WEBINAR SERIES

HUMANITARIAN ENERGY INSIGHTS

Presenting Recent Humanitarian Energy Assessments from Uganda, Rwanda, Niger and Somalia

Webinar 1: Uganda & Rwanda	Thursday, 8 December 2022 15:00-16:00 CET / 17:00-18:00 EAT
Webinar 2: Somalia & Niger	Tuesday, 13 December 2022 15:00-16:00 CET/ 17:00-18:00 EAT

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Global Platform for Action (GPA) on Sustainable Energy in Displacement Settings

Global/Strategy Level	Working Level	Field/Country Level
Steering Group	GPA Coordination Unit	Humanitarian Energy Exchange Network (HEEN)
Humanitarian Energy Donor Group		

Task Forces: E-waste | Blended Finance | Clean Cooking

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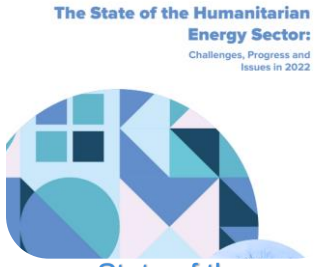
Key working areas

- Data, Research and Evidence
- Planning and Coordination
- Policy, Advocacy, and Host Community Resilience
- Innovative Finance and Funding
- Technical Expertise and Capacity Building

Recent Publications & Webinars



State of the Humanitarian Energy Sector Report

Landscaping – E-waste in Displacement Settings

Landscaping and Practitioner Toolkit – Blended Finance

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Key findings from Niger	Rebecca Gunning, MC-E4I
Intervention from WFP Niger	Rebeca Solis, MC-E4I
Q&A session	Rebecca Gunning, MC-E4I

PV in Kismayo © RDI

Introduction and study objective

- Enter Energy is Shell's social investment initiative to develop sustainable ways of delivering energy access for displaced people and host communities.
- Through Enter Energy Ethiopia, Mercy Corps and Shell are working together to deploy and operate clean and commercially viable energy infrastructure for displacement settings in the Somali region in Ethiopia.
- As part of Enter Energy's commitment to increase energy access, Mercy Corps, funded by Shell, collated data on the energy access needs of displaced people.
- Mercy Corps - Energy 4 Impact completed energy assessments across four countries: Uganda, Rwanda, Somalia and Niger. Their aim is to understand the current and projected need for energy access, spanning from lighting, powering, productive uses and clean cooking.

Key research areas
Regulatory framework relating to energy access and displaced people
Key stakeholders operating in the humanitarian and energy access space
Other relevant interventions at national and site level
Current income sources and levels
Current and future energy use, needs and priorities

The webinar today will present key findings from the assessment in Somalia and Niger.

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Enter Energy Assessments

Somalia and Niger– Key Findings

Typical Baidoa IDP setting © RDI

Enter Energy Assessments

Somalia

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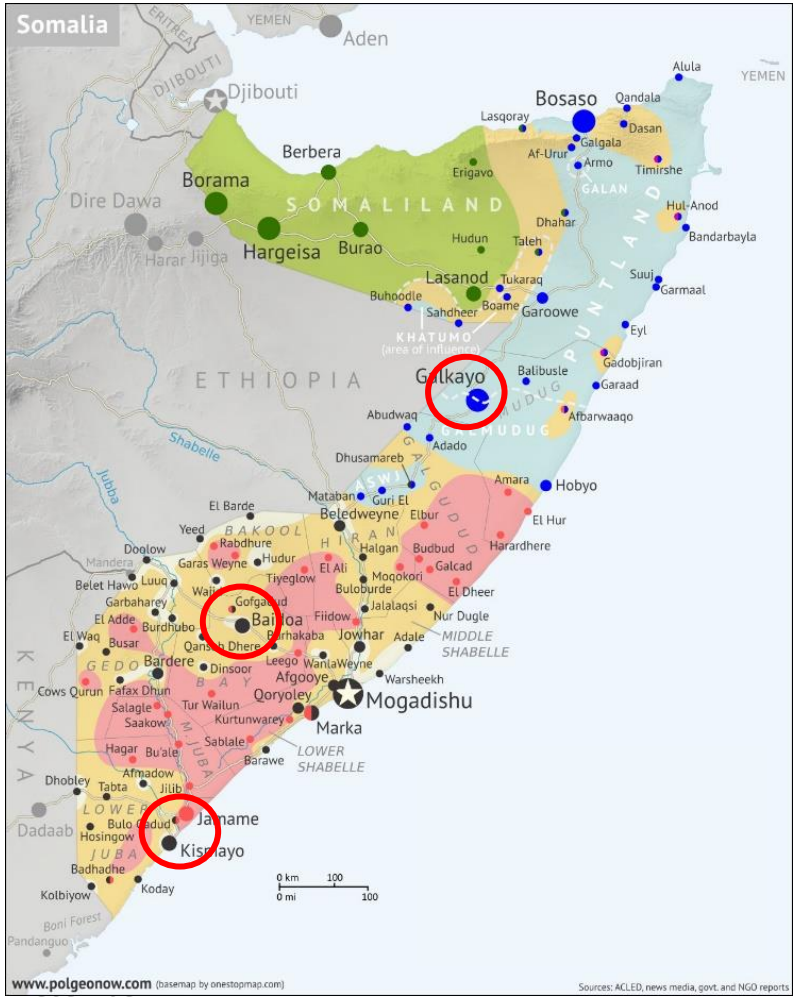
Methodology

It was not possible to survey all IDP areas in Somalia, so 3 were selected for site assessments. The selection of sites was based on secondary data on the current situation in the cities and discussions with Mercy Corps country offices.



The three cities selected were:

- Baidoa (475,000 IDPs)
- Galkacyo (125,600 IDPs)
- Kismayo (66,051 IDPs)

Surveys were conducted across these 3 sites to provide insights into incomes, current energy usage and willingness to pay for energy services. In each city surveys were carried out in a number of different IDP sites.

KIIs were conducted along with a market engagement workshop.

Mercy Corps-E4I worked with RDI (Roots Development Initiative), a local consultancy.

333 households surveyed

55 businesses surveys

35 institutions surveyed

25 focus group discussions

24 key informant interviews

Workshop with **15** companies

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Federal Republic of Somalia

- Somalia is a federal republic consisting of five federal states and the Banadir Regional Administration (BRA), plus the claimed territory of Somaliland.
- Population of 16.8 million people. About 80% of the population are under the age of 36 and roughly 60% of the population live in rural areas and are members of nomadic and agropastoral communities.
- The country is one of the poorest in the world, with more than 69% living below the international poverty line. The per capita gross domestic product is estimated to be around US $420 (2020)
- Livestock, small business, telecommunications, farming and remittances are the major income sources for the country.
- Somalia is rated 190 out of 190 in the World Bank's Ease of Doing Business Index (2020). Challenges include: the lack of a comprehensive legal framework; a civil judicial system incapable of solving disputes and enforcing contracts; the threat of al-Shabaab, which controls portions of the country and routinely extorts taxes from businesses; challenges around moving money into and out of Somalia; no intellectual property protection; and expensive and unreliable electricity.

