LEA POMURJE (Slovenia) – Activities

Štefan Žohar

FINAL EVENT, 30th November 2012, Genova, ITALY

Project cofinanced by
European Regional Development Fund

Lead Partner
Provincia di savona

Sustainable Construction in Rural and Fragile Areas for Energy efficiency

ere we are….

LEA Pomurje
Lokalna energetska agencija za Pomurje
Local Energy Agency Pomurje

Energy Management Agency
Intelligent Energy Europe

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR

THE SLOVENIAN FOCUS GROUP

- Established at the end of year 2010 and beginning of year 2011
- The members gather (via the national consortium of energy agencies, telop, verbal, acquaintanceship);
- the 1st active involved members are:
- Mr. Stanislav Sraka, director DAS;
- Mr. Stojan Habjanič, director Bioconstruction (private entrepreneur);
- Individual meetings

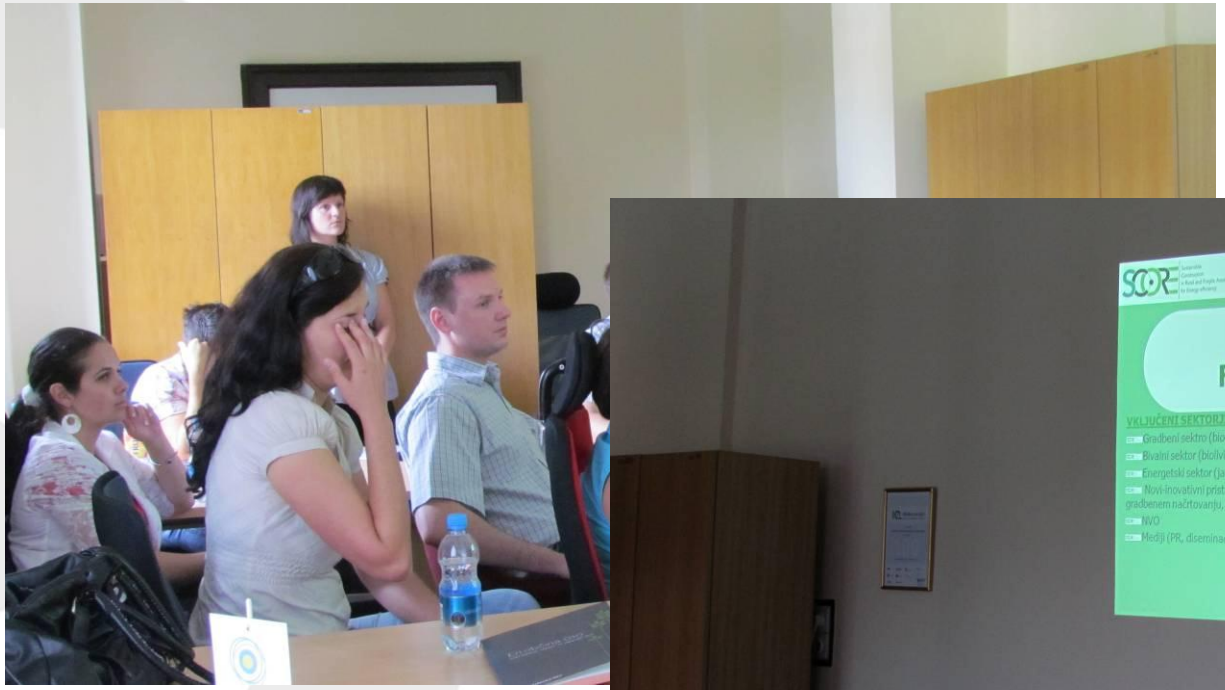
Meeting with Focus group and presentation of their work to Stakeholder on Local info seminar

Presentation on 2nd December 2010 on National council

SCORE Sustainable Construction in Rural and Fragile Areas for Energy efficiency

SCORE project was presented to representatives of municipalities, development and energy agencies from Serbia in Moravske Toplice between 15 and 16 September 2011

Presentation of project to the national consortium of energy agency



Presented the project at the international conference Sustainable energy region, which occurred in Moravske Toplice on 27/01/2012,

Presentation of project on the international fair ENGRA Gornja Radgona (26th - 30th of March 2012)

Presentation of project on the national conference EN.Obcina 012 – 19.10.2012

Presentation of project on the stand on the national conference EN.Obcina 012

Regional RES & RUE

T-shirts and bags

Matrix - Evaluation model to assess the feasibility, sustainability and transferability of energy efficiency practices in MED territories.

