



# Energy Sector Work Plan

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## **Supporting the Policy Environment for Economic Development (SPEED+)**

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COR: Amanda Fong

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## WORKSTREAM 1: ON-GRID IPP LAW, REGULATORY, AND TRANSACTION SUPPORT

Generation is widely recognized as a service that can be provided competitively by independent producers. Any strategy to improve the depth of supply and reach of the centrally managed grid must include independently produced power supplying to the grid. In order for independent grid-connected generation to attract overseas capital and flourish, the legal rights of private producers must be clear and consistent with international practices in the power sector. The procurement practices must be authorized by law, easy to understand, and transparent. And EdM must understand and embrace any IPP program. For EdM's acceptance, the price of IPP generation must be competitive with the price of new generation that is owned and operated by EdM. We know that if the right policy framework is put in place and if sources of financing can be arranged, IPPs will deliver power more cheaply than EdM, which will free up EdM resources for expansion and management of the transmission system.

The legal framework for IPPs is currently fraught with uncertainty. There are three principal areas to which we will provide support so as to establish precedent for successful transactions and clarify and secure the rules for private generators so as to attract more investment in independent grid-connected generation.

### 1.1. Implement REFIT

First, we will provide legal and commercial support targeted at implementing the REFIT. USAID has already supported the drafting and passage of a law designed to facilitate standardized procurement practices for grid-connected renewable generation - the renewable energy feed in tariff, or REFIT. The enabling legislation for REFIT was enacted by decree in October of 2014. USAID supported the development of implementing regulations, but such regulations have not passed. We learned during the course of our interviews that one of the primary reasons the implementing guidelines did not pass was due to lack of support from EdM, and its lack of support was due to its perception that the fixed price for renewable resource generation was too high. The REFIT law differs from the typical feed-in-tariff in that parties must submit competitive bids on sites (all of which will be provided by the government) where more than one developer is interested. We anticipate that because the government will be providing and controlling sites for projects, the competitive pricing option (as opposed to the fixed pricing option) may become the primary determinant for pricing and if so, the determination of the fixed price will become of lesser or moot significance. We will review and revise as needed the draft implementing guidelines and prepare the core project documents (e.g., the power purchase agreement and the site lease or license) that will be a core part of the program's implementation. We will primarily interface with MIREME for this work, but we will also work closely with EdM because EdM will be the power purchaser and interconnection gatekeeper.

### 1.2 Transaction and legal support for pilot IPPs

Second, we will provide ad hoc transactional support to projects under development. There are several independent projects currently under development by private developers that will secure a concession from MIREME and sell power under a power purchase agreement to EdM. These projects are not part of any general IPP procurement program. One of these projects is the Inhambane wind farm, a 30-megawatt wind project currently under development by a Portuguese consortium Tecnera and with interest from an American developer Eventure. USAID has provided transaction support to this deal for approximately five years, including drafting of the original competition as the first competitive tender conducted by MIREME as well as the first wind

farm in the country. We will support MIREME, and EdM when appropriate, to facilitate negotiations to bring selected projects to financial close. The purpose of this support is to generate some quick wins to show that deals can be done in Mozambique, to build experience within MIREME and EdM, and to identify legal, procedural, or institutional barriers that should be addressed in the REFIT program and in the procurement regime for conventional and large-scale renewable IPPs. This may include support to MIREME's legal department.

### 1.3 Support clarification of legal framework for on-grid IPPs

Third, we will provide legal and commercial support to clarify the legal framework for on-grid IPPs that are not covered by the REFIT. The REFIT is intended to cover renewable energy sourced generation less than ten megawatts in size and less than ten kilometers from the grid. There are larger renewable projects, conventional projects and cogeneration projects for which the clarification of legal rights and procurement practices is needed in order to attract developers and lower cost capital into the sector. Presently there is not adequate certainty in the right of independent generators to sell power to EdM, to corporate purchasers, or to retail customers. Nor is there certainly in the applicability of the PPP law for the tender of IPP projects. Such matters must be legally clarified to attract private enterprise and low cost capital. We anticipate that many of the issues to be addressed in this category of work will have overlap with the REFIT and experience in each area will benefit the other. The first task in this area of work is to reach consensus among the various government stakeholders on the objectives of reform and the principles that will guide reform. Next will be to identify where there exist inconsistencies or inadequacies in the current legal framework and recommend fixes. For example, we will identify how the PPP law may conflict with the Electricity law and recommend a method of reconciliation. Next, we will, together with our government stakeholders, prepare new legislation that will implement such recommendations. And last, we will provide support to the applicable authority, which may be EdM or MIREME, to establish a predictable competitive procurement process for IPPs.