UNFPA Somalia population estimates, 2022
National Development Plan, 2020-2024
World Bank Data, 2022
https://www.doingbusiness.org/content/dam/doingBusiness/pdf/db2020/Doing-Business-2020_rankings.pdf

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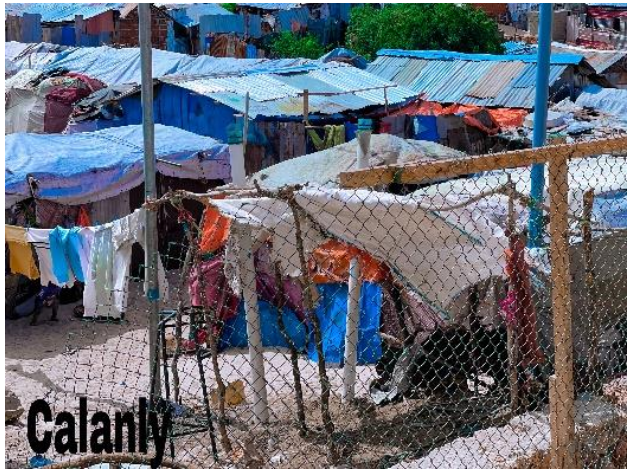
Humanitarian Context

- Somalia hosts around 3.1 million persons of concern to UNHCR, including almost 3 million internally displaced persons (IDPs).
  - The primary reasons for displacement are conflict/insecurity issues and climate-related shocks, primarily drought.
  - The situation is protracted and most IDPs do not expect to return to their old homes.
- IDPs are distributed in more than 2,400 sites across the country.
  - Sites vary from informal sites on vacant land or in empty buildings, often with makeshift housing, to managed camps.
  - Many of the camps are extremely overcrowded and conditions are unsanitary as more people arrive due to the on-going drought and conflict.
  - Of the 3 million IDPs, it is estimated that 1.8 million IDPs are at risk of eviction.
  - On top of the risk of eviction and poor shelter, limited access to basic services such as food, water and energy are daily challenges.

Informal sites - examples of make-shift housing © RDI



Humanitarian Context

Aerial view of Barwaaqo ©NRC 2019. The site has a target of 8000 households.

- National policy seeks to protect persons of concern from further forced displacement, provide protection and assistance during displacement, provide services and find a durable solution to their displacement.
- As part of the push for durable solutions, some IDPs who are at risk of eviction are being relocated from informal sites to managed camps on government land, where services can be provided more easily and IDPs are given land and homes. Approximately 40,000 IDPs have been relocated so far. Examples include Barwaaqo outside Baidoa and Luglow, outside Kismayo.

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Energy market context

- Somalia's electricity access rate is low, at about 36% : Urban areas are at about at 65.8% and rural areas at only 11.1% (2019).
- About 90% of Somalia's electricity is supplied through isolated diesel-powered mini-grids operated by private firms (Electricity Service Providers – ESPs).
- Somalia has some of the most expensive electricity in the world with electricity costing between US $0.5 /kWh to US $1.5/kWh.
- The energy market is not well regulated, so the sector is self-regulating. Local mini-grids will remain the reality in Somalia for the foreseeable future.
- Somalia has good solar and wind resources and there is a growing market for renewables, particularly PV hybrid systems, mainly for commercial reasons. For example, the largest ESP, Benadir Electricity Company (BECO), has installed about 9 MW of PV out of a total 30 MW installed capacity. In addition, a number of small solar mini-grids have been developed.

PV Sales in Baidoa © RDI

- Renewable energy products are not duty free and import tariffs vary by region. With no quality control, there is a predominance of low-quality solar products. This, combined with widespread solar donations from humanitarian organisations, has distorted the market for high quality products, particularly at small and pico scale. The lack of technical capacity, access to finance, security issues and the expense of transportation pose further challenges.
- Energy programming for IDPs has focused on solar street lighting, donations of solar products for health care, water and schools and donations of solar lanterns. A solar mini-grid was developed in Kismayo for IDPs.

https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?view=chart

Key stakeholders

Displaced and host communities	• Need to be involved in programme design • Need to understand desires, needs and WTP
Humanitarian actors	• With the focus on durable solutions and building resilience, there is a strong emphasis on livelihood programming and relocation and urban planning and opportunities to work with numerous partners working in the sector, including: • IOM, UNHABITAT, NRC, NIS, DRC, ALIGHT, World Vision, GIZ, USAID and Mercy Corps. • WFP have a strong role in food and cash distribution and interest in clean cooking. Also installing solar PV on thermally controlled food warehouses, at an agricultural training centre and some of its offices.
Government	• Key government stakeholders include Ministry of Energy and Water Resources (MEWR) and local government eg. Banadir Regional Administration (BRA), Municipality of Baidoa, Municipality of Kismayo, • Also National Commission for Refugees and IDPs (NCRI), Ministry of Humanitarian Affairs and Disaster Management (MoHADM), National Durable Solutions Secretariat, Ministry of Planning, Investment and Economic Development (MOPIED).
Donors and development partners	• Stakeholders concentrating on the energy sector are not as focussed displacement settings but any investment might support IDPs. ALIGHT, NIS and EnDEV have provided funding for IDP solar systems. • The World Bank is a key energy stakeholder funding energy access with of-grid solar and hybridization (with solar) and battery storage systems for existing mini-grids as well as government capacity building and institutional strengthening • SIDA has provided funding for renewable energy training and UNDP and African Development Bank are implementing the African Mini-grids Programme in Somalia. FAO, UNDP and UNEP are working on charcoal reduction
Finance provider	• Financial service providers, need to be involved in the provision of credit for both businesses and end users. There are nine commercial banks and two microfinance institutions in Somalia but accessing finance for energy access companies is difficult. The banks work with IDPs in distributing cash and e-vouchers on behalf of agencies.
Private sector	•The private sector is flourishing. A number of providers of quality energy products and services exist in Somalia. •ESPs in the target areas include: BECO, JESCO, WESCO, GECO, NEPCO, Blue Sky and Mogadishu Power. •Kube Energy is financing and building a 2 MWp solar plant in Baidoa to supply power to the UN's Support Office in Somalia (UNSOS) and the SW Government

