A ROADMAP FOR ENERGY ACCESS IN DISPLACEMENT SETTINGS: MAURITANIA

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About the GPA

The **Global Platform for Action on Sustainable Energy in Displacement Settings** (GPA) is the global initiative to promote actions that enable sustainable energy access and use in displacement settings. The GPA strives to remove barriers to energy access in humanitarian settings by providing a collaborative agenda for energy, development, and humanitarian partners to deliver concrete actions of Sustainable Development Goal 7 (SDG 7) for displacement contexts. It promotes and contributes to the humanitarian sector's transition to renewable energy, which will increase efficiency and reduce costs and carbon emissions. Hosted by the United Nations Institute for Training and Research (UNITAR), the GPA Coordination Unit galvanises collective action towards the GPA's realisation.

About the READS Programme

The **Roadmaps for Energy Access in Displacement Settings (READS) Programme**, funded by the IKEA Foundation and implemented by the GPA Coordination Unit at UNITAR, will produce a "roadmap report" for each of the ten countries in its scope. The roadmap reports take stock of the state of energy access in displacement settings in each country with a focus on identifying gaps and high-impact project opportunities to increase sustainable energy access for displacement-affected communities.
These reports consolidate existing data and are informed by workshops with in-country stakeholders to develop and refine the research, including representatives of communities which have been affected by displacement, energy companies, humanitarian and development organisations, and governmental authorities,
among others. The roadmap reports present project concepts that have been prioritised by local partners as being the most impactful areas for sustainable energy interventions in displacement contexts. Each roadmap report is produced in partnership with an organisation working in displacement contexts in the focus country.

About the READS Partner

UNHCR Mauritania protects and assists more than 309,000 refugees and asylum seekers, mainly from Mali, across camps, host communities, and urban areas. Working closely with the Government of Mauritania and partners such as IOM, OHCHR, and local NGOs, it ensures access to asylum, documentation, and essential services for people forced to flee. From Mbera Camp in Hodh Chargui to the cities of Nouakchott and Nouadhibou, UNHCR responds to evolving protection challenges while promoting inclusion in national systems for education, health, and social protection. The operation also integrates climate resilience into its work, supporting solarisation of key infrastructure such as schools, health centres and boreholes, promoting access to clean energy for cooking, sustainable farming, and land restoration, to reduce environmental pressure and strengthen livelihoods. Through innovative and coordinated approaches along key migration routes, UNHCR advances protection, self-reliance, and dignified living for refugees and host communities, contributing to Mauritania's broader stability and sustainable development.

About the IKEA Foundation

The **IKEA Foundation** is a strategic philanthropy that focuses its grant making efforts on tackling the two biggest threats to children's futures: poverty and climate change. It currently grants more than €200 million per year to help improve family incomes and quality of life while protecting the planet from climate change. Since 2009, the IKEA Foundation has granted more than €1.5 billion to create a better future for children and their families. In 2021 the Board of the IKEA Foundation decided to make an additional €1 billion available over the next five years to accelerate the reduction of greenhouse gas emissions.

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Abbreviations

ADER	*L'Agence de Développement de l'Electrification Rurale*
AFDB	*African Development Bank*
DSPE	*Délégués de Services Public d'Electricité*
DTP	*Desert-to-Power*
EU	*European Union*
EUR	*Euro*
GIZ	*Deutsche Gesellschaft für Internationale Zusammenarbeit*
GPA	*Global Platform for Action on Sustainable Energy in Displacement Settings*
GW	*Gigawatt*
GWH	*Gigawatt-hour*
INGO	*International non-governmental organisation*
KV	*Kilovolt*
KW	*Kilowatt*
LPG	*Liquefied petroleum gas*
MOUDOUN	*Le Projet d'Appui à la Décentralisation et au Développement des Villes Intermédiaires Productives*
MRU	*Mauritanian ouguiya*
MW	*Megawatt*
MWH	*Megawatt-hour*
NGO	*Non-governmental organisation*
O&M	*Operation and maintenance*
PUE	*Productive uses of energy*
READS	*Roadmaps for Energy Access in Displacement Settings*
RIMDIR	*Renforcement des Investissements Productifs et Energétiques en Mauritanie pour le Développement Durable des zones rurales*
RISE	*Regulatory Indicators for Sustainable Energy*
SDG 7	*Sustainable Development Goal 7*
SEFORALL	*Sustainable Energy for All*
SHS	*Solar home system*
SOMELEC	*Société Mauritanienne d'Electricité*
UN	*United Nations*
UNDP	*United Nations Development Programme*
UNHCR	*Office of the United Nations High Commissioner for Refugees*
UNITAR	*United Nations Institute for Training and Research*
USD	*United States Dollar*
WFP	*World Food Programme*

Overview of common energy terms

Energy technologies for electricity and cooking, and the terms used to describe them, can vary between countries, contexts, and organisations. The descriptions used in this report aim to conform with the most commonly-used definitions in displacement contexts but may differ from those used by other organisations.

TERM	DESCRIPTION
MULTI-TIER FRAMEWORK (MTF) FOR ACCESS TO ELECTRICITY	*Access to electricity is categorised across seven attributes: capacity, availability, reliability, quality, affordability, formality, and health and safety.* *Each attribute falls in a range from Tier 0 (no access) to Tier 5 (full access). The MTF was developed by the Energy Sector Management Assistance Program (ESMAP) at the World Bank to better categorise access beyond a simple binary comparison of "access or no access".*
SOLAR LANTERN	*Solar lanterns are an off-grid technology usually composed of a small solar panel, battery, and LED light integrated into a single unit.* *Solar lanterns can typically provide a few hours of light from a single charge and may have a USB connection for charging phones.* *Suitable for a single user or household, solar lanterns typically provide Tier 1 electricity access.*
SOLAR HOME SYSTEM (SHS)	*A solar home system (SHS) is an off-grid technology kit usually composed of a solar panel, battery, LED lights, switches and control systems, and often appliances.* *The size and services provided by a SHS can vary but typically offer several hours of electricity per day for lighting, phone charging, and appliances such as radios. SHS are used by both households and businesses, and sometimes by community facilities.* *SHS usually offer between Tier 1 and Tier 3 electricity access and can be acquired through upfront purchases or PayGo models.*
MINI-GRID	*Mini-grids are decentralised electricity networks which can operate independently of the national grid. They typically serve a community with tens to hundreds of connections.* *Mini-grids have a power source (usually solar or diesel), battery storage and a distribution network to supply electricity to customers, as well as power control systems.* *Mini-grids can be designed to provide any level of electricity access and usually provide Tier 1 to Tier 3. Customers could include households, businesses, community facilities, or other users. Customers typically pay fixed tariffs for electricity consumption, or daily rates.* *"Mini-grid" often refers to systems with capacities ranging from tens to hundreds of kilowatts, but generically could refer to smaller systems (also known as pico- or nano-grids) or larger ones, perhaps also with a connection to the national grid.*
STANDALONE SYSTEM	*A standalone system can provide electricity independent of the national grid, either fully off-grid or as a backup power source. Any type of electricity generation could supply a standalone system, but these are usually powered by diesel or solar with battery storage.* *Standalone systems typically refer to those which supply buildings, compounds, or operational purposes such as water pumps, but could include any off-grid system such as a mini-grid.*
NATIONAL GRID	*The national grid is the main electricity infrastructure of a country. It provides power through high-voltage transmission and distribution lines and is supplied by large-scale generation, such as power plants.* *The national grid can provide up to Tier 5 electricity access but, especially in remote areas and displacement contexts, its electricity supply may be unreliable or unavailable.*
OFF-GRID OR DECENTRALISED SYSTEM	*An off-grid or decentralised system can operate independently of the national grid network.* *The term "off-grid solar products" usually refers to consumer-focused systems, such as solar lanterns and SHS, whilst "decentralised systems" usually refers to larger systems such as mini-grids and standalone systems.*
PRODUCTIVE USES OF ENERGY (PUE)	*Productive uses of energy (PUE) include any applications of energy for businesses, income generation, or economic activity. This could include appliances or machinery to make work easier or more efficient, or to make new activities possible.* *PUE usually refers to electricity, but it also includes energy for cooking and other applications.*

Overview of common energy terms

TERM	DESCRIPTION
MULTI-TIER FRAMEWORK (MTF) FOR ACCESS TO COOKING	*Access to cooking is categorised across six attributes: exposure to harmful pollutants, energy efficiency, convenience of acquiring fuel and using the stove, safety, availability of fuel, and affordability.* *Each attribute falls in a range from Tier 0 (no access) to Tier 5 (full access). The MTF was developed by the ESMAP at the World Bank to better categorise access beyond a simple binary comparison of "access or no access".*
TRADITIONAL COOKING SYSTEMS	*Traditional forms of cooking include the use of simple stoves (such as open fires, three-stone fires, or mud stoves) and biomass fuels (such as firewood and charcoal). Traditional cooking systems are sometimes referred to as "basic" stoves and fuels.* *These cooking systems usually have high emissions and low efficiencies but are generally the cheapest and most accessible.*
CLEAN COOKING	*Clean cooking systems meet international standards for emissions at the point of use. These can include energy efficient or so-called modern forms of cooking including electric cooking, liquefied petroleum gas (LPG), and high-performing biomass stoves, such as some which use pellets.*
IMPROVED COOKSTOVES (ICS)	*ICS include a wide range of stoves which provide advantages over traditional stoves but generally do not reach higher tiers of access. ICS can use a variety of biomass fuels including firewood, charcoal, pellets, or briquettes.* *ICS can be produced locally or shipped from other locations and are generally lower-cost than other manufactured stoves.*
MODERN COOKING	*Modern cooking refers to stoves and fuels which meet Tier 4 standards across all attributes. These include LPG, biogas, electricity, and ethanol cooking systems.*
LPG STOVES	*Liquefied petroleum gas (LPG) stoves are clean cooking systems which use canisters of LPG as fuel. LPG stoves offer higher-tier cooking solutions but generally have high upfront costs and rely on LPG supply chains.* *LPG is a fossil fuel but is considered clean at the point of use.*
ELECTRIC COOKING	*Electric cooking includes several technologies. Energy-efficient electric pressure cookers (EPCs), slow cookers, and rice cookers are appliances which use electricity to heat a pot and are particularly well-suited to foods which require slower cooking, such as beans. These appliances can be powered by on- or off-grid systems but generally require a reliable supply of electricity.* *Electricity-assisted cooking stoves use electricity to improve the efficiency of cooking with biomass, for example using fans powered by solar panels to increase the airflow over the fuels. This can enable the stove to reach higher temperatures and efficiencies than traditional cooking systems, and it usually uses off-grid power.*
PRIMARY AND SECONDARY COOKING SYSTEMS	*Households may use more than one type of stove or fuel to meet their cooking needs. The primary stove and fuels are the most used ones, whilst the secondary stoves and fuels are used less frequently.*
STOVE STACKING	*Stove stacking describes a situation where a household has access to multiple forms of cooking systems. This is usually in reference to having an improved or clean cooking system but continuing to use a traditional cooking system. This could be due to various reasons, such as to cook different kinds of food, convenience, preferences, fuel shortages, or many other reasons.*

Executive Summary

Globally, over 100 million people have been forcibly displaced from their homes. Amongst those living in camps and settlements, more than 80% rely on cooking with firewood over open fires for cooking whilst over 90% lack access to electricity. Sustainable Development Goal 7 (SDG 7) calls for universal access to affordable, reliable, sustainable, and modern energy for all by 2030 – including communities affected by displacement – and rapid progress is required to achieve this ambitious goal.

The Roadmaps for Energy Access in Displacement Settings (READS) Programme aims to support the achievement of SDG 7 in ten countries affected by forced displacement including Mauritania, which hosts more than 300,000 refugees and asylum seekers. This report consolidates the status of energy access in displacement settings in Mauritania, provides an overview of the stakeholders working towards SDG 7, and presents opportunities for high-impact projects to support increased access to sustainable energy for displaced people and host communities.

Energy access in displacement settings in Mauritania

Household electricity

Electricity access amongst households in Mbera camp is low, with the limited data showing most people rely on small solar lamps for lighting. The national grid is expected to be extended to the camp but the potential for last-mile connections is uncertain owing to the costs and safety issues associated with non-permanent shelters. The long supply chains and higher transport costs of operating in the remote Hodh Chargui region also increase prices for consumers and present a barrier to market entry for solar companies.

Supporting the private sector could increase the availability and uptake of off-grid solar products. Flexible financing schemes for customers could accommodate varying incomes whilst subsidies could make products more accessible for low-income households. Pooling resources (such as warehouses, distribution outlets, and engagement events) could help stimulate the market and bring more companies to the region.

Household cooking

UNHCR's Cash for Gas programme has been successful in supporting clean cooking in Mbera camp, with around half of households using liquefied petroleum gas (LPG), while the remainder continue to use charcoal or firewood. LPG users can access refills in the camp and generally find refills affordable while suppliers offer different payment mechanisms. However, refills are more expensive in the camp than in the local town of Bassiknou, around 15 km away, and supplies can be unreliable which leads to fluctuating prices.

Providing loans to camp-based LPG suppliers could allow them to undertake larger orders to stabilise supply and prices. As high costs and limited availability remain barriers to uptake amongst households using firewood and charcoal, implementing subsidies and sensitisation programmes for more vulnerable households could further increase LPG use. The opportunities for electric cooking could also be explored in the wider region once the national grid is extended. ››

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Businesses and productive uses of energy

Collaborations between international organisations and local NGOs have supported opportunities for green jobs, such as establishing market gardens and training on solar systems. Productive uses of energy are relatively limited in Mbera camp and the Hodh Chargui region, however, owing to unreliable power and the limited availability of appliances. Solar irrigation has shown potential for smallholder farmers to increase their yields but the demand for agricultural water pumping exceeds the supply and competes with other vital water needs.

Increasing energy access could support lucrative livelihood opportunities, such as welding and baking bread. Financial support will likely be required to make power sources and appliances more affordable, potentially through loans for existing businesses and grants for new ones. Training on new appliances and business skills, such as bookkeeping, could help new entrepreneurs establish viable businesses. Supporting energy companies to establish operations in the camp and wider region could help to improve the availability of products and maintenance, whilst scaling up solar-powered water pumping could help to meet the irrigation needs.

Social institutions and community facilities

UNHCR has successfully solarised schools and health centres in Mbera camp but most community facilities in Hodh Chargui typically lack access to sustainable power. The extension of the national grid across the region or installation of standalone solar systems could improve services for both refugee and host communities. These would require financial support to cover the large upfront costs whilst technical capacity (both for installation and maintenance) is very limited in the region. Public lighting is typically unavailable, reducing mobility and safety after dark, especially for more vulnerable people.

Providing reliable electricity for community facilities will likely require grant funding from the government or international donor organisations. Projects should draw on lessons learned from previous solarisation efforts to scale these initiatives across Hodh Chargui. Furthermore, these should explore measures to support long-term sustainability, such as public-private partnership models and training local staff and community members to maintain the systems. Public lighting could be implemented in partnership with community groups to identify the areas most in need of improved lighting after dark.

Humanitarian operations

UNHCR has transitioned its offices in Nouakchott and Bassiknou to solar power using internal funding. This move has reduced energy costs and decreased reliance on diesel generators and the national grid. Currently, UNHCR is solarising five boreholes in Mbera camp, which will further reduce expenditure on fuel. Scaling these initiatives to other areas, for example boreholes around Hodh Chargui, will require substantial investment and similar long-term financing. To reduce remaining diesel generator usage, future efforts should integrate further sustainable energy efforts, such as energy efficiency improvements or increased solar and battery capacity.

The extension of the national grid could provide opportunities for electrifying key facilities but delays in this work could also lead to uncertainty and longer timelines. Therefore, clarifying the timelines for grid extension would help to plan long-term financing of sustainable energy systems and provide insight into which facilities could be supplied through grid power and which would require standalone systems. ››

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Stakeholders in Mauritania

The humanitarian response is concentrated in the Hodh Chargui region and Mbera camp. UNHCR and other agencies play significant roles in providing assistance to refugees living both in the camp and in host community villages, often in partnership with national and international NGOs. Mbera camp also hosts many refugee-led organisations which work towards promoting environmental protection, community education, women's issues, and other causes.

Sustainable energy projects have been implemented in displacement settings but are usually reliant on support from external or international donors, such as UNHCR's Cash for Gas programme and solarisation efforts. Private sector involvement is relatively limited owing to the remote locations and nascent energy markets. Collaborations between different types of stakeholders (such as donors to provide funding, humanitarian organisations and NGOs to offer expertise, and community groups to ensure local engagement and support) have shown promise. However, the number of programmes and the level of available funding will need to be greatly scaled up to meet growing energy needs. ››

BARRIER	OPPORTUNITY
Remoteness of displacement settings resulting in high transport costs, limited supply chains, and difficulties in offering maintenance	Support joint investment in supply chains, distribution centres, and maintenance hubs
Low ability to pay due to varying incomes and population movements	Develop flexible financing schemes and microcredit and subsidise products for the most vulnerable households
Limited knowledge of the benefits of sustainable energy slows uptake	Implement community awareness raising events and sensitisation programmes
High cost of sustainable energy systems for social institutions, water pumping, humanitarian operations, and public lighting	Use public-private partnerships and long-term financing agreements to implement systems, supported by community engagement and capacity building

In Mbera camp, around half of households now use LPG for cooking, while solar power is increasingly supporting schools, health centres, and humanitarian operations.

Energy access in Mauritania's displacement settings remains limited, but growing initiatives show potential to expand sustainable energy for refugees and host communities.

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Opportunities to scale up sustainable energy

There is great potential to expand access to sustainable energy in displacement settings in Mauritania. Access to electricity is generally very low, both for households and businesses, however the relatively high uptake of LPG for cooking has demonstrated how successful energy access programmes could be implemented. Solarisation of UNHCR offices has been successful, and transitioning boreholes to solar power is in progress, but these efforts should be expanded to host community villages. Working with refugee-led organisations and community members will be important in implementing sustainable energy projects that succeed in the long term.

