

COOLING IN MEDITERRANEAN HOTELS DURING SUMMERTIME EXPERIENCE FROM THE NEZEH (NEARLY ZERO ENERGY HOTELS) PROJECT

**T. Tsoutsos^(a), S. Tournaki^(a), M. Frangou^(a), R. Morell^(b), I. Guerrero Hernandez^(c),
A. Derjanecz^(c)**

^(a) Renewable and Sustainable Energy Systems Lab, Environmental Eng. School, Technical University of Crete
Chania, 73100, Greece, Theocharis.Tsoutsos@enveng.tuc.gr

^(b) Creara Consultores S.L.

C/ Monte Esquinza, 26 6° IZQ 28010 Madrid, Spain

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40 Rue Washington 1050 Brussels, Belgium

ABSTRACT

In Mediterranean areas, during summertime, the demand for electricity greatly increases due to the extensive use of heating, ventilation, and air conditioning (HVAC) systems, increasing the peak electric load, causing major problems in the electric supply. The seasonal temperatures have a direct impact on the pattern of the power demand in the area, so most buildings are cooled by electrically powered, conventional, vapour compression systems.

The European Policy (EPBD recast, Energy Efficiency Directive) motivates the Member States to establish a long-term strategy for mobilizing investment in the renovation of the national stock of residential and commercial buildings, both public and private.

This paper presents the first results of the actual performance of Mediterranean hotels in Greece, Croatia, Italy and Spain analyzed in the framework of the nearly Zero Energy Hotels (neZEH) project putting emphasis on the cooling demand due to their seasonal summertime operation.

The applied methodology consists of providing technical advice, demonstrating the feasibility and sustainability of investments towards zero energy, undertaking training and capacity building activities, as well as promoting front runners at national, regional and EU level.

Amongst the measures which will improve the HVAC consumption, simple interventions are also included offering the most attractive payback (i.e installation of thermostatic valves or stop leaks improvements). The most common economically appealing are Building Energy Management System (BEMS), the replacement of current heat pumps by more efficient ones, but also the outdoor redesign for improved microclimate.

Keywords: HVAC, Summer Cooling; sustainable tourism; high energy efficient hotels, sustainable energy, near zero energy hotels