

FRAMEWORK FOR PRIVATE SECTOR INVESTMENT IN ELECTRICITY GENERATION, DISTRIBUTION, AND SUPPLY

A Guide for IPP (Independent Power Producers) and PPP (Public-Private Partnership) for On-Grid and Off-Grid Development.

LESOTHO MINISTRY OF NATURAL RESOURCES
DEPARTMENT OF ENERGY



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ABBREVIATIONS AND ACRONYMS

CAPEX	Capital Expenditure
DA	Direct Agreement
DoE	Department of Energy
DSO	Distribution System Operator
EIA	Environmental Impact Assessment
EOI	Expression of Interest
EMP	Electrification Master Plan
EPA	Environmental Protection Agency
ESI	Electricity Supply Industry
GoL	Government of Lesotho
IPP	Independent Power Producer
LEC	Lesotho Electricity Company
LEGCo	Lesotho Electricity Generation Company
LEP	Lesotho Energy Policy 2015 - 2025
LEWA	Lesotho Electricity and Water Authority
LHDA	Lesotho Highlands Development Authority
MNR	Ministry of Natural Resources
MoF	Ministry of Finance
M/kWh	Maloti per kilowatt hour
OPEX	Operations Expenditure
PMD	Private Mini-grid Developer
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PTE	Public Transmission Entity
REU	Rural Electrification Unit
RFP	Request for Proposals
SAPP	Southern African Power Pool
SoE	State Owned Enterprise
TSA	Transmission Service Agreement
TSO	Transmission System Operator

1.0 INTRODUCTION

1.1 Background

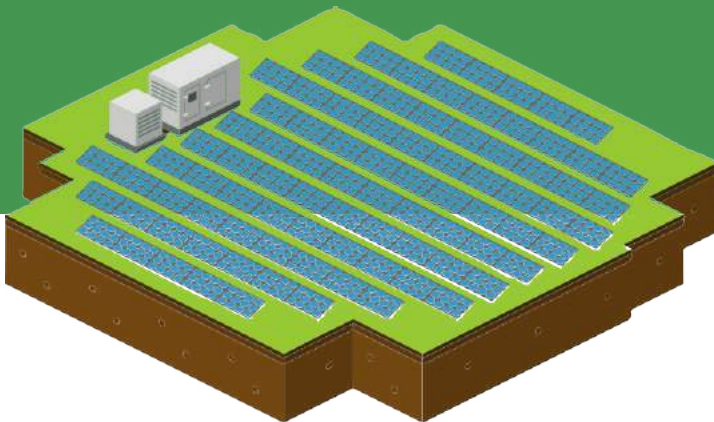
The energy sector has seen transformative changes over the past few decades. With the growing demand for renewable energy sources and sustainable practices, it is imperative for countries and businesses to adapt. This framework serves as a guide for private entities looking to invest in Lesotho's burgeoning electricity generation, distribution, and supply sectors. It outlines the opportunities and challenges present, setting the stage for fruitful collaborations.

1.2 Energy Policy

Lesotho's electricity policy aims to provide reliable and sustainable energy to all its residents. With an emphasis on green energy and reducing the carbon footprint, the country is paving the way for a future powered by clean energy sources. The policy also focuses on fostering partnerships between public and private entities to achieve its energy goals.

1.3 Purpose of the Framework

This framework is designed to guide and facilitate private sector investments in electricity. It offers clarity on regulatory requirements, outlines the roles and responsibilities of various stakeholders, and provides insights into the country's vision for its energy sector. Whether you're an independent power producer or a large conglomerate looking to establish a foothold in Lesotho's energy market, this guide is your roadmap to success.



2.0 THE ELECTRICITY SECTOR OF LESOTHO

2.1 Policy and Regulatory Framework

Lesotho's energy policy has been formulated with a vision to provide sustainable, reliable, and affordable energy for all. The regulatory framework is designed to encourage private sector participation while ensuring that the interests of consumers are protected. Key components of the policy include promoting renewable energy, enhancing grid connectivity, and creating a conducive environment for private investments.

