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Limerick · Trondheim · Alba Iulia · Písek · Sestao · Smolyan · Võru

# Welcome!

+CityxChange Final Conference
“The Future of Positive Energy Districts”
Trondheim, October 2023

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 824260.

# Our Location Today

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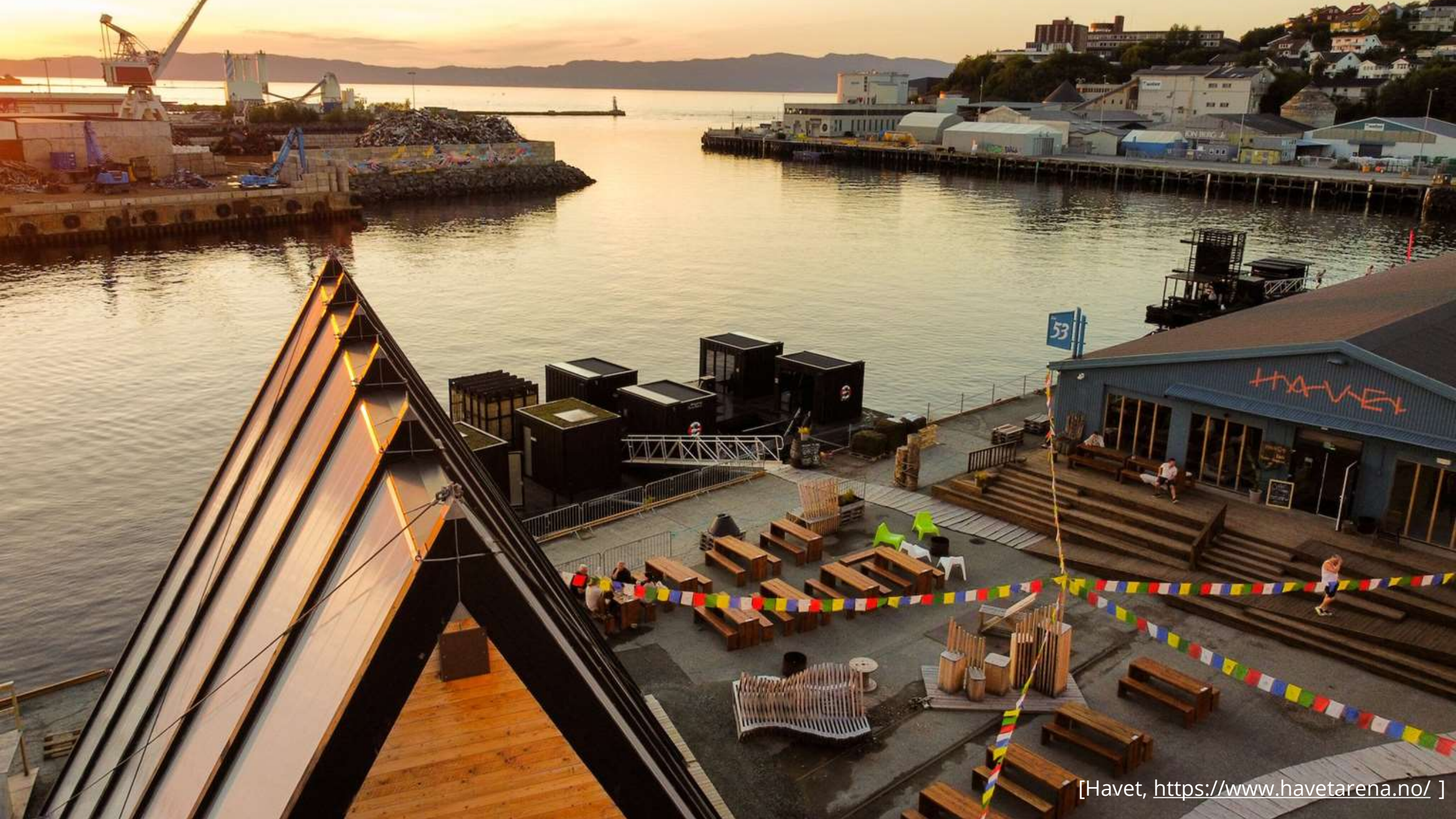


[Havet, https://www.havetarena.no/ ]

[Trondheim Havn, https://www.flickr.com/photos/trondheimhavn/2884481461/in/photostream/ ]

# Welcome & Introduction

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# Radical Collaboration

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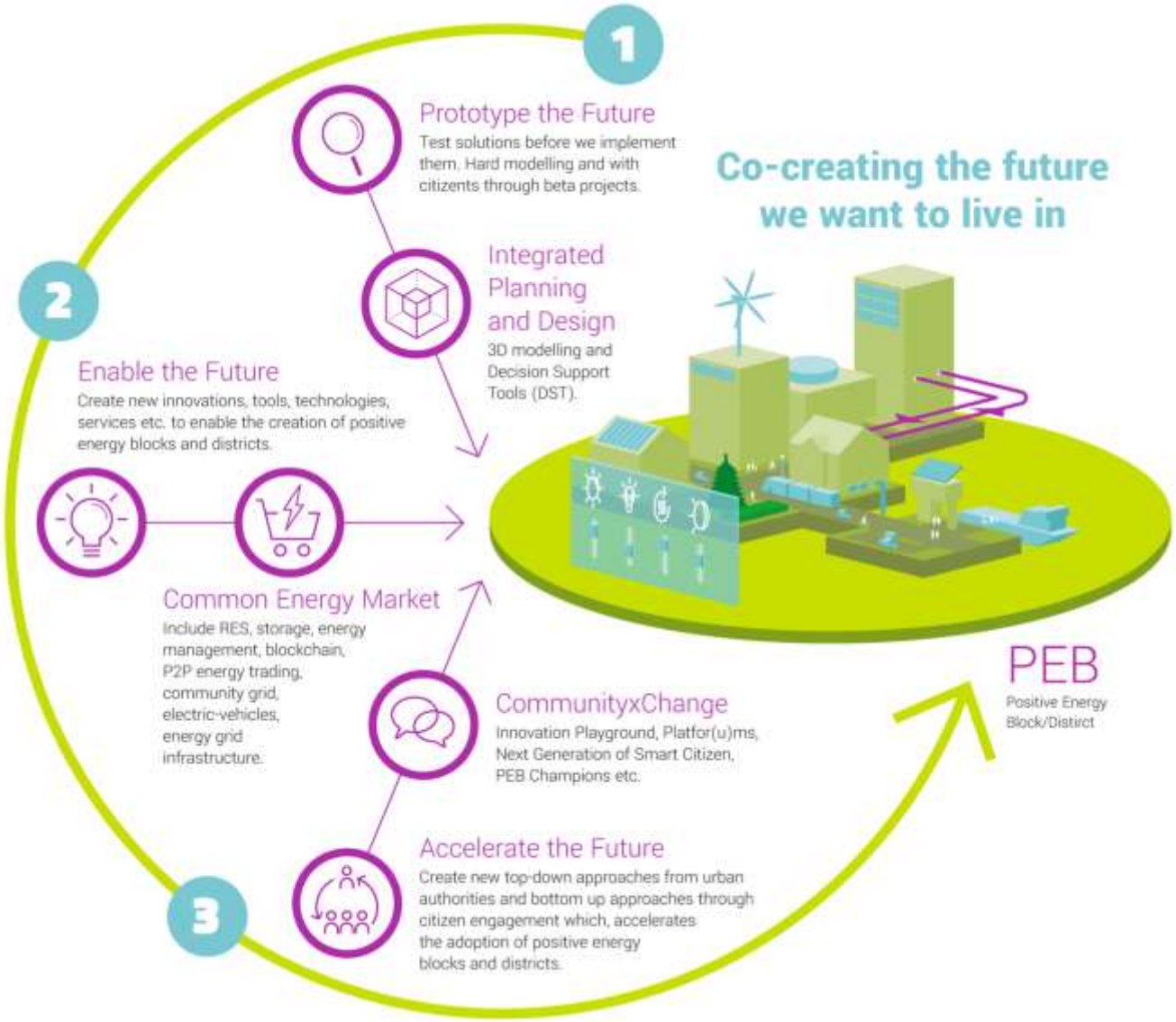
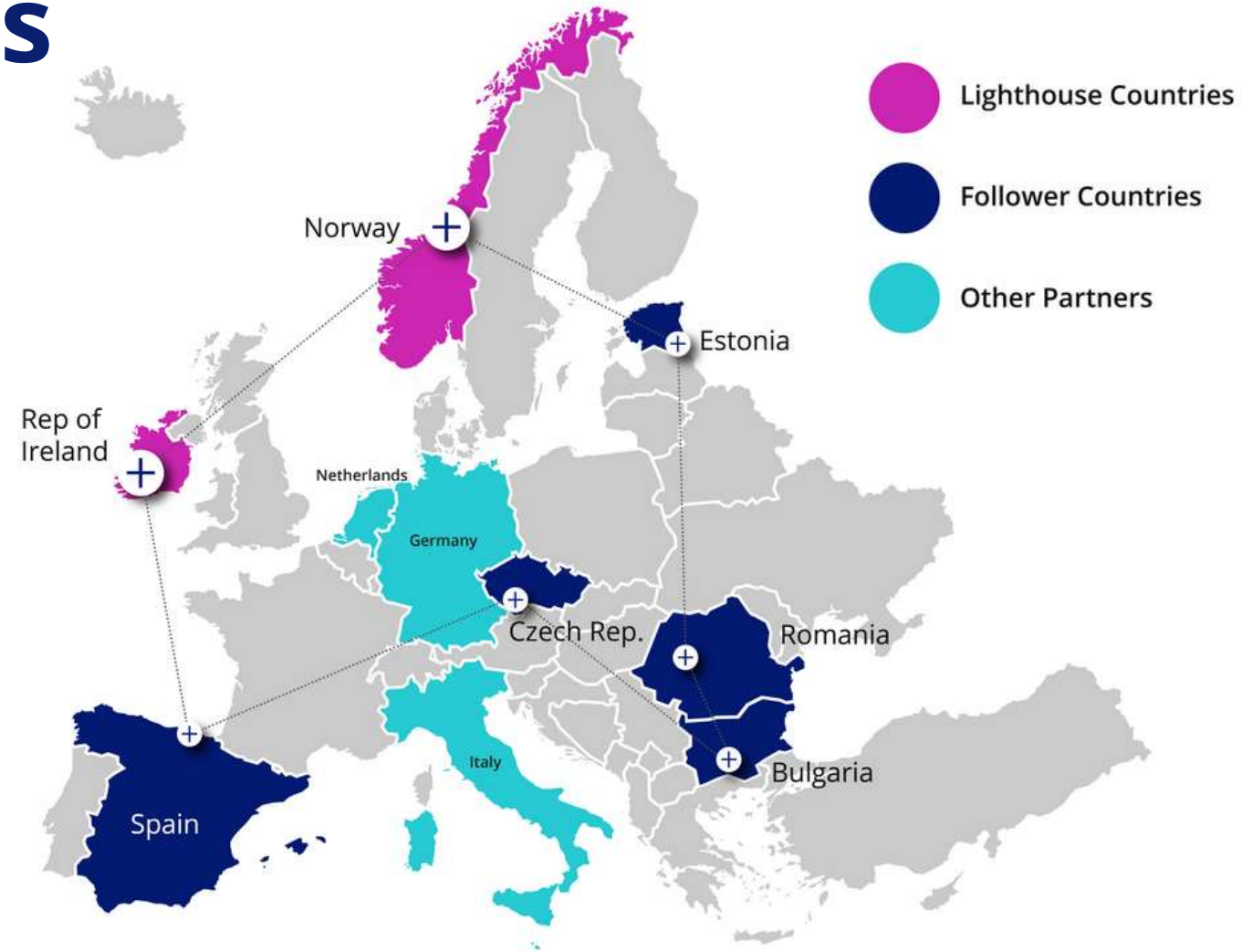
# City-Driven System Transition towards PEDs



