



# scan2twin and NACHIP

Projects supported and developed by Greet CE

Niko Natek

Energy agency of Savinjska, Šaleška and Koroška region (KSSENA)



Co-funded by  
the European Union



## DEVELOPMENT POTENTIALS AND BUSINESS MODELS



**•Energy renovation of buildings**  
Use of advanced digital approaches for investment and technical evaluation of energy renovation projects.

Energy renovation of buildings



Energy networks

**•Energy networks**  
Increasing the stability of distribution networks with solutions in the field of energy communities.

Energy monitoring and billing

**•Energy monitoring and billing**  
Fairer distribution of energy costs in multi-unit buildings.



# ENERGY RENOVATION OF BUILDINGS – LEGISLATION



EPBD Directive (EU/2024/1275, EPBD) Energy Performance of Buildings Directive (2002 -> 2024); Transposition into Slovenian law by 29 May 2026



Construction Act (GZ-1) -> Rules on the efficient use of energy in buildings (PURES 3, 2022)  
Energy Act (EZ-2)  
Long-term strategy for the energy renovation of buildings by 2050 (DSEPS)  
National Energy and Climate Plan of the Republic of Slovenia (NEPN - NECP)

Reduction of greenhouse gas (GHG) emissions in buildings by at least 70 per cent compared to 2005. (NEPN, 2030); Renewable energy sources (RES) account for at least 2/3 of energy use in buildings (NEPN, 2030)...

Approaching **net zero emissions in the building sector** by maintaining a large scale of energy renovations of buildings with low-carbon and renewable materials and focusing on heating with RES technologies and centralised heating systems with RES (2050)



# ENERGY RENOVATION OF BUILDINGS – STATUS

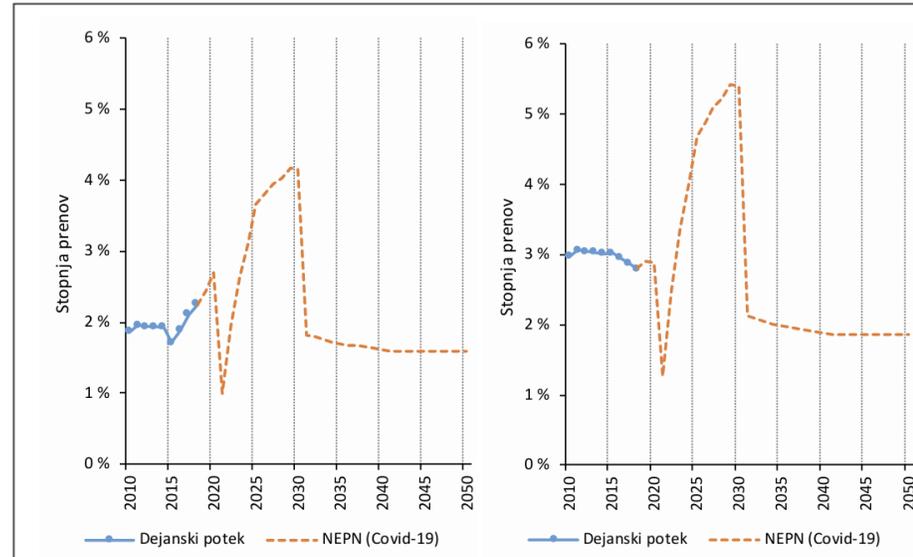


Buildings account for 40% of total energy consumption, 50% of primary energy consumption and one third of GHG emissions  
Renovation rate (between 0.4 and 1.2%, averaging around 1%)



Single-family buildings (100k households in classes F and G, i.e. > 150 kWh/m<sup>2</sup>)  
Multi-family buildings (JZP, partial renovation)  
Public sector (above-average renovation rate)