## WORKSTREAM 2: OFF-GRID IPP LAW AND REGULATORY ENVIRONMENT

Approximately 70% of Mozambique's population of 27 million people have no access to electrical power. The Government of Mozambique and the Power Africa program aim to have 100% of these 19 million people connected by 2030; other organizations, including the African Development Bank are aiming to achieve universal access by 2025. The cost per rural customer of connecting to the grid is significantly more than the cost of connecting urban customers. The social tariff and universal national tariff that EdM must use for even the most remote rural customers means that EdM loses money with each additional rural connection. EdM does not have the financial resources to connect all of these people to the centrally managed grid and given its current financial circumstances cannot afford to take on new customers at a loss. The needs of significant portion of the currently unelectrified can be met more economically and more expediently with off-grid solutions. Off-grid solutions include solar home systems that are designed to serve just one household and minigrid systems that serve communities. The law and policy framework necessary to encourage private enterprise to invest in the off-grid sector is yet to be formulated; and over the next four years, we will build such framework through the following activities.

## 2.1 Mini-grid mapping and pilot activity and consensus on an off-grid strategy

First, in order for law and policy to be effectively implemented, there needs to be general agreement among the various government and donor agencies on the vision and strategy for off-grid investment to meaningfully provide new electrical connections.

We believe it is essential to create space for independent private enterprise to conduct business in this space. We think that EdM should be a facilitator, but not an owner, operator, or gatekeeper in any licensing process for off-grid businesses. We think that FUNAE should be a facilitator, but not an owner or operator in the off-grid space. Our discussions revealed that the leadership at EdM and FUNAE share or are receptive to these views; however, there is no overall consensus yet. Stakeholder buy-in on the details on how the off-grid space will be opened to participation from the independent private sector is still needed. Unlike in the grid-connected IPP space, there does not exist a generally accepted “textbook model” for off-grid enablement and mobilization. Among countries that have made a conscious effort to enable more investment in off-grid, there is variance on the degree of regulation, investor protection, and involvement from the state-owned utility. The learnings from experience from the past ten years of experimentation have been documented by the World Bank, NGOs and private foundations. Moreover, several countries in the region, including Kenya, Uganda, Rwanda, and Tanzania have passed laws or regulations intended to promote growth in the off-grid sector and have a few years of subsequent experience which will allow our partners in Mozambique to more confidently craft law and policy solutions. Such prior experience will inform the formulation of strategy most appropriate for Mozambique. The National Electrification Strategy (“NES”), which is being financed and managed by the World Bank with EDM as its main client, is expected to be completed as early as May this year and will include an off-grid strategy as well as an on-grid strategy. This will form the basis of further work on any additional strategy documents.

We will work with DFID and MIREME to facilitate Power Africa or USAID Mozambique to sign DFID’s Energy Africa Compact for Mozambique. This will include facilitation services and negotiating what services we will provide in this area.

We will work with MIREME, EDM, FUNAE, ALER, and AMER to conduct a mapping exercise for potential sites for new mini-grids and design a mini-grid pilot activity. Much of this work has already been undertaken by another partner, so we can work together with them to add value in this space by working with stakeholders to design and implement a pilot activity.

## 2.2 Drafting of off-grid IPP enabling legislation

We will identify legal barriers for private sector participation in off-grid energy services and begin considering legislative solutions. This will include looking at regulations necessary to support the development of household solar market in support of the Energy Africa Compact.

## 2.3 Review of VAT and import duties for renewable energy equipment

Third, we will assess value added taxes and import duties that affect the end price of renewable energy equipment, solar home systems, and other equipment needed for installation of microgrids, such as battery storage. We believe that the existence of such taxes and duties is fundamentally counterproductive and harmful for the development of a thriving off-grid sector. We will try to earn the support of this view from our primary counterparts FUNAE, MIREME, and EdM, and support them with whatever analysis is needed to achieve a prompt and long-term exemption of all such taxes and duties.

## WORKSTREAM 3: SUPPORT FOR INDEPENDENT REGULATOR

The electric power industry features high capital costs, long lived assets, and network efficiencies, features that can support the emergence of companies with excessive market power. Electrical power is a service that is widely viewed to be critical to economic and social development and therefore is a public good, and has an impact on the environment, which is another public good. Governmental regulation of the electrical power industry is needed to protect customers of power companies from abuse of power that can result from the lack of competition that derives from a monopoly franchise or market power; and government regulation is needed to ensure for the provision and protection of public goods. Government regulation is also needed to protect against economic inefficiencies (too much money spent on duplicative facilities) that can result from excessive competition among companies in the sector and to lower the risk to private developers that changes in public opinion or political leadership will devalue investments made under prior governments.