2.1.1 Policy and Legal Framework

Lesotho Energy Policy 2015 - 2025

Comprehensive statement of policy on universal access to energy delivered affordably and in a sustainable manner, with minimal negative impact on the environment.

Electrification Master Plan 2018-2038

Guiding tool for the electrification programme of Lesotho with grid and off-grid content.

National Strategic Development Plan II, Strategic Focus 2023 - 2028

Prioritizes security of energy supply and energy access through the deployment of modern and clean energy.

Lesotho Electricity Authority Act, 2002 with amendments

Established LEWA as an independent multi sector regulatory body for electricity and water service providers

Mini-Grid Power Generation, Distribution and Supply Regulations, 2021

Regulatory framework for promoting the development and operation of mini-grid systems towards achieving universal access to electricity

Grid Code

Technical document for promoting the sound planning, operational and connection procedures to be observed by the TSO, DSO and other users of the grid for the efficient and coordinated operation of the national grid by the TSO.

Regulatory Framework for the Development of Renewable Energy Resources in Lesotho (2015)

Technical document for promoting the sound planning, operational and connection procedures to be observed by the TSO, DSO and other users of the grid for the efficient and coordinated operation of the national grid by the TSO.

2.1.2 Institutional Framework

Ministry of Natural Resources

Responsible through DoE for oversight and administration of the energy sector.

Department of Energy

Formulates sector policy, plans, strategy, programmes and collation and dissemination of information.

Lesotho Electricity and Water Authority

Independent multi-sector regulatory body for electricity and urban water service providers responsible for the licensing, technical and economic regulation of sector investment.

Rural Electrification Unit

Division of DoE responsible for the implementation of rural electrification projects and their transfers to LEC for operation on completion.

LHDA

Owns and operates the Muela hydro generation plant and sells the electricity produced to LEC.

Lesotho Electricity Company

Electricity transmission and distribution and supply entity operating in urban Lesotho and other commercially viable areas.

LEGCO

GoL owned company implementing the state-owned Ramarothole Solar PV Project.

2.2 Electricity Supply Industry

The electricity supply industry in Lesotho comprises various stakeholders, including state-owned utilities, independent power producers, and distribution companies. The industry is in a transformative phase, with increased emphasis on harnessing renewable energy sources like solar and wind. The **government's** initiatives to decentralize power generation and promote off-grid solutions have opened up new avenues for private players.

2.3 Regulation and Licensing

The regulatory landscape for electricity in Lesotho is governed by a set of guidelines that ensure transparency, fairness, and competitiveness. Licenses are issued to entities after a comprehensive review of their capabilities, infrastructure, and adherence to environmental and safety norms. Regular audits and assessments are conducted to ensure compliance.



2.4 Role of the Private Sector

The private sector plays a pivotal role in shaping Lesotho's energy future. From investing in new power generation projects to introducing cutting-edge technologies, private entities are at the forefront of the energy revolution. The government encourages private participation through incentives, streamlined approval processes, and public-private partnership mode.

Private sector participation in Lesotho's electricity domain has not only diversified the energy mix but has also brought in technological advancements, management expertise, and innovative financing mechanisms. Their involvement has been instrumental in:

Infrastructure Development:

Rapid establishment of power plants, transmission lines, and distribution networks.

Renewable Energy:

Investments in solar parks, wind farms, and other green energy initiatives.

Economic Growth:

Creation of jobs, fostering of local industries, and stimulation of ancillary businesses.

Consumer Services:

Improved customer service, introduction of online billing and payment systems, and enhanced complaint redressal mechanisms.

2.5 Operations in the Sector

Operating in the electricity sector demands adherence to best practices, technological advancements, and a consumer-centric approach. With the integration of digital technologies, operations have become more efficient, responsive, and aligned with global standards. Entities are also focusing on capacity building, training, and skill development to foster a workforce that's equipped to meet the challenges of the future.



