.” United Nations Security Council, summary of *Transitions in United Nations Peace Operations: Report of the Secretary-General, S/2022/522*, June 29, 2022, p. 2, digitallibrary.un.org/record/3979852?v=pdf.
- ⁴¹ Ibid.
- ⁴² Ibid., p. 16.

- ⁴³ “Climate Change Indicators Reached Record Levels in 2023: WMO,” World Meteorological Organization, March 19, 2024, wmo.int/news/media-centre/climate-change-indicators-reached-record-levels-2023-wmo#:~:text=The%20WMO%20report%20confirmed%20that,above%20the%20pre%20Dindustrial%20baseline; and United Nations, *The Sustainable Development Goals Report 2024* (New York: United Nations Publications, 2024), p. 34, unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf.
- ⁴⁴ United Nations, *Sustainable Development Goals Report 2024*, p. 34.
- ⁴⁵ António Guterres, quoted in Agence France-Presse, “World ‘Failing’ to Meet Development Goals: UN Chief,” *Ahram Online*, June 29, 2024, english.ahram.org/News/526234.aspx. See also “Press Conference: UN Secretary-General António Guterres, along with Li Junhua, Stefan Schweinfest and Yongyi Min (DESA) on the Sustainable Development Goals Report 2024,” UN Audiovisual Library video, 28:20, June 28, 2024, media.un.org/avlibrary/en/asset/d322/d3229079.
- ⁴⁶ Agence France-Presse, “World ‘Failing’ to Meet Development Goals”; and António Guterres, quoted in *ibid.*
- ⁴⁷ United Nations, *The Sustainable Development Goals Report 2024*, p. 25.
- ⁴⁸ For example, IRENA, Joint Communiqué, “SDG7 Energy Compact on Renewable energy for United Nations Peacekeeping,” Thirteenth session of the IRENA Assembly, Abu Dhabi, UAE, January 13, 2023, www.irena.org/-/media/Files/IRENA/Agency/Articles/2023/Jul/13A_Communique-Peacekeeping.pdf; COP28 Declaration, *Supporting Renewable Energy in Fragile Settings: Leveraging the energy transitions of humanitarian and peacekeeping missions to deliver a positive legacy*, December 3, 2023, COP28, Dubai, United Arab Emirates, www.irena.org/-/media/Files/IRENA/Agency/Articles/2024/Feb/Declaration_Supporting-Renewable-Energy-in-Fragile-Settings_COP28.pdf.
- ⁴⁹ “With Climate Crisis Generating Growing Threats to Global Peace, Security Council Must Ramp Up Efforts, Lessen Risk of Conflicts, Speakers Stress in Open Debate” (9345th Meeting, SC/15318, June 13, 2023), Meetings Coverage and Press Releases, United Nations, press.un.org/en/2023/sc15318.doc.htm. LaCroix suggested that “operations in Mali and Somalia are utilizing innovative renewable energy sourcing approaches through partnerships with host nations and the private sector. To secure similar opportunities across other mission sites, host Governments, development actors, and the private sector must provide their support.” *Ibid.*
- ⁵⁰ “Improving Environmental Management in Peacekeeping—2023 UN Peacekeeping Ministerial, Side Event (Accra, Ghana),” UN Web TV video, 1:53, from a side event at the UN Peacekeeping Ministerial held at the Accra International Conference Center, December 5, 2023, webtv.un.org/en/asset/k1n/k1nk8h1asq; and “Supporting Renewable Energy in Fragile Settings: Leveraging the Energy Transitions of Humanitarian and Peacekeeping Missions to Deliver a Positive Legacy” (event, 28th Conference of the Parties, Dubai, December 3, 2023).
- ⁵¹ According to the Institute for Economics & Peace, “92 countries [are] now engaged in a conflict beyond their borders, the most since the inception of the GPI,” Institute for Economics & Peace, *Global Peace Index 2024*, p. 2.
- ⁵² An academic team of engineers at the Thayer School of Engineering at Dartmouth is looking at modeling decision-making around renewable energy for missions in fragile states, see “Final Report: Enabling the Transition to Renewable Energy in Fragile States,” report by Lilly Yang, Siqi Ke, Vikrant Vaze, and Steve Peterson forthcoming in early 2025.
- ⁵³ Agence France-Presse, “World ‘Failing’ to Meet Development Goals.”
- ⁵⁴ At the United Nations, “peacebuilding” refers to “efforts to assist countries and regions in their transitions from war to peace and to reduce a country’s risk of lapsing or relapsing into conflict by strengthening national capacities for conflict management, and laying the foundations for sustainable peace and development,” “Peace and Security,” United Nations, www.un.org/en/global-issues/peace-and-security.

Abstract: Can United Nations peace operations improve their effectiveness and strengthen longer-term positive legacies in host nations by shifting to greater use of renewable energy? Since the end of the Cold War and the growth of modern UN peace operations, attention has been focused on the missions’ mandate of supporting political strategies for peace and core objectives such as protecting civilians. Could missions better meet their mandate with improved energy options and reduced emissions, or is there a trade-off with the core objectives? As the missions are nearly fully dependent on diesel generators to power their operations, what is the UN’s responsibility to reduce emissions at

a time when addressing climate change is a priority of the UN Secretary-General? Is there an ethical case to make for the UN to support greater use of renewable energy where it operates? And could the UN partner with host nations and others to support a shift in energy use that benefits the communities that host peace operations? This essay argues that missions could reduce their emissions and leverage their energy needs to increase security, strengthen ties to local communities, increase energy access, and support the climate goals of host nations. Drawing on case studies in recent peacekeeping missions and the author's review of UN commitments across mandates, the Sustainable Development Goals, peacebuilding, and climate goals, this essay will address this area of potential innovation that can help build a positive legacy for UN missions and countries emerging from conflict.

Keywords: United Nations peace operations, peacekeeping, renewable energy, Sustainable Development Goals, UN Secretary-General António Guterres, climate change, UN Secretariat Climate Action Plan, energy access, positive legacy, transition, peacebuilding