Rural Electrification in Vanuatu

NAMA Profile # 10 | *Seeking support for implementation* | *Jan 2016*

Vanuatu, which is included in the UN list of Least Developed Countries (LDCs), is an archipelago of 82 volcanic islands of which 17 are inhabited. Vanuatu's energy sector is influenced by two main factors: geographical circumstances; and the strong dependency on fuel importation. Due to the distribution of the population among 65 small islands, access to energy services is both costly and technologically challenging. In fact, only one third of households have access to electricity, with the majority located in the two main urban areas of Port Vila and Luganville and connected to the government-regulated grid. However, the rest of the households with access to electricity usually use diesel generators or solar, with some communities supplied by small micro-/mini- grid systems. Vanuatu has, at 17%, the same level of rural electrification as the LDCs of sub-Saharan Africa.

In order to remedy this situation, the government of Vanuatu, together with the World Bank, developed the Vanuatu National Energy Roadmap (NERM). The plan, approved in 2013 and launched in 2014, aims to address key constraints that have prevented the energy sector from delivering affordable modern energy access in an efficient and sustainable manner to the vast majority of the population, including by improving access to secure, reliable and affordable electricity. Given that Vanuatu considers development of the electricity sector a priority, investment in renewable energy is seen as critical to ensure access to electricity and contribute to mitigating climate change.

Renewable energy offers a great opportunity for Vanuatu to boost the electrification of least developed rural areas and, at the same time, increase the stability of energy services. The renewable energy NAMA, designed and prepared in collaboration with the UN Development Programme (UNDP), could be a catalyst for transformational change in the energy sector. The proposed renewable energy NAMA for Vanuatu focuses on rural electrification, and aims to: increase the total installed electricity generation capacity through a set of renewable energy projects; strengthen public-private partnerships; increase and improve access to electricity for the majority of the population; and fuel sustainable growth in the most rural and

NAMA objectives

The objectives of the NAMA, which are aligned with the recommended actions under the IRENA Renewable Readiness Assessment, are to provide off-grid electrification for households, public buildings and institutions, as well as businesses. The NAMA is intended to help the Government of Vanuatu achieve the targets described in the NERM, namely:

- A connection rate of 100% for households close to concession areas by grid extensions;
- 100% electrification for off-grid households through micro-grids and individual solutions (Solar Home Systems); and
- GHG emission reductions equal to 13,440 tCO2 over the full 15-year lifetime of the NAMA.

NAMA interventions

Thanks to a consultation process that included key stakeholders in Vanuatu, two interventions have been identified in order to pursue the NAMA's objectives.

- **Intervention 1**: Installation of micro-grids in off-grid areas with concentrated electricity demand (around communities/health centers/ schools). New micro-grids will be installed based on renewables with a focus on supplying electricity for lighting, cooling and appliancse for rural communities, tourism and agricultural facilities, health centers and schools. A back-up power supply is envisaged (powered by batteries (preferred) and/or diesel generators), and feed-in tariff systems will be elaborated, defining the micro-grid operator's pricing and take-off requirements.

- **Intervention 2**: Extension of grids to neighboring communities. The existing grids form the basis for grid extensions to households, public institutions and tourism/commercial consumers in the proximity of lines. The connection of new consumers will lead to emission reductions as electricity generated from the grid will be less carbon-intensive than energy sources traditionally relied on at the household level.

NAMA baseline scenario

The NAMA baselines are identified considering a current and expected business-as-usual (BAU) scenario. According to the NAMA's objectives, the baselines are defined for the three following components:

- **Rural electrification rate:** The BAU scenario where only marginal improvements in grid connections and rural electrification will be undertaken. Households will mostly continue to use petroleum for lighting and will have no opportunity to supply their basic needs for electricity (radio, charging of mobile phones, etc.). No micro-grids will be installed, due to the high upfront investment costs.

- **GHG emissions:** Significant GHG emissions arise from fossil fuel use in the baseline scenario. Emission factors for defining the baseline were determined in a conservative manner through the application of emissions factors gathered from a variety of sources, such as information from Clean Development Mechanism (CDM) projects, research and the Intergovernmental Panel on Climate Change (IPCC).

- **Sustainable development co-benefits**: Quantification of the baseline is, in most of these cases, more appropriately undertaken at the local level, in particular in locations where NAMA activities will take place.

Sustainable development co-benefits

The NAMA will also contribute to achieving some positive economic, environmental and social impacts, such as:

- Reduced local noise and air pollution near existing diesel generation plants;
- Fewer local oil spills through reduced petroleum consumption;
- Improved situation of groups with specific vulnerabilities, including women and the poor, and the incorporation of equity;
- Enhanced productivity/efficiency arising from the provision of electricity;
- Sustainable and affordable electricity supply that meets the needs of the poor and those living in remote areas;
- Improved learning conditions due to the electrification of schools; and
- The creation of 40 new jobs and the founding of 10 new companies.

Support required for NAMA implementation

For the implementation of the two NAMA interventions, international donor(s) is/are expected to contribute 90% and 100% of the investment costs of Interventions 1 and 2, respectively. US$600,000 will also be required for the establishment of a stabilization fund, which will support consumers in the early phases of NAMA implementation by providing funds to pay electricity bills. Below are the identified costs for the NAMA interventions with expected contributions of the Government of Vanuatu and the private sector:

	Vanuatu	Private sector	NAMA donor(s)
Intervention 1	210,000	-	1,890,000
Intervention 2	-	320,000	1,280,000
Capacity Development and NAMA operating costs	449,600	-	1,346,460
Total USD	659,600	320,000	4,516,460

NAMA relevance in the national policy context

The targets of climate change mitigation and sustainable development promotions of the NAMA are in line with the following national policies:

Vanuatu National Energy Roadmap (NERM): This roadmap promotes the overall achievement of 100% electrification of households through the extension of existing grids and the creation of additional mini-grids and renewable individual solutions.

Vanuatu Climate Change and Disaster Risk Reduction Policy (CCDR): This policy, which is currently waiting for cabinet approval, will promote, among other things, climate change-oriented interventions aimed at GHG emission reductions.

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For further detailed information about the NAMA, please consult the original NAMA documentation UNDP, Rural electrification in Vanuatu.

References

Government of the Republic of Vanuatu (2013). Vanuatu National Energy Road Map (NERM)

IRENA (2015). Renewables Readiness Assessment: Vanuatu. Port Vila.

UNDP (2015). Rural electrification in Vanuatu. New York, NY: United Nations Development Programme.

Wolrd Bank (2014). Project information document (PID) appraisal stage. Rural Electrification Project (P150908).

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The NAMA registry is a dynamic, web-based platform to record nationally appropriate mitigation actions by the developing countries and support available and/or provided by the Parties and entities for such mitigation actions. Further, the registry aims to facilitate the matching of NAMAs with available support. The participation in the registry is voluntary and the registry contains only information that has been submitted specifically for recording purpose. For any queries and assistance in relation to the NAMA registry, please contact: NAMA-registry@unfccc.int and NAMA-support@unfccc.int

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