Safety Protocols:

Ensuring the safety of workers, infrastructure, and the environment is paramount.



Maintenance Regimes:

Regular maintenance schedules ensure uninterrupted power supply and extend the life of assets.

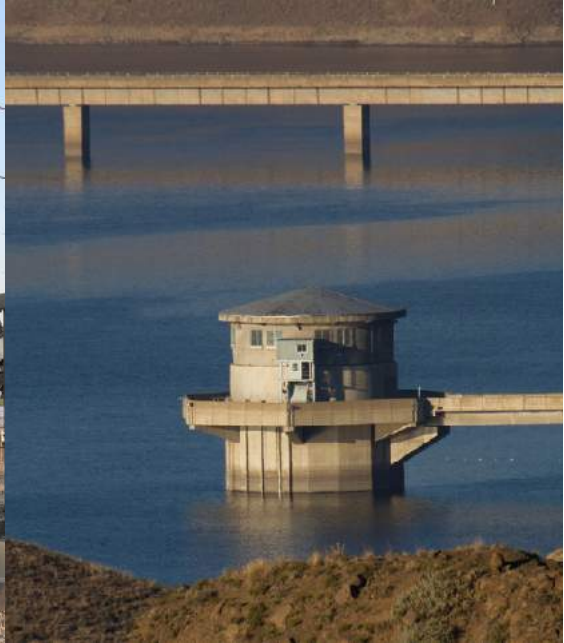


Safety Protocols:

Digital solutions like SCADA systems are becoming standard for real-time monitoring and control.

2.6 Coverage of the Framework

Under LEP, electricity sector infrastructure and operation would be financed by a combination of GoL funds, PPPs and private sector financing. The IPP and Private mini-grids development framework covers only private sector financing for grid connected power generation plants and the development and operation of mini-grids.



3.0 PROCUREMENT PROCESS FOR IPPs

3.1 Planning Process

The DoE ensures Lesotho's energy demands, including electricity, are met through the preparation and annual review of National Indicative Plans. Key objectives include identifying and addressing supply deficits, maintaining adequate capacity, and preventing shortages. The Indicative Plan, published annually, informs industry and the public, outlining areas of supply deficit caused by growing demand, PTE requirements, and considerations for bypass sales customers upon their admission as ESI participants. Lesotho emphasizes clean technology-based power generation in alignment with renewable energy potential, as outlined in the LEP and EMP. Distribution licensees and the PTE contribute to the Indicative Plans through annual generation procurement plans submitted to the DoE.

3.2 IPP Solicitation Process

The procurement of additional generation shall be based on the Indicative Plan and the annual generation procurement plans of the procuring entities for grid connected generation which, are the distribution licensees and the PTE.



Solicited Process

Item	Action	Responsible entity
1	Project prefeasibility study	DoE/LHDA/SoE(Energy)
2	Project feasibility study	DoE/LHDA/SoE(Energy)
3	Request for Expression of Interest (EOI)	DoE/LHDA/SoE(Energy)
4	Eoi	IPP
5	Shortlisting	DoE/LHDA/SoE(Energy)
6	RFPs from shortlisted	DoE/LHDA/SoE(Energy)
9	Submission of Tenders	IPPs
10	Tender evaluation	DoE/LHDA/SoE (Energy)
11	Preferred and reserve IPPs bidders selected and notified to proceed to Due Diligence (DD)	DoE/LHDA
8	Due diligence (DD) conducted on Preferred and reserve IPP	DoE/LHDA/SoE(Energy)
12	ESIA	IPP
13	Review of ESIA	Department of Environment
17	Negotiation for site access rights and land acquisition	IPP
14	Negotiation of PPA	IPP and Power Off-taker
15	Negotiation of Connection and TSA terms	IPP and PTE
16	Negotiation of Implementation Agreement, Direct Agreement, Connection Agreement, Concession Agreement provisions. For purposes of export there shall also be a Wheeling and a Balancing Agreement with the PTE (where relevant)	DoE, IPP, MoF, PTE
18	Licence application and grant with license conditions	IPP, LEWA
19	Financial close	IPP, LHDA (where relevant)

