MEZeroE

Measuring Envelope products and systems contributing to next generation of healthy nearly Zero Energy buildings

D3.10: Collection of short public summaries

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The MEZeroE Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 953157

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Executive summary

Technological innovation in the construction sector is considerably difficult to implement due to several factors such as the fragmentation and complexity of this sector. Many disciplines are involved at various stages, design and production are usually separated, there is a large number of players with a vast majority of small-medium enterprises (SME), and supply chains are long and variegated. As a result, gathering the different specialists together is difficult, and many potentially effective innovative solutions do not even reach the market.

H2020 MEZeroE project aims at tackling this complex issue by creating an EU distributed open innovation ecosystem for (i) developing nearly Zero Energy Building (nZEB) Enabler Envelope technology solutions; (ii) transferring knowledge; (iii) matching testing needs with existing facilities; (iv) providing monitoring in living labs; and (v) standardizing cutting-edge solutions coming from SMEs and larger industries, to foster inclusive change in the building sector, being accessible via a single-entry point to all users.

MEZeroE ecosystem is accessible via a single-entry point online platform which includes 9 Pilot Measurement & Verification Lines (PM&VL), 3 Open Innovation Services (OIS), a living lab (LL) building-technology match making service to enable real-world validation, and resources for training, business model development, intellectual property (IP) and knowledge management. MEZeroE fast-tracks prototypes to the market as fully characterized products.

To extend the project's reach beyond its consortium by engaging external industry players in testing and development support, two open calls were launched. These open calls were designed to enable companies outside the project to access testing facilities and innovation services free of charge, up to defined limits, thereby accelerating the adoption of nZEB Enabler Envelope technology solutions. This approach aligns with the broader goal of the MEZeroE project: to create a collaborative, inclusive innovation ecosystem that bridges the gap between innovation and market deployment. By involving external stakeholders, the project fosters real-world validation of technologies and strengthens the ecosystem's capacity to support scalable, sustainable solutions.

In the first open call, a total of 33 companies applied, coming from 13 European countries, with Italy contributing the largest share (12 applicants), followed by Poland (4) and Austria and Switzerland (3). The most requested products for testing or assessment for innovation were insulation (10), active solar energy systems (7), glazing and frames (6), and cladding systems (5). Regarding 2nd open call, 5 companies have shown interest for the moment.

The project team is currently reviewing and refining the case study template developed for the dissemination of experimental campaigns conducted during the validation of the PM&VLs, as outlined in Deliverable 3.7. Given that confidential data cannot be shared, the focus of the revision is on enhancing the template's structure to effectively capture and integrate user feedback while ensuring compliance with data protection and confidentiality requirements. The goal is to create a flexible, standardised format that enables dissemination of both PM&VL and OIS activities.

We hope that this report will be of particular interest to anyone working in the nearly Zero Energy Building (nZEB) Enabler Envelope technology solutions sector, in general, and working in the process of development and validation of these solutions, in particular.

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LIST OF ACRONYMS

BIPV Building Integrated Photovoltaics

CPR Construction Product Regulation

EAD European Assessment Document

IEQ Indoor Environmental Quality

LL Living Laboratory

M&V Measurement and Verification

nEES nZEB Enabler Envelope Solution

nZEB Nearly Zero Energy Building

OIS Open Innovation Service

PM&VL Pilot Measurement and Verification Line

PV Photovoltaic

PV/T Photovoltaic / Thermal

TRL Technology Readiness Levels

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1 Introduction

1.1 MEZeroE project

The aim of H2020 MEZeroE project is to develop an European distributed open innovation ecosystem for: (i) developing **nearly Zero Energy Buildings (nZEB) Enabler Envelope technology solutions**; (ii) transferring knowledge; (iii) matching testing needs with existing facilities; (iv) providing monitoring in living labs; and (v) standardizing cutting-edge solutions coming from small and medium enterprises (SMEs) and larger industries, to foster inclusive change in the building sector, being accessible via a single-entry point to all users.

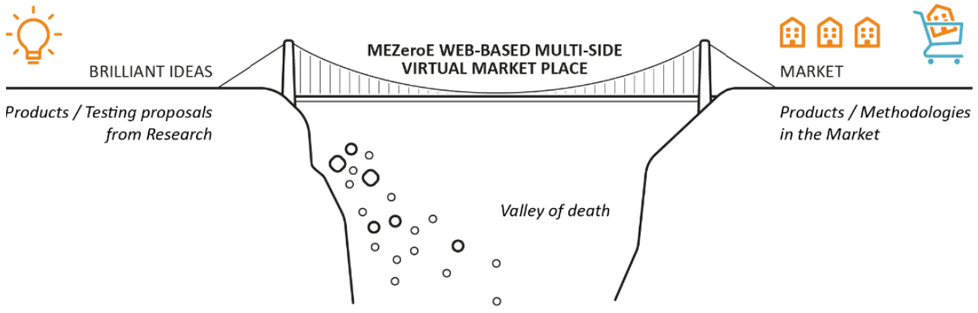

Figure 1: Test bed function illustration[1]

The challenge to overcome is the open upscaling of products from lab validation to higher **Technology Readiness Levels (TRLs)** and successful market entry. Such upscaling allows to reduce the technological risks and to increase investments' attractiveness, by creating general recommendations and providing a "Premium Service Package", driven by marketability, cost-effectiveness and flexibility.

