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## Position paper – CROATIA

*(WP2 EXPERIENCE AND VIABILITY OF NZE REFURBISHMENT PROJECTS –  
D2.7, position paper)*

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## THE EU INITIATIVE NEARLY ZERO ENERGY HOTELS (neZEH)

neZEH's scope is to accelerate the rate of refurbishment of existing hotels into Nearly Zero Energy Buildings (nZEB), providing technical advice to hoteliers for nZEB renovations, demonstrating the sustainability of such projects, challenging further large scale renovations through capacity building activities, showcasing best practices and promoting the front runners. The project covers seven (7) EU countries: Greece, Spain, Italy, Sweden, Romania, Croatia, France and has a wide EU level impact.

The expected results are:

- An integrated set of decision support tools to assist hoteliers in identifying appropriate solutions and designing feasible and sustainable nZEB projects;
- A dynamic communication channel between the building sector and the hotels industry, which will enable the exchanging between demand and supply side and the endorsement of the nZEB concept;
- Demonstration pilot projects in 7 countries to act as "living" examples; aiming to increase the rate of nZE renovation projects in the participating countries
- Practical training, informational materials and capacity building activities to support nationally the implementation and uptake of nZEB projects;
- Integrated communication campaigns to increase awareness for the nZEB benefits, to promote front runners and to foster replication; challenging much more SMEs to invest in refurbishment projects in order to achieve nZE levels.

In the long term, the project will assist the European hospitality sector to reduce operational costs, to improve their image and products and thus to enhance their competitiveness; contributing in parallel to the EU efforts for the reduction of GHGs.

neZEH started at May 2013 and will end at April 2016 and is co-financed by the Intelligent Energy - Europe (IEE) programme.

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Technical University of Crete, Renewable and Sustainable Energy Systems Lab (ENV/TUC) <i>Project Coordinator</i>	Greece
World Tourism Organization (UNWTO)	EU/Int.
Network of European Regions for a Sustainable and Competitive Tourism (NECSTouR)	EU
Federation of European Heating, Ventilation and Air-conditioning Associations (REHVA)	EU
Agency of Braşov for Energy Management and Environment Protection (ABMEE)	Romania
Creara Consultores S.L. (CREARA)	Spain
ENERGIES 2050 (ENERGIES 2050)	France
Energy Institute Hrvoje Požar (EIHP)	Croatia
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# 1. INTRODUCTION

The main objective of neZEH project is to stimulate and accelerate the rate of refurbishment of existing SME (small and medium enterprises) hotels into Nearly Zero Energy Buildings. National position paper identifies the needs of all involved stakeholders, from owners and policy makers to financial institutions. This document is based on discussions that took place since the beginning of the project with various stakeholders involved in the subject (hotel owners and managers, supporting institutions, policy makers, financial institutions, professionals of the building sector and engineers). These discussions took place on various occasions, either official or informal, such as:

- Meetings with stakeholders:
  - Ministry of Tourism
  - Association of Small and Family Hotels
  - European Bank for Reconstruction and Development
  - Environmental Protection and Energy Efficiency Fond
- Phone calls and bilateral meetings with:
  - Hotel owners and managers
  - Ministry of Construction and Physical planning
  - Association of Employers in Croatian Hospitality
  - Financial institutions
  - Public

In the addition to previously stated, position paper is also based on several documents, relevant for analyzing the situation of buildings, specifically tertiary sector in Croatia and for identifying potential improvements, supporting mechanisms and overall goals.

- Third National Energy Efficiency Action Plan, 2014 - 2016 - available at: [http://cei.hr/upload/2014/07/3\\_napenu\\_usvojen\\_53d8c6525e957.pdf](http://cei.hr/upload/2014/07/3_napenu_usvojen_53d8c6525e957.pdf)
- Program for energy renovation of commercial non-residential buildings for the period 2014 - 2020th with detailed Plan for energy renewal of commercial non-residential buildings for the period 2014 - 2016 - available at: <http://narodne-novine.nn.hr/clanci/sluzbeni/dodatni/432768.pdf>

