

## **Comments on Mozambique's new regulation for off-grid energy**

### **Introduction**

Off-grid energy systems are increasingly recognized by international agencies such as the International Renewable Energy Agency (IRENA) as advancing the Sustainable Development Goal 7.<sup>1</sup> At the same time, off-grid systems provide workable alternatives for a sustainable energy transition in sub-Saharan Africa, which, as a whole, is lagging in the transition towards renewable energy.

In recent years, there is growing evidence of mini-grids and micro and pico systems' potential<sup>2</sup> to provide essential services and support local businesses in areas lacking access to larger grids. The smooth development of these systems depends on having appropriate policies and regulations that facilitate the swift adoption of these systems without adding bureaucratic constraints.

In this context, the new regulation to facilitate off-grid access to energy in Mozambique is very welcome.<sup>3</sup> A particularly welcome aspect of the regulation is that the approval of installations up to 1MW will fall within the remit of provincial authorities,<sup>4</sup> which may facilitate the process of approval.

The regulation text is currently open for consultation, and a debate is scheduled for the 12 of April (online). This briefing provides some additional comments that emerge from community energy experience in the international project CESET.

### **Extend the scope of the regulation to urban areas**

The first observation is that the regulation could develop some flexibility in understanding the potential of off-grid energy in different geographies. The new regulation defines its scope in Article 2.<sup>5</sup> Following previous policies, the regulation emphasizes that off-grid energy is relevant to rural areas.<sup>6</sup> The rationale is that the national grid<sup>7</sup> covers urban areas, leaving the rural areas for off-grid development. However, this geographical division is a gross simplification of the geographical distribution of on-grid and off-grid systems. In practice, mini-grids may also operate in urban areas. Moreover, the development of mini-grids in urban areas may accelerate the transition to renewables and facilitate universal access to electricity by 2030.

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<sup>1</sup> SDG7: Ensure access to affordable, reliable, sustainable and modern energy for all

<sup>2</sup> Definitions vary, but we can consider that micro- and pico-grids are systems with capacity under 10 mWs.

<sup>3</sup> The current title is: Ante-projecto de regulamento do acesso á energia for a da rede.

<sup>4</sup> Artigo 5 (Competências).

<sup>5</sup> Artigo 2 (Âmbito).

<sup>6</sup> "com especial foco nas zonas rurais e actividades de energia para fins sociais, tal como nas comunidades remotas" (Artigo 2).

<sup>7</sup> Rede Eléctrica Nacional, REN.

The following considerations support a more flexible approach to understanding the localization of off-grid systems.

- Urban areas constitute growth markets for mini-grids, and their installation in urban areas may facilitate the development of this technology.
- Urban areas constitute places for innovation, and the development of mini-grids in urban areas may facilitate their diffusion.
- Mini-grids in urban areas may support developing a supply chain related to the mini-grid and fostering local micro-industries, generating economic growth.
- Mini-grids are particularly interesting in urban areas where the conditions make it difficult to extend the grid immediately, such as low-density peri-urban areas.
- If mini-grids are compatible with the REN, they can constitute an intermediary step to develop the network, creating local, bottom-up networks that can later be integrated into the main network. Article 25,<sup>8</sup> which regulates the interconnection between different networks, may help to facilitate such integration.

The above is particularly important where communities themselves may lead the constitution of cooperatives to manage micro-grid systems, which could develop rapidly in an organic manner achieving scale with affordable systems for energy access.

### **A cadastre poses burdens but has no clear benefits**

A feature of the regulation is an energy cadastre (a cadastre of energy projects).<sup>9</sup> From a research point of view, this is an exciting initiative. However, from a regulatory point of view, it may not be necessary or practical. The regulation does not specify who needs to know this information and for what purposes, and hence, the utility of the cadastre is not demonstrated.

In contrast, there are real concerns about the extent to which the cadastre may establish additional barriers for off-grid projects without providing any benefit for their expansion. For example, human resources will have to be mobilized to support such a cadastre. However, at the moment, such human resources are limited, and they could be better used to provide guidance and support projects.

