CITY OF BRATISLAVA

Final conference

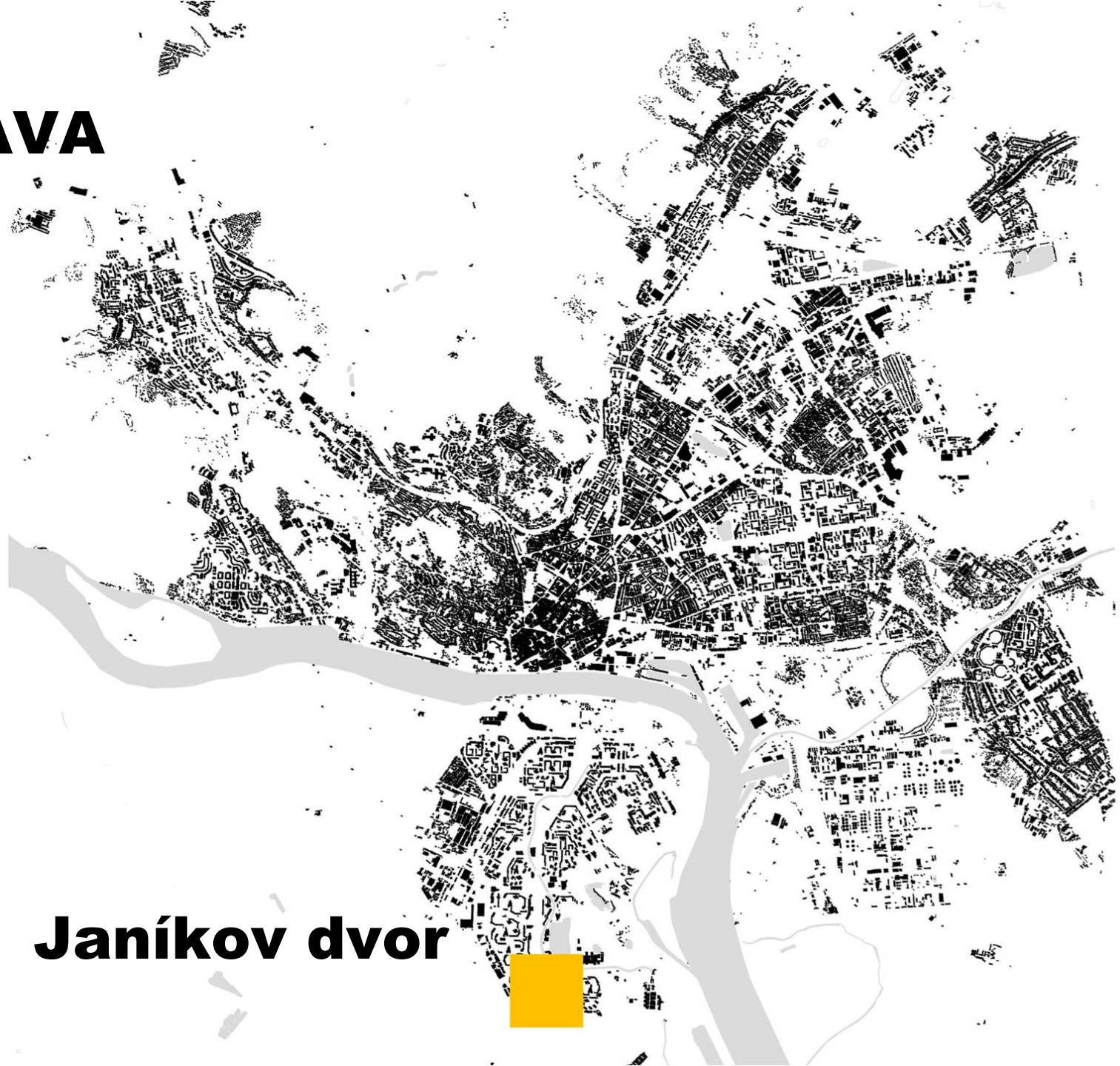
atelier
Positive Energy Districts

Ľubica Šimkovicová

11- 12 March, 2026, BILBAO

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.864374

BRATISLAVA



Janíkov dvor


Foto: Marek Velček


ÚŠ Riešenie centrálnej rozvojovej osi Petržalky
atelier


PIZZERIA LA

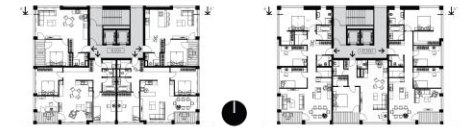
Axonometric view

Visualization_Public space

Site plan

Cross - section

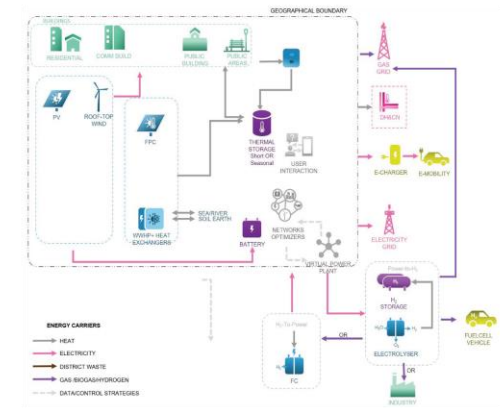
Visualization_Spaces between buildings_Playgrounds



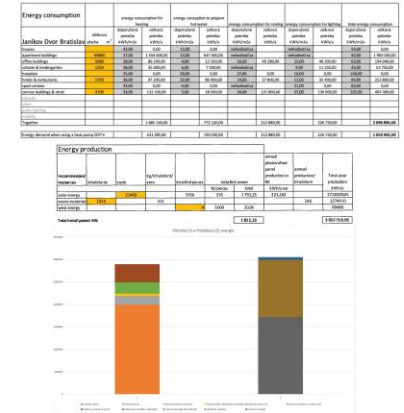
Typical floorplan

The proposal for an energy-efficient urban district is taking place on the outskirts of Petržalka on a plot of land called Janíkov dvor. It is a proposal for an urban structure in a compact structure of apartment buildings from the times of socialism. This location is located on the development axis of Petržalka, and our task was to maintain this part of the development axis and bring a certain Urbanistic perspective to this location. Our proposal was preceded by an analysis of various elements such as traffic analysis, green analysis, energy analysis.
We decided to design longitudinal masses in the direction of the development axis, following the example of already existing apartment buildings derived from the Schwarz plan. In the direction of the expressway from these longitudinal masses, we pass into point apartment buildings and thus connect to the planned urban Structure behind the expressway. With the proposal for residential housing, we wanted to support housing in this location and at the same time to densify the already existing development.
The spaces between the buildings were created freely in the northern part of the plot, we designed a public space with shops and spaces for events on the property.
We designed an extensive green roof on each building. We design exterior spaces in every residential building. We support for electromobility and ecological transport for residents in the locality. The shading of glazed surfaces is important for buildings. In the locality, we are considering retaining water on the property, and every building has solar panels on its roof to gain solar energy and direct electricity at the same time.

