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Climamed Mediterranean Congress of HVAC Juan-les-pins 2015

neZEH NEARLY ZERO ENERGY HOTELS

www.nezeh.eu

High Energy Performance Hotel on track of nZEB

prof. Stefano Paolo Corgnati
REHVA President-elect

REHVA
Federation of European Heating, Ventilation and Air-conditioning Associations

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TECHNICAL UNIVERSITY OF CRETE (TUC)
ENVIRONMENTAL ENGINEERING DEPARTMENT
RENEWABLE AND SUSTAINABLE ENERGY SYSTEMS LAB

UNWTO

Network of European Regions for a Sustainable and Competitive Tourism
NECSTouR

REHVA
Federation of European Heating, Ventilation and Air-conditioning Associations

ENERGIES 2050

Istituto Superiore sui Sistemi Territoriali per l'Innovazione

SUST

ABMEE

creara
ESPECIALISTAS EN EFICIENCIA Y AHORRO ENERGÉTICO

EIHP

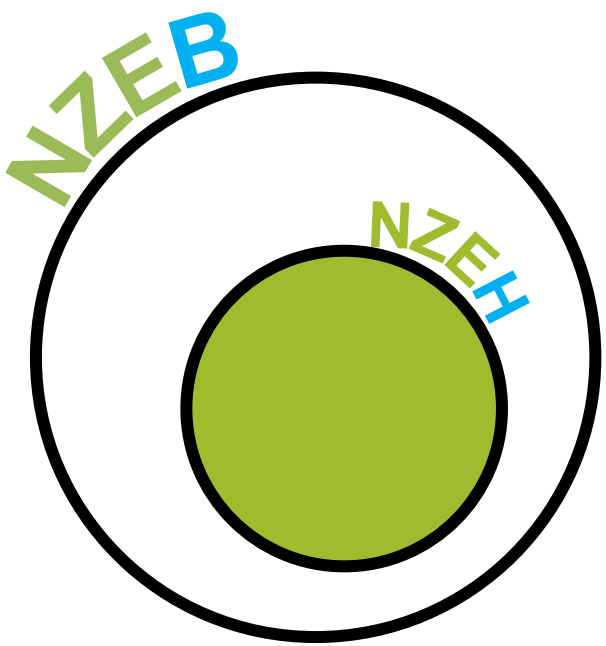
Nearly Zero Energy Building

nearly Zero Energy Building

- High Energy performance
- Low energy demand
- Residual energy demand coverd by RES

> energy performance	energy demand ≈0	**RES** ≈100% del fabbisogno

Nearly Zero Energy Hotel



from building → to hotel

Limit of energy performance related to «European Cliamtic Zones»

Indicator: Primary Energy

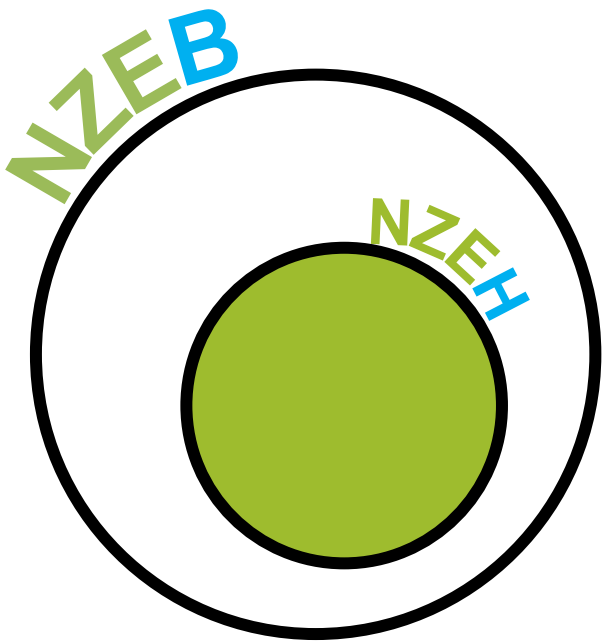
What is it considered ?

