

ANNUAL REPORT 2024

on Sustainable Energy



Burkina Faso. Displaced woman is using her newly received cooking gas kit in front of her house © UNHCR/N'gnine Pelagie Coulibaly

KEY HIGHLIGHTS

9 offices transition to solar energy



Nine UNHCR offices in **Mauritania**, **Nigeria**, **South Africa** and **Uganda** transitioned to solar power, with 38 more under contract with suppliers.

UNHCR solarised



51% water pumps
42% health facilities

Solar energy now powers 51% of all water pumps and 42% of all health facilities supported by UNHCR, saving around 40,000 tons of carbon dioxide (CO2) emission annually.

New Energy Advisor Role

The Special Advisor for Renewable Energy and Economic Development appointed, to leverage investments for the productive use of energy for displaced communities.



2 countries link clean cooking and reforestation



The Refugee Environmental Protection (REP) Fund launched pilot projects in **Rwanda** and **Uganda**, targeting 20'000 hectares for reforestation and 45,000 households for clean cooking solutions.

Sustainable Electricity for Settlements



251'000 Solar Lanterns distributed, representing 5% of 5.1 million Core Relief Items received by 5.7 million people in 25 countries

KEY ACHIEVEMENTS

AGAINST THE STRATEGIC OUTCOMES OF THE UNHCR GLOBAL STRATEGY FOR SUSTAINABLE ENERGY 2019-2025

1

Addressing energy needs during refugee emergency response

Access to energy for cooking, heating, and lighting remained critical in emergency responses, provided through both in-kind and Cash-Based Intervention (CBI).

Based on the [2024 Emergency Preparedness and Response report](#), UNHCR issued 43 emergency declarations to scale up support in 25 countries to serve up to 5.7 million people worldwide who were assisted with 5.1 million relief items, with 5% being solar lamps and solar streetlights.

The largest energy-related items distributed during emergencies are solar lamps, appliances and fuel for cooking and heating, and solar streetlights. To respond swiftly to emergencies, distribution efforts provided **more than 251,000 solar lanterns to meet the basic lighting requirements of forcibly displaced people**. Additionally, last year only, more than **20,000 solar streetlights were installed in Bangladesh, Ethiopia, Pakistan, and Syria** as part of protective and safety measures, particularly to mitigate GBV risks.

During the escalated violence in the **Democratic Republic of the Congo** in February 2024, UNHCR distributed critical household kits, including cooking pots and solar lamps, to 121,500 forcibly displaced people. During the escalation of hostilities in **Lebanon** in September 2024, UNHCR and its partners delivered essential items — including kitchen sets and solar lamps — to over 258,000 people within the first month of the conflict. In response to the floods in **Brazil** in April 2024, UNHCR provided 17 tonnes of relief items, including solar lamps. **Chad** and **Sudan** alone distributed over 85,000 solar lamps to respond to the ongoing displacement, benefitting especially women and children.

Aligned with the targeted objectives of the [Operational Strategy for Climate Resilience and Environmental Sustainability 2022-2025](#), UNHCR has strengthened its response capabilities by reducing its environmental impact and deepening collaboration with humanitarian partners. Various e-waste management initiatives have been implemented in [Bangladesh](#), **Ethiopia**, **Kenya**, **Uganda**, and **Pakistan**. Meanwhile, the collaboration with the Signify Foundation has



resulted in the [Guidelines for Outdoor Lighting Interventions in Humanitarian Contexts](#), aimed at providing UNHCR and its partners with a tool to support the selection of suitable solar lighting systems.

CASE STUDY: E-WASTE FINANCIAL MODELLING FOR KAKUMA REFUGEE CAMP IN KENYA

The [Geneva Technical Hub](#) has released its latest guidance on [Management of e-waste from portable solar lanterns in displacement settings](#), building on data collection carried out by its partner EPFL Essential Tech. It provides a comprehensive guidance for the management of end-of-life solar lanterns in displacement settings. It also provides financial modelling for the management of solar lanterns in Kakuma refugee camp in Kenya.

This guidance proves that while safe recycling and disposal of solar lanterns is theoretically possible in displacement settings, procurement of services from specialized and ideally certified e-waste recyclers is required. The local presence of such actors facilitates e-waste handling and potentially lowers its costs. In the absence of these systems, repair is a key measure to extend the lifespan of solar lanterns.

