

Nearly Zero Energy Hotels

towards low carbon growth in the European Union

neZEH Position paper



www.nezeh.eu



Co-funded by the Intelligent Energy Europe
Programme of the European Union

Contract N°: IEE/12/829/SI2.644758

Nearly Zero Energy Hotels (neZEH)

The European initiative Nearly Zero Energy Hotels (neZEH) aims to support the European accommodation industry in accelerating the rate of refurbishment of existing buildings into Nearly Zero Energy Buildings (NZEB), providing technical advice to hoteliers for NZEB renovations, demonstrating the sustainability of such projects and challenging further large scale renovations through capacity building activities, showcasing best practices and promoting the front runners. Focusing especially on Small and Medium properties which represent 90% of the European hospitality market, neZEH counts 16 demonstration projects in European pilot hotels (in Croatia, France, Greece, Italy, Romania, Spain and Sweden) committed to large scale renovation plans to accomplish nZEB goals.

In the long term, neZEH will assist the European hospitality sector to reduce operational costs, to improve their image and products and thus to enhance their competitiveness; contributing to the EU efforts for the reduction of Greenhouse Gases (GHGs) emission.

PROJECT PARTNERS

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
Istituto Superiore sui Sistemi Territoriali per l'Innovazione (SITI)	Italy
Sustainable Innovation (SUST)	Sweden

PROJECT COORDINATOR

Professor Theodoris Tsoutsos, Renewable and Sustainable Energy Systems Lab, School of Environmental Engineering,
TECHNICAL UNIVERSITY OF CRETE (ENV/TUC)

EDITORS - AUTHORS

World Tourism Organization (UNWTO), Federation of European Heating, Ventilation and Air-conditioning Associations (REHVA)
Work Team: Anita Derjanecz (REHVA), Zoritsa Urosevic, Claudia Lisboa (UNWTO), Sandra de Puig (NECSTouR), Stavroula Tournaki, Theodoris Tsoutsos (ENV/TUC)

Date of edition 30 March 2016

www.nezeh.eu

LEGAL NOTICE

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein. Reproduction is authorized upon approval and provided the source is acknowledged.

CONTENTS

Overview of recommendations	5
What is neZEH?	6
Why neZEH?	7
Key challenges for SME hotels: the business case of hotel buildings and energy performance	9
Common features of EU tourism policy framework for energy performance	10
neZEH policy recommendations: Improving policies for tourism, at European, national and regional level....	11
neZEH initiative: Credible and independent technical assistance	14
The way forward: Awareness raising and capacity building	15

OVERVIEW OF RECOMMENDATIONS



IMPROVING POLICIES FOR TOURISM, AT EUROPEAN, NATIONAL AND REGIONAL LEVEL

The neZEH policy paper aims at addressing the TOURISM - ENERGY - BUILDINGS nexus for policy makers. It shares lessons learned during the work undertaken by the neZEH consortium in 7 European countries and provides insights of the EU's SME hotels in relation to the building energy efficiency requirements stated in the Energy Performance of Buildings Directive (EPBD recast) and the Energy Efficiency Directive (EED).

The recommendations provide guidance to policy makers to adapt EU and National policies to foster SME hotels' competitiveness by engaging in sustainable practices and green innovation, leading to low carbon growth.



At EU level

- > Strengthen the dialogue between EU policy makers
- > Coordinate support mechanisms for SME hotels competitiveness
- > Harmonize the NZEB concept so as to enable neZEH (nearly Zero Energy Hotels)



At National and Regional level

- > Stimulate the dialogue between tourism, energy and buildings policy makers
- > Scale up refurbishment of SME hotels to meet NZEB targets
- > Secure support instruments and investment for SME hotels to meet NZEB national targets

WHAT IS NEZEH?

