

# ZERO ENERGY STRATEGIES IN THE HOTELS SECTOR

The neZEH project insights

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Co-funded by the Intelligent Energy Europe  
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## Hotels and climate change



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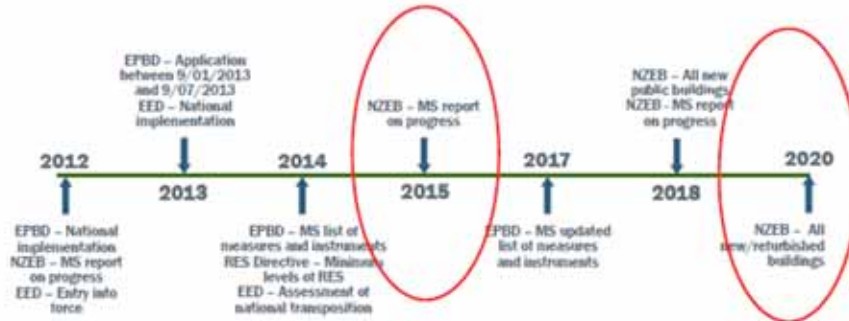
**1%** of total **CO<sub>2</sub>** emissions  
globally is from hotels

Hotels may save up to  
**70%** of their energy consumption



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## Energy policies in buildings calls for nZEB



- Public consultation of EPBD recast completed
- Public consultation of EED is ongoing till 29 January 2016
- New Directive towards the European Parliament this autumn

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## Hoteliers business challenges

- Reduction of operational and maintenance cost
- Energy security
- Market and guests expectations-Competitiveness
- Regulatory-legislative changes
- Funding opportunities for renovation
- Climate change - Environmental footprint – Social Responsibility



Sustainability

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## The European Initiative Nearly Zero Energy Hotels



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### neZEH aims



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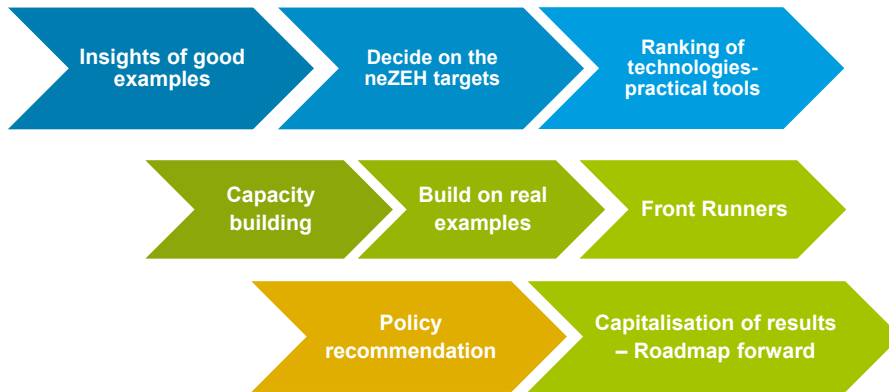
#### To accelerate the rate of refurbishment of existing hotels into Nearly Zero Energy Buildings (nZEBs):

- providing technical advice to hoteliers for nZEB renovations
- demonstrating the competitive advantages and sustainability of nZEB projects
- challenging further large scale renovations through capacity building activities and policy recommendations
- showcasing best practices and promoting front runners.



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## neZEH action plan



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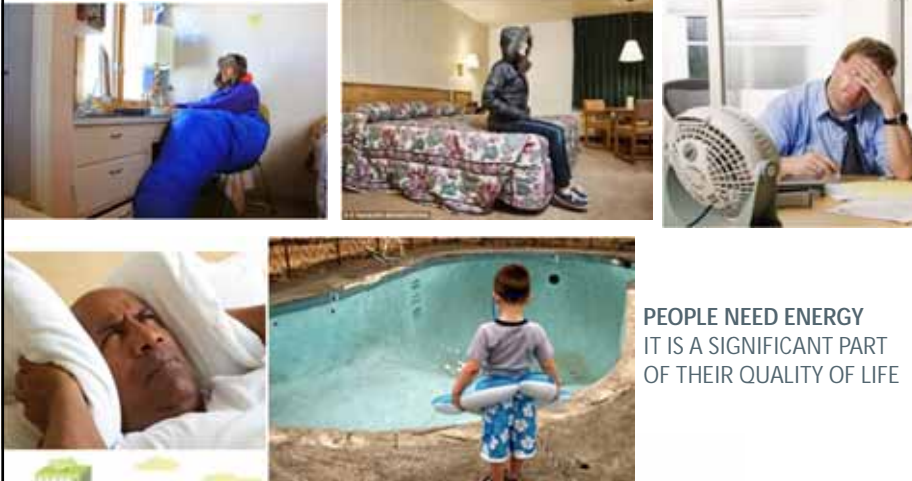


## THE neZEH Approach

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## Is this a ZERO ENERGY HOTEL?



