



Roadmap to trigger nearly Zero Energy renovations in the hotel sector

(WP7 COMMUNICATION AND DISSEMINATION – D7.11, working paper)

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THE EU INITIATIVE NEARLY ZERO ENERGY HOTELS (neZEH)

neZEH's scope is to accelerate the rate of the 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 hotel 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 of 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 on April 2016 and is co-financed by the Intelligent Energy - Europe (IEE) programme.

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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
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1.INTRODUCTION

neZEH aimed to demonstrate the application of the Nearly Zero Energy Building concept in Small/Medium hotels by providing technical advice to frontrunner hoteliers and developing real projects, building capacity and making available practical tools and flagship examples of neZEH's.

16 hotels have been benefiting from energy audits, feasibility studies, technical advice on tendering, contracting, monitoring and identification of financing opportunities, hotel staff training and increased market visibility at national and EU/International level. The neZEH best practices demonstrate the advantages of being a NZEB and may foster replication of NZEB investments in the hotel sector. Practical tools and informational materials are available to assist hoteliers to identify appropriate solutions and to design feasible and sustainable NZEB projects.

This task aims to encourage utilization of the neZEH's outcomes and to trigger imitation and replication of the project in the participating countries and beyond to the other Member States, based on the recommendations, experience and lessons learnt, the developed tools, methodology and the neZEH lighthouse examples.

The roadmap targets mainly the accommodation and tourism industry, associations and the SME hotel owners, as well as policy makers and other neZEH related stakeholders.

2.SETTING THE SCENE

The hotel buildings specificities

Hotels are complex building systems and energy intensive businesses. They feature some special characteristics that inevitably are taken account when planning an energy renovation:

- **Seasonal operation** in many occasions. Many hotels, especially coastal, operate only during spring/summer months, whereas the hotels that stay open all year round have high and low seasons, causing a fluctuation in their energy demand.
- **A large share of the energy demand is consumed for functions that are not associated with the building's typical use**, but have to do with additional services provided to their guests, such as spa, pools, gym, etc. These functions are tightly connected with their guests' comfort and expectations, thus critical for their business competitiveness and sustainability.

The business case

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 sometimes limited. **The sector is mainly made by SMEs, is fragmented; accessing information and understanding are 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 the accommodation industry SMEs to engage.

The policy framework

At National level, there is a lack of interaction between policies and sectors linked to the energy efficiency of the hotel buildings. Tourism, energy and infrastructural development (including buildings) are usually related to different government portfolios at both national and EU levels. Member States policy makers, while preparing their National NZEB policies, do not differentiate the specificities of the accommodation sector, relating tourism industries, as SMEs.

The neZEH Consortium put effort to bridge the gap and help to overcome barriers, through targeted policy recommendations. A set of policy recommendations at EU level was elaborated¹ and discussed at a High Level Policy Event in the European Parliament in March 2016, while 7 national position papers² were elaborated in the partner countries to foster adequate supporting policies and mechanisms at national and regional levels and upscaling renovations towards NZE in the accommodation sector.

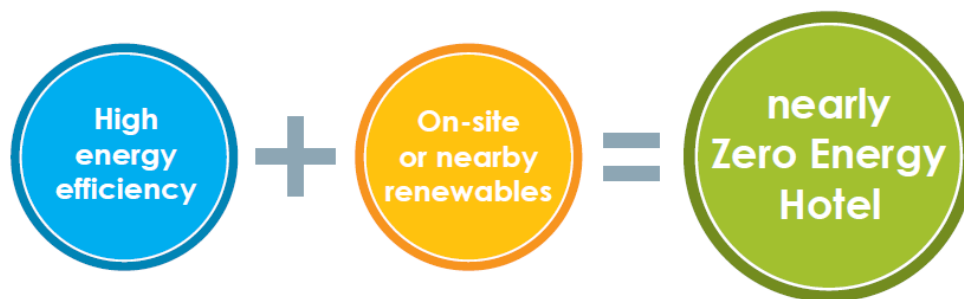
¹ neZEH, EU Position paper-Nearly Zero Energy Hotels towards low carbon growth in the European Union, March 2016, http://www.nezeh.eu/assets/media/PDF/neZEH_EU_policy_paper_v2_final375.pdf