The READS Programme hosted an engagement workshop in Nouakchott in February 2025 which brought together stakeholders working on energy in displacement settings across Mauritania. During a co-design session, participants established the foundations for high-impact project concepts to improve access to sustainable energy. These concepts were subsequently developed to showcase the potential investment opportunities and serve as a starting point for future support. A summary of these project concepts is shown in Table 1.

Improving access to sustainable energy in displacement contexts will require coordinated efforts and a shared vision among all stakeholders. Based on the findings of this report, the READS Programme has outlined a roadmap for energy access in displacement settings in Mauritania with short- (2026-2027), medium- (2028-2029), and long-term (2030+) goals. These include solar power for agriculture, household electricity, vocational training, electrification for schools, and expanding clean cooking across Hodh Chargui.

The challenge is significant: achieving access to affordable, sustainable, reliable, and modern energy for displaced people and host communities by 2030 will require more projects, activities, partnerships, coordination, and funding than ever before. Mauritania has already demonstrated how projects can be successfully implemented and these have helped to lay the foundations for new initiatives, greater investment, and strong collaborations to scale up sustainable energy throughout the country. ●

TABLE 1

High-impact project concepts to increase sustainable energy access with estimates of their potential reach, duration, budget, and scalability.

PROJECT	NAME	REACH	DURATION	BUDGET	SCALABILITY
1	*Solar-powered water pumping and distribution systems*	*Four communities*	*3 years*	*$600,000*	*High*
2	*Solar home systems for refugee households*	*10,000 households*	*4 years*	*$2 million*	*Medium*
3	*Women-led solar entrepreneurship and vocational training hub*	*One community centre*	*2 years*	*$500,000*	*Medium*
4	*Solar electrification for host community schools*	*10 schools*	*2 years*	*$500,000*	*High*
5	*Alternative financing for LPG uptake in Hodh Chargui*	*2,500 households*	*2 years*	*$750,000*	*High*

01

Setting the scene

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Setting the scene

Mauritania hosts more than 300,000 refugees and asylum seekers who have fled conflict and violence in neighbouring Mali. The Hodh Chargui region, located in the extreme southeast of the country on the border with Mali, hosts 94% of refugees who together account for 35% of the region's residents. As of June 2025, 120,000 refugees were registered in Mbera camp and an estimated 173,000 live outside the camp in 70 host villages around the region.

Households in Mbera camp have limited access to electricity, typically relying on solar lamps to meet individual needs. High costs and the sparse private sector presence in the region make accessing solar products difficult and, whilst the camp has been earmarked for grid connection in the future, this has been delayed multiple times. Promoting market systems through co-investments with energy companies and introducing flexible financing mechanisms could help make domestic electricity access more affordable and accessible.

Liquefied petroleum gas (LPG) is used for cooking by around half of households in Mbera camp, while the other half rely on firewood or charcoal. The relatively high adoption of LPG has been attributed to ongoing financial support programmes and the availability of suppliers in the camp, but residents pay higher prices than those in local towns. Providing further support for LPG sellers could increase the consistency of supply and provide more stable prices for consumers, whilst community awareness-raising initiatives could help boost the rate of clean cooking uptake and increase the overall use.

UNHCR and its partners have collaborated to support green jobs, including solar system maintenance and support smallholder farmers to grow vegetables for commercial purposes. Energy for productive uses is comparatively limited owing to the limited availability of both the supply of power and suitable appliances. Offering loans and start-up grants for small businesses to invest in energy technologies could increase their revenues and expand the services they offer, while scaling up solar irrigation to meet growing demand could support local farming and help strengthen existing programmes.

Community facilities in Mbera camp, such as schools and hospitals, were solarised by UNHCR Mauritania in June 2025. As part of its global Greening the Blue initiative, UNHCR solarised its country office in Nouakchott and field office in Bassiknou, whilst current efforts under Project Flow to solarise five of the six boreholes aim ››

At the READS workshop, stakeholders shared their experience through co-designing potential high-impact sustainable energy projects.

Setting the scene

to provide a replicable blueprint for transitioning other facilities across the country to renewable energy. Plans by the government and partner organisations to bring power to facilities in host communities are ongoing improving lighting in public areas could improve the perception of safety in the camp after dark.

Addressing the challenge of achieving universal access to sustainable energy in displacement settings requires coordination at all levels – from local to global [1]. International targets for energy access are met through implementation on the ground with each country, region, and community needing its own consideration and planning to reach this shared goal. Stakeholders have developed initiatives to improve sustainable energy access in Mauritania but these typically lack the investment and support to reach all affected populations. Furthermore, whilst the amount of research and evidence to fully understand the energy needs and develop appropriate solutions is growing, it does not yet match the scale of the challenge and is typically disparate and hard to find.

Acknowledging this, the READS Programme aims to provide a country-level overview of sustainable energy in displacement settings. With the Programme working across ten countries, Mauritania is the eighth to be featured in a READS Roadmap Report after Kenya, Uganda, Rwanda, Lebanon, Ethiopia, Jordan, and Nigeria.

A goal of the READS Programme is to identify new opportunities for high-impact projects by consolidating the existing knowledge on sustainable energy in displacement settings. This includes published literature – such as government policies, programme output reports, datasets, academic papers, and press releases – but also the experiences and expertise of practitioners working on project implementation and, most importantly, of community members. In support of this the READS Programme hosted a workshop in Nouakchott in February 2025 to engage with these stakeholders. Participants included representatives of communities that have been affected by displacement, the private sector, humanitarian organisations, and local government authorities, among others.

Using published literature and the experiences shared during this workshop, the READS Mauritania Roadmap Report highlights the most pressing gaps, barriers, and opportunities for sustainable energy in displacement settings, as well as the roles of the stakeholders involved. It also provides a spotlight for potential high-impact projects, co-designed in the workshop by stakeholders from different types of organisations, which could rapidly and radically improve sustainable energy access if they received support and investment.

The energy needs of each community, household, business, or institution will vary, as will the most effective ways of addressing them. This report aims to be as broad as possible in covering different kinds of energy access, and as comprehensive as possible in each topic, but is inherently limited by the nascent nature of research on sustainable energy in displacement settings and the uniqueness of each context. The authors hope that further research – perhaps focusing on specific areas of energy access, settlements, or the impact of new projects – can build on this report by diving deeper into these areas and promote a greater uptake of sustainable energy in displacement contexts.

02

Forced displacement in Mauritania

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National overview

The Islamic Republic of Mauritania, located at the crossroads of North and West Africa, is home to more than 5 million people, as shown in Table 2 [2]. As well as facing challenges including food insecurity, the impact of climate change, and the presence of vulnerable populations, Mauritania also hosts many people who have been displaced from neighbouring countries due to regional conflicts, population movements, and instability. Whilst Mauritania does not have a comprehensive national refugee law, it is a party to key international refugee conventions and the country is generally supportive of, and welcoming to, those seeking safety within its borders.

Historically, Mauritania has faced its own internal displacement issues. The Mauritania-Senegal Border War, which lasted from 1989 to 1991 because of political tensions and disputes over grazing rights and the border, led to ethnic clashes and the expulsion of thousands of black Mauritanians to Senegal [3]. Some refugees still remain in Senegal while those who returned continue to face issues related to land rights and reintegration into the community. Since then, Mauritania has remained relatively stable compared to its neighbours but regional instability and the presence of armed groups in the Sahel, particularly in border areas, continues to create the risk of displacement [4].

As of June 2025, Mauritania was estimated to host 309,670 refugees and asylum seekers, of whom 176,919 (around 57%) are registered with the United Nations High Commissioner for Refugees (UNHCR) [5-7]. Located in Bassiknou *moughata* (department) in the southeastern Hodh Chargui *wilayah* (region), Mbera camp is home to 120,090 displaced people whilst a further 172,977 refugees (of whom 40,255 are registered), all of whom are from Mali, are estimated to live in host communities across 70 villages across Hodh ››

TABLE 2

The population of Mauritania [8] and the number of registered refugees and asylum seekers [7]. Many more refugees and asylum seekers who are not registered, predominantly from Mali, also live in Mauritania.

		TOTAL	%
POPULATION	**TOTAL**	***5,169,395***	***100***
	RURAL	*2,147,470*	*41.5*
	URBAN	*3,021,925*	*58.5*
REGISTERED REFUGEES AND ASYLUM SEEKERS	**TOTAL**	***176,947***	***100***
	MALI	*173,107*	*97.8*
	GUINEA	*586*	*0.3*
	SENEGAL	*502*	*0.3*
	CENTRAL AFRICAN REPUBLIC	*418*	*0.2*
	SYRIAN ARAB REPUBLIC	*389*	*0.2*
	OTHERS	*1,945*	*1.1*

National overview

Chargui. The capital Nouakchott hosts around 7,500 registered refugees whilst around 2,700 live in the port city of Nouadhibou.

Almost all registered refugees come from Mali (see Table 1) and live in Hodh Chargui [7], with around 130,000 further refugees from Mali who are not registered with UNHCR are also estimated to live in the region. Small numbers of registered refugees come from the Central African Republic and Syria, whilst displaced people from Guinea and Senegal are typically asylum seekers, who all live in urban areas. There is an approximately equal gender distribution amongst registered refugees and asylum seekers across the country and 54% are under the age of 18.

Malian refugees have been resident in Mauritania for many years. The country hosted more than 60,000 refugees who fled in 2012, mostly from the northern and central regions of Mali [9]. A study by UNHCR in September 2024 investigated the causes of displacement and found that almost all refugees fled because of attacks by military and armed groups (97%), with significant numbers of people displaced due to targeting of religious or ethnic groups (70%) and violence and criminality (68%) [10]. Smaller proportions of refugees cited a lack of, and search for, basic needs and services (14%), climate change and natural disasters (1%), or seasonal and regular movements (1%) as reasons for their displacement.

As of late 2024, a socioeconomic study by UNHCR and World Food Programme (WFP) – which aimed to interview every household that arrived in Mauritania from Mali since 2023 – found that recent arrivals were usually settled in areas near Mbera camp, and Malian refugees made up 68% of the population of Bassiknou and 3% of the town of Adel Bagrou [11]. At that time, more than three-quarters of displaced people had arrived in Mauritania recently (from December to February 2024) and were able to cross between the countries without issue.

The same study found that, among the 11,993 households interviewed, 91% had at least one child aged under 17 and, for households with children, two-thirds were accompanied or by living with adults [11]. Around one in five children (19%) live alone, 10% live with only one female adult household member, and 6% live with only one male adult household member.

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Policy frameworks for displaced populations

Mauritania has ratified key international agreements related to refugees including the 1951 United Nations Refugee Convention and its 1967 Protocol [12], and the 1969 Refugee Convention of the Organisation of African Unity (now succeeded by the African Union) which provides a broader definition of refugees, covering those fleeing generalised violence, events seriously disturbing public order, and external aggression [13]. These provide the legal basis for refugee protection in the country and, through their ratification, Mauritania has acknowledged its commitment to respecting the principles of non-refoulement and, jointly with UNHCR, granting asylum to populations escaping persecution.

However, asylum seekers and refugees in Mauritania face several challenges. For example, urban refugees and asylum seekers, as well as Malian refugees living in Mbera camp, have difficulties in registering their children born in Mauritania. Mauritania's nationality law (Loi N° 1961-112) restricts citizenship meaning that children born to parents unable to confer citizenship, such as stateless people, are not granted Mauritanian citizenship at birth [14]. Furthermore, following the Civil Status Reform in 2010, birth certificates can be issued to children in Mauritania only if their parents are registered according to the 2010 procedure and can provide a marriage certificate in compliance with the Personal Status Code of 2001 (Loi N°2001-052) [15].

Since 2011 some asylum seekers and refugees, as well as others remaining in Mauritania after their refugee status had ended, have chosen local inclusion as a durable solution. Refugees have sought this solution due to cultural and ethnic links with Mauritanian groups and the relative protection that the country offers, including the right to move freely within the country and the right to work [16]. Local integration is also supported by the government, which made strong commitments to refugee inclusion at the Global Refugee Forum in 2023. ●

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Humanitarian support

Refugees and people living in displacement-affected areas receive support from several international humanitarian agencies. Amongst these, UNHCR acts as the primary United Nations (UN) agency responsible for refugees and focuses on ensuring that they have access to adequate protection and assistance. UNHCR also leads the Refugee Coordination Forum which manages interagency coordination through sectoral groups. Other organisations also provide support, such as WFP which jointly works with UNHCR and the Mauritanian government to include refugee households in the national Social Registry, enabling eligible refugees to benefit from national social protection programmes.

Displaced people are also supported by international non-governmental organisations (NGOs), including:

- Action Contre la Faim (ACF, Action Against Hunger), which addresses malnutrition and food insecurity among vulnerable populations, including refugees, through targeted nutrition programmes and support for sustainable livelihoods;
- Save the Children, which focuses on child protection, education, and health services, ensuring that refugee children have access to quality education and are safeguarded from exploitation and abuse;
- ALIMA (the Alliance for International Medical Action), which provides healthcare for vulnerable populations facing health crises, epidemics, or natural disasters;
- The International Federation of Red Cross and Red Crescent Societies (IFRC), which provides emergency assistance, disaster relief, and education in communities affected by crises, including refugee populations in Mauritania; and
- RET Germany, which works in Mbera Camp and Bassiknou in areas such as education and peacebuilding [17].

Several Mauritanian NGOs work alongside international partners to support people living in displacement-affected areas, such as SOS Désert which supports semi-nomadic communities and constructs infrastructure for both refugees and host community members. In Mbera camp, the spirit of volunteerism and self-organisation among refugees has fostered strong governance systems. UNHCR supports refugee-led organisations (RLOs) to further strengthen community mobilisation and coordination efforts including:

- Brigade Anti-Feu, which prevents and responds to bushfires;
- SOS Nomade, which champions education and child protection;
- Comité des Femmes Resources, which supports women and children facing protection risks; and
- Volontaires Réfugiés pour la Propreté du Camp, which supports environmental issues to keep the camp clean.

A study in 2021 by the Government of Mauritania's Registre Social, the World Bank, UNHCR, and WFP found that the latter two agencies had been relatively successful in transitioning refugees in Bassiknou from emergency to poverty-based assistance [18]. It found that with the percentage of households receiving full assistance fell from 79% in 2019 to 53% in 2021. Despite this, 96% of refugees were still receiving some kind of assistance and almost all households self-reported having low (42%) or very low (47%) capacity to meet their needs. Household food consumption scores were found to be lower in Mbera camp (63% poor, 18% borderline, and 19% accept- ››

Humanitarian support

able) compared to those outside the camp (28% poor, 52% borderline, and 20% acceptable).

The 2021 study found that more than 80% of households lived in “m’bar” shelters (constructed from plastic material provided by UNHCR with roofs made of cloth) or in shelters made of wood and zinc on the edges of towns [18]. It found that 98% of households had access to drinking water, 91% had access to a toilet, 50% used charcoal or firewood for cooking, and 91% used torches for lighting.

Support also extends to other non-financial aspects of refugee wellbeing. In line with the government pledges in 2019 and 2023 at the Global Refugee Forum, the Government of Mauritania has implemented the Inaya healthcare project (Arabic for “assistance”) to include Mbera camp into the national health system, with support from the World Bank [19]. Working in agreement with the government, UNHCR also provides free primary healthcare for all refugees in Mbera camp.

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Employment and income levels

The Government of Mauritania established the Taazour General Delegation for National Solidarity and Fight against Exclusion in 2020. This aims to ensure social protection, national solidarity and cohesion, and to alleviate poverty for the benefit of poor and vulnerable populations [20]. It coordinates the implementation of the national social protection strategy and aims to integrate target populations into development programmes.

The Tekavoul National Social Transfer Programme supports more than 200,000 households as of 2024 through cash transfers, and it also provides credit and loans [21]. Other social assistance programmes provide targeted support during the lean season (a period of heightened food insecurity when food stocks are lowest, typically between June and September), including El Maouna and Tekavoul Choc. Tekavoul supports more than 7,400 refugee households in the camp, thanks to their inclusion in the social registry, whilst in 2025 refugees were included for the first time in the national response plan for the lean season. Around 40,000 refugees benefitted from El Maouna and Tekavoul Choc both inside and outside the camp.

Some refugees in Mauritania receive financial support from organisations such as WFP. In 2023, it reported that people received monthly cash assistance linked to their level of vulnerability [22]:

- The most vulnerable households (53% of the total) received MRU 450 (around $11.50, USD 1 = MRU 39) per person per month throughout the year, in addition to in-kind or food assistance during the lean season and subsidised public health benefits through Inaya;
- Moderately vulnerable households (43%) received MRU 300 ($7.70) per person per month for four months of the year; and
- Least vulnerable individuals (4%) did not receive food or cash assistance.

New arrivals are classified as most vulnerable for the first six months, after which they are assessed and supported according to their needs. All refugees, regardless of their vulnerability group, are eligible for WFP's nutrition interventions and school meals. In September 2024, WFP reported that it had delivered cash assistance to 80,549 people and specific nutritional support to 495 children and 179 pregnant or breastfeeding women and girls [23].

The 2021 study by Registre Social, World Bank, UNHCR, and WFP found that only 12% of refugees aged 18-59 were employed in the seven days prior to data collection [18]. The main employment sectors were found to be livestock and agriculture (32%), artisanal activities and commercial trading (19%), and services (19%). An average of 36% of children aged 7-12 attended primary school and 8% of children aged 13-18 attended secondary school. The study also reported that 92% of households felt integrated with the Mauritanian community.

With a low proportion of people engaged in employment, a 2024 assessment also found that approximately one-third of surveyed refugees depended on financial assistance to meet their basic needs [11]. Some of their relatives are allowed to travel and work in different parts of Mauritania and many have jobs, including in Nouakchott, which allow them to send money to Mbera camp via local money transfer agencies.