# Our Cities




Limerick · Trondheim · Alba Iulia · Písek · Sestao · Smolyan · Võru

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# Project Partners

## Coordinator

NTNU
Norwegian University of Science and Technology

NTNU

## Cities

**Limerick**

Limerick City & County Council

**Trondheim**

Trondheim kommune

**Alba Iulia**

Alba Iulia Municipality

**Písek**

Město Písek

**Sestao**

Sestao Berri

**Smolyan**

Municipality of Smolyan

**Võru**

Municipality of Võru

## Trondheim Partners

Volue AS

Trønderenergi AS (Now ANEO AS)

ABB AS

AtB AS

Avis Budget Group

Statkraft Varme AS

FourC AS

R. Kjeldsberg AS

NHP Eiendom AS - RELOG

## Limerick Partners

Integrated Environmental Solutions Ltd

University of Limerick

Future Analytics Consulting Ltd

ESB Innovation Roi Ltd

ESB Networks DAC

Space Engagers

Colaborativa SL

Smart M Power Co. Ltd.

GKinetic Energy Ltd

GoCar Carsharing Ltd

## Transversal Partners

Research2Market

ISOCARP Institute Centre for Urban Excellence

Energy Agency of Plovdiv

Officina Verdi Group

IOTA Foundation

Ove Arup & Partners SAU

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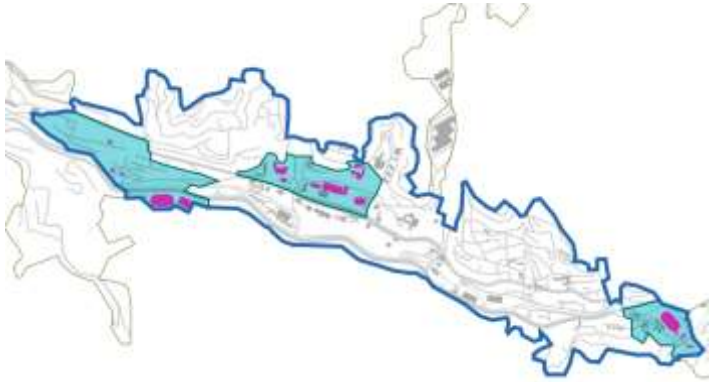

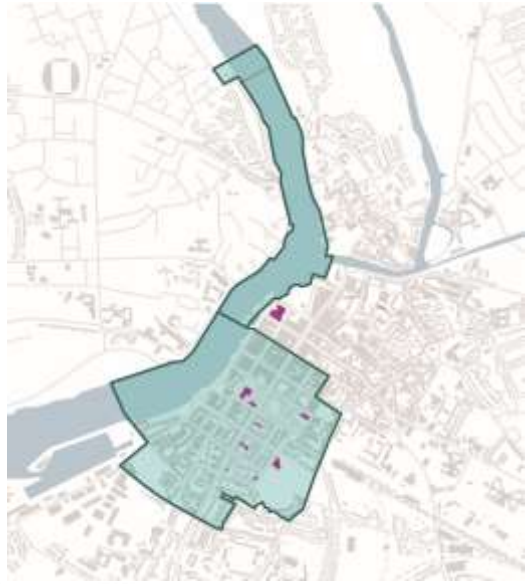

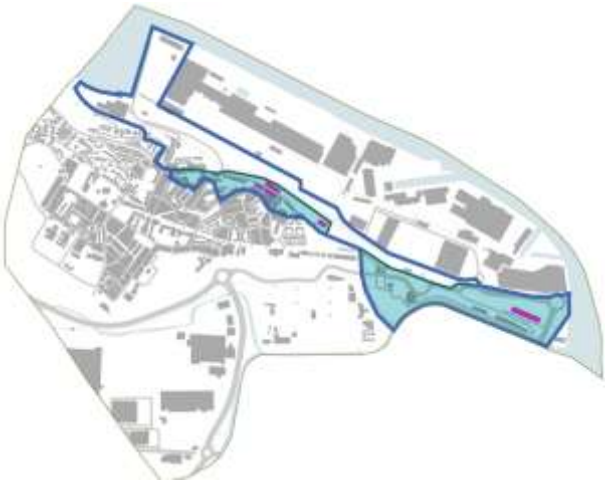

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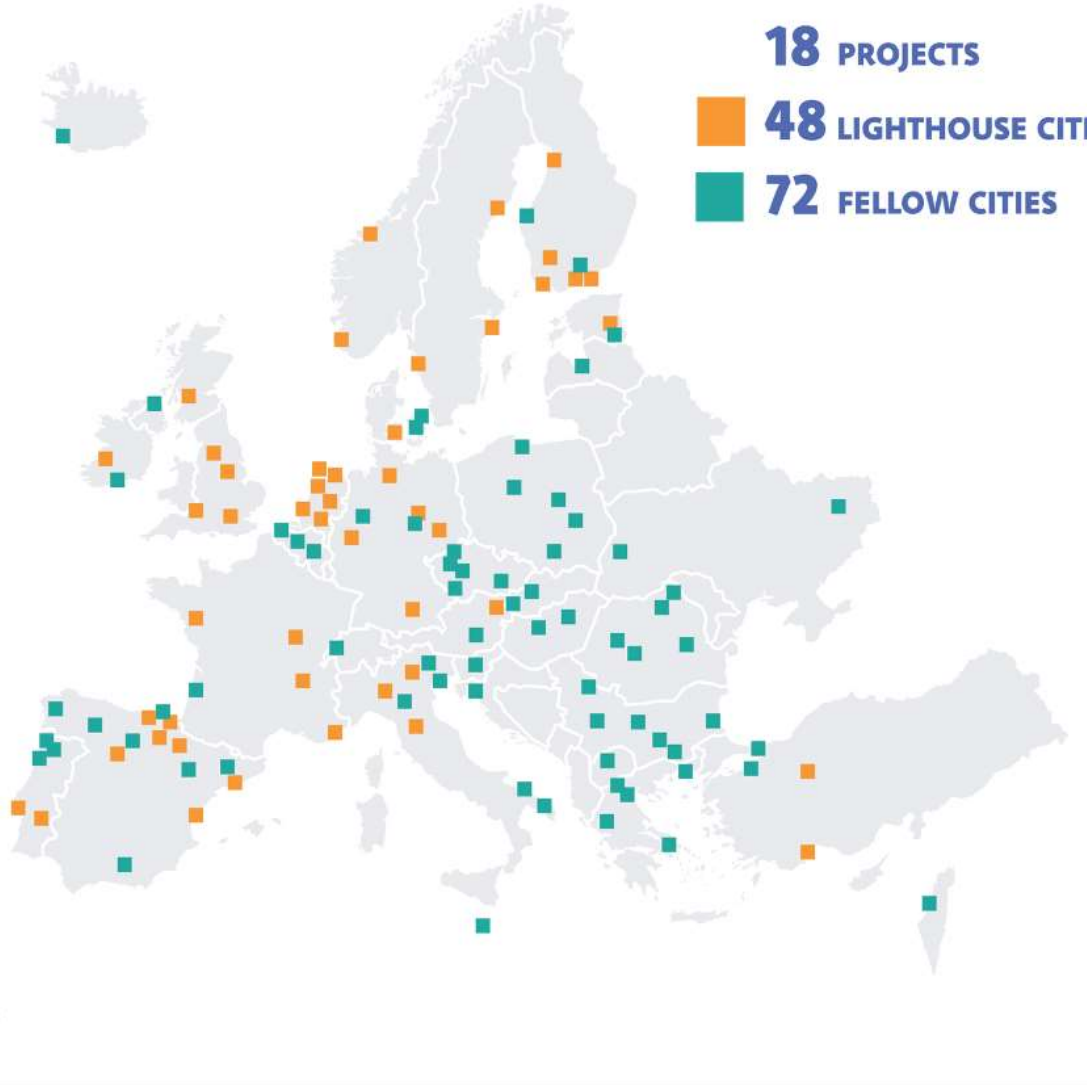
# Scalable Cities – SCC1 Support

| 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| GrowSmarter | REPLICATE | RUGGEDISED | STARDUST | +CITYXCHANGE | SPARCS | RESPONSE |
| triangulum | Smarter Together | my SMART Life | MATCHUP | Making City | POCITYF | |
| REMOURBAN | smarter city | | IRIS | | atelier | |
| | SHARINGCITIES | | | | | |



# City-driven & People-driven

# Agenda for today

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# Agenda - Wednesday 4 October

**9:00 - 9:30** **Registration, coffee, mingling & City Exhibition**

**9:30 - 10:00** **Welcome & Project introduction** (*Annemie Wyckmans, Dirk Ahlers*, NTNU)

**10:00 - 10:15** **Welcome from Trondheim**

**10:15 - 11:15** **Introduction to +CityxChange results**

*Dirk Ahlers* (NTNU), *Bjørn Ove Berthelsen* (Trondheim kommune), *Kieran Reeves* (Limerick City & County Council), *Miloš Prokýšek* (Město Písek), *Tudor Drambarean* (Alba Iulia Municipality), *Siim Meeliste* (Municipality of Võru), *Eftima Petkova* (Municipality of Smolyan), *Andy Bäcker* (Sestao Berri)

Introduction of project achievements, the "How to PED Cookbook", and highlights and results from each city

**11:20 - 11:30** **Introduction to parallel sessions – What makes a PED?**

Introduction to session topics and how to divide into groups

**11:30 - 11:40 Grab a coffee + snack before organising in your selected group**

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# Agenda - Wednesday 4 October

**11:40 - 12:30 Parallel topic sessions – Discussions, Questions, Challenges**

- **Creating connected communities:** Learning from experiences and results of community engagement
- **Energy Markets**:Discussion on technical details and energy flexibility markets, barriers and bumps along the way, successes & main learning
- **Strategy, Policy**: Bold City Vision and city strategies
- **Business Models, Scaling**:Finance & partnership models, PED income streams, scaling
- **Radical collaboration:** Transdisciplinary, participatory & co-creative – across sectors, disciplines, interests and geographies (New European Bauhaus)
- **Mobility**: eMaaS, V2X, shared mobility
- **Designing & Deploying integrated PEDs:** Integrated development approach, connecting systems, data, people
- **Local generation, building measures, feasibility studies:** Individual building & neighbourhood measures and preparation

**12:30 - 14:00 Lunch & Exhibition of Cities' achievements**

# Agenda - Wednesday 4 October

**14:00** **Buses leave for site visit**

**14:15 - 15:15** **Site visit: The Brattøra PED**

**15:15** **Buses back to Havet**

**15:30 - 15:45** **Coffee and regroup & Exhibition**

**15:45 - 16:45** **Passing on the torch of knowledge (Mission and Lighthouse Cities)**
Scaling and Replication Pathways towards Climate-Neutrality – From pilots to common practice.
Roundtables with facilitators

**16:45 - 17:45** **Impact through small-scale actions inspired by Lighthouse Cities and Scalable Cities Action Grant**

**17:45 - 18:00** **Wrap up & closing**

**19:00 Dinner at K.U.K - Gubalari**, Kjøpmannsgata 38, 7011 Trondheim (map)
https://www.k-u-k.no/gubalari-restaurant/

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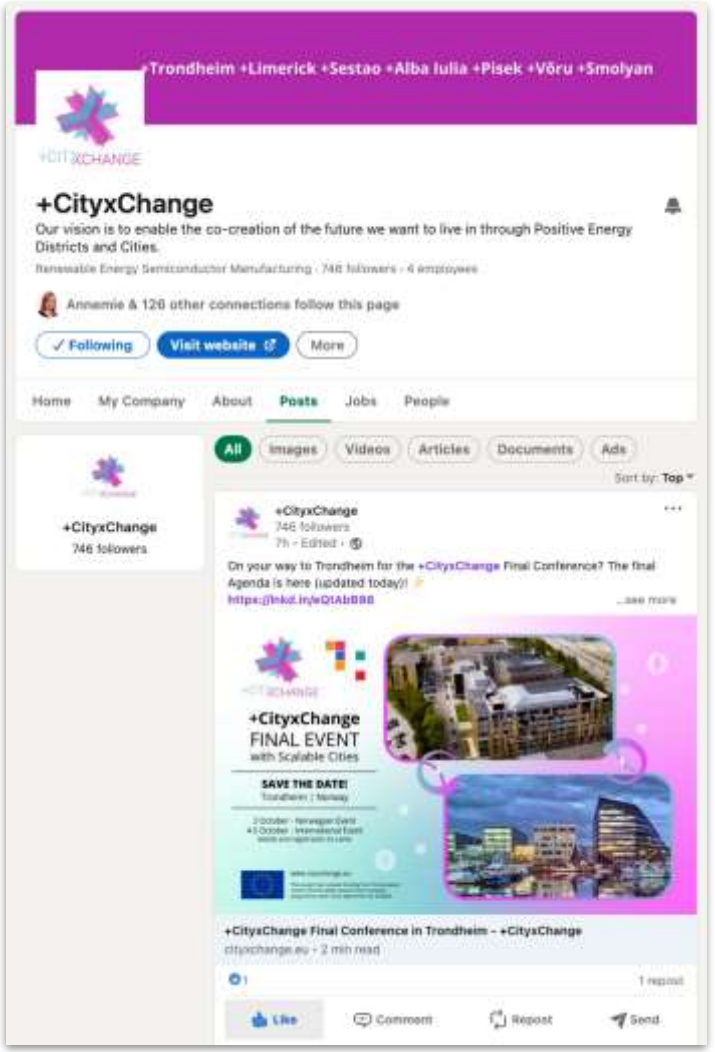
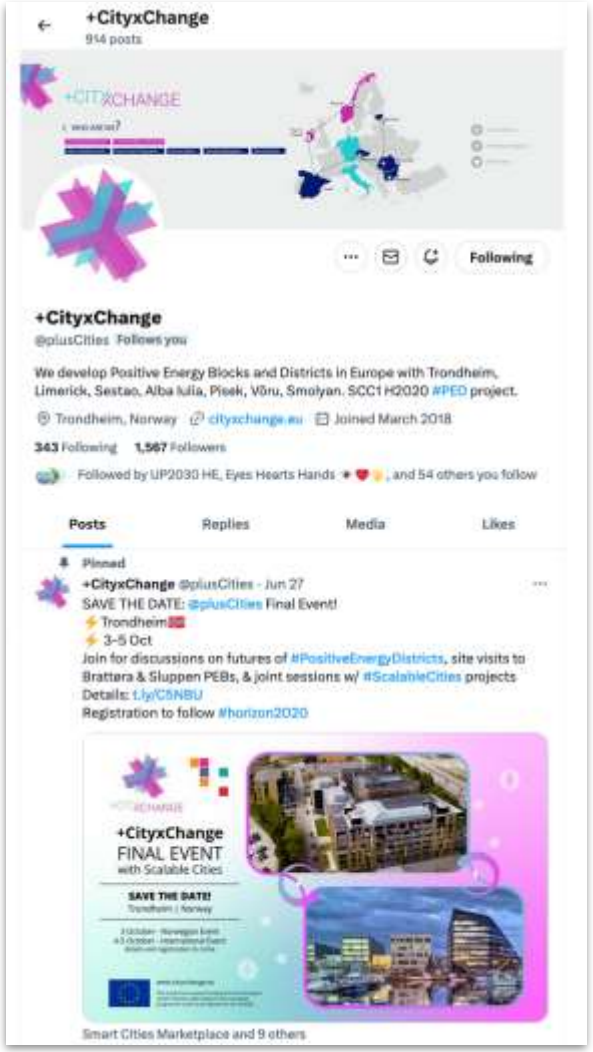
# Find out more

cityxchange.eu/




linkedin.com/company/cityxchange/




twitter.com/@plusCities/
#PositiveEnergyDistricts

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# Jørn Arve Flått

Leader of the Business development and Environment Committee in the Trondheim City Council

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# Project Achievements

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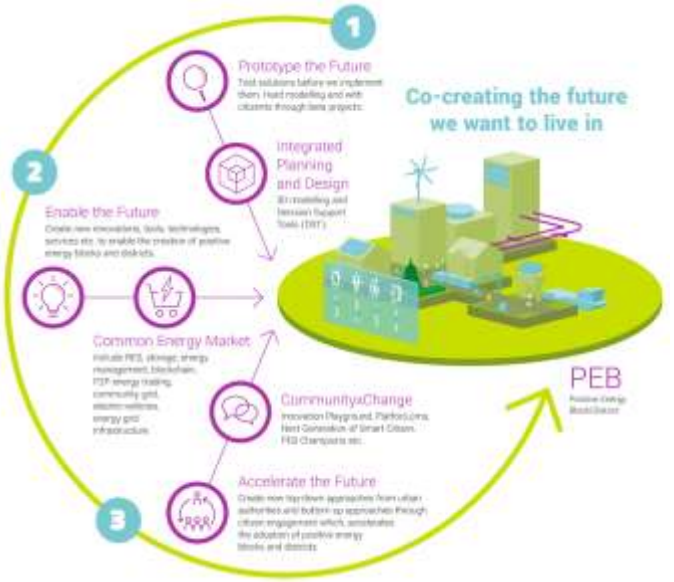
# Project Achievements




