



Growing
ideas
through
networks

PEARL PV – CA16235

Braşov, Romania - Seminar / Training School, July 5-9, 2021

Information Package

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Reaching Braşov, Romania



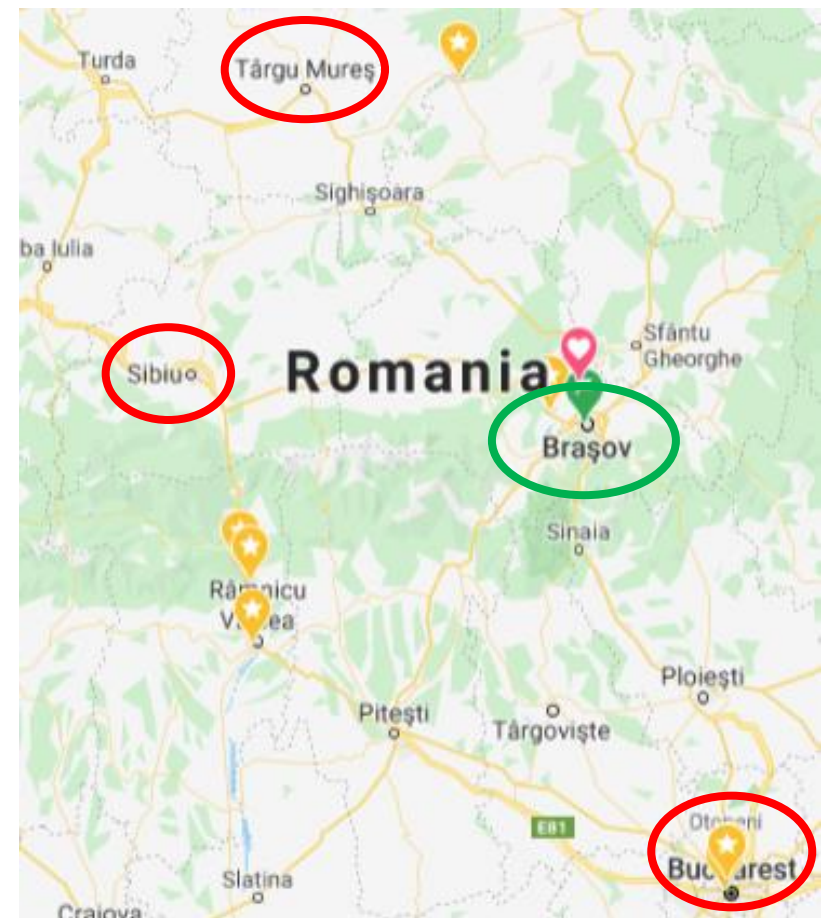
Reaching Braşov, Romania

Nearby airports:

- Bucharest (Otopeni): *Henri Coandă* International Airport - 140 km
- Sibiu International Airport - 150 km
- Târgu Mures: *Transilvania* International Airport - 170 km

Transfer from / to airport:

- Car / Shuttle:
- <https://transferairport.ro/en>
- <https://www.brasov-aeroport.ro>
(only for Bucharest-Otopeni)
- Train:
- <https://www.cfrcalatori.ro/en>
(with train switching in Bucharest)
- ~ 20 euro