1 in 3

refugees depend on financial assistance to meet their needs

Access to financial services

Displaced people generally do not have a national identification number required to open a bank account, and lack the capital necessary to provide guarantees often required to access loans [24]. While access to financial services remains limited in Mauritania, in 2021 UNHCR began collaborating with Djikké, a Mauritanian microfinance institution (MFI) that provides savings and credit services [19]. Djikké has opened branches in Bassiknou and Mbera camp to improve access for displaced people living in these areas. Beyond this, the camp benefits from a vibrant community-led credit culture, shaped by Islamic banking principles, which supports the growth of the ecosystem.

Bank credit to the private sector is overwhelmingly short-term and a lack of information about potential borrowers appears to be an impediment to creditors offering loans to SMEs and displaced individuals. For refugees specifically, concerns around potential customers relocating and defaulting on loans limit their access to credit through formal institutions or MFIs.

UNHCR's work to improve financial services access for urban refugees through its partnership with Djikké remains modest but expanding financial access of this type to camp-based refugees could benefit both displaced people and host community [19]. This is supported by national-scale policies: in 2024, Banque Centrale de Mauritanie launched its first National Financial Inclusion Strategy which aims to increase financial awareness and promote inclusive finance for all, and particularly for young people, women, rural populations, and displaced people [25].

> We suspect that refugees' [financial] needs are rather simple – most of them still live off a basic needs allowance. Ninety-five percent of them are illiterate, and as long as they are not economically integrated, no one will lend to them... the truth is that we admit very little about refugee finance. They spend and save like everyone else, but everything is cash-based.
>
> – Key Informant, Banque Central de Mauritanie [24]

03

National energy context of Mauritania

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National policy overview

Mauritania is committed to a sustainable energy transition and aspires to become a key energy player in Africa and beyond. The country benefits from substantial renewable energy potential, particularly in solar energy, with irradiance levels far above the global average [26]. Mauritania's National Energy Pact aims to accelerate access to electricity, increase the share of renewable energy in the production mix to 70%, boost current production capacity by 66% by 2030, and improve access to clean cooking to 12% by 2030 [27].

The government set a target for universal access to electricity in urban areas by 2024 and country-wide universal access by 2030. For clean cooking, the target is 100% access to LPG in urban areas and 50% access in rural areas, including in displacement settings, by 2030. Despite these targets, Mauritania's energy policies currently lag behind other countries in Sub-Saharan Africa (see Table 3).

Mauritania produces around 1,500 GWh of electricity per year, most of which comes from fossil fuels (83.6%) and the remainder from solar (7.8%) and wind (8.6%) [26]. The country's major renewable power station, the Sheikh Zayed Solar Power Plant, produces more than 25,000 megawatt-hours (MWh) of electricity annually and is estimated to displace 21,225 tonnes of carbon dioxide per year [28]. The plant consists of almost 30,000 solar panels and supplies electricity to over 10,000 homes in Nouakchott.

The private sector is expected to play a key role in achieving these goals, with plans to mobilise $1.23 billion in private investment across energy production, transmission, and distribution, as well as in decentralised renewable energy systems and clean cooking solutions [27]. Sustainable energy is also expected to contribute to the creation of significant employment and economic opportunities, supporting broader economic growth and development. ››

TABLE 3

Regulatory Indicators for Sustainable Energy (RISE) Pillars for Mauritania and the regional and global averages [29].

RISE PILLAR	MAURITANIA	SUB-SAHARAN AFRICA	GLOBAL
OVERALL	*25*	*39*	*56*
ELECTRICITY ACCESS	*41*	*54*	*62*
CLEAN COOKING	*32*	*32*	*30*
RENEWABLE ENERGY	*14*	*44*	*41*
ENERGY EFFICIENCY	*15*	*26*	*46*

National policy overview

Access to electricity remains low in Mauritania (see Table 4), partly due to the challenges of extending the national grid and the dispersed nature of the population which makes interconnection difficult in remote areas. Historically, the proportion of households connected to the grid increased from 22% in 2000 to 24% in 2004, and to 34% in 2013 [31]. These connections were mostly in urban areas, with an electrification rate of 58% including 70% in Nouakchott and 68% in Nouadhibou.

More recently, progress towards improving the rate of electricity access has slowed as the population increase in urban areas has merely kept pace with new connections. By 2021, the urban electrification rate was 58%, a marginal increase from 2013, whilst the rural electrification rate has significantly increased to 32% [32]. The small increase in the electrification rate did not outpace urban population growth, as the number of urban residents without electricity access increased from around 500,000 people in 2000 to around 1 million in 2021. In contrast, the number of people living in rural areas without access to electricity fell slightly from 1.6 million to 1.4 million.

TABLE 4

Selected SDG 7 indicators for Mauritania and the regional and global averages [30].

SDG7 INDICATOR		MAURITANIA	SUB-SAHARAN AFRICA	GLOBAL
ACCESS TO ELECTRICITY (%)	***Total***	***49***	***51***	***91***
	Rural	*32*	*30*	*84*
	Urban	*58*	*81*	*98*
ACCESS TO CLEAN COOKING	***Total***	***49***	***21***	***74***
	Rural	*20*	*7*	*54*
	Urban	*75*	*40*	*88*
RENEWABLE ENERGY (% FINAL CONSUMPTION)	-	*22*	*69*	*19*

Government agencies

The production, distribution, and sale of electricity in Mauritania are governed by Law 2001-19 while the energy transition, the potential exploitation of sustainable energy, green hydrogen development, and related issues are addressed in more recent legislation under Law 2022-027 [33]. Mauritania's energy and electricity sectors are managed and regulated by several governmental institutions with the most prominent being the Ministry of Petroleum and Energy, which recently separated its previous mandate for mining to enhance its focus on energy [34]. Its main directives are to prepare and implement legislation and national policies for energy production, transmission, distribution, and efficiency; promote the development and use of renewable energy sources; and to supervise technical activities related to the refining, import, export, storage, transportation, distribution, and marketing of fossil fuels.

Société Mauritanienne d'Electricité (SOMELEC), the national electricity company, is a state-owned utility responsible for electricity generation, transmission, and distribution across the country [35]. SOMELEC manages electrical infrastructure, supplies power to customers and works towards expanding electricity access nationwide. L'Agence de Développement de l'Electrification Rurale (ADER), meanwhile, is responsible for coordinating and developing rural electrification. Many of ADER's functions have been transferred to SOMELEC as part of institutional reorganisation and ADER is expected to be integrated into SOMELEC's distribution activities or a future rural electrification agency. ●

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Energy policies

Electrification policies and the national grid

The national grid covers most of the southern regions of Mauritania. As of 2023, 5,450 km of medium- and low-voltage lines, and 1,950 km of 225 kV and 90 kV high-voltage lines, provided electricity to nearly 30 cities and more than 500 small towns and villages [27]. The National Energy Pact includes a roadmap to expand this to more than 10,000 km of medium- and low-voltage lines and nearly 4,500 km of high-voltage lines by 2030.

Nouakchott has 15 kV and 30 kV distribution lines but these are in poor condition: in 2017, there were 99 power outages resulting in 62 hours of interrupted service [36]. Most distribution substations in the capital are near capacity and in 2020 the German consulting company INTEC estimated it would cost EUR 31 million to strengthen and extend the line to unconnected peri-urban areas. Mauritania is also interconnected with Senegal through a 225 kV line between Nouakchott and Dagana and a 90 kV line between Sélibabi and Bakel.

Historically the Mauritanian electricity sector has been financially supported by the state: in 2013 the subsidy for delegated service operators reached MRU 430 million ($1.5 million), and balancing subsidy for SOMELEC totalled MRU 6 billion ($20 million) [31]. However, it is expected that this funding alone will not be enough to continue efforts to extend electricity access targets if changes are not made.

To achieve its ambitious electricity access goals, the Government of Mauritania has identified the importance of significant investment in renewable energy for both on-grid and off-grid electrification. It developed a national electrification strategy in 2021 with a five-year electrification plan that includes clearly defined roles for the private sector in support of mini-grids and other off-grid solutions. The government has begun developing subsidy mechanisms for electricity access as well as evaluation programmes, such as the Mauritania Electricity Transition Acceleration Program, initiated in 2024, to monitor the multi-level framework and assess progress in advancing electricity access [27].

Project MOUDOUN (Le Projet d'Appui à la Décentralisation et au Développement des Villes Intermédiaires Productives, Decentralization and Development of Intermediate Productive Cities Project) aims to expand electricity access throughout Bassiknou. The Desert-to-Power (DtP) Roadmap, meanwhile, was released in 2020 by the African Development Bank (AfDB) in collaboration with the Government of Mauritania and Tony Blair Institute and outlines five priority areas [37]:

1. Increasing grid-connected solar energy generation capacity, targeting an additional 335 MW by 2030 to increase the share of solar in the energy mix to 30%;

2. Strengthening and expanding national and regional transmission networks, which aim to increase investment in infrastructure and renewable energy integration;

3. Deployment of decentralised energy solutions, including connecting around 265,000 households to off-grid solutions by 2030 in pursuit of universal access;

4. Improving the financial and operational capacity of public electricity operators, including SOMELEC, to attract private investment and improve service quality; and

5. Strengthening the enabling environment for increased private sector investment by establishing more transparent institutional and legal frameworks and an independent regulator.

The DtP Roadmap states several assumptions about the present and future state of the Mauritanian electricity sector [37]. This includes the use of a 120 MW gas power plant in Nouakchott, a 100 MW wind farm in Boulenouar, four hybrid power plants, and 75 MW of reserve hydropower capacity. It estimates that the total generation capacity will increase to 1.1 GW by 2030 with approximately $13.1 million required to undertake feasibility studies for solar plants and interconnections, cofinance major projects and mini-grids, and undertake training. ››

Energy policies

Mini-grids and standalone systems

Both on- and off-grid electrification fall under the remit of the Ministry of Energy and Petroleum. In 2013, the Ministry adopted the Plan Directeur de Production & Transmission à Horizon 2030 (Production and Transmission Master Plan), developed by the German energy consultancy firm Gopa Intec [36]. While now considered outdated, it remains the only electrification plan available and includes recommendations for electrification via both on- and off-grid technologies. At the time the plan set targets of 100% coverage and connection in urban areas by 2020, and 40% coverage (although not necessarily connection) in rural areas.

Private mini-grid operators, known as Délégués de Services Public d'Electricité (DSPEs), are authorised to supply power to customers. Selected by the Authorité des Regulations Multisecorielles (the Multisectorial Regulation Authority) through competitive tenders, DSPEs operate and manage mini-grids commercially in rural areas under specific tariff structures [37]. There are an estimated 64 mini-grids operating in Mauritania; these include 11 PV-diesel solar hybrid mini-grids operated by SOMELEC and others managed by DSPEs [37].

Mini-grid development in Mauritania has been supported through international funding including through the DtP initiative. The RIMDIR programme (Renforcement des Investissements Productifs et Energétiques en Mauritanie pour le Développement Durable des zones rurales, Strengthening Productive and Energy Investments in Mauritania for the Sustainable Development of Rural Areas), for example, is co-financed by AfDB, the European Union (EU), the World Bank, and Enabel [37], and a grant from AfDB's Sustainable Energy Fund for Africa will facilitate the electrification of 40 communities through seven mini-grids across Hodh El Gharbi and Hodh Chargui. It aims to connect 19,800 people and install around 900 kW of new renewable capacity at an estimated cost of EUR 13 million [38].

Other activities under RIMDIR include the construction, rehabilitation, and support for administration of productive rural infrastructure, the expansion of renewable energy access, and institutional capacity building for local stakeholders. Overall, RIMDIR aims to increase resilience among populations vulnerable to food and nutritional insecurity by improving access to energy services, livelihoods opportunities, and development infrastructure. ››

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Energy policies

Solar lanterns and solar home systems

Solar home systems (SHS) are small standalone systems consisting of a solar panel, battery storage, light bulbs, phone chargers, and other low-power electrical appliances. In the past, SHS distribution in Mauritania was coordinated by ADER with around 15,000 kits delivered through leasing programmes in southern regions [36]. SHS were financed by end users over a two-year period via an operator that would oversee the contracts and collect payments. After the initial two years, end users could enter an extended maintenance contract with the local operator to ensure the upkeep of their system.

The French NGO GRET implemented two EU-funded projects to increase the uptake of SHS from 2008-2010 and from 2011-2018 [36]. Under the former, projects were undertaken in 24 locations through a community-based operating model for maintenance and revenue collection. A further 79 villages were electrified through the latter, but it has been estimated that few of these systems remain in operation.

An assessment by SEforALL and AfDB in 2019 suggested that SHS would be most effective in areas located more than 15 km from the grid and with a density below 50 households per square kilometre [36]. It estimated that 629,000 people (16% of the population without electricity) would be best served by SHS, especially in Tagant and Inchiri regions in the Sahara. However, as small-scale systems were considered to be “pre-electrification” at the time both by the government and local expectations of lower levels of service, it was considered unlikely that further SHS programmes would be implemented at a wide scale. Nonetheless, Mauritania’s 2024 National Energy Pact includes a contribution of SHS to provide around 435,000 people with energy access (around 13% of the population without electricity) [27].

Despite this, several systemic challenges remain. The government has not yet adopted international quality standards or recognised international testing methods for SHS, nor does it accept certifications from other countries [37]. There are no duty exemptions to support SHS products and instead support mechanisms focus on financing mechanisms for operators and consumers. In addition, there are no environmental regulations in place for the disposal and recycling of SHS devices and components.

Clean cooking

The National Energy Pact estimates that access to clean cooking in Mauritania was around 54% in 2023, the highest rate in West Africa [27]. The Pact therefore aims to accelerate access to clean cooking solutions by 12% annually, compared to the current rate of nearly 4%. If achieved, this would enable an additional 480,000 households to adopt clean cooking solutions [27]. The strategy specifically targets women and underrepresented minority communities in its goal of reaching universal access to clean cooking, especially in arid rural regions where traditional fuel sources are scarce and have a significant impact on deforestation. The Pact identifies that $205 million in public investment will be required between 2025 and 2030.

In 2024, the Mauritanian government carried out an in-depth analysis of the clean energy and clean cooking sectors, including modelling scenarios up to 2050 [27]. Its clean cooking strategy is expected to consider LPG, electricity, and biogas as clean cooking options due to their low emissions and comparably limited impact on deforestation, unlike traditional methods such as charcoal or firewood. Cooking with electricity and domestically produced LPG is also expected to be featured, but the government acknowledges the challenges in implementing these, such as the lack of electricity connections and supply chains in rural areas. ●

04

Energy in displacement settings

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Electricity access for households

Data on household electricity access in Mbera camp is limited. Development plans for Project MOUDOUN, which aims to make cities in the interior of Mauritania more productive and resilient, reported in 2020 that most households with access to electricity in the camp relied on basic solar kits [39]. In 2023, UNHCR reported that 88% of households in Mbera camp used small solar lamps daily to meet their individual lighting needs, with 7% having access to superior technologies such as SHS, exceeding UNHCR's target for 2023 of 4.3% [40]. Despite this, UNHCR stated that the lack of domestic lighting represents an urgent need for intervention to improve the living conditions of the camp residents.

The Mauritanian government identified the urbanisation of the camp, including its electrification and that of surrounding areas, as one of the projects to be financed by the World Bank between 2020 and 2025 [40]. Once completed, this could significantly increase access to electricity in the region through the centralised grid network. However, while the project aims to bring electricity to the camp, the viability of last-mile connections for households remains uncertain as permanent shelters are not permitted and the cost of connections could be unaffordable. The project was initially expected to be completed by 2024 but was delayed, although the construction of a hybrid diesel-solar power plant is scheduled for 2026 [41].

While such large-scale electrification projects can bring widespread domestic connections, they might also discourage alternative electricity access projects in the meantime. If households or implementing agencies assume grid connections are imminent, alternative solutions may get postponed, potentially prolonging the period during which residents live without electricity access in the case of further delays. ››

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Barriers to electricity access

Mauritania faces many barriers to expanding electricity access in rural, remote, and displacement-affected areas. Longer supply chains and higher transportation costs significantly increase the cost of providing household-scale technologies, such as solar lanterns and SHS, in Mbera camp and the surrounding areas. In addition, maintenance and repair services are hindered by limited availability of spare parts and technical expertise in remote regions.

Participants in the READS workshop highlighted the cost of electricity access solutions as the main barrier, especially for vulnerable people. They stated a need for increased government and organisational support to help people access electricity, both through financial subsidies and via training and awareness-raising campaigns in rural and displacement-affected areas.

While current plans to electrify the camp are expected to provide widespread electricity access in the Hodh Chargui region, ensuring residents receive official connections will be important. It is estimated that only 51% of SOMELEC electricity connections were legal and paid for, while 49% were informal or illicit where users do not pay, negatively impacting the financial and technical sustainability of the network [37]. Maintaining regular payments for electricity may be even more difficult in displacement settings: residents may have limited ability to pay, have irregular incomes, or move between different locations which would make consistent billing and service provision more challenging.

Broader institutional issues present barriers to expanding access, including the need for structural reorganisation of the electricity sector and greater integration of private sector investment. These challenges are exacerbated in remote and underserved regions such as Hodh Chargui, where operational and financial constraints are more severe.

OPPORTUNITIES

Financial and logistical support for companies could encourage them to establish a local presence in Hodh Chargui and Mbera camp, increasing the availability of domestic solar products. Supporting co-investment in distribution channels and sales outlets, such as physical shops and service points, could also help to lower costs for consumers and provide accessible locations to receive maintenance and customer support.

In areas where several companies operate on a small scale, pooling resources could benefit both the private sector and potential customers. Establishing shared facilities for warehousing, distribution, and maintenance of multiple companies' products could offer a lower-cost centralised resource which lowers the barrier to entry for solar product suppliers and provides services which otherwise may not have been possible. Such facilities may need to be overseen by a third party, such as an NGO or a development partner, to ensure fair access and prevent any conflicts of interest. Additionally, READS workshop participants shared that knowledge about electricity access technologies is relatively limited; organising joint awareness-raising events such as public demonstrations to advertise solar technol- ››

Barriers to electricity access

ogies could increase consumer knowledge and interest in companies' products.