- Achievements across all 7 cities
  - 2 fully operational & integrated PEDs
  - 6 PEDs on their way
  - All Demo Projects applicable in at least 1 city
  - Good progress on KPIs and deployment
  - Setbacks shape new approaches
  - Adaptation of PED concept to different local contexts
  - PEDs driving local strategies & actions
  - Going beyond demonstrators
- Important step towards Climate-Neutrality

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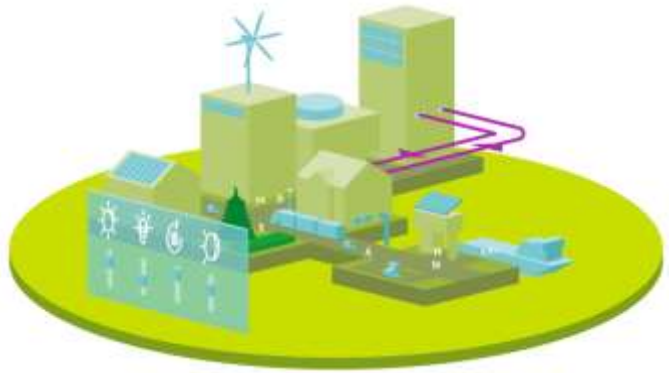
# Project Learnings



- PEDs are possible in real-life settings
- Built through collaboration & co-creation
  - Integration, cross-sectoral, multi-disciplinary, multi-stakeholder
  - Activate local innovation ecosystem
  - Requires a mindset change
  - Frameworks, processes, systems
  - Co-benefits can surprise
- It takes effort & dedication & persistence & time
  - 5+ years of work by far over 350 people

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# Sharing Knowledge & Experience

- Deliverables, extra materials, scientific papers, solution booklets, webinars, glossary, cookbook, videos, learnings, conferences
- https://cityxchange.eu/knowledge-base/

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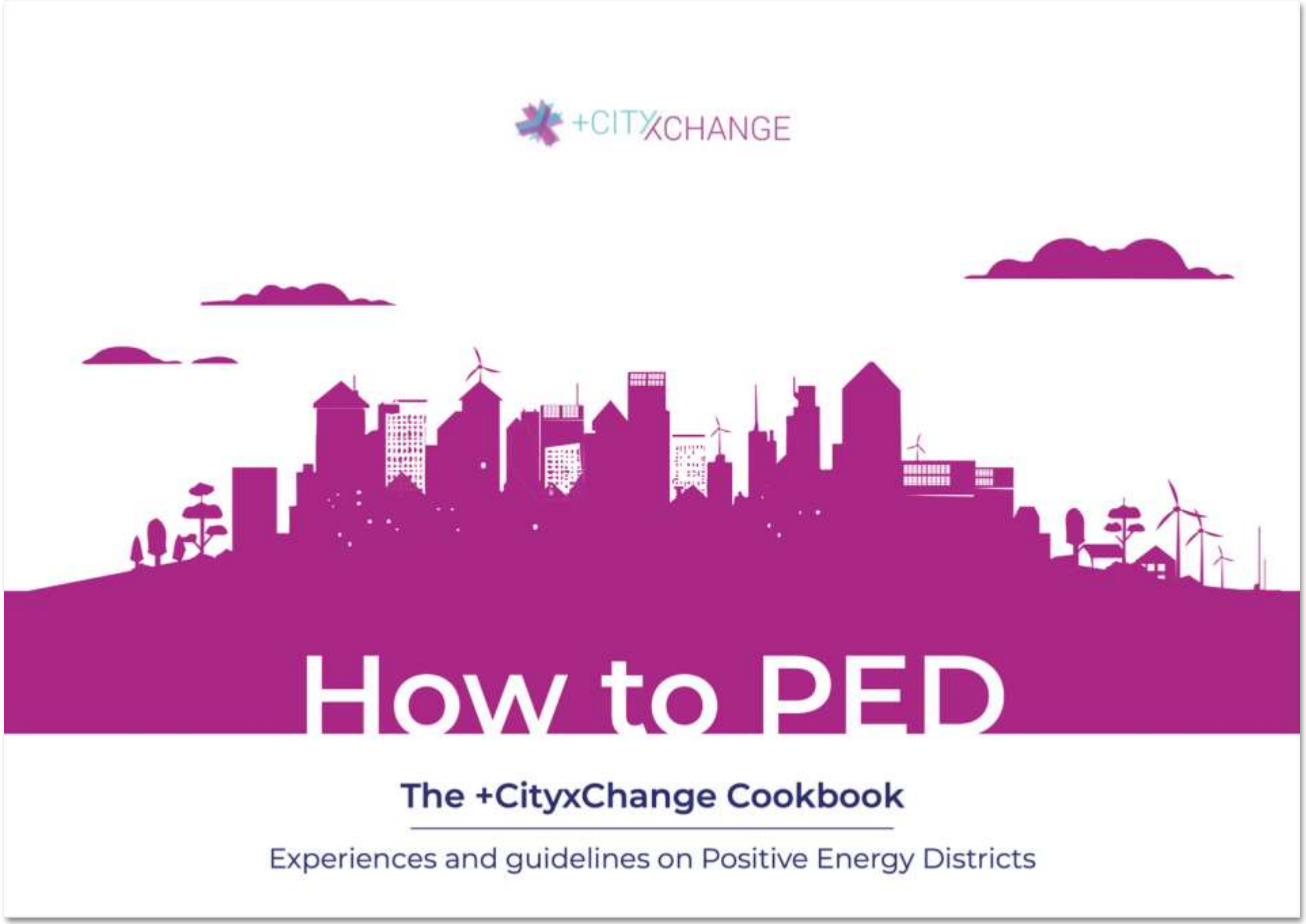



https://cityxchange.eu/knowledge-base/how-to-ped-cookbook/

# Recipes to make PEDs

***This cookbook combines a number of recipes that combine to serve up a PED, when followed together with a committed range of stakeholders.***

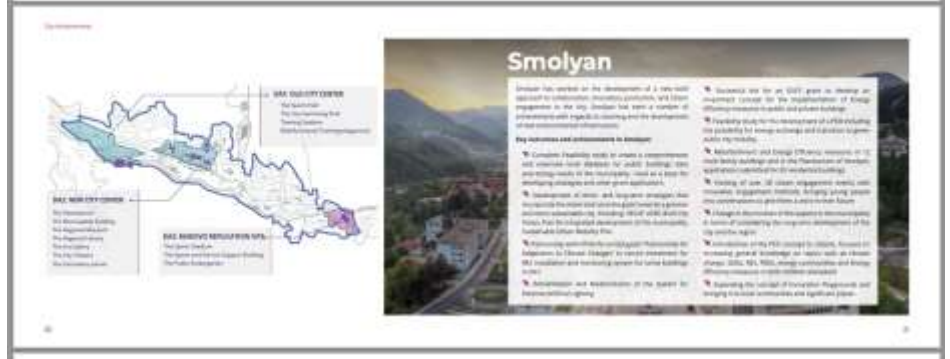
The recipes each focus on a different aspect of PED development. Collectively, they provide essential components for building PEDs, drawing on our experience from our demonstration projects and insights gained throughout the project. These recipes are organised into two categories: **procedural**, which outline the critical processes towards PED development, and **structural**, which detail the elements supporting the implementation and deployment of PEDs.

For each recipe, we offer a set of tips and tricks, factors for success, useful tools, and of course, a list of ingredients. We also reflect on the different "flavours" – or key considerations – that are at the heart of successful recipes. These include **people**, **finance**, and **coordination**. Follow the **light blue**, **blue** and **green** lines for supplementary information that culminates at the end of the book!

As you read the cookbook, you'll find that many of the recipes are interdependent or complementary to each other. Their contributions to building PEDs are context dependent and should be tweaked as necessary to achieve your desired outcome. This means that the recipes are not presented in a specific order here, but should be followed according to your specific situation.

https://cityxchange.eu/knowledge-base/how-to-ped-cookbook/

# City Achievements



“A PED is a process, not a product”

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# The Future of PEDs?
# One tool to accelerate the journey to climate-neutral and liveable cities!

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# Embrace the co-benefits!

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We have similar challenges and can learn from each other!