The European initiative Nearly Zero Energy Hotels (neZEH) aims to support the European accommodation industry in accelerating the rate of the refurbishment of existing buildings into Nearly Zero Energy Buildings (NZEB) by providing technical advice to hoteliers for NZEB renovations, demonstrating flagship nZEB projects in European hotels and undertaking capacity building activities. neZEH is focusing especially on Small and Medium properties which represent 90% of the European hospitality market.

In the long term, the project aims to assist the European hospitality sector to reduce operational costs, to improve their image and products and thus to enhance their competitiveness; contributing to the EU efforts for the reduction of Greenhouse Gases (GHGs) emissions.

NEZEH offers

- Demonstration pilot projects in seven countries as ‘living examples’ to increase the rate of nZE renovation projects in Europe and in the participating countries;
- An integrated set of decision support tools to assist hoteliers in identifying appropriate solutions and designing feasible and sustainable NZEB projects;
- Practical training, informational materials and capacity building activities to support nationally the implementation and uptake of NZEB projects;
- Integrated communication campaigns to increase awareness of the NZEB benefits, promote front runners and foster replication; challenging much more SMEs to invest in refurbishment projects in order to achieve nZE levels.

neZEH¹ is an initiative co-funded by the Intelligent Energy Europe programme of the European Commission (2013-2016), proposed and implemented by a consortium² of ten partners from seven European countries (Croatia, France, Greece, Italy, Romania, Spain and Sweden), including two European associations and the World Tourism Organization, the United Nations specialized agency for tourism.

Sixteen hotels across the seven neZEH countries have committed to become neZEH Pilot Hotels. These hotels are to become inspiring frontrunners to the European hotel industry as examples of good practice to achieve NZEB performance levels. The neZEH initiative provides sound and adapted guidance for the EU accommodation industry to reach neZEH levels and offers a free online neZEH tool for a wide use by SME hotels, across the EU Member States.

¹ “A nearly Zero Energy Hotel (neZEH) is a hotel that uses very a low amount of energy and which covers this very low amount of energy to a significant extent by renewable energy sources produced on-site or nearby”

² Technical University of Crete, Renewable and Sustainable Energy Systems Lab (TUC) - *Project Coordinator*, World Tourism Organization (UNWTO), Network of European Regions for a Sustainable and Competitive Tourism (NECSTouR), Federation of European Heating, Ventilation and Air-conditioning Associations (REHVA), Agency of Braşov for Energy Management and Environment Protection (ABMEE), Creara Consultores S.L.(CREARA), ENERGIES 2050, Energy Institute Hrvoje Požar (EIHP), Istituto Superiore sui Sistemi Territoriali per l’Innovazione (SITI), Sustainable Innovation (SUST)

WHY NEZEH?

Tourism is a key economic sector in the European Union. It contributes 5% to EU GDP and accounts for 5.2% of the total labour force (some 9.7 million jobs). Considering the multiplier effect of tourism in other economic sectors, these figures become even higher, at 10% of GDP and 12% of total employment.

Tourism is one of the fastest growing and most resilient economic sectors. 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 5% in 2015 to reach 609 million, representing 51% of the world's total international tourist arrivals³.

Tourism is the third-largest industry sector of the European Union. Eurostat highlights that the number of nights spent in tourist accommodation in the EU continued to grow in 2014 by 1.6%, reaching 2.7 billion, hotels being the most popular type of accommodation with 64% of the nights.

The tourism sector in Europe is composed of 1.8 million businesses, 99.5% of which are SMEs and 91% micro enterprises, especially family business⁴. The sector is very fragmented and not well federated. Hotels and similar accommodation numbered more than 200,000 establishments in the EU-28⁵, according to Eurostat.

Buildings consume 40% of the total energy and emit 36% of greenhouse gases in the EU, 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 recast)⁶ and the Energy Efficiency Directives (EED)⁷ that are to be implemented by every EU Member State. The long term aim is to transform the European building stock into NZEBs by deep renovation of the existing building stock and ensuring that all new buildings are NZEB. Although not fully defined in the final agreement this is in harmony and within the priorities of the COP21⁸, where the neZEH project organized and participated in different events.