About Project



PEDs_Positive Energy Districts



Energetic balance

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SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA
FACULTY OF ARCHITECTURE AND DESIGN

iepd INSTITÚT PRE PASÍVNE DOMY
atelier

Energy-plus urban districts
Janíkov Dvor_Petržalka_Bratislava

subject code_**X_EPS_AU**
students_**Jozef Červenák, Róbert Ruziak**
grade_**V_** academic year_**2022/2023**

DBU

FH TECHNIKUM WIEN

educators
_doc. Ing.arch. Katarina Smatanová, PhD.
_Ing.arch. Andrea Šeligová, PhD.
_Ing. Ľubica Šimkovičová
_Arch. Dí Andrea Borská
_Ing. Vladimír Šimkovic
_Simon Schneider, MSc
_Arch. Dí Ursula Schneider

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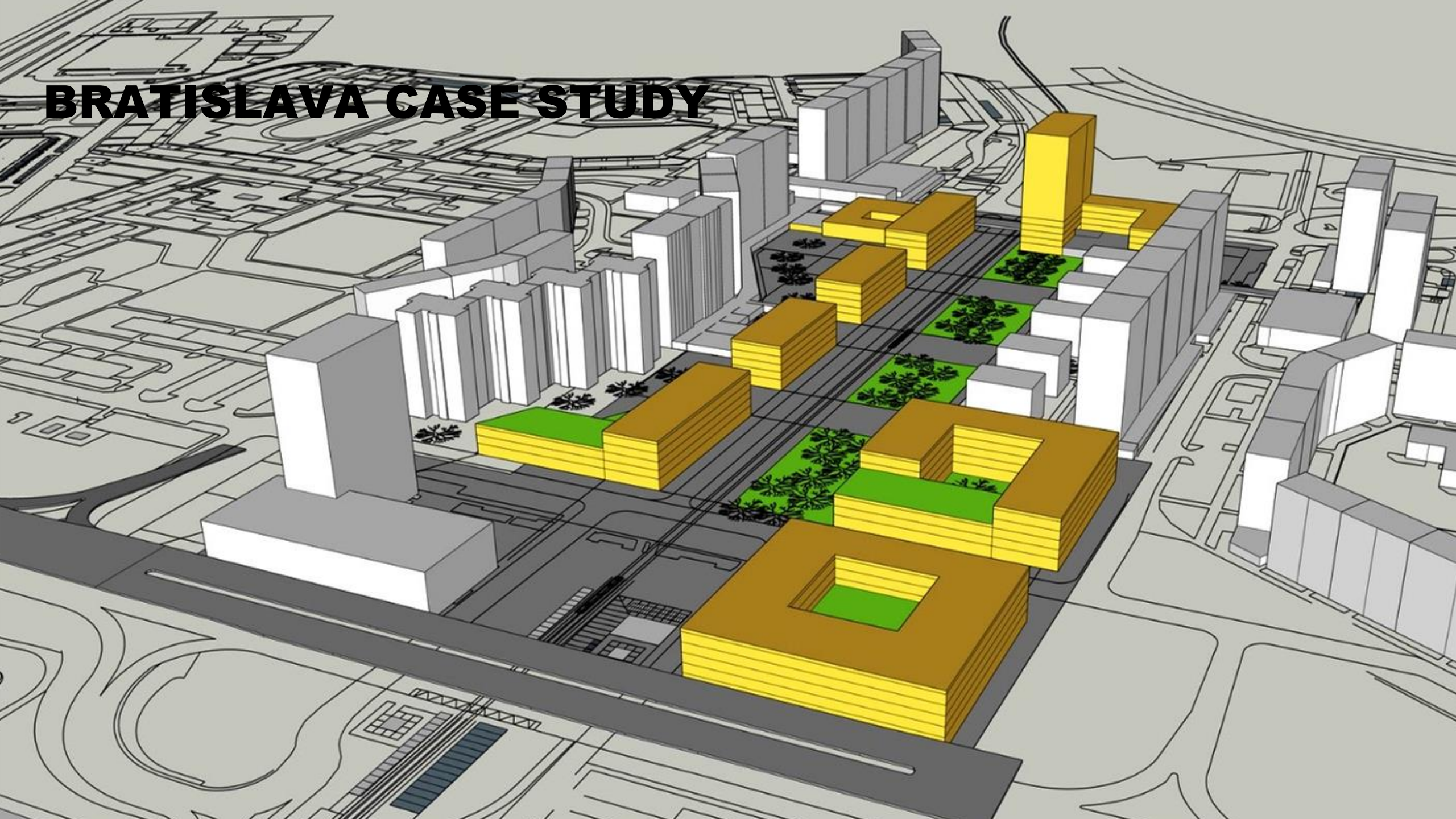
_Ing. Vladimír Šimkovic
_Simon Schneider, MSc
_Arch. Dí Ursula Schneider

BRATISLAVA CASE STUDY

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Positive Energy Districts
AmsTErdam BiL bao cItizen drivEn smaRt cities
Fællesskab
København
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Positive Energy Districts
AmsTErdam BiL bao cItizen drivEn smaRt cities
ATELIER is an EU-funded Smart City project aiming to create and replicate Positive Energy Districts (PEDs) within two Lighthouse Cities and six Fellow Cities.
Lighthouse Cities
Amsterdam
Bilbao
Fellow Cities
Krakow
Budapest
Riga
Copenhagen
In ATELIER, 30 partners from 11 countries are working together to create and replicate Positive Energy Districts (PEDs):
www.smartcity-atelier.eu
twitter.com/AtelierH2020

LESSONS LEARNED / BENEFITS / FUTURE OD PED'S

Foto: Marek Velček

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Bratislava Municipality

www.smartcity-atelier.eu

@AtelierH2020 AtelierH2020

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City of Budapest

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Positive Energy Districts

ATELIER Final Conference

Daniel Hedari

Hungary energy status

Net Electricity Importer

30%

Fastest Growing

SOLAR

Grid vs Renewables

RENEWABLES GRID

Energy Security

LOW

Urban Infrastructure

Slow modernization

Energy Consumption

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The PED context in Budapest

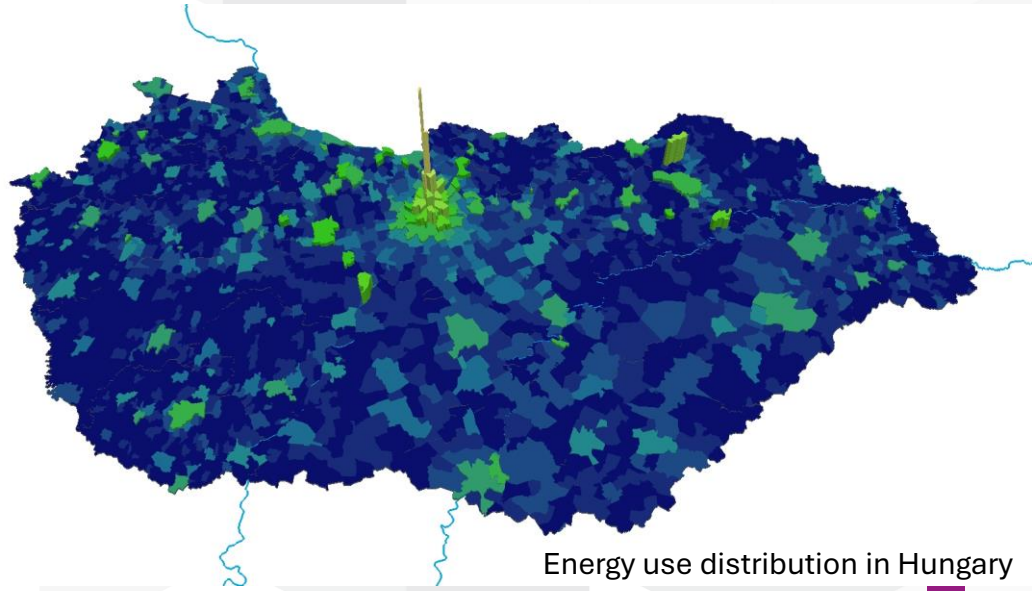
Institutional reasons:

- No significant funding for large scale projects from national budget or own resources
- When financial resources arrive, **we want to be ready to implement!**
- Important to engage private, research and utility sector

→ Therefore, we prioritize projects like ATELIER

Technological and sustainability reasons:

- Manage the growing needs in the capital
- Increase resilience of energy systems
- Provide energy safety for residents
- Opportunity to learn and pilot
- Allignment with the city's goals



