



Federal Ministry
for Economic Affairs
and Energy



MITTELSTAND
GLOBAL
ENERGY SOLUTIONS
MADE IN GERMANY

Renewables in Humanitarian Settings

16 February 2021

Facilitator



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

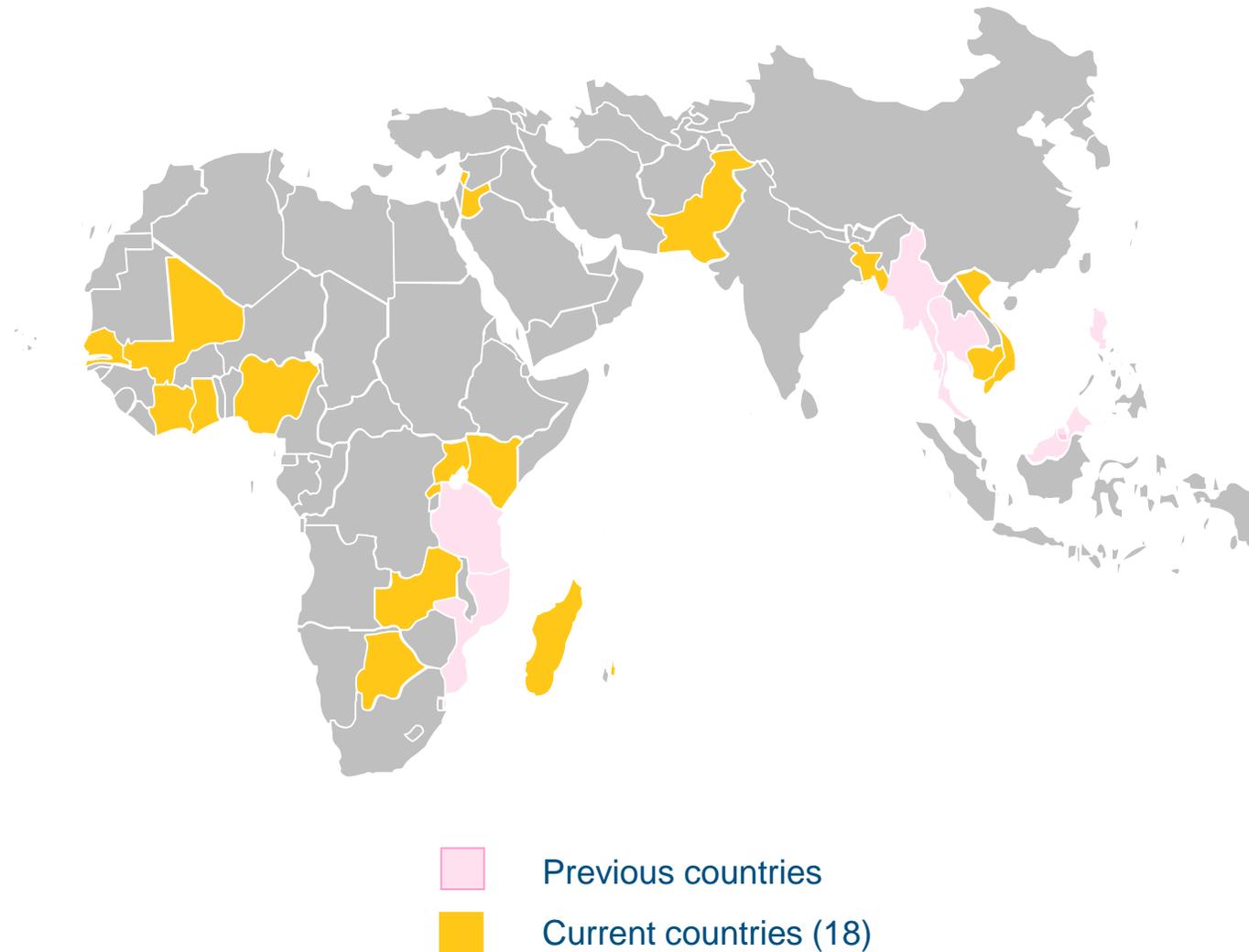
PDP's focus on Humanitarian Infrastructure

PDP is part of the German Energy Solutions Initiative

- Initiative facilitates business partnerships in the field of renewables, energy efficiency technologies, smart grids and storage technologies (www.german-energy-solutions.de/en)
- Based on a **parliament decision** 2002 with the aims
 - to support SMEs
 - to distribute smart and sustainable energy solutions
 - to contribute to international climate protection
- Coordinated and financed by the **German Federal Ministry for Economic Affairs and Energy**
- **PDP is implemented by GIZ**



The Project Development Programme (PDP)



Geographic Scope

- **Sub-Saharan Africa**
 - Kenya
 - Ghana
 - Nigeria
 - Mali
 - Senegal
 - Côte d'Ivoire
 - Botswana
 - Zambia
 - Mauritius
 - Madagascar
 - Uganda
 - Rwanda
- **Middle-East**
 - Lebanon
 - Jordan
- **Asia**
 - Pakistan
 - Bangladesh
 - Vietnam
 - Cambodia

PDP Services

Project Development

Early-stage project development
C&I and humanitarian
infrastructure

- Pre-feasibility assessment
- Access to finance support
- Regulatory advice
- Tendering support
- Contract templates

Business Development

Business development for
different RE & EnEff segments

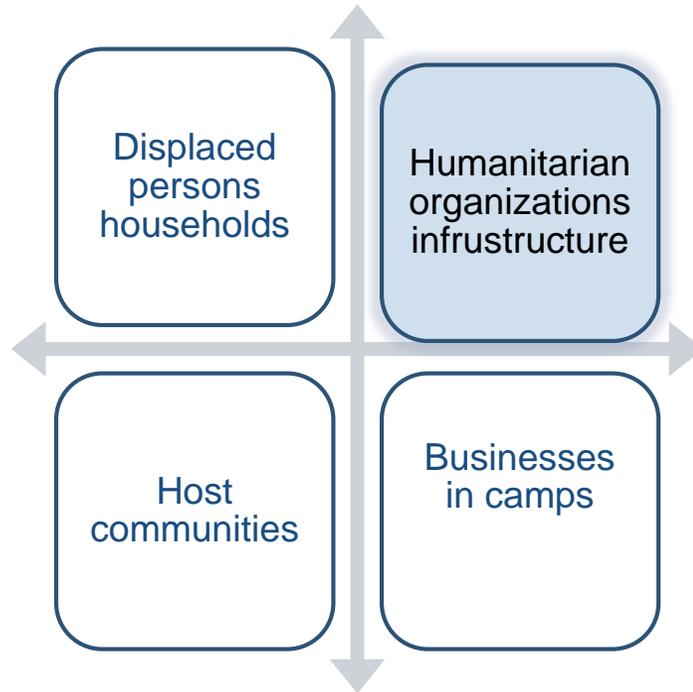
- Information on target markets
- Energy Business Trips
- Delegation trips to Germany

