



BIM4ENERGY ERASMUS+

Erasmus+ Project ID: 2023-1-ES01-KA220-HED-000156652

BIM digital competencies to evaluate and improve the energy efficiency of European buildings.

A digital way towards positive energy districts

Alba Iulia Municipality

Speaker: VBTC

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GEOGRAPHICAL SITUATION

- ❖ Airports
- ❖ Railways
- ❖ Highways





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SHORT HISTORY

The **Other** Capital

A medium-sized **city** - an **outstanding** historical heritage



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SHORT HISTORY

Apulum - the Roman capital





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SHORT HISTORY

Capital of Transylvanian Principality :

the place where **European**

politics was made

(16th – 18th centuries)





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SHORT HISTORY

1918 - 2018

Capital of Romanian unification





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PARTICULARITIES

The **first city in Romania** to receive
financial audit and rating
from

MOODY'S



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PARTICULARITIES

partnership for technical consultancy with





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ECONOMIC DEVELOPMENT PRIORITIES: TOURISM

The first **city-brand**
manual in Romania





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ENVIRONMENT PROTECTION

Green space/ inhabitant in Alba Iulia

2017: 20m²

2020 : 26m²

CO₂ emission reduction

2020 (vs. 2008): 24%





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MEMBERSHIP AND AFFILIATION



TRANSROMANICA
The Romanesque Routes of European Heritage

Cultural route of the Council of Europe
Itinéraire culturel du Conseil de l'Europe





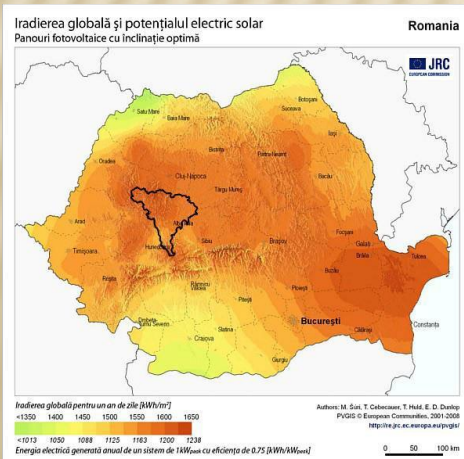
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GREEN ENERGY – A CITY OPEN TO GREEN ALTERNATIVES

- **Covenant of Mayors** membership – minus 40% CO2 (2030 vs 2008)

The Action Plan for Sustainable Energy and Climate (PAEDC) is the commitment document of the Alba Iulia local public administration, in order to reduce CO2 emissions, according to the targets assumed by joining the European initiative Convention of Mayors for Energy and Climate.

- **Solar energy & biomass potential**





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SMART CITY 2018 PILOT PROJECT

”Alba Iulia – The City Where The Future Was Born”

**ORAȘUL
ÎN CARE
S-A NĂSCUT
VIITORUL**

Primul proiect pilot
Smart City din România

2 Decembrie 2016, Alba Iulia
Universitatea "1 Decembrie 1918" - Amfiteatrul A9

Conferința de lansare oficială a proiectului
Alba Iulia Smart City 2018

alba iulia smart city
www.albaiulia.city



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Smart City Pilot Project: Alba Iulia – a living exhibition of smart solutions



orangeTM



SIEMENS



Microsoft



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KEY POINTS: AWARDS



IRU BUS Excellence Awards
Best public transportation system
in Romania (2013)



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Driving change for better cities



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KEY POINTS: AWARDS

The municipality of Alba Iulia, awarded the title of "Sustainable Community - European Energy Award"