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# Project Achievements

7 Lighthouse and Fellow Cities

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# +Limerick

Ireland

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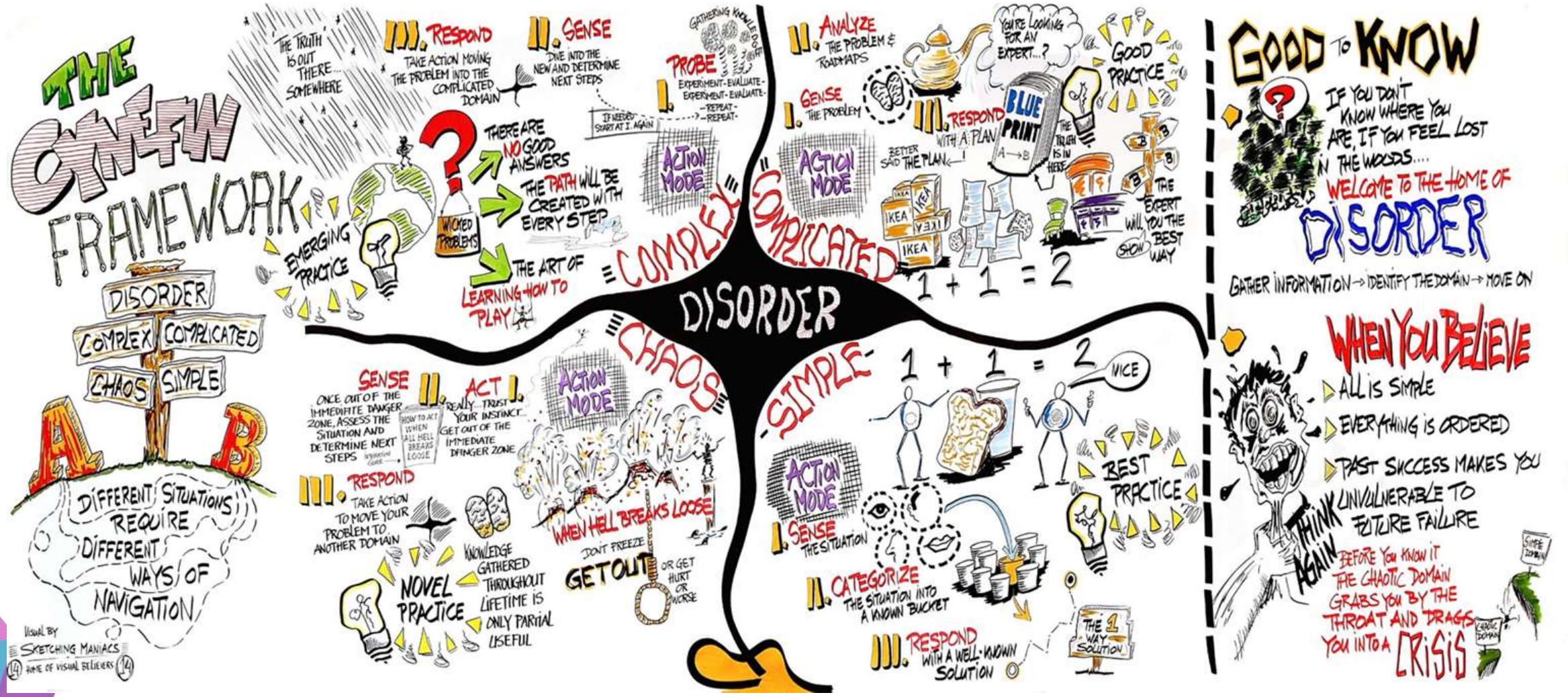
# Limerick will become a green City region on the Shannon Estuary connected through people and places.

# Climate Change Is Not A Simple Problem

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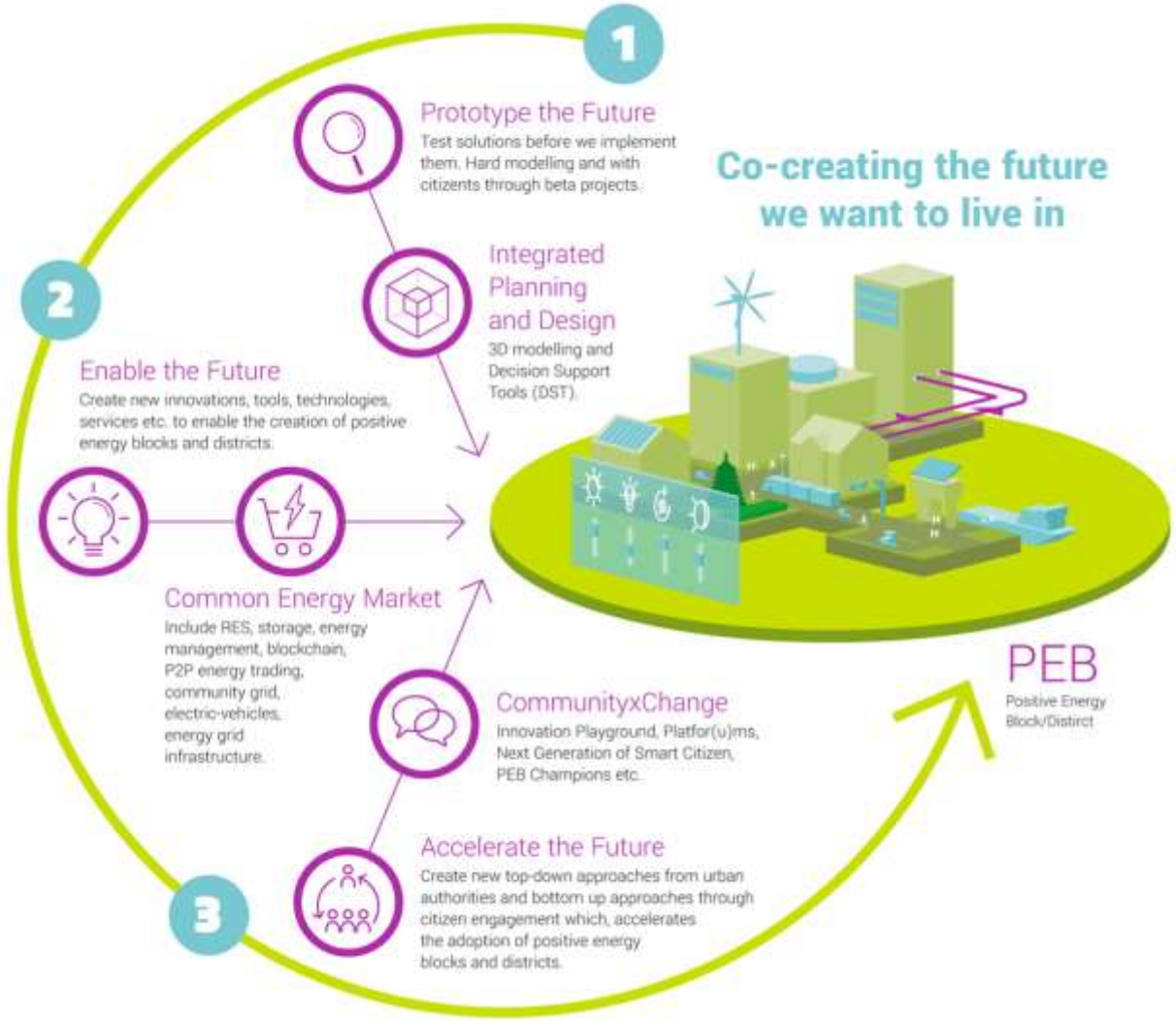
[from: Edwin Stoop (User:Marillion!!62) (https://commons.wikimedia.org/wiki/File:Cynefin_framework_by_Edwin_Stoop.jpg), CC-by-sa4.0]

# Approach

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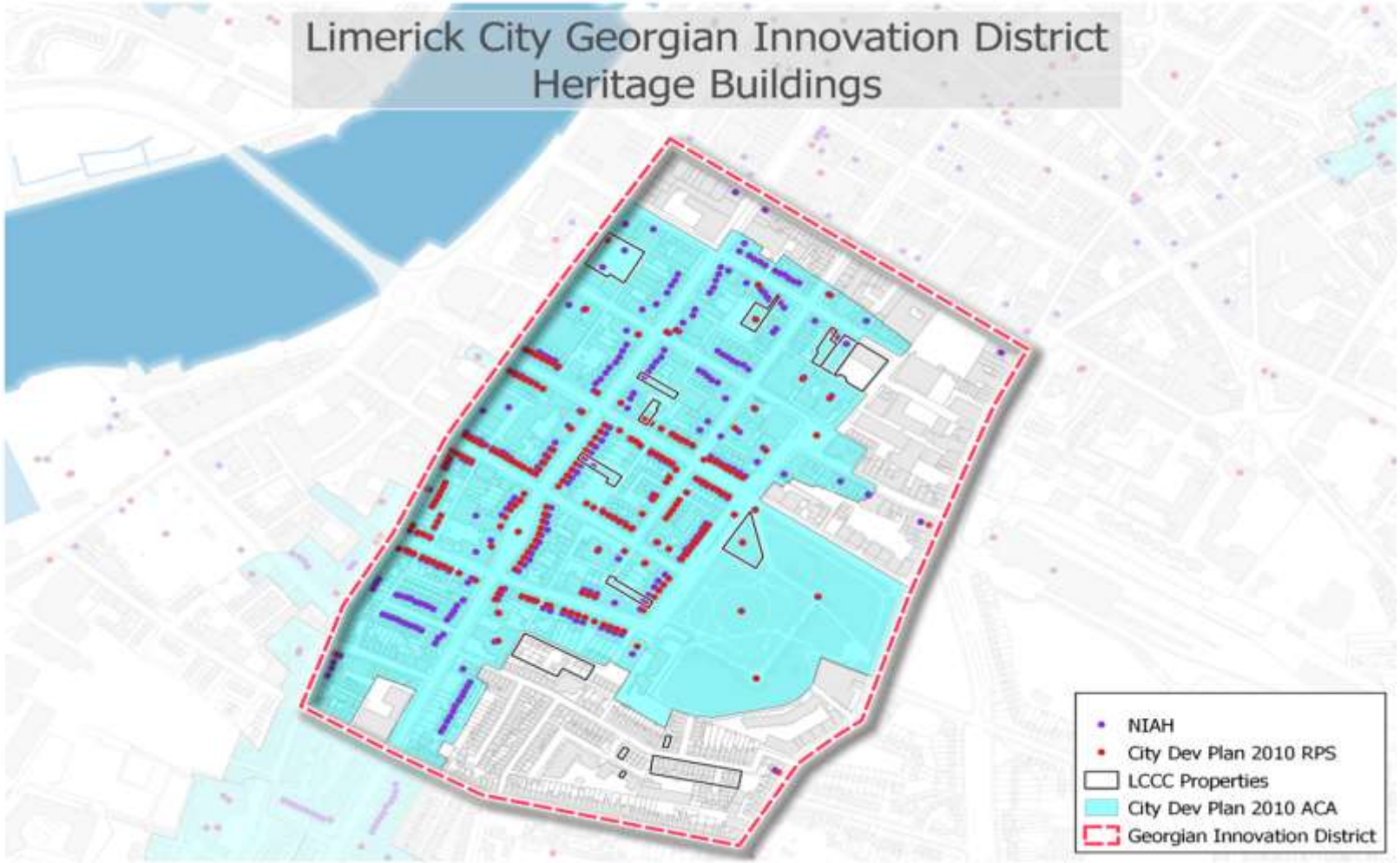
# Understand The Challenge

