



# Barriers to success and solutions to implementing energy efficiency measures in defence buildings and sites

## Background

The European Defence Agency (EDA) and the armed forces of its member states are committed to reducing greenhouse gas emissions in line with European Union and national targets. The overall target is to achieve net zero emissions by 2050 with an intermediate target of a 55% reduction by 2030.

## Scope and Objectives

The purpose of this CF SEDSS research study is to investigate, in the context of sound policy implementation at strategic and operational level, what, if any, are the barriers to successful implementation of energy efficiency measures at the tactical (site/building) level and what are the proposed solutions to these barriers.

Recommendations will be used for a variety of purposes by ministries of defence (MoDs) such as supporting business cases for employment of personnel, training, and education, including up/re-skilling and investment in infrastructure and technology.

## Problem Analysis

Although the defence sector has been active in implementing energy efficiency measures at a high level but, there is often a

difficulty implementing basic energy efficiency measures at a site level. There are many potential reasons for this, including high turnover of personnel, lack of resources, old building stock or prioritisation of large high-cost projects over low-cost effective ones. Basic energy efficiency measures could yield significant savings if carried out in a prioritised manner.

It should be noted that energy efficiency encompasses no-cost and low-cost measures as well as high-cost opportunities, including deep building retrofits.

## Methodology

The methodology used in this study was to review existing literature from EDA and other sources on barriers to energy efficiency. This was combined with questionnaires completed by EDA member states with knowledge of energy efficiency in military buildings as a further source of information.

The experience of the authors based on over 20 years working in energy efficiency in the private sector, public sector, and the defence sector have also influenced the study.

A particularly relevant piece of experience was the development and delivery of the EDA Defence Energy Management Course programme.

## Solution Implementation

The most relevant solutions proposed by the respondents, in order of frequency, were:

- Need for significant renovation programs.
- Availability of funding for investment.
- Training.
- Increasing awareness.
- Increasing EU funding for energy efficiency measures.
- Systematic approach to energy efficiency and energy management.
- New energy efficiency organisation with adequate resourcing and knowledge.
- Educating senior decision makers.
- Increasing priority.
- Awareness of multiple benefits.
- Aligning energy and decarbonisation goals.

## Impact and Opportunities

The main recommendations are the following:

### a) Develop a sense of urgency

The EU and most national targets for decarbonisation for 2030 are very challenging. They are achievable with existing technology, but a strong sense of urgency is required. Increased knowledge of the context would support an increase in the awareness of the tight timelines that are ahead.

### b) Increase commitment to promote a strategic approach to decarbonisation

Lack of commitment was not identified as a barrier in the survey, but many symptoms related to it were highlighted. These include lack of priority, lack of resources, lack of policy and clear goals. If there is a belief that commitment levels are high, when in fact they are not, this can be a significant barrier to improvement.

### c) Develop a capacity-building programme

This will focus on the weaknesses identified:

- Technical knowledge of energy-efficient operational control.
- Data collection and analysis techniques.

- Financial analysis.
- Commitment and people management.
- Align targets, action plans and indicators.

### d) Systematic approach to decarbonisation

This includes clear baselines, targets and pathways to decarbonisation, including energy conservation, efficiency, fuel switching and renewables.

Investigate further what can be learned from those Member States that appear to be the most efficient.

## Challenges and Risks

It is recognised that significant progress is being made in energy efficiency. However, this progress is not fast enough to reach the rate necessary for limiting global temperature rise of no more than 2 degrees Celsius (and preferably 1.5 degrees) by 2050.

Energy efficiency is widely viewed as one of the most effective ways to achieve multiple economic, social, and environmental benefits and is at a core of making significant progress towards sustainable development goals.

It is essential to increase the realisation among decision-makers of the potential for energy efficiency as it is the lowest cost and fastest to implement component of decarbonisation plans.

## Way Ahead

The study recommends the next steps:

1. Promulgate this study to decision-makers including presenting results at the Consultation Forum conferences.
2. Develop a capacity-building programme around an integrated approach to decarbonisation management including efficiency, renewable energy and fuel switching.
3. Consider using a hybrid energy management system as the basis of a decarbonisation management system.