Market Development

Market development for
different RE & EnEff
segments

- Trainings
- Political advice
- Cooperation with associations
- Conference formats and trade fair participation

Project Development for humanitarian infrastructure



Drivers of energy demand in humanitarian settings

- ❖ What is humanitarian organization infrastructure?
 - ❖ Facilities, e.g. field offices, staff accommodation, reception centres, social and community infrastructure
- ❖ What is the technology focus?
 - ❖ Solarisation (as a first entry point)
- ❖ Why do we tackle the topic?
 - ❖ Reduction of GHG emissions and costs
 - ❖ Create market for private sector driven RE services
 - ❖ Access to clean and affordable energy



The challenge

Early stage project development support for private sector companies and humanitarian agencies

Private sector

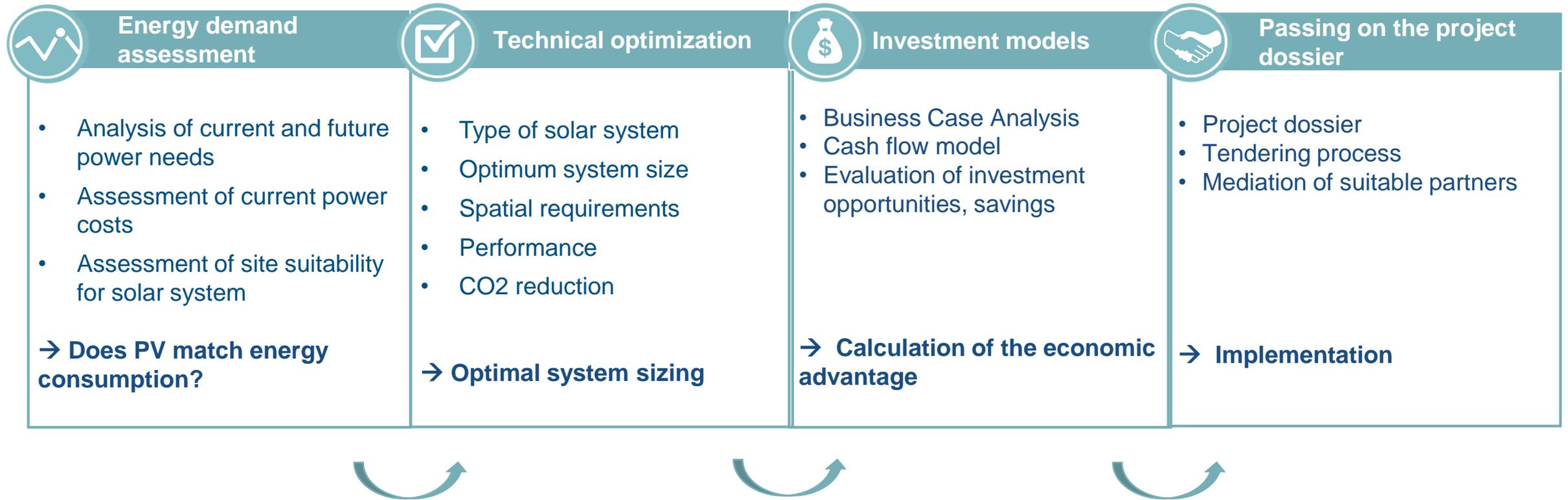
- What business opportunities exist with humanitarian sector?
- Which stakeholders are involved in project implementation?
- Is there existing data?
- What are the risks involved?
- How to conduct feasibility studies in fragile settings?
- Clarity on tender documents

Humanitarian agencies

- What is the ideal system size for the site?
- What fits on my roof/ground space?
- What should the price be?
- How to tender?
- What is the payback time/IRR?
- How to compare offers?
- Who are reliable contractors?
- What are the local regulations?
- Which business model suits my needs?



PDP's approach



→ Mitigating risks and development costs of projects!

GPA: Status Quo & Outlook

What Is The GPA?

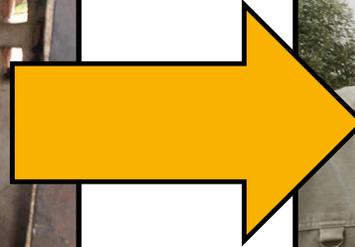


Non-Binding Multi-Sectorial Platform & One-Stop-Shop for Delivering SDG7 in Displacement Situations

Vision

Displaced persons, host communities and the associated humanitarian response mechanism have access to affordable, reliable, sustainable and modern energy services by 2030

What Are We Talking About Today?



Shifting humanitarian actor's reliance on diesel powered generators and transitioning to renewable sources of energy to provide electricity to offices, compounds and warehouses

Why Is Decarbonising Humanitarian Infrastructure Important?



- **Climate action**

- Moral obligation
- Reputational risk: UN must “walk the walk” and be seen as a leader



- **Improved environmental performance**

- Reduced reliance on fossil fuels (80% by 2030)
- Reduced carbon footprint
- Reduction in polluting emissions



- **Saving money**

- Up to 30% savings on effective use of clean technologies

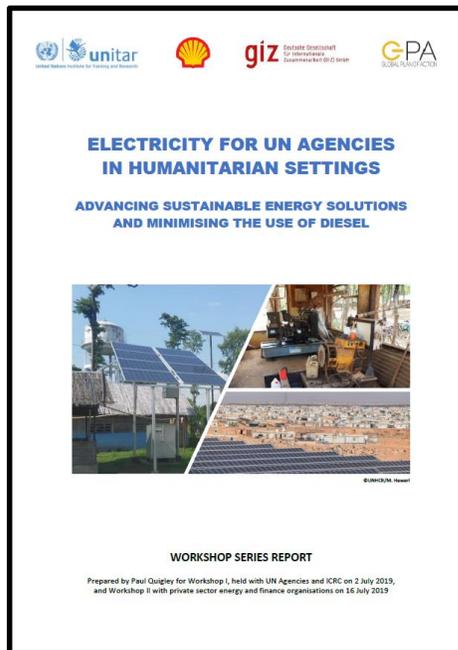


- **Support local development**

- Integrate local energy providers into the solution
- Provides local job opportunities
- Springboard for private sector to reach out to other end users

Why Hasn't Decarbonising Happened Yet?