**Conservation**

**458** buildings of national architectural historic significance

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# Understand the Energy Challenge

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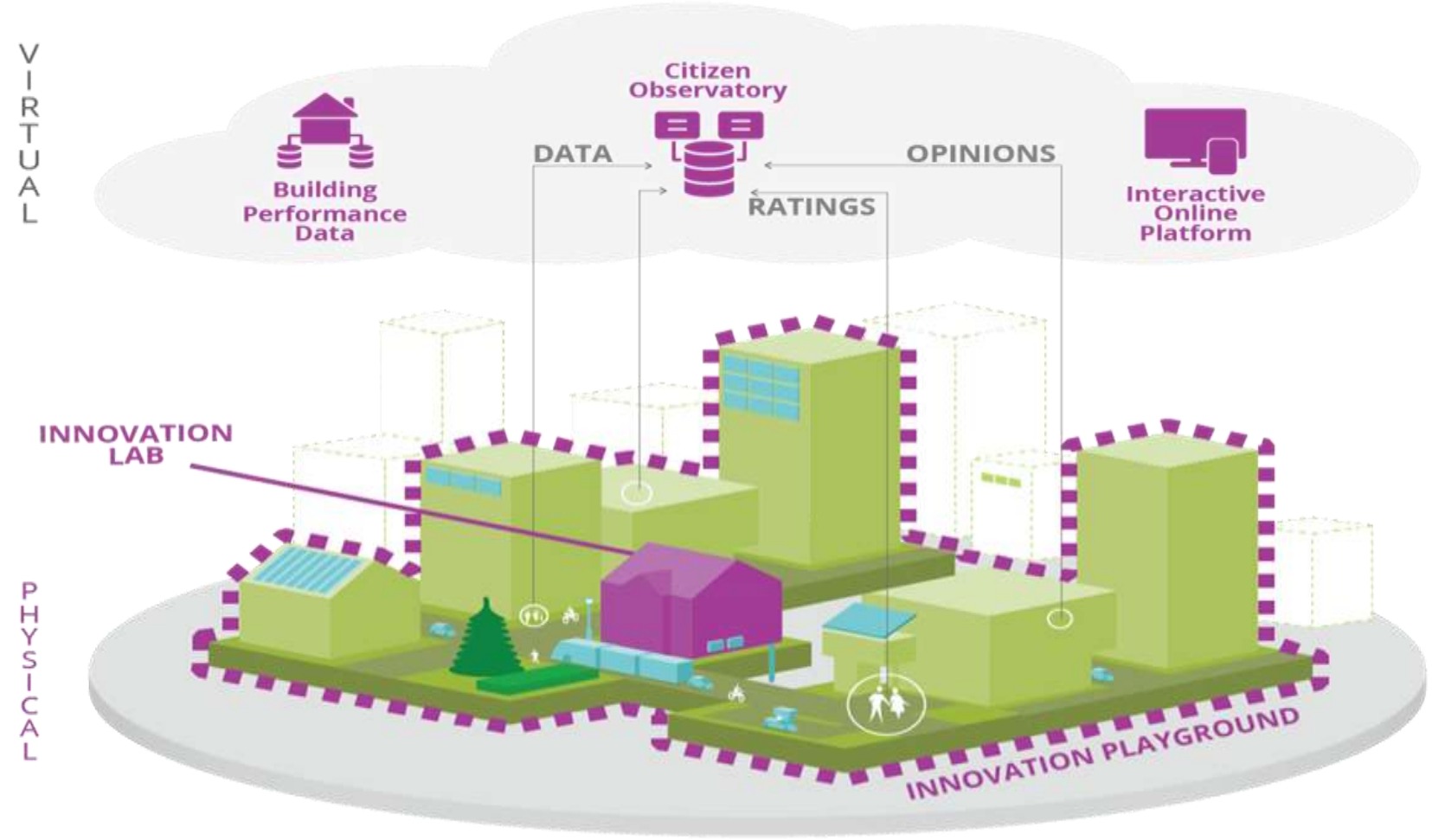
# Innovation Playground | Innovation Lab

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# Our dPEB

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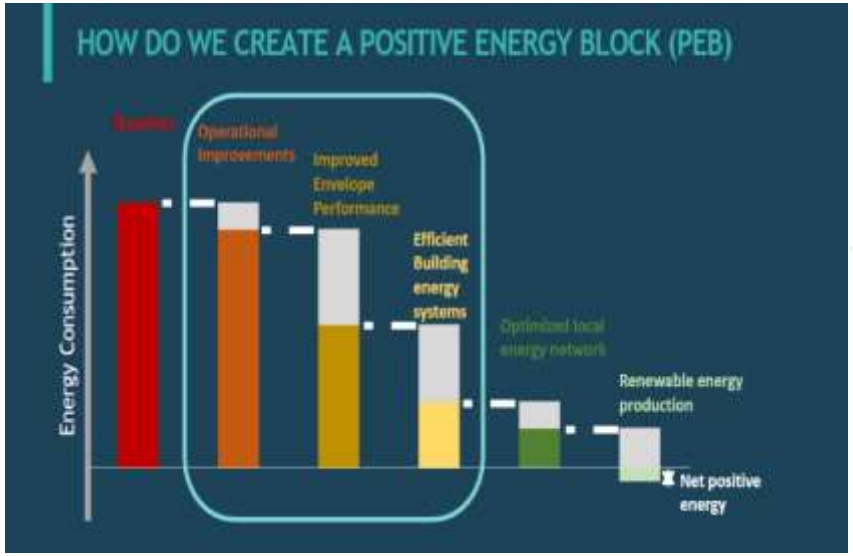
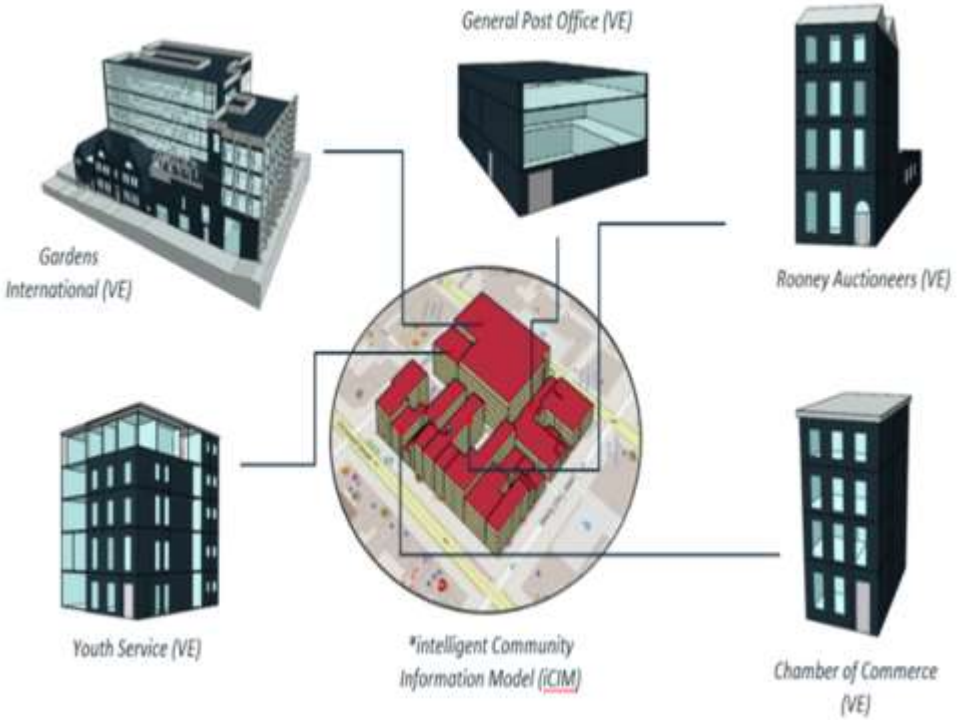
# Limerick's Positive Energy Block – Prototyping the Future