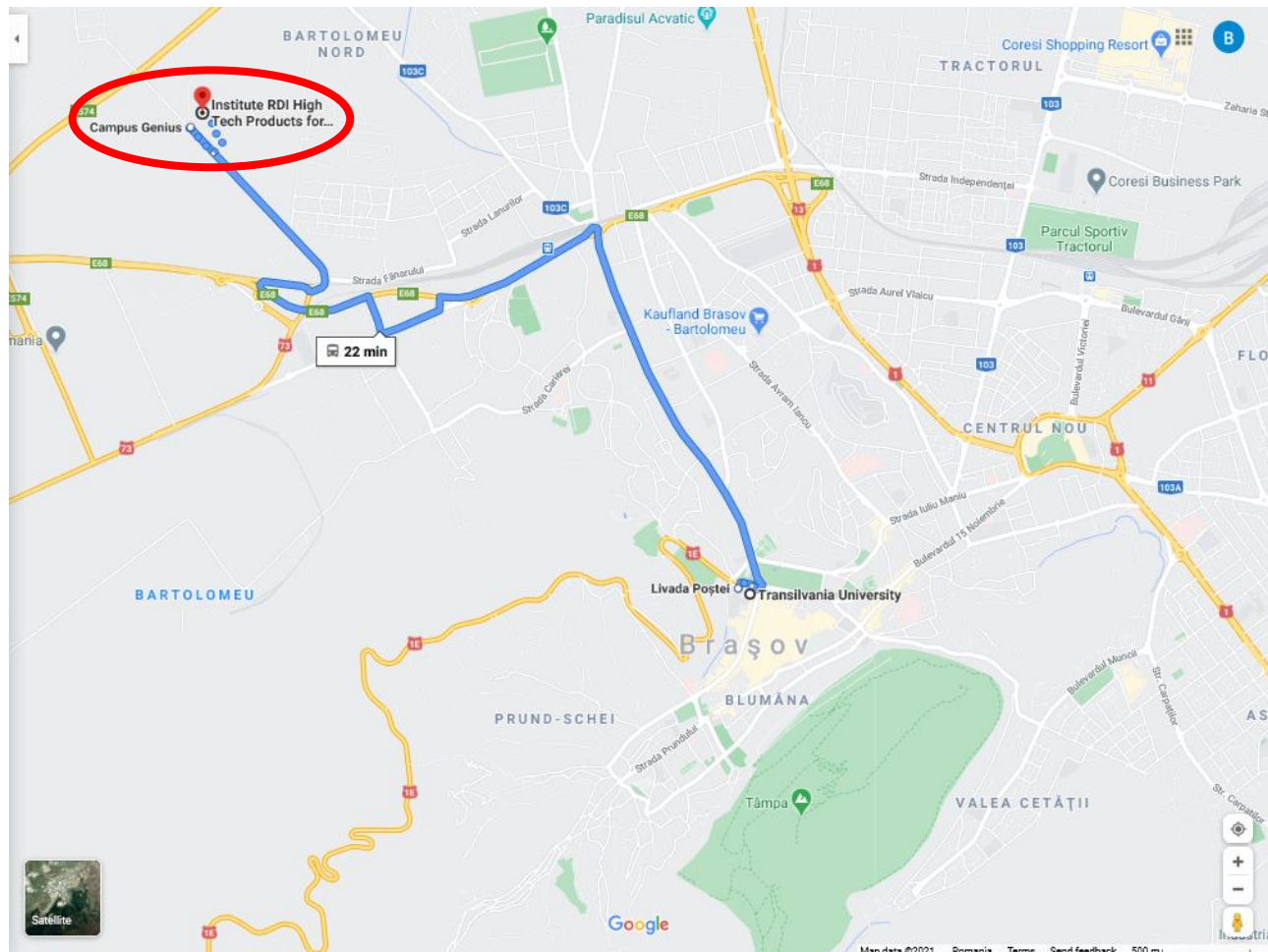
Venue

- *Transilvania University of Braşov* - [link](#)
- R&D Institute *High Tech Products for Sustainable Development* - [link](#)
 - Address: Str. Institutului 10, Braşov, 500484
Building L2 and L7



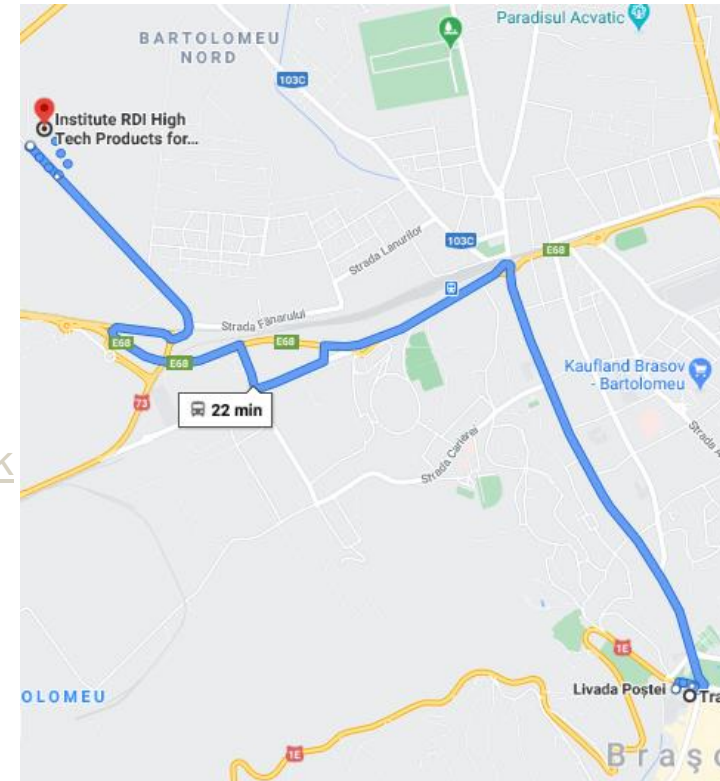
Venue

- *Transilvania University of Braşov* - [link](#)
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 - Address: Str. Institutului 10, Braşov, 500484, Building L2 and L7



Reaching the location of the events

- R&D Institute *High Tech Products for Sustainable Development* - [link](#)
 - Address: Str. Institutului 10, Braşov, 500484
Building L2 and L7
- Bus no. 24
 - ticket ~0.5 euro
- Taxi:
 - App: *FREE NOW (Clever) - Taxi & Rides* – [link](#)
 - Apps: Uber / Taxify / Cabify ...
 - ~ 5 euro



