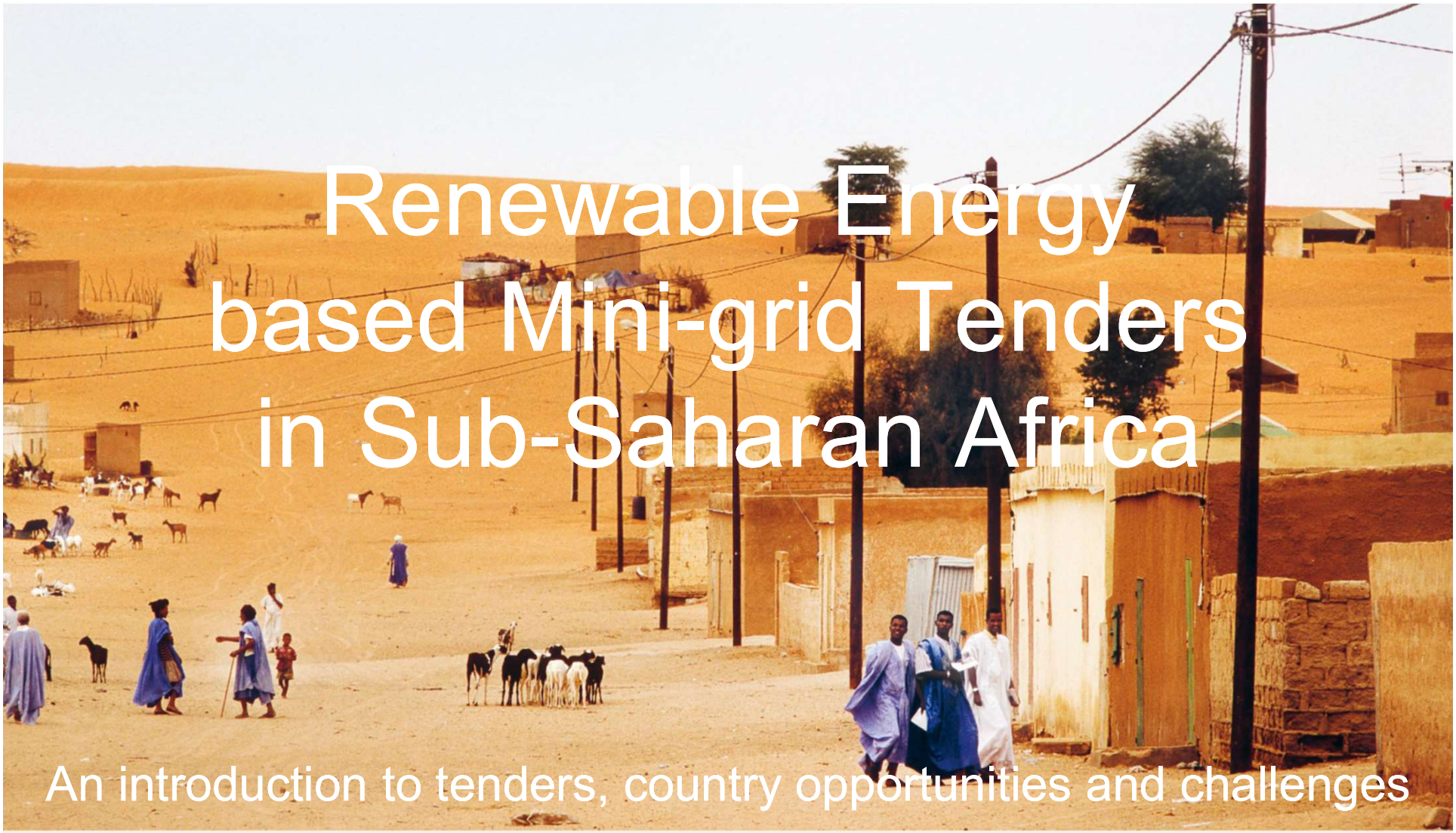
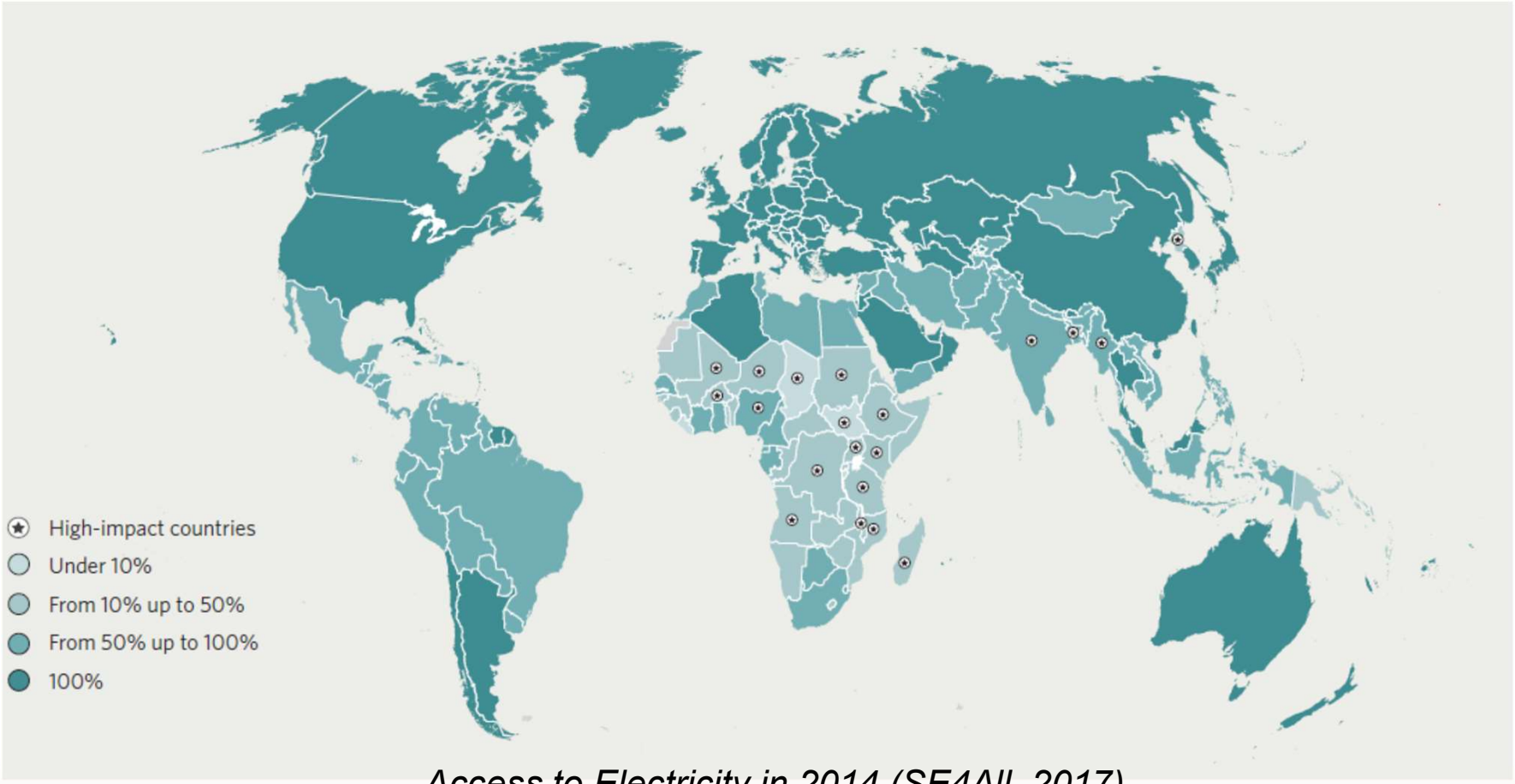
GIZ experience on Mini-grid Tenders: Uganda, Madagascar and Nigeria



Renewable Energy based Mini-grid Tenders in Sub-Saharan Africa

An introduction to tenders, country opportunities and challenges

What is the challenge?