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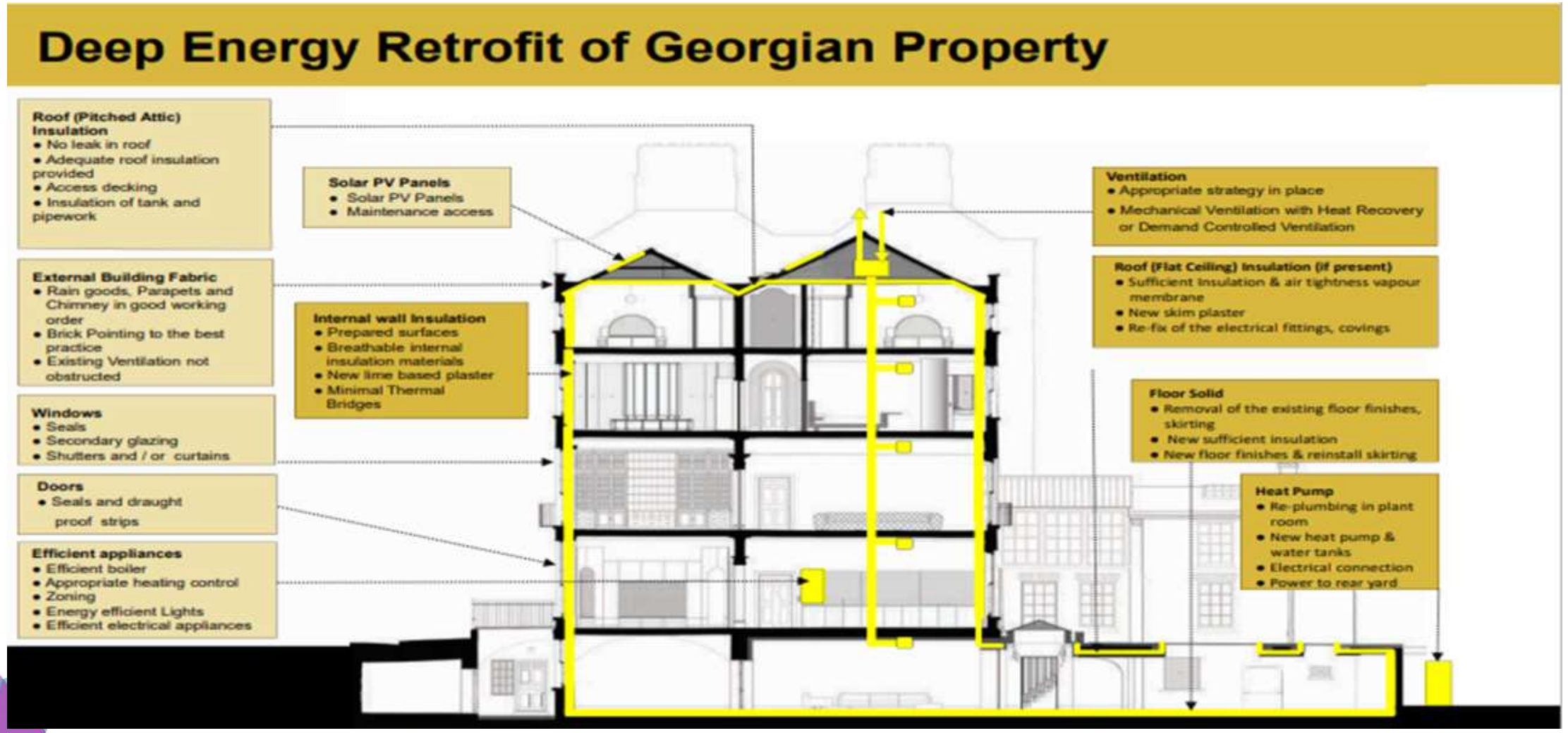
# Understanding Energy Retrofitting in Historic Buildings

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*Source: LCCC*

# Helping People Understand Energy in Their Buildings Supported by the Digital Twin

SMART LAB

Using Smart Technology to Drive the Energy Transition in Limerick

Up to 100 building owners and occupants in Limerick city installing sensors provided by to monitor their

- building's temperature,
- humidity, and
- carbon dioxide levels.

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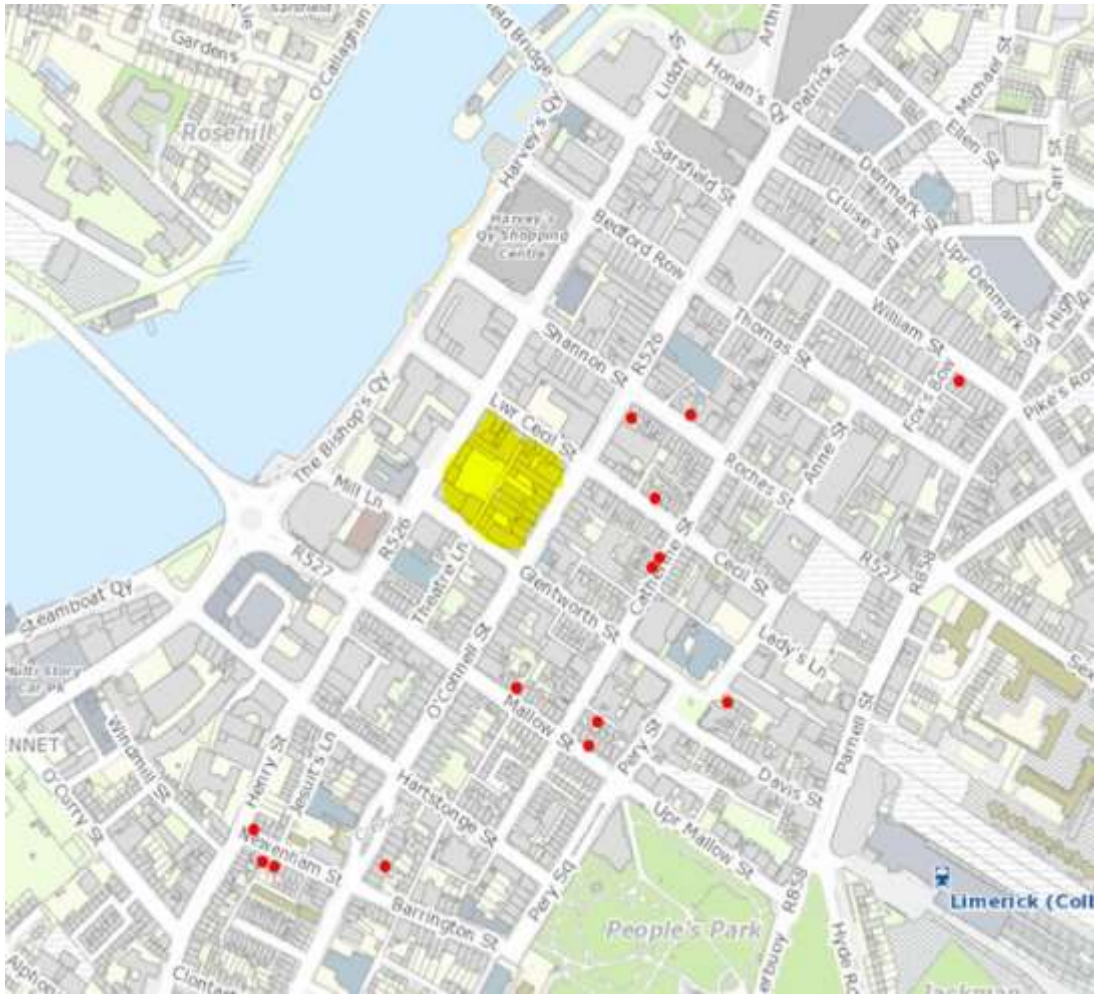
Source: https://smartlablimerick.ie/

# Supporting People to Renovate - Living City Initiative Tax Incentive

| Before | After |
| --- | --- |

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# Financing the Challenge of Retrofitting

Source: https://www.haptic.ro/what-is-the-technical-support-instrument-2/

- Build on work of OV.
- Establish the business case for energy retrofitting of historic buildings.
- Outline the scope of a potential sustainable investment fund.
- Propose a legal structure for the creation of the fund.

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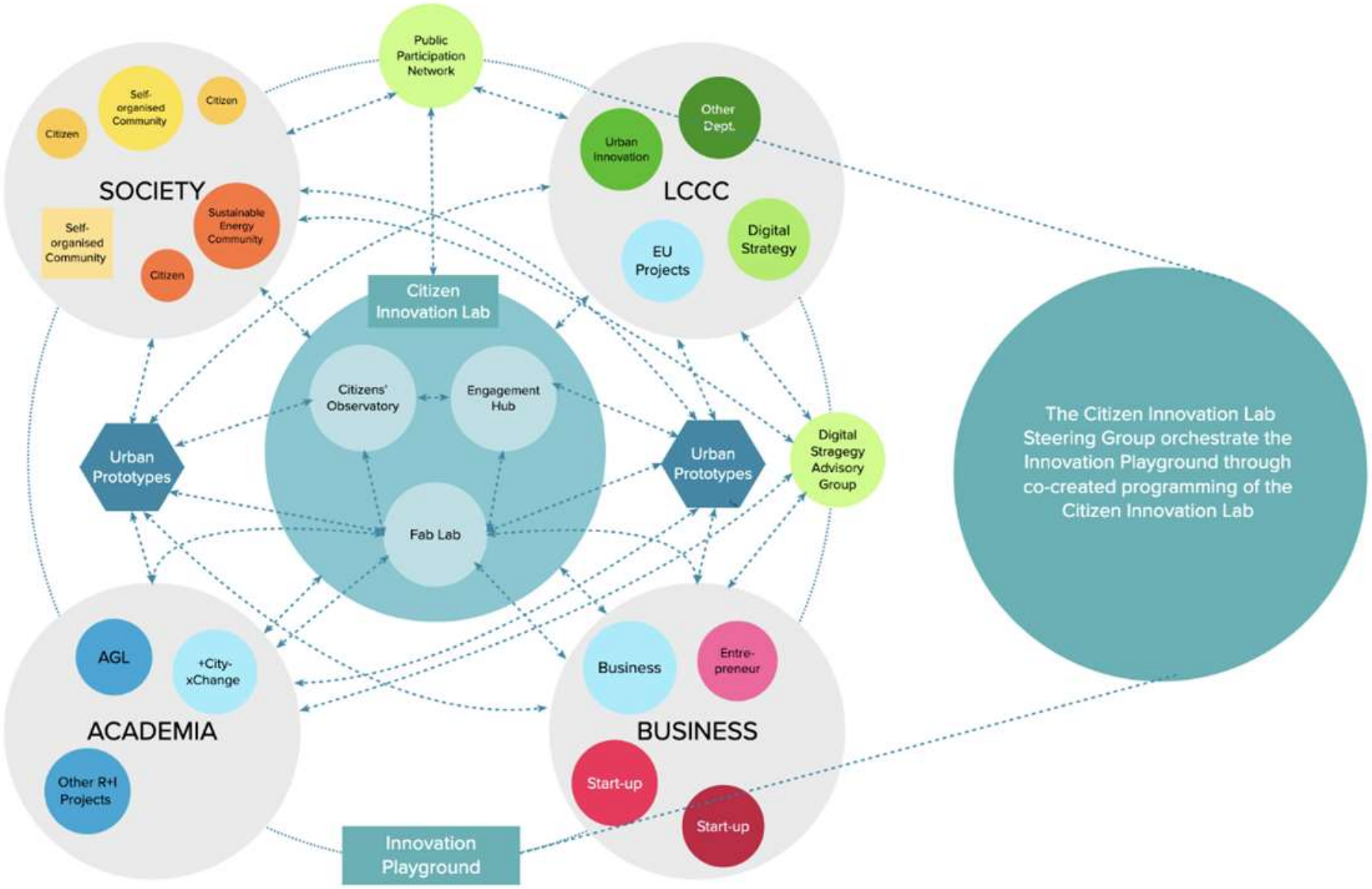
# Creating an Innovation Eco-System



