WEDISTRICT– Press release

FOSSIL-FREE HEATING AND COOLING SYSTEM INSTALLED AT UNIVERSITY POLITECHNICA OF BUCHAREST

WEDISTRICT consortium meets in Romania to present the project's first functioning demo site

With over 200 years of history, the University Politechnica of Bucharest (UPB) is the oldest and largest technical university in Romania. In 2019, the university joined WEDISTRICT, a Horizon2020 project that aims to develop innovative 100% fossil-free heating and cooling solutions for new and existing district heating and cooling systems. Along with the rest of the consortium, 22 partners from 9 European countries, UPB embarked on the adventure of creating solutions that integrate multiple sources of renewable energy, advanced thermal storage, and smart technologies to increase the operational efficiency of the systems.

This October 24th-26th, after three years of hard work, the WEDISTRICT participants met at the central library of UPB for a general assembly meeting to present the project's first functioning demo site: the Renewable Energy Sources Laboratory from the university's Faculty of Energy Engineering. A press conference was held by ESCI featuring local WEDISTRICT project manager Associate Professor Constantin Ionescu along with the project's European coordinator Jon Martínez and the dean of UPB Faculty of Energy Engineering Prof. Diana Robescu. Furthermore, Assoc. Prof. Răzvan Nicolescu, from the governing board of the European Institute of Innovation and Technology, and Mihnea Costoiu, UPB rector, also attended the event and commented on the higher implications of the project results for the University and beyond.

"This project represents a landmark for the future of heating and cooling systems. It is a proof that the Faculty of Energy Energineering of the University Politehnica of Bucharest is an elite school in its domain" – Prof. Diana Robescu

The Renewable Energy Sources Laboratory building used to be at the end of a gas-coal heating network that provides the university buildings with heat. As part of the WEDISTRICT project, it has been retrofitted and is now equipped with a green hybrid heating and cooling system. The innovative energy ecosystem is composed of three subsystems that work together to supply the building.

First, the geothermal subsystem utilises the thermal energy from the ground and a photothermal panel to provide heat and cooling potential. Two geothermal heat pumps were installed. Furthermore, the subsystem has 12 geothermal boreholes, each 100 meters deep, and a cooling circuit heat exchanger. Secondly, the thermal subsystem is complemented by an electrical one. A combination of many photovoltaic panels, installed on two rooftops, are responsible for covering the annual energy consumption of the heat pumps. Finally, the building was equipped with an intelligent energy management system. For this an open-source supervisory control and data acquisition system (SCADA) has been developed. The data obtained is then used to generate performance indicators and monitor and improve the operating steps. The implemented system is designed to cover mainly the needs of the target building, estimated to be 127 MWh annually – 100% fossil-free.

"The time for decentralized energy systems is now" - Răzvan Nicolescu (EIT)

Along with the Romanian demo site, WEDISTRICT is developing two other demo sites each under different climatic conditions, one in Spain and one in Sweden, which are expected to be finished by 2024. Furthermore, there are 11 virtual demonstration sites participating in the project that allow researchers to analyse different scenarios and showcase the replicability, scalability and flexibility of the WEDISTRICT technologies. The project is generating a portfolio of replicable solutions that can be implemented throughout Europe and hopes that this first successfully finished demo site will become a lighthouse building and will pave the way towards more sustainable and fossil-free heating and cooling systems.

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Links:

- Project website: https://www.wedistrict.eu/
- Demo site brochure: https://www.wedistrict.eu/wp-content/uploads/2022/10/20221006_WeDistrict_DemositeBucharestBrochure_148x148mm-WEB.pdf
- Demo site video: https://youtu.be/s-gb2mPCU_Q
- Horizon2020-Funding: https://cordis.europa.eu/project/id/857801
- More info on event in Romanian: https://upb.ro/calendar-evenimente/a-vi-a-reuniune-stiintifica-in-cadrul-proiectului-european-h2020-wedistrict-va-avea-loc-la-upb/
- Article in Romanian https://adevarul.ro/economie/sistem-inovativ-de-incalzire-a-locuintelor-2211745.html