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Zero carbon footprint? - Charles Yousif

By January 1, 2019, all new and renovated buildings occupied by a public authority must achieve near-zero energy consumption status, as stipulated by the EU Directive on Energy Performance of Buildings, in order to lead by example. This is to be followed by all new and renovated buildings as of January 1, 2021.

Although this seems to be a far-fetched target, the Interreg-Europe project ZEROCO2 has shown that it is possible to achieve such a target and it is also possible to achieve a nearly zero carbon footprint due to energy use in such buildings, provided that certain policy measures and incentives are introduced in the appropriate sectors.

ZEROCO2 stands for "Promotion of near zero CO2 emission buildings due to energy use", which addresses regional policies in the field of environment and energy and supports actions as well as investments to increase levels of energy efficiency in public buildings and the housing sector.

The project will help to meet the EU target to reduce emissions by 20 per cent by 2020.

The partnership will also meet the flagship initiative: "Resource Efficient Europe" to help decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources and promote energy efficiency.

The project comprises eight partners of different regions from Italy, France, Finland, Greece, Malta, Lithuania, Germany and Slovenia, who is the lead partner. The Maltese partner in the project ZEROCO2 is the University of Malta and more specifically, the Institute for Sustainable Energy.

This project started in April 2016 and is now in its fourth and last semester, where the anticipated energy policy action proposals to government will be finalised.

The project has the support of the Energy and Water Agency and the Building Regulation Office. A Memorandum of Understanding signed between the University of Malta and both entities has facilitated collaboration and enhanced relationships to be able to achieve the goals of this project.

But what is the difference between a nearly zero energy and a nearly zero carbon dioxide building? One can explain the difference by taking an example.

> *"The project will help to meet the EU target to reduce emissions by 20per cent by 2020"*

If a hotel is using liquefied petroleum gas (LPG) to heat potable water, its energy bill is dictated by the price of LPG and its carbon emission is a direct result of burning the gas on site. If the hotel decides to shift its mode of operation and use a heat pump (similar to an air-conditioner) to heat water, then its electricity bill may go down because a heat pump is efficient, however its carbon footprint could be higher because the production and distribution of electricity at the power station have greater losses than burning LPG on site.

Therefore, when a building lowers its energy bill, it does not automatically mean that it has lowered its carbon footprint, because it depends on the type of primary energy used and the corresponding carbon emissions and efficiency of that energy process.

Although the EU Directive on Energy Performance of Buildings focuses on nearly zero energy buildings, the update of this directive beyond 2020 is now speaking about nearly zero carbon as well. Therefore, the project ZEROCO2 has anticipated the way forward that Europe intends to go to achieve carbon neutrality by 2050.

So far, a number of seminars and meetings have been held with key stakeholders in Malta, including but not limited to the Energy and Water Agency, the Building Regulation Office, the Housing Authority, the Planning Authority, the Education Department, the Malta Hotels and Restaurants Association, the Malta Chamber for SMEs (GRTU), the Building Industry Consultative Council (BICC), professional architects and engineers and building energy services and renewable energy companies.

Also, a number of studies and reports have been produced which include: a study on existing policies to promote energy efficiency and renewables, including strengths, weaknesses, opportunities and threats (SWOT) analysis; and a complete report on financing of energy efficiency and renewable energy measures for Malta base year 2015. This was the first time that all information available was collated in one document to give the full picture and the extent to which certain energy measures are being favoured or are suffering certain deficiencies.

A detailed analysis of energy efficiency measures and efficient technologies that can be applied to public buildings together with cost benefit study; and case studies on real buildings and the cost optimal measures that can be applied to achieve nearly zero carbon emissions status.

A best practice report will also be prepared and delivered during the next six months together with the final policy energy measures proposals, fruit of the discussions with all stakeholders. This will be a useful tool to make a step change in the energy performance of existing public buildings and the housing sector to bring them closer to nearly zero energy buildings.

All documents have been made public through the project's website, Facebook and other social media.

Charles Yousif is a lecturer at the Institute for Sustainable Energy, University of Malta.

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