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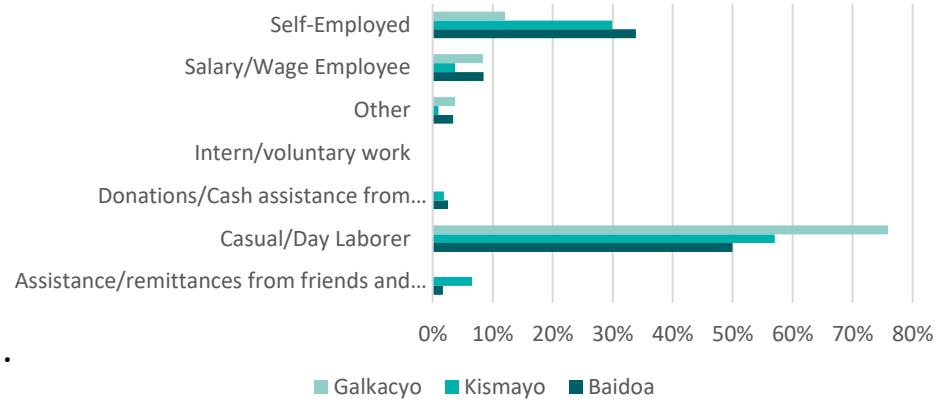
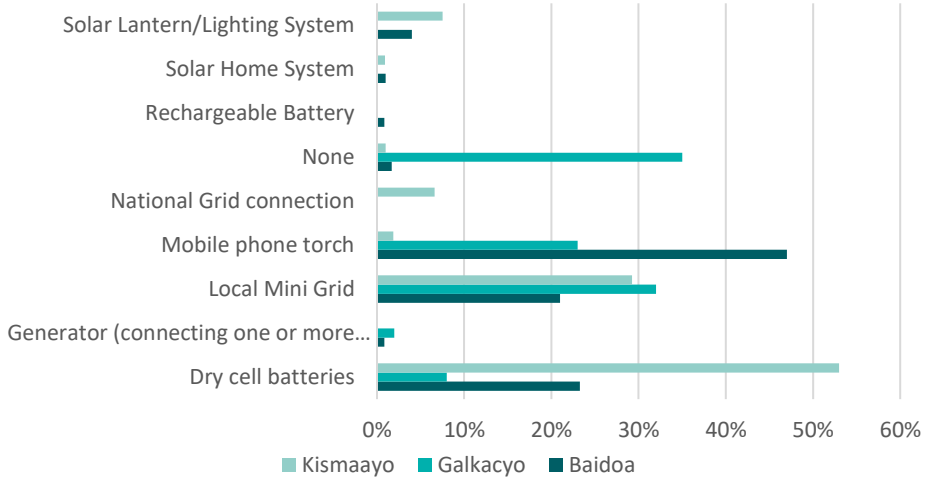
Current income levels and energy usage

- IDP incomes are low and they are reliant on casual/day labour. Host community members are more likely to be self-employed.
- IDPs have low access to electricity and lighting. Most IDP households use torches and mobile phone torches plus some mini-grid, solar lanterns and solar home systems. Notably, 44% of IDP households in Galkacyo reported having no lighting source.
- The majority of host households have access to a mini-grid, but they are expensive. Some IDPs have access to mini-grids but in most cases the ESPs are not willing to extend into the IDP camps due to safety reasons and lack of finance.
- IDPs rely predominately on firewood for cooking while host communities use more charcoal. More than 90% of IDPs use a three stone fire or traditional stove.
- Lighting and mobile costs were about US $2 - 6 a month depending on the source (for Tier 0), compared with mini-grid electricity (for Tiers 2-4) which costs about US $10 in Galkacyo and US $15-16 a month in Kismayo and Baidoa.
- Most businesses are within the host community using mini-grid electricity while businesses in the camps use mobile phone torches or SHS. Institutions have either solar systems or are connected to the mini-grids, or both. Offices for development organisations are connected to mini-grids and have back-up diesel generators and/or solar systems.



Source of income



Primary lighting source

Tiers in the Multi-Tier Framework for electricity access - https://mtfenergyaccess.esmap.org/methodology/electricity

Current income levels and energy usage – supporting survey data

Survey Data	Kismayo	Baidoa	Galkayco
IDP population	66,000	475,000	126,000
IDP population with no formal schooling	79%	95%	75%
Average monthly incomes IDP community	$125	$100	$120
Average monthly incomes host community	$170	$150	$160
Average monthly expenditure on lighting and mobile (IDPs)	$3 - $6	$2.4 - $3.9	$2 - $4
Average monthly spending on cooking fuel (all hhs)	$9	$12	$30
% of hhs that want more energy for lighting	76%	19%	68%
% of hhs that want better energy for cooking	89%	36% (IDP; 89% (host)	77%

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Current income levels and energy usage – supporting survey data

Survey Data	Kismayo	Baidoa	Galkacyo
Main source of lighting (IDP)	Battery torches (71%); mini-grid (18%)	mobile phone torch (57%); battery torch (33%)	mobile phone torch (24%); mini-grid (23%)
Main source of lighting (host)	Mini-grid (81%)	mini-grid (69%)	mini-grid (63%)
% of hhs with no primary lighting source	1%	1%	44%
% cooking with firewood	86% IDP; 29% host	95% IDP; 31% host	85% IDP; 33% Host
% cooking with charcoal	68% host;	63% host; 5% IDP	15% IDP; 58% host
Three stone fire or traditional stove as primary cooking technology	92%	100% IDP; 51% host	92% IDP; 64% host

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Market ecosystem

- The poor security situation and difficult business environment are important considerations.
- Mobile phone ownership is almost universal and mobile money usage is very high.
- There is experience of informal credit (through local shops and, increasingly, VLSAs) but there is very limited experience with any kind of formal finance within the IDP communities
- Potential private sector partners are present and there are some quality product suppliers but none have a presence in IDP camps. Additional support is needed for them to make their products and post-sales services available to IDPs.
- There is some level of free distribution of energy products in all sites and limited experience with market-based energy access for quality products or at an affordable price.
- Cheap, low-quality solar products can be bought in most markets.
- There is low awareness of the potential of energy products (due to low-quality products in the markets).
- ESPs would be interested in supplying IDPs but in many cases may need support to become established there or to extend their distribution lines.
- Transport networks vary and would be a consideration for inland locations.
- Much private sector investment is concentrated on Mogadishu as the country's business hub, rather than at the three sites assessed.
- There is potential for IDPs and relatives to invest at all sites.

Baidoa © RDI

Water pumping in Kismayo © RDI

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Market ecosystem – supporting data

Survey Data	Kismyao	Baidoa	Galkacyo
% of hh with access to formal banking services	20%	8%	1%
% of hh with access to semi-formal or informal banking *	8%	5%	0%
% of hh with access to mobile money	80%	92%	100%
Mobile phone ownership	100%	98%	100%

* Does not include access to mobile money or to very informal credit, such as with the local shop

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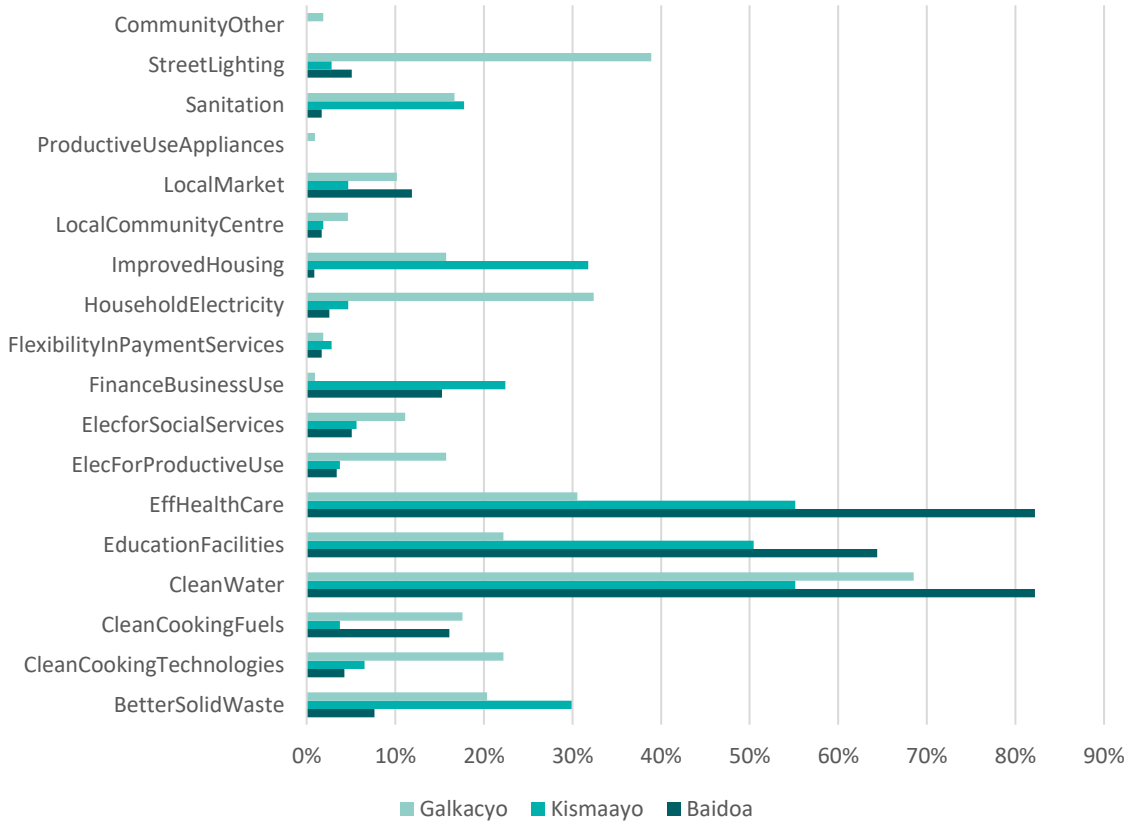
Alignment and priorities

- The government's national policy is to increase energy access, including for refugees and IDPs. Any implementation of policy is lacking but the local government appear supportive of energy interventions. Local relationship building would be key for getting buy in.
- The policy of durable solutions provides opportunity to support long term re-location plans, with energy.
- Other priorities such as clean water, education and healthcare were often prioritised ahead of energy.
- IDPs and host communities placed priority on street lighting, household lighting and cooking. However the number willing to pay for the services was low.
- Most sites has some level of livelihood programming that energy interventions could support.



Community priorities

Alignment and priorities – supporting data

Survey Data	Kismayo	Baidoa	Galkacyo
Top services/ infrastructure in the community that you would like made easier to access	Clean water, education, health care	Clean water, education, health care	Clean water, street lighting, health care
% of community that would like clean cooking made easier to access	<10%	17% (for fuel); 5% (for stove)	18% IDP; 38% host (for stove); 11% IDP; 42% host (for fuel)
% of community that would like household lighting made easier to access	<5%	9% host	32% IDP; 33% host

Solar street lighting, Kismayo © RDI

Potential Opportunities

- All IDP sites could benefit from improved energy access; energy for households, businesses and clean water are priorities.
- The high cost of current energy solutions and low access levels creates opportunities.
- Standalone solar energy appears viable for increasing household, business and water business energy access.
- Mini-grids are an option for permanent settlements where social infrastructure is being built; there is no or limited energy infrastructure in the planned relocation camps.
- Any energy intervention developer must understand how to operate in an unregulated market as well as keep abreast of any planned regulations while coordinating with other actors (government, NGOs, community and other ESPs) to ensure alignment and improve chances of success.
- Given the low-income levels, introducing business models that allow instalment payment models and combining energy interventions with meaningful livelihood and financial inclusion programming could provide greater prospects for market-based energy solutions and support the objectives of self-reliance.
- It is likely that subsidies will still be needed to bridge the affordability gap and reach various segments of the market
- Supporting retailers and energy businesses to support IDPs will also be important for cost-effective delivery and the sustainability of interventions. Interventions can address barriers to support private sector involvement, including awareness raising within communities and designing models to support end user purchasing power.
- There is an opportunity to develop credit products tailored to the incomes and vulnerabilities of these communities.
- Future interventions will need to be coupled with awareness raising and demand stimulation for energy appliances.

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Enter Energy Assessments

Niger

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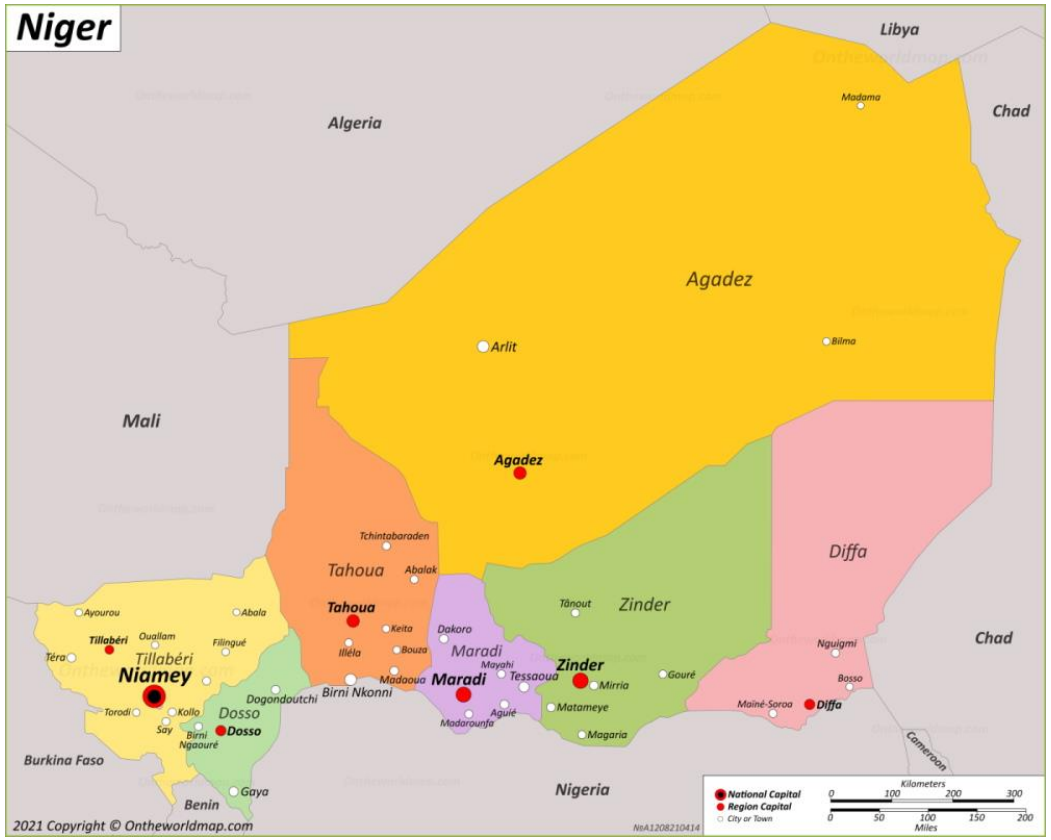
The Republic of Niger

- Population of 24 million.
- The country is divided into eight regions, with most of the population (96%) settled in the southernmost regions of Tillabéri, Dosso, Tahoua, Maradi and Zinder, because of the more hospitable climate and the proximity to Nigeria, a key economic partner.
- The gross domestic product (GDP) per capita of Niger is US $567.5 (2020), with an annual growth rate of 3.6%.
- Agriculture accounts for 38% of GDP and employs 75% of the labour force. Most agriculture is for subsistence, but after uranium and livestock, crops are Niger's largest exports.
- Niger ranks 189 out of 189 in the UNDP's Human Development Index, with more than 90% of the population in multidimensional poverty.
- Niger is rated at 132 out of 190 in the World Bank's Ease of Doing Business Index (2020), a significant improvement in recent years. Challenges relate to poor access to credit, cumbersome regulation, complexity in getting licences, corruption, difficulties in issuing title deeds and a lack of human resource capacity.



