

**Preliminary Market
Consultation**

**Project
Contextualization
24/03/2025**



MIREÓ

Metodología Integral para la
Rehabilitación Energética Optimizada

Comprehensive Methodology for Optimized Energy Rehabilitation



Junta de Andalucía

Consejería de Fomento,
Articulación del Territorio y Vivienda
Agencia de Vivienda y Rehabilitación
de Andalucía



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Metodología Integral para la Rehabilitación Energética Optimizada

Comprehensive Methodology for Optimized Energy Rehabilitation

Presentation Structure

- 1 AVRA and Energy Rehabilitation
- 2 Innovation Strategy at AVRA
- 3 Project Justification
- 4 Main Goals
- 5 Identified Needs
- 6 State of the Art
- 7 Objectives
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1 AVRA and Energy Rehabilitation

Relevance:

- 9,511 homes rehabilitated since 2014.
- €70 million invested in energy rehabilitation
- 75,000 managed homes, 50,000 under rental schemes.

Recognitions:

- EnerAgen Award 2024: Best Public Initiative in Energy Transition.
- REBUILD REHABILITA Award: Energy Rehabilitation in Building.



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2 Innovation Strategy at AVRA

Innovation Strategy:

- R&D&I strategy in place since 2021
- Innovation Management System
- Environmental Monitoring System

Innovation Projects:

- 3 ongoing Horizon Europe projects
- Public Procurement of Innovation:

Industrialized Nearly Zero-Energy Housing

Organization of 2 International Conferences

on Innovation and Sustainability (2021 & 2023).

 **Recognized** as an Agent of the Andalusian Knowledge System since January 2022



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3 Project Justification

- 🔧 Energy Rehabilitation Rate in the EU is Insufficient: 1% per year vs. 3% required to meet 2050 decarbonization commitments.
- ⚡ 75% of buildings in the EU are not energy efficient.
- 😞 41 million Europeans affected by some degree of energy poverty (2022).
- 🏠 Spain: 55% of homes were built before 1980, with no energy efficiency criteria.
- 🔥 Andalusia: Rising temperatures and increasing climate vulnerability.




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3 Project Justification

 Opportunity: Multi-family Housing Typology in Spain vs. Europe. In Spain, 66.9% of households are in multi-family buildings.




 Shortage of Skilled Labor for energy rehabilitation.

 Need to Promote the Adoption of Innovations and their large-scale application.



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4 Main Goals


1.  Optimization of the Energy Rehabilitation Process:
 - Excellence in management and citizen support.
2.  Incorporation of Innovations:
 - Leverage emerging technologies to optimize and accelerate processes.
3.  Maximize the Extensive AVRA Housing Stock:
 - No issues with demand aggregation.




5 Identified Needs

Phases of the Value Chain

 **Diagnosis and Planning:** Advanced predictive models, multi-criteria analysis, and large-scale planning.

 **Project:** Reduction of timelines, optimal use of generative AI, and document automation.

 **Construction Systems:** Modular rehabilitation and 3D printing.

 **Construction Control:** Computer vision and artificial intelligence for site monitoring.


 **Monitoring:** Low-cost and low-maintenance sensors.




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5 Identified Needs


Design Principles and Criteria Inspired by NEB

 **Citizen Participation:** Involve communities in the design and decision-making process.

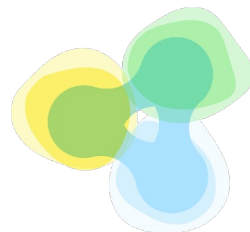
 **Sustainable Materials and Circularity:** Use of eco-friendly, recyclable materials and promoting a circular economy.

 **Durability and Low Maintenance:** Design for long-lasting, easy-to-maintain solutions.

 **Aesthetic Integration and Minimal Intrusion:** Ensure designs blend aesthetically with surroundings while minimizing disruption.

 **Awareness and Training:** Raise awareness and provide training on energy efficiency and sustainability.

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New European Bauhaus
beautiful | sustainable | together



ALMERÍA



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6 State of the Art


 **Planning Phase:** Predictive analysis and simulations at a small geographic scale with a limited multi-criteria approach.

 **Project Phase:** Insufficient utilization of the potential of generative AI assistance and automation.

 Industrialized **Construction Systems** and Additive Manufacturing: In the experimental phase.

 **Construction Execution:** Insufficient integration and maturity.


 **Evaluation and Monitoring:** Expensive and inefficient.

 Lack of a Systematic Methodology Inspired by **NEB**.



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7 Specific Objectives

 Transformation of Energy Rehabilitation with Technological Innovation and an Integrated Approach

 **Key Solutions:**

Advanced Predictive Models for efficient planning and optimal decision-making.

Co-piloting: Generative AI and automation during the project phase to reduce timelines.

Real-world experimentation with off-site systems vs. 3D printing.

Intelligent Construction Control based on AI.

Accessible and Sustainable Monitoring systems.



8 Final Considerations

🇪🇺 CPI is not a standard tender: It allows companies to participate in the exploitation of the results.

💰 Market consultation is key to securing project funding.

🔗 More information on the project website:
<https://www.juntadeandalucia.es/avra/proyectos-europeos/#!/contenidos/MIREO.html>

This project is receiving assistance from the SPIN4EIC initiative. During the preliminary market consultation phase, it does not receive any additional funding from the European Union.



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