Hotel recommendations

- 1. Hotel ARO Palace – [link](#)
- 2. Hotel Capitol – [link](#)
- 3. Hotel Armatti – [link](#)
- 4. Hotel Ambient
- 5. Long Street Hotel – [link](#)
- 6. Rainer Hotel – [link](#)



Practical information

- Local currency: Romanian Leu (ROL)
- Exchange rate:
 - 1 EUR = ~ 4.9 RON
- Card payment widely accepted

Contact of Local Organizer

Assoc. Prof. PhD. Eng. Bogdan-Gabriel BURDUHOS

Transilvania University of Brasov, www.unitbv.ro

Product Design and Environment Faculty, <https://dpm.unitbv.ro/en>

Renewable Energy Systems and Recycling R&D Center, [link](#)

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Info about the host:
Transilvania University of Braşov



Transilvania University of Brasov

www.unitbv.ro

- Public University, founded in 1948
 - “Full Confidence” in the national evaluation
 - Ranked among the first at national level for Research of Excellence
- 18 faculties (engineering - 9, humanities - 5, medicine, law, sports and music)
- ~ 20000 students
 - ~ 800 research and teaching staff
- Research:
 - 27 R&D Centers focusing on priority fields of Sustainable Development
- R&D resources:
 - HR: over 300 PhD students (over 100 PhD supervisors)





Faculty of *Product Design and Environment*

dpm.unitbv.ro

Study Programs:

- Industrial Design (RO, EN)
- Product Design Engineering (EN)
- ***Engineering of Renewable Energy Systems (RO)***
- *Environmental Engineering and Protection in Industry (RO)*
- *Wastes Engineering (RO)*
- Mechatronics (RO)
- Medical Engineering (RO)
- Optometry (RO)



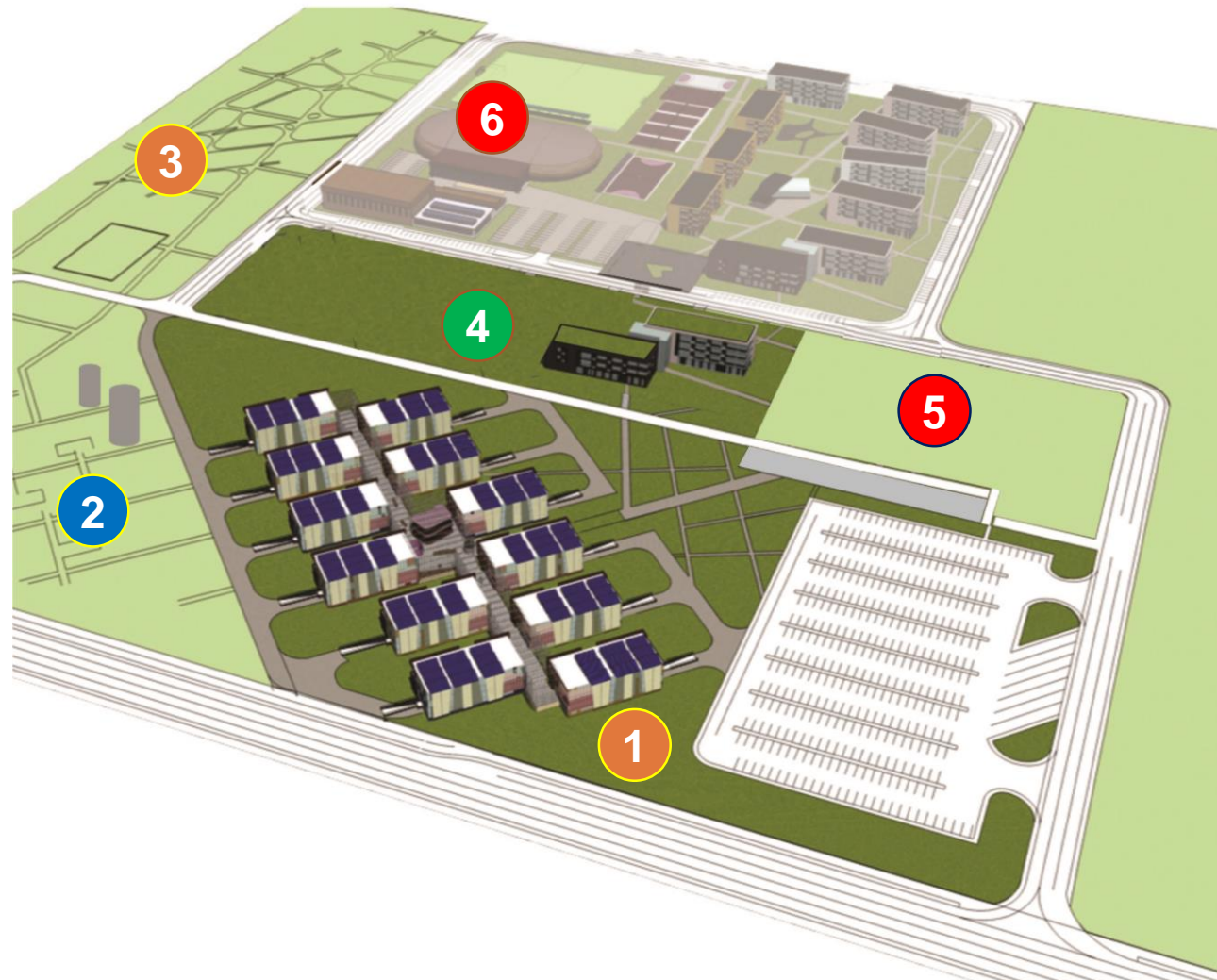
CENTRE PRODUCT DESIGN FOR SUSTAINABLE DEVELOPMENT





The GENIUS Campus

■ Green, Energy Independent University Campus



Phase 1:

1. Pro-DD R&D Institute
2. Solar Park (1.5MWp PV arrays)
3. Herbarium and Dendrologic Park

Phase 2:

4. Students facilities

Phase 3:

5. Cooperation area with companies
6. Sports area

Pro-DD R&D Institute

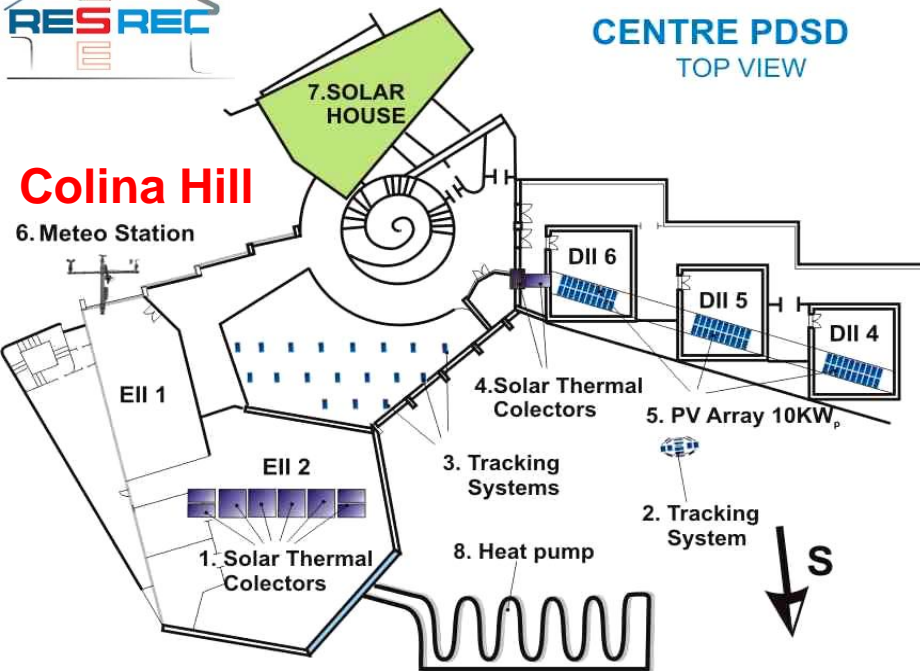
- POS-CCE project, ID 123, SMIS 2637, ~25 mil. EUR
General Manager: Prof. PhD. Eng. Ion VISA
- 27 R&D Centers:
 - 15 R&D Centers on Engineering topics
 - 12 R&D Centers on informatics, humanities, health, music, sports, law