² neZEH, . National position papers on supporting mechanisms for refurbishment projects, March 2016, http://www.nezeh.eu/main_menu/library/nezeh_reports/index.html

3. NEARLY ZERO ENERGY HOTELS IN EUROPE THE EUROPEAN INITIATIVE NEZEH

3.1. WHAT DOES NEZEH IMPLY?

What is a nearly Zero Energy Hotel? “A nearly Zero-Energy Hotel (neZEH) is a hotel that has a very high energy performance. The nearly zero or very low amounts of energy required should be covered to a very significant extent from renewable sources, including energy from renewable sources produced on-site or nearby”



Reaching the neZEH status through refurbishments requires a set of solutions and conditions that are complementary:

- Technical solutions (energy management, reduction of heating and cooling demand, equipment efficiency, system efficiency, renewable energy systems)
- Behavioural change (training of staff, raising awareness of hotel guests/tourists)
- Financial solutions (funding schemes, support mechanisms etc.)
- Legislation (regulation, incentives)

Behavioural change is essential. Focusing on energy efficiency measures and renewable energy sources alone are not enough for pilot hotels to achieve nearly zero energy status.

Active participation of the hotel staff and guest engagement is essential in the quest to reduce energy consumption.



3.2. WHY BECOMING A NEZEH?

Becoming a Nearly Zero Energy Hotel will lead to multiple benefits not only for the hotel owner, the hotel customer and the hotel industry, but will also generate positive spillover effects in the building and energy efficiency sector.

Benefits for hotel owners and guests: reduction of the hotel's energy operational & maintenance costs; competitive advantage and unique positioning in a highly competitive market; access to a whole new "sustainability" market segment of individuals and companies; improvement of hotel image and service among the guests; energy supply safety; achievement of environmental and Social Responsibility targets; improved guest comfort; learning experience for guests.

Benefits for the hotel industry: new investment in the sector; national and European funds available, new jobs (increased occupancy will require more employees, energy management will require technical staff/managers), the smallest carbon footprint of the hotel industry; adaptation of the hospitality sector to the national transposition of the EPBD.



3.3. STEPS TOWARDS NEZEH

In order to become a Nearly Zero Energy Hotel four steps are suggested to be followed:

1. Assessing the hotel's energy performance and identify actions needed to achieve nearly zero energy status
2. Developing the hotel business plan and specify the most suitable energy efficiency solutions and renewable energy technologies for the hotel. Identify as well the financial instruments available at national and European level
3. Build up the hotel renovation plan and roadmap to achieve nearly zero energy status
4. Informing the staff and the guests to make them ambassadors of the nearly zero energy experience

Four steps towards a nearly Zero Energy Hotel!



3.4. neZEH OUTCOMES

Sixteen (16) living examples of good practice, sixteen (16) hotels across seven (7) European countries (Croatia, France, Greece, Italy, Romania, Spain and Sweden) have been engaged as neZEH pilot hotels, demonstrating the feasibility of renovations towards NZEB in the SME hotel sector, acting as examples of best practice and inspiring more hoteliers in EU to invest in energy renovation projects. Each hotel has its own unique characteristics and regional location, but they all share the passion for creating a positive impact on the environment and climate change.



