



MonitorEE Interregional Event 3 Dossier



GREEN



PP03_South-West Oltenia Regional
Development Agency

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Aim of the document

The aim of the Interregional Events' Dossier is to summarise the main interregional activities held during the event for publication and dissemination in the project website.

The document includes the agenda, a description of the main activities developed, conclusions of the interregional learning and event photos.

Project identification

Acronym:	MonitorEE
Title:	Improving energy efficiency through smarter management systems
Project ID:	01C0208
Project duration:	48 months + 3 months for project closure
Core Phase:	From 01/03/23 until 28/02/2026.
Follow-up Phase:	From 01/03/26 until 28/02/2027.
Closure Phase:	From 01/03/27 until 31/05/27

Partners / associated policy authorities

Project partners

- LP01 - Consortium Extremadura Energy Agency – AGENEX (Spain)
- PP02 - Environmental Protection and Energy Efficiency Fund (Croatia)
- PP03 - Regional Development Agency South-West Oltenia (Romania)
- PP04 - Lappeenranta Municipality (Finland)
- PP05 - Paris Climate Agency (France)
- PP06 - Marshal Office of Świętokrzyskie Voivodeship (Poland)

Associated policy authorities

- APA01 – City of Paris/ Department of Ecological Transition and Climate (PP05)
- APA02 - Ministry of Physical Planning, Construction and State Assets (PP02)
- APA 03- Directorate General for Industry, Energy and Mines - Regional Government of Extremadura (LP01)

Project summary

Buildings are currently considered to be in the eye of the storm due to the current standards imposed by Europe regarding energy matters. The Renovation Wave strategy developed by the European Commission, as part of the European Green Deal, has settled an action plan that establishes different measures to boost and accelerate building renovation. Its main goal is to double the annual energy renovation rate of buildings by 2030.

However, to achieve this, many European regions are still facing barriers such as: the lack of capabilities in the energy sector and the need for specific training; the high prices of construction materials and the increasing prices of energy; the lack of financial products available to face the upfront investments; and slow administrative procedures when dealing with grants and licences. These reasons, among others, develop in delays in the implementation of the European road map set for 2050, which foresees to reduce 80% of the GHG emissions.

At EU level, the Building Energy Performance Directive 2018/844/EU and the Energy Efficiency Directive 2012/27 promote policies to help decarbonize the building stock by 2050 by (i) creating a stable environment for decision-making and (ii) enabling consumers to make better choices towards energy and economic savings. At national level, long-term renovation strategies have been developed.

At local and regional level, public authorities can also help achieve the new standards of buildings energy performance. Even if a lot of progress has been done and innovative solutions have been introduced, there is still a long way to go; not only regarding investments in energy but also in monitoring these investments to analyze the work done, compare the real savings to those estimated in the project phase, and to use this information in future investments with the aim of optimizing the leverage of public funds.

1. Event Agenda

MonitorEE

Improving energy efficiency through smarter management systems

Agenda

Third Interregional Event / 21st-22nd of May 2024, Craiova – Romania

Day 1 – 21st May 2024

09:00 – 09:30

Registration

- Welcome participants
- Distribution of agenda

09:30 – 10:00

Introduction of the SW Region and the Agency's activity

- Overview of the South-West Oltenia Region
- Agency's mission and achievements

10:00 – 10:30

Insights into Good Practices (GP) – ROP 2014-2020 calls for proposals

- Focus on energy efficiency in public buildings
- Learning from past calls and looking ahead

10:30 – 10:45

Coffee break

10:45 – 11:45

Master class 2 – What are we seeking with a regional analysis

- Presentation of the REA draft in the SWO Region
- Peer review of the situation in the SW Oltenia Region
- Expert-led session with interactive Q&A

11:45 – 12:00

Coffee break

12:00 – 13:30

GP's presentation from Partners

- LP - Consortium Extremadura Energy Agency, Spain (15 – 20 min.)
- PP02 - Environmental Protection and Energy Efficiency Fund, Croatia (15 – 20 min.)
- PP04 - Lappeenranta Municipality, Finland (15 – 20 min.)
- PP05 - Paris Climate Agency, France (15 – 20 min.)