Energy use distribution in Hungary

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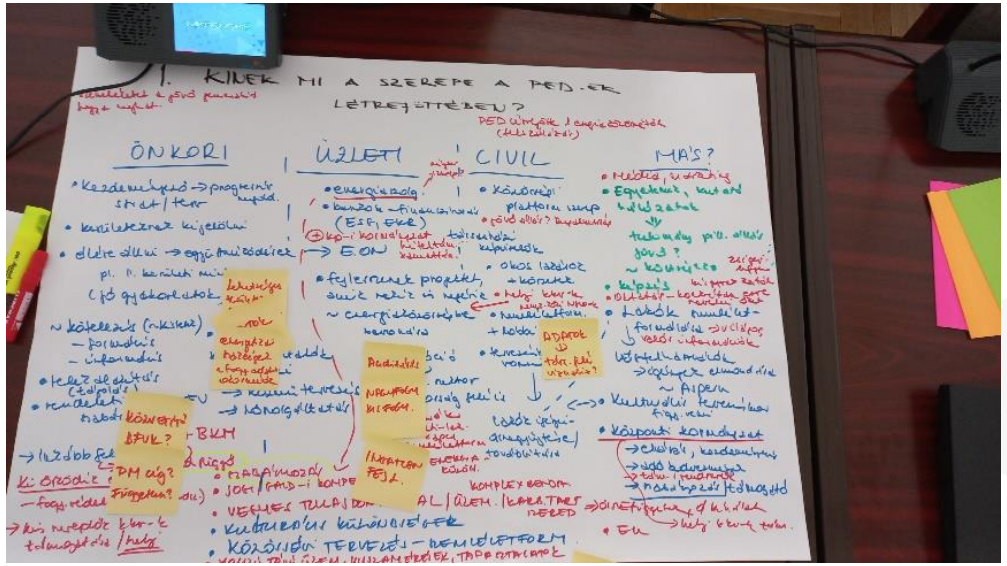
Our work in Atelier



WP2 City Vision

- Establish local SCPG
- Revised SECAP
- Climate City Contract
- Environmental programme

WP3 Innovation Atelier

- Stakeholder group (Climate Platform)
- Two workshops:
  - knowledge exchange
  - PED localization

WP5 PED development

- PED design, planning, replication

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What are the results and learnings?

Results

- **Dissemination,** topics entered **public discourse**
- **Brownfield PED development plan**
- Definition of **PED concepts**
- **Integration into long-term strategies**
  - Climate City Contract
  - FTT – (long-term urban strategy of the City of Budapest)
  - Rákosrendező brownfield development
- Further **PED engagement**

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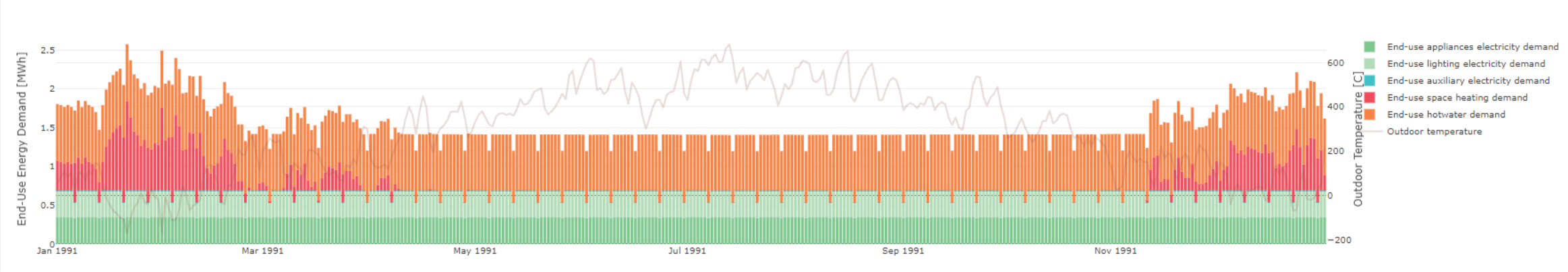
Learnings

- Regulatory Clarity
- PED and PCED definition to be further developed
- Data availability and management
- Internal Expertise and Modelling
- Stakeholder Engagement
- Political Will and Governance



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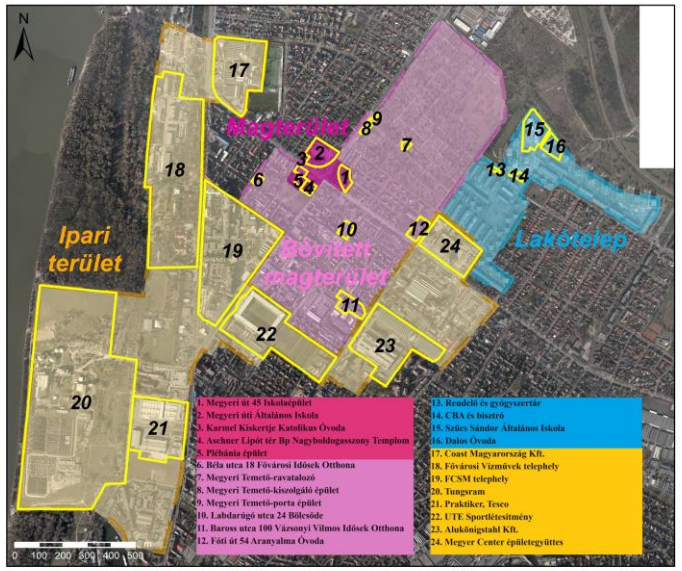
How does Budapest replicate and scale?

Replication

- Innovation Atelier Stakeholder workshops
- ‚Replication strategy and plan' - GIS based analysis of Budapest
- New PED projects
  - Moving forward concepts and lessons learned in ATELIER
  - **From ‚learning & planning' to ‚learning & doing'**



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Scaling

- Municipal **‚experts group'**
- Paralel projects
  - **ASCEND**
    - Forming of EC and communication with future members
    - Prosumer behaviour
    - Testing the regulatory environment
  - ENERGY4ALL; REALLOCATE; AHA Budapest; Solar4Ce; EUKI; BPCARES
- **Rákosrendező**

Budapest – Rákosrendező brownfield area; to be developed as PCED

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Thank you!

Budapest team

Lőcsei-Tóth Kinga
Kókai Dóra Anna
Laduverné Andrasek Rita
Orosz László
Hedari Dániel
Kovács Barbara
Papp Álmos
Lénárt Dorottya

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Copenhagen

Rethinking city governance and citizenship

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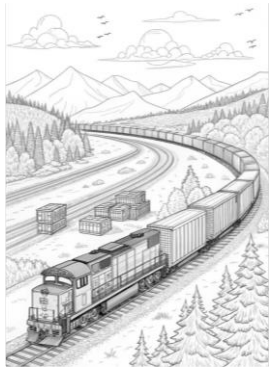
What if …

… we expand the idea of a positive district idea to the entire city?

Our challenges



2035 is only nine years away!

