

Finabel



Renewable Energies: The Use of Solar Panels in Military Districts

AN EXPERTISE FORUM CONTRIBUTING TO EUROPEAN
ARMIES INTEROPERABILITY SINCE 1953



FINABEL

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INTRODUCTION

Energy security has become an important issue on the international scene for several reasons. We notice a growing dependence on oil and gas and a depletion of these resources expected to occur in the second half of the century. We also have reasons as climate change and an unceasing rise of prices of raw materials. In this paper we will focus on the use of renewable energies and specifically on the solar panels and their beneficial effects.

Today we have a significant rising of the use of energy by armies and Defense institutions in general, it becomes too expensive to provide all this quantity of energy. An alternative energy solution is essential. The technology using photovoltaic solar panels seems to be more effective because it allows direct conversion of solar energy into electricity.

The use of solar and wind energy to acquire an inexhaustible, free, non-polluting, totally independent electricity production is sufficient to operate vital communications equipment during an operation and to save national budgets. We see that this is the aim Governments want to reach, it will allow them to be efficient and independent.

CONTRIBUTING TO THE RENEWABLE ENERGIES

The EU encourages implementation of renewable energies. By reducing their energy consumption, member states will also contribute to the EU's 20/20/20 objectives, it is seen as a demonstration of the cohesiveness of the EU. The European Commission is supporting the "Go Green" project on photovoltaic energy and wants in the future associate member states to other sources of renewable energies as wind energy, biomass and hydraulic energy. So such developments on a national scale will also be positively seen by the EU.

We cannot talk about efficiency and relevance without all these topics as climate change, dependence on fossil fuels, rising energy demand etc. Everything is related but instead of stopping us it can push us to open a reflexion on a possible start to move to that renewable direction, step by step. Solar panels are today an accessible technology to every European country. Starting to invest and install them at the roofs of fed-

eral buildings will provide financial benefits that we could then invest in new technologies, improve efficiency on the fields and save human lives. But there are other positive impacts of such a decision as a decrease in dependency on imported natural resources. Everything is related and the impacts are more positive than negative.

Member states are not bind by the main EU directives on Energy Performance in Buildings Directive, the Renewable energy Directive etc. But there are many reasons why energy matters for the military. The main important reason is cash-savings, especially in times when Ministries of Defence are cash-strapped anyway and the EU is dependent on imports of fossil fuels. Diversifying energy supplies while increasing alternative energy sources to overall energy mix will reduce defence budgets exposure to the risks of the future price instability.

There are many advantages of installation of the solar panels:

- Once the solar panels are installed, they do not provide negative effect to the atmosphere.
- Solar energy is a renewable source, we cannot run out of it (comparing to fossil fuels). It is also sustainable, it is able to meet the needs of the present without compromising the needs of the future generations.
- Solar panels might be installed on any number of roofs, which wipes out the issue of trying to find enough space for solar panel arrangement. Not only does it save space, but it can also save a lot of money as well. Even if it is expensive to install them, they give a free supply of power, which means that they will eventually pay for themselves at the long term.
- The use of solar energy allow the creation of power that permits to be free of the limitations of fossil fuels. Moreover, produced surplus of energy can be sold.
- Modern solar panels require less maintenance as they don't involve any moving parts and last for about 20-25 years. They require few meters of space and cleaning a few times a year. We can deduct that the maintenance of these panels is not difficult to accomplish. In addition, panels operate silently.