Hotels are 'special buildings'. An important specificity of the accommodation sector is that hotels represent specific building types, where a significant part of the total energy use relates to service functions not taken into account in the NZEB performance calculation methodology (hosting and non-hosting functions). The neZEH initiative is addressing this gap by considering and proposing policies related to the distinctive features of the accommodation sector at EU level and within national NZEB policies.

Because the sector is mainly made of M-SMEs and fragmented, accessing information for better understanding and/or responding to energy or building directives is rather complex. The size of the companies, the industry business model (own and operate – or operate only), the technical support and financial implications add to the difficulties for accommodation industry SMEs to engage.

The neZEH initiative has been prepared to address this gap through its approach with pilot countries/hotels, aiming to better inform SMEs and help them understand the challenges that the accommodation industry faces in relation to energy performance measures. neZEH provides an integrated approach to pilot SMEs for responding to the existing challenges.

³ UNWTO Tourism highlights, 2015 edition

⁴ HOTREC, Green Paper on the safety of tourism accommodation services-HOTREC contribution, November 2014

⁵ Eurostat, <http://ec.europa.eu/eurostat/web/tourism/data/database>

⁶ Directive 2010/31/EU

⁷ Directive 2012/27/EU


⁸ <http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>

The neZEH initiative provides SME hotels with the opportunity to achieve NZEB performance levels, by specifying an acceptable level of energy performance for them to be a nearly zero energy hotel (neZEH), as well as offering tailored technical assistance for deep energy renovation of the buildings and showcasing best-practice examples. This approach can lead to 70% primary energy consumption reduction compared with the pre-renovation performance.

To be able to come up with a set of recommendations at EU level, the neZEH consortium has prepared seven national position papers in the partner countries to foster adequate supporting policies and mechanisms at national and regional level. The national position papers are based on expert views from the seven partner countries, on the current situation, the specific needs of SME hotels with regard to the NZEB transition and some recommendations to address the challenges.

The neZEH position paper aims at addressing the tourism - energy - buildings nexus for EU Policy makers. It provides some insights on 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 challenges 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.





Key challenges for SME hotels: the business case of hotel buildings and energy performance

- **The highest priority for SME hotels is to reduce their operational costs** and boost their competitiveness. However in the majority of the neZEH countries, reducing energy-related operational costs requires significant investment in energy efficiency renovation.
- **SME Hotels lack technical knowledge and awareness of buildings energy efficiency issues**; they do not have skilled personnel to deal with technical building maintenance or 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.
- **Resource efficiency / sustainability certification** schemes are the most common approach SME Hotels can relate to, for understanding neZEH level requirements.
- **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 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.
- **SME hotels business models can make it difficult to achieve neZEH status**. Many EU hotels do not own the buildings in which they operate.

Tourism is the third-largest industry sector of the European Union.

The tourism sector is composed of several industries and by 1.8 million businesses.

Because the sector is mainly made of M-SMEs and fragmented, accessing information for better understanding and/or responding to energy or building directives is rather complex.

Common features of EU tourism policy framework for energy performance

- **Improving energy efficiency in the tourism sector relates to energy policies** which are not always part of tourism authorities' portfolios, nor are policies related to buildings.
- **Ministries and authorities in charge of tourism are often not aware of the EPBD and EED related obligations which apply to hotel buildings.** At the same time, authorities that are in charge of support policies for energy efficiency in buildings are often not aware of the special characteristics of the tourism sector, nor the possible synergies that can be exploited when drafting energy refurbishment plans or defining NZEB criteria.
- **Discussion of energy or resource efficiency in the sector usually refers to either sustainability or Corporate Social Responsibility (CSR) strategies** for SMEs, and relates to regulations for the tourism sector in the public domain, as issues pertaining to resource efficiency are related to quality and standards regulations. There is an obvious need to better address the tourism-energy-buildings nexus.
- **Existing Member States level legislation on NZEB define numerical values mostly for new buildings only.** It is difficult to comply with these values in the case of a refurbished building. There is a need for different and realistic NZEB criteria for refurbished buildings.
- **Hotels represent a specific building type, where a high ratio of the delivered energy is used for non-hosting, hotel-specific functions.** It is necessary for hotels to be recognised as a separate building type in Member States' building regulations.