13:30 – 14:30	<ul style="list-style-type: none">• PP06 - Świętokrzyskie Region – Marshal Office of Świętokrzyskie Voivodeship, Poland (15 – 20 min.) Lunch
14:30 – 16:30	Steering Committee meeting <ul style="list-style-type: none">• Review of the project status implementation
19:00 – 21:00	Dinner (Casa Ghincea, Romanian Traditional Restaurant)

Day 2 – 22nd May 2024

09:00	Meet at designated point <ul style="list-style-type: none">• Briefing for the day's activities
09:30 – 10:30	Study visit 1 – Energy efficiency measures at the Faculty of Mechanics, University of Craiova
10:30 – 11:10	Travel to the second study visit
11:10 – 12:10	Study visit 2 – Thermal and energy rehabilitation Administrative Building - Caracal Fire Department
12:10 – 13:00	Lunch (Retro Boutique Restaurant, Caracal)
13:00– 16:30/17:00	Travel to Otopeni Airport (Bucharest)

2. Summary

The Third Interregional Event of MonitorEE took place on the 21st and 22nd of May 2024 in Craiova, Romania. This event focused on enhancing energy efficiency through smarter management systems, bringing together partners to share insights and best practices.

Day 1 – 21st May 2024:



The day began with the registration of participants, where they were welcomed and provided with the event agenda. The opening session introduced the South-West Oltenia Region, detailing the agency's mission and achievements. This was followed by a session on good practices from the ROP 2014-2020 calls for proposals, focusing on energy efficiency in public buildings and learning from past initiatives.

After a short coffee break, a master class addressed the goals of regional analysis. The REA draft for the South-West Oltenia Region was presented and peer-reviewed, leading to an expert-led interactive Q&A session. Another brief coffee break provided a chance for informal discussions.

The highlight of the day was the Good Practices presentation from partners. The Consortium Extremadura Energy Agency from Spain presented the Hospital SUDOE 4.0 project, emphasizing smart energy management in hospitals. The Environmental Protection and Energy Efficiency Fund

from Croatia introduced their Energy Management Information System (EMIS), showcasing its functionalities and achievements. The Lappeenranta Municipality from Finland discussed the utilization of BIM models in various use cases, and the Paris Climate Agency from France presented CoachCopro, a tool designed to accelerate energy retrofits in condominiums. Lastly, the Świętokrzyskie Region from Poland shared insights on their electricity microgrid project at Kielce University of Technology.

Following these presentations, participants had lunch and later reconvened for the Steering Committee meeting. This session reviewed the project status, discussed management aspects, workplan adjustments, and communication strategies to enhance stakeholder engagement.

The day concluded with a dinner at Casa Ghincea, offering traditional Romanian cuisine and an opportunity for further networking.

Day 2 – 22nd May 2024:

The second day began with a briefing for the day's activities, followed by the first study visit to the Faculty of Mechanics at the University of Craiova. Here, participants were introduced to the energy efficiency measures implemented on campus, including the Building Information Modeling (BIM) system for monitoring indoor air quality and temperature.

After touring the central heating room and the rehabilitated areas, the group traveled to the second study visit at the Administrative Building of the Caracal Fire Department. This visit focused on the project's thermal and energy rehabilitation efforts, highlighting improvements in thermal insulation, heating and hot water systems, and the integration of renewable energy sources.

A lunch break at Retro Boutique Restaurant in Caracal provided a moment to reflect on the morning's insights before participants traveled back to Otopeni Airport in Bucharest, marking the end of the event.

Overall, the event successfully facilitated the exchange of innovative approaches and best practices among partners, emphasizing the collective efforts to foster sustainable energy practices and improve energy efficiency across Europe.



3. ROUND TABLE/ WORKSHOP

During this segment of our event, partners shared their insights and initiatives on advancing energy efficiency and sustainable practices across various regions in Europe. Each partner presented a unique project, highlighting their innovative approaches and successes in the field.