CENTRE PDSD TOP VIEW

Colina Hill

6. Meteo Station

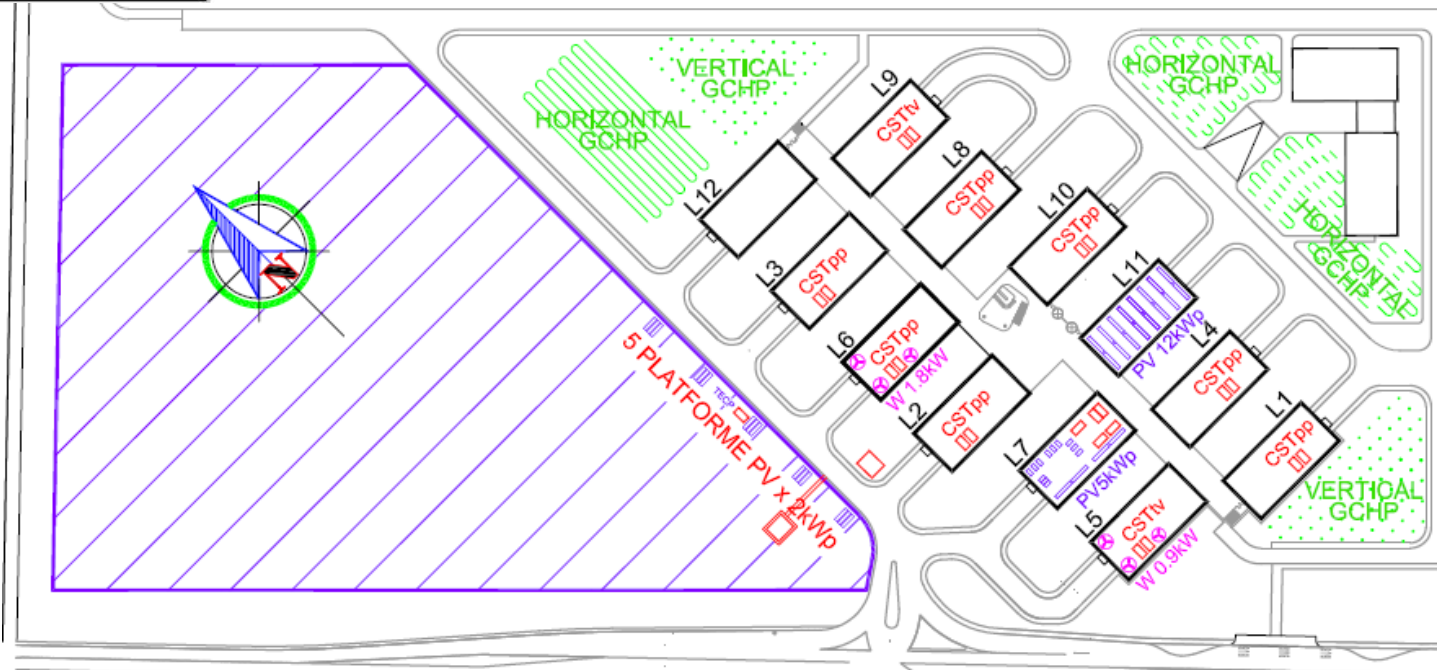


2 R&D Groups:

- System design
- Advanced materials

20 staff members

R&D Institute





R&D Centre - Renewable Energy Systems and Recycling in the **R&D Institute**

- Monitoring of solar irradiance and meteorological conditions

Solys 2 - irradiance



DeltaT - meteo



Addcon - wind



R&D Centre - Renewable Energy Systems and Recycling

- Solar energy conversion systems (L7 rooftop)



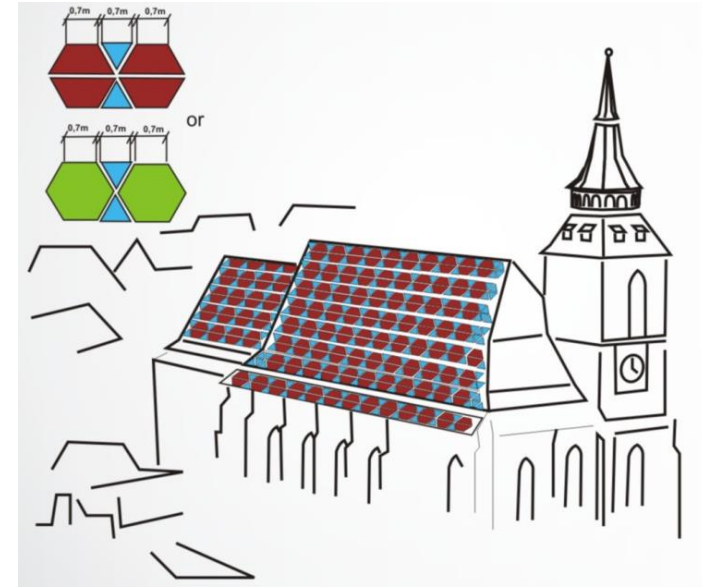
- Mini park of tracked PV platforms



- Single-axis PV string (rooftop L11)



