PROJECT SHEET 35

IVORY COAST

Title: *Support for the management of solar intermittency integration (CZZ1910 18)*

Amount: *287k€*

Category: SE4All On-grid TA

Request from: Ministry of Petroleum, Energy and Renewable Energy (MPEER), CÔTE D'IVOIRE ENERGIES (CI-ENERGIES), The National Authority for the Regulation of the Electricity Sector of Côte d'Ivoire (ANARE-CI) and The Ivorian Electricity Company (CIE)

Context

In order to ensure the country's energy security, the national production master plan recommends a balanced production fleet strategy corresponding to a maximum of 60% energy from a single source. Thus over the period 2015-2030, in addition to conventional sources (hydraulic and thermal gas), it is proposed to increase the share of renewable energies. The target is to reach 42% renewable energy by 2030, including hydro, solar and biomass.

The development of solar energy is an opportunity for Côte d'Ivoire (i) to diversify its electricity mix, (ii) to reduce its average cost of production, and (ii) to contribute to achieving its objective of ENR penetration set at 42% in 2030. However, the introduction of intermittent energy represents a risk for the dynamic stability of the network and non-compliance with performance criteria.

CI-ENERGIES therefore needs a technical and economic analysis of different solar energy penetration scenarios in order to (i) analyze their advantages and disadvantages, and (ii) select an ideal solar penetration scenario associated with an appropriate intermittency management plan.

The project should enable CI-ENERGIES to master the challenges and the tools associated with the management of the intermittency of solar energy with a view to the contribution of this energy to a secure, competitive and low-carbon electrical system.

Technical assistance

This study should determine the impacts of solar production, the limits of induced installable capacity and the investments necessary to ensure the quality and reliability of the public electricity service in Côte d'Ivoire, taking into account progressive regional integration.

The technical assistance aimed at:

- Collecting data on electricity demand, on grid evolution, constraints, models and PV central limits to be taken in account for on-grid network connection
- Providing a methodological framework
- Analyzing, securising and optimizing scenarios
- Study main scenario retained and provide recommendations

Status & impacts

Finalized in January 2021.

The study showed that Ivory Coast’s network can cope with up to 1 GW of solar energy without any additionnal investment in lines or ancillarry services. Moreover the study showed that this scenario was less expensive in 2030 than building the intented 700 MW San Pedro coal-fired plant. The study may have contributed to reasurer Ivory Coast of the feasability to withdraw of the San Pedro coal-fired plan from the production masterplan, announced at the end of 2021.

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A facility to develop innovative projects in renewable energy and boost electrification on the African continent.

The AFD Group, with the support of the European Union, has set up the "African Renewable Energy Scale-Up facility" (ARE Scale Up facility) to boost private sector investment in on–grid and off-grid renewable energy production in Africa.

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