DEVELOPMENT OF AN ELECTRICITY STRATEGY AND RENEWABLE ENERGY LAW

FINAL REPORT
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AF-MERCADOS EMI

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MI 1312
1. BACKGROUND

The energy sector in The Gambia is currently not sustainable. Electricity supply is insufficient to meet demand, leading to unreliability of supply, and many areas of the country have no access to electricity at all. Electricity tariffs are also high, and the dependency on oil for almost all generation means that The Gambia is very vulnerable to increases in the oil price. The country needs greater access to reliable and affordable energy.

In 2012, at the request of the Ministry of Energy, EUEI PDF commissioned AF-Mercados Energy Markets International to support the development of:

- An Electricity Strategy including an investment plan and action plan;
- Feed-in tariffs and power purchase agreements (PPAs); and

2. PROJECT OBJECTIVES

The objective of the study was to support the Government of the Gambia in the development of an Electricity Strategy and the strengthening of the legal and regulatory framework for renewable energy. The strategy and law are intended to attract private sector investment in electricity generation from renewable energy sources. This will help create an enabling environment for the replication of the demonstration projects that will be funded under the GEF/UNIDO project “Promoting Renewable Energy Based Mini Grids for Productive Uses in Rural Areas in the Gambia”.

3. MAIN ACTIVITIES

The project began with stakeholder meetings and visits to the two largest isolated provincial systems in The Gambia, as well as gathering relevant information from earlier studies.

3.1. Electricity Strategy

The first stage in the development of the strategy was investigating scenarios for future power generation and transmission development. These scenarios formed the basis of a proposed investment plan for the Gambia’s electricity sector for the next 20 years.

The investment plan indicates that investment of over $2 billion is required in the power sector to deliver the objectives of access to electricity to all. This is beyond the ability of the existing electricity sector to deliver, and too high to be delivered by the public sector acting alone. It will require significant steps to develop the electricity sector and give both private sector investors and international financial institutions the confidence to invest.

The scenarios analysis demonstrated that regional integration of the power network is very important for the Gambia to be able to deliver reliable and affordable access to electricity.

Therefore the action plan sets out the actions the Gambia needs to take to ensure it has an attractive environment for private sector investment and meets the established policy objectives. This also sets out priorities for investments funded by other development partners. The action plan is summarised in the following table, and more detail is provided in the strategy report. Actions in red should be considered as most urgent and requiring most immediate attention.

The strategy, investment plan and action plan were validated during a workshop and stakeholder meetings.
One of the objectives established by the Ministry of Energy was that investment in renewable electricity should be delivered at no extra cost to consumers. Therefore, the tariff was designed based on the avoided cost of conventional alternative fuel (the alternative for system expansion in Gambia). To allow flexibility, a competitive and transparent system was designed so that donor funding can be used to both reduce the cost to consumers and allow renewable energy projects to benefit from grant funding.

Other key features of the feed in tariff (FIT) are as follows:

- The incentive will be for a period of 15 years from plant commissioning. After such period, power plants may sell the electricity through bilateral contracts with the utility, NAWEC, at freely negotiated rates.
- The following technologies are eligible to receive FIT: solar photovoltaic, wind biomass (limited to 1 MW total capacity until a biomass strategy is approved) and biogas.
- Facilities greater than 1.5 MW (or such level to be set by the regulator, PURA) are not eligible for support under the FIT scheme and should negotiate a traditional PPA with the off-takers due to the risk for their power plant to have a detrimental impact on system security, and therefore a need for a more thorough assessment.
- Facilities lower than 100kW (or such level to be set by PURA) are eligible for support under the FIT scheme, though its payment will be based on longer billing periods or net metering to reduce the administrative burden.
- Completely off-grid facilities are not eligible for support under the FIT scheme, although systems connected to smaller grids operated by NAWEC will be eligible.
- Existing facilities constructed prior to the commencement of this scheme are not eligible for support under the FIT scheme. They should continue with the arrangements that have already been agreed.

1 More biomass may be included once a strategy for its use is validated.
PURA shall recommend adjusted FITs for new facilities, which will be approved by the Minister. Existing facilities will have their payments adjusted only based on indexation established in the FIT Rules, and fixed for a given PPA.

FIT values will be set in GMD and will be adjusted annually for existing plants employing a simple benchmarking indexation formula linked to local inflation (for a deemed local component) and foreign exchange rate (Euro, for a deemed international component). In the near term, precedent suggests that the split between local and international components could be 50/50 although this can be later modified by PURA.

PURA will publish tariffs every 3 years for the next three years to give certainty to project developers, and thereafter only adjusted annually based on indexation. In the event that there is no adjustment, existing tariffs will remain in force. The new tariff will apply for new projects only. Make clear that this is for new plants only, the tariff for existing plants (which have a FIT set already) will remain the same except for adjustment to inflation and changes in the forex rate.

Since NAWEC is responsible for both retail supply and generation purchasing in the Gambia, the burden can be shared among the electricity consumers during normal retail tariff review process. The design of the tariff is such that the net effect should be minimal (the FIT is based on the avoided cost of traditional oil-fired generation). This process will be overseen by PURA as at present.