- Novel Solar-Thermal collectors, different shaped and colors



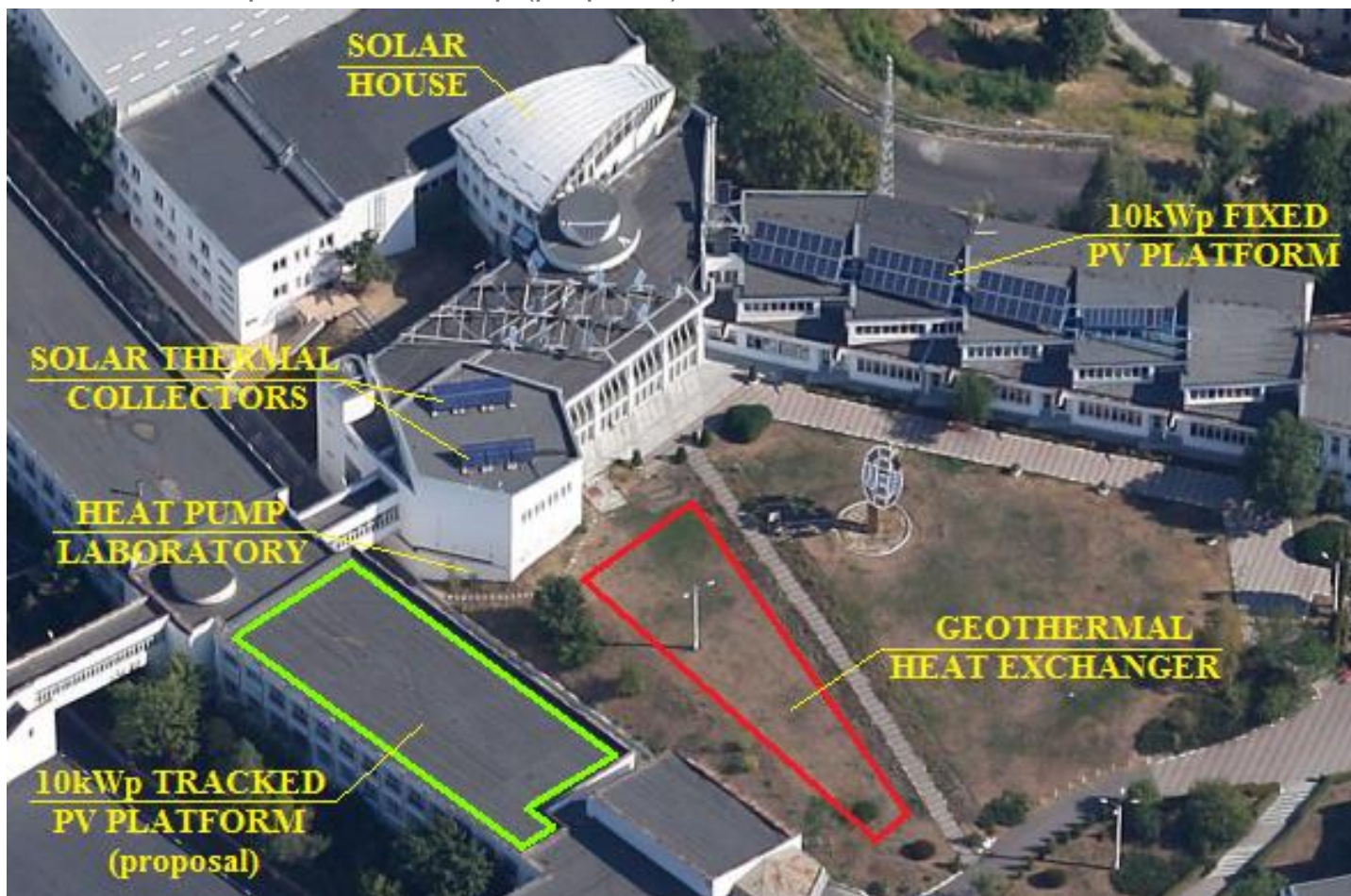
- Small wind turbines



R&D Centre - Renewable Energy Systems and Recycling on the Colina Hill

Energy mix:

- Solar House - Nearly Zero Energy Building
- Ground coupled heat exchanger, HP (10 kW)
- Flat plate and evacuated tube ST collectors
- fixed PV platform: 10 kWp
- tracked PV platform: 10 kWp (proposal)