Access to Electricity in 2014 (SE4All, 2017)

Which options are available?

Standalone

+ Affordable
+ Flexible (few regulatory challenges)
+ Proven business model
– Limited provision (esp. productive use)
– More expensive (€ / kWh) esp. PAYGo

Mini-grids

+ High quality electricity provision possible
+ Different approaches available

– Access to (commercial) finance
– Sustainable operation

Grid-connected RE

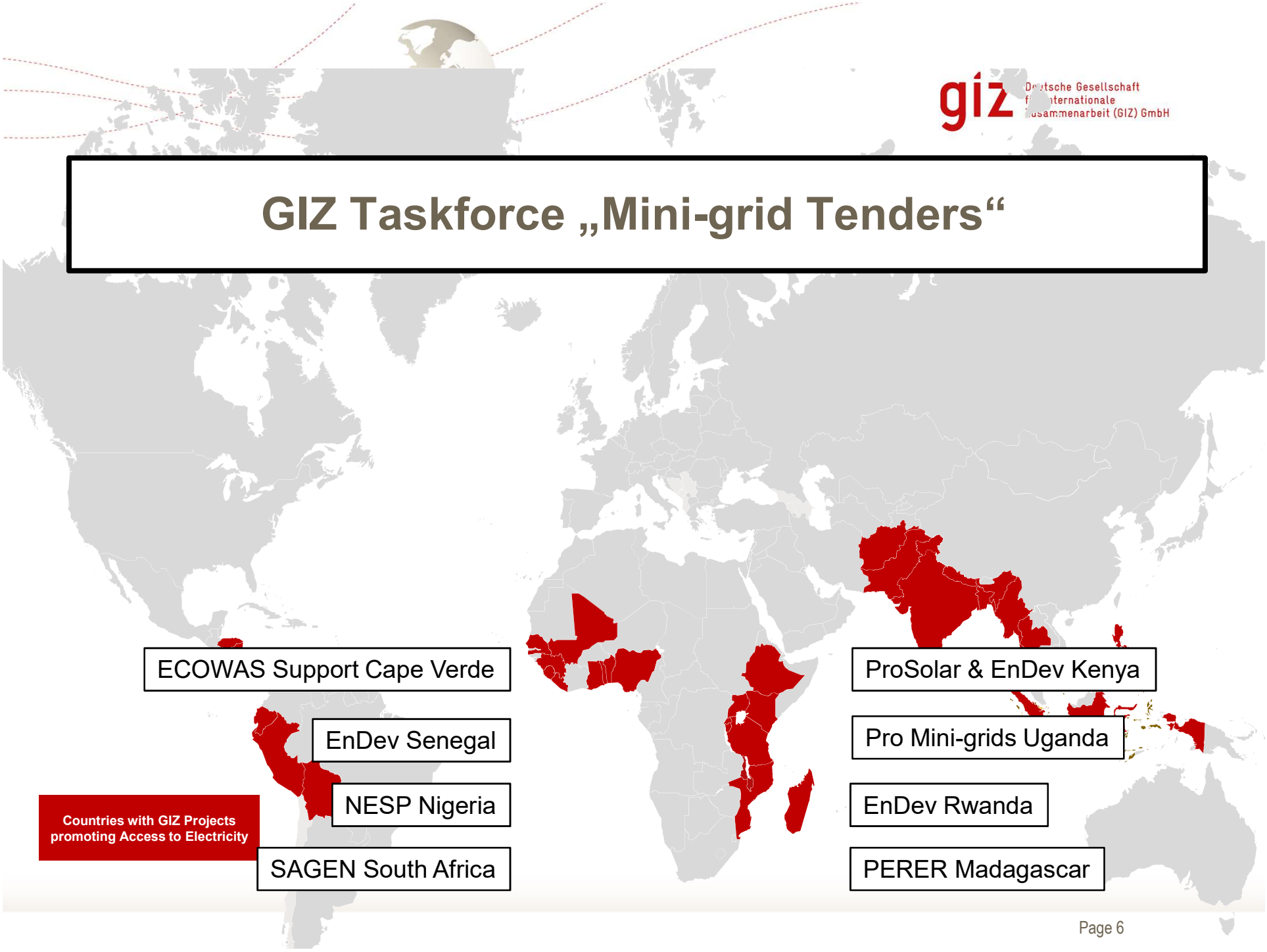
+ Low-cost
+ Technology mature

– Sound regulatory framework for EPC / IPP rarely available
– Information and capacity gaps

Two opposing models for Mini-grid deployment?

- **Government driven**: sustainability hard to achieve
  - High project costs without private contribution
  - Customer dissatisfaction and conflicts surrounding system management
  - Poor operation & maintenance; often no funds available for replacement
- **Private-sector driven**: scalability hard to achieve
  - Leverage of private finance allowing for greater speed of electrification
  - Good customer management and sustainable operation possible
  - But site characteristics rarely interesting for project developers (high share of productive use needed or a bundle of sites or subsidies necessary)
- Are tenders the tool to achieve the "**best of both worlds**"?