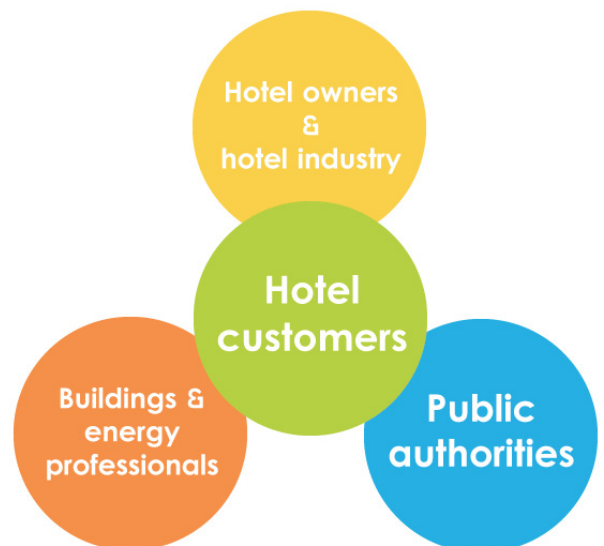
Practical tools are available online, including training materials and tips, marketing guidelines and promotional tools and the **neZEH e-toolkit** empowering SME hoteliers to assess their energy consumption and to identify solutions for energy efficiency improvement towards NZEB.



3.5. WHO IS INVOLVED IN NEZEH?

In order to successfully endorse a Nearly Zero Energy Hotel project, four key actors have an essential role to play:

- **Hotel owners and Hotel industry** are the main stakeholders of the neZEH project. Their commitment, belief and determination will lead the success of neZEH
- **Building and energy efficiency professionals** to provide the technical expertise during the whole process to achieving neZEH, but also to secure the maintenance and the performance of the implemented measures
- **Policy makers - Public authorities** at European, national and regional level who should facilitate the framework conditions and offer supporting measures to implement neZEH projects in their territories
- **Hotel Customers** are the final user and beneficiary of neZEH but have also the power and responsibility to select what type of accommodation better adapts to their needs and values.



4.neZEH: PAVING THE WAY TOWARDS NZEB RENOVATIONS TO THE HOTEL SECTOR

4.1. neZEH 2016: THE EUROPEAN FRONTRUNNERS

Due to the limited successful NZEB demonstrations-examples in the accommodation sector at EU level, the main objective of neZEH was to deliver a critical mass of pilot projects in the seven neZEH countries with committed hotel management to move forward towards nearly zero energy status through large-scale renovations. The pilot hotels would not only demonstrate the feasibility of such refurbishment projects for other SME hotels moving towards neZEH status, but also act as inspirational examples to foster replication.

The neZEH project has been able to offer several benefits to the 16 selected pilot hotels: access to technical expertise; implementation and interpretation of energy audits with technical solutions and Return of Investment calculations; feasibility studies; technical advice on tendering, contracting and monitoring; identification of financing opportunities; hotel staff training^{3,4}; marketing guidance and tools; increased market visibility at national and EU/International level.

The results from the pilot hotels⁵ showed that primary energy usage for the hosting functions across all sixteen pilot hotels can decrease dramatically – from an average of 277 kWh/m²/y to an average of 102 kWh/m²/y; an average reduction of 63%. At the same time, RES share for the hosting functions can be increased by an average of 18% to an average of 46%. neZEH pilot projects follow large scale renovation plans to accomplish NZEB goals resulting to 1.123 toe/year savings in primary energy and 2.556 tCO₂e/year reduction of GHG emissions. In total, 6.310.297€ are to be invested and 332 toe/year renewable energy will be triggered by the renovations in order for the pilot hotels to achieve neZEH status.

One of the main challenges that pilot hotel owners confronted as they moved towards achieving nearly zero energy status was how best to finance the renovation plans. Project regional leaders supported hoteliers to seek the best way to finance the project and overcome any difficulties that might have emerged during this process⁶. A number of alternatives were examined⁷ to help resolve financing issues depending on the hotel's size, economic and geographical situation:

- Self-financing including bank loans
- Alternative financing, i.e. leasing (accessible but has financial costs associated)
- National state driven initiatives and structural funds
- Energy performance contracting (EPC), perhaps with the help of an ESCO.