The MEZeroE ecosystem created a single-entry point web-based multi-side virtual marketplace. It is structured into **Pilot Measurement and Verification Lines (PM&VL)** and **Open Innovation Services (OIS)**, so that the project offers for building envelope products performance characterization and support in the innovation workflow. PM&VL is defined as a test-chain focused on a specific envelope performance or technology to support the development and performance characterization of envelope products by means of experimental measurements and modelling, while OIS are combination of tools and methods to address a specific transversal topic. In addition, MEZeroE ecosystem enables the testing of innovative products in monitored real buildings or **Living Labs (LL)**, providing product developers with real data about the performance of their products.

The 9 Pilot Measurement and Verification Lines (PM&VL) developed within MEZeroE are listed below:

PM&VL1 TECNALIA	**Advanced Building Integrated Photovoltaic (BIPV) and hybrid Photovoltaic/Thermal (PV/T) systems characterisation facing Efficiency and Safety requirements:** Test-chain for a comprehensive advanced BIPV and hybrid PV/T systems characterisation
PM&VL2 EURAC	**Building envelope/Indoor Environment Quality (IEQ) interaction facing Health requirements:** Test-chain for a thorough energy demand, indoor occupants' comfort and behaviour analysis and performance characterization
PM&VL3 LEITAT	**Active energy component characterization facing Efficiency requirement:** Test-chain for a comprehensive stability characterization of active envelope components for energy production
PM&VL4 LEITAT	**Visual and thermal performance analysis of dynamic glass systems facing Efficiency requirement:** Test-chain for testing of innovative dynamic glazing solutions and the definition of new measurements and validation protocols for the assessment of visual and thermal comfort
PM&VL5 DTU	**Building/user interaction characterization facing Efficiency requirement:** Test-chain for building/user characterization for the optimization of the mutual behavioural control and interaction through IoT and AI solutions based on building envelope and users' needs and corrections
PM&VL6 POLIMI	**Multi-layers dry nZEB Enabler Envelope Solution (nEES) characterization facing Healthy and Safety requirement:** Test-chain for the comprehensive characterisation of building envelope components on: thermal, acoustic and air resistance, coupled with accessibility in use and optimization of the structural performances of the nEES on life cycle focusing on mechanical behaviour when exposed to accidental actions (e.g. wind) and/or extreme conditions (e.g. fire).
PM&VL7 CUT	**Mechanical resistance and stability characterization of connections/joints between component materials and supporting structures facing Safety requirement:** Test-chain for durability characterisation of block-walls
PM&VL8 UIBK	**Solar gain control in semi-transparent envelope component, facing Healthy requirement:** Test-chain for thermal-optical characterisation of advanced façade system
PM&VL9 ZAG	**Wooden prefab components assessment line facing Safety requirement:** Test-chain for fire safety, hygrothermal, and acoustic characterisation of wooden-based prefab façade systems

The 3 Open Innovation Services (OIS) developed within MEZeroE are listed below:

OIS1	**Standard framework procedures for certification and marking:** Roadmap for product certification and marking applied to a set of products (provided by industrial partners) and general framework to support the creation of new roadmaps for specific products outside of the consortium.

[1] MEZeroE Consortium, 2020. Grant Agreement number: 953157 -MEZeroE —H2020-NMBP-TO-IND-2018-2020/H2020-NMBP-TO-IND-2020-twostage

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OIS2	**Cost-effective Measurement and Verification (M&V) smart kit for living labs:** Protocol M&V in living labs to verify and characterise the performance of building envelope products.
OIS3	**Guidance for open innovation life cycle management:** Set of digital services accessible from a unique point of access (Digital Platform), where users can obtain Guidance for support performance-based innovation process by using a common language and standard reference for performance characterisation, while assuring sustainability and feasibility of the product development

Once the PM&VLs and OIS were validated through testing activities and successfully offered to industrial partners within the consortium, it was decided to extend the project's reach beyond its core partners. To engage new industry players and potential end-users in testing and development support, two open calls were launched. These are briefly described in the following subsection.

1.2 Open call participants

The first MEZeroE open call for testing was launched on 1 April 2025 with its announcement on the project's online platform[2] and promoted through LinkedIn (Figure 2). All consortium members were invited to share the opportunity with their networks to maximize visibility and reach potential industry partners outside the project, both through their company's common communication and dissemination channels, and sending direct emails to possible interested companies. The initial open call period ran until 25 April 2025, but due to high interest and the need for additional time to assess applications, the deadline was extended to 4 May 2025.