GIZ Taskforce „Mini-grid Tenders“



1. TENDERS: WHAT, HOW and WHY?

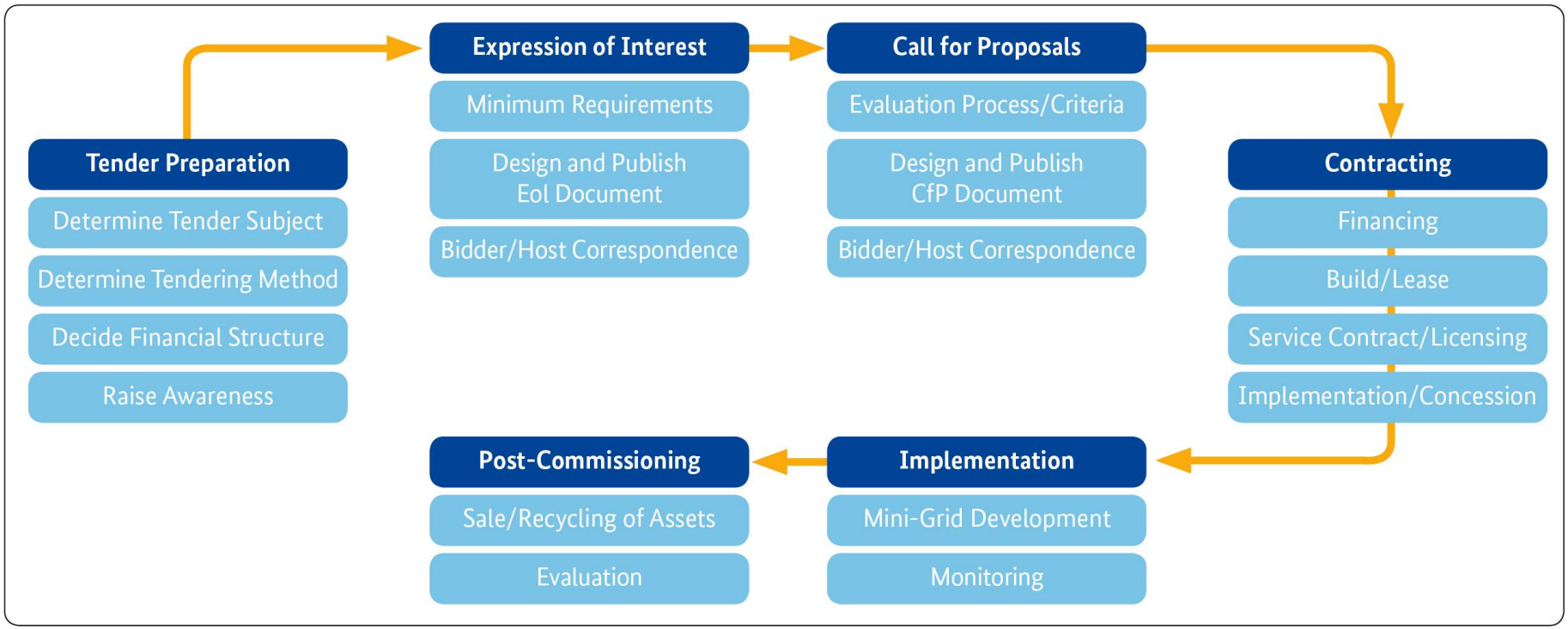
2. COUNTRY EXAMPLES

3. SUMMARY and SUGGESTIONS

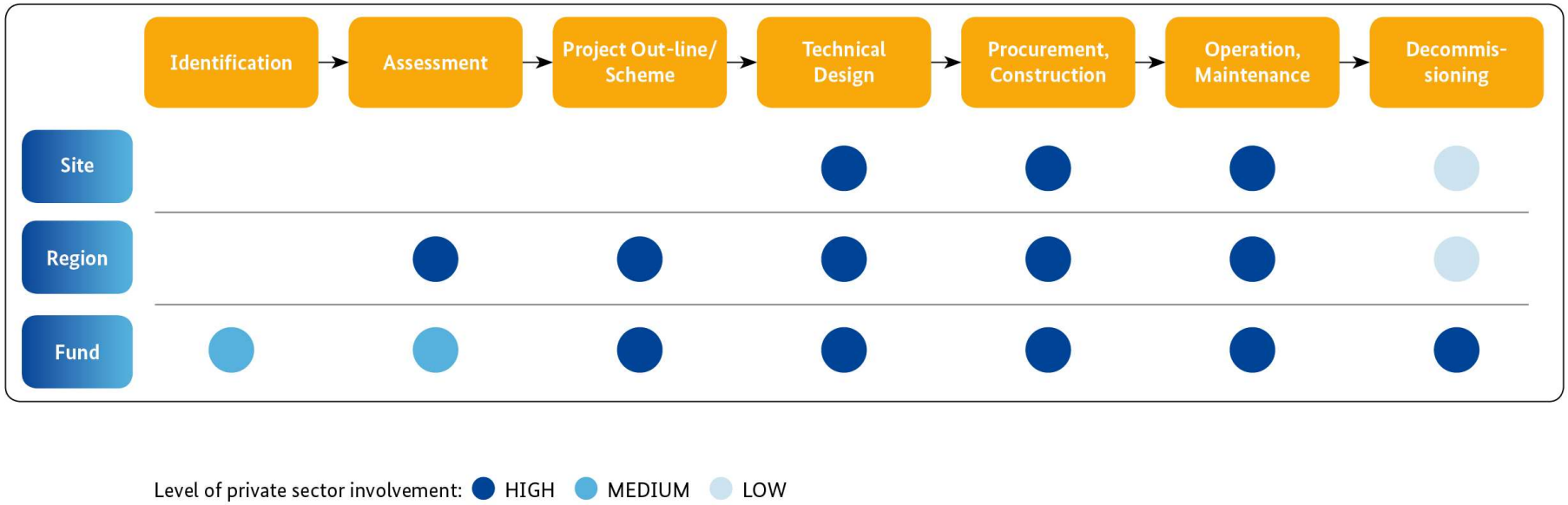
What are Tenders?

- A tender is a **guided procedure** comprising different steps with the aim of acquiring hardware or services by a third party
- **Governments** typically use tenders to award contracts for public services such as transport, communications or electricity services
- Suppliers are selected on **multiple (weighted) criteria** including cost and / or volume as typically the most important metrics
- Through designing of the criteria and processes, the tender host defines the framework for reaching **contractual agreements**

