United Nations Institute for Training and Research

GLOBAL PLATFORM FOR ACTION

7 AFFORDABLE AND CLEAN ENERGY

Replacing Dirty Diesel through Solar Service Models

– Experience from the Humanitarian Sector

10 February 2022

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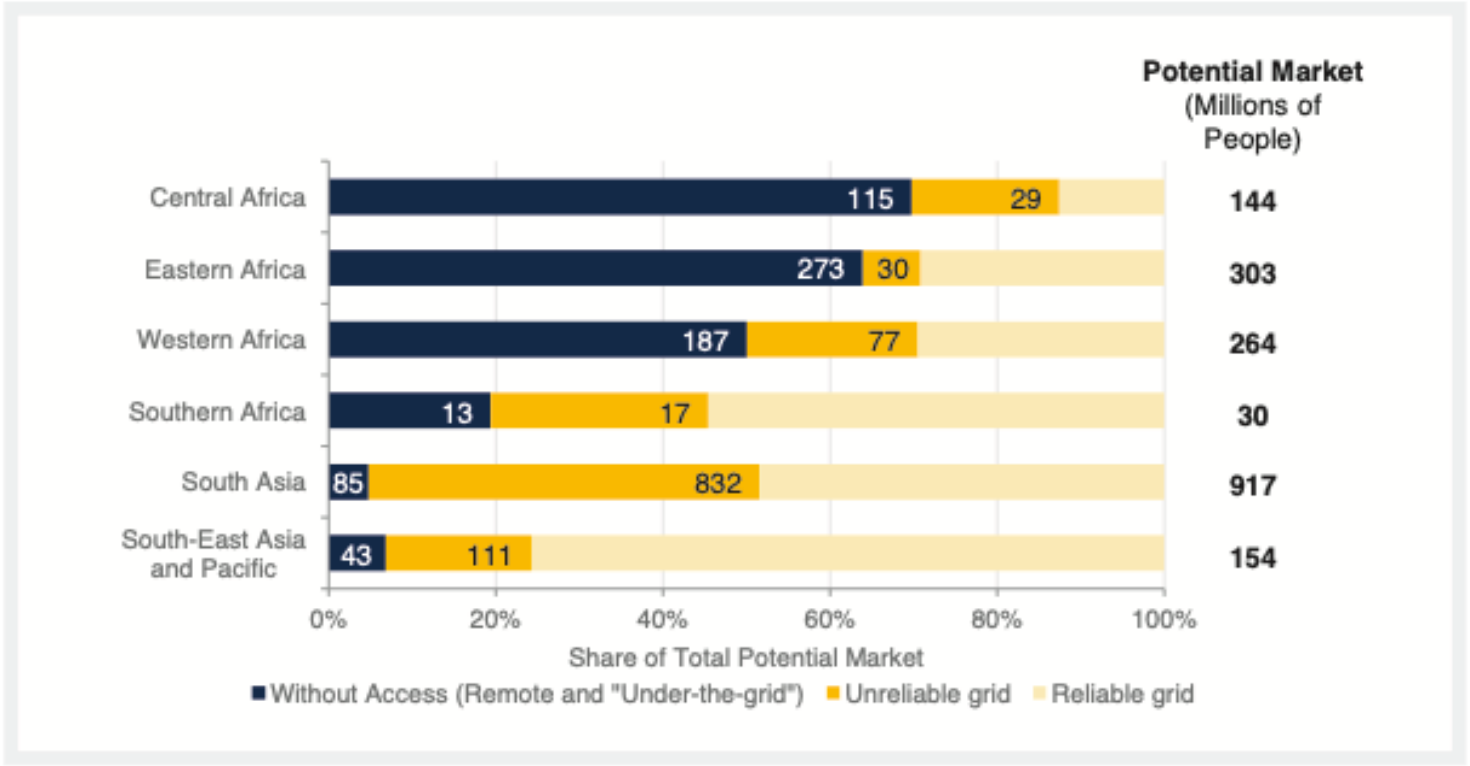
People without electricity access in numbers