PEOPLE NEED ENERGY  
IT IS A SIGNIFICANT PART  
OF THEIR QUALITY OF LIFE

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## What is a neZEH hotel



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

*Following the EPBD recast*

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## Being a nearly Zero Energy Hotel implies acting in 3 key areas:



## Why become a neZEH hotel



## Four steps towards a nearly Zero Energy Hotel!

1

Assess your hotel's energy performance and identify actions needed to achieve nearly zero energy status.

*Use the neZEH Energy Solutions Toolkit.*

2

Develop your business plan and specify the most suitable energy efficiency solutions and renewable energy technologies for your hotel. Identify financial instruments available at national and EU level.

*Learn from the neZEH methodology and find out existing financial tools for large scale hotels renovation. Benefit from the experience of neZEH pilot hotels.*

3

Build up your renovation plan and a roadmap to achieve nearly zero energy status.

*Follow the example of the neZEH frontrunners. Use the neZEH Training Material.*

4

Inform your staff and guests, make them ambassadors of the nearly zero energy experience.

*Use the neZEH marketing tools and join the neZEH network.*



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## neZEH HIGHLIGHTS



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## neZEH value proposition to pilot hotels



### ✓Energy audit

- to assess the current energy status, prioritize appropriate energy efficiency and RE measures

### ✓ Feasibility study

- to develop feasible renovation scenarios and serve as a decision document for hotel owners
- to identify possible funding sources and produce a rollout plan for renovation

### ✓ Tender preparation, selection of contractors and monitoring

- to identify suitable funding solutions and proper ways of contracting e.g. through EPC
- to advise hotel owners on how to monitor all phases of the project implementation

### ✓ Training of hotel management and staff

- to achieve maximum efficiency and best use of the solutions found for the pilot project

### ✓ Marketing tools

- to help hotel owners build a communication strategy that will highlight the benefits of staying in a neZEH hotel and help them reach to potential guests

### ✓ Promotion and increased market visibility at national and EU/International level



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## The neZEH frontrunners

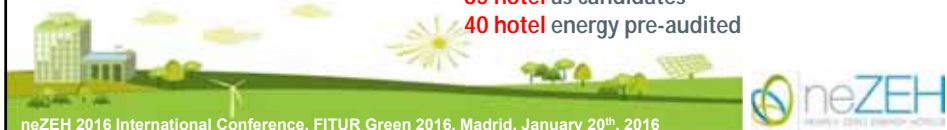
At the energy forefront of the European Accommodation Industry



**16 hotels across 7 countries** follow large-scale renovation plans to become nearly Zero Energy Hotel frontrunners and serve as examples of best practice

**85 hotel** as candidates

**40 hotel** energy pre-audited



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# The neZEH Pilot Hotels

Resort

COASTAL

RURAL

Spa/Wellness

URBAN

Business


MOUNTAIN

B&B



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# Energy Audits – Feasibility studies –Renovation plan



**ALVANYOS ENERGY AUDIT EXECUTIVE REPORT**

| Address                           | Balance  |
|-----------------------------------|--|
| Thessaloniki, Patis, Ouliss km 02 | 1000   |
| City                              | Couvaia  |
| Country                           | Romania  |
| Number of beds                    | 500  |
| Type of installation              | 3000   |
| Opening schedule                  | All year   |
| Facilities                        | See also, elevators and conference rooms, restaurant, pool, etc. |

| Occupancy |      |           |      |
|-----------|------|-----------|------|
| Month     | %    | Month     | %    |
| January   | 3.5  | July      | 31.7 |
| February  | 8    | August    | 25.8 |
| March     | 14.7 | September | 17.2 |
| April     | 8    | October   | 13.2 |
| May       | 42   | November  | 14.2 |
| June      | 25.2 | December  | 12   |

**2014 Electricity**

**2014 Natural Gas**

| Equipment        | Type | Units | Power (kW) |
|------------------|------|-------|------------|
| Lighting         | LED  | 12    | 1.2        |
| Management lamps | LED  | 12    | 1.2        |
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**Lighting**

- Lamps operating on average 4 hrs per day
- There are some management bulbs also and night light
- Central panel for light switch on computers

**M/AC & Hot Water**

- Hot water boilers have modular flame, while chiller operates only in summer together with main fan coil
- Warm water and chiller pumps do not have variable flow control