PURA will be in charge of determining the feed in tariff for each renewable energy technology. Additionally, we recommend regular reporting by PURA to monitor progress towards targets and determine if any revisions to the FIT are necessary.

The design of the feed in tariff rules and associated power purchase agreement was validated during a workshop and stakeholder meetings.

3.3. **Renewable Energy Law**

The draft renewable energy bill sets out the legal framework for renewable energy. As well as the enabling provisions for the feed in tariff, it also includes other areas of importance to the renewable energy sector. These include fiscal incentives, priority access to the network, and ensuring the quality of installations, particularly in the domestic sector.

The draft law is structured as follows:

- Short title;
- Definitions;
- Targets;
- Use of other funding
- Support for eligible on grid renewable electricity (feed in tariff);
- Support for other on grid renewable electricity not qualifying for the feed in tariff;
- Support for off grid renewable electricity;
- General fiscal incentives;
- Biomass strategy;
- Streamlined permitting;
- Capacity building;
- Quality of installation;
- Reporting;
- Miscellaneous; and
- Objects and reasons.

Renewable energy offers advantages to The Gambia in diversifying the energy mix and reducing reliance on imported fossil fuels, and it should play its role as part of the regional targets under ECOWAS to increase the share of renewable energy in the overall electricity mix, including large hydro, to 35% by 2020 and 48% by 2030, and to increase the share of renewable energy in the overall electricity mix, excluding large hydro to 10% by 2020 and 19% by 2030. However, the Gambia is in a constrained position at present. It has a small and unstable grid, which limits the amount of variable renewable energy that can be practically incorporated. Until regional interconnections are introduced, we recommend that the Gambia adopts a target of 5% renewable electricity in the electricity mix by 2020. However, the Government should prioritise regional interconnection and associated power development projects, particularly regional hydro opportunities, which offer economic and renewable benefits. Once regional interconnection is introduced, the Gambia should revisit its renewable targets.

The draft bill was validated during a workshop and stakeholder meetings.
## 4. LIST OF PROJECT DOCUMENTS

The following list gives the file names of the final reports in each section. Each report also includes a summary of the outputs of validation workshops and incorporates all comments.

Table 2: List of project documents

<table>
<thead>
<tr>
<th>Document name</th>
<th>File name</th>
<th>Issue number</th>
<th>Date of final issue</th>
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<tr>
<td>Power point presentations used at kick off meeting</td>
<td>• Presentation for Kick Off in Frankfurt v1-0 2012-02-17</td>
<td>1</td>
<td>17 February 2012</td>
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<td>• Presentation for Kick Off in Gambia v1-0 2012-03-11</td>
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<td>Inception report</td>
<td>• 1312 Gambia - Inception Report - v3-0 - 2012-06-07</td>
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<td>Energy scenarios</td>
<td>• 1312 Gambia - Electricity Strategy v3-0 2012-12-18</td>
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<td>18 December 2012</td>
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<td>(Final version incorporated in full strategy report.)</td>
<td>Draft Electricity Strategy including action/investment plan</td>
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<td>• 1312 Gambia - Electricity Strategy v3-0 2012-12-18 (as above)</td>
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<td>• Presentation on strategy v2-0 2012-12-06</td>
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<td>Tariff model, proposed tariffs and standard PPAs</td>
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<td>• MI 1312 Gambia - RE Law commentary v2-0 2012-12-18</td>
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<td>Summary of project and project outputs for publishing purposes</td>
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5. LESSONS LEARNT

The stakeholders in the Gambia, including the Ministry of Energy, NAWEC and PURA, have been very supportive throughout the project.

Aside from what is captured elsewhere, some interesting lessons learnt were:

- Information on the sector is dispersed among different bodies and can sometimes be difficult to obtain. Some data is only available in hard copy. It took longer than we hoped to obtain many of the reference documents we needed, although all were available in the end. An effort should be made to organise documents and data in digital format.
- Stakeholders are very eager to participate in discussions, and extra time should be set aside for this in future technical assistance.
- The new M’Bolo conference centre that is currently being built might provide an interesting venue for workshops and training sessions in future studies. It is powered by renewable electricity and has displays about the solar and wind projects.

6. RECOMMENDATIONS FOR FOLLOW-UP ACTIVITIES

The action plan prepared as part of the electricity strategy includes a number of technical support activities that could help the power and renewable energy sectors of the Gambia. We consider that EUEI PDF can review this action plan and identify any areas that it could support.

In particular, we feel the following activities are most urgent for the Gambia power sector:

- Power Sector Investment Plan for the proposed generation, transmission and distribution development (including a detailed project evaluation of the most urgent ones identified);
- Procurement strategy to ensure value for money from the new investment;
- Loss identification and management plan to improve efficiency of the sector and reduce costs to consumers; and
- Improvements to NAWEC cost reporting, including separation (at least in accounting terms) of NAWEC’s electricity and water functions, potentially leading to full separation in the future.

We also recommend following up with the Ministry to check progress of the enactment of the Bill and the adoption of the strategy, to ensure the work is actually adopted.