Today some **750 million** people still do not have access to electricity

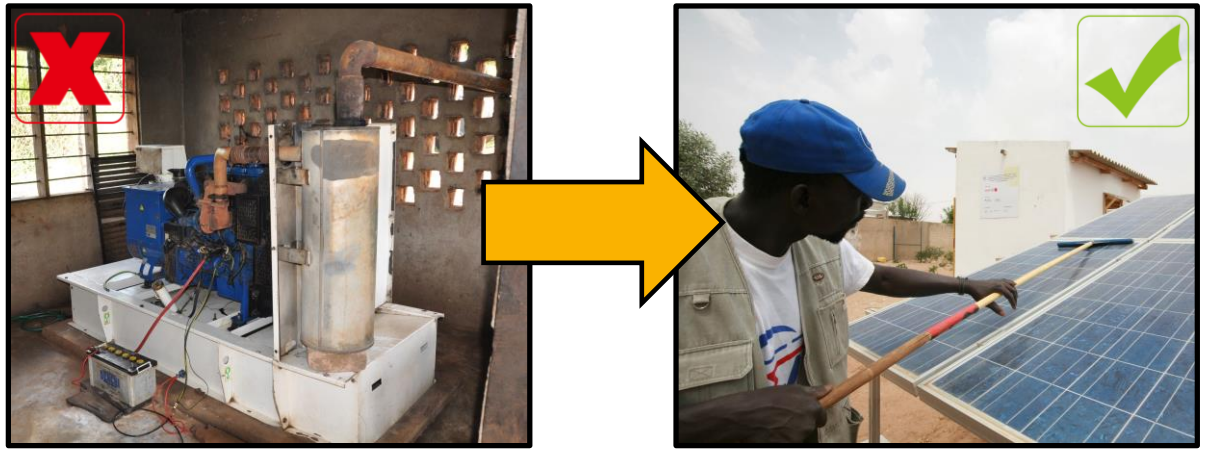
- Over 80% of people **without electricity access** live in sub-Saharan Africa
- while the bulk of those with **unreliable grid connections** (around 75%) is in South Asia

Figure 32: People without Electricity Access Comprise the Largest Share of the Potential OGS Market in Sub-Saharan Africa, while People with Unreliable Grid Access Comprise the Largest Segment in Asia



Source: Vivid Economics and Open Capital Advisors analysis of data from ESMAP, Diagnostic Reports Based on the MTF; Afrobarometer, Merged Round 7 Data (34 Countries) (2019), https://www.afrobarometer.org/data/merged-round-7-data-34-countries-2019; and World Bank, Enterprise Surveys: What Businesses Experience, https://www.enterprisesurveys.org/en/data.

Solarizing diesel-powered energy infrastructure



Shifting from diesel to renewable sources to:

GPA Survey among energy experts:

FAO, IOM, UNDP, UNHCR, UNICEF, WFP, + ICRC are operating **11,400 Units**

80% solar by 2030 > 3 units per day over the next 9y

Estimated current status (conservative):

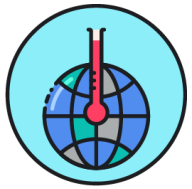
- $108 million (± $8.3 million) p.a. for fuel
- 194,000 tonnes of CO2 (± 15,000 tonnes)

= 70,000 return flights Geneva-Nairobi

Estimation for an energy transition:

- 65% fuel and CO^2 reduction
- Investment required: **$236** million (± $18 million)
- Estimated capacity required: 118 MW (± 9MW)

Decarbonising UN infrastructure: why is it important?