Even with such measures, displaced people – especially the most vulnerable – may struggle to afford solar products or electricity connections. Developing and introducing flexible payment terms, which would allow varying amounts to be paid each month, or pay-as-you-go models would help to support people with low or seasonally-varying incomes. Mobile payments could additionally support people who move between areas and may not be able to make consistent payments in the same location.

Finally, if the electrification of the camp and surrounding communities proceeds as planned, the government and SOMELEC should uphold commitments made in the National Energy Pact and DtP Roadmap to increase solar generation capacity [37]. Hodh Chargui has very high solar irradiance and solar plants in the region could directly meet the needs of its inhabitants as well as presenting a potential opportunity to export power to Mauritania's neighbours [42].

BARRIER	OPPORTUNITY
Remoteness of displacement settings, resulting in high transport costs, limited supply chains, and difficulties in maintenance and after sales services	Support co-investment in sales outlets, joint warehousing facilities, and maintenance hubs in displacement settings
Limited ability to pay due to irregular or seasonal incomes and frequent movement between locations	Develop flexible financing schemes to facilitate payments
High upfront costs and limited familiarity with electricity technologies	Subsidise solar products for the most vulnerable and organise customer engagement events

Clean cooking for households

Most households in Mauritania have historically relied on firewood for cooking, which has severe environmental and health consequences [43]. A study by BUMEC, published in 2020, reported that over 80% of households in Mbera camp and surrounding host communities used firewood and charcoal, while LPG was used by the remainder and considered expensive by households [42].

LPG use has since increased in the camp. A detailed assessment by UNHCR in 2024, covering over 400 households in Mbera camp, found that 48% of households used LPG [44]. This high adoption rate was largely attributed to the tailored Cash for Gas assistance introduced by UNHCR in 2022 to promote LPG and provide sensitisation against the use of firewood and charcoal. From an initial pilot of 500 households, the programme added 1,000 more participating households in each of 2023 and 2024.

Households reported using LPG for cooking main meals as well as for other domestic tasks such as making tea and heating water, especially during cold or rainy weather [44]. In contrast, the study found that 28% of households still used charcoal and 24% used firewood. This represented a continued dependence on traditional fuels, which users stated were more readily available, and an overall practice of energy stacking. The marginal use of cow dung (0.3%), meanwhile, indicated a strong preference for the other energy sources.

The study also assessed the cost of using different cooking fuels. Charcoal was found to be the most expensive fuel, with households on average spending MRU 570 ($14.60) per month, while households which used LPG had an average spend of MRU 418 ($10.70) per month [44]. Firewood was reportedly the cheapest with an average spend of 341 MRU ($8.75) per month, due to its availability and despite it contributing to deforestation, but respondents reported that its price continues to increase.

The cost of LPG in the camp is higher relative to Bassiknou, where there are state-approved suppliers and prices are regulated [44]. In contrast, the lack of price regulation for suppliers in the camp and irregular supplies lead to fluctuating prices and higher costs [44]. Focus groups and discussions with women and suppliers revealed that high transport costs and supply shortages exacerbate this situation. Despite LPG's health and safety benefits, its cost remains a major barrier to wider adoption and means that many households continue to use wood or charcoal.

The assessment found that almost all LPG users (97%) obtained their LPG from local suppliers in the camp rather than the weekly market in the camp (3%) due to UNHCR's previous funding for the former [44]. The same proportion (97%) found LPG to be easily accessible owing to the proximity and reliability of the suppliers. Most users (81%) found LPG to be affordable, and a significant proportion (62%) exclusively use the largest size of cylinder (12 kg); this was likely to be motivated by long-term savings and a reduction in the frequency of refills (which typically lasted around one month). Those using smaller cylinders (3 kg or 6 kg) reported refilling two to four times per month. ››

Clean cooking for households

Households that use LPG reported issues around the availability (50% of LPG users), safety (35%), high cost (33%), and maintenance (14%) [44]. Payment methods varied: 50% of users paid partly in credit and partly in cash, 32% paid entirely in cash (presumably to avoid debt), and 18% used only credit. Many households valued the diversity of options and used them to best manage their finances; 63% of households believed that their suppliers allowed payments in several smaller instalments and 53% would be interested in such a payment system. Among households not using LPG, the main barriers were high cost (cited by 45% of respondents who use other sources), unavailability of LPG (43%), safety concerns (32%), lack of training (26%), and cultural preferences for other fuels (9%).

The study underpins UNHCR's ongoing efforts to promote LPG in the camp, with 2,500 households supported under the Cash for Gas programme since 2022 [44]. UNHCR has also supported other forms of clean cooking: in 2022, it initiated pilot projects in partnership with GIZ and UNDP to encourage households to generate biogas domestically from recovered sludge, and also targeted building five community biogas production sites in schools and communal areas [41]. ››

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Barriers to clean cooking

Compared to many refugee settings around the world and rural areas of Mauritania, Mbera camp has relatively high access to clean cooking through the widespread use of LPG. Despite this, there remain several barriers hindering the further scale-up of clean cooking solutions. Most LPG users buy cylinders from suppliers in the camp and, while these are generally considered affordable, they are sold at higher prices than those available in Bassiknou. Camp-based sellers also face issues around supply and refilling kits in high quantities which, in turn, increase prices when supplies run low, further exacerbating affordability concerns.

Around half of camp residents do not use LPG for cooking and instead rely primarily on charcoal or firewood. These households reported cost as the most common barrier to using LPG, followed by the unavailability of LPG, lack of training, and safety concerns. Beyond financial and supply challenges, lack of familiarity with LPG stoves (both in terms of use and awareness of their health benefits and convenience) presents a barrier to more widespread adoption.

While LPG provides clean cooking for nearly half of households in Mbera camp, other clean cooking options are generally unavailable. Biogas pilots have been carried out but were hindered by the frequent movement of communities and the long dry season which limits the amount of available feedstock from animals. Electric cooking options, meanwhile, have not yet been introduced. A lack of widespread electricity access limits its adoption and electric stoves and pressure cookers are not widely available for residents of the camp or in surrounding areas.

OPPORTUNITIES

LPG users in the camp are generally satisfied with it but still face issues, primarily the higher price of LPG cylinders in the camp and the variable supply driving up prices. These issues could be addressed through access to finance for camp-based LPG suppliers: offering low-interest loans to LPG sellers could allow them ››

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Barriers to clean cooking

to buy more stock (new cylinders and accessories) when LPG is available, or place larger orders more consistently, to avoid supplies running low and the resulting price increases. This could allow them to set a more consistent price for cylinders in the camp and, as a result, customers would be shielded from price shocks which affect their LPG usage and drive them to use traditional fuels. This would likely need to be implemented by an experienced local bank or MFI to establish and administer the loans.

For households which do not use LPG due to affordability issues, targeted subsidies could help increase uptake. Providing cost-reduction mechanisms, for example through cash transfers or voucher systems that could be used with different suppliers or discounts on LPG stoves, could lower the cost to that of charcoal or firewood and therefore reduce financial concerns from swapping to cleaner fuel. For households which are unfamiliar with LPG or hesitant to make the transition, running public engagement and sensitisation events could increase awareness about the health, safety, and convenience benefits of clean cooking and inform people how to safely access and use LPG.

Finally, expanding the availability of alternative technologies could scale up access to clean cooking. Investigating opportunities for electric cooking (either induction stoves, hotplates, or pressure cookers, depending on local preferences) could unlock greater uptake amongst households. Electric cooking options could be powered by standalone solar systems or by the local grid, provided that the network is suitably reinforced to handle increased load. Novel technologies would need to be piloted carefully and assessed for user preferences, suitability, and affordability before being scaled up.

BARRIER	OPPORTUNITY
Higher costs of LPG in Mbera camp compared to Bassiknou which affects current gas users	Provide financing to LPG suppliers to promote bulk ordering, stabilise supply and reduce price fluctuations
High costs and limited availability of LPG compared to biomass which inhibits households transitioning to gas	Implement subsidies for vulnerable households and sensitisation programmes to increase uptake of LPG
Lack of alternative clean cooking options	Explore the potential for electric cooking technologies

Energy access for livelihoods and productive uses

In rural areas of Mauritania, productive uses of energy (PUE) can support economic development, poverty reduction, and resilience to shocks. In Mbera Camp and host communities, UNHCR promotes green energy jobs for youth and women; this includes through initiatives with partners like GIZ and ILO, under which more than 2,000 people received technical training in collaboration with the local NGO SOS Désert between 2020 and 2024 [41]. More than 150 young refugees were trained to install and maintain solar systems between 2018 and 2024, whilst more than 110 small and medium-sized green enterprises (such as market gardens, waste management initiatives, and solar product shops) were established in the camp and host communities. In 2025, UNHCR expects to support 50 more green income-generating activities.

Green jobs have also featured in previous collaborations between UNHCR and SOS Désert. In 2023, they supported 375 small-scale farmers to grow vegetables for commercial purposes [45]. Nearly 25 tonnes of produce were grown, with two-thirds consumed and one-third sold for a total income of MRU 1,279,620 ($32,800). Another initiative by former partner CIRC supported 60 smallholder farmers to grow produce on six hectares of land using solar-powered boreholes. UNHCR and SOS Désert continued to support this work and, at the time, plans were in place to increase the number of farmers involved in the project.

A study by UNHCR and GIZ investigated green value chains more broadly in Bassiknou in 2022 [46]. It listed key green resources in the region, ranked in order of importance:

- The sun, especially its potential for generating electricity;
- Livestock for farming, pastoralism and the use of animal waste;
- Human waste with potential for biogas production;
- The wind for power generation, albeit acknowledging the technical difficulties with implementation;
- Vegetation, in particular ongoing deforestation and the need to improve soil quality; and
- Water, both its scarcity for agriculture and its role in sanitation services.

The report suggested introducing simple localised biogas production overseen by households, SMEs, or community groups [46]. It also estimated that around 50 units could be installed to create jobs and support approximately 200-300 households at a budget of around EUR 150,000-250,000. ››

There is significant potential for using solar energy to support small businesses in Mbera camp.

Barriers to energy for livelihoods and productive uses

Participants at the READS workshop highlighted that PUE technologies (both for energy itself and appliances which could offer new services) were expensive and unavailable in both Bassiknou and Mbera camp. Additionally, the lack of financial support from organisations meant that enterprises are unable to invest in new technologies to improve their businesses. Participants also reported that there was a lack of training on energy technologies and appliances that could make enterprises more efficient and allow them to offer new services, as well as for other business skills such as administration, financial management and marketing.

UNHCR and SOS Désert have supported green agriculture businesses through solar-powered boreholes providing water for agricultural work but the scale of support has been modest compared to demand. A lack of capacity to increase the number of participants has meant that many smallholder farmers are unable to access water for their crops, which limits their profitability and potential for growth. Water pumping for agriculture can also come into conflict with other vital needs, such as drinking water for people and livestock. As solar water pumping systems can be expensive and difficult to source, local farmers face both affordability and accessibility barriers to using sustainable energy for irrigation or water pumping for agricultural purposes.

OPPORTUNITIES

There is significant potential for using solar energy to support small businesses in Mbera camp. Solar-powered welding, for example, could be highly lucrative and enable the production of beds, chairs, and other furniture tailored to shelter needs, as well as additional hanger structures. Similarly, e-cooking solutions could boost enterprises such as baking bread (a fast-moving product in the camp) along with other high-demand food items, especially during periods like Ramadan. Moreover, the introduction of reliable solar power could unlock green income-generating activities such as pressing and laundry services, offering opportunities for businesses that require consistent energy access to operate.

PUE technologies, both for electricity and appliances, are expensive. Businesses wishing to upgrade their service offerings typically require financial support to invest in new equipment: this could be in the form of subsidies to reduce costs or loans to spread the cost over longer periods. MFIs can provide financing that helps businesses cover the upfront costs of new equipment, whilst loan terms can be tailored to meet the needs of businesses, for example by offering flexible payment schedules that accommodate changing income levels. Existing businesses with more information about their expected earnings and expenses could use this information to obtain lower interest rates, whilst new businesses starting up might require grant funding for equipment.

Both existing and new enterprises could benefit from technical assistance and business training. Supporting entrepreneurs to acquire new skills, such as bookkeeping or administration, or training in new productive appliances could help diversify service offerings, increase profits, and allow more people to start their own businesses. This could be implemented through centralised training centres and delivered by local NGOs that understand the needs and priorities in Mbera camp and the surrounding areas. ››

Barriers to energy for livelihoods and productive uses

For businesses to take advantage of sustainable energy and PUE appliances, these must be made more widely available. As these are reportedly rare at present, suppliers could be incentivised to establish sales outlets or periodic sales visits to more remote locations through financial support, such as grants from donor organisations, or logistical assistance from NGOs or humanitarian agencies. This could be further supported by working in partnership with organisations offering financial support for businesses to highlight the market opportunity for suppliers of solar equipment and PUE appliances.

Finally, there is potential to scale up existing initiatives that support energy for livelihoods. Green jobs in farming and market gardens have received assistance through solar-powered boreholes but the number of people supported could be greatly increased. Scaling up existing projects through additional funding could help to provide new solar irrigation systems, alongside technical assistance and other forms of support for farmers, whilst replicating the work in other areas around Hodh Chargui could bring benefits to both displaced people and host communities.

BARRIER	OPPORTUNITY
High cost of solar equipment and lack of financial support for businesses	Develop financing schemes for businesses to invest in solar energy systems and equipment
Unavailability of appliances for productive uses of energy	Pilot productive use appliances for small businesses alongside capacity building
Limited understanding of the potential opportunities for PUE appliances	Implement awareness raising activities and training programmes on PUE and business skills
Limited scale of solar irrigation projects compared to need	Scale up solar irrigation and implement large-scale water pumping systems

Energy access for community facilities

Access to electricity for community facilities in Mbera Camp and host communities in Hodh Chargui – such as for schools, community centres, social infrastructure, and religious buildings – has historically been limited. Recent initiatives, however, are making significant steps to improve this situation.

Between 2017 and 2021, the children-focused NGO AMADE worked with local partners to provide portable solar lamps to children in rural primary schools without access to the national grid. Also working in Senegal, the project distributed 1,500 solar lamps across 30 primary schools. These lamps were estimated to enable four additional hours of study per child per day and to avoid 200 kg of CO_2 emissions each year. The project reported an increase in girls' attendance in school and supported pupils to study for middle school entrance exams [47].

The first phase of the Mauritanian rural village electrification project, launched in 2024 and expected to run until December 2026, is part of a $90 million fund from the World Bank with the goal of electrifying 481 rural villages across five Southern regions (Trarza, Brakna, Gorgol, Guidimakha, and Assaba) [48]. The project will provide household electrification as well as connections for important community facilities such as schools and health centres and aims to reduce the need for people to move to different areas in search of electricity and essential services.

Whilst these areas of Mauritania do not host significant numbers of displaced people, the DtP Roadmap highlights planned improvements in the Bassiknou area [37]. The Roadmap outlines plans to install solar power plants in Bassiknou and hybridise the existing 3.5 MW thermal power plant that serves the area. It also includes a feasibility study for a new 33 kV transmission line to Vassale, the largest town in Bassiknou *moughataa*, in southeast, near the border with Mali. In addition to providing electricity to households, new grid connections can support improved access for community facilities in a region that has many displaced people living within host communities.

The health centre in Mbera camp was previously managed by the international healthcare NGO ALIMA [49]. An assessment conducted under the MOUDOUN project reported that the facility operated with 61 observation beds and offered a range of services, including emergency care, prenatal and neonatal care, and laboratory diagnostics [39]. These services require a reliable electricity supply, and, at the time, this was provided by diesel generators. Following ALIMA's departure, the operation of the health centre was taken over by the Mauritanian Health Department which, amongst other issues, identified strengthening the power supply through solar energy as a key priority [39].

In support of this, and to reduce environmental impact and the high and unstable cost of electricity, UNHCR announced its intention to solarise many of its facilities in Mbera camp, including health centres [41]. In 2025, the schools and health centres were solarised as part of UNHCR's wider goals to ensure that 100% of its infrastructure runs on solar energy. In addition to lowering operational costs, this transition aimed to improve education and healthcare services to refugees in the camp. UNHCR also plans to build five community biogas production units in schools and communal areas to provide an additional source of clean energy. ››

Barriers to energy for community facilities

The recent electrification of schools and health centres in Mbera camp represents a significant improvement but barriers remain for further scaleup. Whilst facilities in the camp are powered by solar energy, schools and health centres elsewhere in Hodh Chargui that serve displaced people and host communities still lack access to sustainable power. The high costs of implementing energy systems, especially in remote and hard-to-reach areas, make implementation unlikely without external support from the government, NGOs, humanitarian agencies, or development organisations.

Public lighting in communal areas of Mbera camp remains limited. This can restrict movement around the camp after dark, especially to access public services such as latrines, and contributes to reduced perceptions of safety, particularly among vulnerable people and women. The installation of streetlights faces barriers, including the need for high upfront investment and coordination by a centralised organisation, whilst its maintenance requires ongoing attention and the local capacity to fix issues when they arise.

Finally, READS workshop participants highlighted the lack of local technical capacity to install and maintain electricity systems. Whilst some programmes have been able to support capacity building, the current scale and level of expertise would likely need to be increased in order to provide reliable servicing for larger-scale solar energy systems or a potentially large number of streetlights around the camp.

OPPORTUNITIES

Meeting the electricity needs of schools and hospitals in host communities will likely require intervention from national government or international organisations. Building on the solarisation efforts by UNHCR in Mbera camp, other community facilities across the Hodh Chargui region could use this experience to more efficiently roll out solar systems at a wider scale. Grant funding would ››

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Barriers to energy for community facilities

likely be the most direct means of deploying systems with the private sector overseeing procurement, shipping, and installation. To avoid system downtime in the future, local staff could be trained to undertake scheduled operations and maintenance (O&M) support and solve common issues to ensure reliability of electricity supply.