LP - Consortium Extremadura Energy Agency, Spain: Hospital SUDOE 4.0 (Smart Energy Management in Hospitals)

The Spanish lead partner presented the Hospital SUDOE 4.0 project, which aims to improve energy efficiency policies in public buildings, contribute to a low carbon economy through nearly Zero Energy Buildings (nZEB), and maximize energy performance and self-generation of energy. A key component of this initiative is the launch of knowledge networks and the exchange of experience.

A significant feature of the project is the Hospital Platform 4.0, an open-access digital platform that allows for the comparison between real consumption scenarios and a digital twin of the building. The platform monitors general consumption and main consuming equipment, identifies irregularities and inefficiencies in water consumption, and assesses the thermal transmittance of walls, windows, and thermal bridges. It also monitors areas requiring specific air quality, high occupancy zones, HVAC facilities, photovoltaic installations, and other renewable energy sources. The platform's objectives include monitoring the hospital's state, reducing CO₂ emissions, improving the quality of life inside the building, and alerting on possible inefficiencies in hospital operations.

PP02 - Environmental Protection and Energy Efficiency Fund, Croatia: Energy Management Information System (EMIS)

The Croatian partner introduced the Energy Management Information System (EMIS), detailing the organization behind systematic energy management and the functionalities of EMIS. This system collects dynamic data such as monthly energy and water consumption, remote and manual billing, smart meter readings, indoor air quality, and weather station readings. Additionally, static data is gathered, including construction details, energy systems, energy certificates, and audits.

The results achieved through EMIS include a yearly reduction of up to 5% in energy and water consumption. EMIS covers all public sector institutions in Croatia and has been adopted in other countries, becoming an essential tool for planning energy strategies at national and local levels. The system allows data export in various formats and supports the creation of targeted reports, contributing to the flexibility and scalability of energy efficiency measures.

PP03 South-West Oltenia Regional Development Agency, Romania: Thermal and Energy Rehabilitation of the Administrative Building 48-106-01 – Caracal Fire Department



The Romanian partner presented their project focused on the thermal and energy rehabilitation of the Caracal Fire Department's administrative building. The main objective is to support energy efficiency, intelligent energy management, and renewable energy use. This includes reducing primary energy consumption and CO₂ emissions, and improving the comfort, health, and safety of the building's personnel.

Specific objectives include reducing annual primary energy consumption by 259.78 kWh/m², cutting CO₂ emissions by 91,703.94 kgCO₂/m², and ensuring at least 10% of energy consumption comes from renewable sources. Rehabilitation works include improving thermal insulation, upgrading heating and hot water systems, installing thermostatic radiators, and using solar panels. Additionally, a mechanical ventilation system with heat recovery and LED lighting fixtures were installed.

The results show a significant reduction in primary energy consumption using non-renewable sources to 56.50 kWh/m²/year and a total annual renewable energy consumption of 46,865.32 kWh. The project achieved a 34.55% share of total energy consumption from renewable sources, demonstrating substantial energy efficiency improvements and greenhouse gas reductions.

PP04 - Lappeenranta Municipality, Finland: Utilization of Standardized Information Models in Various Use Cases

The Finnish partner from Lappeenranta Municipality discussed the utilization of BIM models in various use cases, emphasizing their added value and cost-effectiveness. These models, based on

IFC standards, offer significant benefits not only during the construction project but also in ongoing maintenance and operations. The partner highlighted a good practice case involving the review of preliminary building plans in relation to the existing environment using BIM and georeferencing tools.

The conclusions drawn from this case stress the importance of national guidelines for open BIM and the important role of clients. The presentation also addressed barriers such as the general lack of knowledge and understanding of data models. Building SMART International's Use Case Management service was mentioned as a valuable resource, alongside new opportunities arising from national legislation and open BIM practices.

PP05 - Paris Climate Agency, France: CoachCopro: A Tool to Accelerate Condominiums Energy Retrofits

The Paris Climate Agency presented CoachCopro, a tool designed to accelerate energy retrofits in condominiums. This one-stop-shop web platform is dedicated to Paris citizens, providing information, advice, and support for energy renovation projects. Created in 2013 with support from the City of Paris and ADEME, CoachCopro is linked to the national France Renov' service, which offers professional advisory services for pre-work studies and energy efficiency projects.