Opis dejanske rabe stavbe oziroma dela stavbe	Površina [1.000 m <sup>2</sup> ]
<b>Stanovanjske stavbe</b>	<b>63.737</b>
Enostanovanjske stavbe	46.823
Večstanovanjske stavbe	16.914
<b>Storitveni sektor: javne stavbe</b>	<b>9.707</b>
Stanovanjske stavbe za posebne družbene skupine	1.117
Stavbe javne uprave	1.049
Stavbe za kulturo in razvedrilo	903
Muzeji in knjižnice	464
Stavbe za izobraževanje in znanstvenoraziskovalno delo	3.717
Stavbe za zdravstveno oskrbo	1.220
Športne dvorane	1.238
<b>Storitveni sektor: stavbe zasebnega storitvenega sektorja</b>	<b>13.786</b>
Hoteli	1.089
Gostinske stavbe	1.245
Druge upravne in pisarniške stavbe	5.730
Trgovine	5.722



Opazovano leto	2020	2030	2040	2050
<b>Delna prenova</b>				
Stanovanjske stavbe za posebne družbene skupine	9,0 %	10,5 %	10,3 %	10,0 %
Stavbe javne uprave	6,7 %	10,3 %	11,0 %	11,6 %
Stavbe za kulturo in razvedrilo	2,3 %	3,4 %	3,5 %	3,5 %
Muzeji in knjižnice	4,5 %	6,7 %	6,8 %	6,8 %
Stavbe za izobraževanje in ZR delo	5,0 %	7,4 %	7,5 %	7,5 %
Stavbe za zdravstveno oskrbo	3,4 %	4,8 %	4,8 %	4,8 %
Športne dvorane	3,8 %	5,6 %	5,7 %	5,6 %
<b>Celovita prenova</b>				
Stanovanjske stavbe za posebne družbene skupine	5,1 %	21,7 %	38,6 %	54,6 %
Stavbe javne uprave	3,8 %	32,9 %	64,0 %	95,2 %
Stavbe za kulturo in razvedrilo	1,3 %	11,6 %	21,9 %	31,5 %
Muzeji in knjižnice	2,5 %	22,4 %	42,4 %	60,9 %
Stavbe za izobraževanje in ZR delo	2,8 %	24,7 %	46,6 %	66,6 %
Stavbe za zdravstveno oskrbo	1,9 %	14,2 %	24,1 %	33,3 %
Športne dvorane	2,1 %	19,0 %	35,8 %	50,9 %

# ENERGY RENOVATION OF BUILDINGS – CHALLENGES



## TECHNICAL

Energy performance certificates  $\neq$  actual consumption  
Work intensity of processes (energy audit, inv. documentation)  
Poor quality of input data  
No dynamic scenario simulation (low optimisation capacity)

## FINANCIAL

Cost of preparing documentation  
Long payback periods, high CAPEX -> High risk  
Static ROI models

## MARKET

Fragmentation of supply (turnkey services)  
Limited success of PPP/ESCO

## LEGISLATIVE

(ZVKD, spatial planning, vagueness/inconsistency, etc.)



## CONSEQUENCES

Cost overruns  
Permit delays  
Investor uncertainty  
Cities lack capacity to scale renovation  
...  
...  
...

TARGET RENOVATION RATES  
WILL NOT BE MET!

# ENERGY RENOVATION OF BUILDINGS – APPROACH



## USE CASE:

Integrated approach to energy renovation using advanced digital solutions

## TECHNOLOGIES:

BIM (Building Information Modelling)

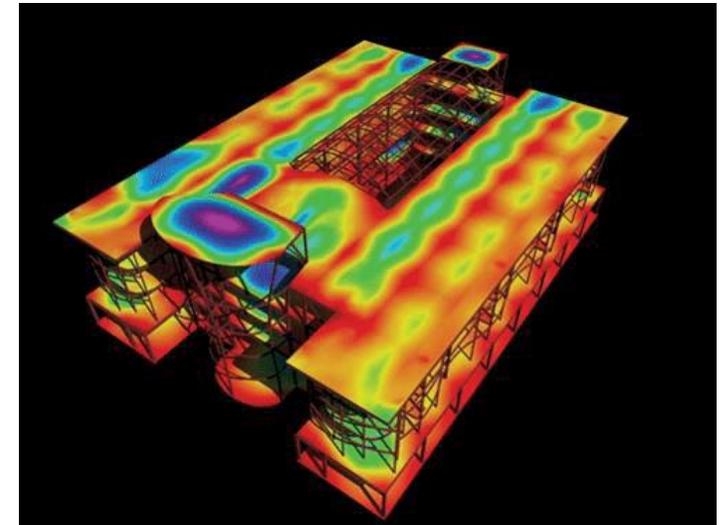
BMS/EMS/EMIS (Energy Management Systems)