Similarly, the high costs of public lighting (either as standalone solar streetlights or connected to a larger electricity system) inhibits its implementation. Grant funding would likely be required to overcome the initial cost barrier for such an intervention. Working with community groups would be essential to identify which areas are most in need of improved lighting, to obtain community buy-in, and foster long-term ownership of the project and reducing the risk of vandalism in the future.

For both electrical systems and street lighting, improving the local availability of qualified technicians and solar engineers could help scale up installations, ensure prompt maintenance, and enhance equipment reliability. Partnerships between energy companies, vocational training providers, and local NGOs could form the foundation for training programmes focused on energy system installation, O&M, and repair. These initiatives could be aligned with other areas of programming, such as livelihoods and youth employment, to design certified training courses to help promote green jobs.

BARRIER	OPPORTUNITY
High cost of standalone solar systems in host communities	Provide grant funding for solar systems with private sector implementation
High cost of public street lighting	Secure funding for streetlights supported through community engagement and consultations
Limited local technical capacity for O&M of sustainable energy systems	Implement training programmes on the installation, O&M, and repair of sustainable energy systems

Energy access for operational purposes

Humanitarian organisations require energy to provide essential services, such as water pumping, as well as to maintain their operations supporting displaced people in Mbera camp and across the country.

In 2016, UNHCR reported that water in Mbera camp was supplied through five boreholes equipped with submersible pumps with a maximum production capacity of 1,638 cubic metres per day [50]. Refugees had access to potable water through 590 water taps and 177 community water points. It was estimated that approximately 80% of water was consumed for domestic purposes with the remaining 20% used for gardening, livestock, and other livelihood activities.

Transitioning to solar power for water pumping was identified as a key opportunity as early as 2018. After a suggestion following a site visit from engineers from the Veolia Foundation, which had installed a similar solar water pumping system in Ethiopia, UNHCR considered integrating solar power to reduce its costs and emissions [51]. By 2024, UNHCR was in the process of solarising boreholes under its global Project Flow initiative, with completion expected by the end of 2025 [41].

UNHCR has recently introduced solar energy for its offices and guest houses in Nouakchott and Bassiknou [52]. Operational since 2024, these solar systems were installed under UNHCR's Green Financing Facility with support from the Swedish International Development Cooperation Agency (SIDA), the German Federal Ministry of Economic Cooperation and Development (BMZ), and the IKEA Foundation. This allowed UNHCR Mauritania to install the systems under a leasing model with fixed payments over ten years. The systems are expected to save 24,000 litres of diesel each year and reduce CO_2 emissions by 45%, as well as providing financial savings that can be redirected to other areas of programming. ››

24,000

litres of diesel expected to be saved each year through UNHCR's new solar systems

Barriers to energy for operational purposes

The effectiveness of solar power for borehole water pumping in Mbera camp has already been demonstrated, with completion expected through UNHCR's internal funding. However, both limited funding and technical capacity restrict the wider implementation of similar systems elsewhere in Hodh Chargui, where many displaced people and host community members live. This results in the continued use of incumbent methods of pumping water such as manual or diesel pumps.

While UNHCR has successfully solarised its offices and guest houses, these facilities still rely on diesel to meet some of their energy needs. Achieving further reductions in diesel use would either require additional renewable energy capacity, for example installing more solar panels or batteries, or reducing overall energy consumption through energy efficiency measures. Either route would likely require further detailed assessments and investment in new equipment.

Finally, larger-scale systems, especially those that could be replicated across multiple locations, require substantial investment which is susceptible to uncertainties in legislation and policy. Changes in national electrification plans can mean that a proposed solar system may no longer be needed if the national grid is expected to reach the area soon. Alternatively, if a location is earmarked for electrification but the network never arrives, facilities experience power shortages for extended periods. This lack of clarity can inhibit the deployment of systems for operational purposes as larger investments require longer-term planning, and funds may be directed elsewhere if the situation remains uncertain.

OPPORTUNITIES

The planned solarisation of boreholes in Mbera camp could serve as a blueprint for other areas in Hodh Chargui. It may be possible to draw on this experience – in terms of the processes, organisations involved, and local learnings – to scale up similar initiatives more quickly and efficiently. If a larger number of boreholes were solarised under the same project then it may be possible to take advantage of economies of scale, for both the initial installation and ongoing O&M and repairs. Installing solar power for water pumping could also present prominent and valuable benefits for host and refugee communities alike, with potential additional uses such as solar irrigation or other applications of excess solar power. ››

UNHCR has transitioned its offices in Nouakchott and Bassiknou to solar power using internal funds, cutting energy costs and reducing reliance on diesel and the national grid.

Barriers to energy for operational purposes

UNHCR's solarised offices and guest houses provide an opportunity to integrate additional sustainable energy interventions. Energy-saving measures could reduce the overall energy demand of facilities and therefore decrease the amount of diesel used, as solar power would be used preferentially when possible. Engaging with staff through behaviour change initiatives (such as conducting energy awareness training, shutting windows when air conditioners are running, and switching off unnecessary lights) and implementing energy-saving technologies (such as efficient lighting and air conditioners) could reduce demand and minimise diesel usage beyond the current savings achieved by the solar systems.

At the national level, gaining clarity on electrification plans for Mbera camp and surrounding areas could support planning of the large investments necessary for operational energy interventions. Identifying likely routes for electrification – including through grid extension and mini-grids – within government strategies would enable organisations plan and develop long-term financing proposals to finance these investments. Humanitarian and development agencies could collaborate with national and local governments to monitor developments and potential delays, ensuring timely and effective provision of energy services to displacement-affected communities.

BARRIER	OPPORTUNITY
High costs of solar water pumping systems in host communities	Replicate and leverage experience from existing borehole solarisation projects and explore opportunities for economies of scale
Continued use of diesel power in solarised facilities	Implement energy-saving interventions, such as behaviour change and efficient appliances to reduce overall energy demand and diesel consumption
Large-scale systems vulnerable to changes or delays in electrification plans and policies	Coordinate closely with government agencies to stay up to date with electrification strategies and plans

05

Stakeholders and energy projects

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Overview of stakeholders in Mauritania

Sustainable energy in displacement settings in Mauritania is delivered through a variety of stakeholders, each with their own mandates, projects, and objectives. Some organisations operate across the country or internationally, whilst others focus on issues in displacement settings or in Mbera camp specifically.

The stakeholders working in Mauritania can be classified into broad categories:

- **Government agencies** with mandates and responsibilities defined by the Government of Mauritania.
- **Humanitarian and development organisations** including UN agencies operating across the world, international NGOs with projects in Mauritania, and local NGOs working across the country or in certain areas.
- **Community-led organisations** which are directed and managed by members of the displaced or host communities, as well as appointed community representatives.
- **Private sector** companies which offer energy products or services on a commercial basis.
- **Finance institutions** which offer access to banking and other financial services to community members.
- **Other organisations** with a focus on issues that are related to energy in displacement settings.

This section provides a short summary of the most relevant organisations working in displacement settings in Mauritania, their work, and relevant partnerships.

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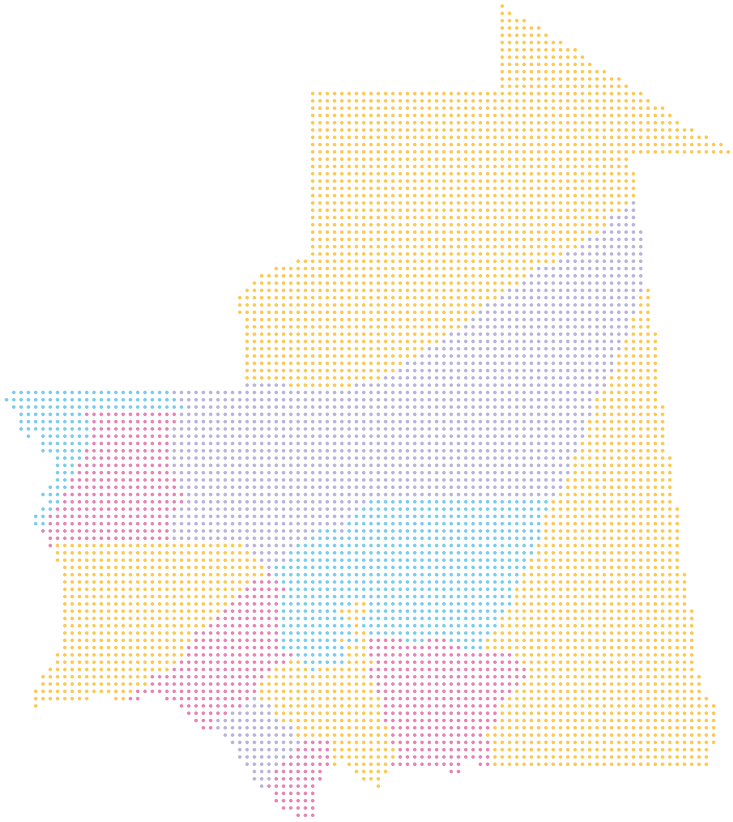
Overview of stakeholders in Mauritania



MINISTRY OF PETROLEUM AND ENERGY
Government
NATIONWIDE

TAAZOUR
Government
NATIONWIDE

SOCIÉTÉ MAURITANIENNE D'ELECTRICITÉ
Government
NATIONWIDE

UNHCR
UN agency
HODH CHARGUI

IOM
UN agency
HODH CHARGUI

UNEP
UN agency
NATIONWIDE

WFP
UN agency
NATIONWIDE

GIZ
INGO
NATIONWIDE

ACF SPAIN
INGO
NATIONWIDE

COOPÉRATION INTERNATIONALE (COOPI)
INGO
NATIONWIDE

SOS DÉSERT
NGO
NATIONWIDE

UNDP
UN agency
NATIONWIDE

TENMIYA
NGO
RURAL AND PERI-URBAN AREAS

CROIX-ROUGE FRANÇAISE
INGO
NATIONWIDE

CIVES MUNDI
INGO
NATIONWIDE

RET GERMANY
INGO
HODH CHARGUI

GRET
NGO
RURAL ZONES

EL INSANIYA
NGO
NATIONWIDE

UNICEF
UN agency
NATIONWIDE

SOS NOMADE
Refugee-led organisation
MBERA CAMP

COMITÉ DES FEMMES RESSOURCES
Refugee-led organisation
MBERA CAMP

VOLONTAIRES RÉFUGIÉS POUR LA PROPRETÉ DU CAMP (VRPC)
Refugee-led organisation
MBERA CAMP

BRIGADE ANTI-FEU (BAF)
Refugee-led organisation
HODH CHARGUI

BRIGADE VERT
Refugee-led organisation
MBERA CAMP

LIVESTOCK BREEDERS ASSOCIATION
Refugee-led organisation
MBERA CAMP

ARPEV
Refugee-led organisation
MBERA CAMP

COMITÉ MAGHRÉBIN DE L'ÉLECTRICITÉ (COMELEC)
Association
NORTH AFRICA INCLUDING MAURITANIA

ORGANIZATION FOR THE DEVELOPMENT OF THE SENEGAL RIVER (OMVS)
Association
REGIONAL

ENVIROMENA POWER SYSTEMS
Private sector
NOUAKCHOTT

MASDAR
Private sector
NATIONWIDE

AERA GROUP
Private sector
NATIONWIDE

SOLAR ECOBAT
Private sector
NATIONWIDE

SEEMA SOLAR
Private sector
NATIONWIDE

AFRICAN DEVELOPMENT BANK
Financial institution
NATIONWIDE

DJIKKÉ
Microfinance institution
NATIONWIDE

AGENCE FRANÇAISE DE DÉVELOPPEMENT (AFD)
Financial institution
NATIONWIDE

LA BANQUE MONDIALE MAURITANIE
Financial institution
NATIONWIDE

Stakeholder directory

GOVERNMENT

MINISTRY OF PETROLEUM AND ENERGY

Government

NATIONWIDE

The Ministry of Petroleum and Energy is the central governmental body responsible for energy policy, planning, and regulation in Mauritania. Its mandate covers electricity access, renewable energy, electrification, petroleum and mining while ensuring alignment with national interests and sustainable development goals, and sector reforms.

SOCIÉTÉ MAURITANIENNE D'ELECTRICITÉ (SOMELEC)

Government

NATIONWIDE

SOMELEC is the state-owned utility company in charge of electricity generation, transmission, and distribution in urban and peri-urban areas in Mauritania. While the national energy mix has historically relied on small, distributed diesel generators, there has been a recent shift toward grid-connected electricity, increasingly sourced from renewable energy, which has leveraged the country's strong wind and solar potential.

TAAZOUR

Government

NATIONWIDE

The General Delegation for National Solidarity and the Fight against Exclusion (TAAZOUR - Synergy) aims to reduce poverty and support vulnerable groups through social and economic inclusion initiatives. Under its Al-Sheila programme it has installed 12 independent solar power plants in remote areas, connected nine rural areas to the national grid, and distributed 20,000 sets of butane gas cylinders to reduce the dependence on wood and charcoal for cooking.

Stakeholder directory

HUMANITARIAN AND DEVELOPMENT

UNHCR

UN agency

The Office of the United Nations High Commissioner for Refugees (UNHCR) leads the interagency humanitarian response in Hodh Chargui region with a focus on improving access to protection, assistance, and inclusion. Their multi-year strategy focuses on protection, food security, documentation, livelihoods, environmental resilience, refugee participation, and inclusion in national systems.

HODH CHARGUI

IOM

UN agency

The International Organization for Migration (IOM) works with the Government of Mauritania to improve national migration capacity, as well as supporting host communities around Mbera camp and Malian refugees fleeing conflict in their country. Key programmes include building government capacities for migration, strengthening anti-child trafficking and protection mechanisms, and supporting migrants through provision of food, shelter, and voluntary return services.

HODH CHARGUI

UNDP

UN agency

In Mauritania, initiatives of the United Nations Development Programme (UNDP) include those focused on renewable energy and rural electrification, such as through the National Cell for the Promotion of Renewable Energies and Rural Electrification (CPERER) as a coordination mechanism for energy transition efforts.

NATIONWIDE

UNEP

UN agency

The United Nations Environment Programme (UNEP) implemented the “Ecosystem-based Adaptation in Mauritania, Seychelles and Nepal” initiative to restore 450 hectares of multi-use desert greenbelt in Mauritania to improve climate resilience, freshwater supply, biodiversity, and sustainable livelihoods through knowledge sharing and ecological restoration activities. UNEP and the Green Climate Fund support a $33 million project led by the Ministry of Environment and Sustainable Development to restore ecosystems, strengthen climate-resilient agriculture, and improve livelihoods in four vulnerable zones.

NATIONWIDE

Stakeholder directory

HUMANITARIAN AND DEVELOPMENT

WFP
UN agency

The World Food Programme (WFP) implements emergency food aid and resilience-building activities by supporting both Malian refugees and vulnerable host communities. This includes the National School Meal Programme and clean cooking interventions in schools to provide meals for children and pilot energy-efficient cooking solutions to reduce firewood consumption.

NATIONWIDE

UNICEF
UN agency

The United Nations Children's Fund (UNICEF) works on health, nutrition, access to safe drinking water, sanitation, hygiene, education, and protection for children in Mauritania. With the increased influx of refugees in Hodh Chargui, UNICEF adapted its operations to include refugees and host communities in its interventions.

NATIONWIDE

GIZ
INGO

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) works across several priority sectors such as peace and inclusive societies, education and sustainable growth for good jobs, and environment and natural resources. GIZ, together with UNHCR, implements a project to improve access to basic services such as healthcare, education, and civil documentation; promote livelihoods and economic inclusion through vocational training and entrepreneurship; enhance social protection via strengthened referral systems and a national social registry; and foster social cohesion through dialogue, cultural exchange, and conflict-resolution activities.

NATIONWIDE

ACF SPAIN
INGO

Action Against Hunger Spain (Acción contra el Hambre, ACF Spain) has been operating in Mauritania since 2007, working in Nouakchott and the Guidimakha, Hodh Chargui, and Gorgol regions. It provided emergency response during the 2023 influx of over 50,000 Malian refugees by delivering water, hygiene, shelter, food and essential supplies to around 12,000 people. ACF Spain has also implemented development interventions through nationwide programmes addressing malnutrition in nearly 5,000 children and strengthening local health and resilience systems.

NATIONWIDE

Stakeholder directory

HUMANITARIAN AND DEVELOPMENT

COOPÉRATION INTERNATIONALE (COOPI)
INGO

Since 2019, Coopération Internationale (COOPI) has supported local economic and productive development in Mauritania, focusing on conflict prevention and community resilience by improving livelihoods and local capacities. Its work in Hodh Chargui region covers strengthening livelihoods, improving natural resource management, enhancing disaster preparedness, and supporting child and maternal nutrition.

NATIONWIDE

CROIX-ROUGE FRANÇAISE
INGO

The Croix-Rouge française (French Red Cross), in collaboration with the Mauritanian Red Crescent, supports local health systems to prevent and treat malnutrition and enhance pathways for vulnerable populations through partnerships with health authorities and community-based interventions. It has provided emergency humanitarian assistance to displaced people in Hodh Chargui by establishing health teams at entry points, carrying out medical and psychological screening upon arrival, distributing dignity kits, supporting medical care, and providing cash transfers for households.

NATIONWIDE

CIVES MUNDI
INGO

Cives Mundi is an international NGO that has been operating in rural areas of Mauritania (as part of its wider Maghreb presence) since 2005. In collaboration with the Collective Network for the Sustainable Development of Oasis (RADDO), the organisation focuses on restoring oases and combating desertification. Their initiatives aim to mitigate environmental degradation in rural areas by promoting sustainable farming techniques, improving water resource management, and establishing renewable energy solutions.