NB! In this case, the IPP shall include LEGCO and Partner Co for PPP projects



Unsolicited Process

Item	Action	Responsible entity
1	EOI submitted to DoE	IPP
2	EOI reviewed to ascertain that it conforms to the generation procurement plan	DoE/LHDA /SoEs(Energy)
3	Shortlisting (where relevant, e.g., when more than 1 IPP simultaneously want to develop same site))	DoE/LHDA/SoE (Energy)
4	RFPs from shortlisted IPP(s)	DoE/LHDA/SoE (Energy)
5	Evaluation of IPPs	DoE/LHDA/SoE (Energy)
7	Preferred and reserve IPP bidders selected and notified to proceed to DD	DoE/LHDA/SoE (Energy)
6	Due diligence conducted on Preferred and reserve IPP bidders	DoE/LHDA/SoE (Energy)
8	Project feasibility study	IPP
9	Evaluation of the feasibility studies	DoE/LHDA/SoE (Energy)
10	ESIA	IPP
11	Review of ESIA	Department of Environment
16	Negotiation for site access rights and land acquisition	IPP
12	Negotiation of PPA	IPP and Power Off-taker
13	Negotiation of Connection and TSA terms	IPP and PTE
14	Negotiation of Implementation Agreement, Direct Agreement, Connection Agreement, Concession Agreement provisions. For purposes of export there shall also be a Wheeling and a Balancing Agreement with the PTE.	IPP/MoF/DoE/PTE
15	Negotiations on the embedded/Net metering (where relevant) with conditions in exemption	IPP/Power Off-taker/LEWA
17	Licence application and grant with conditions precedent	IPP/LEWA
18	Financial close	IPP

**These steps may vary depending on the technology*

**Where a resource attracts more than one interested bidder, then the solicited approach shall be followed*

3.3 Guidelines on Transmission

If the PTE faces financial constraints, it invites the private sector and cooperative associations through competitive tendering processes to finance and construct assets, which they lease to the public transmission entity until repayments are completed. The transmission entity retains

responsibility for the operation and maintenance of the transmission line, while electricity export is facilitated by the PTE's Trade office.

3.4 Guidelines for power export

In cases where the private developer wishes to generate electricity with the sole intention of exporting the Regulator will act within the powers and duties prescribed in national legislation.

Typically, it is expected that the Regulator would be responsible for making the following types of decisions in relation to cross-border electricity transactions (the "regulatory decisions"):

- (a) Assessing whether there shall be no competition against a GoL energy export initiative through its generation licensed SoEs and if any may decide not to provide the license.
- (b) Decide whether the intended energy export could not first be done under a PPP or BOOT model with a generation licensed SoE.
- (c) Issuing licenses to entities that will be engaged in cross-border electricity trading, such as electricity generators and transmission companies, traders, importers and exporters; and transmission wheeling agreements in cross-border electricity imports and exports as they relate to technical system security issues;
- (d) Approving the recovery of the costs of electricity imports through the tariffs charged to price-regulated customers;
- (e) Approving agreements to export electricity by parties that supply price-regulated customers to safeguard their interests;
- (f) Approving transmission wheeling agreements in transit countries where the transmission provider supplies price-regulated customers to safeguard their interests;
- (g) Mandating access to transmission and distribution facilities for cross-border electricity trading in accordance with national legislation and transmission license conditions;
- (h) Approving domestic and cross-border transmission charge
- (i) When there is domestic supply gap, assuring that the exporter supplies at least 35% of the total energy generated to the National Grid for purposes of the energy security at cost reflective tariff(s).

