

SREP INVESTMENT PLAN FOR LESOTHO



Scaling Up Renewable Energy in Low Income Countries (SREP)

Hon. Tlohelang Aumane
Minister of Development Planning
Government of Lesotho

SREP Sub-Committee Meeting
Washington, DC
December 14, 2017



Lesotho Country Context



Lesotho Key Data

Total Population (2016)	2,007,201
Total Land Area	30,355 km ²
Population Density (2016)	66/km ²
Urban/Rural Pop. Rates (2016)	34%/66%
GDP (2016)	US\$ 2.2 billion
Incidence of Poverty (2015)	56%
Electricity Access Rate (2016)	38%



Renewable Energy Sector Context

- **Lesotho has an estimated 2.3 GW in potential RE capacity...but the investment market has yet to materialize**
 - Limited experience on utility scale RE Projects (280 kW facility at Moshoeshoe 1 international Airport)
 - Off-grid RE experience is limited to a few small donor projects
- **Energy sector has strong foundation with established Institutions**
 - DoE – Government technical arm on energy issues responsible for policy development, development of strategic plans
 - Lesotho Electricity Company (LEC) – Government owned utility mandated to procure power, distribute and manage the national transmission network
 - Lesotho Electricity and Water Authority (LEWA)-the independent regulator for electricity sub sector and urban water
 - Rural Electrification Unit- government entity responsible for expansion of grid electricity in rural areas
 - Lesotho Highlands Development Authority – Operates Muela Hydro Power Station
- **Other Donor initiatives addressing barriers to RE investment**
 - EU technical assistance capacity program addressing institutional mandates to remove ambiguities about institutional responsibilities
 - AfDB assisted LEWA with the drafting of an RE Regulatory Framework that provides ready to adopt templates for microgrid concessions and a Feed-in-tariff (FiT) scheme
 - EU is also funding an Electricity Masterplan that will identify the area of the country to be served by LEC and the area to be overseen by a new Rural Electrification Authority
 - Government of Italy is funding an RE mapping study

Challenge #1: Energy (Electricity) Access

- Only 38% of households have access to electricity
- GoL has set goal to increase electricity access to 75 % by 2022
- Mountainous terrain in rural areas makes network expansion difficult, and cost prohibitive
- Poverty incidence is highest in rural areas where access is lowest



Unelectrified hillside village in Theetsoa

Challenge #2: Energy (electricity) Security

- Domestic supply is only 72 MW, energy imports needed to meet peak and base load demand (imports made up **66%** of supply in 2015)
- GoL has goal to meet base load demand (105 MW, 2016) with domestic supply by 2025

