EUROPEAN DEFENCE AGENCY

Fact sheet

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RES Feasibility Toolkit

Background Description

Member States (MS) are encouraged to augment the use of renewable energy sources (RES) in the defence and security sector. There is, however, a wide range of RES technologies available and it can be challenging to select the appropriate technology or combination of technologies that would best suit an installation. A number of variables need to be taken into account including climate, other environmental factors, the primary activities and role of the installation. It would, therefore, be useful to assist Member States in selecting the most appropriate technology or a mix of technologies.

Project Analysis

This project idea concerns the development of a software-based RES feasibility toolkit to inform decisions on selecting and integrating the most relevant renewable energy technologies in military infrastructure projects.

More specifically, the toolkit should help planners and decision-makers to screen potential energy supply solutions, including an optimized RES-mix. The software should exploit data provided by the user to calculate appropriate key performance indicators (KPIs) and provide cost projections such as net present value and the return on investment rates, among others.

It would use input parameters on the measurable relevant variables and provide advice on the best calculated desired renewable energy potential.

In the first phase, the project would lead to a service contract for the development of a prototype software, which will then, in the second phase, be field tested in one or more installations in one or more MS.

The tool should contain:

- A regularly updated database of technology costs and performance;
- Information about the project's location, type of equipment in the system, cost of installing and operating the system, and financial and incentives assumptions;
- Initial pre-screening to select technologies that merit further consideration;
- Resource assessment based on available resource maps and data;
- Collection and review of site and other data;
- Preliminary layout of the RES-plant;
- Energy production estimate per technology;

- Assessment of operational considerations including interface with wider defence applications;
- Assessment of the follow-on cost of RES-options, including training and maintenance considerations;
- Guidance on the maintenance of the toolkit and associated use training.

Objectives

The importance and benefit of integrating renewable energy within defence projects is relatively clear. The pathway to get there is less clear.

This project idea aims at providing an adequate tool supporting a systematic process to integrate renewable energy technologies into defence projects, in a way that is efficient, cost-effective, safe, and has clear added value.

Outputs would inform investment prioritization on technology aspects including those that commercial producers might not usually address.

The toolkit would provide information that will support business cases, the drafting of specifications, and tender evaluation.

Impact – Expected Outcomes

Provide a robust and consistent approach which could be replicated within and across MS, but which could also be adapted according to specific circumstances.

Opportunities

Potential synergies could exist with the Joint Research Centre (JRC), energy developers, national and local governments.

Opportunities for civilian benefits should be explored and defined as part of RES installation business cases.

The project is eligible for potential funding at European level, for instance, through the European defence industrial development programme (EDIDP), the European Regional Development Fund (ERDF), Interreg, the European Social Fund (ESF), the Cohesion Fund, Erasmus+, the LIFE Programme, the Connection Europe Facility (CEF) as well as EDA's Operational Budget (OB).

Challenges

While renewable energy has a number of benefits, it is not suitable for every setting. A range of factors will determine the feasibility of renewable energy systems, including:

- Legislation and regulatory requirements;
- Contracting rules and procedures (including at the national level);
- Local geographical conditions;
- A building's lifecycle;
- Potential market revenue or saved costs;

- Financial incentives;
- Compliance with management or policy objectives;
- Building standards;
- Technical standards;
- Permitting (e.g., land rights, construction permits, water permits, zoning certificates);
- Local civilian community perspectives on RES;
- Population density and immediate surroundings of the proposed installation;
- Visual and noise impact;
- Threats to endangered species.

Methodologies

This could include stages on technology options, strategic planning, project selection and evaluation, and project implementation.

The toolkit would need to be supported by guidance notes on the scope and instructions for use. It could be delivered as a simulator developed by an independent external contractor, building perhaps on solar simulator models already available. The toolkit would also need to incorporate feed-in tariff considerations.

Way Ahead

Define an output-based specification to lead to the eventual appointment of a consultant to conduct a desktop study and another to supervise field projects in MS.

Identify Member States interested in taking part in the project, by offering military establishments for field-testing the toolkit and exchange of results and best practices, in order to validate the toolkit.

The field projects should be conducted in more than one MS and across different environmental conditions and different patterns of electrical loading.

This project idea was developed during the second phase of the Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS II) and does not entail any future commitment for the EU Ministries of Defence (MoDs) or the EU institutions or agencies. However, it provides the framework for enabling the formation of multi-national collaborations at the European level to help the MoDs to address common defence energy-related considerations and to move towards a defence decarbonised future. The potential of those ideas will be further explored in the context of the forthcoming CF SEDSS Phase III (2019-2023).

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