World Bank, 2020
https://hdr.undp.org/en/countries/profiles/NER
https://www.doingbusiness.org/content/dam/doingBusiness/pdf/db2020/Doing-Business-2020_rankings.pdf
'Economic and Social Development Plan (PDES) 2017–2021', UNDP, 2017

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Methodology

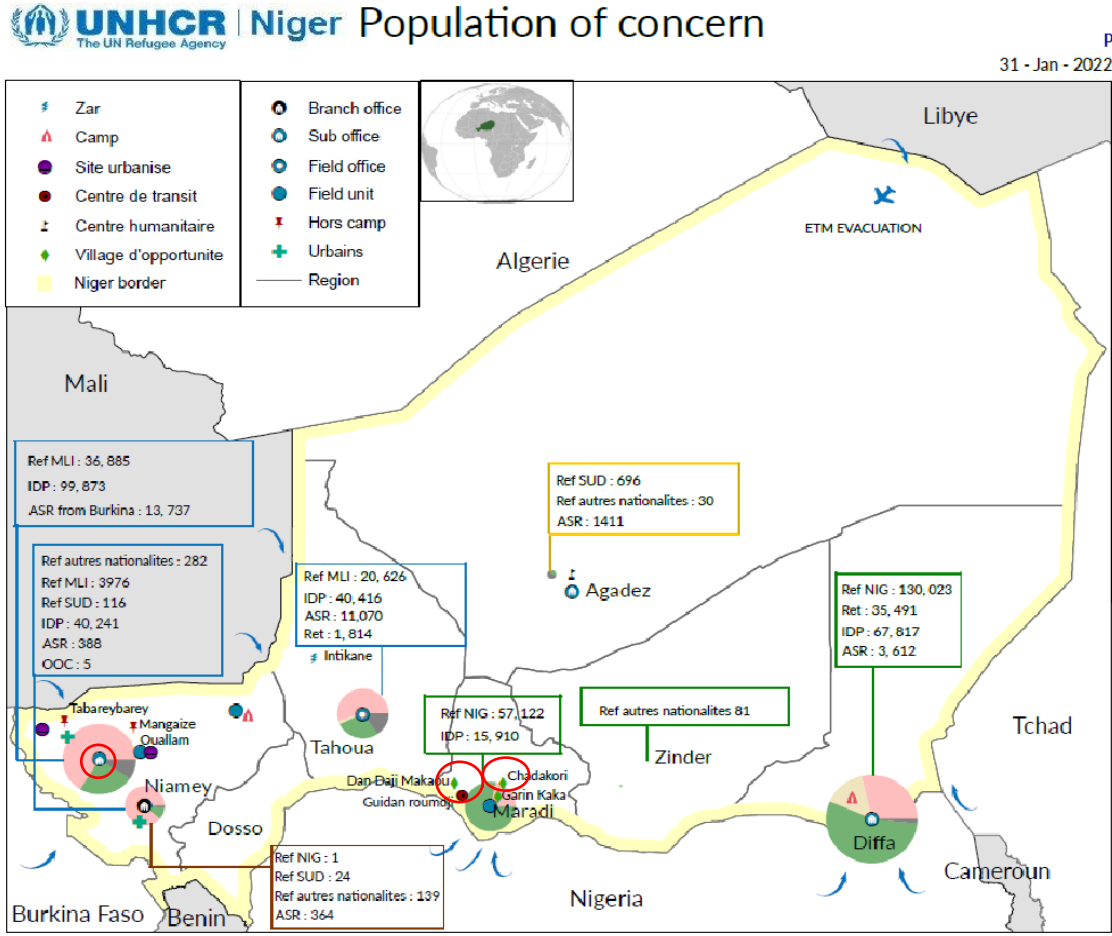
It was not possible to survey all IDP/refugee areas in Niger, so 3 were selected for site assessments. The selection of sites was based on secondary data on the current situation in the towns and discussions with Mercy Corps country office.

The three sites selected were:

- Abala (16,443 refugees + 6,700 IDPs)
- Chadakori Village of Opportunity (5698 refugees)
- Dan Dadji Makaou Villlage of Opportunity (3991 refugees)

- Surveys were conducted across these 3 sites to provide insights into incomes, current energy usage and willingness to pay for energy services. In each city surveys were carried out in a number of different IDP sites.
- KIIs were conducted along with a market engagement workshop.
- Mercy Corps – E4I worked with a local consultant

303 households surveyed	**44** businesses surveys
13 institutions surveyed	**6** focus group discussions
24 key informant interviews	Workshop with **11** companies



Humanitarian Context

- Niger hosts around 580,000 persons of concern to UNHCR
  - 48% are internally displaced persons (IDPs), 43% are refugees, 6% are returnees, 2% asylum seekers and other persons of concern (mostly Burkinabe).
  - They are predominantly young (58% are under 24) and women account for 53 % of the population.
  - The majority of refugees come from Nigeria (73%) followed by Mali (21%).
  - The primary reasons for displacement are conflict/insecurity issues internally and in Nigeria, Burkina Faso and Mali. and climate-related shocks, primarily drought and floods
- Niger has supportive policies for refugees and IDPs with refugees and asylum seekers having freedom of movement, entitlement to work and shelters. There are also programmes in place to provide water, hygiene and sanitation, education, nutrition and health services and food security.
- Refugees also have the same access as nationals to the electricity grid or mini-grids (with no additional requirements) and are included within donor energy access programmes.
- Refugees have few opportunities for income generation, with refugees lacking the skills and access to finance to be able to access economic opportunities.
- More permanent camps and Villages of Opportunity are being established with permanent housing and social infrastructure shared with the host community.

https://www.refworld.org/pdfid/4a1ff81a2.pdf, Droits - UNHCR Niger 03022021_ner_hrp_2021.pdf (humanitarianresponse.info)

