POWERING HUMANITARIAN FACILITIES: DIALOGUE ON IMPLEMENTATION MODELS
Webinar Series: Sustainable Energy in Humanitarian Settings

PAST WEBINARS

• JUNE 2019: State of Play: Sustainable Energy in Humanitarian Settings
• SEP 2019: Sustainable Energy for Essential Humanitarian Services: Outline of Energy Solutions and a Case Study on Solar Pumping
• Nov 2019: Sustainable Energy for Powering Household and Community Lighting Needs in Humanitarian Settings
• Dec 2019: Sustainable Energy for Household Cooking Needs in Humanitarian Settings

Upcoming Webinars

• Energy Efficiency and Designing for Sustainability.
Tell us about you!
- Poll -
- Agenda -
Mads Uhlin Hansen, Kube Energy

Mads Uhlin Hansen is the CEO of Kube Energy, a Norwegian renewable energy company dedicated to transitioning international organisations from diesel generators to solar power. Prior to establishing Kube, Mads worked on humanitarian response, first as a donor with the Norwegian Ministry of Foreign Affairs, and later from the United Nations Office for the Coordination of Humanitarian Affairs. He has spent much of his work in field locations and has been based in Burundi, Sudan and Sierra Leone. Today Mads is mostly focused on developing solar systems to power humanitarian operations in South Sudan, Kenya and Somalia. Mads has a Bachelor in Economics from the Norwegian University of Technology and Science and a Master in Political Economics from the University of Stellenbosch.
Reliable solar power for sustainable change
Kube Energy is a full integrated solar provider:

- Feasibility assessment
- Design
- Financing
- Installation
- Operations and maintenance
Options for procuring solar

### Option 1: Purchase
- Organization contracts a solar engineering firm to design, procure and install the system.
- When installed, ownership transfers to the organization.
- Organisation assumes responsibility for operating and maintaining the system.
- Can outsource the operations and maintenance of the system for a fee.

### Option 2: Lease to Own
- Organization leases system from a solar services company and pays a monthly fee.
- Solar services company finances design, installation, operations and maintenance of the system.
- Organization operates its generator and procures fuel. Ownership of the system is transferred to the organization when the lease ends.
- Lease agreements normally run for 3 to 10 years.

### Option 3: Power Purchase Agreement
- A PPA covers energy generated from a complete energy system, including the solar system and diesel generator.
- Organisation buys solar and diesel generated energy and pays a monthly bill.
- Solar services company will finance the design, installation, operations and maintenance of the complete energy system.
- At the end of the agreement, the organization can renew or cancel the agreement.
- PPAs normally run for 3 to 10 years.
Considerations

- **Technical expertise**: What technical support does your organisation need/have?
- **Financing**: What financing mechanisms are available to your organisation?
- **Procurement**: What procurement procedures do you need to comply with?
- **Operations and Maintenance**: How will you manage long term operations and maintenance?
Pros and Cons

**Power Purchase Agreement**
- Access to investment capital to purchase generators for system
- Low ability to commit beyond 3 to 5 years
- Low appetite and capacity to own large renewable energy asset
- Preference to operate generators and manage fuel procurement
- Low capacity and appetite to manage complex procurement process

**Purchase**
- Access to investment capital to purchase system
- Ability to commit long-term and take on risks of owning and maintaining the system
- Capacity to manage large renewable energy asset
- Preference for in-house energy production
- Capacity to manage complex procurement process

**Lease to Own**
- Preference to own system, but low access to investment capital
- Willing to commit long-term and take on risks of owning system, but need time to develop internal capacity during lease agreement
- Preference for in-house energy production
- Capacity to manage complex procurement process

**Low Ability to Commit**
3-5 years

**High Ability to Commit**
5-25 years

**Low Access to Investment Capital**
Financial considerations

### Yearly Energy Costs (USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel generator</th>
<th>Solar purchase option</th>
<th>Solar lease to buy</th>
<th>Solar PPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200,000</td>
<td>400,000</td>
<td>600,000</td>
<td>800,000</td>
</tr>
<tr>
<td>2</td>
<td>800,000</td>
<td>1,000,000</td>
<td>1,200,000</td>
<td>1,400,000</td>
</tr>
<tr>
<td>3</td>
<td>1,600,000</td>
<td>2,000,000</td>
<td>2,400,000</td>
<td>2,800,000</td>
</tr>
<tr>
<td>4</td>
<td>2,400,000</td>
<td>3,000,000</td>
<td>3,600,000</td>
<td>4,200,000</td>
</tr>
<tr>
<td>5</td>
<td>3,200,000</td>
<td>3,800,000</td>
<td>4,400,000</td>
<td>5,000,000</td>
</tr>
<tr>
<td>6</td>
<td>4,000,000</td>
<td>4,800,000</td>
<td>5,600,000</td>
<td>6,400,000</td>
</tr>
</tbody>
</table>