The Mini-grid Tender Process



Three types of Mini-grid Tenders



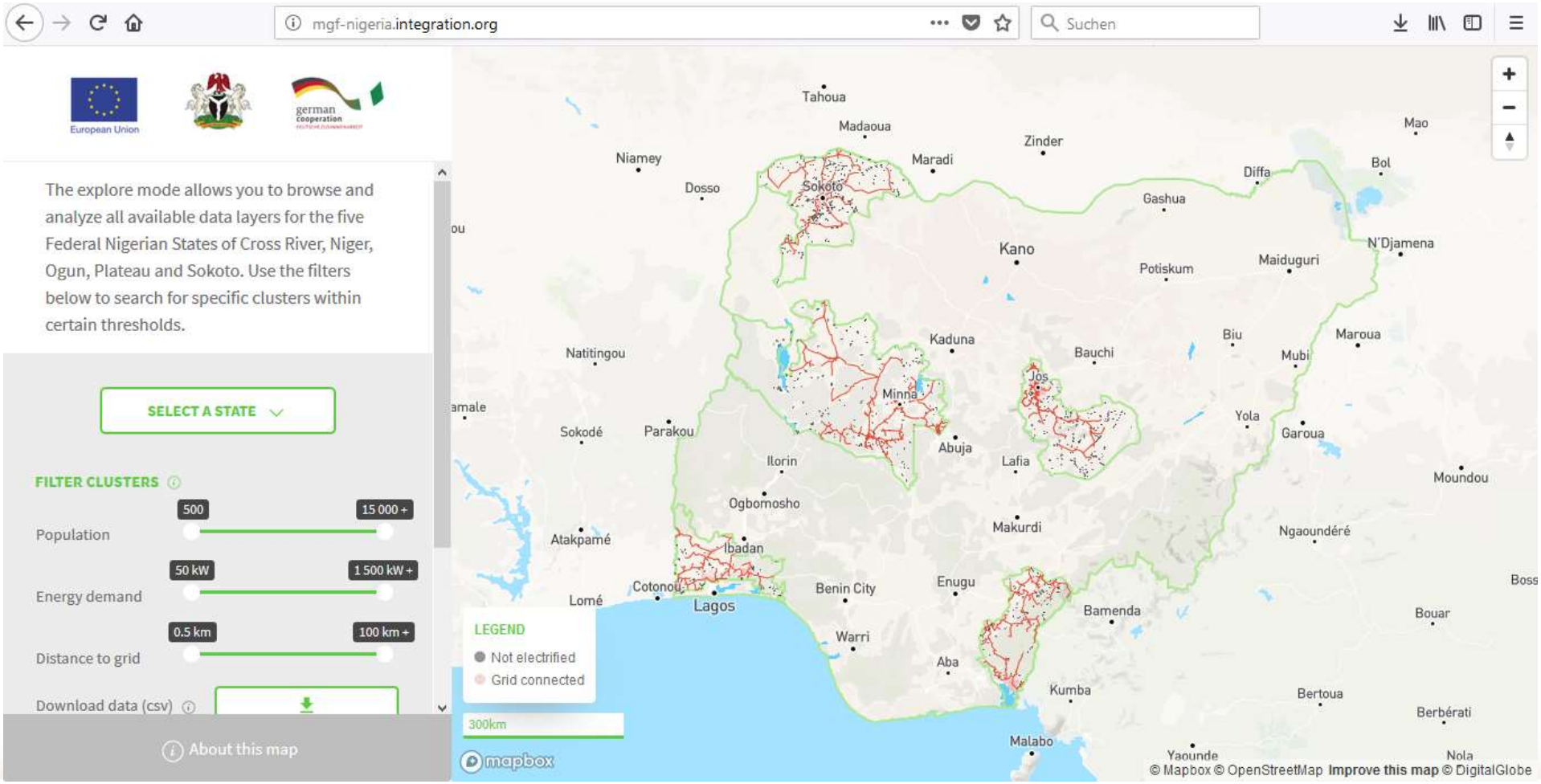
Why are Mini-grid Tenders being used?

- From a public perspective tenders allow to…
  - **…define the market** according to priorities and with a certain degree of **flexibility** (you can ask for what you want to see)
  - **…identify the best solution** (incl. ‚real price discovery') in a situation of **information asymetry** (see Oliver Wyman, 2017)
  - **…introduce competition** to installation and operation of electricity generation and distribution **maximises service level** to beneficiaries
  - …maintain **control of costs** and **market** (level of subsidy, region, beneficiary, local content, timeframe, conditions for termination of contract)

Why are Mini-grid Tenders being used?

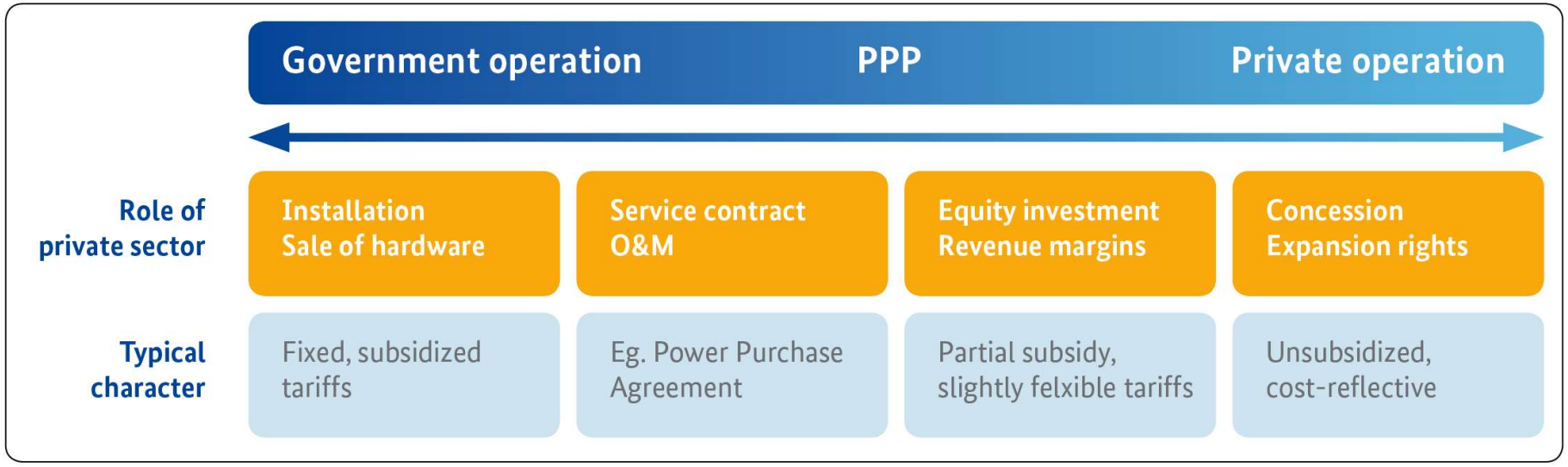
- From a private sector perspective tenders can…
  - …increase certainty by ensuring **government buy-in** (in case of government tenders)
  - …allow for **economies of scale** e.g. by bundling sites together or bidding for repeated tenders
  - …**front-load transaction costs** of an otherwise much more lengthy and costly concept negotiation process
  - …get **access to detailed datasets** that are collected as part of the tender preparation process (e.g. Mini-grid Finder)

The Mini-grid Finder



Why are Mini-grid Tenders being used?

- Tenders are a tool to overcome the **„Public-Private Trust Gap“**
  - They allow the **public sector** to steer the market (remain in control) while…
  - …mobilising **private sector‘s** technical, administrative and financial capacities



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Country Example (1) - Uganda