NATIONWIDE

RET GERMANY
INGO

RET Germany is an international NGO that operates in Hodh Chargui and Mbera camp. It began working in Mauritania in 2019 and its areas of intervention include education programmes to promote children staying in school, economic development and livelihoods work, and peacebuilding.

HODH CHARGUI

Stakeholder directory

HUMANITARIAN AND DEVELOPMENT

SOS DÉSERT

NGO

SOS Désert is a national NGO established in 2010. Originally created to support local semi-nomadic communities in central Mauritania, it has evolved into an organisation responding to the Malian refugee crisis in partnership with UNHCR. It supports the work of INGOs in Mbera camp, constructs infrastructure to benefit both refugee and host communities, distributes improved cookstoves and other basic items, and trains village committees and volunteers on joint projects.

NATIONWIDE

GRET

NGO

GRET has been working in Mauritania since 1991, encouraging local initiatives and taking a participatory approach to contribute to meeting the essential needs of populations in line with public policies. GRET has partnered with institutions, civil society, and research stakeholders in Mauritania to deliver tailored solutions in agriculture, health, water and sanitation, energy, and livelihoods, in order to support sustainable development and community empowerment.

RURAL ZONES

TENMIYA

NGO

Tenmiya is a Mauritania-based NGO dedicated to investing in water, energy, and environmental projects across rural and peri-urban areas. Its initiatives aim to alleviate poverty through microfinancing and sustainable resource management.

RURAL AND PERI-URBAN AREAS

EL INSANIYA

NGO

El Insaniya is an NGO that collaborates closely with UNHCR to provide legal assistance to refugees and asylum seekers, particularly in the Mbera camp and surrounding areas. In 2024, El Insaniya supported 1,588 individuals in criminal and civil matters, including facilitating the issuance of 441 birth certificates for children, in partnership with UNHCR and the civil registry. Together with UNHCR, it also supports the registration of refugee-led organisations under Mauritanian law in Mbera camp to enhance autonomy and capacity to mobilise resources of displaced people.

NATIONWIDE

Stakeholder directory

COMMUNITY-LED ORGANISATIONS

SOS NOMADE
Refugee-led organisation

SOS Nomade is a refugee-led organisation in Mbera camp focusing on child protection and community support. It supports education for children and adults, promotes inclusive learning for nomadic people, and shares information on environmental and water issues. Supported by UNHCR through a grant agreement, SOS Nomade organises recreational activities and, together with Femmes Ressources, it has created safe spaces for children and women in the camp.

MBERA CAMP

COMITÉ DES FEMMES RESSOURCES
Refugee-led organisation

Established in 2012, the Comité des Femmes Ressources is a women-led community-based organisation in Mbera camp which aims to support refugees facing protection risks, including women, children, those with disabilities or medical conditions, and people from marginalised backgrounds. Comprising around 100 Malian refugee women from diverse ethnic groups and age ranges, Femmes Ressources provides coordination between communities, humanitarian agencies, and the government. It conducts door-to-door visits and awareness-raising sessions to identify and assist individuals at risk. With support from UNHCR including flexible funding, office space, and capacity development, the committee has facilitated access to essential services such as health and education for vulnerable individuals.

MBERA CAMP

VOLONTAIRES RÉFUGIÉS POUR LA PROPRETÉ DU CAMP (VRPC)
Refugee-led organisation

Founded in 2018, VRPC is the first refugee-led environmental association in Mbera Camp. VRPC mobilises over 200 volunteers, mostly women and youth, to keep the camp clean by carrying out daily clean-up campaigns to improve hygiene and protect community health.

MBERA CAMP

BRIGADE ANTI-FEU (BAF)
Refugee-led organisation

Formed in 2013 by refugee elders in response to rampant bushfires and environmental degradation, Brigade Anti-Feu (Anti-Bushfire Brigade, BAF) now includes nearly 200 refugee and host community volunteers. The group has extinguished over 200 fires and built more than 1,000 kilometres of firebreaks. With support from SOS Désert and local authorities, BAF conducts fire prevention, reforestation, and environmental awareness activities across the Hodh Chargui region. In 2022, BAF received the UNHCR Nansen Award for Africa in recognition of its contribution to climate resilience and peacebuilding.

HODH CHARGUI

Stakeholder directory

COMMUNITY-LED ORGANISATIONS

BRIGADE VERT

Refugee-led organisation

MBERA CAMP

Founded in 2022, Brigade Vert (Green Brigade) is a youth- and women-led movement promoting environmental restoration and awareness in the camp. The group has planted over 17,300 trees, established a community nursery with Sahelian species, and collaborated with SOS Désert to rehabilitate a five-hectare area. It also organises regular sensitisation campaigns on plastic reduction and waste management. Its vision is to scale up these efforts by integrating solar energy, eco-construction, and environmental education into broader community activities to make sustainability a shared responsibility across generations.

LIVESTOCK BREEDERS ASSOCIATION

Refugee-led organisation

MBERA CAMP

Since 2013, the Camp Livestock Breeders Association has supported pastoralist livelihoods through animal husbandry, food security, and economic development. The association provides practical support to herders while advocating for improved access to feed and veterinary services, particularly during the dry season. Its work contributes to community nutrition and resilience, ensuring that livestock remain a vital asset for both food and income in the camp.

ARPEV

Refugee-led organisation

MBERA CAMP

Established in 2012, Association des Réfugiés pour la promotion d'un environnement Vivable (Refugee Association for the Promotion of a Livable Environment, ARPEV) is one of the most active environmental associations in Mbera camp with around 300 members. It focuses on reforestation, tree distribution, community gardening, and environmental education. ARPEV works both inside and beyond the camp, engaging host communities through outreach and planting activities.

Stakeholder directory

PRIVATE SECTOR

MASDAR
Private sector

Masdar, a renewable energy company from the United Arab Emirates, installed the 15 MW Sheikh Zayed solar power plant in Nouakchott which supplies around 10% of the capital's electricity needs. Masdar installed an additional 16.6 MW across eight remote locations in Mauritania, all operated by SOMELEC.

NATIONWIDE

ENVIROMENA POWER SYSTEMS
Private sector

Enviromena, in collaboration with Masdar, developed a 15 MW photovoltaic power plant in Mauritania. At the time of its inauguration in 2013 it was the largest such installation in Africa.

NOUAKCHOTT

AERA GROUP
Private sector

Aera Group is a French energy developer which built the 50 MW Toujounine Solar Plant, the largest in Mauritania. Aera Group also developed the Nouakchott wind farm, with a 30 MW capacity, and the Boulenouar wind farm, with a 102 MW capacity.

NATIONWIDE

SEEMA SOLAR
Private sector

Seema Solar is a Mauritanian solar energy company based in Nouakchott that specialises in designing, installing, and maintaining PV systems for both off-grid and grid-connected systems.

NATIONWIDE

SOLAR ECOBAT
Private sector

Solar Ecobat is a Mauritanian social enterprise focused on renewable energy solutions, particularly in rural and underserved urban areas. It provides solar lamps and stand-alone solar kits to address frequent blackouts in rural areas and the high cost of diesel for irrigation.

NATIONWIDE

Stakeholder directory

FINANCIAL INSTITUTIONS

AFRICAN DEVELOPMENT BANK

Financial institution

The African Development Bank Group (AfDB) is a multilateral development finance institution which provides financial support to African governments and private investors. In Mauritania, AfDB implements the RIMDIR1 project under the Desert to Power initiative which aims to expand total energy access through the development of 40 solar hybrid mini-grids using a public-private partnership model.

NATIONWIDE

AGENCE FRANÇAISE DE DÉVELOPPEMENT (AFD)

Financial institution

Agence Française de Développement (French Development Agency, AFD) is a public financial institution that has been active in Mauritania for over 40 years, supporting projects that improve energy access, strengthen infrastructure, and promote the energy transition. The “Strengthening of Energy Supply” in Kiffa, completed in 2016, involved constructing a hybrid thermal and photovoltaic power plant to provide electricity to approximately 5,000 households.

NATIONWIDE

LA BANQUE MONDIALE MAURITANIE

Financial institution

La Banque Mondiale (the World Bank) operates in Mauritania through La Banque Mondiale Mauritanie and focuses on securing investments in critical sectors such as agriculture, telecommunications, and energy. La Banque Mondiale supported the MOUDOUN project to boost water, sanitation, and hygiene capacity through the construction of a water tower, a new borehole, and over 1,000 latrines. The Bank’s IDA 18 RSW funding enabled the Ministry of Health to take over the delivery of health services in Mbera camp since 2020.

NATIONWIDE

DJIKKÉ

Microfinance institution

Djikké is a Mauritanian microfinance institution that provides savings and credit services. It has opened branches in Bassiknou and Mbera camp to serve displacement-affected communities. Djikké has provided green credits and supported LPG cylinder distributions in other areas of the country.

NATIONWIDE

Stakeholder directory

OTHER ORGANISATIONS

COMITÉ MAGHRÉBIN DE L'ÉLECTRICITÉ (COMELEC)

Association

NORTH AFRICA INCLUDING MAURITANIA

The Comité Maghrébin de l'Électricité (Maghreb Electricity, COMELEC), also known as the North African Power Pool, is a regional electricity cooperation initiative among North African countries aimed at promoting the interconnected operation of national power systems to enhance energy security and efficiency.

ORGANIZATION FOR THE DEVELOPMENT OF THE SENEGAL RIVER (OMVS)

Association

NATIONWIDE

Established in 1972, the Organization for the Development of the Senegal River (OMVS) is a regional institution focused on the integrated management and development of the Senegal River Basin, involving Mauritania, Senegal, Mali, and Guinea. OMVS promotes cooperation in areas such as water resource management, hydropower generation, agriculture, and environmental protection to support sustainable development and regional stability. OMVS's power grid is interconnected with Mauritania's electricity transmission system, with Nouakchott linked via a transmission line extending to Dagana in Senegal, enabling regional energy exchange.

UNHCR Mauritania: Advancing sustainable energy solutions

Solarising UNHCR offices for resilience

In Mauritania, the UNHCR Green Financing Facility (GFF) financed the procurement and installation of grid-tied solar PV systems at the UNHCR offices in Nouakchott and Bassiknou, which respectively host approximately 50 and 80 staff members. Implementation began in 2023, and both systems became fully operational in September 2024.

With a total installed capacity of 114 kWp the systems supply 42% of the offices' load, leading to approximately 45% savings in greenhouse gas emissions. In Bassiknou, the system has an integrated fuel control solution, resulting in fuel savings during grid outages. Energy costs in both offices have decreased by an estimated 18%, driven by reduced diesel and grid consumption, as well as efficiency upgrades to air conditioning and electronic equipment. Under the GFF's leasing arrangement, UNHCR Mauritania will repay the investment over a ten-year period.

With the new solar systems in place, the Country Operation can now better control and forecast its energy expenditures: a key improvement for financial planning and operational resilience. The financial savings on energy are freed up for UNHCR's programmes, allowing the provision of additional support where it is needed the most.

Solarising boreholes for water supply

UNHCR Mauritania is implementing Project Flow, a global initiative established by UNHCR to transition diesel-powered water systems to renewable energy through an innovative revolving funding model. Project Flow is supported by the Grundfos Foundation, the Government of Denmark and the Government of Germany. The project aims to reduce operational costs of water systems and mitigate carbon emissions while ensuring reliable water access for refugees and host communities.

Following a feasibility and detailed design study conducted in 2023, five high-capacity boreholes were identified in Mbera camp for solar-hybrid conversion. Together, these systems currently supply more than 1,500 m³ of water per day to approximately 120,000 people living in the camp. The new hybrid configuration (solar diesel) will significantly reduce fossil fuel usage and mitigate an estimated 190 tonnes of CO_2 emissions per year, while also lowering operational costs. Under the project's implementation model, the capital investment cost of the solar pumping systems is covered by Project Flow, which will then be repaid by the Mauritania operation over five years using the savings generated from reduced fuel usage.

Scaling LPG access through local markets

The Cash for Gas programme has significantly expanded access to clean cooking solutions in Mbera camp. Following a technical assessment by the Geneva Technical Hub, the initiative was launched to reduce household expenditure on firewood and charcoal by facilitating the adoption of cleaner and safer energy options.

Initially, the programme provided targeted cash assistance to enable households to purchase ››

UNHCR Mauritania: Advancing sustainable energy solutions

LPG cylinders and cooking accessories. In parallel, seven refugee entrepreneurs were supported to establish LPG retail outlets within the camp, reducing the need for families to travel approximately 15 km to Bassiknou town for refills. Starting as a pilot with 500 households in 2022, the initiative scaled up to reach 1,000 households in both 2023 and 2024. In 2025, for the first time, an additional 1,000 households from host communities were included.

In 2024–2025, the programme is further evolving towards a market-based model in partnership with a local microfinance institution, promoting a savings and green loan mechanism to enhance household affordability and sustained use of LPG. This approach is supported through UNHCR's internal Climate and Environment Innovation Fund, which facilitates the testing of innovative solutions for clean energy access and climate resilience in displacement settings.

Highlighting the connections between clean cooking and core programmatic areas such as shelter and protection has been critical for fundraising and accessing funding opportunities. Demonstrating success has also strengthened donor engagement and the potential for programme scale-up. Whilst LPG has seen substantial uptake, the adaption of biogas for cooking has been limited. Projects at both household and institutional levels have suffered from a lack of feedstock (as cows do not have enough food to produce sufficient dung during the lean season) and competing water needs.

Reflections on key challenges

Mauritania's sustainable energy sector remains nascent. Quality equipment to support solarisation projects was not readily available and needed to be sourced from the wider region. For innovative and integrated solar systems, the domestic market is still premature, with very limited private sector participation—particularly in the Hodh El Chargui region, where Mbera camp is located—resulting in longer and more complex supply chains. In contrast, the LPG market has shown encouraging progress, with the expansion of two major companies in the region helping to strengthen supply chains and complement UNHCR's Cash for Gas initiative.

During an integrated solar home system pilot, UNHCR faced several challenges related to technology functionality, which hindered full implementation. Many of these issues could have been more easily resolved in a more mature market with a competitive and well-established ecosystem of energy service providers. In Mauritania, such markets are still emerging but are expected to evolve in the coming years. Lessons learned from this and similar projects will contribute to their development, while also underscoring that establishing reliable systems and sustained technical support require considerable time and effort.

The Cash for Gas programme found that behaviour change takes time. Community engagement has been critical for explaining the approach and reasoning behind the interventions, such as reducing firewood collection and the cumulative high cost of charcoal. Working with the UNHCR Protection Team helped boost uptake and continuation by allowing for more frequent household visits and reinforcing key messages. Similarly, working with community leaders and partner organisations was essential for sharing information and gathering feedback.

Like the wider humanitarian sector, UNHCR Mauritania was severely impacted by fund- ››

UNHCR Mauritania: Advancing sustainable energy solutions

ing issues. Major budget cuts affected overall operations, resulting in the postponement and adjustment of several energy intervention milestones and project goals. Furthermore, navigating new rules for procurement, recruitment, and partnerships became more complicated. Fortunately, solarisation work for schools and hospitals was already underway when the funding cuts occurred, allowing it to continue and highlighting the benefits of implementing projects while conditions are favourable. Although the outlook for 2026 remains challenging, 2027 is expected to be more stable, positioning Mauritania for future energy-related programming.

Looking ahead to expanding energy access

Electrification plans for Mbera camp are currently under discussion as part of the broader urbanisation agenda for the region through the World Bank-supported MOUDOUN Project, which aims to strengthen basic infrastructure and services in emerging urban centres. While the project envisions eventual network extension to the camp, further planning and coordination are required to ensure last-mile connectivity for households and to define the operational framework for integrating the camp into the wider electricity network.

UNHCR's broader vision in Mauritania is to transition access to services to national systems, meaning refugee households and refugee-owned businesses would become private clients of SOMELEC, just like nationals. However, the semi-permanent nature of the shelters in the camp poses safety risks such as fire hazards. In addition, SOMELEC's network extension plans will need to consider the camp's extension and reorganisation plans for electricity connections within the camp. Connections for hundreds of shops (around 15% operated by Mauritanian nationals) could be viable, with off-grid solutions also in the mix, especially for households.

The solarisation of UNHCR's offices has significantly reduced their reliance on diesel generators and the national grid. Solar-powered health centres now redirect diesel previously used for generators to instead fuel ambulances, whilst all ten schools in the camp now have access to fans and lighting. The Cash for Gas programme will continue expanding access, including outside of the camp, in alignment with national policy priorities that support inclusion. Emerging opportunities for e-cooking could further complement the Cash for Gas programme, diversifying clean cooking options available to households. Success will depend on developing local energy markets, engaging the private sector, and integrating displaced communities into broader economic systems.

Opportunities to harness energy for productive use remain largely untapped in and around Mbera. With greater investment, solar energy could power irrigation systems to boost agricultural production and resilience to droughts, while additional cold-chain and refrigeration facilities could reduce post-harvest losses and support small businesses in food preservation and storage. Expanding energy access for such productive purposes would not only strengthen livelihoods and food security but also stimulate local economic growth, improve the viability of energy systems, and enhance self-reliance among both refugee and host communities.

Action Contre la Faim Mauritania: Integrating energy into humanitarian and development work

Action Contre la Faim (ACF) Mauritania operates across both refugee and host communities, adopting a dual approach that combines humanitarian interventions in and around the Mbera camp with long-term development projects in surrounding regions. Energy access underpins ACF's work across multiple sectors, enabling access to essential services such as water, health, and education for both refugee and host populations.

Early energy initiatives and lessons learned

Around four years ago, ACF undertook a large-scale solarisation project which installed 71 solar-powered community mills across rural areas. The project faced several challenges due to limited technical capacity, weak understanding of local markets, and the absence of a clear O&M plan. Equipment had to be imported from Spain and, when systems failed, repairs proved difficult and costly because of the distance from the capital and lack of spare parts.

These challenges highlighted the importance of local expertise, strong supply chains, and proper O&M planning. Since then, ACF has deployed an in-country energy expert who oversees system design, supplier engagement, installation, and maintenance, which has significantly improved the technical quality and sustainability of new projects.