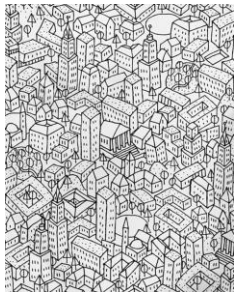
Traditional planning timelines → **A need for speed**

Radical shift in perception and roles

Abundant supply → **Sufficiency and flexibility in demand**

Space is scarce

Centralised production → **Decentralised production**



Wicked problems

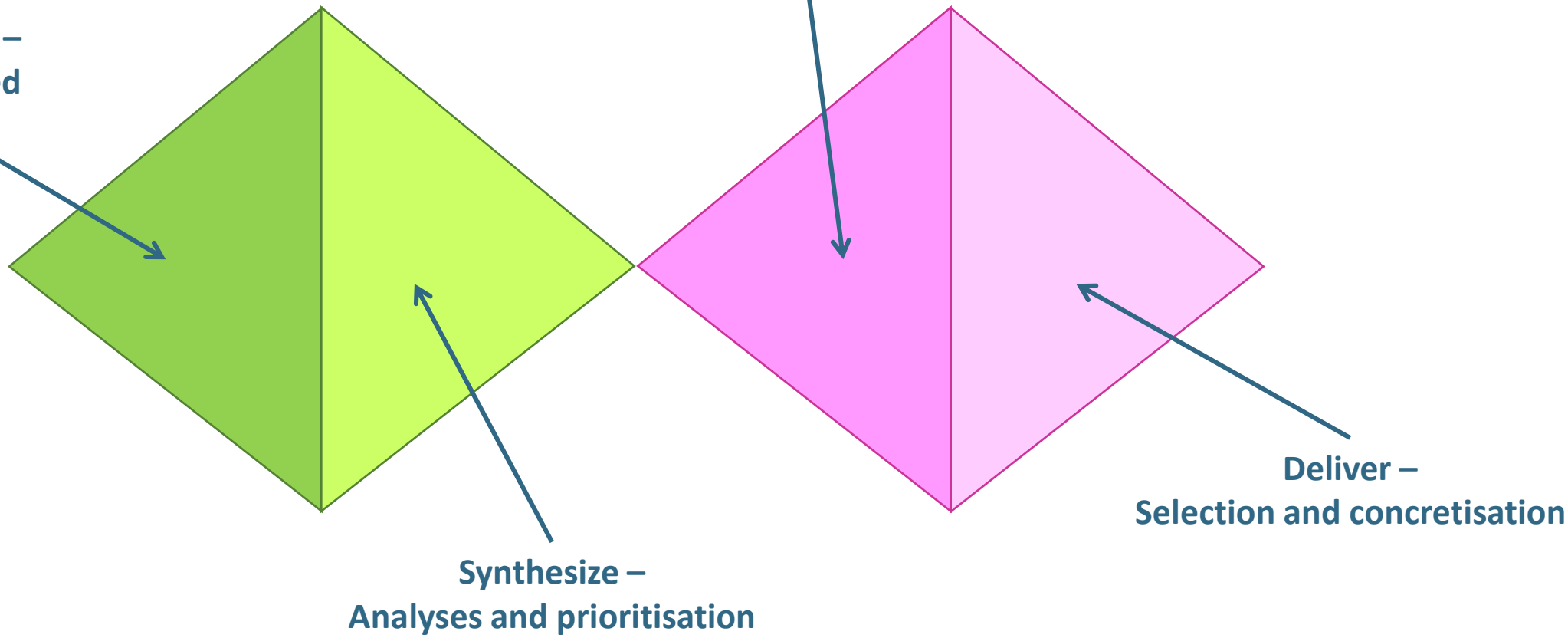
How do we deal with these?

Our tool – Collaborative reasoning

- Develop a common understanding of the problems
- Better harness the knowledge, drive, and resources of all stakeholders
- Joint ownership of solutions … and our common future city

What are the problems?

What are the solutions?



Cooperation takes many forms

- City wide strategy
- Local level initiatives
- Ad hoc Innovation Ateliers
- Formalised stakeholder groups

mediator
partner
guide
provider
enforcer
facilitator
regulator
innovator
protector

Rethinking city governance and citizenship

– *is* a trust exercise

Let’s talk!

City of Krakow

AmsTErdam BiLbao cItizen drivEn smaRt cities
ATELIER Final Conference

Małgorzata Starnowska

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Our starting point

Kraków was once known as the Polish city with some of the worst air quality.

Coal-based heating dominated homes, filling the air with pollution.

The City took bold and determined action.

Today, burning coal in Kraków **is prohibited**
and the air is visibly cleaner.

From 2013 – 2023
we phased out
26 800 individual coal heating systems

fot. Jan Graczyński, pixabay

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Power of social energy

Youth Strike for Climate, 2019

Kraków created an incentives system for the construction of renewable energy sources

From 2019 – 2025 the city provided a grant for **2 512** renewable energy sources!

fot. Jan Graczyński, pixabay

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Krakow on the path to climate neutrality

atelier
Positive Energy Districts

2023 r.
Climate Education Center

2022 r.
EU Mission: 100 climate neutral and smart cities + NEEST Pilot Project

2023 r.
Workshops & handbook on Citizen Energy Communities

2021 r.
ATELIER workshops on the vision of the city in 2050

2020 r. – 2021 r.
Kraków Citizens Assembly

2019 r. - 2020 r.
Deep Demonstration of Heathy Clean Cities – Climate KIC Project

fot. ZZM Kraków

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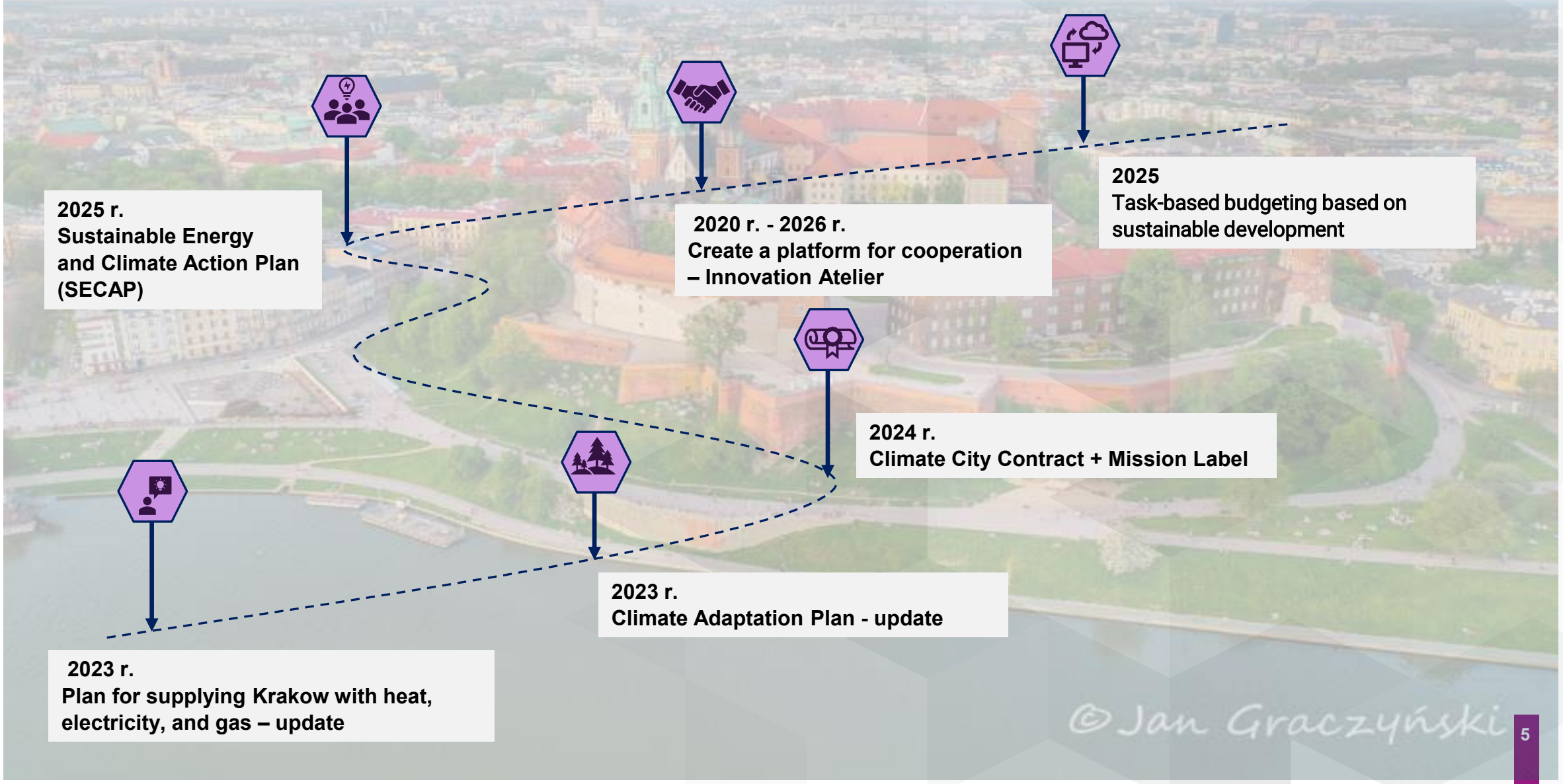
Krakow on the path to climate neutrality