- The report referred to in Article 5 (2) of Directive 2010/31/EC and Article 6 of Regulation (EU) 244/2012 of 16.1.2012: The minimum requirements on the energy performance of buildings - hotels and restaurants for continental and coastal Croatia, for the period up to 1970, 1971 -2005., After 2006, and nearly zero energy buildings – available at: [http://www.mgipu.hr/doc/Propisi/EIHP-014-0185-04-03\\_hoteli.pdf](http://www.mgipu.hr/doc/Propisi/EIHP-014-0185-04-03_hoteli.pdf)
- National Plan to increase the number of zero energy buildings to 2020 – available at: [http://www.mgipu.hr/doc/Propisi/PLAN\\_PBZ\\_0\\_energije\\_do\\_2020.pdf](http://www.mgipu.hr/doc/Propisi/PLAN_PBZ_0_energije_do_2020.pdf)

Also, this document is based on EU level position paper available at NEZEH web page provided by project partners Federation of European Heating, Ventilation and Air-conditioning Associations (REHVA) and World Tourism Organization (UNWTO).

## 2. RATIONALE

**2.1 Tourism is the key industry sector of the Croatia. It contributes 20% of GDP.** During the last fifty years, tourism has experienced continued expansion to become amongst the largest and fastest-growing economic sectors globally. International tourist arrivals worldwide are expected to increase by 3.3% per year between 2010 and 2030 to reach 1.8 billion by 2030. In Europe arrivals grew by 3%, in 2014 covering 51.4% of the total world tourist arrivals.

**2.2 Buildings consume 40% of the total of energy** in the EU and Croatia, so the building sector is a key priority of the EU's energy efficiency related policies. Two key directives target buildings energy efficiency: the Energy Performance of Buildings (EPBD) and the Energy Efficiency Directives (EED). In Croatia, Energy Efficiency Act and Building Act define the need to increase energy efficiency in building. The long term aim is to transform the Croatian building stock into nZEBs by deep retrofitting the existing building stock and constructing new buildings as nZEB. Although not fully defined in the final agreement this is in harmony and priorities of the COP21, where the neZEH project organized and participated in different events.

**2.3 The neZEH initiative provides SME hotels the opportunity to achieve NZEB performance levels**, by defining an acceptable definition of what should be a nearly zero energy hotel (neZEH) level, as well as offering tailored technical assistance for deep energy renovation of the buildings and showcasing best-practice examples. This approach can lead to up to 50% energy consumption reduction and to 70% savings in operational costs. Because of the specificity of the accommodation sector – associated with buildings, but which total use of energy relates as well to a range of hosting and non-hosting functions - the neZEH initiative is addressing this gap by considering and proposing policies related to the specificities of accommodation sector at EU level, within national NZEB policies.

**2.4 The neZEH policy paper aims at addressing the tourism - energy - buildings nexus for EU Policy makers.** It provides some insights of the state of play of the SME-size accommodation industries in relation to the building energy efficiency requirements stated in the

EPBD and the EED. It identifies existing and missing supporting measures for the improvement of hotels energy performance, based on countries in which the neZEH Consortium has carried out pilot projects in SME hotels. Ultimately, it provides EU level policy makers identified challenges and gaps, and suggests a set of possible policies and measures.

### 3. EXISTING NATIONAL POLICIES ON NZEB AND ENERGY REFURBISHMENT OF HOTELS

Some forms of increasing energy efficiency in buildings has been implemented since 1970, with the first demands in increasing thermal insulation. Today, the recast EPDB 2010/30/EU Directive has been transposed into the national legislation by Building Act, latest version from 2014, which sets the framework for minimum requirements for energy performance for all existing buildings, including nearly zero energy buildings (nZEB)

Technical regulation on energy economy and heat retention in buildings (Official Gazette 128/15) gives technical requirements for new buildings and includes thermal insulation, HVAC systems, lighting, DHW systems and renewable share.

