EUROPEAN DEFENCE AGENCY

Fact sheet

www.eda.europa.eu

# Energy Performance Certificates for Defence Buildings


## Background Description

Ensuring a building and its systems are operating efficiently is the cheapest and simplest way of saving energy. To assess how energy efficient a building is operating requires a model that can adjust for the variables of how the building is used that impact on energy consumption. The normalised energy consumption can then be compared with best practice energy performance benchmarks to indicate how well the building is performing. The output from the assessment can be used to inform investment and business decisions.

National asset rating models used for energy performance certificates and national building standards calculate energy performance relative to a reference building. The results are not intended to estimate real-life energy consumption, because the models assume 'standard' activities and 'standard' hours of use for the spaces concerned and only take account of the presence of energy-saving features and controls, not whether these elements are operating efficiently. The models also only assess the intrinsic energy efficiency of a building's fabric, heating, ventilation and air-conditioning (HVAC) plant and lighting. Specific defence requirements are not covered. Consequently, national 'reference buildings' energy benchmarks are of limited value to defence for energy management.

## Objectives

The key objectives are:

- Identify the key in-operation variables that impact on the energy consumption of common defence building types;
- Develop a series of benchmark scales for common defence building types and a methodology to adjust the design and in-operation energy consumption to compare against the benchmark scale;
- Develop a Defence Specific Energy Performance Certificate which captures building data and compares the design and actual energy consumption against the benchmark;
- Over time refine and expand the comparative benchmark sets and the model for adjusting the variables;
- Promote understanding and feedback of what capital and operational measures are successful in practice.

## Project Analysis

This project aims at developing a model to assess the energy performance of defence buildings and design of a defence specific energy performance certificate.

The model should be flexible and applicable to a wide range of defence building types. Initially, it will be developed using a selected number of the most common defence building types. The project will support to predict the energy performance of the buildings based on the following two elements:

- Base building performance determined by the building's design, its construction, and its HVAC services;
- Occupier activity determined by the equipment installed and how the building is used.

## Methodologies

The project's methodology is:

1. Questionnaire to all Member States to understand the different factors that impact on energy consumption across the EU defence buildings covering:
    - The scope and availability of data;
    - The most appropriate metrics and key performance indicators (KPIs) to use;
    - Which factors can and should be normalised;
    - What to compare performance against.
2. Interested Member States to be invited to participate in a detailed discussion and data analysis taking an iterative approach across 3 or 4 meetings;
3. Develop a benchmarking methodology;
4. Develop a pictorial means of display of a buildings energy performance.

## Impact – Expected Outcomes

The output of the project is directly related with the Energy Performance of Buildings Directive (EPBD) and with the objective that the energy performance certificates should inform defence building owners/occupiers about the energy performance of their buildings, so that they can consider energy efficiency as part of their investment decisions.

## Opportunities

Ensuring that a building and its systems are operating efficiently is the cheapest and simplest way of saving energy. This project will provide a tool to assist in identifying where a defence building is not operating efficiently and enable targeted investment to reduce energy consumption, associated emissions and costs.

The project is eligible for potential funding at the European level, for instance, through the LIFE Programme, the Structural Reform Support Programme (SRSP) and the European Local Energy Assistance (ELENA).

## Challenges

The main challenges are:

- Defining a suitably common methodology and energy performance certificate template, which will incorporate all of the different EU participating Member States (pMS) particularities (in terms of climatic conditions, regulatory requirements, defence activities, etc.);
- Availability of data for input into the model for existing buildings (as-built structure and systems, defence activities, energy specification of operational equipment, energy consumption patterns, etc.);
- Ensure the cost and time required to apply the methodology is not disproportionate to the value gained. A balance is required between simplicity and sophistication of the simulations to determine optimum energy performance;
- Establishing the appropriate selection of buildings types for the initial project which meets the requirement of all the EU pMS.

## Way Ahead

To take the project forward will require funding for external consultancy and academic support to conduct research and develop the methodology as well as to assist pMS with data collection.

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).

European Defence Energy Network | EUROPEAN DEFENCE AGENCY

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 789231