«hosting functions»

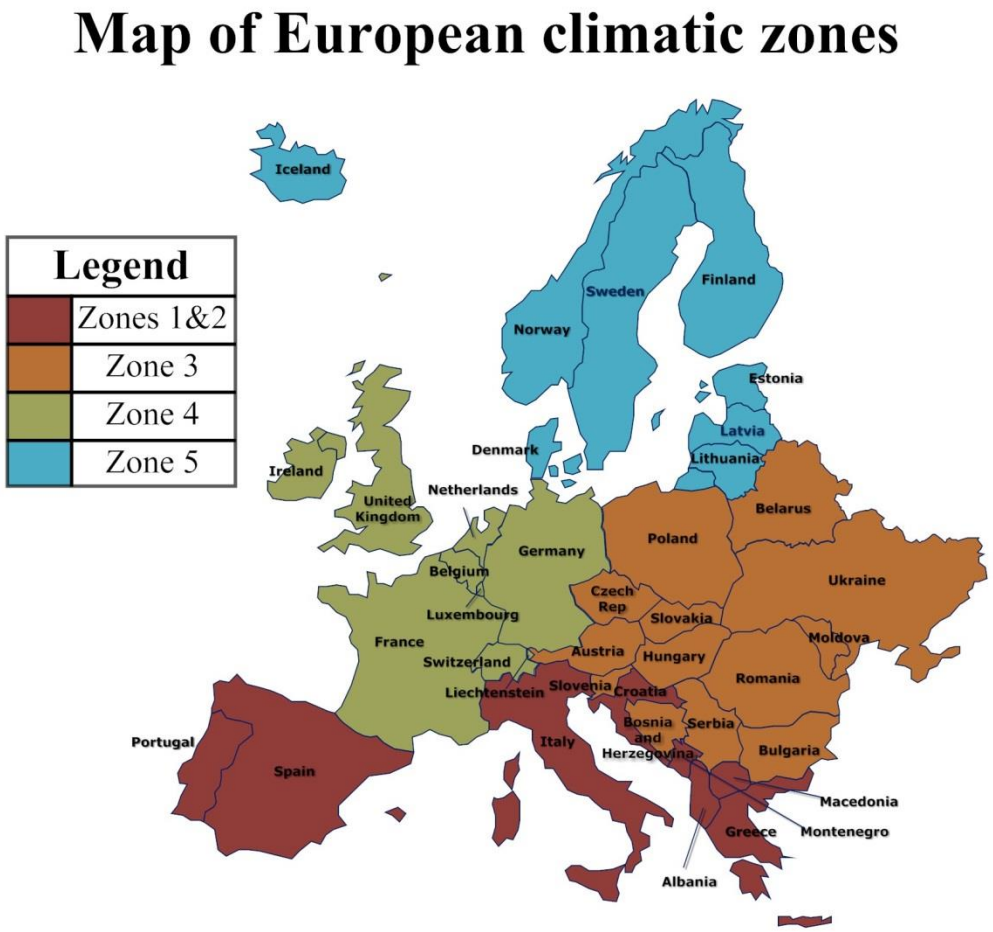
Basic funtions

- including energy uses for rooms, offices, hall
- not included extra-services: spa, laudary, swimming pool, ect.

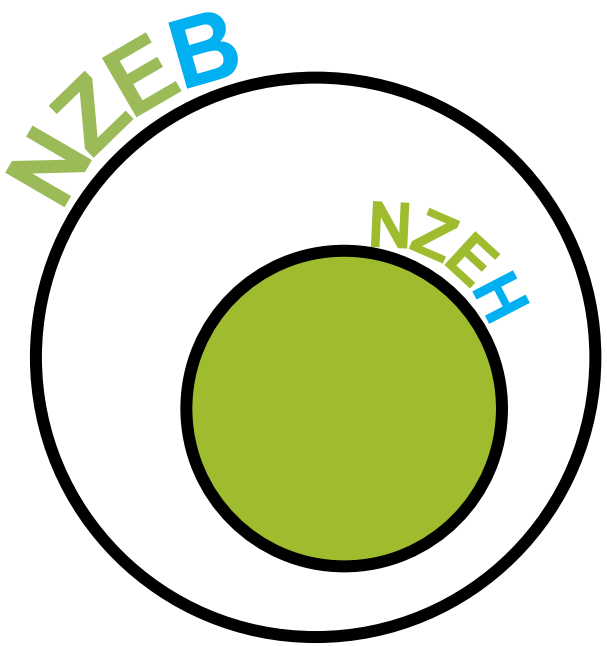
Nearly Zero Energy Hotel



Limit of energy performance related to «European Cliamtic Zones»