- High capital costs for renewable systems
- Annual budgeting cycles and procurement processes favour status quo, i.e. purchasing of generators and diesel



HOWEVER: Series of workshops, hosted by the GPA, GIZ and Shell, with UN Agencies, INGOs and Private Sector, identified “**buying energy as a service**” as the **best way forward**

Buying Energy As A Service; The Challenges?

- Little (to no) use of energy service contracts (PPAs and Lease Agreements) to date in UN as opportunity to do so locked by:



UN and Private Sector speaking different languages and having different operational risk profiles, most evident when **negotiating terms for a energy service contract**



The **UN's standard contractual termination clause** that permits the UN to cancel a long term contract at any point in time, resulting in a contractual and financial risk to the energy service company

Unlocking The Opportunity?

Standard Set of Contractual Terms

for energy service contracts developed by Becker Buttner Held, supported by GIZ and GPA, in collaboration with UN and Private Sector

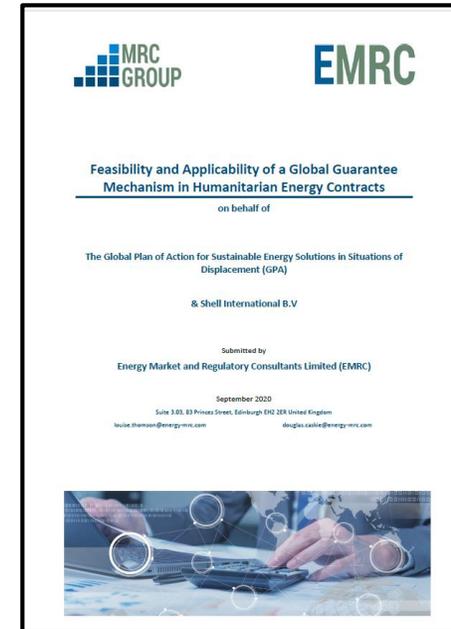
Derisking Mechanism developed

by Energy MRC, supported by Shell and GPA, to protect private sector investment from the UN Contractual Termination Clause

[link to report](#)



[link to report](#)



What Is The Future For Solarisation Projects In Humanitarian Settings?

Use lessons learnt to develop similar solutions for:



Humanitarian Activities: providing derisking mechanism to transition schools, health clinics, water pumping activities, training centres, community centres and public lighting to “energy service delivery models” which are presently limited by annual budgets and annual contract breaks



Household Energy Access & Productive Use: using UN energy service contracts as an anchor for energy service companies to provide affordable renewable energy to displaced and host community households and for productive uses

What is the Private Sector Opportunity?

We dont know in terms of USD...

Estimated **400 million USD** is spent annually on providing electricity to humanitarian operations through **diesel based infrastructure**

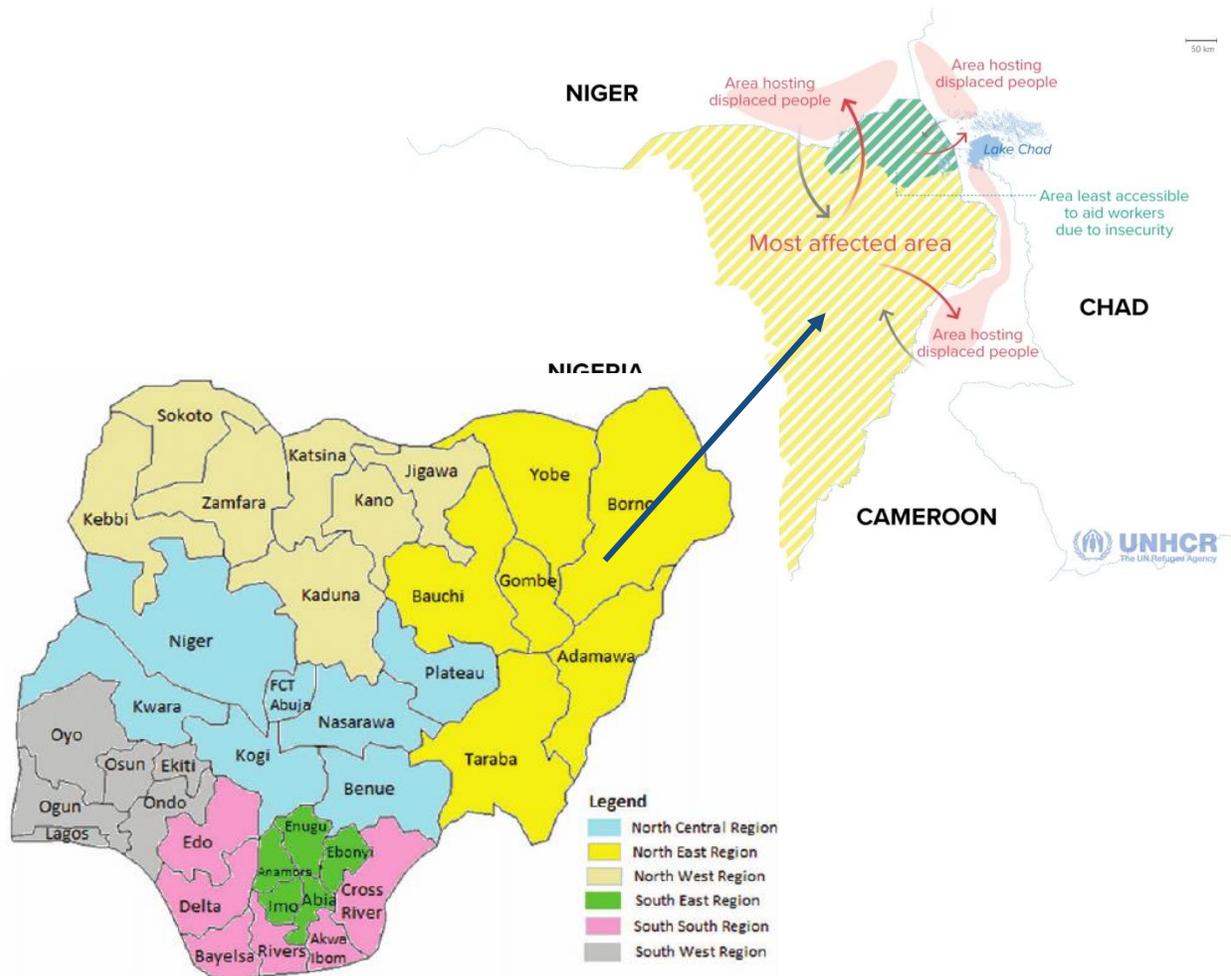
In addition, solarizing being looked at by UN Peacekeeping Operations; **54% of CO² emissions** from UN Secretariat coming from peace operations

Over **200 offices** managed by UNDP globally have business cases developed to transition them to solar solutions