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Energy market context

- Niger has one of the lowest electrification rates in Sub-Saharan Africa. In 2020, the electricity access was only 12.28%
    - Urban areas at 63.9% compared to rural areas at 0.9%.
    - 80% of the connections are on-grid, with the remaining 20% mainly off-grid diesel.
- The National Strategy for Electricity Access plans to achieve a national electrification rate of at least 80% by 2035, broken down by 85% grid-connected (expansion and densification), 5% mini-grid and 10% standalone systems (individual systems, including SHS, and other solar kits).
- NIGELEC has been the only developer of diesel mini-grids in Niger. Some of these will have solar PV added. Recently, 13 PV mini-grids have been installed and are operating with a combined installed capacity of 490kWp.
- The policy and regulatory environment in Niger supports private companies entering the mini-grid market: private companies are fully able to own and operate mini-grids, and mini-grid developers can set cost-reflective tariffs. However, further work is needed to clarify issues in : private ownership, tariff structures, import restrictions, tax regimes, compensation for grid takeover, and quality control.
- Off-grid solar deployment in Niger has mostly followed a donor- and government-led approach and the market is relatively small. New business models are being introduced, e.g. PAYGO, and finance institutions are also entering the market, but with limited results to date.
- Certified solar products are exempt from import custom duties but the business cases and economic environment remains challenging for private pico-solar, SHS and solar PUE companies; mobile money is nascent, incomes are low, enterprise financing is difficult, high transportation costs and a lack of skilled labour.
- The clean cooking sector is not well developed, with the vast majority still relying on biomass cooking.

'Prospectus d'investissement de l'énergie durable pour tous (SEforALL) du Niger', Republic du Niger, 2019
Document de politique nationale de l'électricité', Ministère de l'Énergie, Niger, 2018

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Key stakeholders

Displaced and host communities	• Need to be involved in programme design • Need to understand desires, needs and WTP
Humanitarian actors	• UNHCR is a key partner due to its overarching protection mandate and coordinating role. • Action pour Bien Etre (APBE), a national NGO, responsible for refugee camp management and the coordination of partners • WFP have a strong role in food and cash distribution and interest in clean cooking. • Important to coordinate and align with stakeholders involved in livelihood and financial inclusion programming to create synergies with market-based energy access (e.g. Save the Children, Red Crescent, Mercy Corps, Plan, World Vision, NORCAP) • Energy programming at the settlement level, such as UNHCR, APBE and Mercy Corps on LPG.
Government	• Key government stakeholders to closely work with include Le Ministère de l'Action Humanitaire et de la Gestion des Catastrophes, Ministry of Energy, ARSE (Autorité de Régulation du Secteur de l'Énergie) and ANPER, the main Government body responsible for energy access.
Donors and development partners	• The World Bank is a key stakeholder with US $60 million focusing on energy in refugee areas – under the HASKÉ (Niger Accelerating Electricity Access Project) supporting grid electrification, densification, solar PV powered mini grids, off-grid solar electrification of public institutions and households, and clean cooking. • Other donors in the energy space include: ADFD, AfDB, EU, USAID
Finance providers	• Financial service providers need to be involved in the provision of credit for both businesses and end users. Several MFIs are already working with solar products, but with limited experience, and none with refugees.
Private sector	• Several providers of energy products and services exist in Niger but none have any presence in the refugee areas, focussing primarily on larger centres. The private sector organisations consulted as part of this project would be interested in extending their markets to refugees, if they are supported in doing so.

Energy is cross-sectoral, there is also a need to work across sectors and to coordinate between agencies, community and Government

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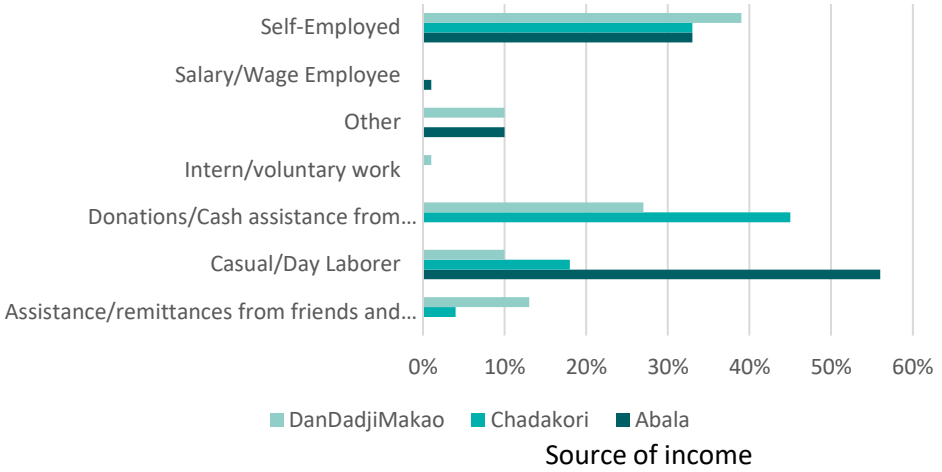
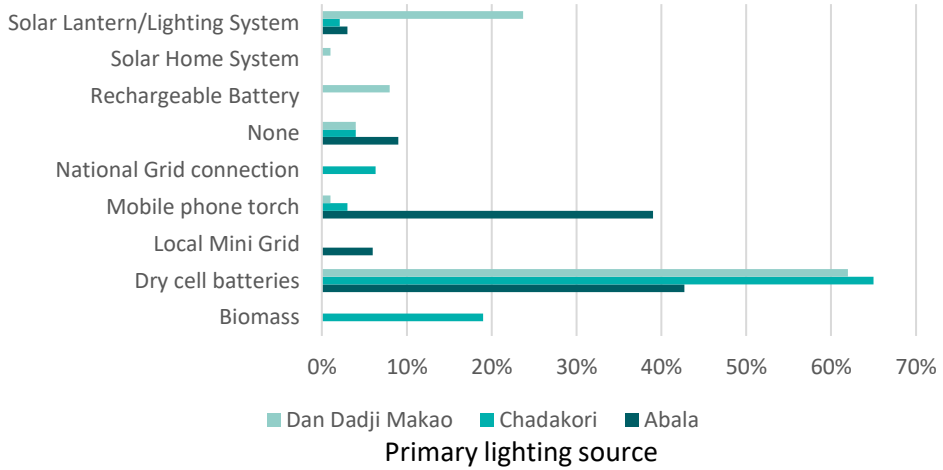
Current income levels and energy usage

- Refugee incomes are low (between US $33 and $63/month) and there are limited income opportunities, with a high proportion of refugees in Maradi reliant on donations or cash assistance .
- The biggest expenditure for all households is food, followed by energy.
- Refugees have low access to electricity with the predominant lighting source for refugees being dry cell battery torches or mobile phone torches
- Lighting costs between US $1.5-2.2 per month. Mobile charging is either included in the lighting cost or costs US $1-2 per month.
- Host households in Chadakori and Abala have access to the national grid or a Nigelec mini-grid, but there are very few connections.
- The availability and adoption of efficient stoves and fuels is limited, with more than 92% of refugees and host community households depending on wood-fuels (in Abala) or millet stalks (in Maradi) for cooking.
- More households regularly collect fuel in Maradi (37-50%) than in Abala (25%), due to the large distances required to reach firewood at Abala. Where it is purchased, households spend about US $8-10 per month.