Sensors (IR, LiDAR, UZ, EM, etc.)

Drones

## GOALS/EFFECTS:

- ❖ Increased capacity for evaluating investment projects
- ❖ Reducing the costs of preparing investment documentation
- ❖ Reducing risks for investors
- ❖ DEVELOPMENT OF NOVEL INTEGRATED ENERGY SERVICES -> PROMOTING MARKET GROWTH



# About – scan2twin



**Scan2twin** (Deep scans of existing buildings for rapid BIM and Digital Twin creation at low cost to unlock renovation wave through pre-commercial procurement - PCP)

The project stems from a lack of reliable data on existing buildings, which causes delays, cost increases and administrative barriers to renovation.

The solution combines:

- ❖ advanced multimodal scanning (including sensors for detecting elements in walls),
- ❖ automated data integration into BIM,
- ❖ Digital Twin analytics for preparing renovation scenarios and financial estimates,
- ❖ regulatory compliance and support services for municipalities.
- ❖ The aim is to enable cities to plan renovations faster, more predictably and cost-effectively, thereby supporting the transition to climate-neutral buildings by 2050, as defined in the project application.

11 project partners (DE, SE, NO, NL, PL, PT, SI, TR, BE), 6 contracting authorities (Eindhoven as lead contracting authority); PCP budget: EUR 7.2 million

# About – scan2twin



**PARTNERSHIP:** 11 project partners (DE, SE, NO, NL, PL, PT, SI, TR, BE), 6 contracting authorities (Eindhoven as lead contracting authority); PCP budget: EUR 7.2 million

**CALL:** HORIZON-MISS-2026-04-PCP-CIT-01 – Boosting transformation towards climate-neutral Cities, net-zero economy and open strategic autonomy

 Deep building intelligence  
Wall-penetrating scanning + Automated BIM + Digital Twin

 End-to-End automation  
Scan → AI Fusion → BIM → Twin → Scenario → Investment documentation

 Trusted and transparent AI  
Uncertainty handling + confidence scoring

 Portfolio-Scale Operation  
From single buildings to entire municipal portfolios

# About – scan2twin



## For cities (public authorities, regions)

- ≥ 80% faster planning
- Fewer renovation risks
- More projects delivered with same staff

## For Investors and ESCOs

- Transparent, validated forecasts
- Reduced financing risk

## For innovative companies

- Access to resources to develop solutions
- Validate solutions and promote to buyers
- Supported commercialization (IPR)



## For Europe (and its citizens)

- Unlocks the Renovation Wave
- Supports zero-emission building stock by 2050
- Strengthens EU digital sovereignty