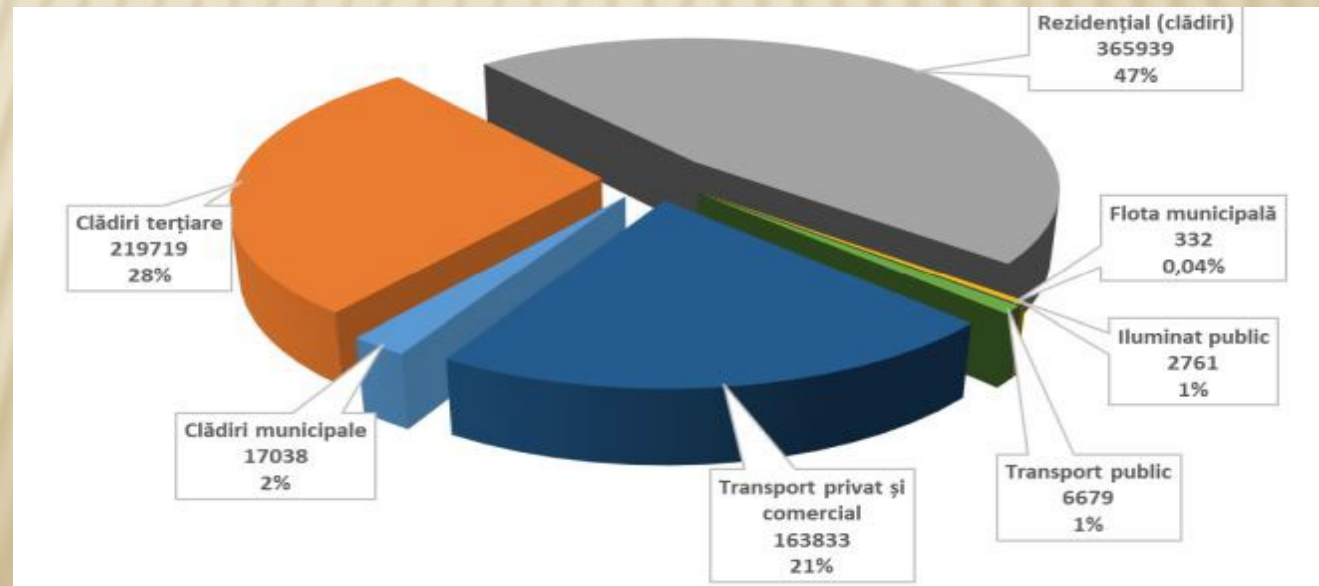
The Swiss Confederation financed the European Energy Award project (2010-2019) within the Swiss Contribution allocated to Romania.



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ENERGY CONSUMPTION

- ❑ The collection of data for the energy consumption - database in the energy field within the ANERGO Energy Observatory.
- ❑ Year 2008 - Baseline Emission Inventory – BEI