Tourism, energy and infrastructural development (including buildings) are usually related to different government portfolios, at both national and EU level.

Member States policy makers, while preparing their National NZEB policies, do not differentiate the specificities of the accommodation sector, relating tourism industries, as SMEs.

At National level, there is a lack of interaction between policies and sectors linked to the energy efficiency of hotel buildings.

NEZEH POLICY RECOMMENDATIONS

Improving policies for tourism, at European, national and regional level

There is an obvious need to address the tourism-energy-buildings nexus at all levels. The implementation of energy performance measures by the accommodation industry presents opportunities to boost its competitiveness, but this is not always well understood and the capacity to engage is limited. Such measures require the attention and support from related policy makers at the local level.

The neZEH consortium is proposing to bridge this gap, by presenting possible avenues to policy makers, through the key findings stemming from the work carried out in seven neZEH target countries. Local, regional and national authorities were consulted in the field of tourism, energy and building regulatory bodies, as well as SME Hotels championing to become neZEH.

ISSUE 1: Member States policy makers do not differentiate the specificities of the accommodation sector - which are primarily buildings and SMEs- while preparing their National NZEB policies.

National NZEB definitions do not sufficiently recognize the specificities of the accommodation industry. They should address the particular building features, uses and operating models, since hotels cannot be considered as typical non-residential buildings; their business models usually include a number of energy intensive operations associated with their customers' comfort and expectations, which are therefore closely linked with their competitiveness and viability. In order to develop viable scenarios for hotels, a "modular" benchmarking could be considered to include the non-hosting functions. Furthermore, different targets should be set for new and renovated buildings.

Different measures could be promoted in different climate zones within a particular country; data at a national and regional level should be evaluated to prioritize the available measures, according to their cost-efficiency depending on the climate zone.

RECOMMENDATION 1:

EU Policy makers should coordinate a dialogue between DG Energy and DG Growth to:

- (i) Identify the specificities of the accommodation industry and address these features in NZEB approach and targets in national level;**
- (ii) Define better guidance for NZEB for refurbished buildings – SME Hotels.**

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

The ministries/authorities in charge of tourism are often not aware of the EPBD and EED related obligations which apply to 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.

ISSUE 3: In order to reach NZEB and neZEH energy performance, SME Hotels require technical assistance for deep renovation with tailored support from 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 the countries where incentives and support schemes for energy efficiency investments are developed by different authority levels (national, regional and local) there's a need for better coordination among the involved policy levels (national, regional and sub-regional support schemes).

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)⁹ is a huge opportunity to mainstream buildings energy efficiency policies and achieve large scale improvements in the Member States.

⁹ Financing the energy renovation of buildings with Cohesion Policy funding. Technical guide. DG Regio, 2014
https://ec.europa.eu/energy/sites/ener/files/documents/2014_guide_ance_energy_renovation_buildings.pdf

RECOMMENDATION 2:

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

RECOMMENDATION 3:

At National and Regional level:

- (i) Policy makers need to engage for scaling up refurbishment of the EU accommodation industry to meet NZEB performance, and reach neZEH status – the use of European Structural and Investment Funds (ESIF) is a possible option;
- (ii) Information, technical and financial support could be provided by an innovative approach and the creation of a “One Stop Shop” for SME hotels.