Source of income



Primary lighting source

Tiers in the Multi-Tier Framework for electricity access - https://mtfenergyaccess.esmap.org/methodology/electricity

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Current income levels and energy usage

- There are few businesses within the refugee camps, with most services offered from within the host communities. Energy is supplied by the mini-grid, diesel gen-sets or solar.
- Energy for social institutions depends on location, with those in host communities often connected to the grid. In the new Villages of Opportunity sites and the new Abala site, social institutions are provided with solar systems
- Humanitarian agencies' main offices are located outside the camps, often with access to the grid, back-up diesel or standalone solar systems.
- There have been few interventions focused on access to sustainable energy services beyond the free distribution of solar lanterns, installation of solar streetlights and solar water pumping. The exceptions to this are LPG programming by UNCHR, *Action Pour le Bien Être* (APBE) and Mercy Corps, who have worked with the private sector to increase market uptake.
- The World Bank's HASKÉ project aims to electrify refugee areas.

Example businesses in refugee camps

Tiers in the Multi-Tier Framework for electricity access - https://mtfenergyaccess.esmap.org/methodology/electricity

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Current income levels and energy usage – supporting survey data

Survey Data	Abala	Chadakori	Dan Dadji Makaou
Refugee population IDP pop Host pop	16,443 6,700 75,821	5,698 6,700	3,991 1,800
Refugee population with no formal schooling	89%	72%	75%
Average monthly incomes refugee community	US$ 32.79	US$ 32.79	US$ 62.30
Average monthly incomes host community	US$ 80.00	US$ 57.38	US$ 60.66
Average monthly expenditure on lighting and mobile (refugees)	$1.5 - $3.5	$1.2- $3.2	$1.2 - $3.4
Average monthly spending on cooking fuel (all hhs)	$9.8	$8	$9.8
% of hhs that want more energy for lighting	78%	95%	98%
% of hhs that want better energy for cooking	72%	84%	94%

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Current income levels and energy usage – supporting survey data

Survey Data	Abala	Chadakori	Dan Dadji Makaou
Main source of lighting (refugee)	Mobile phone torch	Dry cell battery torch	Dry cell battery torch
Main source of lighting (host)	Dry cell battery torch	Dry cell battery torch	Dry cell battery torch
% of hhs with no primary lighting source	11% (refugees) 8% (hosts)	28% (refugees)	6% (refugees)
% access to grid	25% (host community)	33% (host community)	0%
% cooking with firewood or millet stalks	97% (refugees) 100% host community	98%	99%
% cooking with charcoal	3% (refugees)	2%	1%
Three stone fire or traditional stove as primary cooking technology	84%	100%	100%

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Market ecosystem

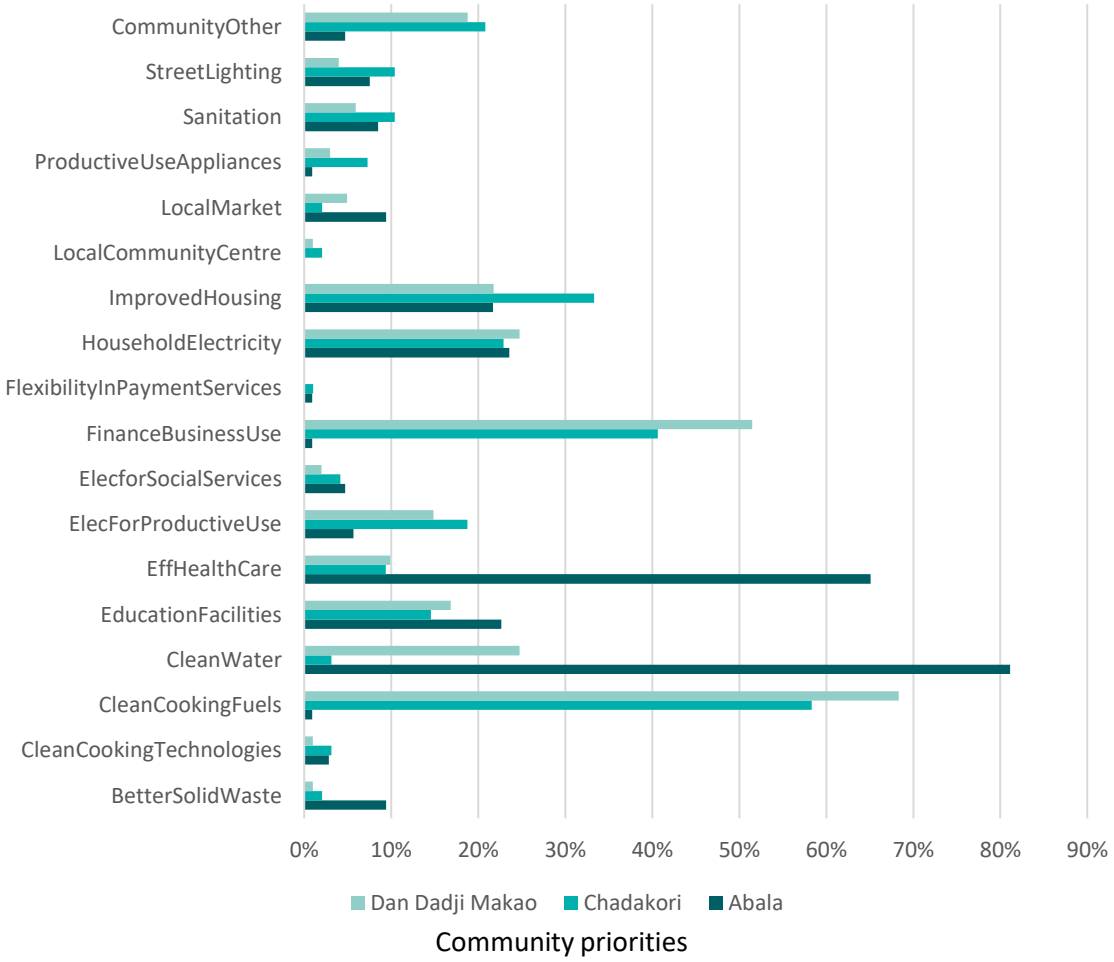
- The population density is similar in the camps, although the population varies. Dan Dadji Makaou may expand in the future but currently has a limited population, whilst Chadakori has both a camp and Village of Opportunity, and Abala also has an IDP camp nearby. Permanent camps with cement housing are being built at each site.
- There are few businesses within the refugee camps and opportunities exist to support refugee and IDP entrepreneurs with energy for productive use and business financing.
- The security situation is variable in all locations, but there have been no recent attacks in Abala town or camp or near the Villages of Opportunity in Maradi.
- Generally there are good relations between the displaced populations and host communities.
- There is evidence of donated products at all sites, but many products have been sold or have stopped working.
- The solar companies with certified energy products are not in the towns or markets local to the camps, although low quality solar products can be bought in some markets.
- There is a low level awareness of the potential of energy products (due to low quality products in the markets).
- There is very limited experience with any form of finance in all locations, and a lack of financial institutions working in the areas. NGOs are working on establishing savings groups.
- Mobile phone ownership is higher in Abala (at 90%) compared to 61-70% in Maradi, and mobile money access is very low everywhere (<3%). Mobile money operators are available in the host communities