# Background– scan2twin



**Barcelona, Spain**



**Eilat, Israel**



**Istanbul, Turkey**



**Nuremberg, Germany**



**Velenje, Slovenia**



**Vila Nova de Gaia (Porto), Portugal**

**6 suppliers from 6 countries**  
operating a stock of 21,000 buildings

**1 common challenge: energy independence from onsite renewable energy generation**

Supported by **7,68 milionov EUR** for reserach and development services

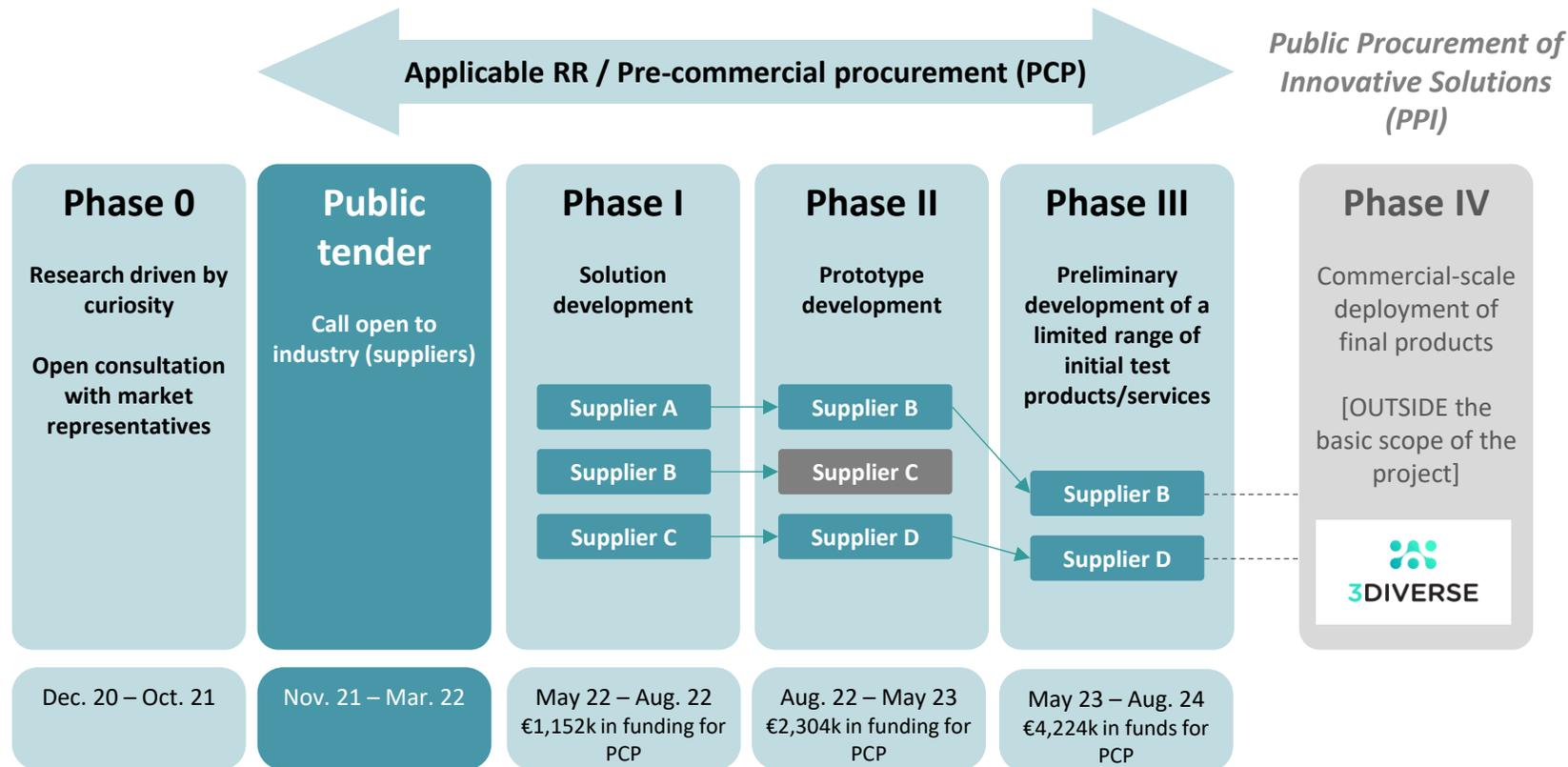
Founding provided through a **3 phase public tender**