At EU level, DG Growth, DG Energy and DG REGIO should coordinate their support to sustain European SME hotels' competitiveness through policies and appropriate mechanisms supporting deep renovation projects in SME hotels.

ISSUE 4: Important terminology details need to be addressed for NZEB definition.

According to the EPBD¹⁰ Recast, the definition of NZEBs is left to each Member State and there is no unique and harmonized NZEB definition throughout the EU.

ISSUE 5: Moving towards a low carbon growth, requires a holistic resources management approach for SME Hotels.

SME Hotels should be more resource efficient (energy and water consumption, combined with minimization of waste production, sustainable mobility etc.). In most activities related to SME hotel operation – hosting and non-hosting functions - energy consumption is hidden and the market asks for integrated and innovative actions. A more strategic viewpoint to fostering sustainability and innovation should include broad policy coordination in order to integrate multiple policies (energy, transport and environment).

¹⁰ Directive 2010/31/EU of the European Parliament and the Council of 19 May 2010 on the energy performance of buildings <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:0013:0035:EN:PDF>

RECOMMENDATION 4:

At National and Regional level: policy makers need to work together to create the NZEB national targets, especially as concerns Renewable Energy Sources (RES). Also to work on methodologies commonly accepted (i.e. in line with European Committee for Standardisation – CEN).

At EU level, there is a need for further guidance and assistance for correct transposition and compliant implementation of EPBD and EED, as well as for promoting harmonised adaptation of the NZEB related EU standards at national level while considering also the national specificities. The specificities of the hotel building type shall be taken into account when developing energy performance calculation methodologies and defining numerical values.

RECOMMENDATION 5:

At National, Regional and EU level: Adapted policies, related to regulations, resource efficiency management, advocacy campaigns and staff training can help SME Hotels to engage in green innovation, thus building a vibrant and competitive tourism sector contributing to EU Low carbon growth.

neZEH initiative: Credible and independent technical assistance

Hotels need reliable technical assistance supported by financial incentives to design energy refurbishments and plan the investment financially. As reported in the recent EPBD public consultation report¹¹, a major barrier for the insufficient take-up of available financing mechanisms for energy efficiency in buildings (where these are available), is the complexity of the renovation decision as such, which requires only financial insights, but also technical, organizational and legal. Financing mechanisms available are also complex for non-professionals to understand at an adequate level for decision-making.

neZEH recommends the set-up of “one-stop-shop” services in the public or private domains, or energy help desks also for the non-residential building sector (i.e. similar to the “point renovation info service” or “Espace Info Energie” service of ADEME in France for the residential sector), in order to guide hotel owners through the whole renovation process. These services should provide independent, credible and evidence-based information on the available technical solutions; have knowledge of the available public and private financial support schemes as well as expertise in the design and implementation of hotel refurbishment projects. The fundamental role of local authorities in providing energy advice, due to their involvement in planning and building permits, is to be emphasized here¹².

¹¹ Public Consultation on the Evaluation of Directive 2010/31/EU - Final synthesis report, Ecofys, November 2015, <https://ec.europa.eu/energy/sites/ener/files/documents/MJ-02-15-954-EN-N.pdf>

¹² Public Consultation on the Evaluation of Directive 2010/31/EU - Final synthesis report, Ecofys, November 2015, <https://ec.europa.eu/energy/sites/ener/files/documents/MJ-02-15-954-EN-N.pdf>

SME hotels with less financial capacity should receive technical assistance to develop individual deep renovation roadmaps, required to achieve the NZEB status in a certain time frame. The roadmaps should specify the individual cost-optimal renovation steps, plan their logical timeline and consider the financial feasibility at the same time. EU funding will be critical for enabling such successful approach; the pool of competencies of the neZEH consortium has been instrumental in providing tailored made technical assistance.

WHY becoming a resource efficient hotel?