Tender Host

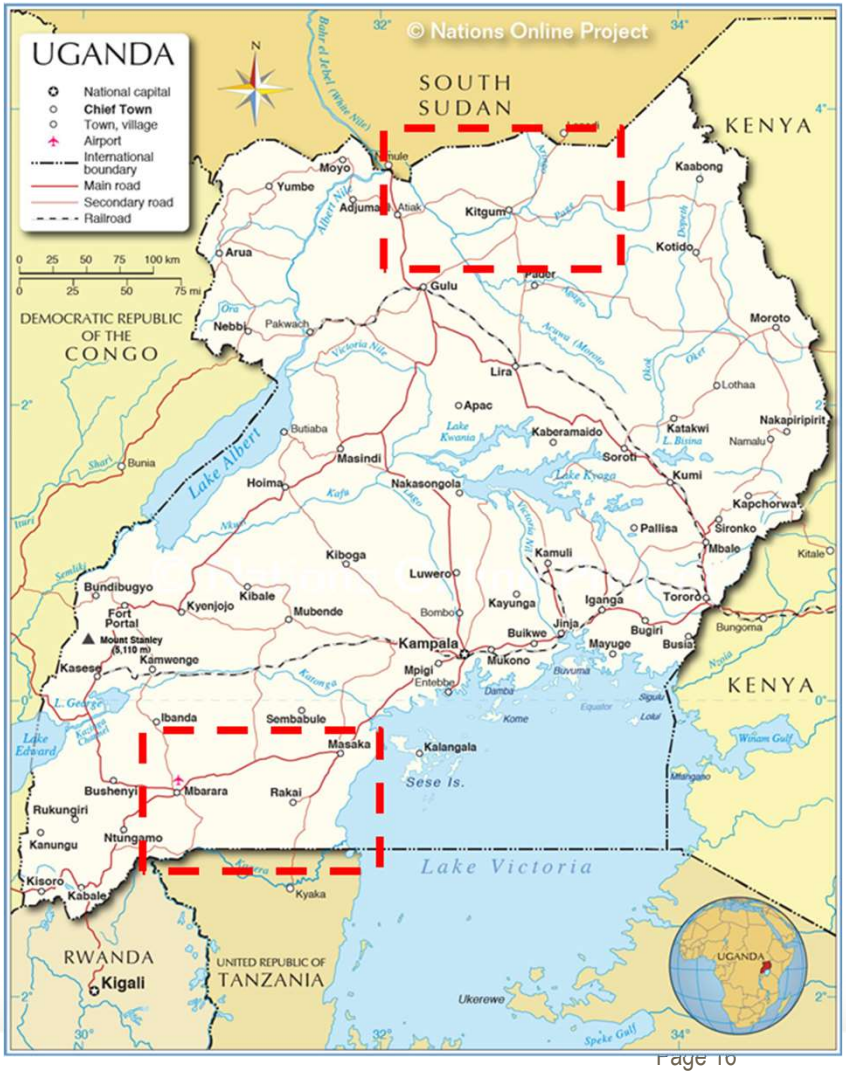
- REA. Financed by BMZ and EU. GIZ TA

Tender Subject

- Technology: 100% RE Mini-grids (Solar PV & battery)
- Round 1: 25 sites (final evaluations)
- Round 2: 15 sites (final evaluations)

Tender Design

- DBOOT model
- 10-year concession
- Up to 50% CAPEX subsidy, LV lines funded by REA



Country Example (2) – Madagascar (*Appel à Candidature*)

Tender Host

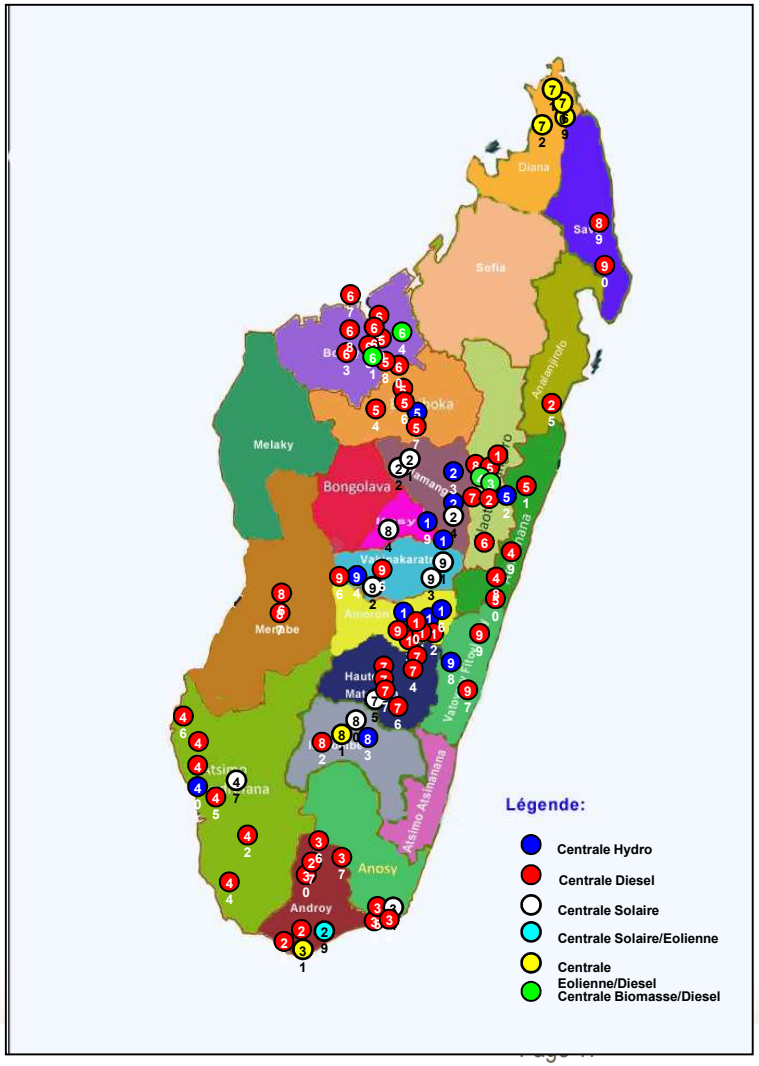
- ADER (*Agence de Développement de l'Electrification Rurale*)

Tender Subject

- Authorizations for individual RE Mini-grids (mainly hydro and solar) <500 kWp
- Regular periodic tenders depending on availability of opportunities

Tender Design

- Competitive reverse auction with company qualification criteria
- (B)OOT model
- 10-15 year authorization license
- Up to 70% CAPEX subsidy (by donors)



Country Example (2) – Madagascar (*Appel à Projets*)

Tender Host

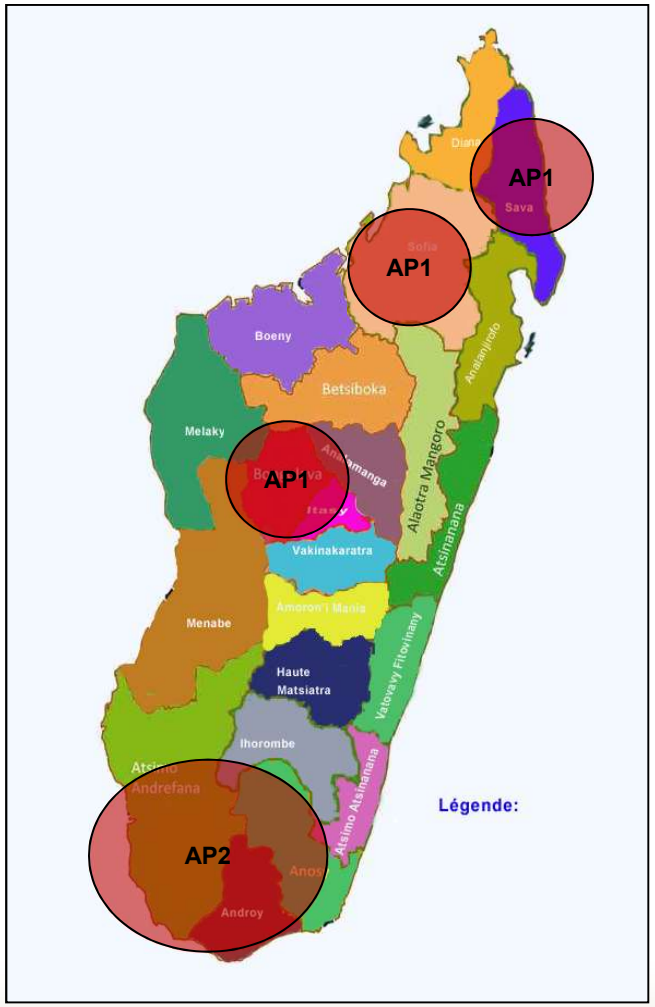
- ADER (*Agence de Développement de l'Electrification Rurale*)