Third National Energy Efficiency Action Plan emphasizes the need to increase the number of nZEB's. For that reason, National Plan to increase the number of nearly zero-energy buildings was developed to give the strict set of guidelines and implementation steps. All the goals have been adopted to collide with other strategic documents (NEEAP being the most important). Projections for increasing the number of nZEB has been made with needed increased investment costs. Action plan states the goal of 10% of new buildings being built according to nZEB standard with the addition of reconstructed building. Overall, 155 000 m<sup>2</sup> of building space is planned to be refurbished/reconstructed to nZEB standard till 2020.

Cost optimal analysis for renovation of buildings has been developed for Croatia. Separate calculations and values have been given for geographical location (continental and costal Croatia) and different building types:  
and different building types:

- Family houses
- Apartment buildings
- Office buildings
- Education buildings
- Hotels and restaurants
- Retail and wholesale buildings

- Hospitals
- Sports halls

In the addition to building types and geographical location, separate values have been calculated for 3 different time periods (buildings constructed in the period before 1970, between 1971 and 2005, after 2006) and for nearly zero energy buildings (nZEB). nZEB values are defined according to building type and location. The values are the same for new nZEB and reconstruction of existing buildings to nZEB standard.

**Table 1 Numeric values for nZEB hotel and restaurant - Croatia**

Building type	Heat Transfer Coefficient	Energy need for heating	Primary energy need	Delivered energy
Hotel and restaurant	depending on building shape factor $f_0$	depending on building shape factor $f_0$	90 - inland	90 - inland
			70 - inland	50 - inland

The project will deliver practical and flexible technical oriented tools to support the hotel owners in their investment decisions. Providing technical advice, the consortium will assist them to design feasible and sustainable NZE projects. Pilot projects, in seven (7) countries, will demonstrate the profitability and benefits of such an investment and will become a powerful example to inspire emulation

## 4. COMMON FEATURES OF SME HOTELS

The neZEH initiative, through its approach with pilot countries/hotels, aiming at better informing SMEs, summarizes the challenges that the accommodation industry faces in relation with energy performance measures. neZEH provides an integrated approach to pilot SMEs for responding to the existing challenges.

- **SME Hotels highest priority is to reduce their operations costs** and boost their competitiveness. However in the majority of the neZEH countries, reducing energy related operational costs requires a heavy investment for energy efficiency refurbishments.
- **SME Hotels lack technical knowledge about and awareness of buildings energy efficiency issues;** they do not have skilled technical personnel in charge of the technical building maintenance or dealing with energy management issues.

- **The majority of SMEs cannot prepare their own refurbishment plans**, are lost when it comes to look for incentives related to energy measures, and do not have access to private loans in the current economic environment.
- **The majority of SMEs cannot prepare their own refurbishment plans**, are lost when it comes to look for incentives related to energy measures, and do not have access to private loans in the current economic environment.
- **SME hotels do not have the capacity to leverage available support policies** and do not know how to use available existing support schemes for investing in efficiency. Furthermore, they lack of information on how to plan and implement energy efficiency investments.
- **SME Hotels have difficulties in understanding the full economic benefit** of investing in energy retrofit in cooperation with private energy consultancy companies
- **The SME hotels business model can be burden** in engaging towards neZEH levels. Many EU properties do not own the building in which they operate.
- **Resource efficiency/sustainability certification schemes** are the most common approach SME Hotels can relate to, for understanding neZEH level requirements.

**The implementation of energy performance measures by the accommodation industry presents opportunities to boost their competitiveness, but is not always well understood or the capacity to engage is limited. Such measures require the attention and support from the related policy makers at the local level.**

## 5. SPECIAL CHARACTERISTICS AND NEEDS OF THE LOCAL HOSPITALITY SECTOR AND THE HOTEL BUILDINGS

In majority of cases hotel owners are owners of buildings. That fact facilitates the refurbishments, as it is in the interest of hotel owners to invest in their property.

On the other hand, energy prices are lower than in most EU countries ([http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Electricity\\_and\\_natural\\_gas\\_price\\_statistics](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Electricity_and_natural_gas_price_statistics)) that leads to marginal profitability and equity is invested in other projects (apart from energy efficiency and renewables).