### Accumulated energy costs

- Diesel generator
- Solar purchase option
- Solar lease to buy
- Solar PPA
CONTACT US TO LEARN MORE

Mads Uhlin Hansen
Telephone: +47 91304582
Email: mads@kubeenergy.com
www.kubeenergy.com
Mohammad Omar Patan, IOM South Sudan

In over ten years of work experience, Omar has developed strong project management skills ultimately leading to holding overtime accountability for the design, implementation and execution of complex electrical power grid projects in both infrastructure and emergency contexts in Afghanistan and South Sudan. His most recent engagement has been to, considering the concept of green environment and consistency of power generation & reducing electrical power generation cost, transform existing diesel power plants into hybrid, predominantly, photovoltaic systems in Humanitarian Hubs and IOM offices in South Sudan. He has a bachelor’s degree in Electrical and Electronics Engineering and further, hold a MSc in Project Management. He possess extensive knowledge of power generation from both renewable and diesel sources and power distribution systems and their utilized components. Additionally, he demonstrates a skillset that includes evolved ability to analyze and evaluate the demands of customers and, reciprocally, to tailor the design of large-scale infrastructure projects such as hybrid (solar and diesel) power plants and systems.
Malakal Humanitarian Hub Hybrid Power Plant

**Location:** Humanitarian Hub, Malakal, Upper Nile state, South Sudan

Initial power generation source: **Diesel**

**Generators Rating:** 1* 810kVA, 1*550kVA, 1*275kVA and 2*165kVA

Total area of the camp: **84000 square meters**

**Beneficiaries:** offices for 36 Humanitarian organizations and accommodation for 300 individuals

Daily electrical power consumption: **3125kWH**

Diesel used annually: **347863.3 liters**
Hybrid (Solar- Diesel) Power Plant

PV array size: **704**kWP using 1850 x 380W Risen PV modules  
- Battery bank: **1596**kWH using Tesla powerpack 2.5 system

Inverters: 13 x SMA STP-50  
- Expected Energy: **2500**kWH/Day  
- Electricity produced from diesel generators: **625**kWH
Why solar:

- Remote location
- No road access - complicated supply chain
- Security challenges - armed conflicts, robberies, corruption
- Low quality of diesel
- Difficult to store diesel
- No consistency in supply of diesel and spare parts
- High cost of diesel and spare parts
- Climate change - pollution
- Safe environment - noise produced by DG.

Advantages:

- Reliability and security
- Reduction in CO2: 744 Ton/Year
- Reduction in noise
- 18% cost saving in electricity production
- Stability of power supply
- Increased lifetime for diesel gensets
- Reduced maintenance
- Low dependency on diesel
- Low dependency on supply chain
Business model & Economical analysis

- **5.4M USD**: Capital cost
- **300000USD**: Installation cost funded by IOM donors
- **900,000 kWh/Annum**: Energy supply agreement to Malakal Humanitarian Hub
- **19%**: Reduction of monthly lease from year 3 to years 10
- **Monthly lease for initial 3 years**

Cost comparison of diesel and hybrid power plant:
- First 3 years generation cost reduction: -21%
- Generation cost reduction between year 3 & 10: -33%
- Generation cost after 10 years: -85%
# Cost Analysis

<table>
<thead>
<tr>
<th>TOTAL COST/MONTH FOR (DIESEL)</th>
<th>TOTAL COST/MONTH FOR (HYBRID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator running cost including consumables</td>
<td>Solar power plant lease (to decrease after initial 3 years)</td>
</tr>
<tr>
<td>Transportation cost for consumables (engine oil, filters, coolant,...etc.)</td>
<td>Generator cost for 20% of the time (165kVA required)</td>
</tr>
<tr>
<td>Other cost (batteries, battery charger, fan belt and other component breakdowns) avg.</td>
<td>Other cost (batteries, battery charger, fan belt and other component breakdowns) avg.</td>
</tr>
<tr>
<td>Generator Cost 60 months life span</td>
<td>Generator Cost 60 months life span</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>$69,133.06</td>
<td>$56,529.79</td>
</tr>
</tbody>
</table>

18% Saving

In electrical power generation
How it is managed:

✓ Remote monitoring and supervision (Scada software) and video surveillance to oversee and provide assistance on operations;

✓ Quarterly maintenance and repairs at the site; and

✓ Day to day maintenance and operation managed by IOM staff at site.