Tender Subject

- Rural electrification concession areas (technology neutral, RE bias, mainly hydro & solar)
- Round 1: 9 *Lots* (04/2015) – pre-concession awarded, 5 Lots – feasibility studies
- Round 2: 9 *Lots* (12/2015) – pre-concession awarded
- Round 3: Launch expected end of 2019

Tender Design

- BOOT model
- 20-year concession
- up to 70% CAPEX subsidy, limited availability of finance
- Interconnection via IPP / PPA possible



Country Example (3) - Nigeria

Tender Host – Guided Idea Comp.

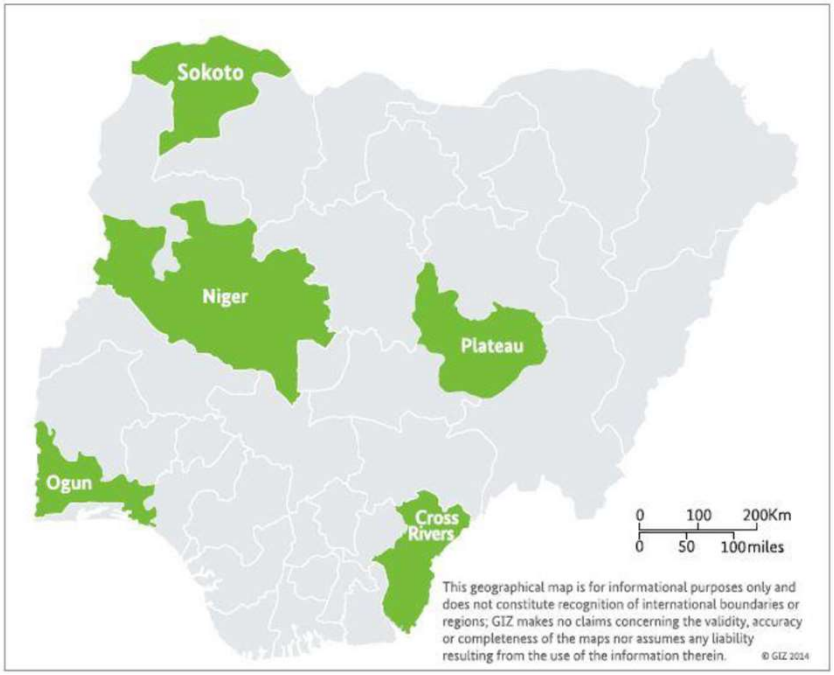
- FMPWH/State Govts (5)
- Funded by BMZ/EU (€1 Million + TA)

Tender Subject

- Off-grid solar mini-grids
- 6 sites selected
- €1 Million private investment
- 3,000 connections
- Operational since 2018

Tender Design

- DBOO model
- 50% in-kind grant



Country Example (3) - Nigeria

Tender Host – REF Call 1

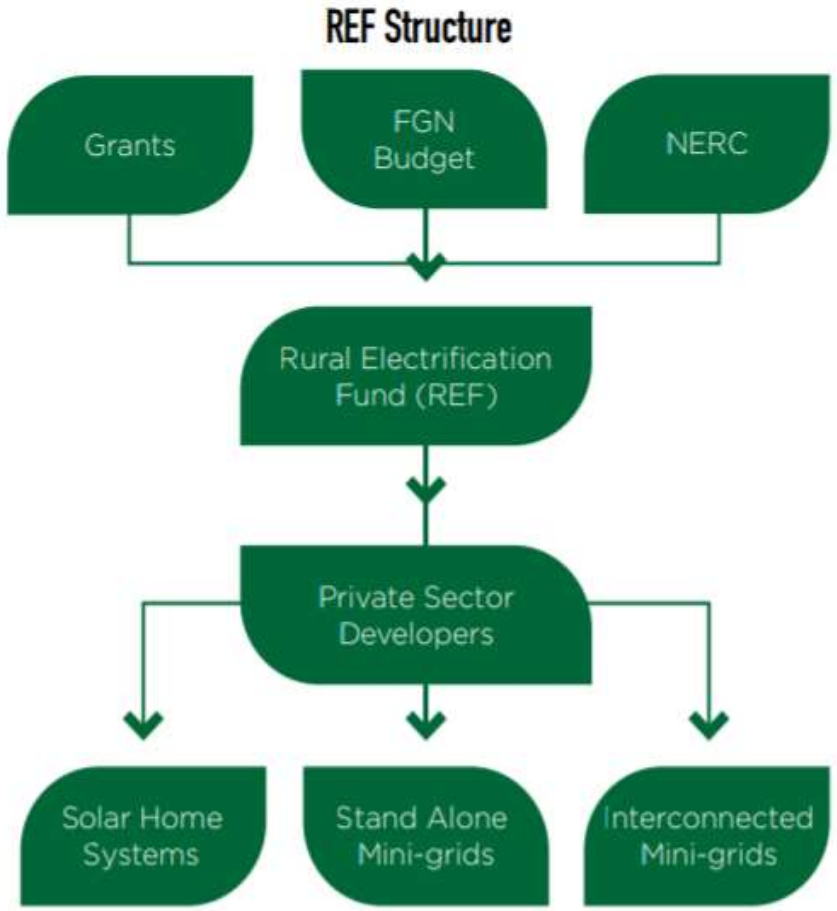
- REA (~€2 Million)
- EU and BMZ (TA)

Tender Subject

- Off-grid solar mini-grids
- 12 sites
- €0.5 Million private investment
- 5,000 connections
- Implementation stage

Tender Design

- DBOO model
- Grant per connection



Country Example (3) - Nigeria

Tender Host - MAS

- FMPWH/REA
- Funded by BMZ/EU (€6 Million + TA)

Tender Subject

- Off-grid solar mini-grids
- 21,000 connections.
- €6 Million private investment
- Proposal evaluation stage

Tender Design

- DBOO model
- In-kind grant per connection.