Q&A

PDP: First experiences in Nigeria

Nigeria as a focus for humanitarian aid



- Over 3.4 million people displaced, including over 2.7 million IDPs in North-Eastern Nigeria, over 684,000 IDPs in Cameroon, Chad, and Niger and 294,000 refugees in the four countries
- Compounded health emergency
- Devastating impact on civilians – at least 10.6 million people in need of life-saving assistance in BAY states
- Untenable camp congestion – four out of five people living in camps are in overcrowded conditions
- Challenged access in an insecure environment
- A future risk – about 80% of those in need are women and children

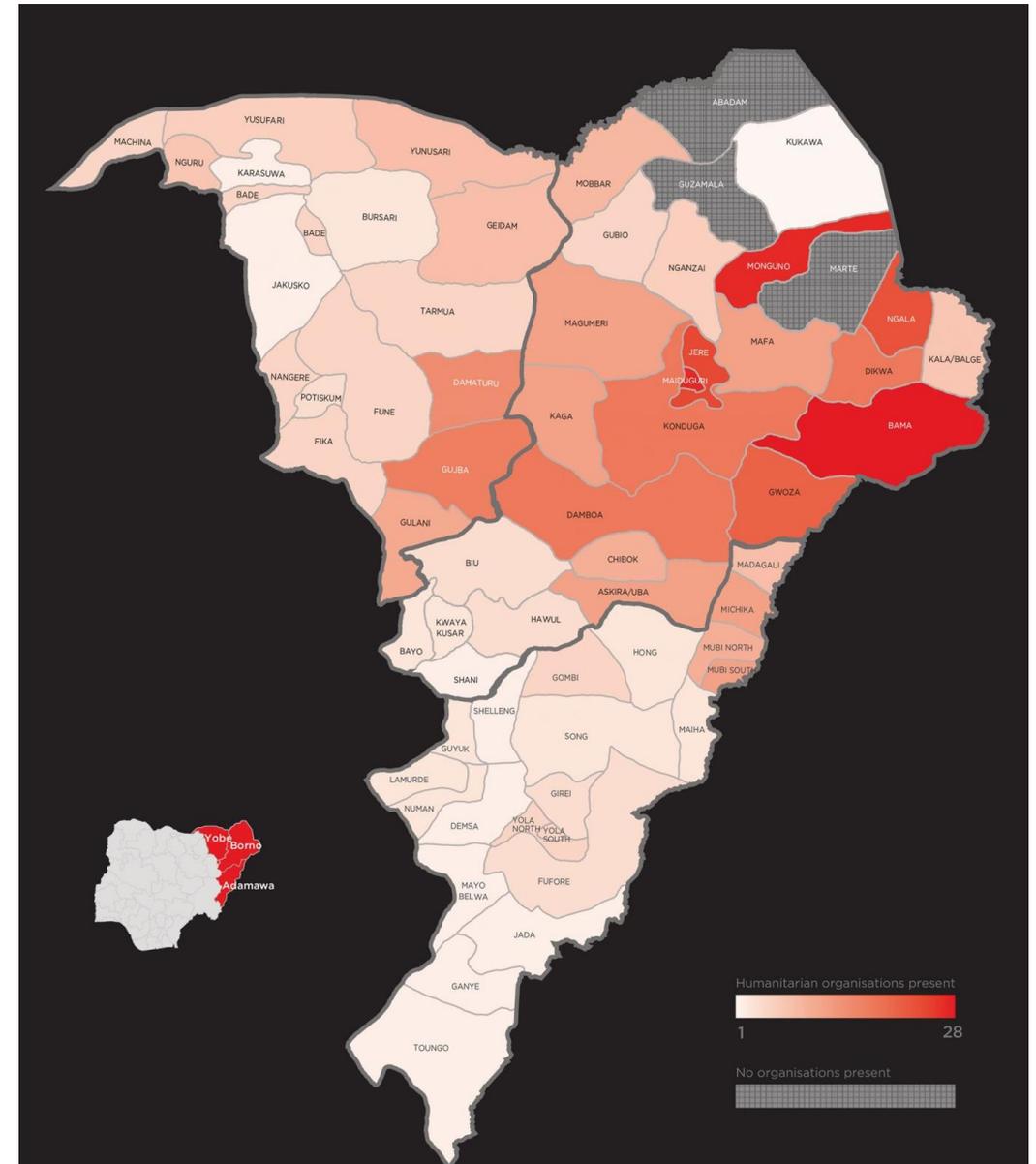
<https://www.unocha.org/story/five-things-you-need-know-about-humanitarian-situation-north-east-nigeria>

<https://www.unhcr.org/nigeria-emergency.html>

Humanitarian activities in Nigeria

- As of the end of 2019 there were 74 identified organizations working in the NE, including 6 UN agencies plus OCHA and IOM, 28 INGOs, and 33 Nigerian national and local NGOs
- Of the six states in the NE, bulk of operational aid presence is concentrated in the three states of Borno, Adamawa and Yobe (aka BAY states)
- An estimated 1.24 million Nigerians outside the government-controlled areas are cut off from humanitarian assistance.
- Growing power demand mainly met by gensets and unreliable grid in some regions.

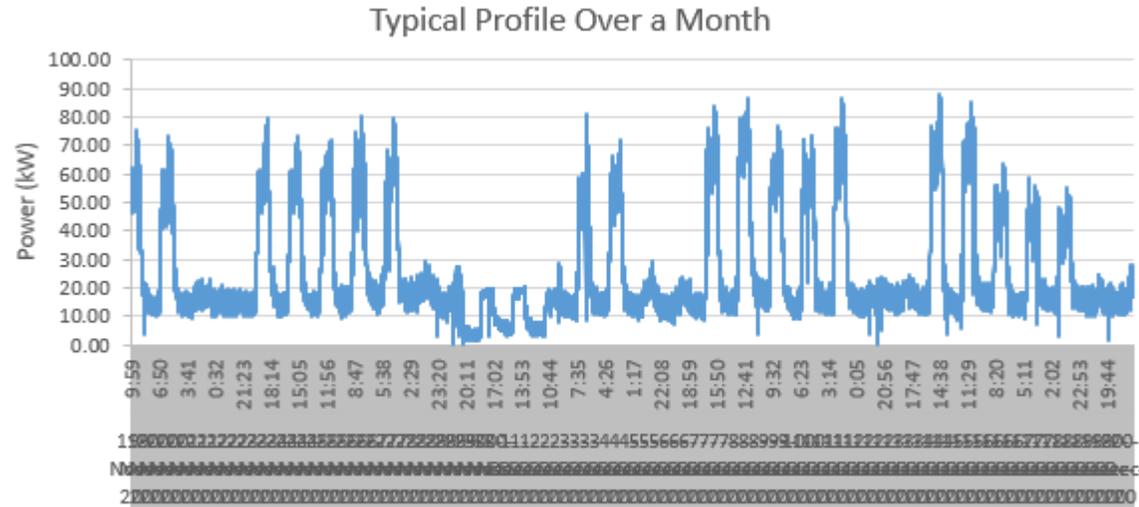
Source: <https://www.humanitarianoutcomes.org/projects/core/northeast-nigeria>