Thank you for attention!
Naseer Ahmed, ICRC Pakistan

Naseer Ahmed, certified project and facilities management professional having masters in international Relations along with 14 years of experience in administrative, security and facilities management with the additional role of trainer for passive security measures like fire-fighting, office safety, hygiene standards within the developmental sector. Five years’ experience of sustainable development program for energy savings, alternative energy, Garbage recycling and water savings. Moreover, also worked in Malaysia and Mozambique Africa for Premises Administration support mission. Overall work experience entails, proactive planning, designing projects, project management, designing and constructing new office premises. Furthermore, having specialties also in events management, active and passive security, staff development and other administrative procedures required to run the office environment.
SOLAR- GREEN NET METERING PROJECT
ICRC ISLAMABAD PAKISTAN

50 KVA SOLAR ENERGY
In Pakistan, energy prices are increasing day by day because of increase in prices of fossil fuels such as imported furnace oil and liquefied natural gas, which are non-renewable sources of energy. Non-renewable sources of energy are not infinite. And we can run out of them some day. They affect our environment negatively due to emission of green house gases and air pollution.

On the other side, renewable sources of energy (such as solar, hydel, or wind) are infinite, cost effective and are not harmful for our environment. We can reduce our carbon footprints globally by utilizing them.

- Furnace oil: 14% of total
- Natural gas: 31% of total
- Coal: 16% of total
- Hydroelectric: 29% of total
- Nuclear: 4% of total
- **Renewable (Solar & Wind)** : 5% of total

**Solar Energy can play a vital role in Pakistan to overcome the energy shortages in the Country.** Pakistan lies in an area of one of the highest solar insolation in the world. This vast potential can be exploited to produce electricity, which could be provided to off-grid communities as well as on-grid to National Grid in the northern hilly areas and the southern and western deserts.

ICRC Islamabad office moved to a new location in commercial area from rental residential area. A five floors building of approx. 40,000 SFT (3,700 sqm) was hired in commercial sector. ICRC management skipped some interior renovations and used that money for SOLAR energy Project on roof. Total cost for the project approved was USD 30,000/-

Project was awarded to Solar Power Technologies (SPT)-Islamabad through ICRC Logistic process.

Project Start Date 15.02.2019
Installation Completed 30.06.2019
Inverters and electrical connections 15.07.2019
License from NEPRA 20.08.2019

Cost Breakdown
Solar Panel(Jinko320) = 16,650 USD
Civil work = 6,900 USD
Inverters/Electrical work = 6,795 USD
Net metering = 619 USD
### Equipment Specifications

#### SOLAR PANEL

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Jinko 320 MP</td>
</tr>
<tr>
<td>Cell Type</td>
<td>Poly Crystalline 156 X 156 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>26.5 KG</td>
</tr>
<tr>
<td>Front Glass</td>
<td>4.0 mm High Transmission</td>
</tr>
<tr>
<td>Max Power</td>
<td>320 Wp</td>
</tr>
<tr>
<td>Operating Temp</td>
<td>-10°C to 85°C</td>
</tr>
</tbody>
</table>

#### Inverter

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Crown ORCEDO</td>
</tr>
<tr>
<td>Model</td>
<td>Orcedo 30000TL3-S</td>
</tr>
<tr>
<td>Input</td>
<td>37500 W PV power</td>
</tr>
<tr>
<td>Output</td>
<td>30kW</td>
</tr>
<tr>
<td>Warranty</td>
<td>5 years</td>
</tr>
<tr>
<td>Operating Temp</td>
<td>-10°C to 85°C</td>
</tr>
</tbody>
</table>
Solar Energy Calculations

**SOLAR Energy 48 kW**
- Sun hours per day avr = 4.7 hrs
- Solar Energy (Wp) = 48,000
- System losses @ 20% = 9,600
- Energy production per day = 157,920
- Units produced (PV) = 158
- Error rate from grid 13% = 21
- Total units per day = 137