The majority of pilot hotels selected a combination of own funding together with (bank) loans to fund the renovation rollout plans. Some hotels, for example, those in Greece and Spain, submitted

³ neZEH, D5.8 Practical guide for hotel owners. available on www.nezeh.eu

⁴ neZEH, D5.9 Energy Efficiency tips for hotel staff, available on www.nezeh.eu

⁵ neZEH, D5.4 Energy audits Report, available on www.nezeh.eu

⁶ neZEH, D2.6 Information papers on financing tools, available on www.nezeh.eu

⁷ neZEH, Information on neZEH Pilot projects. available on www.nezeh.eu

applications in relevant structural funds calls to further advance their rollout plans. Few pilot hotels used EPC or ESCO support, one reason being that the size of the individual renovation plans was not economically viable for this.

Pilot projects replicability

The neZEH hotels continue to promote their initiative, as neZEH ambassadors, triggering more interest in their sector.

neZEH was the starting point for energy renovation projects for the accommodation sector in the neZEH countries; opportunities for replication are available as hotels owners are still communicating through the neZEH network channel seeking for technical advice. TUC continues to receive requests from hoteliers (worldwide) motivated to proceed with large scale energy renovations or to build a new hotel with neZEH standards; in these cases TUC provides some guidance and, where relevant, makes contact with the respective National Leader to guide them locally; also receives in daily basis applications of interested people to join the neZEH network and registers them in the neZEH network database. The wide outreach and interest triggered for information/inspiration/replication reaches more than 40 countries, in EU and worldwide.

The pilot hotels were typical hotels in their category meaning that they can act as examples of good practice for other hotels and inspire them to proceed to similar actions, especially when the hotel owners are prepared to talk about their experience and the benefits gained. Experience indicates that the proposed measures for most of the pilot hotels could be relevant for and implemented by the majority of hotels built over the last 30-40 years, and that most of them would accomplish neZEH status.

Some hotels such as those in France were part of a chain of hotels – Best Western - and the potential for replicability here was strong. Firstly with other Best Western hotels in the area but also for other similar Best Western hotels, and also other similar hotels on the island of Corsica.

Similarly, one of the Greek pilot hotels, Vasia Resort & Spa cooperates with the Sentido hotel chain and would be able to influence hotels in many European and North African countries such as Greece, Spain, Cyprus, Croatia, Bulgaria, Turkey, Egypt, Tunisia, Morocco etc. This means that it is easier for the action to be replicated in other hotels in the chain, especially since the chain already incorporates a sustainability strategy. A 4th replicator hotel is in the pipeline towards neZEH; it belongs to the largest hotel chain in Greece with multinational branches (30 luxury hotels & resorts in 10 destinations) and aims to act as a pilot hotel for the whole chain to imitate in the long term.

In Spain, replicability was high and the experience of this project could be transferred to other similar projects, both nationally and internationally. For example, the Corona del Mar is a typical Mediterranean coast hotel and its typology is common in the south of Europe, so its replicability is really high. Most of the proposed measures could be implemented on any hotel, for example, replacement of lighting, presence detectors, flow reducers or improvement of building insulation.

In Romania, the measures identified could be replicated to any similar hotel type although it is necessary to reconsider the importance of the hotel sector and the support available from financial instruments. Without financial support, it is hard to conceive major large-scale renovations towards neZEH status.

In Italy, It is expected that the regional authority will include hotels as a specific category in the regional financing for the energy sector. Also energy help desks with the public authorities, in order to guide hotel owners through the whole renovation process and provide them information on the available technical solutions, on public and private financial support schemes.

Stakeholders / multipliers engagement

The neZEH hotels remain ambassadors of the neZEH vision; the 16 neZEH pilot cases have become inspiring frontrunners to the European hotel industry as examples of good practice challenging much more SME hotels to invest in refurbishment projects towards NZE levels.