Nearly Zero Energy Hotel



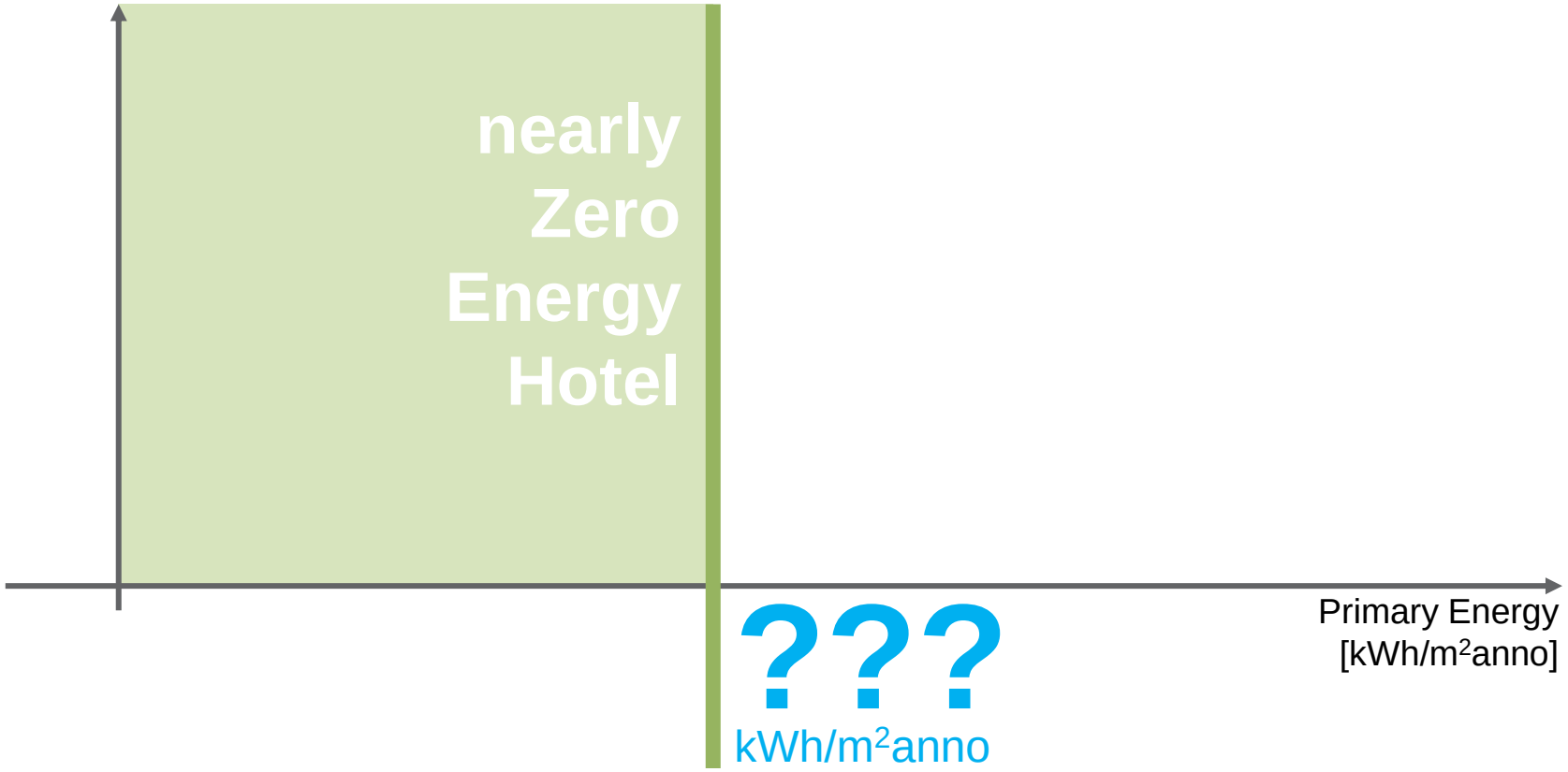
Primary Energy Limit (for Italy)

≈ ??? kWh/m^{2}year of primary energy

Considered final energy uses:

- Heating
- Cooling
- DHW
- Ventilation
- Lighting
- Electric equipments

Nearly Zero Energy Hotel



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Economic analysis

Energy performance

Global cost

Energy for:

- Heating
- Cooling
- Ventilation
- DHW
- Lighting
- Appliances

Investment costs

Energy costs

Maintenance costs

Replacement costs

Final value

$$C_g(\tau) = C_I + \sum_j \left[\sum_{i=1}^{\tau} \left(C_{a,i}(j) \times R_d(i) \right) - V_{f,\tau}(j) \right]$$