Today the provision of electrical power service in Mozambique is dominated by the state-owned vertically integrated monopoly utility, Electricidade de Moçambique (“EdM”). The country’s single most important power generating asset, the Cahora Bassa hydroelectric dam, is owned by a 92.5% state-owned corporation, Hidroeléctrica de Cahora Bassa, “HCB”, which sells most of its production to foreign buyers and 300 MW to EdM. The Ministry of Mineral Resources and Energy (MIREME), which is primarily responsible for recommending new legislation to the government, dominates the making of law and policy, but EdM, HCB, CNELEC, and FUNAE also have influence.

We did not investigate the extent to which the judiciary plays a role in regulating the power sector, but we assume that it has a very minor, and probably insignificant role. There presently does not exist a strong independent agency that interprets general provisions of electricity law through regulation and administration that fairly balances the interests of consumers, companies doing business in the sector, and the policy goals of the government. We did not investigate how disagreements on application of law are resolved, but we assume that it is through an informal process that depends on relative institutional powers and on personal and political influence. Such a process is inherently non-transparent and favors insiders, which is a strong deterrent for private enterprise financed with external capital to enter the market.

National Electricity Council (“CNELEC”) was created in 1997 to perform certain functions of a regulator, but only in a non-binding advisory capacity. We understand that it was originally anticipated that CNELEC would over time gain institutional capacity and prestige and ultimately become an independent regulator with the authority to make binding determinations. However, CNELEC was never given the authority (it was merely an advisory body) or the budgetary resources it needed to gain strength. It may be more difficult and is perhaps less important for there to be a strong independent regulator when all of the principal actors in the sector are controlled by the state. However, it is agreed among the many stakeholders and donor agencies that more private participation in the power sector is needed in order to increase investment, foster economic development, and achieve goals of universal access by 2030. While it is not possible to create one overnight, a strong independent regulator and (partially) insulated from political change will be a very important feature of an enabling environment that supports private enterprise and private capital flows into the Mozambican power sector. A properly empowered independent regulator would also be an important ally of EdM as it struggles gain acceptance of tariffs that are reflective of actual costs, which will contribute to a financially stronger EdM that would be more capable of entering into power purchase agreements with independent power producers that will support commercial financing.

### 3.1 Review of ARENE draft law and implementing regulations

A draft law that would extinguish CNELEC and create a new independent regulatory authority with authorization to make binding determinations (Energy Regulatory Authority, “ARENE”) has been submitted and approved by the Council of Ministers and is currently expected to be introduced to the Parliament. We have reviewed the proposed law and found it to be deficient in certain material respects. We recommend that the SPEED+ team intervene before the law is submitted to Parliament and propose changes to the enabling law. If we are successful with this intervention, we will dedicate resources to advise on revisions to the law and to explain through workshops and policy papers the merits of such revisions to local stakeholders prior to re-introduction to the Council of Ministers. The ultimate deliverable of this stream of work is a revised ARENE enabling statute that would be approved by the Council of Ministers and submitted to Parliament.

### 3.2 Define capacity needs for ARENE

Once the ARENE enabling law is passed, we will assess the needs of the new regulatory agency and identify which of those needs we are in a position to most meaningfully support. A large capacity building program is not envisioned, however smaller pieces of capacity building may make sense.

## OTHER POTENTIAL ARENE SUPPORT ACTIVITIES

### 3.3 Design of an informative website for ARENE

All power sector programs that involve participation from private businesses, including on-grid IPP and off-grid IPP programs that the SPEED+ team will be supporting, will benefit from increased disclosure of policies, laws, and licensing procedures. Lower prices will result from increased private participation; and publicity and transparency will attract more private participation. We believe that an ARENE website, publicizing programs and outlining the steps required to participate will be a critical driver for the success of other programs that SPEED+ is supporting. After ARENE is established, we will discuss with ARENE its plan for public disclosure on the internet, and we may determine that is appropriate to dedicate resources in support of development and implementation of such plans.

## WORKSTREAM 4: STRENGTHENING EDM

Electricidade de Moçambique (“EdM”) is a state-owned corporation and the principal supplier of electrical power to households, businesses, and industry in Mozambique. It owns some but not all power generation (another state controlled company, HCB, owns the Cahora Bassa hydroelectric facility); it manages the transmission and distribution network; and it is in control of the customer relationship of grid connected customers (with a few industrial customer exceptions). As is often the case in emerging markets, the state-owned monopoly power company has great influence but suffers great challenges: it is burdened with the incompatible expectations of operating at a profit on the one hand and providing universal service at below cost, politically determined tariffs on the other.