**Cost Calculations**
- Price of Project = USD 30,968
- Solar Energy (Wp) = 48,000
- System losses @ 30% = 33,600
- Running/Maintenance cost per year = USD 161
- Energy production per day = 157,920
- Units produced (PV) = 158
- Error rate from grid 13% = 21
- Total units per day = 137

**Project Constraints**

**Challenges and Constraints**
- Installation on Rented building
- NO technical expertise for supervision in the ICRC team in Pakistan
- Bad weather
- Lack of technical staff with company (SOLAR)
- Lengthy approval process from Govt
- Slow process of importing PV panels
- Small incidents in project due to lack of technical skills
- Inflation in Pakistan (USD rate, increase prices of material and labor)
- NO work in office working hours
- No professional staff related to SOLAR energy in Pakistan

**Return on investment (ROI)**
- Price of Project = USD 30,968
- Units produced per year = 50,147
- Cost of units Produced = 1,002,950
- Saving per year (Aprox) = 1,002,950
- ROI (in years) aprox = 5.5 years
**Net Metering in Pakistan**

Net metering is a relatively new concept (started in 2015) which requires a bi-directional meter or two different meters. Net metering allows the **residential** and **commercial** customers with on-grid or hybrid rooftop **solar panels** having a three-phase electricity connection to inject the excessive electricity into the national grid, thus offsetting some or all of the electricity which has been generated by solar panels.

---

### LICENCE for Energy Generation

<table>
<thead>
<tr>
<th>Application for net-metering</th>
<th>Initial review</th>
<th>Technical feasibility</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generation License</strong></td>
<td>Installation of Green meter</td>
<td>Connect</td>
<td></td>
</tr>
</tbody>
</table>

---

**National Electric Power Regulatory Authority (NEPRA)**

**Islamabad—Pakistan**

**GENERATION LICENCE**

No. DGL/2019/2019


1. The Licence shall abide by the provisions under the AARE Regulations during the currency of the Generation Licence.

2. The technical parameters of Net Metering arrangements are as follows:

   - **Primary Energy Source**: Solar
   - **Size of Distributed Generation Facility**: 48.10 KW
   - **Generator Information**: Crompton

3. **Model No.**: 1-30 KW TL-A S

4. **Generation Type**:

   - **Inverter**

This Licence is issued under my hand on the day of August, Two Thousand Nineteen.

Registrar
Benefits of Green Metering

• By generating electricity for own use, we reduce the amount of electricity we buy from our National Grid
• We also get credit on our electricity bill of next billing cycle on any excess electricity exported to the national Grid
• Reduction in consumption imported fuel and Green & clean electricity
• Less load on national grid transmission system
• Saving of Transmission & Distribution (Line) Losses

## Load Calculation per Day

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total required load in working hours (8 am to 5PM)</td>
<td>70 KVA +</td>
</tr>
<tr>
<td>Total required load in weekend days</td>
<td>5 KVA Max</td>
</tr>
<tr>
<td>Energy Generation from SOLAR Power (AVG) all season</td>
<td>25 KVA</td>
</tr>
<tr>
<td>Energy to National Grid on weekend and OFF hours (after 5PM)</td>
<td>15-20 KVA</td>
</tr>
</tbody>
</table>

## Units Calculation and cost Per day

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily units consumption from National Grid</td>
<td>510 Kwh</td>
</tr>
<tr>
<td>Daily units generated from Solar</td>
<td>165 Kwh</td>
</tr>
<tr>
<td>Cost per unit from national Grid</td>
<td>0.105 USD (Without Tax)</td>
</tr>
<tr>
<td>Monthly saving in Electricity bill</td>
<td>600 USD approx.</td>
</tr>
</tbody>
</table>

## Good emphasis of the Project

- One of the first project in Humanitarian organizations in Pakistan using net metering and generating own Energy
- We will be able to generate 30 to 40% of daily use Electricity from SOLAR system free of cost and reduce monthly bill.
- We are contributing 16% of SOLAR Energy generating in capital city
- Energy board approach us to present our project as a role model to other organization/entities planning for net metering
- Negative impact on environment and saving the green planet
Thank You
Gerald Demeules, UNDP