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ATELIER`s effect - where we are now

Energy efficiency

Comprehensive climate education

Systemic energy transition

Energy community – in progress

Renewable energy - energy independence

Strong collaborations with citizens and biznes

fot. Jan Graczyński, ZZM

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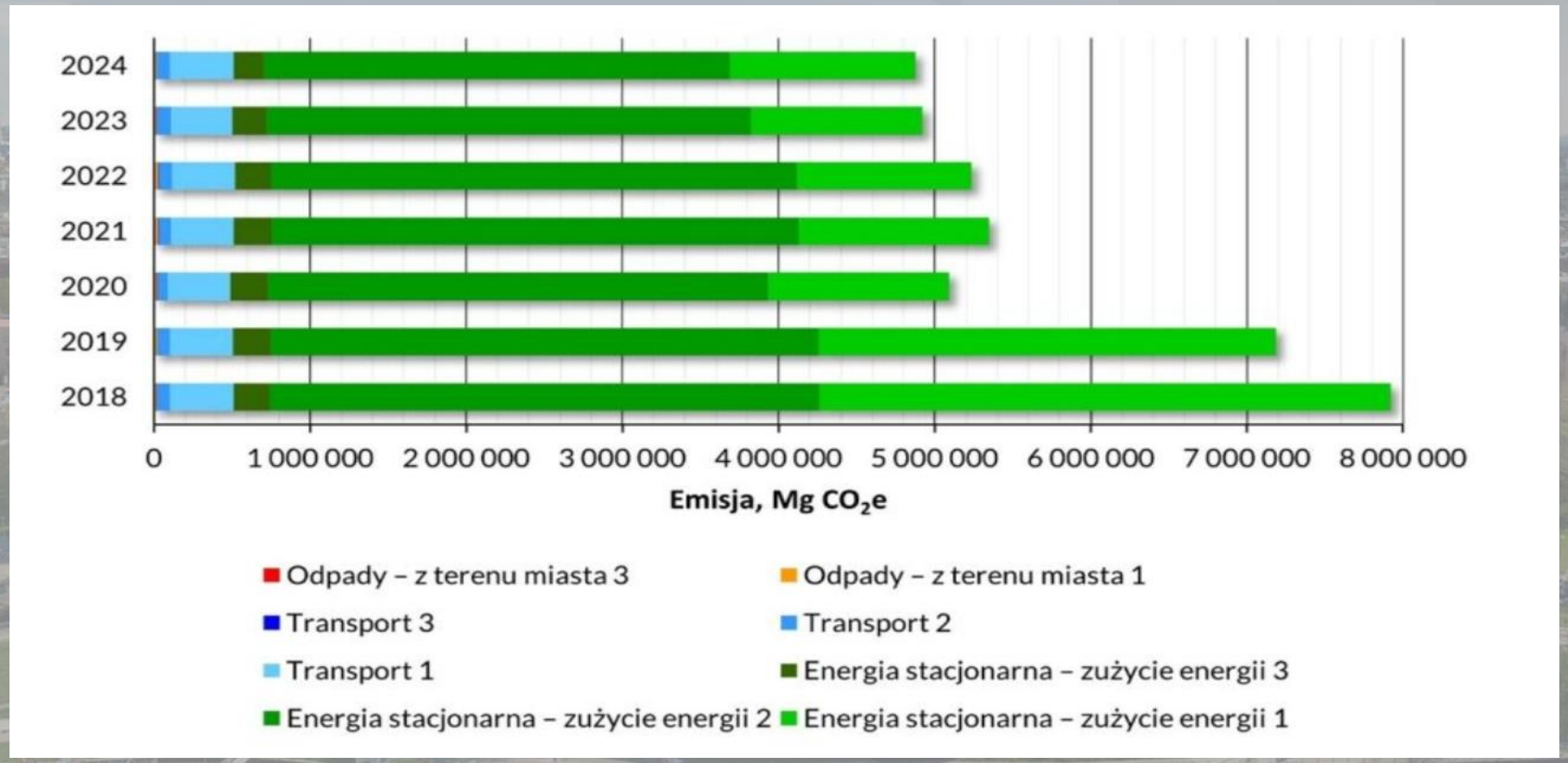
Data-driven management
- greenhouse gas emissions inventory



fot. Jan Graczyński,

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City of Krakow

AmsTErdam BiLbao cItizen drivEn smaRt cities

Małgorzata Starnowska
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City of Matosinhos