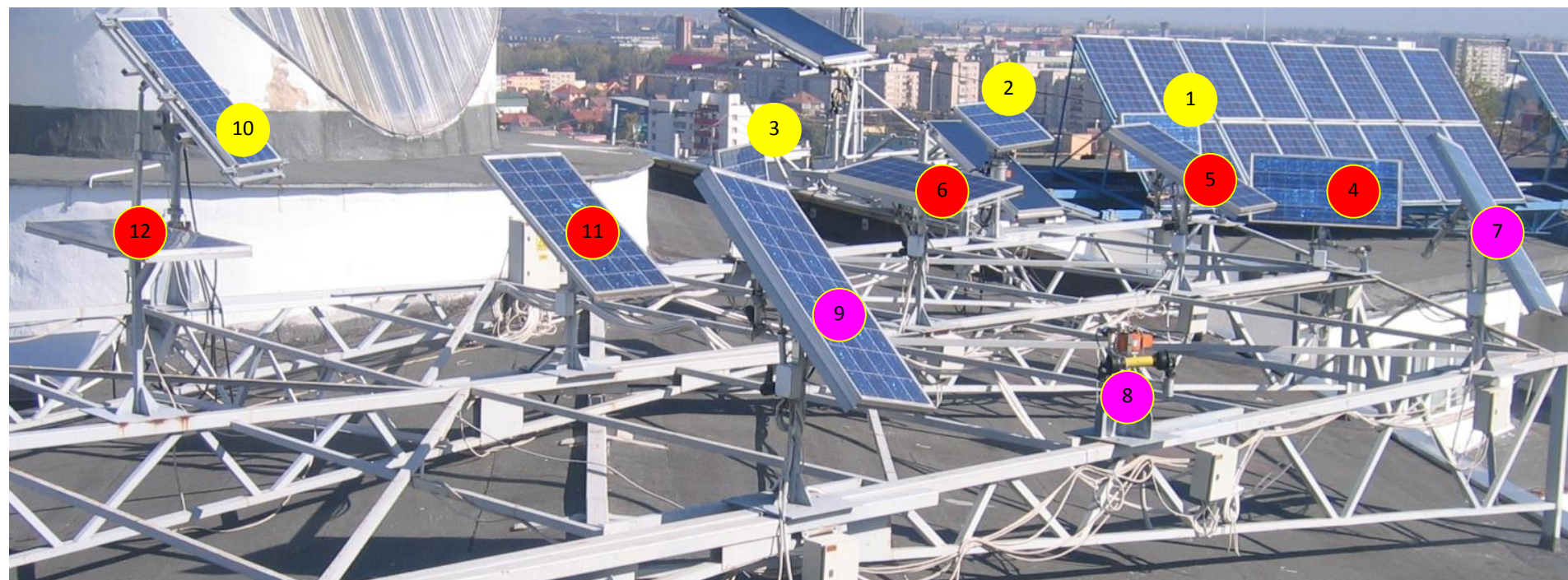


R&D Centre - Renewable Energy Systems and Recycling

- Fixed 10 kWp PV system
 - 2007, Si-p modules (Qcells, 205Wp, $\eta_{\text{ref}} = 12.4\%$)



- 12 small tracked PV systems:
 - different mechanisms
 - different tracking algorithms



R&D Centre - Renewable Energy Systems and Recycling

- Tracked PV platform, ~ 2 kWp
- Twin platform installed in Zwickau, Germany



- Solar-Thermal collectors: flat-plate (1) and evacuated tube (2)



- Heat pump

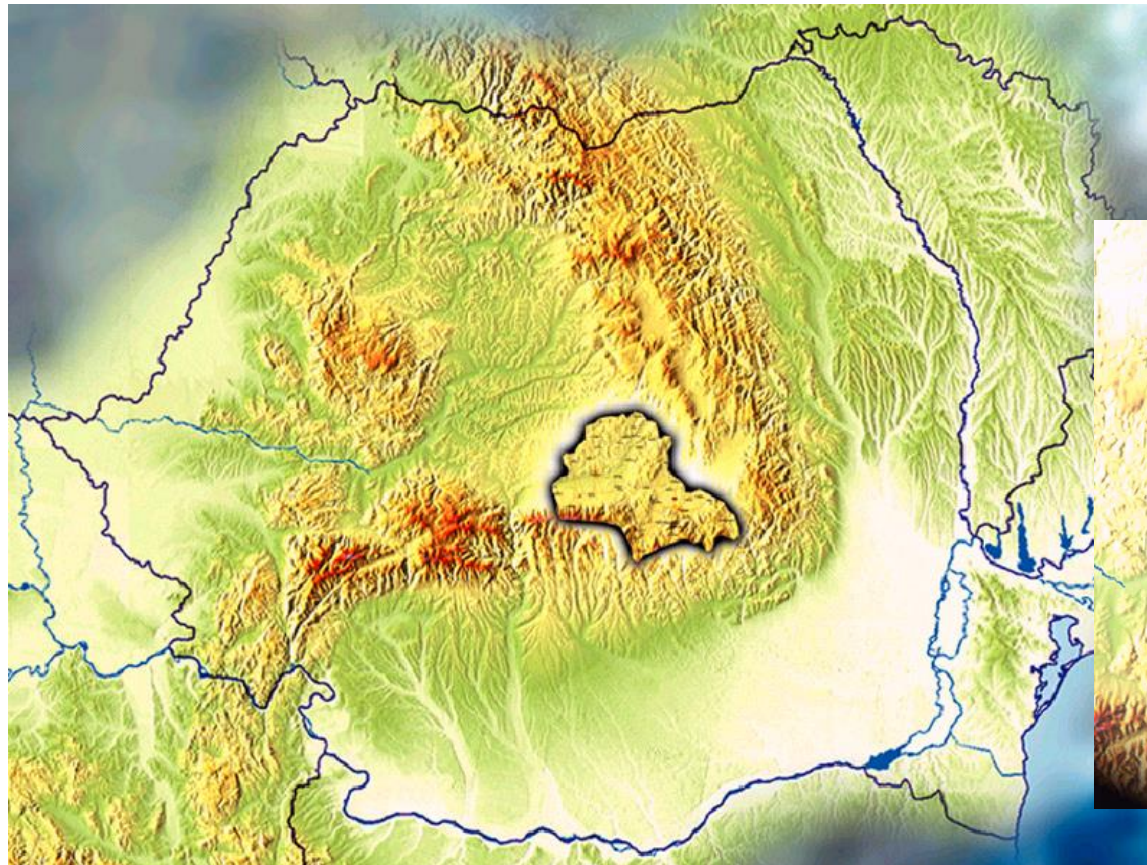


Turistic information

- City of Braşov
- Poiana Braşov, mountain ski resort (10 km)
- The Bran Castle (30 km)
- The Peleş Castle (Sinaia, 50 km)
- City of Sibiu, European cultural capital 2007 (140 km)
- Sighişoara, medieval citadel (120 km)