Gerald has 30 years of experience in ICT and green energy with technical and humanitarian organizations. Since 2010, he is the UNDP Chief of the Country Offices ICT Advisory Services based in Copenhagen. His team leads the implementation of Smart UN Facilities consisting of 4 pillars: Energy and eMobility; ICT Infrastructure and Business solutions; Security; and Internet of Things. Gerald joined the UN in 1998 as the Project Manager of the Global Communications Infrastructure (GCI) of the Comprehensive Nuclear-Test-Ban Treaty Organization - CTBTO. In 2007, he was appointed to the Chief of ICT Services for the UN Mission in Liberia. He led the “Delivery as One” initiative in collaboration with the UN country teams, establishing and developing unified common ICT services. Moreover, Gerald was a co-chair of the UN-Development Group (UNDG) ICT Reference Group, the UN inter-agency committee coordinating ICT collaboration and harmonization between all UN Agencies, funds and programmes. Gerald started his career as a research associate (1988-89) at the Centre de recherche industriel du Québec (CRIQ). He served as an Officer in the Canadian Armed Forces (1989-95), as the Chief of ICT Services and Operations Officer across Canada, Israel/Syria (1992) and Ex-Yugoslavia (1995) and the Head of National Command and Control Information Strategic Systems (NCCIS) from (1995-98). Gerald holds a Bachelor in Mechanical Engineering from the Royal Military College of Canada (1982-87) and a Master in Applied Science of Automation and Networks from the École Polytechnique de Montreal (1987-89).
Powering Humanitarian Facilities: Dialogue on Implementation Models

Approach to Develop Local Capacities for System O&M / UNDP Smart Facilities

Gerald Demeules
Global ICT Advisor
How much greenhouse gas is produced per year globally?
Global greenhouse gas emissions scenarios

Potential future emissions pathways of global greenhouse gas emissions (measured in gigatons of carbon dioxide equivalents) in the case of no climate policies, current implemented policies, national pledges within the Paris Agreement, and 2°C and 1.5°C consistent pathways. High, median and low pathways represent ranges for a given scenario. Temperature figures represent the estimated average global temperature increase from pre-industrial, by 2100.

Source: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions

Greenhouse gas emissions by sector

Breakdown of total greenhouse gas emissions by sector, measured in tonnes of carbon dioxide equivalents (CO2e). Carbon dioxide equivalents measures the total greenhouse gas potential of the full combination of gases, weighted by their relative warming impacts.

Source: UN Food and Agricultural Organization (FAO)
How can we enhance the development of local capacities?
Who We Are

- UNDP was established in 1965
- UNDP is present in 170 countries
- Working for UNDP: 17,000
- Rural households had improved access to renewable energy: 372,000
- Tonnes of carbon emission cut with our support: 256 million

Source: UNDP (2019), UNDP Annual Report 2018
What We Do

Our three main focus areas:

- Sustainable Development
- Democratic governance and peacebuilding
- Climate and disaster resilience

MISSION

UNDP works to eradicate poverty while protecting the planet. We help countries develop strong policies, skills, partnerships and institutions so they can sustain their progress and develop a more sustainable future.
Leaving No One Behind

Photo: Yemen 2019
What Do We Develop in UNDP / OIMT
Creating Smart Facilities to Build Local Capacity and Inspire a Global Movement
What Are We Facing | Unreliable & Unsustainable Future

CLIMATE CRISIS
- Global Warming
- Unreliable Grids
- Volatile Diesel Prices
- Energy Dependence

ICT INFRASTRUCTURE
- High Cost and Complexity of the ICT Infrastructure
- Lack of Standardization
- Large Data Centre Footprint
- High Energy Consumption

LARGE AMOUNT OF DATA
- Reliable Information
- Availability of Data
- Ability to Process

SECURITY RISKS
- Cyber Threats
- Identity Theft
- Civil Unrest
- Internet Fraud

Local Capacity
No Investment Instrument
Lack of Funding
How We Solve | Smart Facility Model

ENERGY & MOBILITY
- Renewable Energy
- Electric Vehicles
- Vehicle-to-Grid
- Energy Storage (Li-ion)

BIG DATA & INTERNET OF THINGS
- Satellite Imagery
- Drones
- Energy Efficiency
- Energy Consumption & Environmental Monitoring

ICT, BUSINESS INTELLIGENCE & AI
- Atlas (ERP)
- Digital Workspace
- Cloud Computing
- OneICTbox
- Satellite Connectivity