AmsTErdam BiLbao cItizen drivEn smaRt cities

ATELIER Final Conference

Tiago Afonso Lopes

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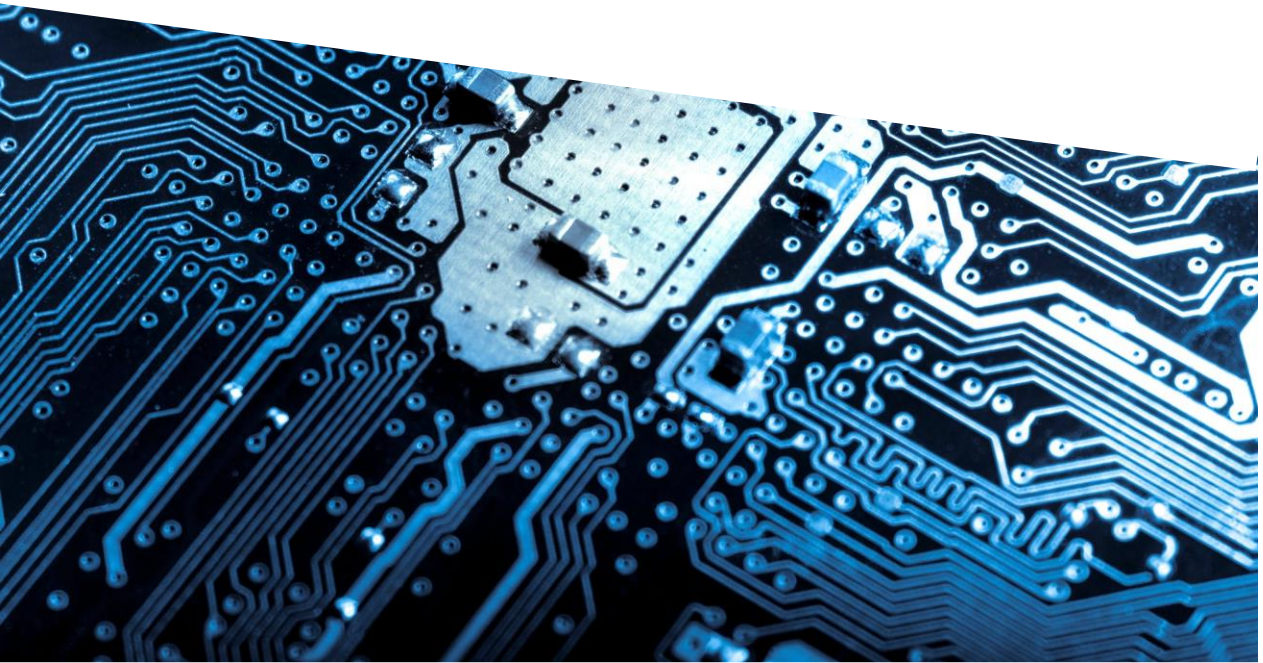
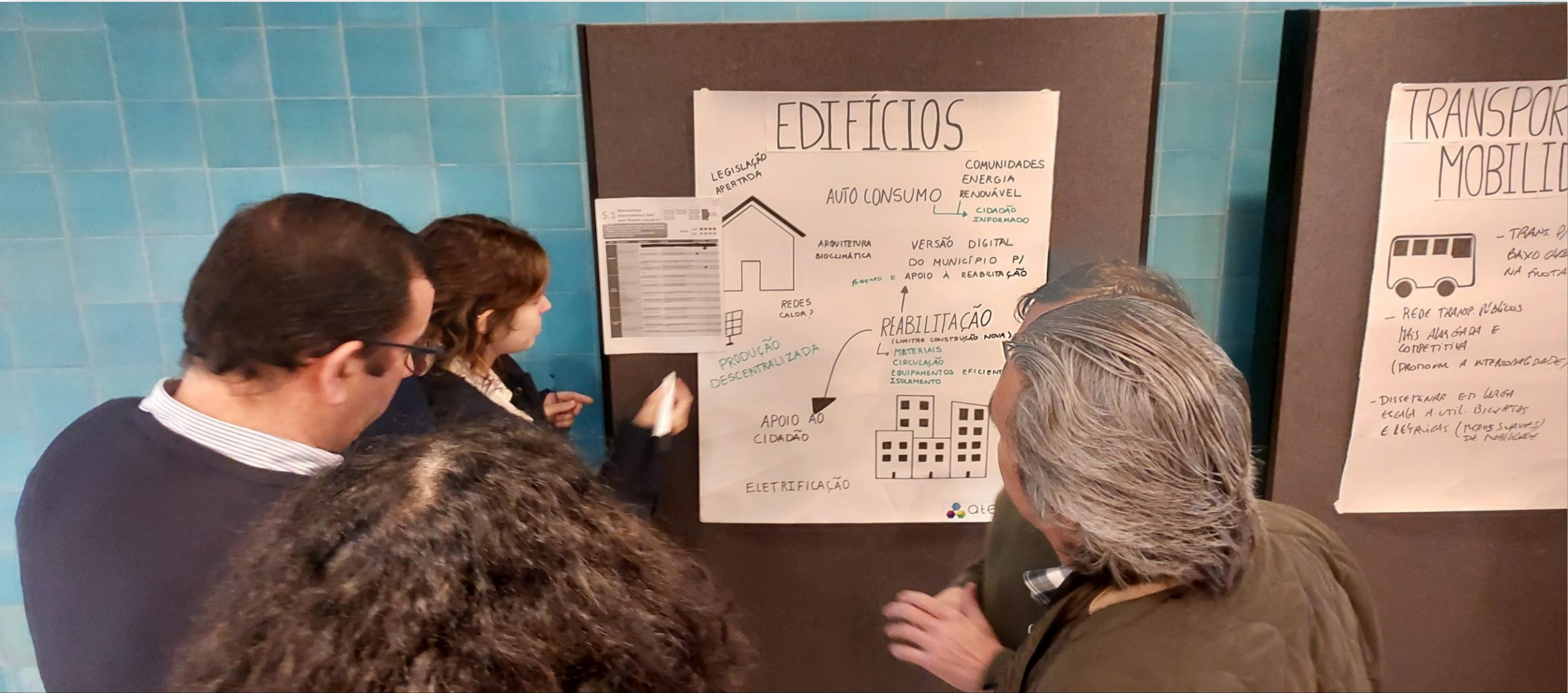
matosinhos


CARBON NEUTRALITY
2030



INNOVATION ATELIER




Google Earth
Data SIO, NOAA, U.S. Navy

Custió Neighborhood

154 un.

104 kWp

217 un.

146 MWh

Leça river green corridor

2 un.

57 MWh

18 km

3 un.


CARBON NEUTRALITY
2030

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ATELIER Final Conference: Riga's Journey Toward Climate Neutrality

Nika Kotoviča, City of Riga

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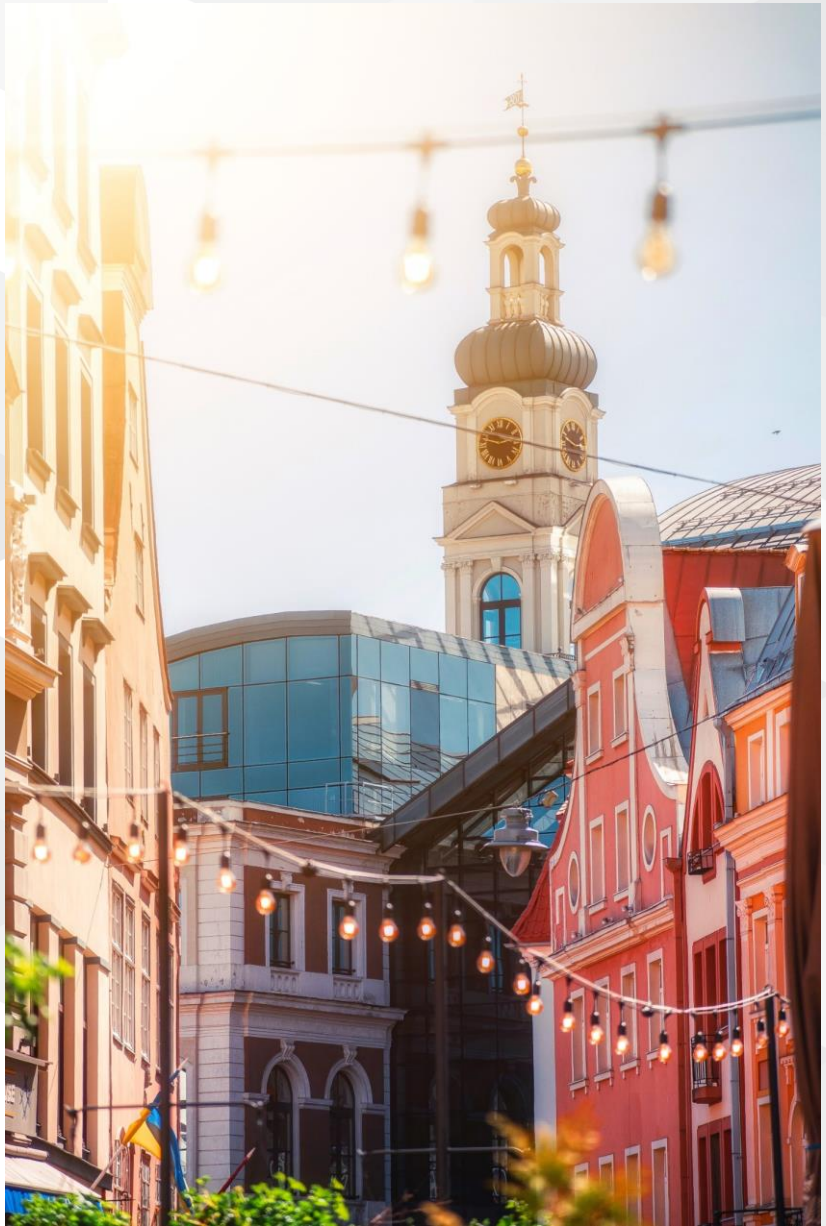
Riga: Mission City

On May 7, 2025, the **City of Riga** received the European Commission's **Mission Label** for its **Climate City Contract**, developed within the European mission **"100 Climate-Neutral and Smart Cities by 2030"**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.864374

Riga's Climate-Neutral Ambition

Riga's Climate City Contract is built on the **Bold Vision** and **Climate-Neutrality scenarios** developed within the ATELIER project