Water access and solar-powered pumping

Access to water remains the top priority for both refugees and host communities, particularly for pastoralist populations who rely on livestock herding. ACF has installed solar-powered water pumping systems in villages surrounding Mbera camp to meet basic needs and support social cohesion. These systems were designed to serve both refugees and host communities, helping to reduce tension over scarce water resources.

One notable example is in Aghor village, where an existing solar garden was reconfigured to provide water for newly arrived refugees during an emergency influx in late 2023. Earlier water projects by other organisations had often failed due to design flaws and weak maintenance arrangements, rather than the solar technology itself. ACF's work demonstrated the importance of context-specific design and reliable local maintenance to ensure lasting functionality.

Health sector interventions

In the health sector, ACF found that many rural health centres were previously equipped with solar systems that were no longer operational. Poor-quality components, inadequate installation, and the absence of O&M had led to widespread failure, forcing many facilities to revert to diesel generators. The team found lead-acid batteries deteriorating within months, electrical wiring exposed to sunlight, and batteries left unprotected. These visible failures had shaped local perceptions that solar energy was unreliable. Building on these findings, ACF has increasingly focused on improving energy planning through tailored assessments and system design. ››

Action Contre la Faim Mauritania: Integrating energy into humanitarian and development work

Solarising a school using the REact

In 2024 ACF, with its partner acciona.org (an organisation specialised in access to energy and water), co-developed the Renewable Energy Access and Context Tool (REact), an assessment tool designed to estimate energy needs in humanitarian contexts and guide decision-making on how best to address them.

To test REact, ACF sought humanitarian contexts where limited access to energy posed a major challenge and where using REact could provide a clear advantage in facilitating the deployment of solar systems. A mapping exercise across ACF missions identified Mauritania and Colombia as priority countries, with Mauritania selected for the first pilot due to its particularly acute energy access constraints.

Communities themselves did not necessarily identify energy as an immediate need (largely because they had never had access to it) but many public services relied heavily on fuel-powered generators. During the exploratory mission, ACF and acciona.org found that improving access to energy for communal services such as schools, health centres, and water systems was a pressing priority. Using REact, the team identified education as one of the sectors most in need of energy interventions.

The REact assessment was carried out in Aghor village, home to both refugee and host communities. The process was led by ACF's in-country energy expert who conducted the field assessment and collected data to inform the system design. Based on the results, the design was developed by ACF and acciona.org technical teams in Spain, providing an initial system specification that was later verified and finalised by the supplier following an on-site visit. The final design closely matched the initial REact-based proposal, demonstrating the tool's accuracy and practical value.

Within just six months of the assessment, the solar system was installed by one of the strongest technical suppliers in Mauritania, prioritising quality and reliability rather than the lowest cost. The system included lithium batteries, ensuring durability and improved performance. The installation provided electricity for lighting and ventilation in the local school and adjacent teacher accommodation, significantly improving learning and living conditions. The solar system also enabled night classes, providing students in the sixth year with the opportunity to study and prepare for their high school entrance exams.

Community consultations also revealed interest in using solar power for small-scale income-generating activities such as phone charging or refrigeration. However, after a participatory consultation, ACF chose not to include these elements to avoid potential conflict over ownership and management responsibilities over a public infrastructure such as schools.

The pilot in Mauritania demonstrated REact's effectiveness as a context-sensitive energy planning tool, bridging assessment and implementation. By grounding system design in locally collected data, REact enabled a tailored, evidence-based response that enhanced education infrastructure while supporting both refugee and host communities. ››

Action Contre la Faim Mauritania: Integrating energy into humanitarian and development work

Expanding access to cooking energy

ACF also supports clean cooking interventions, mainly through the distribution of improved cookstoves to refugee and host households. These activities aim to reduce firewood consumption, environmental degradation, and protection risks linked to firewood collection. The initiative complements other energy-related projects by improving household resilience and fostering peaceful coexistence between communities competing for natural resources.

Community-led approaches

ACF's operation in Mauritania relies heavily on participatory engagement. Village chiefs and community representatives play a key role in prioritising interventions and ensuring local ownership. Energy is rarely expressed as a direct community need; rather, it emerges indirectly through priorities such as water access, health, or livelihoods. Field teams use participatory methods to interpret underlying energy needs and design appropriate solutions. In fragile settings, clear communication and inclusive planning are critical to preventing perceptions of inequality.

Collaborations and future direction

ACF has been collaborating with UNHCR in Mauritania to support solarisation efforts, particularly for water boreholes powered by generators and other communal infrastructure within Mbera camp, which remain a key operational priority. While the extension of the national grid could strengthen essential services in the longer term, progress remains limited in the remote Hodh Chargui region. Tensions between host communities and camp residents persist, as many perceive that refugees in Mbera camp enjoy better living conditions than surrounding villages. The area is often overlooked by the central government, with most services provided by UN agencies and humanitarian partners. In response, ACF has deliberately focused its strategy outside the camp, supporting host communities and newly arrived refugees settling in villages where investment and services remain scarce.

Looking ahead, ACF aims to build on its success in energy programming and strengthen its role as a sector leader in Mauritania. The presence of a dedicated in-country energy expert has been critical to maintaining quality standards, although sustaining these standards can be challenging, particularly when cost considerations lead teams to favour cheaper but less durable options. ACF also plans to revisit earlier initiatives such as WFP's e-cooking programme in schools, exploring opportunities to scale them through solar solutions.

The REact tool remains central to ACF's approach and is now entering a consolidation phase. Following several successful pilots, the next step is to refine the tool further, test it across additional sectors such as health and shelter, and expand collaboration with donors and humanitarian partners. While donors increasingly view REact as a ready-to-use tool, ACF recognises the need for continued field testing, feedback, and iterative improvement to ensure its full operational maturity. Strengthening dissemination and encouraging other actors to collect and share field data will be essential for wider adoption.

06

Potential high-impact projects

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Overview of the design process

Effective long-term solutions cannot be implemented in isolation. Close coordination among stakeholders and fostering learning between different organisations is essential to use resources as efficiently as possible and to scale up existing work. Designing potential energy interventions together – bringing together the experience and expertise of many different stakeholders – can help to identify the most impactful areas of programming as well as the potential barriers and enablers that will affect its implementation.

In support of this, the READS workshops featured a session in which groups of diverse participants came together to learn about each other's work and co-design potential high-impact projects, building on the experience made with existing interventions. Each group focused on a different energy issue with the goal of outlining a viable project opportunity that would directly address some of the greatest issues currently faced in displacement contexts in Mauritania.

By involving a range of stakeholders in the collaborative co-design process, and crucially refugee and host community representatives who are integral to any project design, the project concepts aim to address the barriers and gaps that the participants identified as the most pressing. They draw on approaches that have already been piloted that show potential to be either replicated in different settlements or scaled up.

Following these initial designs and augmented with elements of others that were identified as viable project opportunities, these ideas have been further developed into the project concepts presented in this section. These summaries provide an outline of the potential project including:

- The proposed location and scale,
- The project activities and potential implementation partners,
- Enablers and barriers which could affect its realisation,
- How these projects link to previous work through replication and scaling, and
- Ideas for community engagement, gender mainstreaming, and inclusivity.

The estimated costs of the projects are included as a guide and will vary significantly depending on their scale and complexity. The project concepts are designed to be a starting point to further develop interventions, scope out potential partnerships, attract investment, and ultimately increase access to sustainable energy.

The READS workshops featured a co-design session for stakeholders to develop viable, high-impact projects to increase access to sustainable energy for their specific area.

Important considerations for project design

There can be considerable differences the needs and priorities of displaced and host communities, even in similar areas of the country. Variations in the amount of existing infrastructure, levels of economic activity, distances to towns, culture, and local needs and priorities will determine what kinds of interventions would have the greatest effect in increasing access to sustainable energy in each location. In all interventions, efforts must be made to address both the needs of host communities as well as refugees to not disadvantage one group and to promote social cohesion and peaceful coexistence.

A one-size-fits-all approach will not be able to account for these nuances. Before beginning any of these projects, further research and detailed assessments at the local level will be necessary to better understand the specific and unique situations on the ground. Such assessments should also be independent, objective, and afforded appropriate time and resources to best develop long-term implementation plans. These should be done with stakeholders which best understand their energy needs and are therefore best positioned to shape the proposed interventions.

Many of the project concepts aim to use market systems approaches to better integrate the private sector in the provision of sustainable energy in displacement contexts. For this to work in the long term, national or international companies should set up operations with supply chains to outlets in refugee settlements and host communities – and be adequately supported in doing so, where required – to establish a permanent presence which endures after external funding ends. Local companies, meanwhile, should be supported to conform with national and international product standards to ensure quality for customers. All companies and organisations which implement sustainable energy technologies should facilitate ongoing and independent evaluations to assess their benefits to the user in the field, not just under laboratory or ideal conditions, to monitor their continued usage and long-term benefits.

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Community involvement

Refugee and host communities should be involved from the outset when designing sustainable energy interventions as they understand best their own energy needs and priorities. Community members are particularly well-placed project partners owing to their networks and knowledge of the context, and so should have important roles to play in the design and implementation of interventions. Some potential opportunities to involve the community include:

- Working with community groups and a range of leading figures to gather input on design of intervention plans, and to advocate for sustainable solutions with other stakeholders and within their communities,
- Consulting with different community segments during the design phase of interventions and for delivery model development, such as through focus group discussions, co-design workshops and community mapping interventions, whilst coordinating with other organisations to minimise overlap and survey fatigue,
- Hiring community members as sales agents, community mobilisers, and product ambassadors,
- Equitably targeting both refugee and host community members for employment and sales targets,
- Providing training and capacity building for community members, such as on the installation or maintenance of energy technologies and customer services,
- Involving or creating cooperatives to oversee and manage community-wide or public projects and their locations, such as streetlights, and
- Enabling direct collaboration with humanitarian and development actors, the private sector, and other organisations for project planning, management, auditing and other key activities.

Gender mainstreaming

Sustainable energy interventions could have different implications for women and men. This can be exacerbated when decision makers, typically men, are not the primary users of energy technologies, for example typically women with regards to domestic responsibilities such as cooking. Considering these differences and the effects they may have during both the design and implementation of energy projects can allow them to better meet the needs of all community members and promote gender equality. Gender mainstreaming will vary depending on individual contexts and communities but could be integrated into projects by:

- Using single-gender focus groups during initial scoping phases to identify gender-specific concerns, for example around the locations of public lighting,
- Targeting equal opportunities for training and employment for both women and men,
- Increasing opportunities for training and employment for women in roles that are traditionally seen as “men’s work”,
- Identifying employment opportunities for women which are compatible with family, childcare or household responsibilities, for example near to their homes,
- Scheduling engagement events at convenient times of the day and/or provide stipends to avoid conflicting with childcare responsibilities and allowing mothers to participate,
- Implementing awareness-raising campaigns for energy solutions that target men and women to promote interest in the new technologies,
- Offering cooking classes in schools to both boys and girls to raise awareness of clean cooking solutions and encourage both boys and girls to learn how to cook, and
- Highlighting the needs of different household members during product sensitisation campaigns and encourage joint decision-making.

Inclusivity strategies

Achieving sustainable energy for all requires understanding and meeting the needs of every member of the community. In displacement contexts some people may have specific vulnerabilities or require different considerations to access sustainable energy, for example if they have a disability. Including these people in project design, and offering strategies for their inclusion during implementation, can mean that energy interventions meet their needs more effectively. Some inclusivity considerations could include:

- Holding focus groups with people with specific vulnerabilities to ensure an intervention will be accessible to them and meet their needs,
- Including people with disabilities in trainings and employment opportunities whilst accommodating any specific needs,
- Engaging with microfinance companies to develop services which make upfront costs more accessible to low-income customers, such as for connections to mini-grids,
- Using voucher systems for vulnerable customers to access technologies within a wider market-based approach, such as for solar products or improved cooking solutions, and
- Promoting technologies, products and designs which accommodate users with specific vulnerabilities or disabilities.

Project concepts

SOLAR-POWERED WATER PUMPING AND DISTRIBUTION SYSTEMS

1/2

LOCATION

Mbera camp and host communities

BACKGROUND

Located in the Sahel, Mauritania is among the regions that are most vulnerable to climate change and the country faces rising temperatures at double the global average by 2050. This is expected to bring severe drought and desertification which will contribute to the degradation of water resources and crop yields in the southern regions and oasis areas, threatening food security and livelihoods. Meanwhile, water demand in Mbera camp continues to increase. Together with pressures on fuelwood and grazing resources, this has strained natural ecosystems and created potential sources of tensions between refugee and host communities.

This project aims to transition from costly diesel-powered water pumps to solar-powered systems to provide clean and reliable water for domestic use, agriculture and livestock. By improving water access and supporting agriculture, the project will strengthen food security, reduce environmental degradation, and promote peaceful cohabitation between refugees and host communities.

ACTIVITIES

Conduct needs assessments and community consultations

Contract a company to design and install solar-powered borehole pumps which can provide water reliably throughout the year

Explore collaboration opportunities with organisations working on agriculture, water and food security, and livelihoods activities to maximise impact

Construct elevated water storage tanks and implement gravity-fed distribution networks to agricultural lands and communities

Deploy water treatment technologies such as chlorination or filtration to ensure potable water quality

Establish a cooperative of refugees and host community members and provide training on basic solar system O&M and repair

Develop water governance and land-use practices to mitigate potential conflicts over resources

Monitor system performance, cost savings, emission reductions, and agricultural yield improvements

ENABLERS

High solar irradiance

High motivation for cost savings and reduced emissions through replacing diesel generators

Strong demand for irrigation

Alignment with national strategies for decentralised solar energy and water management goals

Linkages with humanitarian and development partners' work on livelihoods, agriculture, and water and food security

BARRIERS

High upfront costs of solar infrastructure

Need for community engagement and buy-in

Limited access to spare parts and tools

Reliance on grant funding for O&M

Community members involved in the project may leave due to migration caused by limited economic opportunities

Limited access to land for youth-led agricultural activities

Project concepts

PROJECT REACH, TIMELINE AND BUDGET

Four locations
Three years
$600,000

FURTHER INFORMATION

This project aims to improve water reliability for hygiene, agriculture, and livestock, and to support health, food security and livelihoods. Systems will need to operate effectively during both the soudure season (January to April) when pressure is highest on water resources, particularly for cattle, and the hivernage season (July to September) when heavy rains relieve pressure but cause other issues such as flooding. Solar pumps will need to be supplemented with water towers for storage and battery systems to provide reliable pumping depending on varying water needs and electricity availability.

The project could be used to promote community inclusion through training and employment in system O&M while improving agricultural productivity and income generation. Working together with both the refugee and host communities will be critical to the success of the project as introducing a new but limited resource, such as solar water pumping, has the potential to lead to conflict or competition. Stakeholders should therefore use it as an opportunity to bring communities together to mutually and equitably benefit.

REPLICATION & EXPANSION

Potential scaling through initiatives such as RIMDIR

Builds on UNHCR's Project Flow initiative for solarising water infrastructure

Similar to solar irrigation cooperatives in Melkadida, Ethiopia

Potential to collaborate with organisations such as WFP and Enabel to integrate solar electric pumping within broader food security and livelihoods programmes

STAKEHOLDERS AND ROLES

Government agencies to approve allocation and management of land to support conflict-sensitive planning

Humanitarian and development agencies to provide technical assistance, support project implementation and community engagement, and to integrate with food security and resilience programmes

NGOs to build local capacity and offer technical support

Donors to provide grant funding

Financial institutions to provide credit and funding mechanisms, facilitate procurement, and promote circular economy models

Refugees and host community cooperatives to operate and maintain systems, manage agricultural production, and ensure equitable benefits

Private sector companies to supply equipment, design and install systems, and offer technical training and support

SCALABILITY

High: The project would replicable and scalable in other regions of Mauritania.

SOLAR-POWERED WATER PUMPING AND DISTRIBUTION SYSTEMS 2/2

Project concepts

SOLAR HOME SYSTEMS FOR REFUGEE HOUSEHOLDS

1/2

LOCATION

Mbera camp

BACKGROUND

Refugees in Mbera camp have low access to electricity and do not have connections to the grid or mini-grid systems. This project aims to provide access to solar home systems (SHS) in the camp that can support lighting, phone charging, and productive uses, with the goal of enhancing safety, education outcomes, and income levels for refugee communities.

ACTIVITIES

Conduct assessments to identify energy needs and ability to pay

Evaluate the potential for larger SHS for productive uses and income generation

Coordinate with stakeholders responsible for camp management and shelter to ensure safe installation and targeted distribution

Work with SHS suppliers that have products that meet quality standards

Establish a subsidised sales model that makes SHS affordable to camp residents

Train camp residents to work as technicians for system installation, safe usage, maintenance, and basic repairs

Sell 10,000 SHS kits including lights, phone charging, and radios to targeted households

Conduct awareness-raising campaigns with customers on the benefits and safe usage of systems

Establish a network of local technicians, such as refugee youth, for ongoing O&M

Monitor system performance, user satisfaction rates, and maintenance needs

Integrate microfinancing options such as pay-as-you-go or subsidies to support long-term sustainability and affordability

Support market creation and develop long-term steps to reduce and phase out subsidies

ENABLERS

High solar irradiance

Low levels of electricity access at present

Aligns with refugee livelihoods, self-reliance and economic inclusion objectives

Linkages with education, income-generation and safety initiatives, especially for women and youth

Opportunities to leverage existing infrastructure and coordination networks

BARRIERS

High upfront costs

Challenges in establishing long-term energy markets

Limited ability to pay for end users

Poor shelter infrastructure without energy integration

Households may leave the camp with SHS, which would make ongoing payments and maintenance challenging

Project concepts

PROJECT REACH, TIMELINE AND BUDGET

10,000 SHS kits
Four years
$2 million

FURTHER INFORMATION

This project can help empower refugee youth through training and creating livelihood opportunities, whilst microfinance options can support affordability for displaced populations. Early-stage assessments will be necessary to evaluate the willingness and ability to pay for SHS, which could be distributed through a combination of models (such as free distribution for the most vulnerable households, and PayGo models for those that can afford it). Assessments should also seek to understand the viability for multiple companies to offer SHS, potentially with different features and at different costs, to encourage market development.