The platform serves as a national resource center, providing MOOCs, guides, and updates on the latest innovations in condominium retrofits. Managed by the observatory of the Paris Climate Agency, CoachCopro has dedicated staff working to ensure its effectiveness in supporting energy efficiency initiatives.

PP06 - Świętokrzyskie Region – Marshal Office of Świętokrzyskie Voivodeship, Poland: Electricity Microgrid on the Campus of Kielce University of Technology

The Polish partner presented the electricity microgrid project on the campus of Kielce University of Technology. This microgrid integrates generating devices, storage tanks, and electricity receivers into a common network to ensure a reliable supply of electricity and minimize costs. The microgrid infrastructure includes a 0.5 MW PV installation, six vertical axis windmills, a 100 kW natural gas generator, an energy storage battery, mobile energy storage units (electric cars), and twelve electric car charging stations. The entire system is managed by a central control room.

The project, with a total cost of PLN 90.2 million (of which PLN 73.5 million was EU-funded), aims to modernize the university's energy infrastructure. The results include centralized control of energy production, distribution, and storage, as well as detailed measurement data for energy production and consumption. The project has significant potential for transfer and replication, combining modernization efforts with the use of renewable energy sources to reduce harmful emissions.

Each presentation underscored the collective efforts and innovative approaches taken by our partners to foster sustainable energy practices and improve energy efficiency across Europe. These projects serve as exemplary models for future initiatives aimed at achieving a greener and more energy-efficient future.

4. SC Meeting

On the afternoon of the first day, the Lead Partner organized the second Steering Committee meeting. This session was dedicated to a thorough review and discussion of several critical aspects of the project. The primary focus was on project management, ensuring that all administrative and operational processes are aligned with the project's goals and timelines. The committee also revisited the workplan, making necessary adjustments to optimize efficiency and address any emerging challenges or delays. Communication activities were another key area of discussion, with the committee assessing current strategies and exploring new approaches to enhance stakeholder engagement and dissemination of project outcomes. This collaborative session aimed to reinforce the project's foundation and streamline efforts across all involved parties.



5. Study Visits

Study Visit 1 – Energy Efficiency Measures at the Faculty of Mechanics, University of Craiova

The first study visit was held at the Faculty of Mechanics within the University of Craiova. Our group was warmly welcomed by energy experts and faculty representatives who guided us through the visit, explaining every detail of the energy efficiency project implemented on the campus.



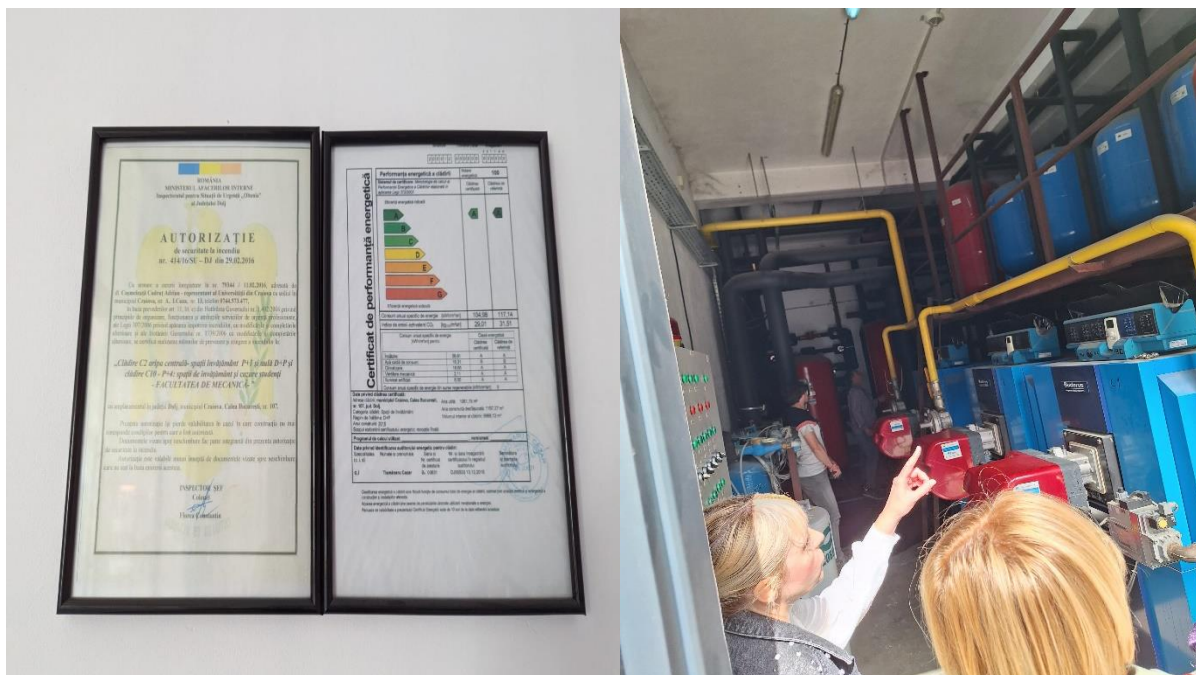
The visit commenced in the Aula Magna of the Faculty of Mechanics, where we were introduced to the Building Information Modeling (BIM) system used for monitoring indoor air quality and temperature. This presentation provided an in-depth understanding of how the system functions and its benefits for the campus.



