



# SmartGEM

## Smart Digital Solution for Local Green Energy Management

“ Smart Local Energy Systems (SLES) is a new concept considered a key approach aiming to support Net Zero gas emissions through decentralization and digitalization to support correlated production, storage, trading at a local scale to reduction of CO2.”

Having as a starting point the microgrid pilot, the specific objectives of the project are:

- Leveraging digitalization of the energy consumer through the design of low energy hardware devices for data acquisition and control.
- Building production, consumption, and room temperature propagation models using Artificial Intelligence to enable an energyaware interaction of SLES components.
- Building an energy management system to support the integration and correlation between the different energy sources according to outputs of the implemented modules, consumption requirements and tackling possible network failures.

This project aims to show how digitalization of energy systems organized in a SLES facilitates the transition towards a green energy society, both by allowing the integration of existing resources and adoption of new technologies. This is achieved by optimizing the use of distributed energy resources (renewable energy, heated water storage system, batteries) in an Energy Management System.

### Project Duration

01.01.2022 - 31.12.2024

### Project Budget

Total Budget: € 1,658,250 -

Funding: € 978,000

### Project Coordinator

Societatea de Inginerie Sisteme SIS SA  
(Romania)

### Project Partners

- Monsson Alma (Romania)
- Politechnica University of Bucharest (Romania)
- ICB Digital AS (Norway)
- OSO Energy AS (Norway)

### Project Website

<https://www.sis.ro/smartgem/>

### Contact

Email: [andreea.ghinet@sis.ro](mailto:andreea.ghinet@sis.ro)

### ERA-Net Smart Energy Systems



This project has been funded by partners of the ERA-Net Smart Energy Systems ([www.eranet-smartenergysystems.eu](http://www.eranet-smartenergysystems.eu)) and Mission Innovation ([mission-innovation.net](http://mission-innovation.net)) through the Joint Call 2020. As such, this project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 883973.

### ERA-Net Smart Energy Systems Joint Call 2020 (MICall20)

This project has been awarded funding within the ERA-Net SES Joint Call 2020 for transnational research, development and demonstration projects. 22 Mio EUR of funding have been granted to 21 projects active in 17 regions and countries.



## Joint Programming for Flourishing Innovation – from Local and Regional Trials towards a Transnational Knowledge Community

[www.eranet-smartenergysystems.eu](http://www.eranet-smartenergysystems.eu)

### Main Objectives

General Objective 1: increase the level of information for partners and final beneficiaries (existing and potential), involved in the implementation of the project, in order to increase the degree of digitalization for green energy transition, to develop the infrastructure and improve the quality of services in the energy sector in Europe.

General Objective 2: increase the transparency of project management by informing the general public on the European Union's contribution to the development of energy infrastructure for digitalization in green energy transition and improving the quality of services in the Romanian energy sector, helps in creating economies of scale by offering flexible energy services and promoting energy and computational efficiency.

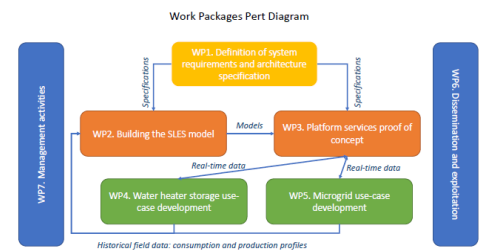
### Main Results

Our main objective is to use digital technologies to develop a SLES demonstrator by integrating smart control layers to optimize the use of energy resources and increase resilience of energy systems. We will address two cases: a microgrid optimization (1) and a heated water energy storage system (2), both integrated in a cloud-based Energy Management System. The EMS will be based on the existing Upkip platform to support data acquisition, storage and execution of AI models and algorithms:

Result #1: Energy Management System

Result #2: Microgrid control strategy adapted to a SLES operation

Result #3: Algorithm for efficient for water heaters storage system





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