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Current and future trends in energy efficiency and buildings performance in EU framework. Defence role and perspectives

Background

Reducing energy consumption and increasing energy efficiency is essential for the armed forces to ensure a high level of readiness and sustainability, as well as to contribute to each European Union (EU) Member State (MS) specific energy and climate goals, as these are defined within the National Energy and Climate Plans (NECPs). Despite this, the military domain has not been an active stakeholder in consulting or implementing specific policy instruments and tools, such as the NECPs or the long-term renovation strategies in the public building sector. The main reasons are the lack of effective communication with national competent authorities and, consequently low visibility and comprehension of the defence role within this concept. In addition to this setback, ministries of defence (MoDs) do not have adequate access to either national or EU funding, so national defence renovation programmes (of small or medium-term duration) continue to lack appropriate financial support.

Scope and Objectives

The Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS III) has developed in the context of the third phase a research study to identify the current and future trends in energy efficiency and buildings performance in the EU framework and to define the defence role and perspectives. The main aspects of this research helped identify some specific challenges informing the study's scope. These challenges are related to the following three main areas:

- Energy efficiency and buildings performance legislative framework and policy tools;
- Energy efficiency and buildings performance technological systems (both in terms of software and in terms of applied equipment) whilst considering and tackling cyber security risks;
- Human factor and EU armed forces personnel resource management in energy aspects and other functional management tools (e.g., energy data collection and analysis, ISO management systems application, etc.).

In this perspective, the findings and the outcome of the study should help the EU energy-related institutions and bodies (DG ENER, CINEA, EDA) and the MoDs to:

- Evaluate the current and future trends of relevant policies, technologies and behavioural change elements in the wider EU environment;
- Define the potential role of the defence sector in this context;
- Provide an analysis of basic steps in a large-scale/ EU-wide process, so that MoDs become key enabling and contributing factors in achieving respective national and Green Deal goals;
- Propose effective ways to ensure active involvement of the human factor in these endeavours.

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Methodology

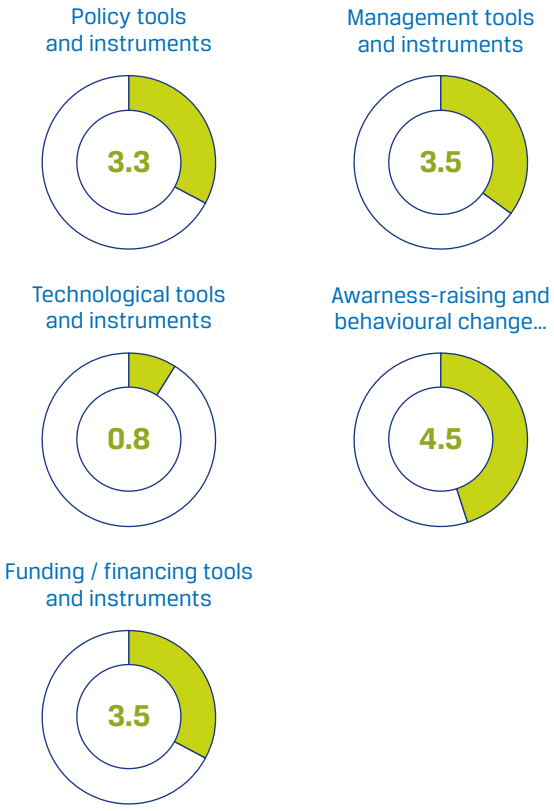
To achieve the aforementioned objectives, the study has followed the methodology analysed below:

- **Identify seven (7) relevant EU policy elements** which can impact the defence sector: *Regulation for the governance of the EU and Climate Action, Clean Energy Package, Energy Efficiency Directive (EED) and Energy Performance of Buildings Directive (EPBD)*, with a specific focus on articles with clear identified implications on defence, *the Renovation Wave, the EU 2030 Climate Plan, the Fit-for-55 Package and the EU Circular Economy Action Plan.*
- **Pinpoint three (3) respective defence policy areas** which can vastly interact with the elements above: *EU Climate Change and Defence Roadmap, European Defence Fund with a specific focus on energy matters and the Council Conclusions on Security and Defence.*
- **Assess the level of implementation** in the defence domain of the 14-energy efficiency and buildings performance policy, technology and human factor tools and instruments, listed below:
  - **seven (7) policy elements:** Energy efficiency and environmental strategies in defence, long-term renovation strategies of the military building stock, NECPs, energy performance certificates, energy performance contracting, new EU level(s) framework and indicators and green public procurement (GPP).
  - **three (3) human factor/resource management tools:** capacity building/education and training activities of EU MoDs, environmental and energy management systems, energy data collection and analysis.
  - **three (3) associated technological hubs:** smart tools for designing new and existing building renovation projects and more accurate energy performance predictions, building automation and control systems (BACS) - smart equipment for smart energy management and efficient consumption, e-mobility and support infrastructure framework.
  - **a horizontal (cross-cutting) parameter of funding and financial** aspects with regard to the implementation of the respective tools and instruments.

The study also introduces a qualitative and quantitative method to illustrate this assessment. The method is called "Defence Energy efficiency Tools and implementation Indicators **(DETI)**".

The scoring of the DETI ranges from 1 to 10 for levels of implementation and areas that require attention (colour-coded). *Areas with the lowest scores require the most attention and are marked as red (0 to 2,49 scoring). Consequently, areas with scores from 2,5 to 7,49 are marked as yellow with low to medium attention and from 7,5 to 10 as green with the lowest required attention.* In the main study text, the assessment is accompanied by a list of root-cause elements and tailored-made solutions.

Scoring Results



Impact and Opportunities

Based on the study's findings, it is evident that the defence sector has limited involvement in existing legislative, managerial and technological energy efficiency and building performance tools and instruments. This setback is further aggravated by insufficient access of MoDs to national and EU funding opportunities, concluding that relative framework schemes have a low or average impact on defence.

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Adopting the revised energy efficiency targets stemming from implementing the Renovation Wave (with the strategic aim to double the annual renovation rate of public buildings) will inevitably affect the defence community vastly. However, at the same time, it can pose an opportunity window to advocate the case of changing the prioritisation of energy efficiency and buildings performance concept in the MoD hierarchies.

In the same approach, the EED provisioned periodic review of the NECPs in the next 2-3 years may pave the way for the MoDs to be engaged effectively in the respective national procedures to promote the defence specificities to the NCAs and develop appropriate contribution plans.

Proposed Solutions - Way Ahead

Adopting a tailor-made defence Roadmap for facilitating the materialisation of the procedures cited above should become a top national priority of the MoDs. The main milestones of this roadmap refer to the:

- active involvement of MoDs in implementing NCEP goals;
- establishment of effective long-term renovation strategies;
- promotion of the massive application of existing and emerging technological solutions in these strategies, whilst addressing the related cyber security/data breach and capture risks;
- adoption of GPP principles and guidelines to their acquisition procedures;
- conduct of suitable supporting evidence for applying e-mobility programmes of the defence conventional (internal combustion) fleet;
- establishment of permanent mechanisms which ensure adequate access of the MoDs to national and EU funding schemes;
- application of suitable energy efficiency policy instruments such as energy performance contracting and energy performance certificates;
- ensuring adequate training and educative programmes for the armed forces' personnel.

The study also encompasses specific recommendations, at the EU level, for certain articles of the Energy Efficiency Directive and Energy Performance of Buildings Directive. These recommendations should be used to involve defence more effectively in implementing energy efficiency and building performance measures. They can also serve as part of broader EDA proposals to the EU-related institutions concerning the implementation of defence energy-related activities considering the EED and EPBD, the Renovation Wave, and the Fit-for-55 Package.

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