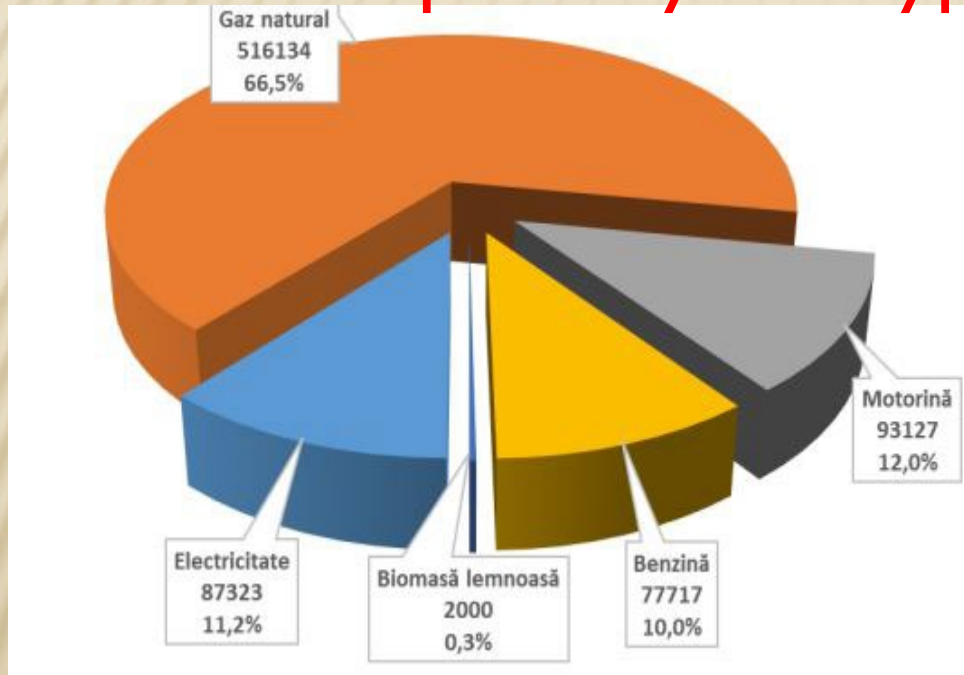




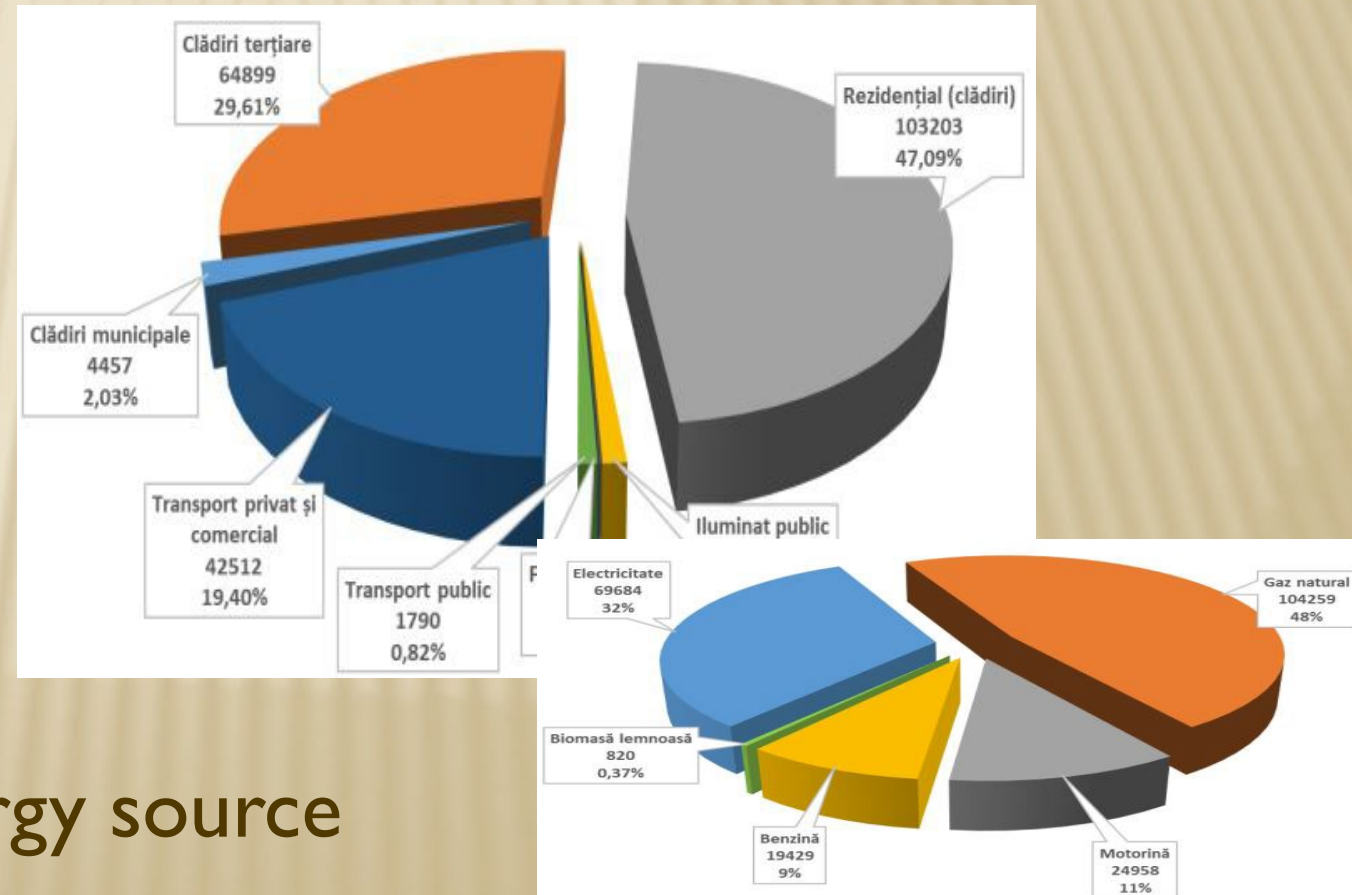
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ENERGY CONSUMPTION AND CO2 EMISSIONS- 2008

consumption by fuel type



CO2 Emissions



× CO2 emissions by energy source



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SOLUTIONS FOR ENERGY EFFICIENCY - MUNICIPAL BUILDINGS

Municipal buildings :

- building envelopes
- energy production systems from renewable sources
- consumption - nZEB:

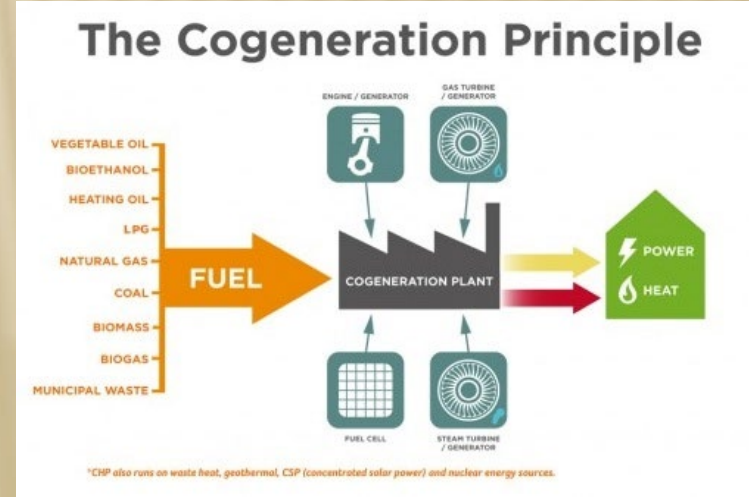


the new type of buildings - those with almost zero energy consumption

× photovoltaic panels

solar panels water heating

cogeneration



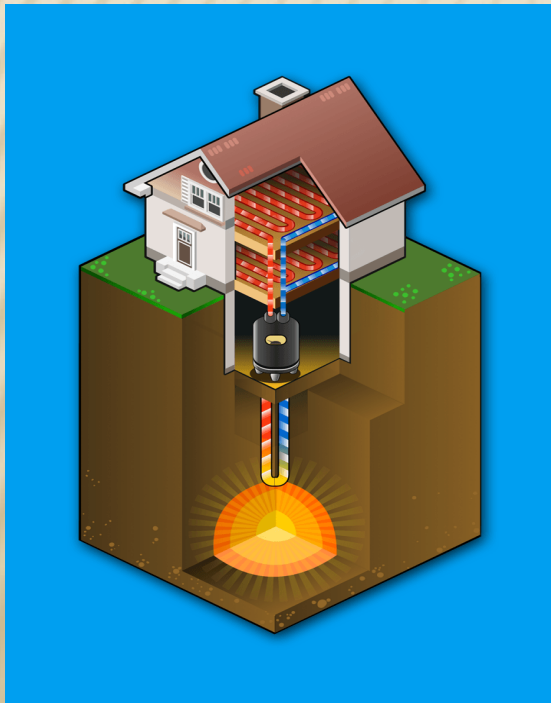


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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS

- geothermal pumps



BEMS





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SOLUTIONS FOR ENERGY EFFICIENCY – RESIDENTIAL BUILDINGS

- × building thermal envelopes
- × centralized heating system for new buildings



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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS - SPORTS HIGH SCHOOL



- building envelopes
- photovoltaic panels
- thermal energy production facilities with air-water heat pumps
- Building Energy Management System (BEMS)



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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS – RESIDENTIAL HOME FOR THE ELDERLY



- photovoltaic panels + solar pannels
- geothermal energy pumps – water - soil – water - the solution will increase the comfort inside the building, the proposed geother pumps being reversible, air conditioning will be possible for the warm period of the year. in addition, the newly proposed distribut system will equalize the ambient
- Building Energy Management System (BEMS) monitoring the achieved performances

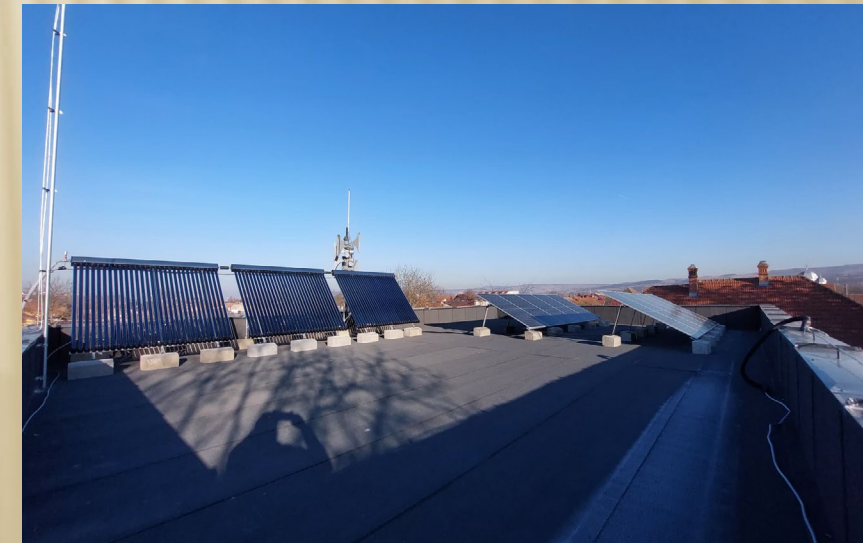


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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS – NURSERY SCHOOL



- Building Energy Management System
- photovoltaic panels + solar pannels
- building envelopes





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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS – OLYMPIC SWIMMING POOL



- × heat pump system – cogeneration unit (heat and electricity) with high efficiency replacing a hot water plant with two condensing plants with increased efficiency
- × automatic blinds system
- × air flow control system
- × LED lighting
- × building management system (Building Management System – BMS)
- photovoltaic panels + solar pannels



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SOLUTIONS FOR ENERGY EFFICIENCY – MUNICIPAL BUILDINGS – OLYMPIC SWIMMING POOL





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THANK YOU!

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