**6 demonstration buildings**  
3 schools and 3 administrative buildings

# Background– scan2twin



Pre-commercial procurement for innovation and public tender procedure

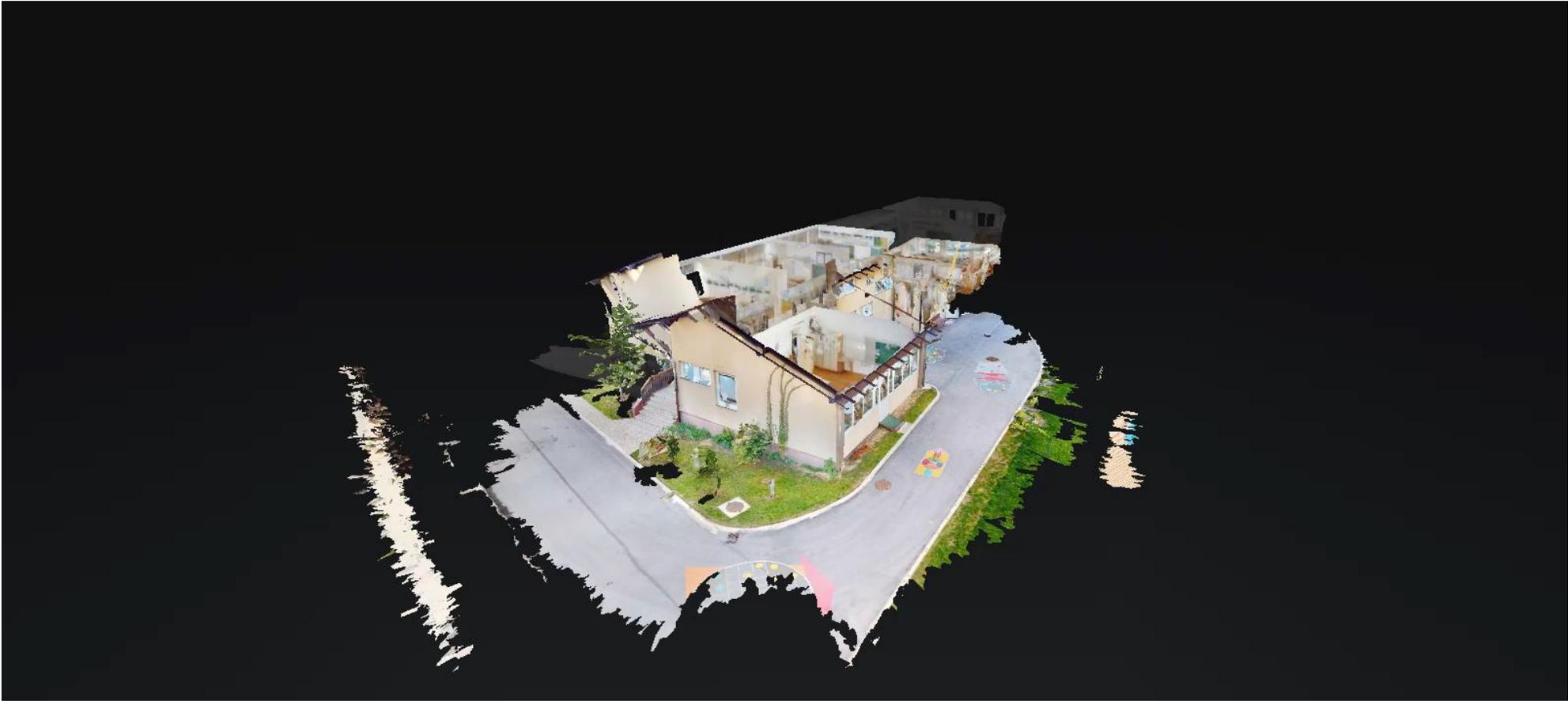


- ▶ **Lead contracting authority:** KSSENA – responsible for coordinating the group of contracting authorities and acting on their behalf in dealings with suppliers
- ▶ **Other contracting authorities** (also a group of contracting authorities): Barcelona, Eilat, Istanbul, Nuremberg, Energaia
- ▶ **Suppliers** (contractors): Organisations or consortia applying in the PCP process