Participants had the opportunity to closely examine the energy modernization project. Detailed information about the project's objectives, technical specifics, blueprints, and the materials used were shared, allowing for a comprehensive understanding of the measures taken to improve energy efficiency.



Following the presentation, we toured the central heating room and the rehabilitated areas of the campus. Discussions focused on the changes implemented and their impact. The results of these energy efficiency actions were evident, as the project achieved an A grade in the energy performance certificate, highlighting the significant improvements made.



This study visit offered valuable insights into the practical application of energy efficiency measures, demonstrating the successful integration of modern technology and sustainable practices in an educational institution.

Study Visit 2 – Thermal and Energy Rehabilitation of the Administrative Building - Caracal Fire Department

The second study visit took place at the Administrative Building of the Caracal Fire Department, focusing on the project's thermal and energy rehabilitation efforts. Our visit was organized to explore the measures implemented to enhance energy efficiency, intelligent energy management, and the use of renewable energy sources.



The main objective of this project is to support energy efficiency, intelligent energy management, and the utilization of renewable energy by reducing primary energy consumption and CO₂ emissions. Additionally, the project aims to improve the comfort, health, and safety of the personnel working in the building.

During the visit, we were introduced to the specific objectives of the project, which include reducing the specific annual consumption of primary energy by 259.78 kWh/m²/year, achieving an annual reduction in greenhouse gases of 91,703.94 kgCO₂/m²/year, and ensuring that at least 10% of total primary energy consumption is sourced from renewable energy.

We toured the building to observe the rehabilitation works carried out, such as improving the thermal insulation of the building envelope, rehabilitating heating and domestic hot water systems, installing radiators with thermostatic taps, and bathroom fixtures with motion sensor batteries. The integration of renewable energy sources was evident through the installation of solar panels for hot water preparation and input to heating. Additionally, a decentralized mechanical ventilation system with heat recovery was installed to ensure indoor air quality, reduce heating energy consumption, and save costs. The lighting system was upgraded by replacing fluorescent and incandescent fixtures with LED lighting.



The results of these measures were impressive. The annual specific primary energy consumption using non-renewable sources was reduced to 56.50 kWh/m²/year, with heating accounting for 40.37 kWh/m²/year. The annual primary energy consumption using renewable sources reached 46,865.32 kWh, with contributions to heating/cooling, hot water preparation, and electric lighting.

In line with the project's objectives, significant benefits were generated, including an annual reduction in greenhouse gases to 20,581 equivalent tons of CO₂, an annual primary energy consumption of 135,647.05 kWh, and an annual final energy consumption of 5.49 toe. Notably, 34.55% of the total primary energy consumption was achieved through renewable energy sources.

This study visit provided valuable insights into the successful application of energy efficiency measures and the integration of renewable energy in a public building, highlighting the project's substantial environmental and operational benefits.