OVERVIEW OF THE ENERGY SECTOR IN ZAMBIA: CASE OF RENEWABLE ENERGY

Presentation to the Promoters of Renewable Energy Technologies

Energy Regulation Board

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1- BACKGROUND

Zambia’s Potential for Renewable Energy

- Total installed hydro powered electricity generation currently stands at 2,398 MW against total undeveloped hydro potential of 6,000 MW;
- National peak demand outstripping available supply – growth mainly driven by mining and ALL other customer categories;
- Current capacity shortfall from hydro resulting in acute load-shedding – 8hrs/day/Household
- Country rich in renewable energy resources, such as Geothermal, Biomass, Solar and Mini-hydros;
- Urgent need for diversification.
Draft REFIT Policy - Zambia:

a) Policy developed with assistance from United States Agency for International Development through the USAID Southern Africa Trade Hub (SATH) that provided both Technical and financial support.

b) Government via Department of Energy (DoE) developed Renewable Energy Feed in Tariff (REFIT) Policy to stimulate Renewable Energy production and to promote private sector participation in energy sector;

c) Draft REFIT policy was finalised in April 2015.

General Objectives

a) Harness Zambia’s renewable energy potential to drive economic growth and reduce poverty;

b) Provide a dedicated Policy framework for expanded renewable energy uptake through private sector participation

c) Introduce an appropriate and sustainable renewable energy feed-in-tariff system to attract private sector participation and investment.

d) In the medium to long-term aim to contribute to the creation of a diversified energy mix and increase energy security in Zambia
Phased Implementation

**Phase 1**

a) Available for 3-years from formal announcement;
b) Focus on low-cost options;
c) Maximum total allocation of 200 MW divided into:
   i. 100MW for hydro power (maximum project size of 20MW)
   ii. 100MW for non-hydro power (maximum project size of 20MW)
   iii. In addition a maximum of 10MW of micro generation

**Phase 2** details to be announced before the end of Phase 1
The draft REFiT Policy - to initially develop small-scale renewable energy projects totaling 200 MW.

Small scale renewable energy projects eligible for REFIT include: Solar PV, Hydropower and Biomass.

Project size limit: Individual projects of up to 20MW;

REFiT to be differentiated by renewable energy technology and by project size,

Standardize process and documents for development of projects eligible under REFiT program.

REFiT developed to attract private sector investment in renewable energy projects
a) The Ministry of Energy and Water Development:

- Responsible for energy policy formulation and implementation.

b) The Energy Regulation Board (ERB) as sector regulator:

- Licensing of operators/utilities.
- Tariff setting-ensuring reasonable return on investment for operators/utilities.
- Performance monitoring.

c) ZESCO Limited vertically integrated stated owned Utility

- Being the off taker as provided by the REFIT Policy.
Role of ERB in accommodating Renewable Energy:

- Development of **REFiT Guidelines; Standards; Rules and Regulations**;
- Determination of **Indicative tariffs** for RE technologies (Solar, hydro and Biomass) under REFiT program;
- Development of **Standard License** for the REFiT program;
- Development of the **standardized Power Purchase Agreement**; and
- Development of **Connection Guidelines and Agreements**
A detailed discounted cash flow model has been developed to estimate cost-based tariffs (high enough to cover the generation cost, including a sufficient rate of return and supplements for risks).

Data and assumptions made in the analysis gathered from multiple sources in Zambia and stakeholders including project developers, equipment suppliers, financial institutions, reliable published data, and experience from international and African renewable energy projects. Tax and accounting information for Zambia.
REFiT rules and regulations have been developed with the Support from the United States Agency for International Development together with USAID Southern Africa Trade Hub (SATH) based on a review of existing and applicable Laws, Acts, and Policies in Zambia and International best practices.

Draft REFiT generation license has been developed consistent with ZESCO and ERB rules and regulations.

Draft REFiT PPA has been developed in consistent with existing ZESCO PPA’s and in consultation with relevant stakeholders.

All documents and approaches have been developed consistent with international and regional best practice.
8-ESTIMATED RENEWABLE ENERGY TARIFFS FOR SOLAR

- Indicative proposed Cost-reflective REFiT for Solar PV Projects applicable for Phase 1 (3 years) of the REFiT program;

<table>
<thead>
<tr>
<th>Solar PV Plant Size Range</th>
<th>Tariff (U.S. ¢/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 kW to 1 MW</td>
<td>17.82</td>
</tr>
<tr>
<td>1+ MW to 5 MW</td>
<td>16.76</td>
</tr>
<tr>
<td>5+ MW to 10 MW</td>
<td>15.74</td>
</tr>
<tr>
<td>10+ MW to 20 MW</td>
<td>14.25</td>
</tr>
</tbody>
</table>

- REFiT is proposed as a price cap, with price discovery below the cap through competitive bidding subject to procurement mechanism legislation.
9- WAY FORWARD

- Development of a Standardized Connection Agreement.
- Development of a Standardized Implementation Agreement.
- Development of a Structured and Transparent Procurement mechanism.
- Alignment of REFiT program to other ongoing initiatives such as the GET FiT program.
- Align REFiT to Grid Code rules
- Alignment to other pieces of legislation as necessary to support and facilitate the implementation of the REFIT program (including enhanced Energy Regulation Bill, Electricity Act.)
10. CONCLUSION

With the REFIT regulatory framework and secondary mechanisms on the way forward developed, the REFIT program is envisaged to be implemented by the first quarter of 2016.

END
THANK YOU FOR YOUR ATTENTION

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