**Equipments**

- Computers
- Printers
- Energy meter
- USB printer

**Electricity share**

**Natural Gas balance**

- Over 90% of the consumption represents base consumption, independent of occupancy rate
- Lighting is switched off during day on hallway
- Cooking, hot water, laundry and heating boilers represent the only fuel consumption on site
- The facility is very close to gas transmission pipe, and the beneficiary intends to implement CHP

**neZEH TARGETS**

| Present Energy Consumption (Electricity) | neZEH | EU   | neZEH |
|--|-------|------|-------|
| Electricity consumption (kWh)            | 1000  | 1000 | 1000  |
| Electricity consumption (kWh)            | 1000  | 1000 | 1000  |
| 100 percentage (%)                       | 100%  | 100% | 100%  |

**Proposed measures and estimated investment**

| Energy efficiency measures                | Energy cost | % Savings    | Investment       | ROI         |
|---|-------------|--------------|------------------|-------------|
| Control, switched lamps & LED replacement | Lighting    | 0.7%         | 40,000 €         | 10%         |
| Smart meters or lighting controls         | Lighting    | 1.7%         | 4,000 €          | 100%        |
| Basic controls for hot water on the roof  | Hot water   | 10.7%        | 100,000 €        | 100%        |
| LED in office                             | Lighting    | 1.3%         | 4,000 €          | 100%        |
| Insulation and control air flow           | AC          | 17.2%        | 100,000 €        | 10%         |
| Insulation of the chiller plant           | Hot water   | 0.2%         | 10,000 €         | 100%        |
| Control of the chiller plant              | Hot water   | 0.2%         | 10,000 €         | 100%        |
| Insulation pipes                          | Hot water   | 0.2%         | 10,000 €         | 10%         |
| Insulation pipes                          | Hot water   | 0.2%         | 10,000 €         | 10%         |
| <b>TOTAL</b>                              |             | <b>32.4%</b> | <b>240,000 €</b> | <b>100%</b> |

**Conclusions**

- The estimated potential energy savings can reach above neZEH target, however the solutions that have high impact on primary energy savings are expensive, therefore the global degree of feasibility is moderate. If fixed investment exceeding European funds, €100 for neZEH implementations are possible. Several other manual and automatic control solutions would also probably the savings of these investments (some equipment's removal, inhibitors for smart lights, daylight sensors).
- Energy efficiency has not been evaluated, however it would be a cost effective measure that can also increase the ROI percentage
- There is under construction the gas center, with connecting gas to other facilities that encourage the

Date: 01/10/2015      Signature: Andrei CECLAN, Sarvaed

## Savings



14,000 MWh of energy saved per year



3,400 tCO<sub>2</sub>e of Greenhouse Gas emissions avoided /year



53% Average RES share % in the total energy mix



Total of 590,921 €/year can be saved for all 16 hotel



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## neZEH Tools



A **practical e-tool**, to empower hoteliers to assess their energy profile and to learn of appropriate choose best technical solutions in order to reach an nZE level. *Consortium upgrade the HES tool including the neZEH Ranking tool - Measures are ranked based on climatic zone, hotel typology and investment cost*



Tailor made **marketing guidelines** and a **set of promotional tools** to help front runners to communicate efficiently and to widely promote their business to potential customers and tour operators.



**An EU level neZEH network**, to link supply (building professionals) and the demand side (SME hotel owners)



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## Training and Capacity building

**Training courses for hotel owners/managers and hotel technical staff** "Towards NEZEH hotels –Steps and Guidelines"

**Training courses for building professionals** "How to design a NEZEH project"

**On site training** of the neZEH pilots hotels staff

### Capacity Building Workshops

National workshops + EU workshops

- IEECB - Improving Energy Efficiency in Commercial Buildings Conference 2016
- eeST- II Congress on Energy Efficiency and Sustainability in Tourism 2015
- World Sustainable Energy Days 2015
- CLIMAMED 2015
- ENERGY IN BUILDINGS, 3rd Int. Conference-ASHRAE
- EUSEW - Sustainable Energy Week 2014
- .....



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## Inspiration-Knowledge Sharing-Showcases

**15.000+ hotel owners to be informed** and gain access to the neZEH tools and outcomes



neZEH 2015 Int. conference  
- Nice, June 2015



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## Recommendations



- neZB definitions for hotel buildings
- Supporting policies and measures
- Credible and independent technical assistance,
- Awareness raising Capacity building, Behavioural change and Certification schemes

→ neZEH EU Policy event, 15<sup>th</sup> March 2016, European Parliament



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JOIN THE neZEH NETWORK: [www.nezeh.eu](http://www.nezeh.eu)



### Training and Capacity Building

- Training courses for hotel owners and staff.
- Technical guides, practical informational material.
- Access to experts' advice.