REPLICATION & EXPANSION

Potential linkages and scaleup through existing rural infrastructure development programmes such as RIMDIR

Similar to work done by Mercy Corps and GIZ in West Nile, Uganda; by SNV in Kakuma, Kenya; and by Practical Action in Rwanda

STAKEHOLDERS AND ROLES

Government to provide authorisations and regulatory support

Humanitarian agencies to lead implementation, support inclusive selection of beneficiaries, and alignment with ongoing initiatives

Local government agencies to facilitate access and support coordination in alignment with local development plans

Private sector to supply, sell, and install SHS kits and provide after sales services

Community groups and refugee-led organisations to promote the project and its benefits

NGOs to support community engagement, training, and monitoring activities

Microfinance institutions to offer financing solutions to end users

Donors to provide funding for the project

SCALABILITY

Medium: Potential for scale within the camp and could be replicated in other areas around the country.

SOLAR HOME SYSTEMS FOR REFUGEE HOUSEHOLDS 2/2

Project concepts

WOMEN-LED SOLAR ENTREPRENEURSHIP AND VOCATIONAL TRAINING HUB

1/2

LOCATION

Mbera camp

BACKGROUND

Displaced people in Mbera camp face limited access to economic opportunities, vocational training, and reliable energy. Women and youth are particularly affected by unemployment and the lack of formal skills. Electricity can help to improve training facilities through access to the internet and equipment such as computers.

This project aims to address these challenges by establishing a solar-powered vocational training and entrepreneurship hub to equip women and youth with skills. The hub will serve as a centre for capacity building and community engagement, as well as providing an incubator for small businesses, which could contribute to the resilience and livelihoods of displaced communities. Powered by renewable energy, the centre could also be used to provide training on solar installation and O&M.

ACTIVITIES

Consult with communities to assess the types of training, capacity building, and skills development that would have the greatest impact

Acquire permits and construct the vocational training facility

Install rooftop solar systems and battery storage

Partner with vocational training organisations or NGOs to deliver training in business skills and entrepreneurship

Provide space and electricity access for start-up businesses

Work with energy companies to provide training on solar panel installation and O&M, electrical safety, and energy efficiency

Support women and youth in launching enterprises, especially those related to energy

Track employment rates and business outcomes of training graduates

ENABLERS

High solar potential in the region

Strong demand for livelihoods and clean energy services

Community interest in skills development and livelihoods activities

Complementarity with UNHCR's ongoing resilience, job creation, and gender equality goals

Alignment with government policies on refugee inclusion

Availability of experience from similar training hubs around the world

BARRIERS

High upfront costs of construction and energy technologies

Requires close coordination between community groups, training organisations, and humanitarian partners

Sustainability risks if long-term support is not secured

Limited access to vocational training networks

Project concepts

PROJECT REACH, TIMELINE AND BUDGET

One community centre
Two years
$500,000

FURTHER INFORMATION

Providing dedicated infrastructure and training facilities for enterprises can help consolidate and grow businesses in the long term. As well as the benefits of the centre during operation, community members could be employed during its construction to provide paid work opportunities. Throughout the project, continuous engagement with communities will be important to ensure that the training and benefits offered by the centre are shared equitably between community members. This project aligns with UNHCR's objectives on enhancing refugee self-reliance, Mauritania's National Energy Strategy, and the local development plan for Mbera camp.

REPLICATION & EXPANSION

Builds on successful initiatives such as solar training for refugee women in Zaatari camp in Jordan and Green Innovation Hub in Cox's Bazar in Bangladesh

Similar to enterprise hubs implemented in refugee camps in Rwanda

Scalable to other communities and locations in Mauritania

Builds on the local development plan for social infrastructure in Mbera

STAKEHOLDERS AND ROLES

Government agencies to ensure policy alignment and provide authorisations

Humanitarian partners to coordinate and lead the project, ensuring alignment with livelihoods programming

Local associations for women and youth to support community outreach and engagement and co-implement the project

NGOs to develop curriculum and provide technical training

Private sector to build the centre, supply equipment, and install the solar system

Donors to provide funding support and potential scale-up activities

SCALABILITY

Medium: The project could be replicated in different contexts based on community buy-in and available funding.

WOMEN-LED SOLAR ENTREPRENEURSHIP AND VOCATIONAL TRAINING HUB 2/2

Project concepts

SOLAR ELECTRIFICATION FOR HOST COMMUNITY SCHOOLS

1/2

LOCATION

Host communities in Bassiknou

BACKGROUND

Schools in Bassiknou serve both members of the host communities and refugees living outside of Mbera camp, but often these lack reliable electricity which limits access to lighting and the internet. Solar energy can provide a cost-effective and reliable energy solution to offer access to key services and can help to improve educational outcomes and increase teacher retention. This can help teachers and students study after dark when temperatures have gone down, benefit from ventilation and cooling, use communal facilities to charge devices, and access online learning resources.

ACTIVITIES

Conduct a needs assessment to identify energy demands to support educational outcomes

Explore partnerships with NGOs that operate schools and other training activities

Coordinate with government bodies to gain support and authorisations

Establish a governance system for electricity systems in partnership with local communities

Explore options for potential applications of excess electricity generation, such as device charging or productive uses

Contract the private sector to design and install solar systems with battery storage

Provide training to school staff and local technicians for basic O&M of the systems

Monitor system performance and educational outcomes

ENABLERS

High demand for electricity in schools

High solar irradiance

Linkages with other programmes such as education

Population growth putting pressure on infrastructure

Schools in Mbera camp have solar power

BARRIERS

High upfront costs for solar systems

Limited O&M capacity and availability of spare parts for repairs

Requires long-term planning and coordination between stakeholders

Project concepts

PROJECT REACH, TIMELINE AND BUDGET

10 schools
Two years
$500,000

FURTHER INFORMATION

This project can enhance learning environments by providing reliable, clean energy to extend study hours, lower temperatures, and increase digital access. Training school staff and local technicians can build local capacity for system O&M and promote long-term sustainability. It also supports educational equity for children living in the host community and Mbera camp, could provide incentives to keep children in school longer, and aligns with broader development and climate resilience goals.

REPLICATION & EXPANSION

Replicates successful solarisation of schools in Mbera camp

Complements the Challenge of Hope project where solar lamps were distributed to pupils by AMADE

Opportunity to integrate with wider education support plans

STAKEHOLDERS AND ROLES

Government authorities to ensure alignment with national energy and education plans

Humanitarian and development agencies to coordinate with education and operations, support energy assessments in schools, and ensure community engagement

Community representatives to guide site selection, ensure ownership, and support maintenance activities

School administration to oversee the project and support governance systems

Private sector companies to design, supply, and install solar systems

Donors to provide grant funding

SCALABILITY

High: The project can be replicated in host community areas around Mauritania.

SOLAR ELECTRIFICATION FOR HOST COMMUNITY SCHOOLS 2/2

Project concepts

ALTERNATIVE FINANCING FOR LPG UPTAKE IN HODH CHARGUI

1/2

LOCATION

Mbera camp and host communities in Hodh Chargui

BACKGROUND

Compared to most people living in rural areas of Mauritania, refugees in Mbera Camp have a relatively high LPG adoption rate of 48%. This was supported by previous financial aid programmes, however many households still rely on firewood and charcoal due to the higher cost and supply challenges associated with LPG. Host community households, meanwhile, were not involved in previous LPG programmes. This project aims to complement UNHCR's existing LPG distribution by introducing innovative financing solutions to improve affordability and supply stability, helping reduce health risks and environmental degradation.

ACTIVITIES

Conduct detailed market systems analysis of LPG demand, cost barriers, and supply chain weaknesses among refugees and host communities

Develop and pilot PayGo LPG payment systems and microcredit options tailored to household financial capacity

Enable smaller, flexible payments to reduce upfront costs for LPG users

Support local suppliers to improve LPG storage, transport, and distribution efficiency

Equip local entrepreneurs, refugee youth, and women's groups with skills to manage LPG sales, customer service, safety, and maintenance

Implement awareness campaigns to address safety concerns, build trust, and encourage exclusive or increased LPG use over traditional fuels

Track LPG uptake, user satisfaction, payment patterns, supply reliability, and environmental and health impacts through monitoring and evaluation

ENABLERS

High LPG adoption rates at present and positive user experience within the camp

Flexible payment habits among LPG users and interest in instalment schemes

UNHCR's ongoing Cash for Gas programme and previous analysis of LPG uptake

Local suppliers are established within the camp and provide easy access for customers

BARRIERS

Unregulated LPG prices causing cost fluctuations

Supply chain challenges including transport costs and shortages

Safety concerns and lack of user training

Cultural preferences for traditional fuels

Project concepts

PROJECT REACH, TIMELINE AND BUDGET

2,500 households

Two years

$750,000

FURTHER INFORMATION

LPG has provided the benefits of modern cooking to many households in Mbera. This project aims to scale up this initiative to meet the needs of both refugees living in the camp and host community members in the Hodh Chargui region. It can build on existing work by UNHCR under its Cash for Gas programme and its recent study on LPG usage in the camp. Working with community members (to design affordable payment models) and the private sector (especially larger-scale companies that may be able to offer credit) will be critical to find an economic balance for long-term financial sustainability. By focusing on affordability and supply stability, this project addresses key barriers identified in the camp and aims to enhance LPG sustainability, reduce reliance on polluting traditional fuels, and improve health and environmental outcomes while promoting financial inclusion for vulnerable refugee and host populations.

REPLICATION & EXPANSION

Complementary to UNHCR's Cash for Gas programme, which has supported up to 2,500 households

Scalable model for other displacement-affected areas in Mauritania and beyond

STAKEHOLDERS AND ROLES

UNHCR to coordinate and integrate with existing LPG programme

Government to support price regulation and market facilitation

Local LPG suppliers to improve distribution efficiency and provide payment flexibility to customers

Microfinance institutions to design innovative financing schemes

Refugee associations and host community groups to participate in awareness raising campaigns and user training

Donors to provide funding

SCALABILITY

High: The financing and supply chain models are scalable in the Hodh Chargui region and could be adapted to other regions with similar LPG adoption challenges.

SOLAR ELECTRIFICATION FOR HOST COMMUNITY SCHOOLS 2/2

07

Conclusions

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Key issues for energy access

Mauritania hosts more than 300,000 refugees and asylum seekers, most of whom have fled conflict and violence in neighbouring Mali, with around 120,000 residing in Mbera camp and the remainder living in host communities around the Hodh Chargui region. The country offers a welcoming environment for displaced people but humanitarian agencies remain a major source of support for refugees and there is limited access to livelihoods and financial services.

Access to sustainable energy in displacement settings presents a mixed picture. Around half of households in Mbera camp use LPG for cooking and buy fuel from local sellers, whilst the other half continue to rely on traditional fuels such as firewood and charcoal. UNHCR has solarised its offices, schools, and health facilities in the camp but those in the host community do not yet have access to renewable power. For these communities, scaling up successful projects – either for households relying on traditional fuels or community facilities without electricity – will be the focus of expanding energy access.

Electricity access for households and businesses, however, is much less common. Domestic lighting is typically limited to solar lanterns and off-grid solar products are expensive for camp residents, whilst energy for productive uses is constrained by both a lack of power and appliances. Whilst Mbera camp has been earmarked for urbanisation (and with it, access to the grid network) in government plans, connections for households remain uncertain and standalone solutions could help improve electricity access in the near-term. Providing financial support for companies to establish sales outlets and supply chains in Bassiknou and Mbera camp could help decrease costs for consumers and increase the availability of off-grid solar products and appliances.

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The road to sustainable energy in displacement settings

Improving access to sustainable energy will require a concerted effort from all stakeholders working in displacement contexts, with refugee and host community members having a central role in the design and implementation of any intervention.

The READS workshops brought together a diverse range of stakeholders to co-design potential high-impact projects. Whilst these are presented as individual opportunities – and would each merit investment and implementation on their own – rolling out coordinated interventions addressing several energy themes together could have a truly catalytic effect on increasing sustainable energy access as a whole.

Acknowledging this, and the work of other initiatives, the roadmap below presents a vision of how access to sustainable energy in displacement settings could develop in the short, medium, and long term. ››

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The road to sustainable energy in displacement settings

SHORT TERM (2025-2026)
MEDIUM TERM (2027-2029)
LONG TERM (2030+)

OFF-GRID ELECTRIFICATION

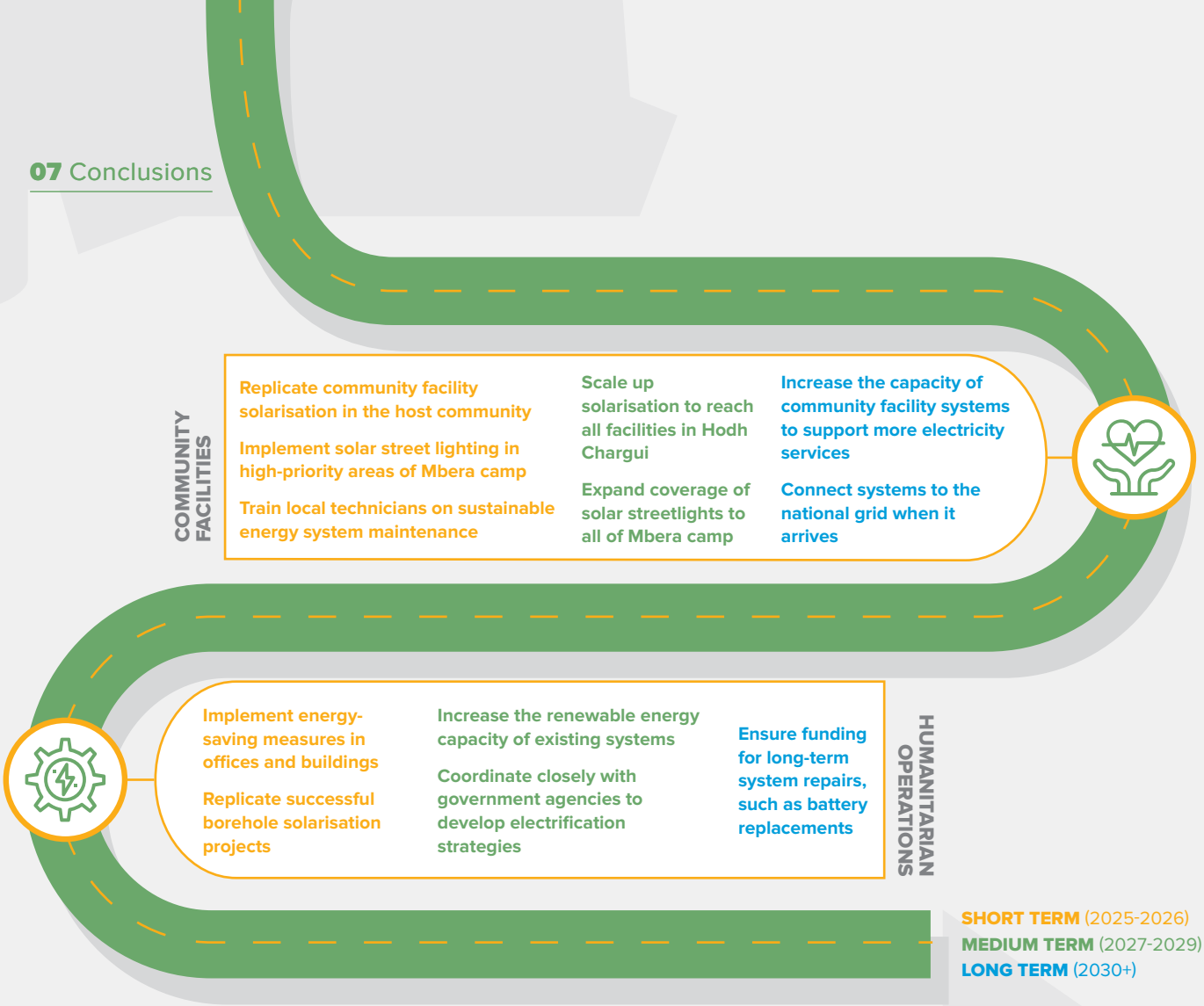
- Support off-grid solar companies to set up shops and supply chains
- Develop and implement financing schemes for low-income households
- Establish joint warehousing and distribution facilities for companies
- Advocate for household connections to the national grid under government electrification plans
- Increase local energy generation through solar power plants

CLEAN COOKING

- Support LPG sellers to increase stocks to improve availability and stabilise prices
- Use cash transfer or voucher system to reduce the cost of stoves and fuel
- Reassess subsidy schemes to transition to market-based distribution of LPG
- Explore alternative technologies such as electric cooking
- Phase out financial support and subsidy schemes if appropriate
- Scale up promising alternative technologies

PRODUCTIVE USES OF ENERGY

- Engage with companies to supply PUE appliances in Mbera camp
- Work with MFIs to increase financing for PUE appliances
- Provide business skills training to entrepreneurs
- Support appliance companies to establish local outlets for sales and maintenance
- Expand solar irrigation systems to support green jobs
- Scale up PUE access as demand and electricity supply grows
- Ensure integration of PUE into long-term development plans



The challenge is huge: achieving access to affordable, sustainable, reliable and modern energy for refugees and host communities by 2030 will require more projects, activities, partners, coordination, and investment than ever before. Fortunately, stakeholders in Mauritania have already made significant progress in improving sustainable energy access in Mbera camp and this can provide a strong foundation for further scale up through new initiatives, partnerships, and cooperation. ●

All stakeholders will need to play a role, with displaced people and host communities in the centre, to improve access to sustainable energy.

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