Data collection stage for typical humanitarian infrastructure site

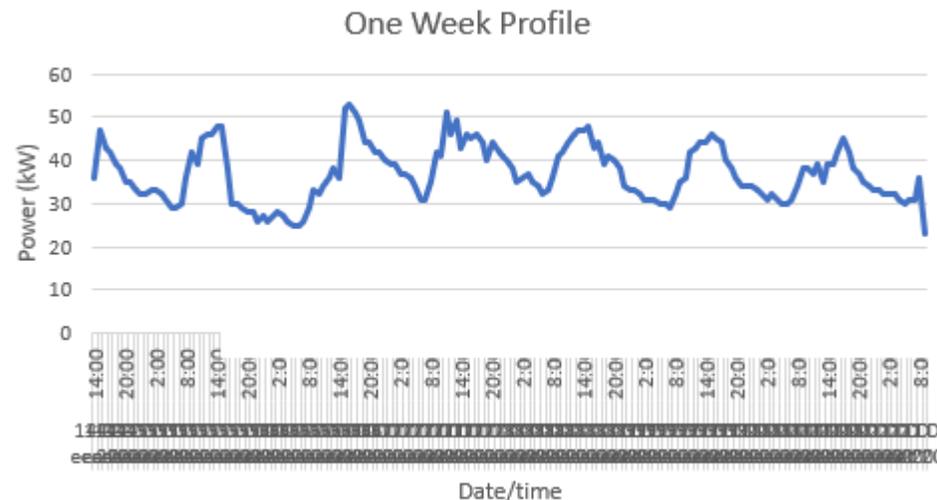
Office Space

- Typical loads include:
 - Cooling systems
 - IT equipment
 - Maintenance workshops etc
- Operations – ON weekdays and OFF weekends
- Power supply by grid and gensets

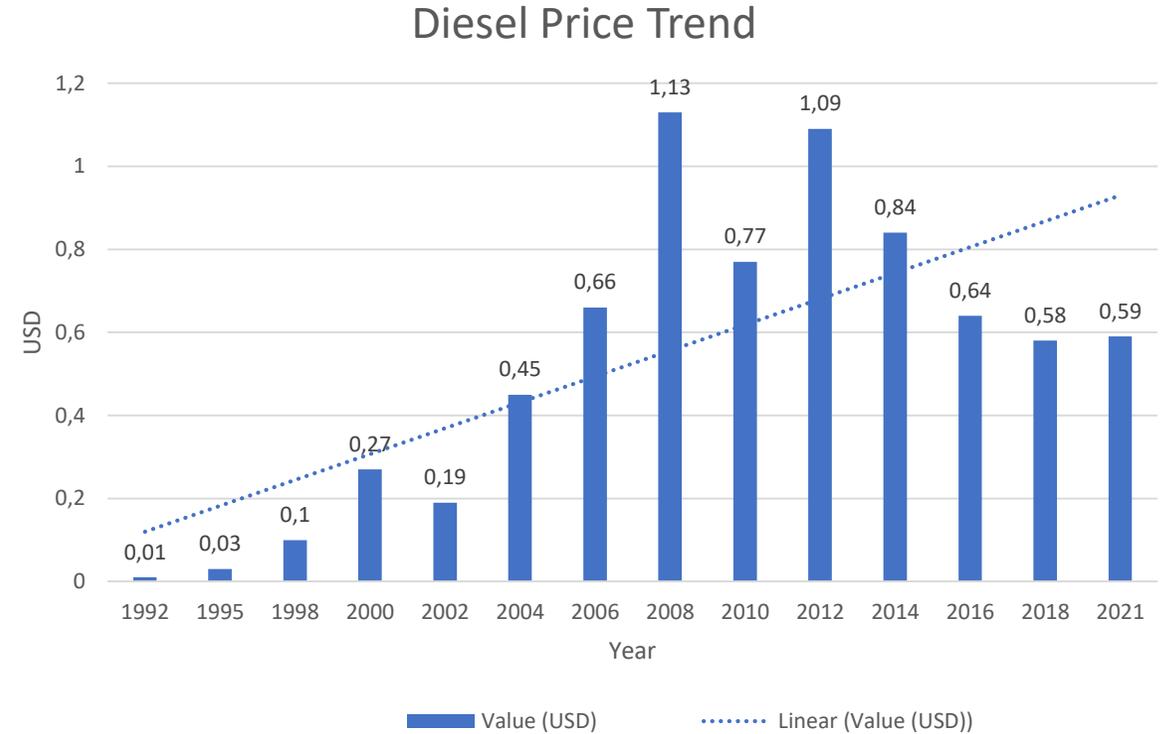
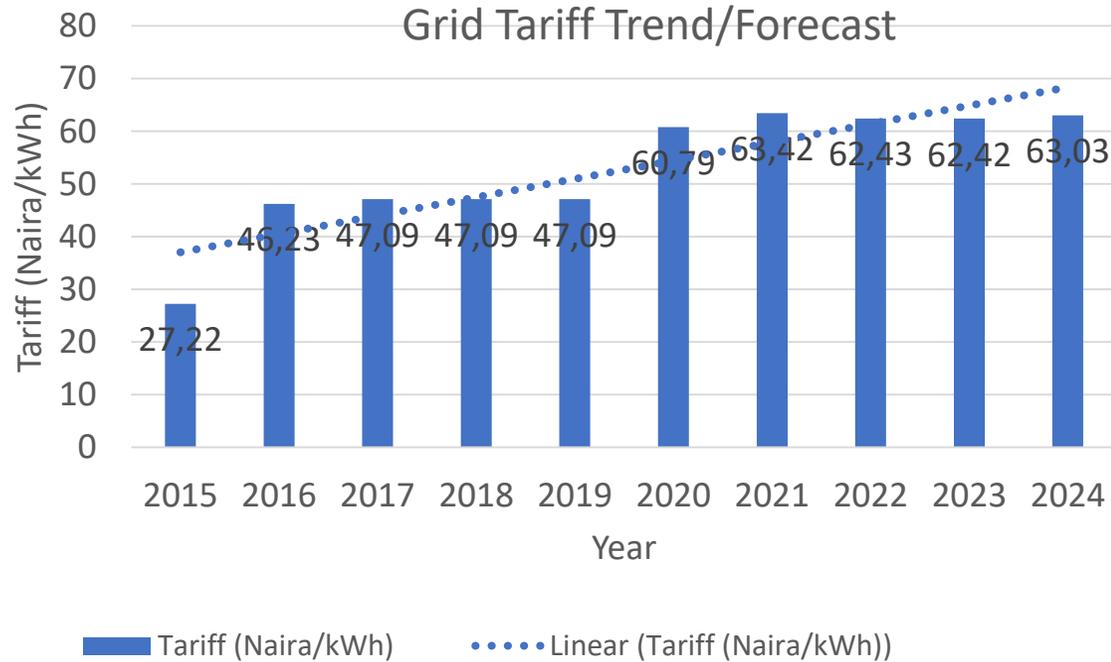