Challenge #3: Decline in biomass stock

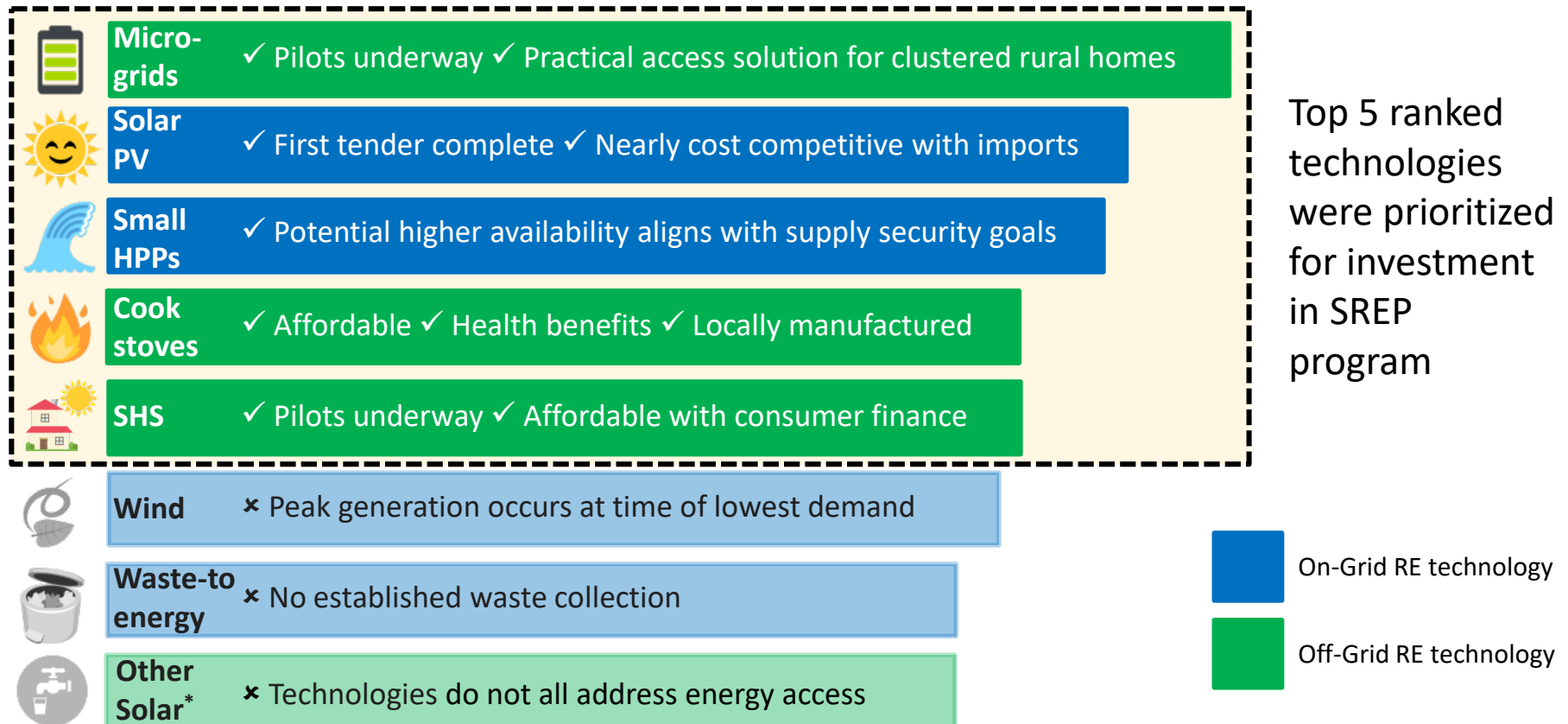
- Reliance on biomass has led to deforestation, tree coverage is 1.6 %
- Households (typically women) spend hours daily searching for woodfuel
- GoL has set target to increase tree coverage to 5% by 2020`



Biomass collection in Semonkong

Prioritization of RE Technologies in SREP IP

- RE technologies were evaluated on **technical potential, economic and financial viability**, as well as relevance to **SREP priorities** and **national policy goals**
- Relevant policy objectives from Lesotho's *Vision 2020* and NSDP included:
 - Job creation
 - Energy security
 - Private sector involvement in energy sector



Investment Components proposed for SREP co-financing

1

On-Grid RE

Technology to be Supported:

 Utility-scale solar PV

Executing Agency:

African Development Bank



Funding:





- SREP: US\$ 5.6 million
- GoL: US\$ 0.6 million
- MDBs: US\$ 12.9 million
- Private: US\$ 14.4 million

TOTAL: US\$ 32.1 million

2

Distributed RE Solutions

Technology to be Supported:

-  Microgrids (solar PV/battery; hydro)
-  SHS
-  ICS/hybrid-cookstoves
-  Small hydropower (on- or off-grid)

Executing Agency:

World Bank



Funding:

- SREP: US\$ 12.9 million
- GoL: US\$ 5.9 million
- MDBs: US\$ 15.8 million
- Private: US\$ 20 million

TOTAL: US\$ 54.6 million

Component 1: On-Grid Renewable Energy

- On-Grid RE component aims to **support development of a utility-scale RE market in Lesotho**

- Installation of utility-scale RE capacity can be used to reduce dependence on imports from South Africa and Mozambique
- Solar PV is viewed as the best utility-scale technology for initial support because it is closest to market viability
- First utility-scale solar projects will chart the path for wind and small hydro projects to be developed in the future



281 kW solar PV installation serving Moshoeshoe I International Airport

- Activities to be supported by SREP include:

- Investment in first commercial utility-scale RE project
 - 20 MW project being procured through a competitive tender is most advanced project in pipeline
 - Mix of SREP and AfDB funds will be used to ensure project reaches financial closure (two options: concessional financing through AfDB private sector window or a PRG to guard against off-take defaults)
- Technical assistance to develop RE integration study
 - SREP funds would be used to help LEC develop operational procedures and identify investments that will be necessary to support the additional of intermittent RE resources

