# Monitoring energy access

## Workshop organised on 20 September in Brussels

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# Agenda

I. Objectives and participants

II. Update on the Multi-tier framework approach

III. Key points of discussion

IV. Next steps

# I. Workshop objectives and participants

## Context: The universal access goal is now firmly set

**SE4ALL Goals**

- By 2030, ensure universal access to modern energy services.

**SDG 7**

- Target 7.1: 2030, ensure universal access to affordable, reliable and modern energy services

**COP 21**

- Post-COP 21 – Focus on Sustainable Energy

# I. Workshop objectives and participants

## Objective

The objective of this workshop was to reach a consensus on joint principles and methodologies to calculate and monitor energy access impacts

# I. Workshop objectives and participants

**27 participants from 15 organisations**

GIZ (EnDEV)
KFW
AFD
DEVCO
EUEI.PDF
SE4all
World Bank
IEA
Norad
USAID- Power Africa
DGIS-RVO
SNV
University of Milan
Electrify (FMO)
Danish Energy Management

# II. Update of the multi-tier framework approach

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**Supply side:** Tiers based on attributes of electricity supply

| ATTRIBUTES | Tier-0 | Tier-1 | Tier-2 | Tier-3 | Tier-4 | Tier-5 |
|---|---|---|---|---|---|---|
| Peak Available Capacity (Weq) | - | >1 | >50 | >500 | >2000 | >2000 |
| Duration (Hrs) | - | ≥4 | ≥4 | ≥8 | ≥16 | ≥22 |
| Evening Supply (Hrs) | - | ≥2 | ≥2 | ≥2 | ≥4 | ≥4 |
| Affordability | - | - | √ | √ | √ | √ |
| Formality (Legality) | - | - | - | √ | √ | √ |
| Quality (Voltage) | - | - | - | √ | √ | √ |
| Global Tracking for SE4All | No | Basic | Advanced | | | |

**Service side:** Tiers based on regular use of appliances

| Tier-0 | Tier-1 | Tier-2 | Tier-3 | Tier-4 | Tier-5 |
|---|---|---|---|---|---|
| - | Task Lighting AND Phone Charging | General Lighting AND Television AND Fan | Tier-2 AND any low-power appliances | Tier-3 AND any medium-power appliances | Tier-4 AND any high-power appliances |

**Access to Electricity Supply**

- Technology Neutral
- Based on natural break-points in supply technologies as well as electricity services
- Gives minimum requirements for attributes of supply

**Access to Electricity Services**

- Based on ownership and regular use of appliances
- Tier design based on increasing requirements of energy attributes
- Regular use of at least electric lighting, radio television and electric fan considered as Advanced Access

# II. Update of the multi-tier framework approach

| | Tier 0 | Tier 1 | Tier 2 | Tier 3 | Tier 4 | Tier 5 |
|---|---|---|---|---|---|---|
| Indoor air quality | | Concentration of PM2.5 and CO; tiers aligned with WHO guidelines | | | | |
| Efficiency | | Tier benchmarks under development, awaiting results of ISO process | | | | |
| Convenience | | | Stove preparation time and fuel collection and preparation (applicable from Tier 2 on) | | | |
| Safety | | | Absence of accidents and alignment with the ISO process (from Tier 2 on) | | | |
| Affordability | | | | | Levelized cost of cooking solution < 5% of household income | |
| Quality and availability of fuel | | | | | Cooking not affected by seasonal variations in fuel quality and | |

For more information see the Beyond Connections report at
www.worldbank.org/en/topic/energy/publication/energy-access-redefined

Source:
http://www.worldbank.org/content/dam/Worldbank/Topics/Energy%20and%20Extract/Beyond_Connections_Energy_Access_Redefined_Exec_ESMAP_2015.pdf

# II. Update of the multi-tier framework approach

European Commission

## Where does the WB stand with the Multi tier framework approach?

**Conceptualization and piloting**

**Application**

2011 2012 2013 2014 2015 2016 2017

UN General Assembly declares **"Decade of Sustainable Energy for All" 2014-2024**

SDG 7: "**Ensure access to affordable, reliable, sustainable and modern energy for all"**

**Jun.-Dec. 2015**: MTF survey in Guinea (3,000 HH)

**Apr. 2016** Global energy access survey in 15 countries. (already 3 ongoing: Rwanda, Kenya and Honduras)

# II. Update of the multi-tier framework approach

## 2 survey tools

### MTF Energy Global Survey

- Estimated time: 90 minutes
- Nationally statistically representative Rural/Urban
- Provides data for multi-tier Supply and Demand information – households and community module
- Implemented by a local survey firm supervised by WB team
- Need to collaborate with National Statistical Office

### MTF Energy module – integrated in National Surveys*

- Estimated time: 15 mins
- TA and training available and funded by SREP/ESMAP
- Key supply and demand information allowing tier calculation
- Additional simplification of monitoring being tested – e.g. use of cell phone surveys
- Need to collaborate with National Statistical Office

## III. Key points of discussion

- **Which?**
  - methodology (binary or tier) or what else?
  - criteria/indicators to apply?
- **Who?**
  - should lead, coordinate, collect data?
- **How?**
  - to ensure coherence among the initiatives?
  - to finance (international/regional programmes, budget support, sector contribution,…)
- **When?**
  - which time frame?

## Grid-Based Electricity Generation: how to harmonise methodologies?

- Need to develop a common methodology for taking into account 'inferred' or indirect access (from investments in generation or transmission)
- Need to agree an approach towards 'double-counting', both financial and technical (along the supply-chain)
- Proposal to work on a simple and ready-to-use tool to calculate ex-ante energy access, more work needed in further consultations

## III. Key points of discussion

**Cooking Energy : How to define clean cooking systems**

Further discussion amongst experts is needed to define acceptable methods of measurements. Potential methods could be personal exposure field monitoring, lab testing and modelling or building on proxies informed by research;

**Cooking energy: How to develop a monitoring system**

Need to develop the MTF for cooking, in-line with the recommendations made by the Global Tracking Framework (GTF) development team, ESMAP, WHO, GACC and EnDev and to establish a community of practice.

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## Off-Grid Energy how to monitor of access to off-grid electricity

1°) develop specific, common criteria for simplifying the monitoring of access to off-grid electricity such as :

Capacity of the power system, Run-time for pico PV systems,

2°) simplify the counting of solar lanterns and small solar kits.

3°) to reach tier 1 for a full household, the system must provide at least 1000 lumen-hours for 4 hours. For the linear case, 200 lumen-hours + telephone charging would be necessary to count one person.

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## Data collection : some recommendations

1°) employ a standard question (or set of questions) across all surveys for the binary assessment of access to electricity.

2°) add a shorter questionnaire assessing the degree of access to existing household surveys

3°) carry out a survey roughly every 5 years, based on the extended questionnaire, to assess the multi-tier approach at a reasonable cost (300.000 USD maximum per country).

4°) make information on levels of access to energy publicly available, whenever possible.

5°) assist and train national statistical institutes, over the medium- to long-term, to carry out the multi-tier approach themselves as part of building capacity in partner countries.

## IV. Next steps

1°) Thematically specific work will be undertaken to address open questions identified within each of the working groups.
2°) Results of this work will be shared among participants of the workshop within the next 3 – 4 months.
3°) Follow-up events, in the form of sessions or side-events, are envisaged at the SE4All Forum in New York in April 2017 and at the Vienna Energy Forum in May 2017.
4°) In general, participants will increase their efforts of collaborating in baseline survey activities, and will share information also related up to the impact level.

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