



Study on Renewable Energy and Research and Innovation Capacity of Sub-Saharan Africa

Abstract

Client: DG Research & Innovation

Brussels, 12th June 2015



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Access to energy is a crucial pre-condition for further economic development of the African continent. Sub-Saharan Africa is blessed by an array of renewable energy sources which together provide a strong potential. Even though the current penetration of renewable energy in SSA is limited, apart from bioenergy and hydropower, the future potential is substantial. Bioenergy, solar energy (PV, solar thermal as well as CSP) and hydropower can all play their part, while wind and geothermal energy have strong roles to play as well – all depending on the geographic context. This potential is currently underutilised due to limited demand, non-existing or incomplete grids, and policy frameworks which require substantial advancement. Despite previous investments in renewable energy in the region, the knowledge about their effectiveness and efficiency is partial and fragmented.

EU-SSA research cooperation in this area can contribute substantially to medium- to long-term renewable energy take-up in the region. It can also strengthen the market position of EU players in areas where they are strong and globally competitive. RET-specific research themes have thereto been proposed, including traditional and advanced bioenergy (biofuels, biogas, bioenergy value chains), various solar technologies (PV, solar heating and cooling, CSP), small-scale hydro and geothermal energy. Transversal research topics proposed include support to research infrastructures, resource mapping and assessment, impact assessment, innovative SMEs and grid improvements (including energy supply modelling and smart hybrid mini-grids).

The assessment of research themes suggests there is no 'one size fits all'. The variety of themes suggested calls for a tailor-made approach, where a menu of instruments could be deployed:

- Axis 1: Dedicated SSA capacity building (e.g. dedicated H2020 Network actions);
- Axis 2: Enhanced mobility of researchers (e.g. Marie Skłodowska-Curie);
- Axis 3: Dedicated EU-SSA research cooperation (e.g. dedicated H2020 Africa call);
- Axis 4: Mainstream research cooperation (e.g. H2020 Calls for proposals);
- Axis 5: Targeted EU development cooperation (e.g. DEVCO, including EU-ACP cooperation);
- Axis 6: Targeted bilateral cooperation (in targeted areas).

Evidently, the right sequencing of these research themes is crucial. We recommend that the initial focus is on dedicated SSA capacity building (including enhanced mobility of researchers), accompanied by selected participation in mainstream research cooperation (e.g. in CSP) and targeted EU development and bilateral cooperation in complementary areas. In the medium-term, dedicated EU-SSA research cooperation (e.g. a H2020 Africa call) could focus on bioenergy. Such an initiative would need to build on e.g. a Technical network on Bioenergy. In the longer term, this would strengthen the potential of the SSA-region to participate in mainstream research cooperation as well.

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