

## WORK PROGRAMME 2021-2022

- Sustainable, secure and competitive energy supply

**CALL: AU-EU Water Energy Food Nexus**

**SUBMISSION: 23 February 2022**

**BUDGET: 2.5 MILLION Euro**

**TYPE OF ACTION: Research and Innovation**

**Expected Outcome:** Project results are expected to contribute to all of the following expected outcomes:

- Reinforce the activities in the long term the AU-EU HLPD CCSE Partnership.
- Provide knowledge and scientific modelling as evidence base of the water-energy-foodnexus including the environmental, social and economic trade-offs to contribute to R&I strategy and policy making.
- Increase clean energy generation in the African energy systems.
- A sustained network of African experts and expertise in this area.

**Scope:** The topic is contributing to the activities of the AU-EU High Level Policy Dialog (HLPD) Climate Change and Sustainable Energy (CCSE) partnership. Climate changes and increase usage of water in all economic activities create more stresses on water use for energy generation. Energy generation covers in this context energy from renewable sources and energy vectors such as electricity, heat and fuels. Therefore the needs for African countries of having their own dedicated models to simulate and estimate the stresses on the water-energy nexus are crucial for their policy decision and energy planning. International agreement and trade issues can be considered in the model. Most of the current models are based on developed country standard and usage.

The proposal should then develop and test models for decision makers and planners to implement energy infrastructures and energy supply in Africa which safeguard a systemic approach to the water-energy food nexus. These models can be based on existing reliable source codes and models. The test should be made on the case of an existing African water basin. Participation of societal stakeholders is considered important. Actions should promote the highest standards of transparency in model adoption, going beyond documentation and extending to aspects such as assumptions, architecture, code and data. The outcome of the project should be widely disseminated and the source code of the model should be open access to stimulate future development. To ensure future uses, African experts in water-energy nexus and in model development should be full partners in the project. The project should identify further local training needs. The project should also link with existing European activities to create synergies and crossfertilisation. The project should participate in the activities of the HLPD CCSE partnership

- Improve in the long-term governance to advance knowledge and scientific modelling of the water energy food nexus including the environmental, social and economic trade-offs (governance aspects should be included since they are under-represented in the current research works).

**CALL: [Demonstration of innovative plug-and play solutions for system management and renewables storage in off-grid applications](#)**

**SUBMISSION: 26 April 2022**

**BUDGET 10 MILLION Euro**

**TYPE OF ACTION: Innovation and Action**

**Expected Outcome:** Project results are expected to contribute to some of the following expected outcomes:

- Advance the European innovative knowledge basis, technology base, technology leadership in the area of renewable energy-based off-grid energy systems, while creating evidence for policy making in the context of off-grid energy systems.
- Improve environmental and socio-economic sustainability of the renewable-energy offgrid systems, particularly on geographic energy islands and/or in Africa and/or Central Asia.
- Technology de-risk through prototype demonstration tested and validated in operational environment as a necessary step before scaling up at commercial level.
- Reinforce the European scientific and innovation basis through international collaboration on off-grid energy systems while increasing the potential to export European renewable energy technologies and ensuring political priorities.

**Scope:** Demonstration of innovative plug and play solutions for system management and renewables storage in off-grid applications, which allow for increase of renewables penetration for electricity and heating/cooling and are deployable under different climatic conditions, while also addressing cost-effectiveness, energy poverty and security of supply and by promoting prosumer renewable energy in off-grid cities and communities (including on geographic islands).

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities.