Transforming energy efficiency in European building stock through technology-enabled deep energy renovation

An Introduction to the RINNO Project

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RINNO

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 892071

Energy Consumption in EU Buildings

The EU building stock currently accounts for a major portion of energy consumption and greenhouse gas emissions:

40% of the EU's energy consumption and 36% of greenhouse gas emissions can be attributed directly to the EU building stock [1].

11% of Europe's population still experiences energy poverty due to poor building quality and thermal inefficiency [2].

The European Commission estimates that approx. 75% of the EU's existing building stock has poor energy performance [3].

The RINNO Project

A €5m Horizon 2020 project that aims to accelerate the rate of deep renovation in energy inefficient buildings around Europe, resulting in:

- **Significant primary energy savings.**
- **Decreased time and cost of deep renovation efforts.**
- **Reduced environmental impact.**

The RINNO Consortium

RINNO is a join effort of 17 partners from 10 countries, including 10 industrial partners, 6 academic and research partners, and 4 project end-users:

Basic / Applied Research	Technology Providers	Construction Methods	Business Modelling	Dissemination & Communication	End Users
CERTH-ITI, CIRCE, VTT, University of Northumbria at Newcastle	Pink, K-FLEX, Ekolab, Greenstruct	Bouygues, RINA-C	REGENERA, RINA-C	Dublin City University, European Green Cities	Bouygues, Avedøre Boligselskab, HPHI, NAPE

Project Overview

RINNO will deliver a set of processes that when working together provide a system, repository, marketplace and enabling workflow process for managing deep renovation projects from inception to implementation.

Project Overview

To deliver these processes, RINNO will employ:

- **Innovative technologies**, including building envelope solutions, reusable energy sources, hybrid and storage solutions;
- **Novel processes**, including off- and on-site industrialization and optimization;
- **Collaborative financing business models** based on crowd equity, crowdlending, and energy performance contracting.

Open Renovation Software Platform

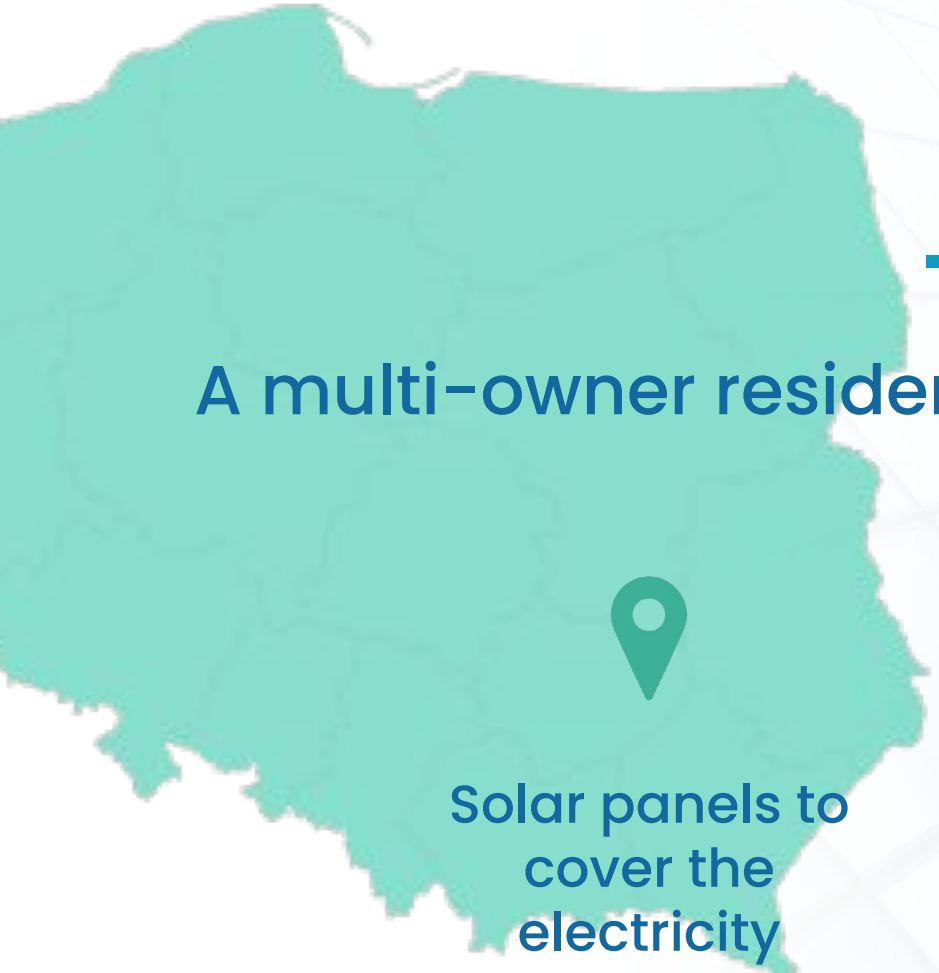
The cloud-based Operational Platform enables scalability, algorithmic approaches, and data management through:

Pilot Sites

RINNO technologies and processes will be tested at four locations, each presenting different ecological, societal, technical, and financial parameters.

Success will be evaluated based on:

- Reduced energy consumption;
- The adoption and use of renewable energy sources;
- Thermal performance;
- Renovation time and effort and comparative cost;
- Stakeholder satisfaction measures.



Pilot Sites: Rajszew, Poland

A multi-owner residential building constructed in 1949:

Solar panels to cover the electricity demand of common areas.

Hybrid ventilation and thermal insulation from recycled materials.

Improved thermal comfort, reduced energy use, and lower costs.

Pilot Sites: Slagelse, Denmark

Rotten façades, leaky windows, old ventilation, and improper surface treatment:

Reaching Low Energy Standards with a special focus on façade renovation.

National showroom for the best-in-breed deep renovation solutions.

Processes and technologies to be replicated in building stock of 400.000 m2.

Pilot Sites: Moschato-Tavros, Greece

A multi-family residential building constructed in 1970:

Renovated according to Passive House Premium standards.

To become the first EnerPHit Premium building in South-Eastern Europe.

Pilot Sites: Lille, France

30 multi-family residential apartments:

Optimisation of energy, indoor air quality, and comfort monitoring.

Integration of renewable sources and efficient energy production systems.

Active involvement of tenants through votes on work amount and rent increases.

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https://www.slideshare.net/RINNOPROJECT

Thank You

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