Moreover, the cadastre may constitute a bureaucratic obstacle to off-grid projects that could grow organically through local entrepreneurs' collaboration.

A simplified model of cadastre could be established to register projects incorporated into the national grid – where its management may depend on it. Still, an exhaustive cadastre like the one proposed is unnecessary.

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<sup>8</sup> This is Artigo 25 (Interligação de Mini-redes). Article 25 also refers to the interconnection of the mini-grids into the national grid. It provides a mechanism to coordinate not only the physical connection, but also the institutional one.

<sup>9</sup> Artigo 4 (Cadastro Energético)

### Well-managed off-grid systems do not need to demonstrate additional economic benefits

Demonstrating local benefits is a condition, for example, for the operation of multinationals that may extract Mozambique's resources. However, in the case of off-grid systems, especially micro-grids and smaller systems, they have an inherent socio-economic benefit providing electricity to local populations. They support people's energy needs in ways that cannot be quantified in monetary terms.

Article 8<sup>10</sup> makes this explicit by stating that any off-grid project has to provide direct socio-economic benefits. This requirement may be detrimental for tiny, organically growing installations, whose economic benefits may not be immediately apparent or quantifiable while their social benefits are obvious. While this regulation makes sense for independent power producers in charge of large projects, it works against small facilities that only provide energy to domestic consumers.

### Taylor bureaucratic hurdles to different types of projects

Articles 13 and 14 regulate the regime of permits. Any off-grid system needs to meet minimal conditions to ensure the safety and security of installations. Still, the requirements must be proportional to the project's size.

For example, financial models available applicable in Mozambique are neither precise nor accurate, and available knowledge of local energy demand is often missing. Moreover, the benefits of the mini-grid are not always quantifiable or cannot always be monetized. Entrepreneurs may develop mini-grids because of their social benefits rather than seeking a profit. Communities may form cooperatives or associations to manage electrical installations that do not directly result in a profit (but provide indirect benefits, for example, to local businesses and local manufacturers). As long as there is a local demand for the project, communities can find the resources to make it possible, and it is safe, there should not be further obstacles to the development of micro-grids.

Larger, for-profit projects will need to provide assurances of feasibility and impact assessments, but smaller projects will require a simplified track for approval.

### Tariffs must recognize the economic conditions of the development of off-grid systems

The regulation also provides guidance on the establishment of tariffs in Article 26.<sup>11</sup> In particular, the regulation proposes to align tariffs with the payment capacity of the communities.<sup>12</sup> If tariffs are too high, they may create additional inequalities in energy access, which may be challenging to address with alternative options in the long term.

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<sup>10</sup> Artigo 8 (Conteúdo local).

<sup>11</sup> Artigo 26 (Princípios Tarifários).

<sup>12</sup> "La Tarifa de Consumo sera fixada na base do principio da recuperacao global dos custos, considerando ser alinhada com a capacidade de pagamento dos consumidores."

Here, the regulation needs to understand the variety of off-grid systems and the extent to which they can diverge from a private-led business model. First, the producer and consumer may also refer to the same groups of people or institutions. For example, communities may create their own energy company or partner with municipalities to develop one. Or they can make a cooperative. Fostering these mechanisms of collaboration around energy may be highly beneficial to the development of off-grid energy systems. Second, in those systems, cooperatives may provide services at very competitive rates or via subscription with flexible or fractioned tariffs that adapt to their members' affordability needs.

### **Tax profits, not the development of off-grid systems**

Off-grid systems open opportunities for developing business operations. Simultaneously, off-grid systems provide multiple opportunities for community development that are not necessarily embedded in business models. Many successful off-grid systems run on a non-profit basis, where any profit is reinvested in repair and maintenance.

In this context, the tax regime (Article 36<sup>13</sup>) should carefully consider the taxation regime. Mini-grid projects developed with a social aim—providing a public benefit directly to some of the most disadvantaged communities—should be exempt from taxes. Taxes should be leveraged against substantial income and profits and not simply against the activities to deliver mini-grids. For example, where all profits are reinvested in the mini-grid, a tax exemption should apply.

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Written by: Vanesa Castán Broto

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<sup>13</sup> Artigo 36 (Taxas)