The neZEH project managed to trigger the real interest and active engagement of the key stakeholder groups and mainly the accommodation sector during its lifetime; tourism industry's key players and of the building/energy efficiency market actors will continue to increase market visibility and to promote the neZEH vision and outcomes.

As an overall result: 22 Hotel Associations numbering 42.855 members (including HOTREC that reaches 42 associations), 33 Building Sector Associations with 137.329 members, 2 EE/RES Associations with 40 members and 9 Chambers with 34.518 members have been involved. National authorities have been also reached through the UNWTO communication channels and informed about the project during members' assemblies. Supporting hotel associations, including HOTREC, the umbrella association of national trade associations, representing the hotels and similar establishments in Europe, are going further the neZEH outcomes disseminating the neZEH flagship examples and using the neZEH training materials and tools.

4.2. neZEH 2020: REACHING A EUROPEAN CRITICAL MASS

There is an obvious need to address the tourism-energy-building nexus at all levels (local, regional, national and European), involving both private and public stakeholders to secure a successful replicability of the neZEH pilot project, moving from individual cases to a European critical mass.

To bridge the gap between the neZEH 2016 scenario to the neZEH 2020 targets, a set of 5 recommendations arise through the key findings streaming from the work carried out in seven neZEH target countries and sixteen pilot hotels. The Action Plan presented below, shows potential initiatives to implement the neZEH recommendations. It also includes the main stakeholders to be involved in the action, an estimated timeline as well as possible financing sources.

The Action Plan aims not only to foster the replication of 90 Nearly Zero Energy Hotels by 2020, but to contribute to Europe as the world's number one green tourism destination. To make this possible, private and public stakeholders need to be sensitised enough to encourage and support neZEH initiatives within their destinations and to invest in implementing neZEH measures within their hotels. 90% of the European hotels are M-SMEs size; to make neZEH a win-win strategy for the hotel owner, the tourism destination and Europe itself the neZEH initiative proposes the creation of neZEH clusters at local/regional level.

These neZEH clusters aim at gathering public and private neZEH stakeholders: hotel owners and hotel industry, public administration, financial entities and associations, education and training institutes, building and energy professionals as well as catalysers – which can be public or private organisations - leading the cluster performances and ensuring the success.

I. Reliable technical assistance supported by financial incentives to design energy refurbishments and plan the investment financially

Renovation process and credible and independent energy audits: 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 required significant investment in energy efficiency renovation. It was clear that many of the pilot hoteliers lacked technical knowledge and awareness of buildings energy efficiency issues and did not have skilled personnel to deal with technical building maintenance or energy management issues. Further, they lacked information on how to plan and implement energy efficiency investments.

The robust and pragmatic approach applied by the neZEH project addressed a number of these challenges, such as independent energy audits focused on neZEH targets, feasibility studies, cost scenarios and associated rollout plans, support with tendering/contracting issues and staff training. These were the key technical elements that provided a structure to nurture the motivation/drive/passion required by hoteliers to achieve neZEH status.

The energy audits proved to be the main determinant to get hoteliers motivated and to kick-start the renovation process towards nearly zero energy status. The independent, comprehensive energy audit resolved many of the problems confronting hoteliers, who found it hugely difficult to decide what measures to take and in what order. The audits proved to be strategically vital for the continued process of feasibility studies and rollout plans as part of a roadmap forward for individual large scale renovation plans.

Recommendation: neZEH can become an integrated model for helping destinations and SMEs to respond to EPBD's NZEB requirements. The model developed can be scaled up, but resources have to be earmarked.

Funding – Financing: The pilot hotel experience has demonstrated the need for reliable technical assistance supported by financial incentives to design energy refurbishments and plan the investment financially. This is a major barrier to uptake the available financing mechanisms for

energy efficiency in buildings (where available), and the complexity of the renovation decision is such that not only financial insights are required, but also technical, organizational and legal. The available financing mechanisms are also complex for non-professionals to understand at an adequate level for decision-making. 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 roll out plans 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.