Warehouse

- Typical loads include:
 - Cooling systems
 - Lighting etc
- Operations – 24/7 all year round
- Power supply by grid and gensets



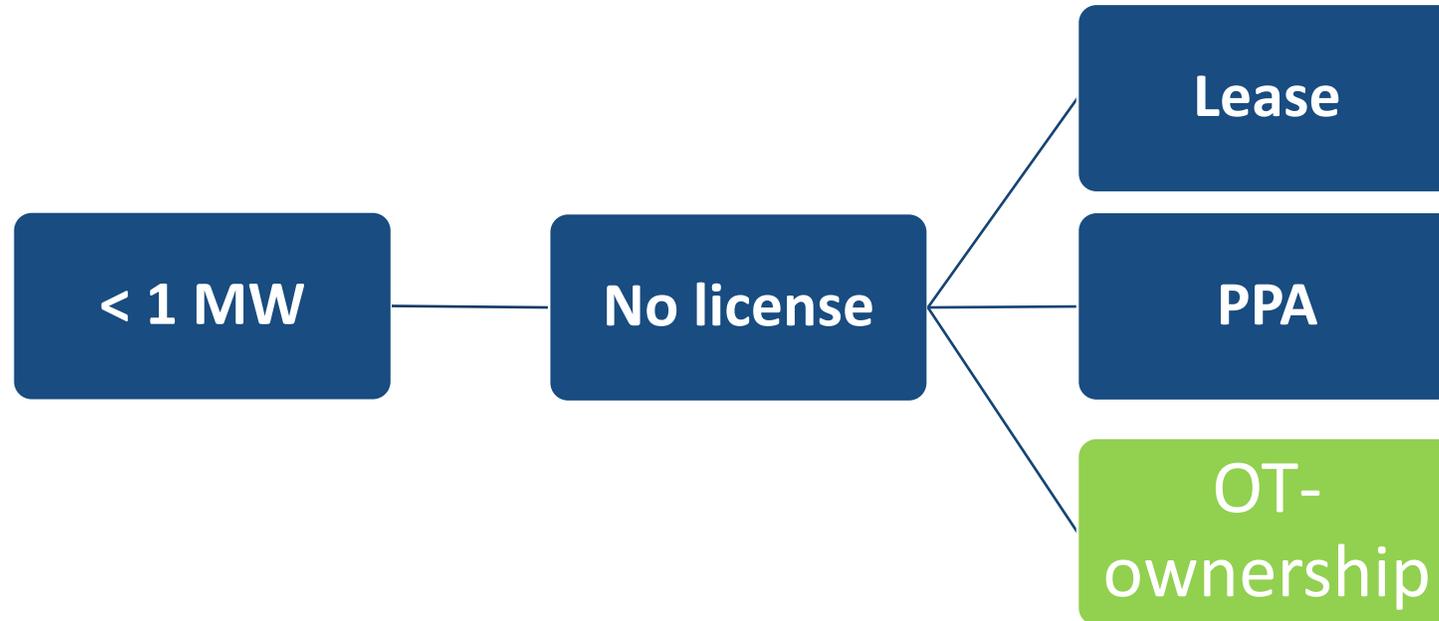
Forecast of electricity/diesel price



Source: Comparative Analysis Of Electricity Tariffs in ECOWAS Member Countries, 2019

Source: https://www.theglobaleconomy.com/Nigeria/diesel_prices/

Regulatory environment for solar projects < 1 MW



➔ *Sale of excess to DISCO legally possible – bilateral agreement with DISCO*

↳ *NERC has to approve sale of excess – not considered*

Tax implications for RE development NGOs in Nigeria

- Exempted from income tax provided profits are not derived from any trade or business
- Eligible for exemptions from other taxes under double-taxation treaties
- ONLY goods purchased by the NGO are zero rated for VAT
- All NPO/NGOs are expected to register with the FIRS and obtain TIN
- Obligated to file returns regularly (yearly)
- Not-for-profit companies, such as social enterprises and foundations engaging in economic or commercial activities, may apply to the president of Nigeria for an order to exempt them from taxation on their income or profits, no matter what the source.

