Reforming and Operationalizing Cabo Verde’s Scheme for Distributed Renewable Energy Generation

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Background on ECREEE-GIZ Cooperation

• Part of the regional programme “Promotion of a climate-friendly interconnected power system West Africa” supporting the three ECOWAS energy institutions ECREEE, WAPP and ERERA

• Programme components:
  • **RE/Generation: ECREEE**
  • Transmission/cross-border electricity trade: WAPP, ERERA, utilities
  • Distribution: WAPP, utilities
  • Capacity building for utilities: WAPP, utilities

• Funded by German Federal Ministry for Economic Cooperation and Development (BMZ)
Main Activities of RE Component

• Support development and implementation of grid-connected RE projects through TA + document and disseminate experience with existing and new “RE flagship projects“ from West Africa
  ➢ Ongoing studies on Cabeólica and the two utility-scale solar PV projects among others

• Support selected member states to improve the enabling environment for RE power generation through TA for introducing new or improving the implementation of existing policy instruments
  ➢ Under ECREEE‘s Sustainable Energy Policy and Enabling Environment Programme

• Regional certification scheme for solar PV technicians
Definition of Distributed Generation (DG)

NERSA defines DG as “the installation and operation of electric power generation units connected directly to the distribution network or connected to the network on the customer side of the meter”.

Therefore:

- It’s grid-connected, not off-grid generation
- It’s located at customer premises/close to the load it serves
Current legal framework for DG in Cabo Verde I

Decreto-lei 54/1999, which was amended by decreto-lei nº 30/2006, authorizes autoproduction (auto-produção) and obliges the distribution concessionaire to purchase all or part of the generation

- Generation that is primarily used for own consumption (≠ IPP)
- Connected to transmission or distribution system
  - Conventional or RE-based
- No capacity limit
- License required
- Tariff not fixed
Current legal framework for DG in Cabo Verde II

Decreto-lei nº 1/2011 regulates grid-connected RE-based microgeneration (micro-produção)

- Maximum generation capacity per system:
  - ≤100 kVA / kW
  - ≤ 85% of the owner’s annual consumption of the previous year divided by 1,800
  - ≤ 25% of the maximum load foreseen in the owner’s consumption contract
- Excess generation is credited at end user tariff (currently €0.28/kWh excl. VAT)
Status of implementation of the microgeneration scheme

• No single system seems to be officially net metering, but there are a number of grid-connected systems that are either unofficially net metering or providing excess generation to Electra for free

• Procedures set out in the decree are not being followed

• Systems, rules and templates mentioned in the decree were never developed/implemented (e.g. online registry, contract)

➢ But: establishment of registry ongoing with GEF-UNIDO support
ECREEE/GIZ Support for Reform of Microgeneration Framework

• DGE made a request to the ECREEE/GIZ Technical Assistance Facility for Improving the Legal and Regulatory Environment for Grid-Connected RE for assistance with reforming and operationalizing the microgeneration scheme

• ECREEE/GIZ approved the request and recruited Castalia to provide technical assistance to DGE

• First mission to Cabo Verde was conducted by the consultants in April 2016
Objective and Outputs of the Technical Assistance I

Objective:
Microgeneration will contribute in a technically, economically, and commercially viable way to Cabo Verde’s energy mix

- Identification of barriers
- Uptake scenarios
- Concrete recommendations for new decreto-lei on microgeneration
- Guidelines on the process (registration, inspection etc.) and technical requirements for solar/RE companies and system owners
Objective and Outputs of the Technical Assistance II

- Template for contract between system owner and distribution concessionaire
- Brochure for promoting the new microgeneration scheme to installation companies and system owners
Preliminary Ideas for Reforming and Operationalizing the Microgeneration Scheme I

• Simplify criteria/limits for maximum individual system size; possibility for DGE to set lower limits for small islands

• Establish new tariff model with a tariff for crediting fed-in excess generation that is below the enduser tariff (net billing)

➢ Tariff should be win-win: High enough to make investment viable, but not too high as to increase the overall cost of energy

➢ To be updated periodically by ARE
Distributed RE could make sense for RE system owners and the entire system — how to capture & share benefits?

Capex (€/kW for system size): Portugal data + 15% VAT + 35%
Other assumptions: 20% capacity factor; 20-year lifetime; O&M 1% of investment/year; fully financed by 10% debt (20-year)
Preliminary Ideas for Reforming and Operationalizing the Microgeneration Scheme II

• Define standard terms and conditions (technical and commercial) for the utility to approve interconnection and sign the contract

• Simplify registration, inspection and certification process

• Initial cap on total eligibility—just to get started/learn, not optimized

• Annual island-specific caps for small islands
Next steps

• Report with preliminary findings in mid-June
• Second technical assistance mission in mid-July
• Final outputs end July
• Draft of new decreto-lei on microgeneration to be developed by DGE in July/August
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