Tender Host - IMAS

- FMPWH/REA.
- Funded by BMZ and EU (€3 Million + TA)

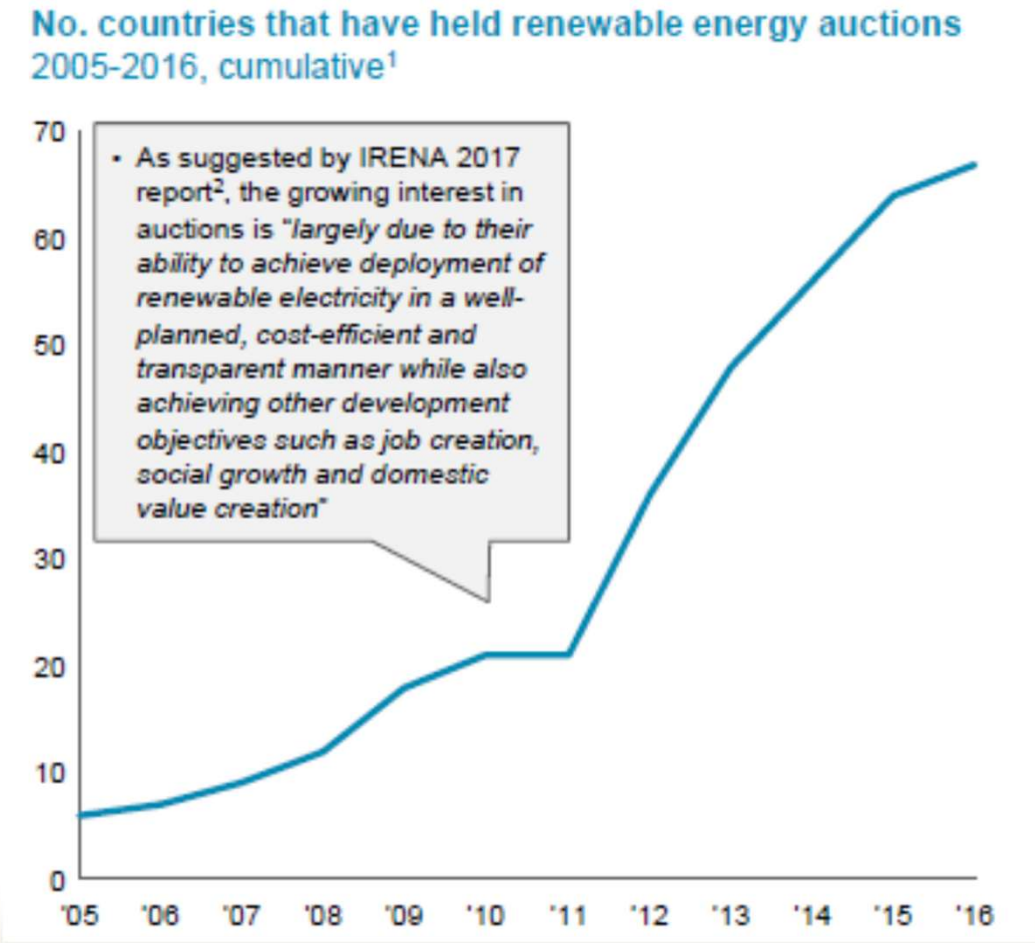
Tender Subject

- Interconnected solar mini-grids
- 15,000 connections
- €3 Million private investment
- Call about to close

Tender Design

- DBOO model
- In-kind grant per connection

Number of countries with RE auctions on the rise…



Oliver Wyman, 2017

1. TENDERS: WHAT, WHY and HOW?

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Summary

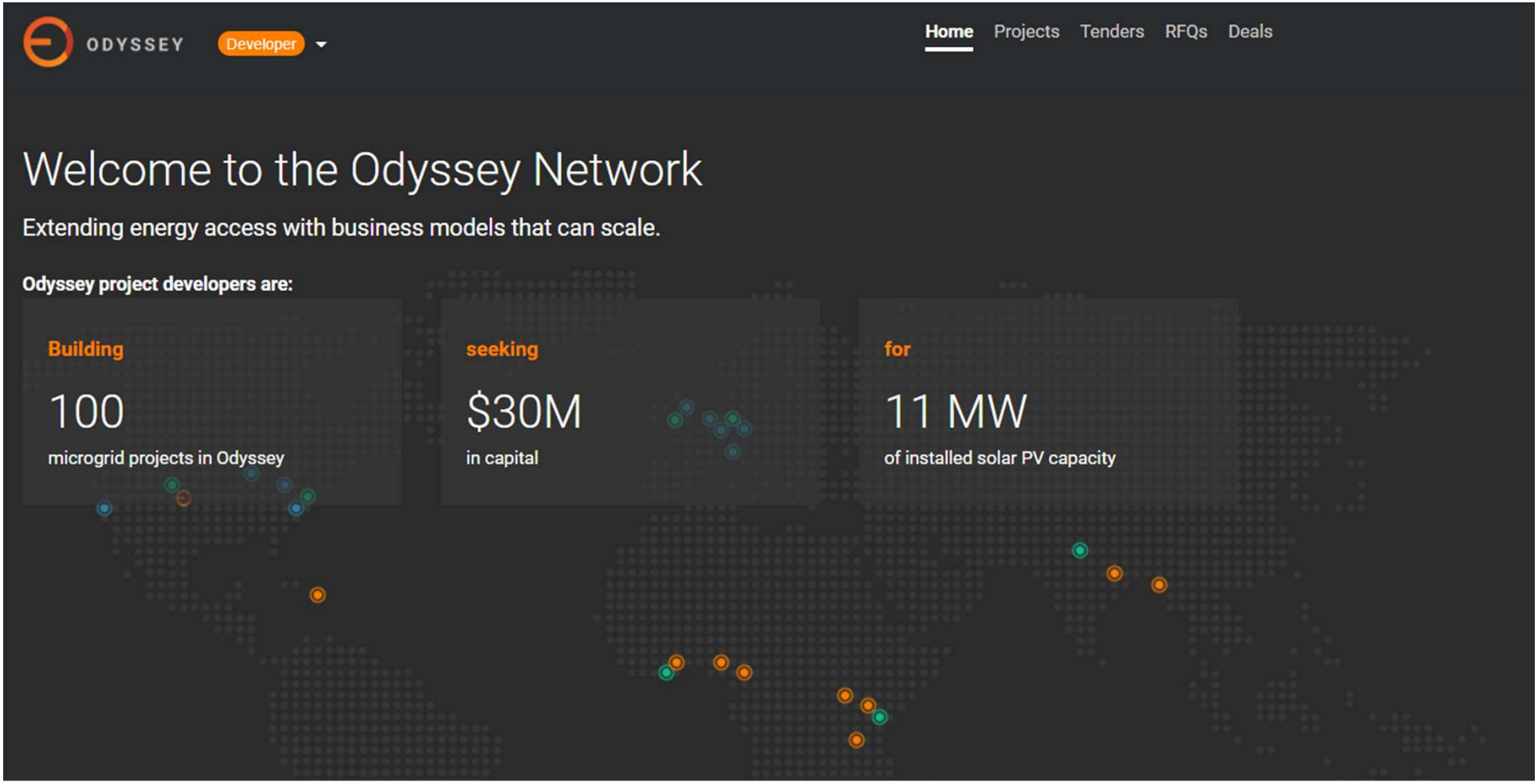
- The **number of countries** running tenders is on the rise, both for Mini-grids and RE in general
- A key advantage is that private sector has a **level of certainty** that is not available in case of unsolicitied project proposals
- There is no **standard procedure** for tenders but an increasing level of understanding as to the ingredients and conditions for efficient and effective tender implementation
- **Three main type of tenders** are typically used (site or sites, region, fund)
- We believe that through selecting an appropriate tender process positive **public-private partnerships** can be created for the benefit of the **250.000 people** requiring new access every day (if we want to reach SE4All by 2030)