Recommendation: At the regional level, EU structural funds should be earmarked to support those efforts for the accommodation SMEs.

II. Advocacy and tailored awareness raising campaigns targeting the hospitality industry to convince hotel owners about the economic viability of becoming a neZEH

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 and RES, as a result of lack of information and advertising, is clearly a huge barrier. It is easier to engage hotel owners that are already committed to sustainability in the discussion about investing in deep energy retrofit.

Recommendation: 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). Destinations should be fully engaged in this undertaking.

III. Integration of the buildings energy performance criteria in the existing national and European quality and sustainability classification schemes for hotels

At 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.

Recommendation: The opportunity for current work related to Sustainable tourism Indicators, such as ETIS, could integrate the neZEH notion.

IV. Training and capacity building to hotel owners and staff on basic technical knowledge related to energy efficiency as well as on the economic and environmental advantages

Focus on energy efficiency measures and renewable energy sources alone are not enough for pilot hotels to achieve nearly zero energy status. Active participation of hotel staff and guest engagement is essential in the quest to reduce energy consumption. Everyone associated with the hotel, both employees and suppliers of services and products, needs to be aware of what they can do to reduce the hotel's energy consumption. This is not only fundamental for a successful hotel energy policy; it is inspirational in giving new meaning to the hotel's business. Simply put, how best to carry out daily activities and assist in maintaining low energy consumption levels; or “thinking nearly zero energy” in everyday working life.

Energy efficiency is a key element in the hotel's environmental policy and all staff members must contribute actively to the hotel's efforts for a more sustainable environment and business. The way staff and management carry out daily work will have a huge impact on the hotel's energy consumption. Engaging actively in the hotel's operation and maintenance is essential to get the most out of the investments the hotel has made in energy efficiency solutions.

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 projects 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.

Recommendation: Training and sensitization from hotel owners, staff and customers will be a key success factor to move to neZEH levels.

V. Sharing existing successful and evidence-based information to facilitate and inspire the neZEH scale up

The results from the pilot experience indicate the need to set-up “one-stop-shop” services in the public or private domains, or energy help desks, in order to guide hotel owners through the whole renovation process. These services could be developed around the concept of an EU neZEH support centre network or cluster activity to 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 technical 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 here.

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 here.

In the long-term, it is estimated that the investments triggered by 2020 might reach 189 M€ and result to: cumulative primary energy savings to reach 55.000 toe/y, renewable energy production of 7.100 and up to 108.800t CO₂e/year reduction of greenhouse gas emissions. These projections are based on optimistic, conventional and business as usual scenarios of 50-90 NZEB hotels as a result of neZEH replications by the end of 2020.

OVERALL OBJECTIVE	TARGET BY 2020*
To contribute to the EU 2020 targets on energy efficiency and renewable energy sources	<ul style="list-style-type: none"> Cumulative investment made by European stakeholders in sustainable energy: 76-189 M€
	<ul style="list-style-type: none"> Renewable Energy production triggered: 3.539-8.089 toe/year
	<ul style="list-style-type: none"> Primary energy savings compared to projections: 24.215 - 55.033 toe/year
	<ul style="list-style-type: none"> Reduction of greenhouse gas emissions: 49.458-108.779 t CO₂e/year

* The main baseline, benchmarks and assumptions for the extrapolation are described analytically in D8.1.

5. MEASURES AND ACTION PLAN TO TRIGGER IMITATION

Recommended measures to trigger imitation are presented below:

M1. Reliable technical assistance supported by financial incentives to design energy refurbishments and plan the investment financially

M2 Advocacy and tailored awareness raising campaigns targeting the hospitality industry to convince hotel owners about the economic viability of becoming a neZEH

M3. Integration of the buildings energy performance criteria in the existing national and European quality and sustainability classification schemes for hotels

M4. Training and capacity building to hotel owners and staff on basic technical knowledge related to energy efficiency as well as on the economic and environmental advantages

M5. Sharing existing successful and evidence-based information to facilitate and inspire the neZEH scale up.