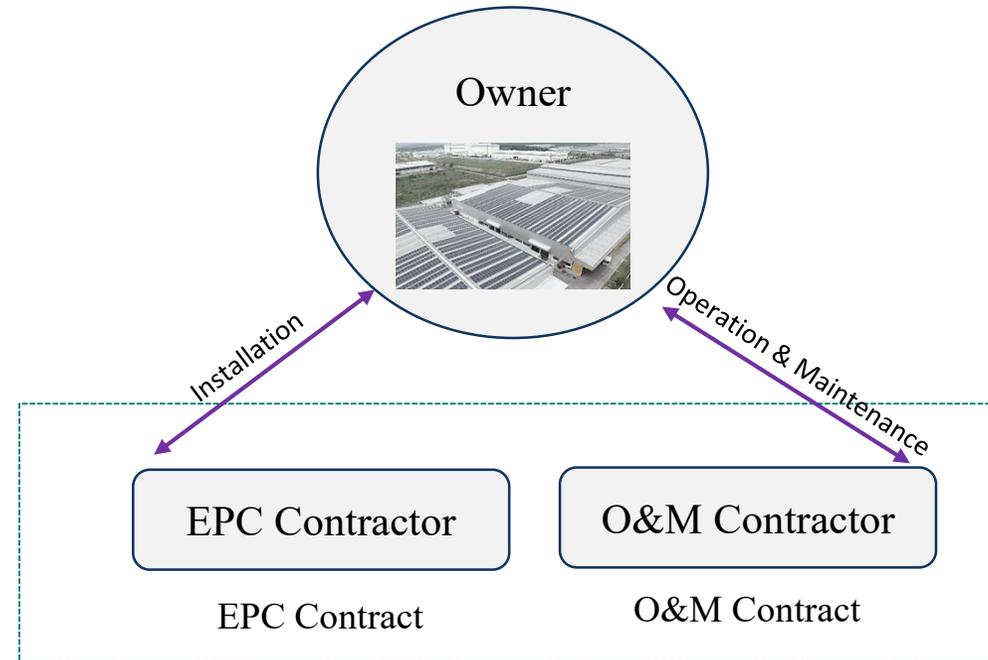


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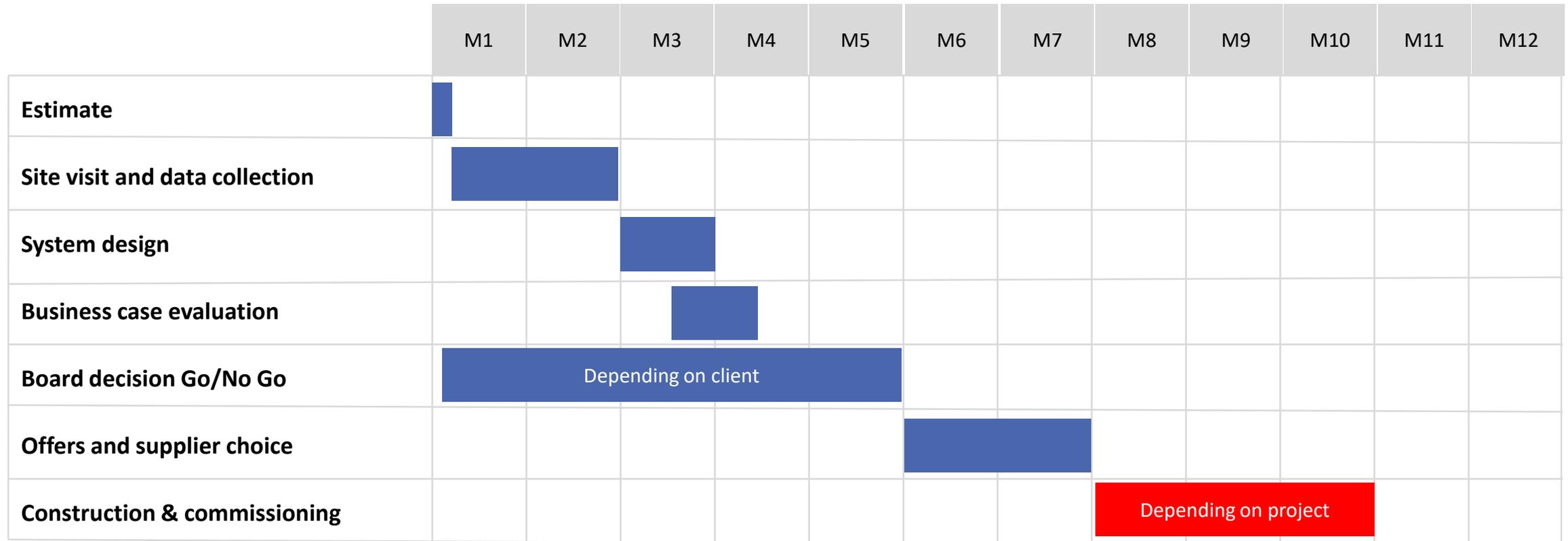
- <https://www.icnl.org/wp-content/uploads/Nigeria-FAQ-Tax-Law-for-NGOs.pdf>
- <https://www.linkedin.com/pulse/taxation-non-profit-organizations-nigeria-femi-olarinde/>

Self-investment model (EPC contract) for pilot phase

- Facilities leased and contract renewed on regular short-term basis
- Project takes up an EPC contract for the first case and considers PPA/Lease model for other sites.