Whilst the analysis of data collected from Kenya showed that net costs are created by the safe management of e-waste from solar lanterns, these costs are far less than those incurred by retrospectively managing the costs associated with lead and mercury emissions, and plastic leakages and contributions to global warming. External funds and subsidized actions could reduce such net costs.

2

Improving access to sustainable, safe, affordable, and clean¹ household cooking energy

The [UNHCR Global Strategy for Sustainable Energy 2019-2025](#) aims to empower refugees, host communities, and other vulnerable groups to meet their cooking needs safely and sustainably. In 2024, only one third of the 43 countries reporting on clean cooking adoption saw over 75% of refugees and asylum-seekers using clean cooking solutions. Major successes were achieved in the Americas and Middle East and North Africa regions. However, in almost half of the countries, particularly in Africa, where both the population and host communities are heavily reliant on firewood, adoption rates remained below 25%. In these regions, UNHCR continues to prioritize clean cooking initiatives to reduce protection and health risks related to collection of firewood in remote and unattended areas, and the polluting smokes generated from burning biomass.

In **Bangladesh**, over 93,000 households received Liquid Petroleum Gas (LPG) assistance to combat deforestation and explore more sustainable energy alternatives. In **Rwanda**, more than 75,000 forcibly displaced people across three locations benefitted from LPG provision. In **Tanzania**, nearly 5,500 individuals across four facilities—such as a hospital and three departure centres—used LPG for communal cooking, in line with government directives for institutions to transition to clean cooking. In **Mauritania**, a "cash-for-gas" program enabled about 1,200 refugee households per year to purchase LPG kits. Additionally, the collaboration with the World Liquid Gas Association (WLGA) continued to support LPG's role in humanitarian contexts, with conversations advancing on how to facilitate penetration of LPG private sector business in remote settings hosting forcibly displaced people.

UNHCR is also exploring innovative cooking solutions, such as [e-solar cooking](#), with a focus on affordability, sustainability, scalability, and cultural considerations. Solar kitchens have been established in **Kenya, South Sudan, and Ethiopia** for communal facilities like schools, health centres, and other community facilities. In Kakuma refugee camp in Kenya, UNHCR supported a pilot project for boarding schools for girls by introducing solar-powered electric pressure cookers (EPCs) to promote sustainable cooking practices.

Biogas remains a pilot in **Bangladesh, Ethiopia, Malawi, and Zimbabwe**, primarily as a solid waste management solution. In collaboration with Eawag, the [Geneva Technical Hub](#) developed guidelines and an evaluation tool to assess the feasibility of biogas, including its environmental, protection, and livelihood benefits: [Is biogas a feasible option? Assessing anaerobic digestion for humanitarian contexts](#) and [Guidelines for the safe disposal of solid waste in humanitarian contexts](#). These tools evaluate the potential of anaerobic digestion to replace non-renewable energy sources.

UNHCR participated in the [African Clean Cooking Summit](#) in Paris, a pivotal event in the global movement to ensure universal access to clean cooking. The summit culminated in the endorsement of [The Clean Cooking Declaration](#), making 2024 the pivotal year for clean cooking with more than 130 delegations in attendance, including 28 governments and UNHCR. This highlights the ongoing commitment to sustainable energy cooking solutions in refugee and host communities.

The [Global Compact on Refugees](#) further reinforces the commitment to mobilizing investments in clean cooking and prioritizing climate financing in regions affected by displacement. By 2024, 48 pledges had been made under the Human Settlements Multistakeholder Pledge - 10 specifically on clean energy—including clean cooking solutions, such as the government of Uganda’s commitment to ensure that 2,600 refugee households and refugee hosting districts have access to user-friendly clean cooking options.

REP FUND

The [Refugee Environmental Protection \(REP\) Fund](#) initiative, announced at the High-Level Official meeting at the end of 2021, aims to provide sustainable, scalable, long-term funding for reforestation and clean cooking programs by linking their environmental benefits to global carbon markets. These benefits will be verified and monetized to create the first large-scale refugee-generated carbon credits. The Fund will also generate green jobs for refugees and host communities supporting reforestation and clean cooking supply chains. Feasibility studies initiated in 2022 for Rwanda, Uganda, South Sudan, and Sudan have been finalized at the end of 2023. Feasibility has been confirmed for three sites across two countries (Rwanda and Uganda), with a planned pilot targeting approximately 14,000 hectares of reforestation and serving 45,000 households with clean cooking solutions. These assessments will guide future studies for additional sites to be incorporated throughout 2024.