Table 5.1. Proposed Measures and action plan

Measure	Proposed Action	Involved actors/stakeholders	Priority level	Financing mechanisms	Timeline
M1 Reliable technical assistance supported by financial incentives	A1.1. Develop new professional programmes and accreditation schemes to enhance competences in NZEB renovations	Ministries of Education/Ministries of Energy and Environment Technical chambers Trade associations Vocational training organisations Certification bodies	+++	Structural Funds EU funds Industry associations - Social partners	2016-2019
	A1.2. Provision of concrete guidance and interpretation on available and new financing tools (i.e. EPC, etc.) to the technical companies/building renovation experts	National funding authorities EPC providers/ESCOs associations Financial entities Managers and owners of hotels and their associations	++	National / regional authorities Structural Funds Chambers of Hotels and Commerce	2016-2020
	A1.3. One-stop-shop services or energy help desks also for the non-residential building sector in order to guide through the whole renovation process.	Ministries of Economy, Energy and Tourism National/regional policy makers Hotels Associations-Hotel owners Tourism, Technical and Commercial Chambers Research Institutions	+++	National Funds Structural Funds EU funds	2016-2030
	A1.4 Develop a framework of quality assurance of NZEB renovation projects, ensure credible and independent energy audits, integrated design of energy renovation plans	Ministries of Energy and Environment National/regional policy makers Technical Chambers Building renovation experts Energy auditors bodies Certification bodies	+++	National Funds Structural Funds EU funds	2016-2019
	A1.5 Financial incentives tailor made for hotels SMEs to trigger large scale renovations	Ministries of Energy and Environment -Hotels Chambers	+++	National Funds Structural Funds	2016-2030
	A1.5. Strengthen training modules and research towards NZEB projects feasibility. Student theses and practices on neZEH	Schools, Universities Hotel's and their associations	+	Structural Funds ERASMUS+	2016-2030

Measure	Proposed Action	Involved actors/stakeholders	Priority level	Financing mechanisms	Timeline
M2 Advocacy and tailored awareness raising campaigns	A2.1. Sensitisation of environmentally responsible guests on neZEHs	UNWTO Tourism boards - Tourism stakeholders – Chambers Environmentally friendly regions/cities NGOs - Travel related media	++	Regional governments Hotel Chambers-associations Structural Funds	2016-2025
	A2.2. Promotion of the neZEH vision in fora and Conferences	neZEH partners UNWTO-NECSTouR-REHVA HOTREC Hotels associations - Technical Chambers – other stakeholders involved in neZEH activities	+++	Self-financing Combination with other promotional activities of the involved entities	2016-2020
	A2.3. Challenge replication of neZEH project design in large chains and other interested hotels identified during the pilot projects selection process. Explore further interest of hotels registered in the network	neZEH partners Energy auditors and energy renovation experts	+++	Self-financing – Structural funds – Investments law Integration to involved entities' promotional activities	2016-2017
	A2.4 Industry driven tailor made informational campaigns	Ministry of Energy and Environment – regional authorities Tourism/Accommodation related Chambers/Association Energy efficiency services/products providers	++	Self-financing Regional funding EU funds	2016-2018
M3 Integration of the buildings energy performance criteria in the existing classification schemes	A3.1. European policies towards the sustainability classification of the hotels	EU policy actors - European associations of stakeholders	+++	EU funds	2016-2020
	A3.2. National policies towards the sustainability classification of the hotels.	Ministries of Energy, Environment and Tourism Technical Chambers Research institutions	+++	National Funds Structural Funds	2016-2020
	A3.3 Raise the priority of providing incentives to foster energy renovation to increase number of NZEBs in MS	EU and national policy actors	+++	National Funds Structural Funds Development Law	