Market ecosystem – supporting data

Survey Data	Abala	Chadakori	Dan Dadji Makaou
% of hh with access to formal banking services	0%	1%	0%
% of hh with access to semi-formal or informal banking	4.7%	10.5%	5%
% of hh with access to mobile money	1%	3%	3%
Mobile phone ownership	90%	70%	61%

Alignment and priorities

- Energy interventions can align well with government priorities to promote rural electrification and clean cooking.
- Alignment possible with grid extension plans and the World Bank's HASKÉ and NESAP programmes is needed.
- Other priorities such as healthcare, clean water, finance for business and improved housing were often prioritised ahead of energy.
- Household energy remains a priority for the refugee and host communities across all locations - primarily light, mobile phone charging and clean cooking.
- Energy programming to date has focused donations so work needs to be carried out to introduce market-based initiatives.
- The main energy programming is Mercy Corps' ALHERI programme in Maradi, which focuses on LPG.
- There is potential to build on livelihood programming in each site.
- There is limited work related to financial inclusion on which to build



Alignment and priorities - supporting data

Survey Data	Abala	Chadakori	Dan Dadji Makaou
Top services/ infrastructure in the community that you would like made easier to access	Clean water, efficient healthcare and education facilities	Clean cooking, finance for business, improved housing	Clean cooking, finance for business, clean water and household electricity
% of community that would like clean cooking made easier to access	3% (technologies)	58% (technologies)	68% (technologies)
% of community that would like household lighting/charging made easier to access	24%	23%	25%

Potential Opportunities

- All camps could benefit from improved energy access. Energy for households and businesses appears to be a need and priority.
- Small scale solar systems appear the most viable where locations will not be covered by grid extension.
- There are opportunities for income generation with energy access across all sites, in parallel with livelihood programming to increase the skills base and knowledge of productive use of energy.
- Introducing energy business models that allow instalment payment models and combining energy interventions with meaningful livelihood and financial inclusion programming could provide greater prospects for market-based energy solutions.
- Where grid extension will occur there is scope to support market-based access to energy appliances.
- There is an opportunity to develop credit products tailored to the incomes and vulnerabilities of these communities

Focus Group Discussion in Chadakori

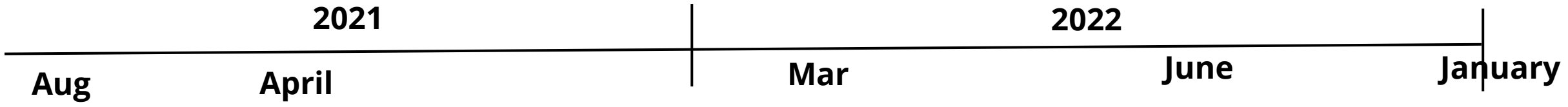
- It is likely that subsidies will still be needed to bridge the affordability gap and reach various segments of the market
- Future interventions will need to be coupled with awareness raising and demand stimulation for energy appliances
- Interventions can address barriers to support private sector involvement, including awareness raising within communities and designing models to support end user purchasing power.

Energy for Food Security strategy (E4FS)

WFP Niger

December 2022

Methodology & Timeline



Analysis

Desk research
- WFP Niger CSP (2020-2024) analysis
- WFP strategic plan (2022-2025) mapping
- Government energy plans
- Strategy roadmap analysis and development
- Food security situation analysis
- Country energy analysis

Stakeholder analysis
- Local energy supplier mapping
- Scoping of UN & NGO-level energy initiatives
- Donor mapping
- End user scope assessment

Collaborative development

Internal
- Internal planning meetings and bilateral consultations with programme team
- CO and RB-level consultations
- Identification of linkages between energy interventions of WFP standard programmes at Strategic Outcome level (projects and activities)

Feedback and review

Internal
- Strategy presentation to programme and management team

External
- Feedback from external expert reviewers and key partner agencies

Country energy assessment

Report
- Validation of solutions
- Integration of CSP

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Mapping of WFP Niger energy interventions & activities

	Energy component
ETC	Communication services for refugees
School gardens	Irrigation, food transformation (milling) for schools
Biogas for schools, SHF	Biogas for production of fertiliser & for cooking in schools
Nutrition assistance interventions	Food fortification, milling and other food transformation mechanised process for children with MAM
Digital Ecological Farm & Food Assistance for Assets	Irrigation for smallholder farmers
Improved stoves	Cooking for households and schools
Agro-climatic info services	Communication services smallholder farmers
Community sensitisation on climate change	Clean energy, energy efficiency
FFA carbon footprint assessment	Clean energy, energy efficiency
National guide on land rehab/biodiversity	Clean energy, energy efficiency

Long-lasting project-level challenges

1. Solution has a strong techno-economic focus, with limited consideration of beneficiary needs, preferences, and socio-cultural and political aspects.
2. Strong technical expertise with limited human centric design of programme cycle management to deliver socially and economically sustainable programmes.
3. Limited or no impact data is collected as part of programme implementation to inform of project progress.
4. Limited and short-term funding streams should be factored into energy programme design and implementation requirements in Niger.
5. Limited programme cohesion and siloed approach across strategic outcomes to deliver energy.

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Deployment solutions proposed at end user level (summary)

	Essential Energy Kit *Cooking, lighting & powering through Tier 1/2 distributed solar system (SHS) + solar lamp + LPG cooking kit*	Energising School Feeding *Institutional modern cooking – LPG/solar + solar-powered food production & transformation; communication & lighting; Energy-smart agriculture education*	Empowering Smallholder Farmers *Solar-powered food production & transformation & communication devices; and mechanized techniques for natural resource conservation*
Energy need	• **Consumption and essential needs:** economically vulnerable people (host, refugees & IDPs) have limited or no means to cook and meet essential needs	• **Consumption & subsistence production:** Schools have limited or no means to cook, produce or transform foods	• **Subsistence / commercial farming:** SHF lack means to invest in agriculture capacity for own consumption or to access markets; **Climate adaptation:** populations are hit by disasters & need resource restoration support
Target	**Pilot**: 1000 (x7 /HH) **Scale-up**: 30% of current SO1 & 4 users	**Pilot**: Priority schools w, >100 stud. **Scale-up**: 30% schools	**Pilot**: Subsistence SHF, 15 sites; SAMS, 10 OPs **Scale-up**: Subsistence SHF, 100 sites; SAMS, 20 OPs
Go to market	• **Host HH**: via schools or directly • **Refugees & IDPs HH**: directly • **Adolescent girls**: distribution to HH via schools conditional on attaining a given score (only grant) • **Health personnel**: directly	• Target **school staff and cooks** directly	• Direct targeting
Business model	• **Pilot phase:** grant-based finance with no cost recovery for vulnerable beneficiaries with demonstrated inability to pay for energy; market light (EaaS and commercial funds) for SAMS beneficiaries and those with some degree of payment capacity. • **Scale-up phase:** market light or full market model based on end user capacity to pay		

Enter Energy Assessments

Q&A

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Enter Energy Assessments

Thank you!

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