SECURITY
- Cyber Security
- Identity & Access
- Solar Street Lamps
- CCTV Cameras

“The whole is greater than the sum of its parts.” - Aristotle
Which Methods Do We Use | 7 Step Green Energy Solution

7 STEP GREEN ENERGY SOLUTION

1. Self-Assessment and PCMM
2. Business Case
3. Procurement & Site Preparation
4. Site Survey
5. Design
6. Installation
7. Operation & Maintenance

Recognized best practice for UNDG Solar implementation
Why 7Step Method Is Successful

7 STEP METHOD

- Is a structured and well defined methodology that eliminates ambiguities
- Ensures timely execution and high quality results for client satisfaction
- Defines clear milestones and checkpoints from project inception to final commissioning
- Creates suitable environment for effective skills/knowledge transfer
Why Was 7Step Method Created

7 STEP METHOD

- To support sustainable initiatives towards the SDGs
- To address the implementation of green energy solutions within UN offices
- To reduce the current 38% emission (23,526 tonCO2eq/y) in order to lower the environmental impact of UNDP operations worldwide
- To enable an effective and safe deployment of renewable sources in the facilities, both for the normal client’s operation and as a crisis response
During the Ebola crisis in Liberia, UNDP stepped in and installed a solar panel in order to enable a Liberian hospital to keep its operations on.

This was a showcase that inspires a global movement, since after that 4,873 solar panels were installed and 13 other offices around the world were involved thanks to the Green UNDP initiative.

Source: UNDP (2018), Inspiring a clean power revolution: When energy initiatives do more than keep the lights on, medium.com/@UNDP
Success Stories | South Sudan

- South Sudan relies **100% on fossil fuels**
- Little existing infrastructure makes it difficult to provide uninterrupted power supply.
- **OIMT Team** started with the implementation of a Solar PV installation in the UNDP CO (2016) and this inspired other 12 UNDP projects with different stakeholders around the country, that are currently under development.
- Nowadays, **a boom on solar business** is noticeable in any project in South Sudan.
- Other UN agencies and humanitarian players are coming onboard to deploy projects in countries of presence.
- Our **LTA contractors** have reported that compared to 4-5 years ago, it is not difficult anymore to **find local partners** to work in any region in the country.
- This is aligned with our vision of inspiring other projects around the world.
Overview

On the pipeline PV systems
- Cuba: safeguard against grid instability
- Haiti: payback time of less than 4 years
- Brazil: net metering system active
- UNICEF Denmark
- UNITAR Djibouti
- Guyana Hinterland

Currently operating systems
- 14 Solar PV installations
- 1.3 MWp Solar PV capacity
- 1000 tons of CO2 saved/year
- Pilot project: V2G electric car in Namibia
BE PART OF IT

Moving towards a sustainable future

Photo: Timor Leste UN House 2016
Paul Quigley, UNITAR
Workshop Series July 2019

• 1. Humanitarian Agencies:
  UN & ICRC

• 2. Private Sector:
  Energy Providers and Financial organisations
Key Recommendations from workshops

1. Create long-term agreements for humanitarian agencies & energy providers
2. Develop Financial Guarantee mechanisms to mitigate risk
3. Training program for procurement staff on evaluating long-term energy finance models
4. Develop clear pathways and strategies which organisations can follow towards sustainable energy solutions
5. Collate relevant data to demonstrate benefits
6. Improve collaboration and communication between humanitarian and private sector actors
7. Increase multi-year funding resources for energy projects
Energy Efficiency First

1. Implement systematic metering of energy use in operations, increase accountability for its efficient use and report the cost of energy as a cost per person across an operation;

2. Procure energy efficient appliances to reduce energy demand;

3. Implement behavioural change programmes that support staff in adopting energy efficient measures;

4. Where practicable to do so, clustering buildings and energy consuming activities to enable shared power sources, including those from other organisations

5. Site planning to consider orientation of buildings to the sun, insulation, shading and other possible ways to design facilities for lower energy needs.

Lower Energy Consumption, Lower Power, Lower Costs
Thank you

• Feedback: info@energypedia.info
• Upcoming webinar on Energy Efficiency and Designing for Sustainability.
• Webinar documentation/Additional Resources: https://energypedia.info/wiki/Webinar_Series:_Sustainable_Energy_in_Humanitarian_Settings#tab=5th_Webinar