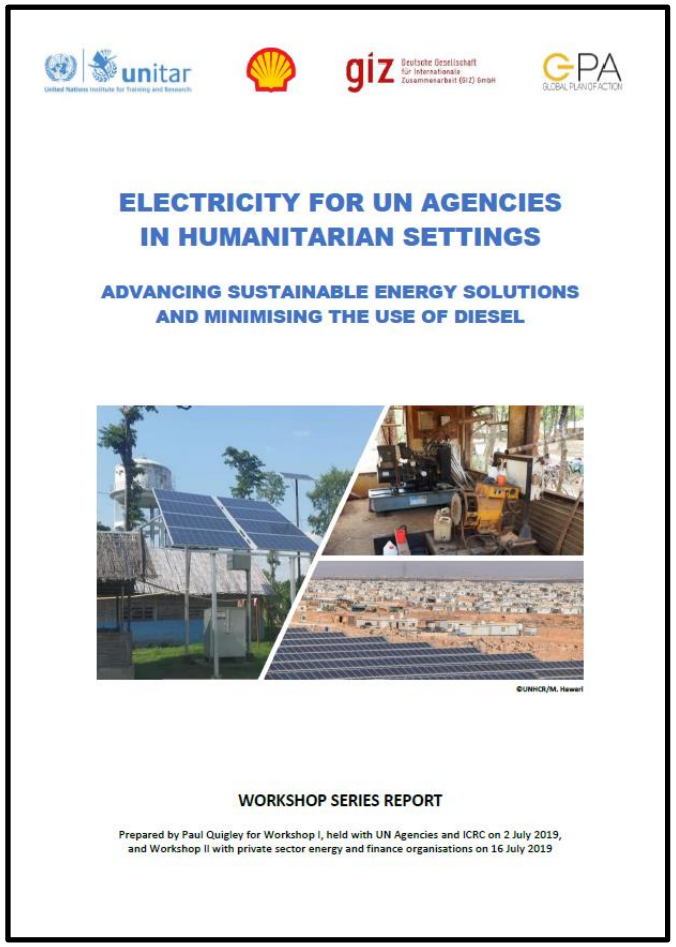
- **Climate action**
  - Moral obligation - Do no harm
  - Reputational risk: UN must “walk the walk” and be seen as a leader

- **Improved environmental performance**
  - Reduced carbon footprint
  - Reduction in polluting emissions

- **Saving money**
  - Stop burning money!
  - On average 20-40% savings possible

- **Support local development and avoid fuelling conflicts**
  - Provides local job opportunities
  - Springboard for private sector to reach out to other end users
  - Diesel supply chain controlled by conflict actors