It is agreed among the many stakeholders and donor agencies that more private participation in the power sector is needed in order to increase investment, foster economic development, and achieve universal access goals by 2030. One of the easiest ways to bring private sector participation in the power sector is through independent power producers (“IPPs”). Grid connected IPPs will sell power under long term power purchase agreements (“PPAs”) to EdM. If

EdM is insolvent, IPPs will not be able to raise financing backed by PPAs without government guarantees. For the short to mid-term, the government of Mozambique will be unable to issue financial guaranties. For this reason and many others, it is important to strengthen the finances of EdM. Through the USAID-funded Sector Reform and Utility Commercialization (SRUC) program, assistance is already being provided to EdM to reduce commercial losses. SPEED+ will not dedicate any resources to support commercial loss reductions at this time, but might if the need arises in the future.

#### 4.1 Explore options for energy efficiency activities

Programs that increase the energy efficiency of power demand have the effect of making available for new customers (or the same customers adding new load) power not consumed due to higher efficiency. “Megawatts” produced by efficiency are just as useful as new megawatts, but they have the additional benefit of not producing any environmental harm that some other sources of generation have. Energy efficiency should be addressed at the regulatory level and at the utility. The opportunity study completed for USAID by ICF International found that the most cost effective and most likely to succeed opportunities are in residential lighting, commercial lighting, and industrial HVAC. We will work with EdM to identify options for EdM to exploit such opportunities and make recommendations as to which options are best suited for them to undertake. EdM has recently established a new energy efficiency division and this division will be our primary interface. We will host a workshop with members of EdM’s energy efficiency division, finance division, and possibly higher leadership to discuss options and the financial implication of those options in consideration of the existing EdM tariff. Based on the findings of the workshop, we will prepare a report that will explain the benefits and economic consequences of favored options, and indicate whether a modification to the tariff would be necessary in order for EdM to adopt certain options.

#### 4.2 Support the establishment of a clear and transparent interconnection process to encourage new investments

The REFIT and the non-REFIT IPP workstreams will prepare form documents and procurement procedures for engagement with private generators who will sell power directly to EdM. Two related and important parts of any IPP program are a transparent and predictable process for grid interconnection and a technical specification that defines the parameters a facility connected to a public electric network must meet to ensure safe, secure and economic proper functioning of the electric system.

##### 4.2.1 Interconnection Process

EdM must create a process for new generators to connect and this process should be reviewed and approved by CNELEC or ARENE after giving independent generators the opportunity to express their views. We will provide technical, commercial and legal support to EdM for the production of this document, and consult with CNELEC or ARENE to address any concerns they may have during the review process.

##### 4.2.2 Grid Code

IPPs must comply with the grid code in order to perform under their PPAs and engineering, procurement, and construction (EPC) contractors must supply grid code-compliant projects to IPPs. Lack of clarity as to whether a formal grid code exists and what it is increases uncertainty and increases the cost and duration of the project development cycle. We will provide support to EdM in their effort to finalize and publish the grid code and to install a transparent deliberative process (approved by CNELEC or ARENE) to revise the code when needed.

### 4.3 Reduction of costs for customers connections

EdM is the manager of the customer relationship for all grid-connections and responsible for processing applications for new connections, setting fees for new connections (likely in consultation with MIREME), and making new connections upon customer request. In a recent World Bank-funded “Doing Business” report, Mozambique ranked very low in terms of ease for businesses to obtain new electrical connections. In response to this low ranking, last year MIREME, EDM, and USAID collaborated to address the electricity connection issue, determine steps of streamlining the connection process especially for the commercial sector, and recommend a new time and cost-effective connection approach for Ministerial approval. Thereafter the SPEED team proposed a simplified and practical connection procedure and these proposed measures were discussed and agreed upon with all relevant stakeholders including MIREME and EDM. This procedure was approved by the Council of Ministers on April 12, 2016. The next step for EDM is to implement the new procedures. The SPEED+ team should check on the progress of implementation and determine if there are any barriers to implementation that the SPEED+ team could help remove. If identified, we may determine that is appropriate to dedicate resources to this activity.

Relatedly, we understand that there are opportunities to shorten and streamline the procedure for establishing new household connections. If the burden on households (waiting time, bureaucratic red-tape, and engineering) can be partially relieved, more electrical connections should result. While supporting the implementation of simplified procedures for corporate connections, SPEED+ should discuss with EdM to determine if support in streamlining household connections would be welcomed; and if so, we may determine that is appropriate to dedicate resources to this activity.