CASE STUDY: [“CASH FOR GAS” LPG PROJECT IN MAURITANIA](#)

Since 2022, just over 2,000 households — representing approximately 10,000 individuals — in Mbera Refugee Camp have benefited from cash-based gas assistance. The program began with a pilot phase in 2022 involving 200 households providing around 2,900 MRU (approximately 70 USD) per household. This amount allows families to purchase a 6kg or 12kg gas cylinder, a two-burner stove, and other essential accessories.



Malian refugee Gaz seller fixing a gas bottle in Mbera camp, Mauritania. © UNHCR/Omar Doukali

At the outset, UNHCR funded seven entrepreneurs to establish gas distribution businesses within the camp. Previously, residents had to travel to the town of Bassikonou, about 30 km away, to access LPG. The expansion of such local supply system inside Mbera camp has helped creating a functional demand-and-supply ecosystem, leading to a significant increase in gas usage for cooking — rising from just 6% of households at the beginning of the project in 2022, to 36% currently (or, 6 times growth in just two years). The ultimate goal is to integrate cash-based gas assistance as a core component of refugee support, with an annual target of 1,000 households since 2024. The targeting approach has also enabled the Mauritania operation to link this

intervention to other key protection priorities, such as supporting families with school-age children.

This initiative is particularly important as climate shocks continue to strain natural resources in Sahelian countries like Mauritania. Prolonged dry seasons and extreme weather events are making access to cooking energy increasingly difficult, placing greater risks on refugees and vulnerable host communities who rely on the same scarce resources. Additionally, the initiative aligns with UNHCR's global commitment to Cash-Based Interventions (CBI) meeting immediate basic needs and at the same time supporting livelihoods.

3

Expanding sustainable household access to lighting and connectivity

In 2024, UNHCR continued facilitating household access to sustainable lighting and connectivity across its operations to reduce protection risks and increase opportunities for learning, self-reliance and socialization. In **Pakistan**, over 34,000 solar home systems (SHS) were distributed and installed in refugee villages in Khyber Pakhtunkhwa and Balochistan. These systems provide access to energy for lighting, fan power, and mobile phone charging for families without access to electricity. In **Rwanda**, the [RE4R](#) initiative was extended, providing SHS and other energy solutions to 100,000 refugees. This included SHS, improved cookstoves, solar-powered streetlights, and entrepreneurial support, all aimed at unlocking new opportunities for dignified living conditions and self-reliance. Similarly in **Ethiopia** UNHCR completed the distribution of 1,800 SHS for market-based access in Melkadida camp.

A [Community-based solarisation for locally tailored green energy](#) multi-country pilot, under the UNHCR Environment and Climate Action Innovation Fund, started testing various approaches to have locally tailored models for the design, tariff set-up, and management of solar infrastructure in six countries: **Botswana, Malawi, Namibia, Pakistan, Uganda, and Zambia**. Through this engagement, UNHCR operations are leveraging existing local plans to better integrate refugees' needs. This has included a partnership with the local private sector in Pakistan, having in-depth feasibility studies conducted by GIZ in Uganda, collaborations with electrification authorities and utilities in Namibia and Botswana to address access and affordability issues, and aligning with national electrification plans in Zambia and Malawi.

In September 2024, Mr. Per Heggnes was appointed as the **Special Advisor to the High Commissioner on Renewable Energy and Economic Development**, marking UNHCR's commitment to advancing economic development through sustainable energy solutions for displaced communities and their hosts. This role brings high-level expertise to the Organization to shape policies, drive innovation, and foster strategic partnerships that enhance energy access and resilience. Covering **Ethiopia, Kenya, Rwanda, and Uganda**, the Special Advisor focuses on engaging the private sector to scale renewable energy investments and promote the productive use of energy. By supporting energy-driven economic activities, the role of the Special Advisor aims at advancing refugee self-reliance and economic inclusion, ensuring sustainable solutions that benefit both refugees and host communities while reducing dependence on fossil fuels.