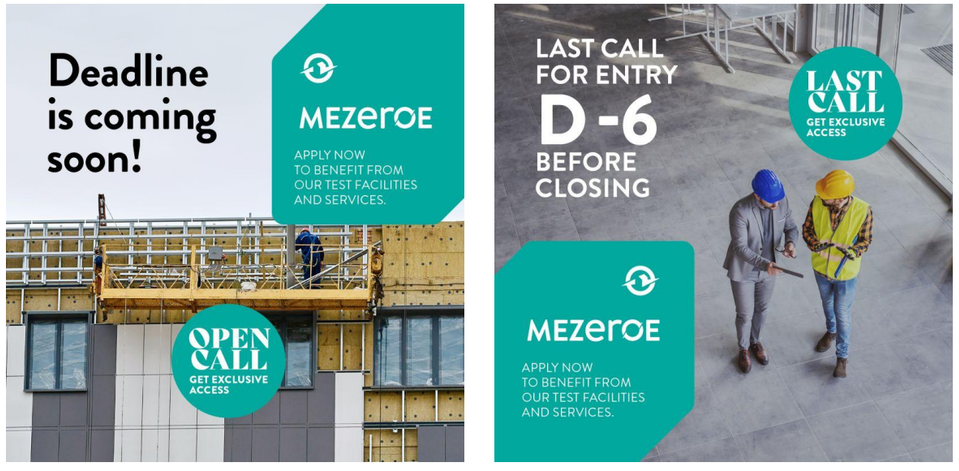

Figure 2: Promotional activities performed in the first open call through MEZeroE LinkedIn profile.

In response to ongoing interest and available budget, a second open call[3] was launched on 12 December 2025, with an initial deadline of 9 January 2026, which was also promoted through LinkedIn Social Media (Figure 3). Given the continued demand and the availability of additional funding, the open call was later extended to run until the end of the project in July 2026.

Figure 3: Promotional activities performed for the 2nd open call announcement through MEZeroE LinkedIn profile.

1.3 Selection of participants

The selection of participants for the open call was guided by the principle of maximizing benefit to the MEZeroE OITB. Priority was given to proposals that had the potential to contribute to the development of nZEB technologies.

The evaluation process employed a structured set of criteria to ensure objectivity and strategic alignment. Key parameters included:

- product maturity (favouring technologies closer to market readiness),
- manufacturing capacity (whether the applicant was an established manufacturing company),
- objective evaluation (assessing the clarity and robustness of stated objectives), and
- forecast of PM&VL use in the future (potential for ongoing engagement with the testbed).

Additional consideration was given to the PM&VL sponsorship effect, particularly for applications from larger companies that could enhance the visibility and credibility of the facilities. Priority was assigned to laboratories funded directly by MEZeroE to maximize the return on project investment. Practical constraints such as laboratory availability and personnel capacity were also factored into decisions, as was the applicant's willingness to disclose activities, which supports the open innovation ethos of the OITB.

In cases where an applicant could not be selected, clear and justified reasons were provided, such as full laboratory capacity or lack of available personnel. Each PM&VL and OIS provider retained full responsibility for the final

[2] https://mezeroe-platform.eu/news/open-call-to-exclusive-access

[3] https://mezeroe-platform.eu/news/new-open-call-exclusive-access

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selection decision, ensuring that choices were made based on technical fit, operational capacity, and strategic relevance.

1.4 Document description

This report presents a summary of the activities conducted under the open calls. It will be finalized once the final version of the reporting template is validated and all activities are completed. The version shown on the following page is the draft used for Task 3.7 dissemination and will serve as the basis for this report.

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TITLE

MEZeroE
Measuring Envelope systems for Zero Energy buildings

FLEX&ROBUST

Product: Flexible structural connectors

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Description picture

Pilot Measurement & Verification Line

Managed by: EURAC Research

PM&VL#

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HEALTH

INTERACTION

Results

Main results/outcomes of each tests/assessment procedures:

1. Outcome n.1
2. Outcome n.2
3. Outcome n.3
4. Outcome n.4
5. …

Description graphic(s)

Which is the need covered by this service?

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Design of Experiments

Define the tests/assessment procedures carried out :

1. Title Test/assessment procedure n.1 and description
2. Title Test/assessment procedure n.2 and description
3. Title Test/assessment procedure n.3 and description
4. Title Test/assessment procedure n.4 and description
5. …

Description picture/Video of tests

Open Innovation outcomes (OPTIONAL)

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Conclusions

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Research partner: eurac research

Industrial partner: FLEX AND ROBUST SYSTEMS

Main author:
Olaia Aurrekoetxea olaia.aurrekoetxea@tecnalia.com

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