ITALY | GREECE | SPAIN | FRANCE | **SLOVENIE** | CYPRUS | PORTUGAL

SCORE — Sustainable Construction in Rural and Fragile Areas for Energy efficiency

THEMES

This matrix is an eco-construction tool aimed to allow local planners and building practitioners to use criteria to make energy-efficient choices newbuild,conversion & renovation/retrofitting.

DECLINATIONS

	New constructions	Requalifications of recent buildings	Renovation and refit works of historical buildings	Works "ex novo" in historical contexts
Aggregation/exposure for micro-climatic control				
Passive solar				
Solar thermal collector				
Photovoltaic			■	■
Small wind turbine				
Biomass			■	■
Geothermic			■	■
Different system of renewable energy				
Sun screen control				
Natural areation				
Natural lighting				
Automatic control system			■	■
Involucre (insulation, mass, PCM)			■	■
System (heating, conditioner)			■	■
Eco-compatible materials			■	■
Microclimatic and environmental control through vegetation				
Water resource (rain collection, etc)				

The concept of “BISTRA HIŠA - SMART HOUSE ”

Adaptation of the former folk school, a more than two centuries old building in Martjanci, to business entity

- Energy efficient building to the so-called energy smart house

The concept of “BISTRA HIŠA - SMART HOUSE ”

- Building is under historical preservation
- One of the last storks’ nests on the buildings (on chimney) in Slovenia
- Maximum use of natural materials
- Business incubator- office building

1. Development Agency Sinergija
2. Local Energy Agency for Pomurje
3. Institute Bistra hiša- Smart House
4. Local Development Foundation for Pomurje
5. Center for Lifelong Learning

The concept of “BISTRA HIŠA - SMART HOUSE ”

Sustainable Construction in Rural and Fragile Areas for Energy efficiency

Improvement of the thermal transmittance (k, U):

- **Wall on the groundfloor: from k = 0,8 > to k = 0,34 W/m2*K**
- **Wall on the floor: from k = 1,13 > to k = 0,38 W/m2*K**
- **Wall in attic: from k = 1,65 > to k = 0,28 W/m2*K**
- **Floor on the groundfloor: from k = 1,31 > to k = 0,25 W/m2*K**
- **Roof – roof structure: from k = 5,5 > to k = 0,13 W/m2*K**

Heat savings of the building "Old School":

- **Heat loss of the building without heat inflows (old state): 111,445 kWh**
- **Heat loss of the building without heat inflows (new state): 50,107 kWh**
- **Heat loss of the building by thermal inflows (new state): 31,841 kWh**

It suits the quantity of fuel oil: 3200 l
Thermal energy savings due to the renovation of the building without heat inflows: 61,338 kWh

>>> iz 8.000 l heating gas oil >>> na 3.200 l heating gas oil Savings: 4.800 l heating gas oil> - 12,8 t CO2

The concept of “BISTRA HIŠA - SMART HOUSE ”

Sustainable Construction in Rural and Fragile Areas for Energy efficiency

Heating:

- Three different radiators
- Wooden biomass boiler (wood chip)
- Solar panels for the preparation of hot water (hot and heating)
- Heat pump "water-water"
- 2 temperature levels (low temperature - for floor and wall heating, "high temperature" - in the radiators and the wall convectors)

Cooling:

- Passive cooling system: cooling medium = water from the fountain in the courtyard
- Submersible pump - heat exchanger - the existing thermal station
- Return of the water to a percolator
- Cooling by installations for the low-temperature heat transfer - wall and floor heating

Ventilation:

- Supply of fresh and drainage of exhaust air through the discarded air ducts to be connected to the heat ventilation recovery = exploitation of heat from the discarded air and preheating of fresh air
- Air temperature sensors will be located in the diversion channel, they will be connected to district heating regulation (secondary control/regulation).