In 2024 UNHCR also facilitated the [Africa Roundtable on Private Sector Solutions To Internal Displacement](#) in Nigeria, with one dedicated event on "A green solution: clean energy to empower displaced communities". The session explored policies, investment opportunities,

and sustainability strategies—highlighting innovative solutions, de-risking approaches for electrification investments, and effective e-waste management. It emphasized the importance of scalable, private sector–driven models that benefit both displaced and host communities.

CASE STUDY: RENEWVIA SOLAR MINIGRID IN THE KALOBYEI SETTLEMENT - A MODEL FOR PRIVATE SECTOR ENGAGEMENT

The collaboration between UNHCR, the private sector company Renewvia Energy, and key development entities highlights the critical role of the private sector in delivering sustainable energy solutions for refugees. In 2019, with support from the German Government through the Energising Development (EnDev) Project, Renewvia commissioned a 60 kilowatt peak (kWp) solar mini grid in the Kalobeyei Integrated Settlement, Kenya, providing affordable electricity to 347 households, 129 businesses, and 19 institutions. The high share of grant funding enabled one of the lowest electricity tariffs in Kenya, ensuring accessibility for refugees while maintaining commercial viability (Households are charged US\$0.20 per kilowatt hour (kWh), while businesses pay US\$0.24 per kWh).

Building on this success, Renewvia secured US\$735,000 from IFC/KKCF and US\$280,000 from GIZ in 2021, expanding the system to 541 kWp and reaching 2,276 households, 404 businesses, and 36 institutions—covering 30% of Kalobeyei’s population. The private sector’s ability to attract large-scale capital was further demonstrated in 2023, when US\$6.3 million in funding was secured from CEI Africa and IFC/KKCF to increase capacity to 2.4 megawattpeak (MWp), making it East Africa’s largest solar mini-grid, set to serve 18,600 customers by 2025.

In 2024 Renewvia has developed a US\$45 million investment proposal to expand Kakuma-Kalobeyei’s solar capacity to 9.7 MWp, and develop two 10.1 MWp mini-grids in Dadaab, aiming to provide electricity to more than 600,000 people and 20,000 businesses.

This case demonstrates how strategic collaborations enable private companies to mobilize investment, drive innovation, and create sustainable energy solutions for displaced communities. UNHCR’s catalytic role in attracting private investments transforms energy access from an aid-dependent model to a scalable market-driven approach - a model for future humanitarian energy initiatives.



4

Expanding sustainable electrification of community facilities

In 2024, several countries, including **Ethiopia, Kenya, Niger, Nigeria, Pakistan, Tanzania, Uganda, and Zambia**, reported upgrading communal facilities with solar energy to fill gaps in energy access and reduce the financial and environmental costs of non-renewable energy sources. UNHCR has also continued solarizing communal facilities, such as in [Pakistan](#), where more than 100 schools and 16 healthcare facilities are currently being equipped with solar power. Similarly, in **Tanzania**, 14 healthcare facilities serving refugees and host communities were solarized in 2024, while in **Bangladesh** UNHCR solarized five facilities.

In 2024 an energy data collection exercise from 25 country operations revealed that **42% of healthcare facilities have now access to solar power**, bringing the total number of solarized facilities to 215¹ mitigating more than 2'500 tons of carbon dioxide (CO₂) emission annually.

By the end of 2024, **51% of water pumps operated by UNHCR and its partners—336 out of 659 borehole pumps—were running on solar energy**. This marks an increase of 41 solarized boreholes in a single year, leading to significant environmental benefits, including an estimated mitigation of 4,500² tons of CO₂ emissions annually.

However, despite the continue effort to solarize communal infrastructure, a lack of funding for maintenance and spare parts has led to the de-solarization of 19 health facilities, forcing them to revert to diesel generators or operate without electricity. To prevent this, UNHCR has produced Standard Operating Procedures (SOPs) for operations and maintenance (O&M), introduced contract service agreements for at least two years post-installation, and developed project structures with revolving funds to sustain O&M costs in Project Flow. In **Jordan**, a request for proposals was launched for the establishment of a framework agreement to provide maintenance, operation, monitoring, and cleaning for solar plants in the Azraq Refugee Camp, further ensuring the sustainability of solar infrastructure in the region.