# Background- scan2twin (procuRE EM)



Matterport / ZUTEC – 3D modeliranje in BIM (Building Information Management)



# Background- scan2twin (procuRE EM)



Matterport / ZUTEC – 3D modeliranje in BIM (Building Information Management)



# Background- scan2twin (procuRE BIM)



Matterport / ZUTEC – 3D modeliranje in BIM (Building Information Management)

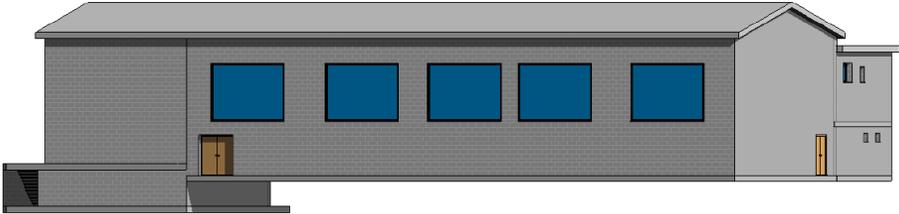


Fig.29: BIM model building B - West view

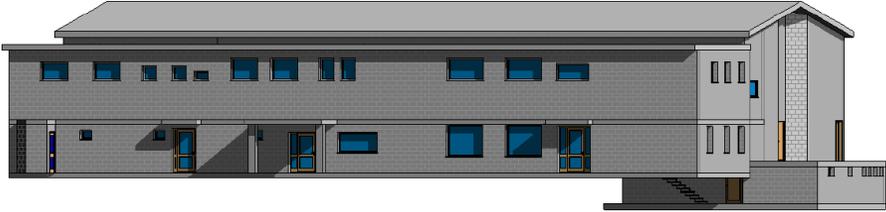


Fig.27: BIM model building B - East view



Fig.30: BIM model building B - South view



Fig.28: BIM model building B - North view

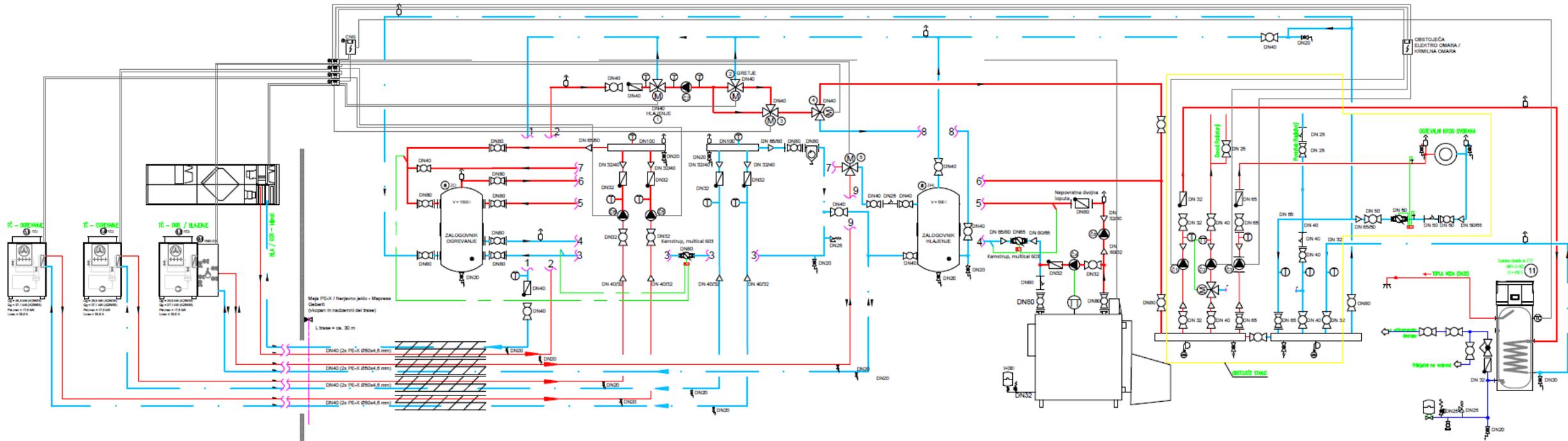
# Background- scan2twin (procuRE demo Velenje)



