

# Energy Performance Contracting



courtesy of FR MoD

## Why?

Energy Performance Contracting (EPC) is an **alternative solution** to upgrade the energy efficiency of certain types of Ministries' of Defence (MoDs') and Armed Forces' (AF) buildings through energy performances guaranteed by the private sector.

## How?

EPC is a contractual arrangement between the beneficiary (i.e. MoD) and the provider of an energy efficiency improvement measure (Energy Service Company - ESCO). The measure is verified and monitored during the whole term of the contract, where investments (work, supply or service) are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings. Essentially, the ESCO will not receive its payment unless the project delivers energy performance / savings as guaranteed. The initial investment may be endorsed by the MoD or by the ESCO or by both.

Therefore ESCOs accept some degree of risk for the achievement of improved energy efficiency in a user's facility and have their payment for the services delivered based (either in whole or at least in part) on the achievement of those energy efficiency improvements.

## Benefits to the Defence Sector

Although the examples of EPC within the defence sector are quite limited at present, potential benefits include:

- **Reduction of energy consumption** and other agreed criteria, such as Green House Gas (GHG) reduction and production of energy by Renewable Energy Sources (RES);
- Execution of energy efficiency upgrades, **even without the necessity of initial capital for investment** from the side of the MoDs / AF, resulting to **no increases to national budgets / debts** and in any case justification

of those investments by a Return on Investment (RoI) considered on global cost (including future energy bills);

- **Transfer of risk** from the MoD to the contractor in terms of adaptation of innovative technologies, volatile prices of energy products and real **performance obtained**;
- **Utilisation of the contractors' human resources / expertise** to engineer and further maintain the technical interventions, coupled with the scarcity of relevant resources from the MoDs' / AF side in many cases;
- **Ownership of the equipment** is passed to the MoDs / AF after the end of the contract (in case it was originally procured by the ESCO).

## Challenges for Defence

- Gaps in the national legal frameworks for the implementation / contracting of Power Purchase Agreements (PPAs), including EPCs.
- Internal procedures on budgeting that do not allow pay-back from existing budget lines for billing and / or to pay more than the actual consumption from the operational budget lines;
- Uncertainties on the future uses / occupation of buildings and land usage in the long term, due to large scale re-organisations within the MoDs / AF.
- Lack of baseline data (energy and its drivers), in combination with challenges to acquire the blueprints of buildings and their equipment that have been built several decades ago and in various phases;
- MoDs' / AF liabilities towards the institutions that fund EPCs in the cases of ESCOs' bankruptcy and especially in terms of maintenance / ownership of equipment and, perhaps, loan instalments;
- Reluctance of senior management to commit to long-term contracting with the private sector (ESCOs);
- Several cases where most of the opportunities for reduction of energy consumption / increase of energy

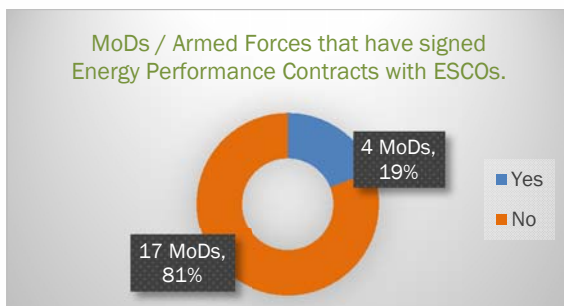
efficiency have already been harvested internally through other MoD / AF initiatives and the remaining potential for improvement constitutes less attractive business cases for ESCOs;

- o Cases of lack of expertise and / shortage of the MoDs' / AF personnel to:
  - Perform preliminary energy audits, feasibility studies and setting the energy usage baseline;
  - Evaluate the technical proposals of the interested ESCOs during the tendering phase;
  - Verify the actual savings during the implementation of the EPCs;
  - Sustain the maintenance and support of the equipment after the end of the contract.

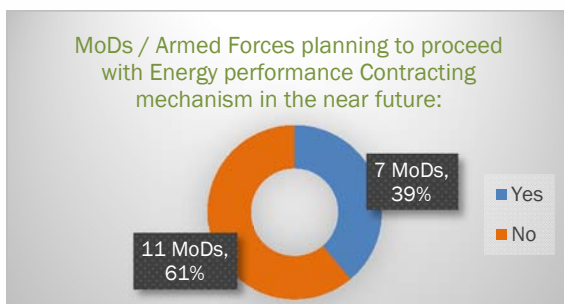
## Status in the Defence Sector

According to a relevant Questionnaire (May 2017), answered by 21 MoDs, representing 93.2% of EU defence expenditure as well as 86% of EU defence personnel<sup>1</sup>, the defence sector has not widely been involved into EPC so far. To that end:

- o Only 4 MoDs have exercised the EPC mechanism and just one of them has significant experience with numerous projects on various phases (on-going, in procurement phase, in feasibility study phase):



- o Numerous MoDs are considering either to launch pilot scale EPC projects for the first time or to strengthen their past attempts and seek for EPC projects under a new framework:



## Examples in Defence Context

### French MoD

In 2011, the FR MoD signed a 20 years EPC for the **Barby – Roc Noir** camp (45.000 m<sup>2</sup> heated surfaces in total). Works, which were financed by the contractor (> 15 M€), included the construction of a 3.5 MW heating plant (biomass & gas), refurbishment of specific buildings and substations, thermal solar panels and a centralised monitoring / management system. **In 2014 the energy consumption was reduced by 40%** and **in 2015 the relevant reduction was 39%**, while **GHG emissions dropped to -43%** and the **production of energy by RES reached 60%**, compared to the baseline year 2011.



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In 2013, a 20 years EPC contract was signed for the **La Valbonne** camp (100.000 m<sup>2</sup> heated surfaces in total). The investment (> 12 M€) was made by the FR MoD and included the construction of a 4.6 MW biomass heating plant, replacement of 15 km of heating network, insulation/ refurbishment of specific buildings, refurbishment/ construction of 72 substations and a centralised monitoring/ management system. **In 2015 the energy consumption (HVAC) was reduced by 40%**, **GHG emissions by 72%** and the **production of energy by RES reached 38%** compared to the baseline year 2013.

Latest update: 23.10.2017

<sup>1</sup> Data for the year 2015, retrieved through EDA Defence Data portal (<http://www.eda.europa.eu/info-hub/defence-data-portal>). The EU MS MoDs that provided replies are: AT, BE, CY, DE, EE, EL, ES, FI, FR,

HR, IE, IT, LT, LV, NL, PT, RO, SE, SI, UK. Among the participating MS is DK, which holds an opt-out from EU policies in relation to security and defence and does not provide defence data to EDA.