City of Brasov

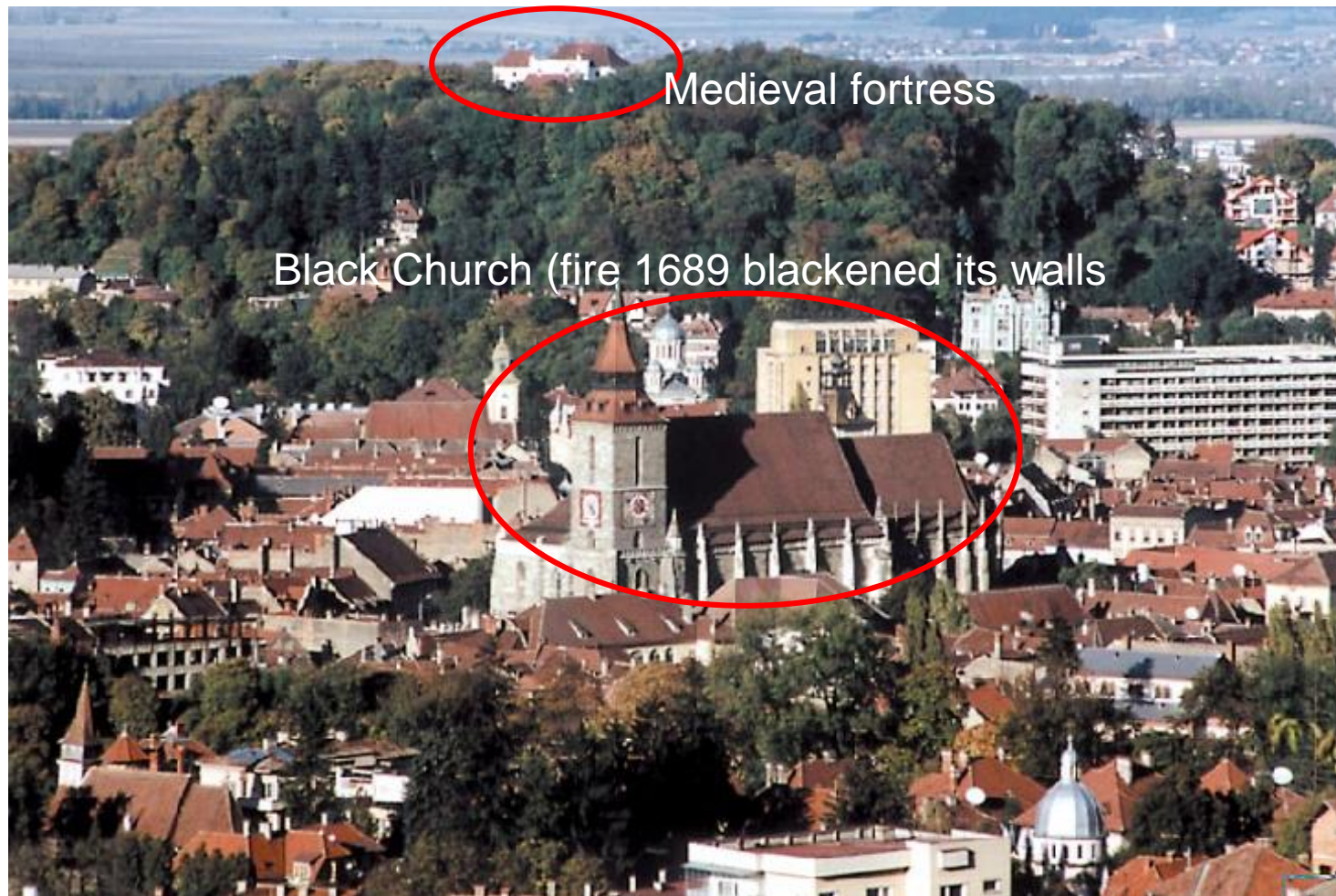
- Founded in 1211 (Kronstadt)
- Inhabitants: ~290,000 (400,000 in metropolitan area)
- 6th largest city of Romania
- Turistic guide: <https://www.ghid-brasov.ro/index-en.html>



City of Brasov



City of Brasov



City of Brasov

Old City Hall



Sforii Street



$L = \sim 82\text{m}$

$W = \sim 1.2\text{m}$



*First
Romanian
School*

City of Brasov

Catherine's Gate



The White Tower



The Black Tower



Graft Bastion



V

Poiana Brasov – ski resort



Bran Castle (30 km)

- 1337 - built (defense from Ottomans, customs)
- 1920 - Queen Marie of Romania (retreat)
- 1944 - Princess Ileana of Romania (hospital WW2)
- Vlad Drăculea (1436-1447)
 - Important ruler in Romanian history
 - Impaling punishment: thieves, criminals, traitors
 - 1462 - ??? imprisoned for 2 months
 - 1897: Irish writer *Bram Stoker* published *Dracula*
=> made Vlad famous world-wide



Peleş Castle (50 km)



City of Sibiu, European cultural capital in 2007 (140 km)



Sighișoara, medieval citadel (120 km)