METRIC →	STATUS	KEY UPGRADES				
BUILDING/ SIZE [m <sup>2</sup> ] ↓	INTER.	Demand-side		Supply and storage		Control and monitoring
		HVAC systems		RES	BESS	BMS
		Heating & cooling	Ventilation	Production	Storage	Management
Building A 587 m <sup>2</sup>	<i>Before</i>	Oil boiler (200 kWt)	/	/	/	/
	<i>After</i>	3 units HT HP (134,4 kWt)	Central - with heat recovery	Hybrid PV (37,31 kW <sub>p</sub> )	Lithium-ion (60 kWh)	BMS/EMIS
Building B 1360.6 m <sup>2</sup>	<i>Before</i>	Oil boiler (200 kWt)	/	/	/	/
	<i>After</i>	3 units HT HP (134,4 kWt)	/	Hybrid PV (40,04 kW <sub>p</sub> )	Lithium-ion (30 kWh)	BMS/EMIS



# Background- scan2twin (procuRE demo Velenje)



# About – NACHIP



NACHIP (North Adriatic Clean Renewable Hydrogen Investment Platform)

## Project Overview

**Programme:** Interregional Innovation Investments Instrument (I3)

**Call Strand:** Strand 2a (I3-2023-INV2a)

**Project ID:** 101161397

**Duration:** 36 months

**Start Date:** 02.09.2024

## Budget

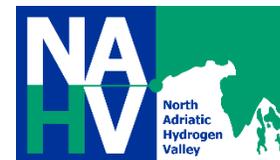
**Total Project Budget:** €7,635,849.37

**KSSENA Budget:** €131,850.00

## Partnership

**9 partners, 3 EU Member States**

Cross-regional cooperation in the North Adriatic area



# NACHIP - Pilot challenges and goals

## KEY CHALLENGES

- Integrating advanced hydrogen technology into existing infrastructure.
- Establishing and maintaining a local alliance to manage the project effectively.
- Ensuring scalability and replicability in other urban areas.
- Overcoming the underdeveloped local ecosystem for hydrogen adoption.
- Ensuring the safety, cost-effectiveness, and scalability of hydrogen technologies.

## GOALS

- Demonstrate the **feasibility and efficiency** of hydrogen technologies.
- Develop a **replicable model** for sustainable urban energy management.
- Position Velenje as a leader in climate-neutral and smart cities initiatives.



# NACHIP– OPEN CALL



## Open calls

### Launch of the NACHIP Open Call for SMEs – Funding Innovative Hydrogen Solutions

The North Adriatic Clean Hydrogen Investment Platform (NACHIP) has officially opened its first Open Call for applications, offering targeted financial support to Small and Medium-sized Enterprises (SMEs) developing innovative solutions within the hydrogen value chain. The Open Call is active from **1 December 2025 to 3 February 2026 at 23:59 (CET)**, and applications must be submitted exclusively through the official portal at <https://nachip.meta-group.com/> or by clicking below.

Please, read all the details about the call here below and in the official documents at the bottom of this page.

Start your application by clicking to: [APPLY HERE](#).

[APPLY HERE](#)

### Open Days – Online Information Sessions for Applicants

Two Open Days were organised in the framework of the NACHIP Open Call to support potential applicants.

- The first Open Day took place on **18 December 2025**
- The second Open Day took place on **15 January 2026**

The sessions were intended to support applicants by providing clarifications on the Open Call conditions, scope, and application process.

For any additional questions regarding the Open Call, applicants are kindly invited to contact **META Group** at [nachip@meta-group.com](mailto:nachip@meta-group.com).

The [presentation containing information on the Open Call and the pilots](#) is available [HERE](#).



# Thank you!



Co-funded by  
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