Component 2: Distributed RE Solutions

- Distributed RE component intends to **establish a dynamic market for RE technologies in rural areas** outside of the LEC service area
 - Distributed technologies are most cost-effective and realistic solution to achieve energy access goals
 - Mix of technologies (SHS, microgrids, cook stoves) will allow for households to select the solution that best fits their specific energy needs and financial circumstances
 - Additional SHPP activity included to increase resource flexibility



ACE 1, a hybrid solar-PV/ battery cookstove manufactured in Maseru

- Activities to be supported by SREP include:
 - Investment in microgrids (solar/battery- or hydro-powered)
 - GoL plans to establish area-based microgrid concessions
 - Concessional funds would be on-lent to developers in the initial tender(s)
 - Investment in SHS and other distributed RE technologies
 - Creation of energy business centres is the option considered most realistic for making these distribution RE technologies available in remote rural areas
 - World Bank plans to support such businesses through the establishment of a green financing facility that would offer subsidized financial products to vendors
 - Site specific studies for on- or off-grid SHPP projects— included to increase investor interest in hydro



Prototype for solar tracking array being considered for a microgrid pilot in Ha Makebe

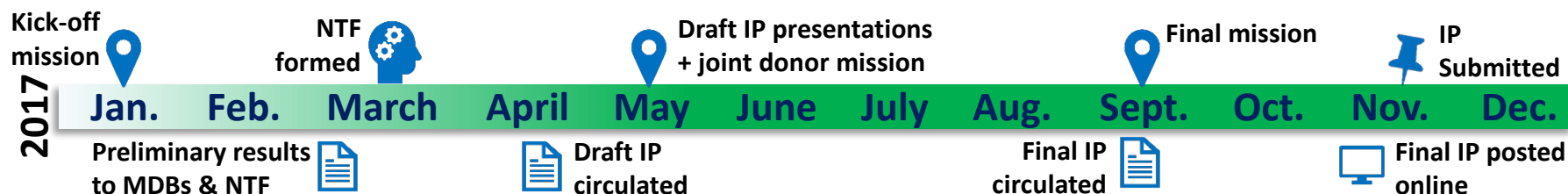
9 Financing Plan

SREP Component	SREP	WB	AfDB ⁱ	GoL	DFIs	Private	Total
On-Grid RE							
Utility-scale PV	5		10	0.6		14.4	30
RE integration study	0.6						0.6
RE mapping study					1.4 ⁱⁱ		1.4
Solar PV site studies			1.5				1.5
Sub-total: On-Grid RE	5.6		11.5	0.6	1.4	14.4	33.5
Distributed RE Solutions							
Microgrids	8	6		4.1	3.2	15	36.3
Distributed RE	4	4		1.8	2.6	5	17.4
SHPP study	0.9						0.9
Sub-total: Distributed	12.9	10		5.9	5.8	20	54.6
Total	18.5	10	11.5	6.5	7.2	34.4	88.1

i. AfDB public or private window; ii. Government of Italy;

IP Preparation and Stakeholder Consultation Process

- **Today** is the culmination of a year long process that has led up to this presentation



- Along the way stakeholders have provided input throughout the process:
 - As part of the **kick-off mission** representatives from GoL and MDBs met with consultant team to develop a plan for the preparation of the IP
 - The details on renewable energy potential and projects used in the **technical assessment** were collected from meetings and correspondence with DOE, LEC, MDBs, the Bureau of Statistics (BOS), National University Lesotho (NUL), MDBs and private companies
 - A National Task Force with representatives from government agencies, private sector and, non-governmental organizations was organized to provide guidance to the DoE and their consultant team throughout the IP process. The Task Force provided feedback on **preliminary results** on technical potential and costs and **prioritization criteria**
 - Separate presentations on the **draft investment plan** were given to (1) MDBs; (2) a group of private investors and civil society organizations; and (3) the National Task Force members
 - A final mission was added to introduce new governments officials to proposed SREP program following June elections
 - The DoE posted the draft IP on LEWA's website and gathered public comments that were incorporated into the **final investment plan**

Kea leboha! (thank you)