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RIGA

NET ZERO CITIES

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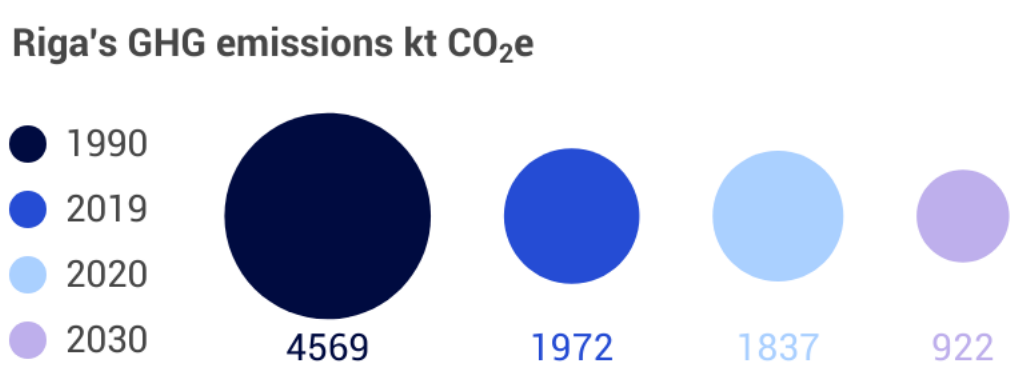
Positive Energy Districts

Riga's goal for GHG emission reduction by 2030

- 80% compared to 1990

- 53% compared to 2019



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RIGA

NET ZERO CITIES

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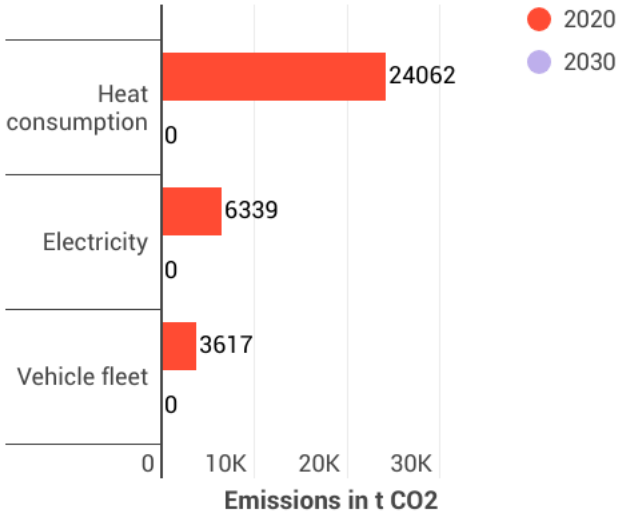
Municipal infrastrucutre



7%
of total reduction

Riga's goal is to achieve complete decarbonisation of energy use in municipal infrastructure by 2030.

10 fields of action

P1	Energy management system
P2	100% RE for heating
P3	100% RE for electricity
P4	Buidling renovation
P5	Modernised street lighting
P6	100% RES electricity for lights & clocks
P7	Data management of vehicle use
P8	Public transport for employees
P9	Electric vehicles
P10	RE in waste water management

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Co-Creation Process: A Highly Participatory Approach

Over 200 stakeholders engaged in the elaboration of the **Riga's Climate City Contract**, covering:

- Energy production
- Multi-apartment residential buildings
- Municipal Infrastructure
- Transport & Mobility
- Urban Greening & Forestry
- Waste & Circular Economy

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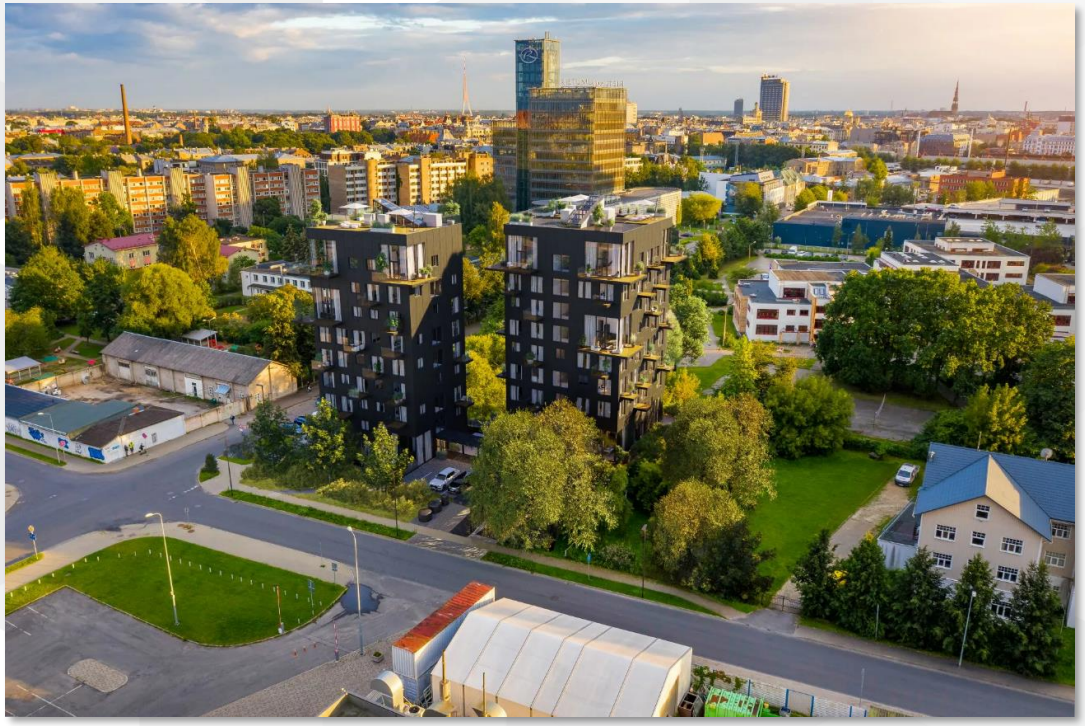
PEDs in Riga: From Design to Implementation

The advancement of Positive Energy Districts (PEDs) is explicitly supported through Riga's Climate City Contract

Within the ATELIER project:

- **Potential for PED** implementation in Riga – assessed
- **Priority areas for PED development** – identified
- **Barriers** and **enablers** for PED implementation – analysed
- **PED Living Lab** – established