LEC with support from the GoL shall assist the IPPs to ensure smooth power export through amongst others wheeling and balancing agreements.

4.0 PROCUREMENT PROCESS FOR MINI-GRIDS DEVELOPMENT

4.1 Preliminary Issues

This part relates to the development and operation of mini-grid infrastructure utilizing private sector financing.

Off-grid Planning

DoE is responsible for Off-grid Electrification Planning and updating of the plans for the rollout of mini-grids. The DoE shall publish the plan and the annual updates of the plan for the benefit of potential/prospective private sector investors and the public.

Mini-grid Operational Areas and Data

- (a) DoE shall prepare and update information of the Mini-Grid Systems available for Lesotho and the technologies to be deployed and whether or not hybridization is permitted to enhance the viability of the systems for development.
- (b) The DoE shall conduct prefeasibility studies in respect of the selected systems and also prepare a distribution zone delineation in respect of the sites to establish the distribution areas in which exclusivity rights would be granted to developers.
- (c) DoE adopts settlement clustering for mini-grid operational areas, improving system viability with technical and investment benefits, lowered operation and maintenance costs, and streamlined institutional management. Clustering identifies un-electrified villages for electrification through IPPs, each forming a concession area. This minimizes the risk of overlapping operations with existing grid or off-grid initiatives. The distance between village clusters ranges from 2km to 3.5km, each cluster comprising at least 500 households. This criterion minimizes distribution costs by limiting the extension of the Medium Voltage (MV) line.

4.2 Procurement Process

Solicited Process

Item	Action	Responsible entity
1	Project prefeasibility study	DoE/REU
2	Project feasibility study	DoE/REU
3	Request for Expression of Interest (Eoi)	DoE
4	Shortlisting/prequalification	DoE/REU
5	Request for Proposals (RFP) from shortlisted	DoE
6	Initial due diligence conducted on shortlisted	DoE/REU
7	Submission of tenders	PMDs
8	Tender evaluation	DoE/REU
9	Preferred and reserved PMD selected and notified	MNR/DoE
10	Tariff consideration and confirmation of viability gap	LEWA
11	Concession granted to PMD	MNR/DoE
12	PPA negotiated in respect of grid connected mini-grid	PMD/LEC
13	Wheeling agreements if relevant	PMD/LEC
14	Acquisition of land and compensation negotiations	PMD/Community
15	ESIA conducted and submitted	PMD
16	ESIA reviewed and certified	EPA
17	Determination of GoL support	DoE/LEWA
18	Negotiation of Implementation and Direct Agreements if relevant	PMD/DoE/MoF
19	Licence application and grant with conditions precedent	LEWA
20	Financial close	PMD



Unsolicited Process

Item	Action	Responsible entity
1	Expression of Interest (Eoi) submitted to DoE	PMD
2	Eoi reviewed to ascertain it conforms to generation procurement plan	DoE/REU
3	Shortlisting (if relevant)	DoE/REU
4	Initial due diligence conducted on shortlisted/vetting	DoE/REU
5	Request for proposals from shortlisted	DoE
6	Evaluation of proposals	DoE/REU
7	Preferred and reserved PMD selected/appointed and notified	MNR/DoE
8	Project feasibility conducted	PMD
9	Evaluation/validation of project feasibility	DoE/REU
10	Tariff consideration and confirmation of viability gap	LEWA
11	Concession granted to PMD	MNR/DoE
12	PPA in respect of grid connected mini-grid	PMD/LEC
13	Wheeling agreements if relevant	PMD/LEC
14	Acquisition of land and compensation negotiation	PMD/Community
15	ESIA conducted and submitted	PMD
16	ESIA reviewed and certified	EPA
17	Determination of GoL support	DoE/LEWA
18	Negotiation of Implementation and Direct Agreements if relevant	PMD/DoE/MoF
19	Licence application and grant with conditions precedent	LEWA
20	Financial close	PMD

4.4 Incentives

Subsidy

The tariff philosophy under LEWA's rules is to, among others, approve cost reflective tariffs for every undertaking in the ESI. The socio-economic setting of the rural areas within which mini-grids will operate undermines the commercial viability of the undertaking and requires subsidies to improve the economics of the projects. Therefore, to ensure the viability of the mini-grids the projects shall benefit from a direct fiscal incentives support and/or subsidy scheme that will be sponsored by GoL and Donors and administered by DoE.

