

Case study n°5

Enforcement of solar standards for sustainable energy supply and environment protection.

Country: Tanzania

Level: National

SDG Addressed: SDG 13 – Climate Action



Summary

The objective of the case study is to show how standards on solar photovoltaic technologies have enabled the scale up of the access to modern energy in a sustainable manner in Tanzania. Energy is deemed crucial in achieving all SDGs, yet if it is not sustainably harnessed, it will adversely impact the human being and environment.

This case study presents the example of a public-private partnership (PPP) devoted to developing and enforcing environmentally friendly standards in Tanzania, whose strengthened observation with respect to solar photovoltaic system has a twofold beneficial impact: increasing (clean) energy access in the country while contributing to the achievement SDG13.2 “Integrating Climate Change Measures into National Policies, Strategies and Planning.” This is especially done via a larger share of renewable energy sources in Tanzania’s national energy mix, which translates into reduced emissions as well as into an effective mitigation strategy aimed at reversing the detrimental effects of climate change.

Background

The increased awareness of the potential of solar PV technology in granting Tanzanian remote off-grid communities the access to electricity led some unfaithful businessmen to import in the country substandard solar products. Such products had

negative impacts on the health, economy and environment at large. Furthermore, these poor-quality products had a very short lifetime, resulting in economic loss of the end users, while piling up electronic wastes in the environment – there is in fact no well-established recycling framework in Tanzania. The need for the development and implementation of standards on solar PV technologies represented the obvious solution to these problems.

Strategy

In order to address the issue, the Tanzania Renewable Energy Association (TAREA) has seized upon several standards, which included: IEC 60086-1:2015 “Primary Batteries – Part 1: General”, IEC 60086-3:2015 “Primary Batteries – Part 2: Physical and Electrical Specifications”, IEC 60623:2017 “Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes-Vented Nickel-Cadmium Prismatic Rechargeable Single Cells”; and IEC 62259:2003 “Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Nickel-Cadmium Prismatic Secondary Single Cells with Partial Gas Recombination”.

Results and Impact

The implementation of these standards significantly contributed to decreasing the inflow of substandards solar PV products into the Tanzanian market, to reducing electronic wastes (especially with respect to solar batteries), and to increasing the adoption of

clean solar technology in remote, off-grid areas in the country. Being PV systems responsible for low-to-zero emissions, their exponential spread across Tanzania led to reducing the burden on the environment resulting from energy production, hence contributing to the establishment of a climate-friendly virtuous circle.

Challenges and Lessons Learned

The presence of unofficial harbours along the coastline of the Indian Ocean, presented significant challenges for law enforcement officers and undermined attempts to control the import and dissemination of substandard solar products. Further, inadequate levels of enforcement personnel led to some borders being unpatrolled.

The free market in Zanzibar created significant challenges along the Tanzania Mainland coast, as products were brought from Zanzibar at night and distributed from uncontrolled locations. Standards, however, proved to be a powerful tool to support the introduction, into the Tanzanian market, of high-quality, efficient PV systems and stifle demand for substandard, imported products.

Potential for Replication

The experience can be replicated in Zanzibar, which is affected by a dramatic lack of control over the quality of solar PV products.