Energy efficiency and renewable energy measures very often reduce operational costs, increase independence from energy suppliers and reduce the hotel's and the guests' carbon footprint. Endorsing resource efficient initiatives would help to meet the hotel's corporate social responsibility (CSR) strategies, while increasing the living comfort and enriching the guests' experience and therefore loyalty.

Some certification schemes provide guidance on how to operate a hotel in a more sustainable way, and could be a first step in becoming more competitive while increasing its brand value.

The neZEH consortium provides an innovative approach which goes beyond resource efficient operations; it offers a step by step approach and tools to enable hoteliers to reach nearly Zero Energy Hotel (neZEH) performance.



The way forward: Awareness raising and capacity building

Advocacy and tailored awareness raising campaigns targeting the hospitality industry can help to convince hotel owners about the economic viability of becoming a neZEH. Insufficient awareness about the benefits of investing in energy efficiency, as a result of lack of information and advertising, is also mentioned as a barrier in the EPBD consultation¹³. It is easier to engage hotel owners that are already committed to sustainability in the discussion about investing in deep energy retrofit. Synergies with the existing engagement of hotels in different eco- green hotel certification schemes can be exploited when promoting buildings energy efficiency among hoteliers (i.e. by using the EMAS following hotels).

The buildings energy performance criteria should be included in the existing national and European quality and sustainability classification schemes for hotels, i.e. in the EU level Eco certification scheme, to ensure and promote the marketing value of ambitious energy refurbishments for hotels. Also, the voluntary building energy performance certification schemes shall be promoted among hotel owners.

Hotel managers and the hotel personnel need to be trained on basic technical knowledge related to energy efficiency as well as on the economic and environmental advantages of investing in ambitious refurbishment projects. Hotel owners have to gain a general understanding of sustainable buildings and the available public support schemes for them.

Public support schemes for capacity building can facilitate the learning process. Training sources on basic technical knowledge related to energy efficiency/NZEB as well as on the potential of investing in ambitious refurbishment projects¹⁴ and public support schemes for capacity building can contribute to that direction. At the same time, building professionals need to be ready to respond to the new era of NZEB; there should be requirements for training leading to qualified professionals and companies in high energy efficiency, and especially to energy retrofits towards NZEB.

Sharing existing successful examples of hotels engaging to become NZEB is also important in order to inspire and scale up. In the 7 neZEH countries, the pilot hotels are already paving the way towards such investments. Awareness raising and capacity building activities should definitely include the study of best practice examples. Moreover, the creation of national or European open-source databases with NZEB buildings, including energy and cost data where available, would very much contribute towards this objective.

The neZEH consortium is committed to further engage towards these advocacy efforts, through its partners and networks at national, EU and global levels.

¹³ Public Consultation on the Evaluation of Directive 2010/31/EU - Final synthesis report, Ecofys, November 2015, <https://ec.europa.eu/energy/sites/ener/files/documents/MJ-02-15-954-EN-N.pdf>

¹⁴ Nearly Zero Energy Hotels (neZEH). Training courses for hotel owners and for building professionals. http://www.nezeh.eu/main_menu/library/training/index.html

neZEH TEAM



Project Coordinator

Technical University of Crete, School of Environmental Engineering
Renewable and Sustainable Energy Systems Lab, Greece



World Tourism Organization



Network of European Regions for a Sustainable and Competitive Tourism



Federation of European Heating, Ventilation and Air-conditioning Associations



Agency of Braşov for Energy Management and Environment Protection, Romania



Creara Consultores S.L., Spain



ENERGIES 2050, France



Energy Institute Hrvoje Požar, Croatia



Istituto Superiore sui Sistemi Territoriali per l'Innovazione, Italy



Sustainable Innovation, Sweden

CONTACTS

PROJECT COORDINATOR:

Technical University of Crete,
Renewable and Sustainable Energy Systems Lab
Ms Stavroula Tournaki

- stavroula.tournaki@enveng.tuc.gr
- +30 28210 37861

info@neZEH.eu

www.nezeh.eu