Skanste neighbourhood

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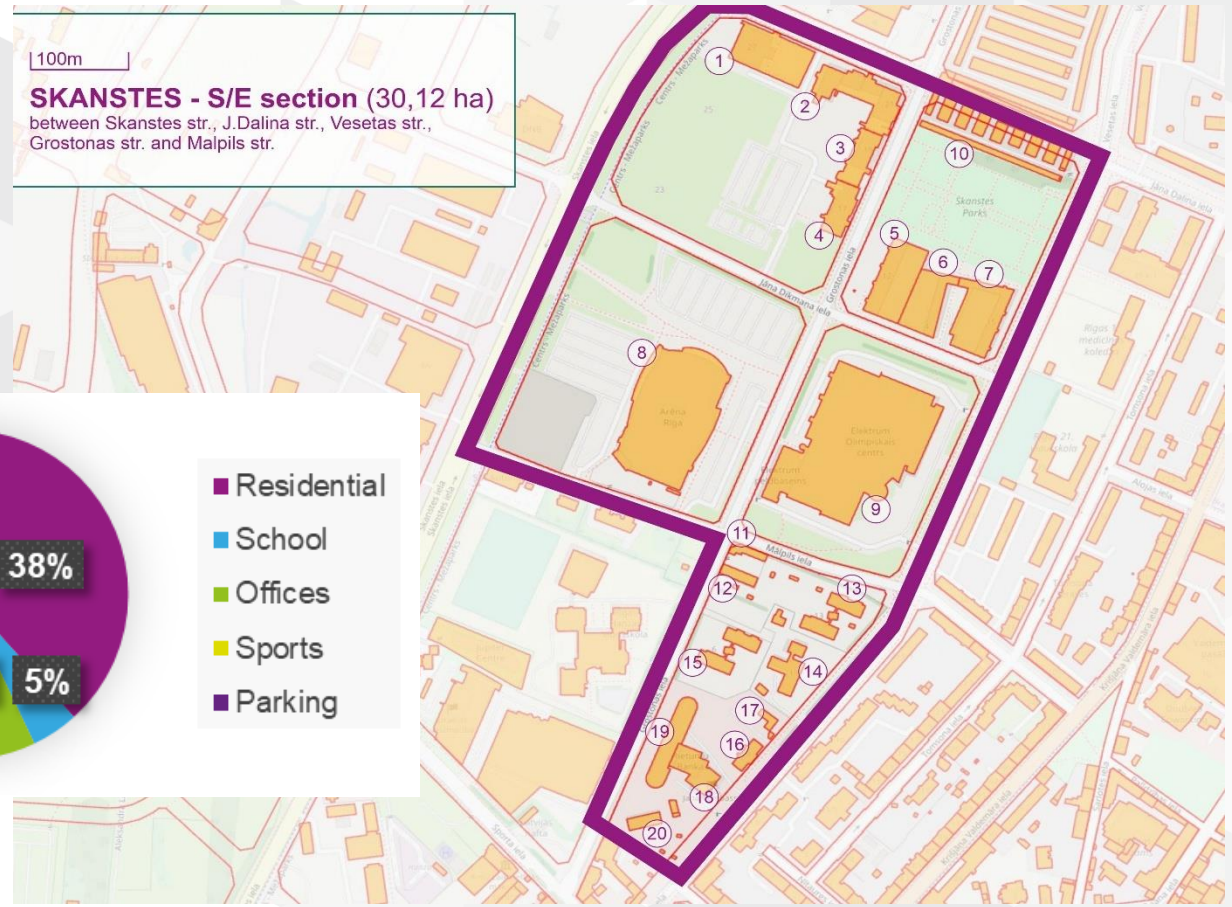
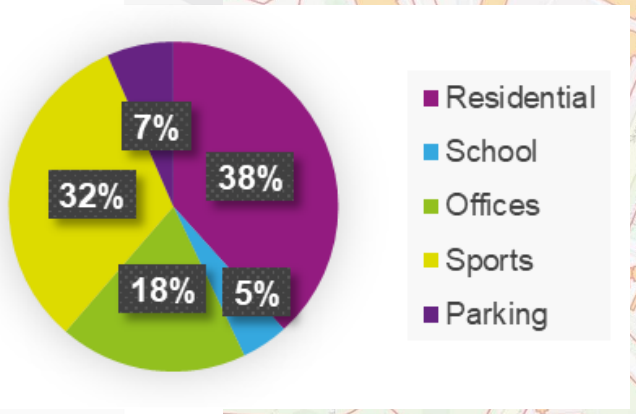
PEDs in Riga: From Design to Implementation

Within the ATELIER project:

- potential PED area – Skanste selected
- alternative PED scenarios – proposed and evaluated





Skanste neighbourhood

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Skanste: PED Scenarios

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Baseline

32 GWh/yr (not PED) | 337.5 k€/month | 3343.2 tons CO_2 | 11.18 GWh from GRID | 5.96 GWh from district heating network | 5.82 GWh from natural gas

Variables	1. PV in roofs (net metering with excess)	2. Collective PV (12.5 MWp; sharing excess)	3. Collective PV & HPs (15 MWp; sharing excess) & biogas	4. Collective PV (13.75MWp), greener DHN & biogas
Economic savings	33 k€/month	163.8 k€/month	160 k€/month	147 k€/month
Environmental impact	265 tons CO_2 reduction	1266 tons CO_2 reduction	3062 tons CO_2 reduction	2785.7 tons CO_2 reduction
Local production	1.4 GWh/yr production of PV	11.6 GWh/yr production of PV	13.9 GWh/yr production of PV	12.7 GWh/yr production of PV
Primary energy balance	27.35 GWh/yr **(not PED)**	9.92 GWh/yr **(not PED)**	**-2.91 GWh/yr (PED)**	**-0.09 GWh/yr (PED)**
Investment	1.8 M€, payback in ~5 years	13.8 M€, payback in ~ 7 years	20 M€, payback in ~11 years	15.8 M€, payback in ~9 years

Optimal PED scenario

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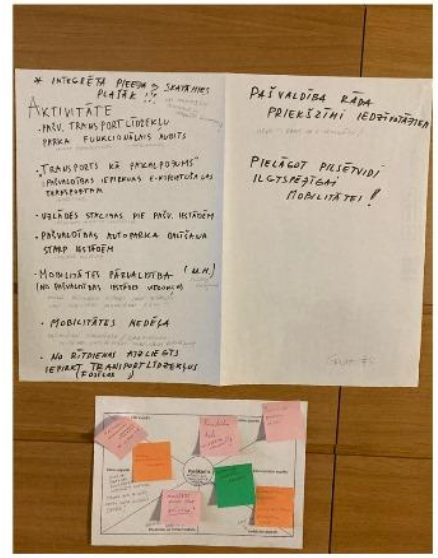
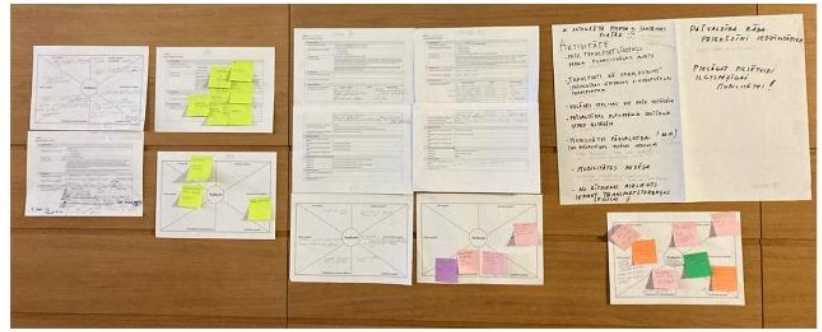
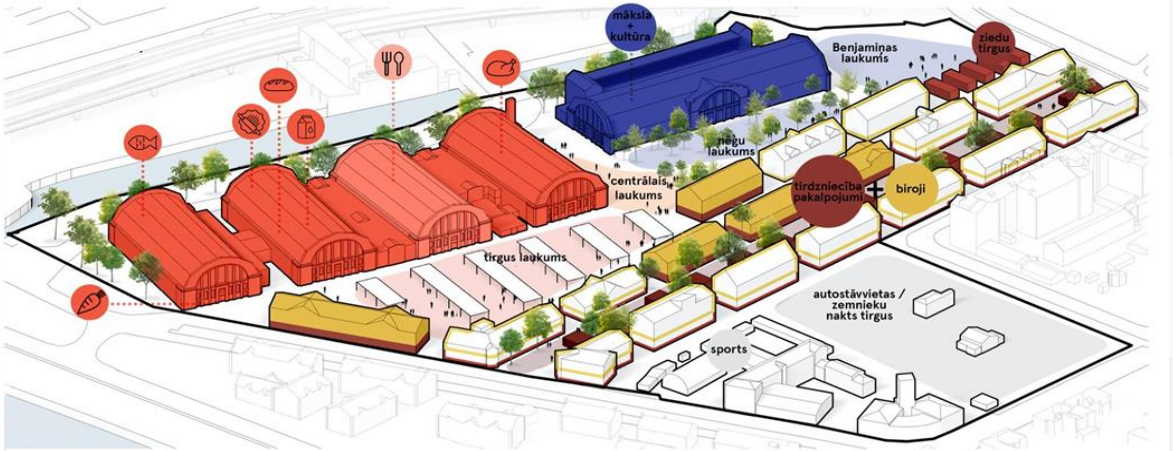

AKTIVITĀTE
PAŠVALDĪBA RĀDA PRIEKŠZĪMI
PIELĀGOT PILSĒTVIDI ILGTSPĒJĪGAI MOBILITĀTEI !



Future: PED Development in Riga

Riga Central Market:

- Particularly well-suited for the development of a PED, operating as a coherent, **data-driven energy system** with shared assets for energy generation, storage, consumption, and smart management
- An **ideal micro-energy grid**, a real-world PED testing environment



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Next Steps: Implementation

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