Having said all that…

- General criticism
  - Tenders create **a lot of work** and you don't know whether you win, or rather: for all but one, the effort of tendering was wasted
  - **Information** on tenders is very dispersed and may not reach relevant actors
  - **Delays** are common in countries where actors are not familiar with the processes
  - **Policy framework** may still be challenging (tariffs, expansion, stability)
- Specific criticism
  - **Bidding on tariffs** is a highly sensitive issue esp. for investors (offtaker risk)
  - Some **datasets** prepared for tenders (e.g. demand predictions) are not trusted
  - In case of **timebounds** to the concession (typically applied) the loss of the business after X (10, 15, 20) years is a significant deterrent
  - **„Evaporation"** or **dumping** leads to sub-standard project proposals or higher costs that will be passed on to the client

Suggestions (1)

- General criticism
  - **Work input** → clear procedures & standardisation (e.g. via ODYSSEY)
  - **Disperse information** → improve information base (e.g. via centralized publication channel / aggregator)
  - **Delays** → continued TA for tender agents & patience…
  - **Policy framework** → continued TA & risk mitigation tools
  - … → …


ODYSSEY
Developer
Home
Projects
Tenders
RFQs
Deals
Welcome to the Odyssey Network
Extending energy access with business models that can scale.
Odyssey project developers are:
Building
100
microgrid projects in Odyssey
seeking
$30M
in capital
for
11 MW
of installed solar PV capacity

Mapping Tender Opportunities in Africa!

Country	Tender Host	Support (TA / FA)	Year (Month)	Category (grid-connected, mini-grid, standalone)	Technology (Capacity)
Togo	ARSE (Regulator)		2014	Grid-connected	Biomass (4 MW), Solar PV (10 MW – 2 sites), Waste-to-energy (20 MW)
Burkina Faso	Ministry of Mines, Quarries and Energy and Ministry of Economy, Finance and Development (Ministry)		2014	Grid-connected	Solar PV (67.5 MW - 5 sites)
Mali	Ministry of Energy and Water (Ministry)		2015	Grid-connected	Solar PV (25 MW and 50 MW)
Ghana	Ministry of Power (Ministry)	GIZ- CSIREA	2016	Grid-connected	Solar PV (20 MW)
Ghana	Bui Power Authority (Utility)		2016	Grid-connected	Solar PV (50 MW)
Côte d'Ivoire	Ministry of Petroleum Energy and RE development (Ministry)		2016	Grid-connected	Biomass (25 MW and 20 MW), Solar PV (25 MW),
Senegal	SENELEC (Utility)	KfW	2016	Grid-connected	Solar PV (15 MW)
Senegal	SENELEC (Utility)	Hybrid Mini-grids - KfW	2016	Mini-grid	Solar PV (2 MW)
Senegal	CRSE (Regulatory Commission)	World Bank IFC (Scaling Solar)	2017	Grid-connected	Solar PV (100 MW - 3 sites)
Burkina Faso	SONABEL (Utility)	AFD - EU	2017	Grid-connected	Solar PV (80 MW - 4 sites)
Mali	AMADER (rural Electrification Agency)	World Bank	2017-2019	Mini-grid	Solar PV (4.8 MW - 50 sites)
Mali	AMADER (rural Electrification Agency)	IRENA-ADFD-BADEA	2017-2019	Mini-grid	Solar PV (1.6 MW - 32 sites)
Mali	AMADER (rural Electrification Agency)	AFD	2017-2019	Mini-grid	Solar PV (5.8 MW - 60 sites)
Ghana	Bui Power Authority (Utility)		2018 (Q1)	Grid-connected	Solar PV (10 MW)
Niger	NIGELEC (Utility)	AFD	2018 (Q1)	Large Isolated Grid	Hybrid Diesel Solar PV (13 MWp/6 MW / 5 MWh)
Burkina Faso	SONABEL (Utility)	EIB	2018 (Q2)	Grid-connected	Solar PV (17 MW – adjacent to the 33 MW Solar PV power in Zagtouli)
Benin	SBEE	AFD	2018 (Q2-Q3)	Grid-connected	Solar PV (25 MW)
Cabo Verde	Ministry of Industry, Commerce and Energy	possible support from GIZ-ProMERC and LuxDEv	2018 (Q2-Q3)	Grid-connected	Solar PV (10 MW)
Guinea-Bissau	Ministry of Energy	BOAD (Banque Ouest Africaine de Developpement)	2018 (Q3-Q4)	Grid-connected	Solar PV (20 MW)
Guinea-Bissau	Ministry of Energy	BOAD (Banque Ouest Africaine de Developpement)	2018 (Q3-Q4)	Mini-grid	Solar PV (2 MW - 2 sites)
Benin	Off-grid Clean Energy Facility (Millenium Challenge Corporation)		2018 (Q4)	Mini-grids	
Sierra Leone	Ministry of Energy (Ministry)	DFID & UNOPS & INENSUS	2017 (Q4)	Mini-grids	50 small Mini-grids (~ 20 kWp per site)
Sierra Leone	Ministry of Energy (Ministry)	DFID & UNOPS & INENSUS	2017 (Q4)	Mini-grids	40 Mini-grids (~150 kWp per site)
Uganda	Rural Electrification Agency (Agency)	GIZ	2017	Mini-grids	100% Solar PV + Battery (~600 kWp, 25 sites)
Uganda	Rural Electrification Agency (Agency)	GIZ	2018 (Q2-Q3)	Mini-grids	100% Solar PV + Battery (~600 kWp, 15 sites)
Nigeria	Ministry of Power Works and Housing (Ministry)	GIZ	2015	Mini-grids	Hybrid mini-grids (5 sites)
Madagascar	Agence d'Electrification Rurale (ADER)	GIZ	2015	Mini-grids	Solar PV or hydro mini-grids
Kenya	Energising Developement (EnDev)		2016	Mini-grids	3 Solar PV hybrid mini-grids
Senegal	ASER (Agency)		2	Mini-grids	Series of Mini-grid tenders upcoming from various projects (IRENA-ADFD, Islamic Development Bank, BOAD)

Suggestions (2)

- Specific criticism
  - **Bidding on tariffs** (offtaker risk) → insure against off-taker risk (not likely) or prepare accurate demand predictions
  - **Datasets** are not trusted or outdated → only prepare top-level information (where interesting sites are located) and transfer collection of sensitive data (appliances, productive use) to project developer
  - **Timebounds** to the concession → allow for extension of concession period according to clear and transparent criteria
  - **„Evaporation“** or **dumping offers** → ensure checks & balances and enforce minimum quality criteria and truth-of-advertising
  - … → …

Thank you on behalf of the GIZ Tender Taskforce!

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Feedback and criticism welcome!

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