### E - toolkit

- Assess your energy performance.
- Find out solutions to minimize your hotel's energy cost and to reach neZEH status.
- Get an estimate of cost and return on investment.



### Marketing tools

- Tailor made marketing guidelines and promotional tools for nearly zero energy hotels.
- Visibility at European and national level.



### neZEH community

- Be part of a European network.
- Exchange experiences and know-how with other hotel owners.
- Link hoteliers with building professionals and energy companies.



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### The neZEH Pilot Hotels

| COUNTRY/REGION/TOWN                                   | NAME OF HOTEL                         |
|---|---------------------------------------|
| Croatia/Dalmatia/Supetar                              | Villa Adriatica                       |
| Croatia/Dalmatia/Split (Podstrana)                    | Hotel Split                           |
| France/Corse du Sud/Ajaccio                           | Best Western Ajaccio Amiraute         |
| France/Provence-Alpes-Côte d'Azur/La Palud sur Verdon | Hotel des Gorges du Verdon            |
| Greece/Crete/Rethymnon                                | Ibiscos Garden Hotel                  |
| Greece/Crete/Lasithi, Sisi                            | Vasia Hotels & Spa                    |
| Greece/Crete/Chania                                   | Arkadi Hotel                          |
| Italy/Piemonte/Valdieri (CN)                          | Hotel Royal Terme di Valdieri         |
| Italy/Piemonte/Torino (TO)                            | Residence L'Orologio                  |
| Romania, Brasov county, Brasov city                   | Cubix Hotel                           |
| Romania, Brasov county, Brasov city                   | Kolping Hotel                         |
| Romania, Covasna county, Turia commune                | Grand Hotel Balványos                 |
| Spain/Vizcaya/Arzentales                              | Hotel Amalurra                        |
| Spain/Alicante/Benidorm                               | Corona Del Mar                        |
| Sweden/Gotland/Visby                                  | St Clemens Hotel                      |
| Sweden/Uppland/Sigtuna                                | Stora Brännbo Konferens och Hotell AB |

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neZEH  
NEARLY ZERO ENERGY HOTELS

neZEH 2016 International Conference  
Nearly Zero Energy Hotels, the Potential for Change  
Madrid, Spain - January 20th, 2016  
[Learn more!](#)

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**NEARLY ZERO ENERGY HOTELS**

The European Union forces for radical reduction of greenhouse gas (GHG) emissions, 80-95%, by 2050 in comparison to 1990 levels. The existing building stock is responsible for 40% of total energy consumption and 36% of GHG emissions, therefore demonstrates the higher potential for energy savings. To reach the 2050 targets, large scale renovations towards Zero Energy are in the forefront of the EU policies.

The European initiative **Nearly Zero Energy Hotels (neZEH)** aims at accelerating the rate of refurbishment of existing hotels into Nearly Zero Energy Buildings (nZEB) by:

- providing technical advice to committed hoteliers
- demonstrating the profitability, feasibility and sustainability of investments towards nearly Zero Energy
- undertaking training and capacity building activities
- promoting front runners at national, regional and EU level, to increase their market visibility

neZEH is a response to the European Directive on the energy performance of buildings (2010/66/EU, EPBD recast), contributing directly to the EU 2020 targets and supporting EU Member States to their national plans for increasing the number of nZEBs.

The neZEH initiative will run for three years (2013-2016) and is co-funded by the Intelligent Energy Europe Programme (IEE) of the European Commission.

[Learn more on the neZEH initiative](#)

**18 Hotels in Europe will benefit of technical assistance to become nZEB!**

**What is an nZEB**  
A nearly Zero-Energy building (nZEB) is a building that has...

**Why become a neZEH**  
Becoming a neZEH will lead to great benefits for your business, you will...

**Join the neZEH network**  
Want to be a pioneer in the EU Hotel industry? Join the neZEH network! You will...

**News**

- Join neZEH 2016 International Conference at FITUR GREEN 2016 in Madrid - 20 January 2016
- Join neZEH AT THE COP21 - 4, 10 and 11 December 2015
- Press Release: 18 nearly Zero Energy Hotels Inspiring Europe to achieve nearly Zero Energy targets
- Join neZEH Workshop in Chisnau 2015

[Read More](#)

**NEARLY ZERO ENERGY HOTELS,  
THE POTENTIAL FOR CHANGE**  
neZEH 2016 International Conference  
FITUR Green 2016, IFEMA, Madrid (Spain) – January 20<sup>th</sup>, 2016

[www.nezeh.eu](http://www.nezeh.eu)

**Thank you!**

For further info, contact the project coordinator

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