

Defence RESilience Hub Network in Europe RESHUB



Background Description

The first phase of the Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS) has recognised military lands and infrastructure as having great potential for the implementation of renewable energy harvesting. Islands of energy production and storage, and smart consumers, within defence land and infrastructure, support the need for sustainable energy in the defence and security sectors in Europe.

In the near future, hybrid technology will be a reality in the defence and security domain. This technology might include an electrical, fuel cell, or reforming of military-specific fuel to H₂ technologies, in combination with the traditional internal combustion engines.

With an increase in the number of electrical or plug-in hybrid vehicles in the civilian domain, public power grids could become too weak to deliver electrical transfer to meet vehicle demands. Therefore, power grid providers might seek less demanding and cheaper solutions offered by local islands of energy harvesting and storage.

In the future, given the development trends in the field of defence, the armed forces will be equipped with hybrid or purely electric technology including electric/hybrid passenger cars, buses, trucks, and logistic handling equipment.

Project Analysis

Military bases should be upgraded to smart and efficient energy harvesting, storage, and production, islands, by deploying existing and emerging technologies. In parallel, military logistic vehicles implementing hybrid or electric drive trains, should gradually replace the traditional combustion engine drive trains.

This project idea will strengthen host nation support in cross-Europe transportation, complement the civilian activities focusing on de-carbonisation, and contribute to energy sustainability in the defence and security sector in Europe.

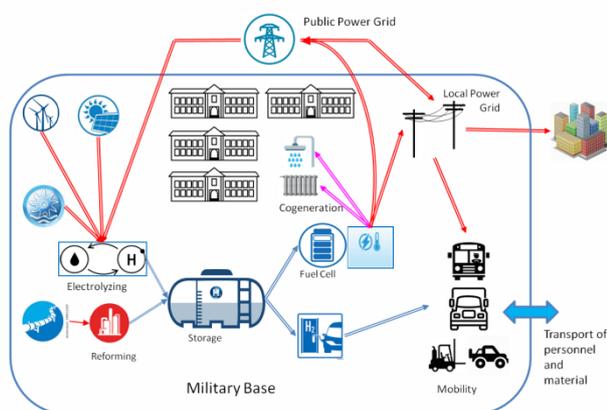
Objectives

The objective of this project is to provide an alternative source of energy for domestic forces and facilitate the host nation support to other EU armed forces by building a renewable energy harvesting and H₂ energy storage capability within the EU step by step. At the same time, the implementation of a hybrid and electrical mobility solution will support the EU objectives of lowering the carbon footprint.

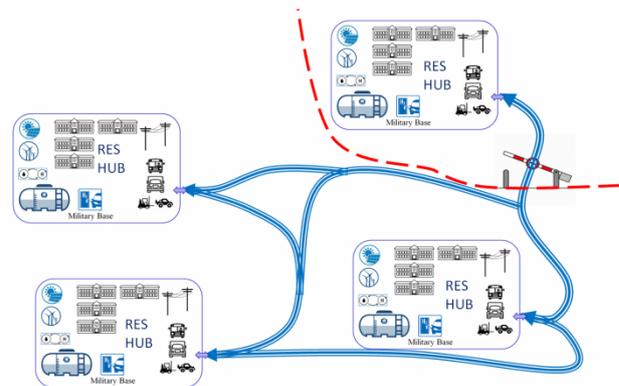
Impact – Expected Outcomes



The network of nodes in the EU will ensure lower dependence on imports of energy products, increase the durability of common defence capabilities, reduce greenhouse gas emissions, and increase the freedom of movement of the armed forces in the EU.



The system on military bases will ensure the self-supply of energy and supply to the local community.



The nodes will provide energy to the military transport of materials and personnel for domestic and host nation support purposes.

Opportunities

The implementation of this project is a significant opportunity for public-private partnerships. Working with industrial partners and sub-contractors will allow the Ministries of Defence (MODs) to outsource the installation of energy harvesting, storage, and production, equipment on defence land and buildings, and acquire hybrid and electrical vehicles.

The project could potentially boost R&T and decrease technology costs by the exploitation of economies of scale and emerging technologies. This could enable MoDs to secure reliable and sustainable energy, better facilities, cheaper mobility, and host nation support capability, and increase resilience.

The project is eligible for potential funding at European level, for instance, through the Structural Reform Support Programme (SRSP), the European defence industrial development programme (EDIDP), the European Regional Development Fund (ERDF), the LIFE Programme and the Erasmus+.

Challenges

Availability of the related technologies presents a low risk since renewable energy harvesting, storage, and energy converting technologies are mature and continuously improving.

The application of hybrid or hydrogen technology for mobility presents a medium level of risk, which could further decrease with the increase in the number of mobility platforms in the civilian and defence sectors.

Member States' willingness to support the project and actively implement RESHUB presents the highest risk.

Industries participating at the local or EU levels are ready to support the project. Since there are similar initiatives in the civilian sector, the need for huge investments in power grids could be avoided due to a rapid increase in the number of plug-in hybrids.

Way Ahead

The feasibility study, including the standardisation of interfaces for plug-in hybrids, should be conducted at the EU level.

A number of related pilot projects in several countries should include not only different solutions for energy harvesting, energy storage and energy production, but also procurement of available hybrid and electrical logistic vehicles.

Gradual increase in RESHUBs and hybrid/electrical mobility could ensure full implementation in several years' time.

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).