Often the main reasons which stop such developments are a lack of financial support or a binding national legislation. Undertake the necessary reforms at a national scale will provide legal basis and facilitate such developments. In Belgium, for instance, the legisla-



tion considers that a production of energy from solar panels is an activity which generates economic benefits and unfortunately these activities are forbidden and in case they produce renewable energy on their property, the Defense would be subjected to a property tax on the land where it would generate electricity. In addition, the Defense can not rely on the many bonuses for the placement of such facilities. From these various considerations, it can be noticed that the return of the investment done in these facilities is longer than the standard period and therefore less profitable for the Defense. To avoid such problems, the example of the United States can be taken into account. Indeed, the USA tends to be less dependent on fossil fuels, they want to reduce costs and for that they implemented a legal system. There is a law of 2007 on energy independence and security which claims that all new federal buildings have not to be dependent on fossil fuels by 2030. The United States adopted national legislations in order to encourage installations of solar panels on the roofs of military/federal buildings. It is a good example of how Governments can cooperate and support these initiatives.

Another good example to follow is the case of military district in Savoie (France).

In total, 30 buildings (for a heated area of more than 41,500 m²) have been renovated. And the contract with EDF Optimal Solutions foresees a 46% reduction in energy consumption and a 50% reduction in CO₂ emissions. More than half of the needs (58%) are covered by renewable energies. European countries should also consider these initiatives to improve their technologies, to spare budget and improve its energy supplies. Being more independent, have more spared money creates the capacity to innovate and become more competent and thus contribute to a better security.

Finally, the need to find a solution which can provide energy and lower the costs already pushed renewable energies' initiatives forward. During military operations, there are tents with solar panels included on them that are used. It provides soldiers on the field with electricity and hot water. Efficiency of such investments is already proven. There are also materials as LED lamps used by soldiers and portable batteries which works only through a solar system. These materials are less heavy to wear during operations and it provides light, necessary electricity and a more comfortable displacement of the soldier which can only contribute to its security.

CONCLUSION

The promotion of renewable energies such as solar energy is a promising avenue for reducing dependence on fossil fuels, to be more efficient by sparing more funds and invest them into further developments/innovations. Governments should start to develop potential reforms and cooperate with the Defense ministries in order to allow a future within military districts which will include the use of renewable energies in the daily life, which will preserve the environment and respond to the raising demand on energy consumption. Military districts should use the potential space available on their buildings to improve energy supplies, the environment and national budgets.



BIBLIOGRAPHY

- F.C Amel, "Quand les armées ambitionnent les énergies renouvelables", Revue de Presse, January 2012
- "Des armées moins énergivores", OTAN, July 2013
- "Camp écoénergétique: à la découverte de solutions prometteuses pour économiser l'énergie", NATO, 2013
- ELLIS Lucy, "Première mini centrale électrique à énergie renouvelable", Gouvernement du Canada, April 2014
- COAT Sylvain, "Les énergies renouvelables au service du soutien du soldat en opération", Opérationnels, May 2014
- "Un plan d'action européen de la défense et une énergie propre pour tous les Européens", Europa, November 2016
- Commission Européenne "Vers un secteur de la défense et de la sécurité plus compétitif et plus efficace", July 2013
- "Sustaining Europe's armed forces", European Defense Matters, Issue 11, 2016
- "Solar Energy: Pros and Cons", CEF
- LAFON Cathy, "Économie d'énergie : l'armée passe au vert", Sud Ouest, 2014
- ANCIAUX Bert, "Défense - Bâtiments - Coût et économies d'énergie", Sénat de Belgique, 2012

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Finabel, as the only organisation at this level, strives at :

- promoting interoperability and cooperation of land components while seeking to bring together concepts, doctrines and procedures;
- contributing to a common European understanding of land defence issues. It focuses on doctrine, training and the joint environment.

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By offering the opportunity to the member states' officers and Land Forces Commanders to meet, Finabel favours fruitful contacts in a spirit of opening and mutual understanding.

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Initially focused on cooperation in armament's programmes, Finabel quickly shifted to the harmonisation of land doctrines, starting from the statement that a common vision of force engagement on the terrain should be first obtained before hoping to reach a shared capability approach and the realisation of common equipments.

Finabel studies are recommendations freely applied by its members. Their aim is to facilitate interoperability and improve the daily tasks of preparation, training, exercises and engagement in external operations.



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