PROJECT FLOW

UNHCR is boosting climate resilience by solarizing water systems through Project Flow's innovative financing. The project covers the upfront supply and installation costs of solar photovoltaic (PV), which UNHCR repays over time using savings from reduced diesel use. This revolving fund supports further solarization, reducing fossil fuel dependence across operations. In 2024, [Project Flow](#) signed agreements with **Ethiopia, Mauritania, Rwanda and Sudan** country operations and initiated procurement to solarize 21 water systems and 4 health facilities which are serving approximately 1.2 million people. In addition to the design and construction of these solar systems, the project includes an O&M component to ensure longer term system performance and availability of technical servicing after installation. Based on the solar designs for these systems, the project is expected to mitigate approximately 1,400 tons of CO₂ emissions annually, and lead to significant efficiencies and cost savings.

1. Based on the total number of facilities reported in the [balanced scorecard for health facilities](#) of the Integrated Refugee Health Information System (IRHIS).

2. 4,500 tons corresponds to the additional 41 solarized boreholes (works undertaken last year). Overall, the 336 solarized boreholes avoid annually almost 37,000 tons of CO₂.



UNHCR Assistant High Commissioner for Operations and the Vice President of Zambia light-up Meheba Refugee Settlement. © UNHCR/Chisanga Siame

CASE STUDY: ACCESS TO ELECTRICITY IN REFUGEE SETTLEMENTS IN ZAMBIA

In 2024, UNHCR Zambia collaborated with the Government of the Republic of Zambia (GRZ) towards fulfilling its pledges made at the 2019 and 2023 Global Refugee Forum, to provide access to electricity and sustainable energy in three refugee settlements and nearby host communities. Championing a sustainable response to forced displacement, UNHCR Zambia operationalized a tri-partite Memorandum of Understanding (MOU) with the Office of the Commissioner for Refugees (COR) and the Rural Electrification Authority (REA). This partnership enabled UNHCR and REA to co-finance the extension of the national hydroelectric grid to Meheba Settlement, leveraging investments for future grid expansions with grants from the World Bank. Additionally, UNHCR Zambia initiated the installation of 235 kWp of solar power across various public service facilities, including its UNHCR and COR offices, a transit center, health facilities, learning centers, and solar streetlights in refugee settlements. This was funded through the Arab Bank for Economic Development in Africa (BADEA). Currently, UNHCR Zambia is working with REA to ensure all three refugee settlements are included in the updated Rural Electrification Master Plan and Operational Guidelines for the Rural Electrification Fund. This initiative underscores UNHCR Zambia's commitment to sustainable energy solutions and improving the quality of life for refugees and their Zambian host communities.

5

Transitioning UNHCR global office infrastructure to renewable energy sources³



Rooftop solar panels installation at UNHCR Office Ogoja, Nigeria. © UNHCR/ Owoche Igwue

UNHCR has an institutional priority under the Focus Area Strategic Plan for Climate Action 2024-2030 and aims to reduce UNHCR's CO2 emissions by at least 30% by 2030. The [2024 Greening the Blue Report](#) provides details on the UN's environmental footprint – UNHCR's per-capita carbon footprint is 2.7 tonnes of CO2 per capita – well beneath the UN-wide average of **4.8 tonnes of CO2 per capita**. Among its sister agencies, UNHCR continues to be at the forefront of key sustainability initiatives, such as:

- **Metering and monitoring:** UNHCR has deployed smart energy metering systems in offices for a number of years to consistently measure global energy consumption. The coverage of these meters has reached 96% of office facilities. In 2024 UNHCR launched a second initiative focused on the monitoring of generator usage and efficiency. This project, to be rolled out in 2025, will enable live tracking of fuel consumption and generator efficiency, the first step to identifying where intervention is needed.
- **Greening the Blue (GtB) and Green Data** – UNHCR participates in the annual UN-wide Environmental inventory, which measures greenhouse gas emissions, water consumption, and waste production. Participation has increased from 100 offices in 2018 (GtB report, 2019) to 559 offices in 2023 (GtB Report 2024), representing 94% of UNHCR offices reporting. CO2 emissions have reduced from 97,136 tonnes in 2018 (as reported in the GtB report 2019) to 51,973 tonnes in 2023 (as reported in the GtB Report 2024). Information from the inventory is published annually in the [Greening the Blue Report](#), and in the [Greening the Blue PowerBi Dashboard](#).
- **Transition to Renewable Energy:** 2024 saw several offices convert to solar energy as their primary source of power. Nine offices in **Mauritania, Nigeria, South Africa, and Uganda** transitioned to solar throughout the year. A further 38 offices are under contract with suppliers and collectively the contracts operational and in construction will save UNHCR over 25 million litres of diesel, 5,000 tons of CO2 and approximately US\$1.6 million in energy expenses.
- **Energy Efficiency** : In collaboration with the Iran operation, UNHCR undertook an office energy efficiency project focusing on several offices in Iran. The results of these interventions will be monitored and measured to establish the most efficient approaches to reducing office energy consumption. Additionally, 200 air conditioning sensors were rolled out to operations, reducing energy wastage in times of low occupancy.

KEY ACHIEVEMENTS

AGAINST THE STRATEGIC APPROACHES OF UNHCR GLOBAL STRATEGY FOR SUSTAINABLE ENERGY

PARTNERSHIP AND COORDINATION

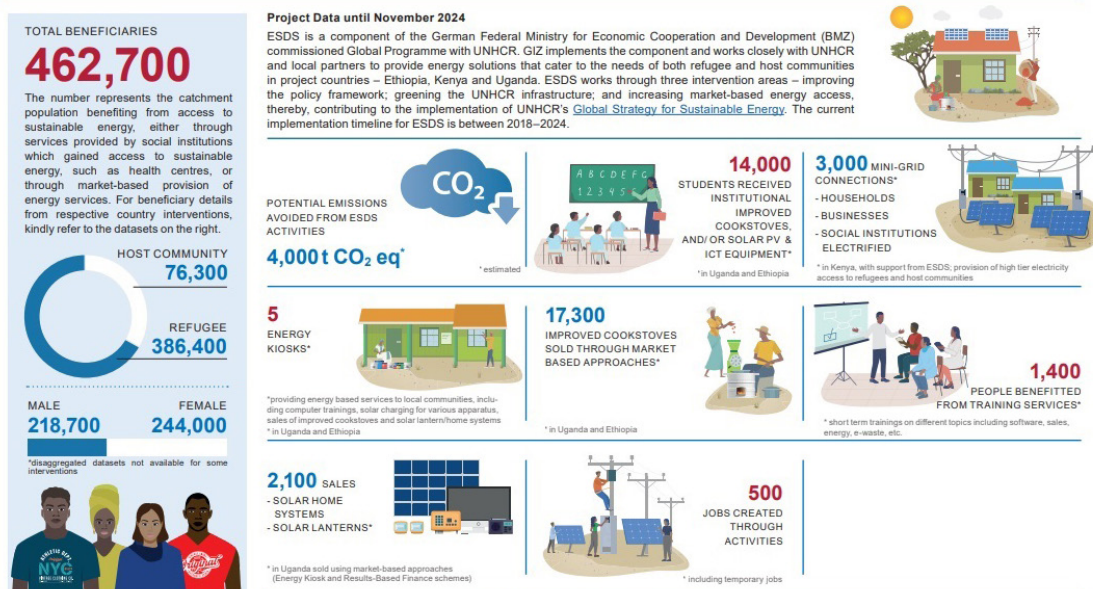
ESDS – ENERGY SOLUTIONS FOR DISPLACEMENT SETTINGS

In 2024, the Energy Solutions for Displacement Settings (ESDS) programme concluded its mission to enhance sustainable energy access for refugees and host communities. As a component of the German Federal Ministry for Economic Cooperation and Development (BMZ)-commissioned Global Programme, ESDS was implemented by GIZ in close collaboration with UNHCR and local partners. The initiative focused on three key intervention areas: [improving the policy framework](#), [greening UNHCR infrastructure](#), and [expanding market-based energy access](#). These efforts contributed to the implementation of UNHCR's Global Strategy for Sustainable Energy within the Humanitarian-Development-Peace Nexus.