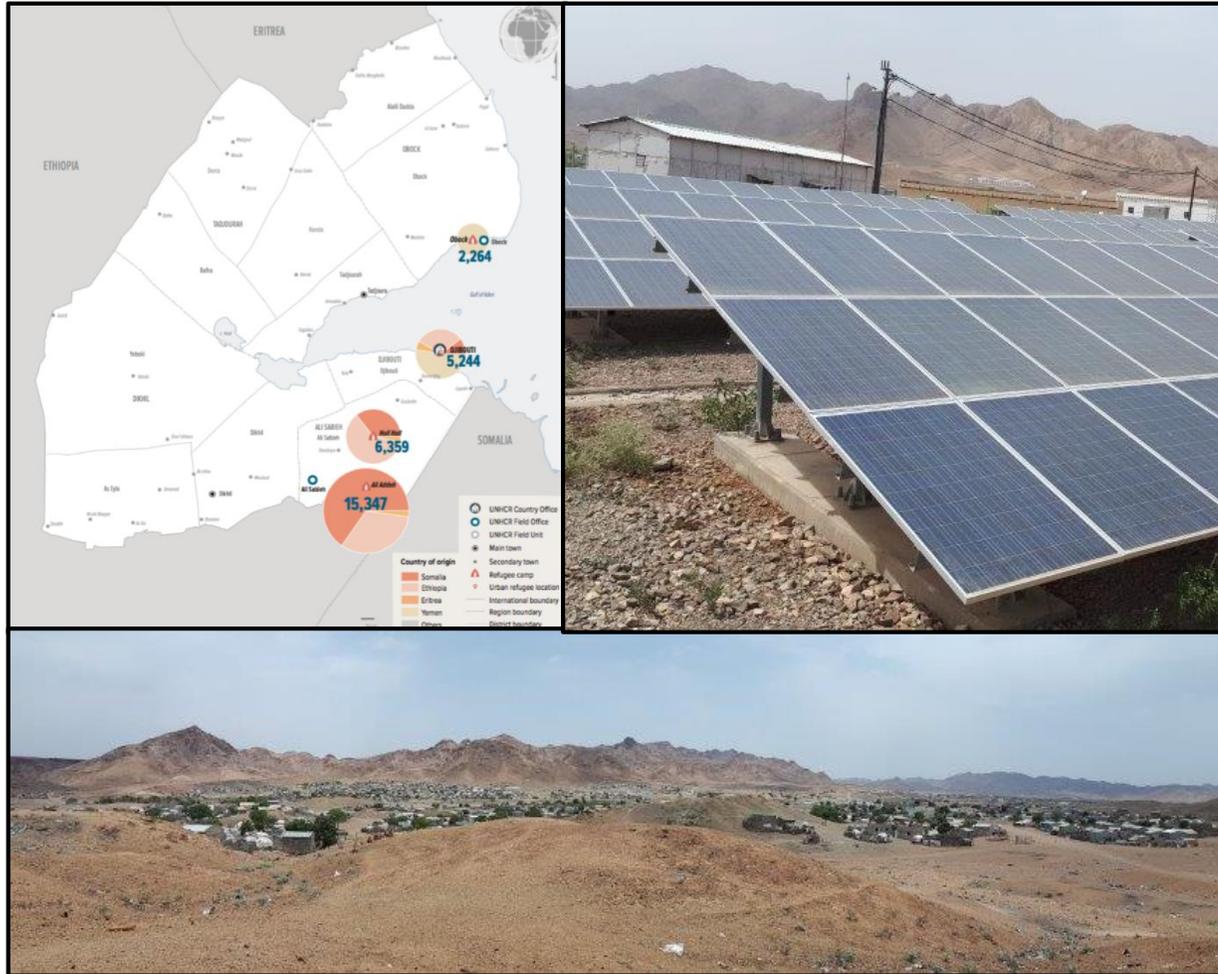


Early stage pre-development timeline



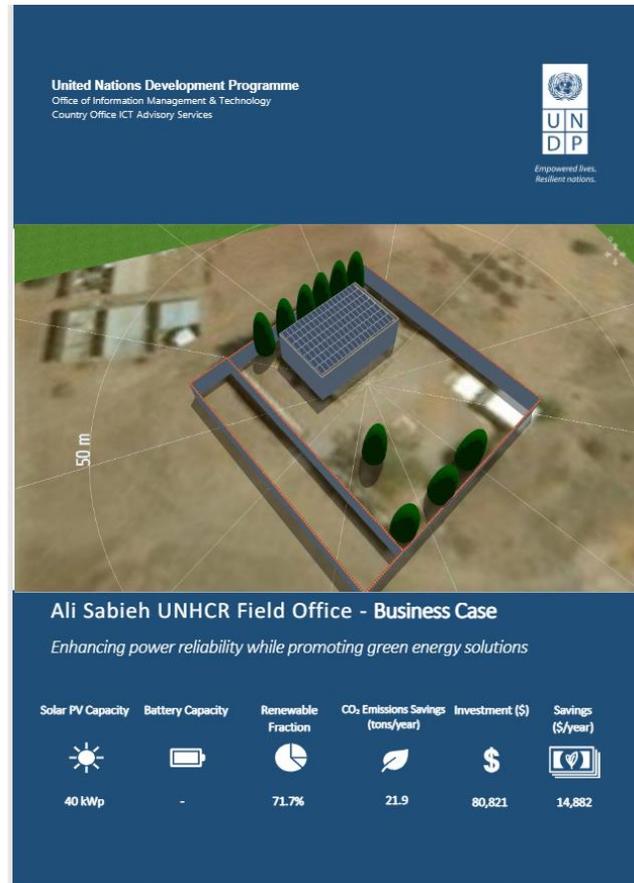
GPA: Lessons Learnt From Djibouti

Djibouti Pilot: Countrywide Energy Assessment in Displacement Setting



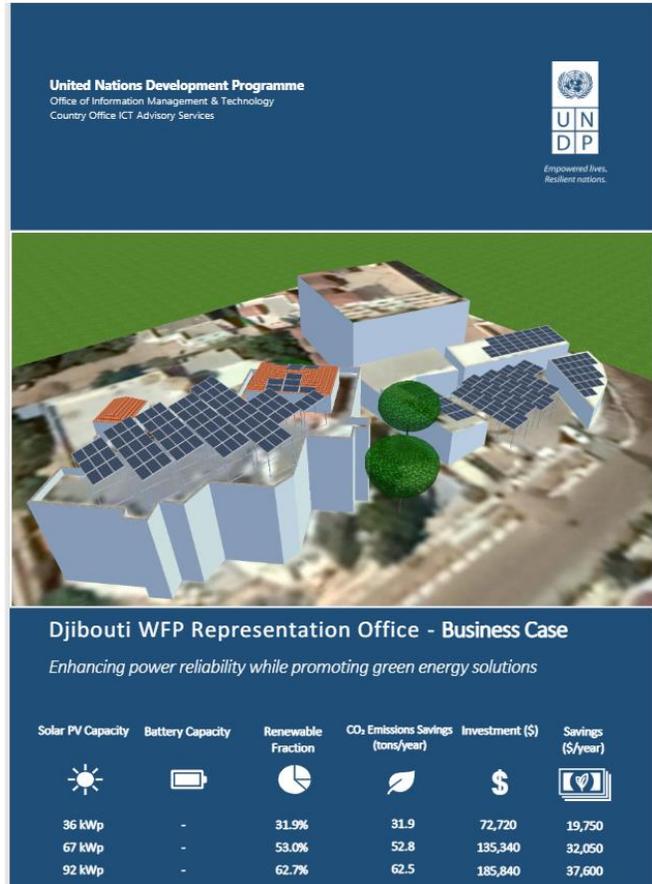
- Funded by German Foreign Office
- Partners: UNITAR-GPA; UNDP; SELCO Foundation; UNHCR; WFP; FAO; Government Ministries; International and National NGOs
- Assess Energy Needs in Displacement Setting:
 - Cooking
 - Household Electricity Access
 - Livelihood Opportunities
 - Energy for Humanitarian Response (e.g. WASH)
 - **UN Infrastructure** (e.g. offices, warehouses, accommodation blocks, etc)

Djibouti Solar Pilot: UNHCR Ali Sabieh Field Office



- 100 km from Djibouti Ville (1hr 45 mins)
- Installing 40 kWp Solar System
 - Buy system, 3rd party O&M
 - Providing 72% of energy needs
 - Saving 22 tons of CO₂ per year
 - Payback period 5½ years
- Limited interest from the private sector
 - Single opportunity
 - Small system
 - Remote location

Djibouti Energy Efficiency Pilot: WFP Representation Office



- Located in Djibouti Ville
- Replacing 39 air-conditioning units
 - Reduce energy consumption for air cooling by 70%
 - Reduce energy costs by 75%
 - Saving 52 tons of CO₂ per year
 - Payback period less than 2 years
- Energy Efficiency measures can have real impact
 - Preliminary phase prior to solarization can result in delay to solarization – sourcing funds for equipment
 - Energy Savings Performance Contracts v UN Procurement Rules

Djibouti Pilot: Lessons Learnt – Opportunities

How do we make solarization projects more interesting?

- Bundle Projects (countrywide, regionwide, interagency)
- Adding e-vehicles and solar charging in PPA/Lease Agreement (?)



How do we incorporate energy efficiency projects (reducing loads)?

- Leasing of energy efficient equipment
- Incorporating energy effect equipment in system lease



Q&A

Closing Remarks