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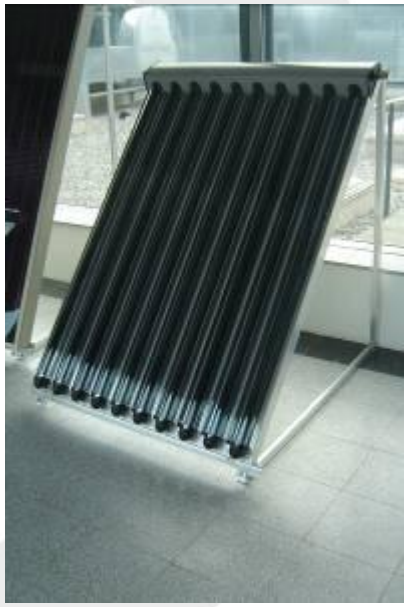
Sustainable Construction in Rural and Fragile Areas for Energy efficiency

Preparation of hot water:

- **Solar energy and heat pump primarily used for the preparation of domestic hot water**
- **Vacuum tube collector with the surface of 40 m2 will heat a hopper of a suitable size**
- **Excessive heat is used for spatial heating**
- **Heat pump as a secondary source covering the tip and days without sun**



The concept of “BISTRA HIŠA - SMART HOUSE ”

Sustainable Construction in Rural and Fragile Areas for Energy efficiency

Production of electricity - photovoltaics:

- **A solar power station with the power of 5.16 kW is built, ie. surface of 39.4 m2 - "photovoltaic trellis"**
- **Static solar modules**
- **7.000 to 7.500 kWh of electricity produced is expected - all electricity produced will be sold into the electricity grid by the inverter and meter.**

The concept of “BISTRA HIŠA - SMART HOUSE ”

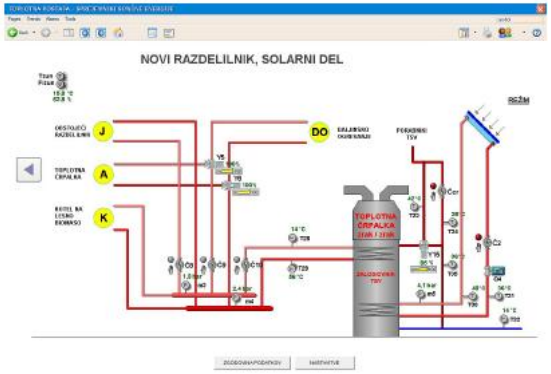
Sustainable Construction in Rural and Fragile Areas for Energy efficiency

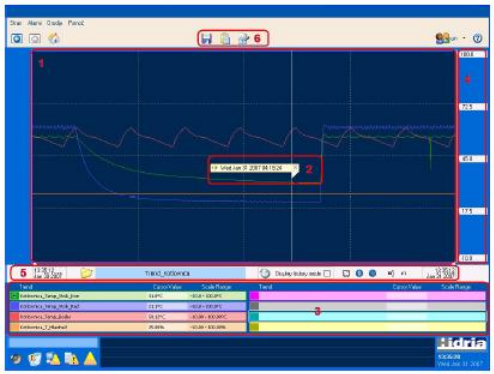
CENTRAL CONTROL SYSTEM:

Central control system is managing the building and covering automation and control of the building. It represents the connecting link of all subsystems in a common point, from where is established control and management system over all connected devices from one central or multiple locations.

Subsystem “Smart house” is divided:

- **Thermal station,**
- **Air conditioning,**
- **Energy measurement,**
- **Heat pump.**





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After the renovation, the building represented a specific example of good practice. With its purpose, the building is demonstration and dissemination centre for RUE (rational use of energy) and RES (renewable energy) both in the region of Pomurje as well as at the national level.

LEA Pomurje
Lokalna energetska agencija za Pomurje
Local Energy Agency Pomurje

THANK YOU FOR YOUR ATENTION!

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Lead Partner

- Province of Savona (ITALY)

Project Partner

- Region of South Aegean (GREECE)
- Read S.A. (GREECE)
- Local Energy Agency Pomurje (SLOVENIE)
- Agência Regional de Energia do Centro e Baixo - Alentejo (PORTUGAL)
- Official Chamber of Commerce, Industry and Shipping of Seville (SPAIN)
- Rhône Chamber of Crafts (FRANCE)
- Development Company of Kefalonia & Ithaki S.A. - Kefalonia (GREECE)
- Chamber of Commerce and Industry Drôme (FRANCE)
- Cyprus Chamber Of Commerce and Industry (CYPRUS)
- Chamber of Commerce & Industry Marseille Provence (FRANCE)

SCORE

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