Measure	Proposed Action	Involved actors/stakeholders	Priority level	Financing mechanisms	Timeline
M4 Training and capacity building for hotel owners and staff	A4.1. Tailor made training programmes to strengthen the capacity of the sector's workforce. Integration of the produced training material in relevant courses	Ministries of Education, Energy and Environment Association of Workers/Syndicates Social Partners-Training providers	+	Self-financing Social Funding Structural funds EU funds	2016-2018
	A4.2. Develop energy renovation modules for hotel owners and manager to build capacity and basic understanding on key aspects of a large scale energy renovation	Hotels Associations Tourism related vocational training organisations	++	National funding	2016-2022
	A4.3 Increase joint information efforts with tourism industry associations and technical Chambers – Coorganisation of trainings/webinars, distribution of developed materials	Tourism stakeholders Building/Energy renovation experts	+++	Self-financing Integration to involved entities'capacity building activities	2016-2020
	A4.4. Provision of incentives for hotels to increase their capacity towards planning, implementation, monitoring of energy efficiency interventions	National/regional policy makers	+++	Structural funds Development Law	2016-2020
M5 Sharing existing successful and evidence-based information	A5.1. Wide dissemination of the frontrunners, best practices and tools	UNWTO- HOTREC – National tourism/hotels associations neZEH consortium Existing Informational Platforms - networks One-stop-shop (A14)	+++	Self-financing Hotel Associations and Chambers Tourism related media Structural Funds	2016-2020
	A5.2. Creation of national or European open-source databases with NZEB buildings, including energy and cost data where available	National authorities-Energy Agencies BuildUp	+++	EU funds Structural Funds	2016-2020
	A5.3. On-site visits to neZEH Pilot Hotels or other high energy efficiency hotels, other nZEB flagship projects in the tertiary sector	neZEH partners Hotel managers and owners Hotels associations – Technical actors associations	++	Combination with other promotional activities of the involved entities Self-financing	2017-2020
M0 (horizontal)	A01. Links with other EU initiatives	EU policy makers, coordinators and partners	+++	EE projects in H2020 and beyond ERASMUS+, MED-INTERREG UN call for proposals	2016-2030

6. CONCLUSIONS

Today, retrofitting of existing hotels into nZEBs is technically and economically feasible. Step by step approach of investment and construction works is recommended due to the complexity of the interventions and the operational aspects of hotels. The economic benefits of such investments become more apparent for hotel owners once the indirect benefits are realized: branding as a green hotel and increasing its occupancy rates, added value in reducing carbon footprint and meeting corporate and social responsibility targets as well as increasing living comfort for guests and customers' loyalty.

The 16 pilot hotels of the European initiative neZEH pave the way towards such investments, by implementing ambitious refurbishment plans that will lead them to becoming NZEBs and reducing their primary energy use for hosting functions from an average of 277 to an average of 102 kWh/m²/y -an average reduction percentage of 63%- and increasing their RES share from an average of 18% to an average of 46%.

Practical tools are available online, including training materials and tips, marketing guidelines and promotional tools. Based on the experience and lessons gained, neZEH upgraded and adapted the e-tool developed by Hotel Energy Solutions project by offering the neZEH online e-tool for hotel owners to assess their current energy performance and receive guidance on energy measures and interventions that can bring them closer to NZEB.

Policy support is required, in order to remove barriers that hinder deep energy refurbishments in the accommodation sector: inclusion of hotel building type in national NZEB policies, specially defined NZEB criteria for refurbished buildings, better coordination between relevant authorities for energy and tourism, technical assistance, awareness, capacity building and training and most important provision for investing in large scale refurbishment.

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World Tourism Organization



Network of European Regions for a Sustainable and Competitive Tourism



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