Most of the hotels in Croatia are owned by medium or big enterprises and minority is reserved for

small, mostly family run hotels. Medium or big enterprises have specialized employees responsible for energy related questions. Their policy is mixture of cost optimal investments and refurbishments and the level of accommodation. Small hotels are here in predicament as they do not have the needed expertise, access to financing schemes and know-how. This is why it is crucial to provide support for small hotels in the near future.

Hotels in Croatia mostly close during winter period as it is not profitable to stay opened during the whole year. There are exceptions, mostly urban hotels in big cities. Small hotel owners emphasize the high energy costs in winter mounts and are hoping to find the solution for them to stay open the whole year. Specific energy costs per guest, in winter mounts, seldom exceed the price pre night.

Overall, hotels in Croatia can be split in two categories. New hotels built in last 10 years that have high energy efficiency, and many of them have renewable energy sources on site. Older hotels are in the need of overall refurbishments that will include energy systems, building envelope and possibility of renewables.

## 6. POLICY RECOMMENDATIONS FOR REGIONAL AND NATIONAL POLICY MAKERS

**ISSUE 1: *EU and Croatian Policy makers do not differentiate the specificities of the existing bildings (hotels)***

The nZEB definitions do not recognize the specificities for the new and renovated buildings. Definitions were adopted according to the new buildings which in many cases cannot be achievable for existing buildings.

### RECOMMENDATION 1:

**Policy makers should better define guidance for NZEB for refurbished buildings – SME Hotels.**

**ISSUE 2: *Policy Makers lack of interaction between the policy sectors related energy efficiency of hotel buildings.***

The ministry/authorities in charge of tourism are not aware of the EPBD and EED related obligations which apply for hotel buildings. On the other hand the ministries/authorities in charge of support policies for buildings energy efficiency are not aware of the special characteristics of the tourism sector neither possible synergies that can be exploited when drafting energy refurbishment plans or defining nZEB criteria.

Better coordination is required between support policies targeting the development of the tourism

sector and the improvement of buildings energy efficiency. Existing ESIF funding for infrastructural development in the tourism sector should integrate building energy performance requirements and special incentives should be developed to promote ambitious energy refurbishment of existing hotels.

### **RECOMMENDATION 2:**

**At National and Regional levels, stimulate a better dialogue between tourism, energy and building policy makers to facilitate SME Hotels engagement towards nZEB regulations at local and national level.**

***ISSUE 3: For reaching NZEB and neZEH levels, SME Hotels require deep refurbishment and support policies and incentives.***

There is a need for tailored energy efficiency support policies and financial incentives targeting the accommodation industry to help hotel owners getting started and begin accomplishing nZEB goals. Tailored financial support schemes and incentives have to be provided in order to help SME hotels to overcome the problem of high initial investment costs of ambitious nZEB renovations.

In Croatia where incentives and support schemes for energy efficiency investments are developed by, primarily, Environmental Protection and Energy Efficiency Found, there's a need for better coordination among the interested parties.

Policies should also facilitate the development of regional and local financial schemes (e.g. revolving funds, guaranteed or supported loan programmes, EPC schemes), which are able to mobilize private financing. The ongoing programming of the European Structural and Investment Funds (ESIF, 2014-2020) is a huge opportunity to mainstream buildings energy efficiency policies and achieve large scale improvements in the Member States.

### **RECOMMENDATION 3:**

**(i) Policy makers need to engage for scaling up refurbishment of the accommodation industry to meet NZEB regulations, and reach neZEH levels; (ii) Information, technical and financial support could be provided by an innovative approach and the creation of a “One Stop Shop” for SME hotels.**

***ISSUE 4: Green hotels need an holistic resources management***

Green hotels should reduce their resources towards the recycling economy (energy and water consumption, combined with minimization of waste production, sustainable mobility etc.). In most

activities energy consumption is hidden and the market asks for holistic and innovative actions. A more strategic viewpoint to fostering sustainability and innovation should include a wide policy coordination in order to integrate multiple policies (energy, transport and environment).

#### **RECOMMENDATION 4:**

**Well targeted demand side policies, such as regulations, campaigns and staff training/certifications can help the development of tourism markets focusing on innovation and creation of a competitive advantage for the SMEs involved.**

## neZEH TEAM



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