

Energy savings in the Norwegian defence sector

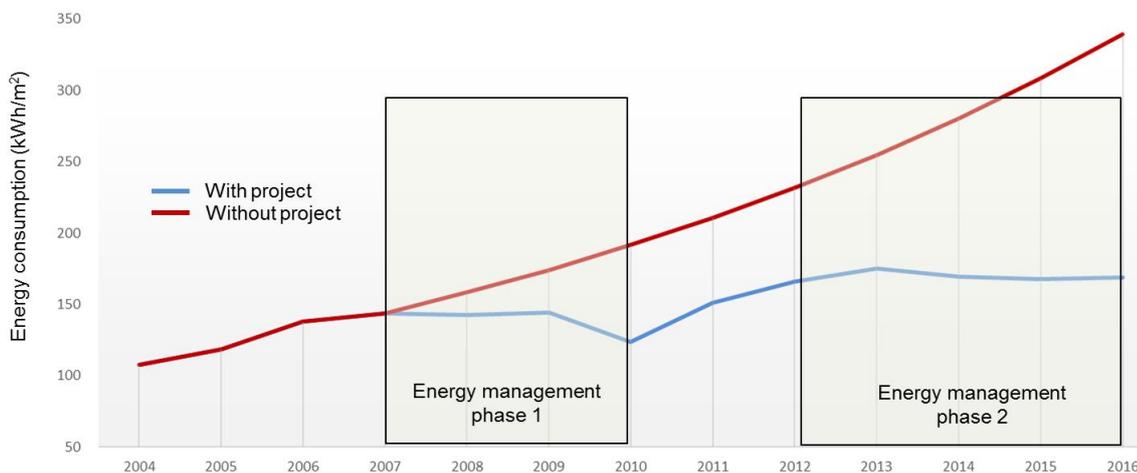
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Abstract

The Norwegian Defence Estate Agency (NDEA) completed in the end of 2016 the second phase of a comprehensive energy management programme. Since 2012, the sector has saved 136 gigawatt-hours of energy which is equivalent with the energy consumption of 6 800 households. Reduced energy means in addition substantial cost savings to be utilised in other areas.

1. INTRODUCTION

Reduced energy use is an important ambition for the Norwegian defence sector [1]. With changing activities, the use of buildings and other facilities are rapidly moving towards more energy intense purposes. Estimations have predicted a 10% annual increase for the specific energy consumption (kilowatt-hour per m² dwelling area) over the last 10-year period. To avoid this, The Norwegian Defence estate agency (NDEA) initiated two energy management initiatives. The programs have been successful keep the specific energy use at a constant level independent of the changed use of the buildings.



Picture 1. Predictions of specific energy use (kWh per m² dwelling area) in the Norwegian defence sector without energy saving (red line), compared to the actual energy use after conducting energy management phase 1 and 2 (blue line).

2. RESULTS

NDEA completed in the end of 2016 the second phase of the energy management programme. Since 2012, the sector has saved 136 gigawatt-hours of energy which is equivalent with the energy consumption of 6 800 households. Reduced energy means in addition substantial cost savings to be utilised in other areas. In 2016, DNEA initiated over 150 larger measures with implications all over the country. In the whole period, the Defence sector has cooperated closely with ENOVA, the Norwegian government enterprise for energy conservation.

Most of the energy savings has been the result of work in three areas:

- Energy monitoring. Increased focus on energy monitoring to adjust technical equipment for optimal use. Errors and problems are monitored and corrected rapidly to avoid wasting energy.
- Technical measures. Installation of more energy conserving equipment and efficient control systems. Low energy use lightning has been installed when economic feasible.
- Behavioural change. Reduce unnecessary energy use through change of attitudes for the users of the buildings.

Within this period, NDEA erected in addition the first near-zero energy consumption building at the Haakonsværn military naval base. Energy use for the first year in operation has been approximately 34 000 kilowatt-hours, equivalent to the energy use of one normal household.

All of these results points to possibilities for future energy savings both in new and exiting buildings.

REFERENCES

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