Specific Incentives

- 1 Duration of Licence and Concession
- 2 Debt to equity ratio
- 3 Rate of return

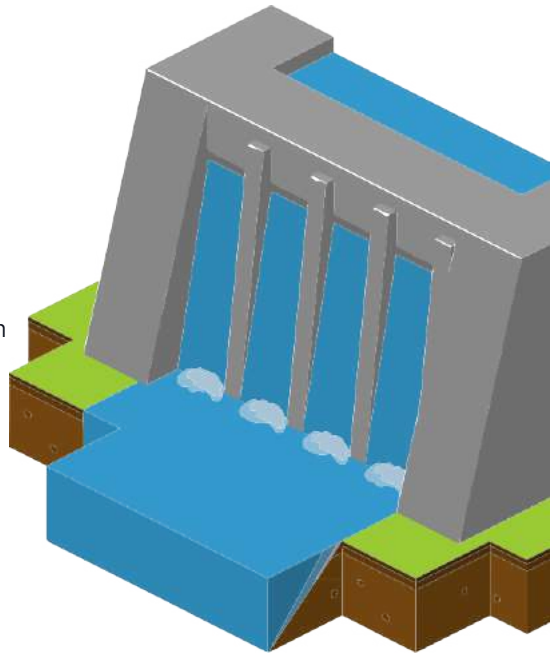
4.5 Tariff Methodology

Tariff principles developed by LEWA shall apply. (Appended)

4.6 Grid Encroachment

The following options are available to the mini-grid licensee when the main grid operator's network is extended to the mini-grid concession under the Mini-grid Power Generation, Distribution and Supply Regulations, 2021:

- 1 Continue to operate mini-grid without connecting to the main grid with no compensation
- 2 Become a Small Power Producer
- 3 Become a Small Power Distributor
- 4 Transfer all its assets to the main grid operator for a financial compensation in accordance with a formula specified in the Regulations.



5.0 BIDDING PROCEDURE

5.1 Tender Documents and Procedure

Tender documents shall be prepared by relevant party as guided under section 3 and 4 above, following the nature of the project in accordance with the Procurement Laws of Lesotho or relevant funding DFI's guidelines.

5.2 Tender Evaluation Committee

The tender evaluation committee shall be formed by representatives from DoE, LEC, LEGCO, LHDA, LNDC Ministry of Finance and Planning, and Trade and the Government procurement procedures shall be followed.

5.3 Management of the Procurement Process

DoE will host the secretariat for the management of IPP and PMD within the proposed Energy Infrastructure Facilitation Unit of the DoE, and it shall do so in collaboration with the key stakeholders being LEC, LEGCO, LHDA, LNDC Ministry of Finance and Planning, and Trade as having representatives in the oversight Board of the Unit.

5.4 Complaints Relating to Procurement

Complaints against unfair treatment by would be investors in the procurement process for IPP and PMD shall be lodged with the Public Procurement Authority who shall deal with Complaint in terms of relevant National Procurement Laws.

Where it is a DFI funded project, in terms of its guidelines.

For Other Relevant Documents, visit www.doe.gov.ls

- Information on identified Projects including the proposed operational areas.
- Tender Documents
- Model PPAs per technology
- Model Connection and Transmission Service Agreement
- Licensing Agreements (Implementation Agreement, Direct Agreement, Connection Agreement)
- Mini-grid Power Generation, Distribution, and Supply Regulations, 2021
- Tariff Principles Procurement Processes
- Renewable Resources Maps