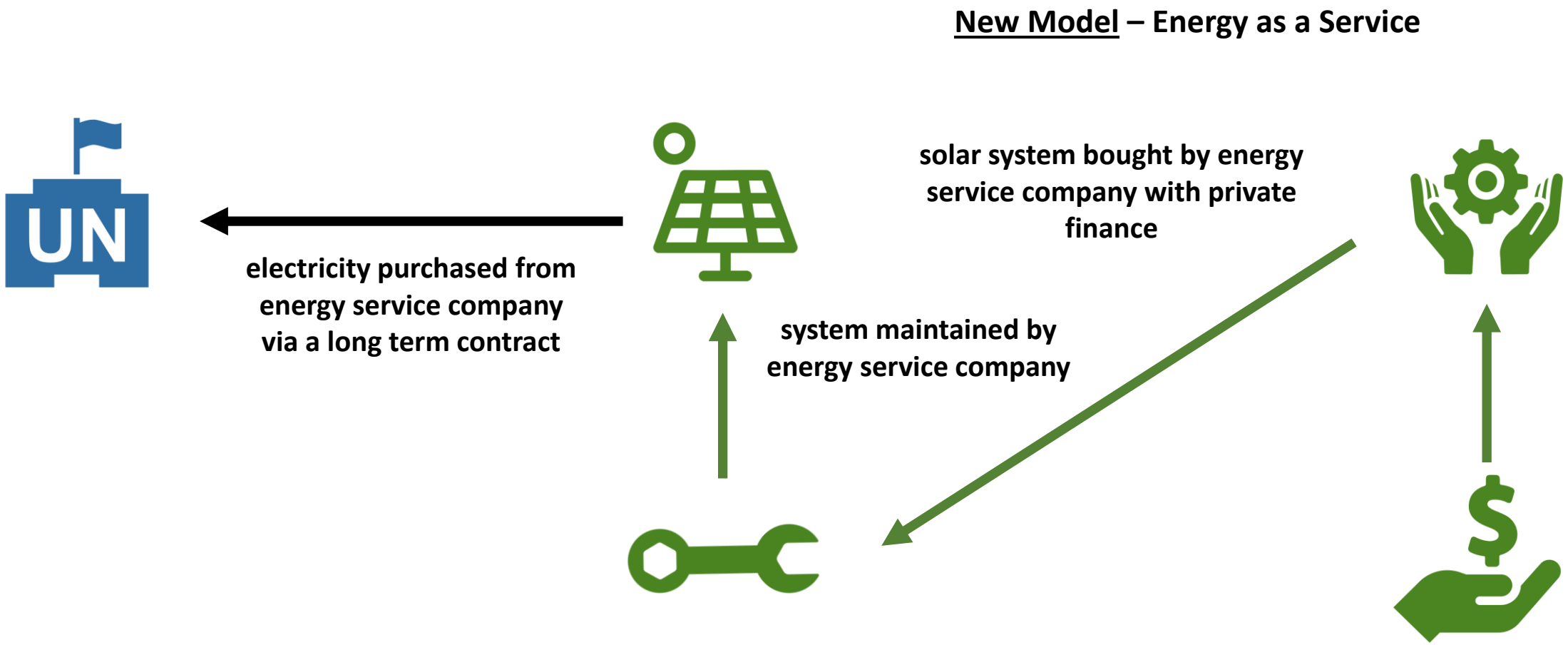
Decarbonising energy infrastructure: why hasn't it happened?



- High capital costs for renewable systems
- Lack of interest from donors – efficient use of resources
- Annual budgeting cycles and existing procurement processes favour status quo, i.e. purchasing of generators and diesel

HOWEVER: Series of workshops with UN Agencies, INGOs and Private Sector, identified **"buying energy as a service"** as the **best way forward**

Buying energy as a service: what is it?



Buying energy as a service: advantages and disadvantages

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Advantages:

- ✓ Project risks and responsibilities transferred to energy provider
- ✓ Financing for capital costs transferred to energy provider
- ✓ System warranties and service guarantees provided by the energy provider
- ✓ Accessing know-how and experience from private sector

Disadvantages:

- ✓ Little interest in small, single systems in remote locations
- ✓ Less savings / longer contracts

Buying energy as a service: the challenges

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

link to report

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

link to report

- 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 (no interest / cost increase)

De-risking: how could it work?

Two phased approach:

Phase One: A short term **liquidity facility** would provide post-termination cashflow to the energy service company for up to 12 months, which would provide an opportunity to explore alternatives uses for, and/or off-takers to, the existing energy system to offset termination liabilities and act as a time buffer for the UN Agency to draw down on the guarantee mechanism

Phase Two: If no alternative solution identified a **guarantee mechanism** would cover the costs of termination

De-risking: what does it achieve?

- It mitigates the private sectors contractual and financial risks associated to the UN's Termination Clause, in doing so:
  - It permits the UN to outsource electricty supply and concentrate on its core activities, resulting in ***cheaper costs***
  - It attracts energy service companies to the humanitarian sector resulting in more competition and ***cheaper costs***
  - It limits the possibility of energy service companies charging a premium for electricity to cover its contractual and financial risks resulting in ***cheaper costs***

High-level modelling suggest a guarantee fund of just 6m USD could underwrite 65m USD of investment, which would translate to 70MW of solar plant or approximately 700 humanitarian facilities.

What next: future opportunities

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

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Thank You

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