Between 2018 and 2024, ESDS operated in [Ethiopia](#), [Kenya](#), and [Uganda](#), providing energy solutions tailored to the needs of both refugees and host communities. Over the course of the programme, [approximately 462,700 people](#)—83% refugees and 17% from host communities—benefited from improved access to sustainable energy. This impact was achieved through enhanced energy services for social institutions such as health centres and schools, as well as market-based solutions that facilitated access to clean energy for households and businesses.

In addition to its country-specific initiatives, the Energy Solutions for Displacement Settings (ESDS) programme incorporated a global component dedicated to gathering and sharing lessons learned from its various interventions. This effort involved the creation of detailed [factsheets](#) and the organization of [webinars](#) aimed at disseminating knowledge and best practices across the humanitarian sector. Furthermore, ESDS provided technical support to field operations, ensuring that insights gained from different contexts were effectively applied to enhance energy access solutions for refugees and host communities. These activities contributed to a broader understanding and implementation of sustainable energy strategies in displacement settings worldwide.

Energy Solutions for Displacement Settings (ESDS)



a. Please refer to the notes marked with * for additional details. In absence of the country of implementation, the dataset applies to all three countries Ethiopia, Kenya and Uganda.
b. The numbers of the datasets are rounded.

[ESDS Milestone 2018-2024](#)

STAND-BY PARTNERS - EXPANDING PARTNERSHIPS FOR SUSTAINABLE ENERGY IN DISPLACEMENT SETTINGS

In 2024, UNHCR operations were supported by 20 energy experts deployed by NORCAP (15), the Swiss Agency for Development Cooperation (SDC) (3), and MSB – The Swedish Civil Contingencies Agency (2). Three of the deployments were based at headquarters to support field operations, while others were deployed to Chad, DRC, Kenya, Mauritania, Mozambique, Niger, Tanzania, Venezuela, and Zambia.

To increase gender inclusion in the energy sector, the Female Accelerator Programme supported by NORCAP's Green Shift Project operated in Mauritania, Niger, and Zambia, empowering female professionals to take on greater roles in sustainable energy initiatives.

During the October 2024 Annual Technical Workshop (ATW), NORCAP, UNHCR, and other stakeholders explored strategies to optimize energy deployments, align organizational approaches, and address field challenges, including deploying energy solutions in



emergencies. As UNHCR strengthens its energy partnerships, there is an opportunity to involve a wider set of collaborators, such as MSB and SDC, both already active contributors, who could assume an even larger role in the future. Encouraging diverse partnerships will enhance deployment efficiency, foster innovation, and expand sustainable energy solutions for displaced populations.

CAPACITY DEVELOPMENT

The [Geneva Technical Hub \(GTH\)](#) provided support in a variety of domains within Energy and Environment (with particular reference to waste-to-energy topics) to both UNHCR field operations and headquarters. Subjects included **solarization, energy access, clean cooking, biogas, e-waste** and the estimation of **greenhouse gas emissions**.

In collaboration with the Swiss Federal Institute of Technology in Lausanne (EPFL), the [Greenhouse Gas Emission Calculator](#) has been fully launched, and is now available on the [UNHCR Technical Information Management System \(TIMS\)](#). In order to facilitate its use, GTH prepared a [short introductory document](#) covering aspects like accessing the tool or conducting first emission estimations. Complementarily, an [introductory video](#) has been produced for the 2024 Emergency Environment Health Forum (EEHF) as well as a [“behind the scenes”](#) video on the tool development.

GTH experts also conducted onsite missions to support UNHCR colleagues—[assessment of market-based access to clean cooking fuels in refugee camps](#) in **Rwanda**, and provided technical guidance on the sustainability of PV systems in **South Sudan**.

Based on recurring requests from field operations, Frequently Asked Questions (FAQ) documents have been compiled on cooking fuel topics such as briquette and biogas production and use. These documents integrate - in a simple and easy-to-access manner - technical guidance, best practices, the complexities and limitations of refugee settings and UNHCR's protection mandate and strategic approach.

Additional FAQ documents were produced on various electrical topics, including batteries, lightning protection systems, load balance, and solar streetlights, to provide clearer guidance on these essential components, address common technical questions and support field teams in making informed decisions.