# Limerick Citizen Innovation

*Source: https://citizeninnovationlab.ie/*

# ENGAGEMENT – WHERE PEOPLE'S KNOWLEDGE OF THE CITY BECOMES KNOWLEDGE FOR THE CITY

## City Engage Week

*Mapping Limerick's Laneways*

*Co-Creation Board Game*

*Narrative Tours of Georgian Limerick*

*Citizen Sensing*

*SBIR Launch*

*Creative Play*

*Source: LCCC*

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# Positive Energy Champions

Cathie Chappell

"I drive an electric car, but feel unable at present to make longer journeys due to the lack of charging points. I would like to monitor this, and hopefully see an improvement in this infrastructure."

Aoife McKeon

"I hope to encourage impactful individual change with the aim of raising awareness about the aim to become a Smart City."

Jennifer Tierney - Cityxchange Team

"I am eager to share the journey of my transition to an electric car and all it involves and hope that by doing so I can inspire people in a similar position so that they can make the change."

Bill Kelly - Community Power

"Our project 'Greening the Grid' aims to energise the citizenry of Limerick City to become actively involved in the energy transition."

Grainne McInerney

"I aim to improve the energy usage in the Georgian quarter in a realistic way that is sustainable and economically feasible."

Anne Cronin - Limerick Cycle Bus

"We aim to highlight the need for safe segregated connected infrastructure for cyclists of all ages in Limerick."

Andrew O'Connell - St. Michael's Rowing Club

"There is huge potential for St. Michael's in harnessing the river to power our launches, and the clubhouse in a clean and sustainable way."

David O'Connor - Facilities Manager Limerick City and County Council

"Over the next 10 weeks, I plan to work with the +CityxChange team to incorporate their knowledge into the management of Council buildings by implementing some positive energy actions."

Siobhan O'Reilly - Limerick City Gallery of Art

"We are working with +Cityxchange partners Integrated Environmental Solutions (IES, using their modelling platform to get a better understanding of how the building uses energy."

Patricia Roberts - No.1 Pery Square

"I hope to reduce business energy costs and to demonstrate the positive effect of the reduction on the environment to employees and customers."

Mark Manning - Smart Systems

"We hope to lower the energy costs associated with the building by monitoring the energy usage of the building and its constituent parts."

Una Walsh

"My plan as a Positive Energy Champion is to Empower Communities."

Neil Ward - Peter McVerry Trust

"We hope to identify and implement actions and changes that will help us to provide and manage more energy efficient homes, that in turn support cost effective living for our tenants."

Tom Spillane

"I will be examining the current transport system that exists within Limerick, and trying to mould new forms of active transport into the system."

## Limerick's First Positive Energy Champions!

*Source: https://www.limerick.ie/cityxchange/positive-energy-champions*

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# Open Innovation Calls

*Source: LCCC*

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# Supporting Enterprise – Tidal Turbine

*Source: GKinetic Ltd.*

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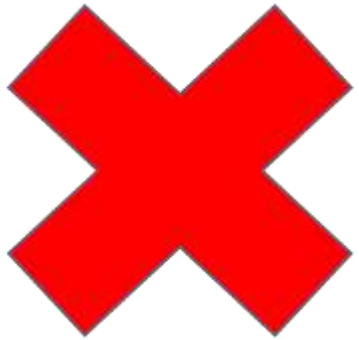
# Issues Still Remain

- Business case for the establishment of a Community Grid requires large number of Prosumers.
- Reluctance to do deep retrofittingRegulations still not in place to support Community Grid and REC.



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# A lot of Ingredients are in place

*Source: Getty Images/iStockphoto*

- Understand the technical issues of retrofitting and installing renewables.
- We are addressing the finance.
- We understand the energy system and have solutions to provide flexibility.
- We have a source of renewable energy and have developed an innovative way to harness it.

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# Limerick is ahead of the other cities in Ireland and is ready

*Source: DrawnKeeper www.istockphoto.com/vector/conceptual-illustration-of-ready-steady-go-gm529404839-53910034*

**Limerick will become a green City region on the Shannon Estuary connected through people and places.**

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# +Trondheim

Norway

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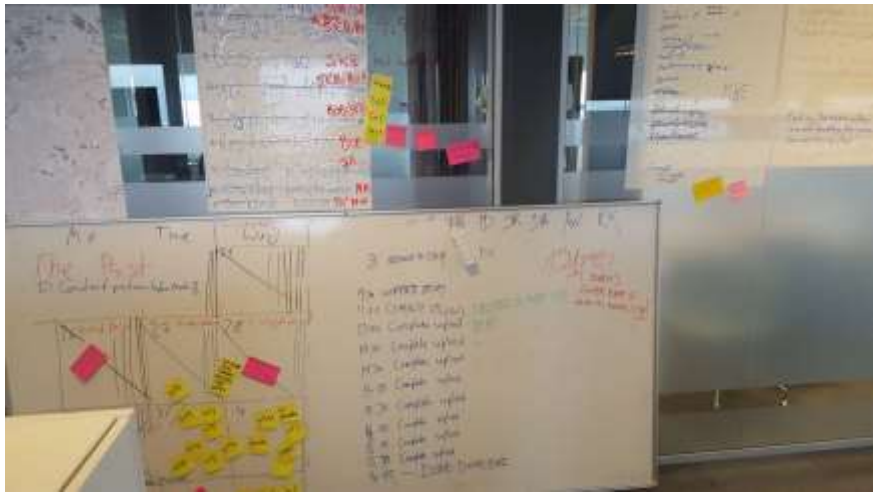
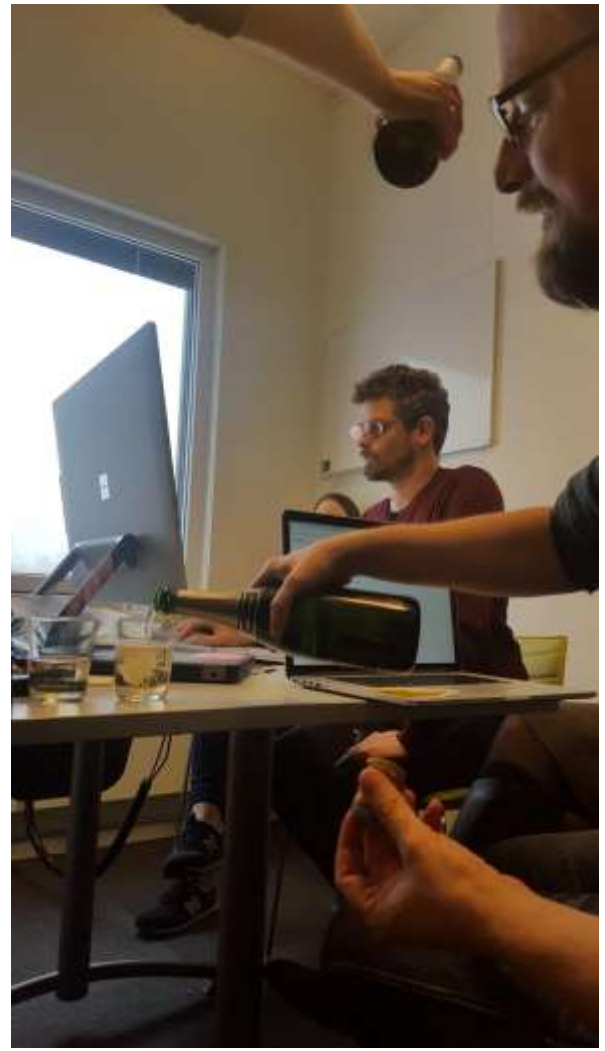
BI
SKANSKA

# April 5th 2018 (application D-day) - we applied for it





# July 6th 2018 - we got it!

Left to right: CEO Trondheim municipality Morten Wolden, Project overall coordinator Annemie Wyckmans, Trondheim LHC Coordinator Silja Rønningsen

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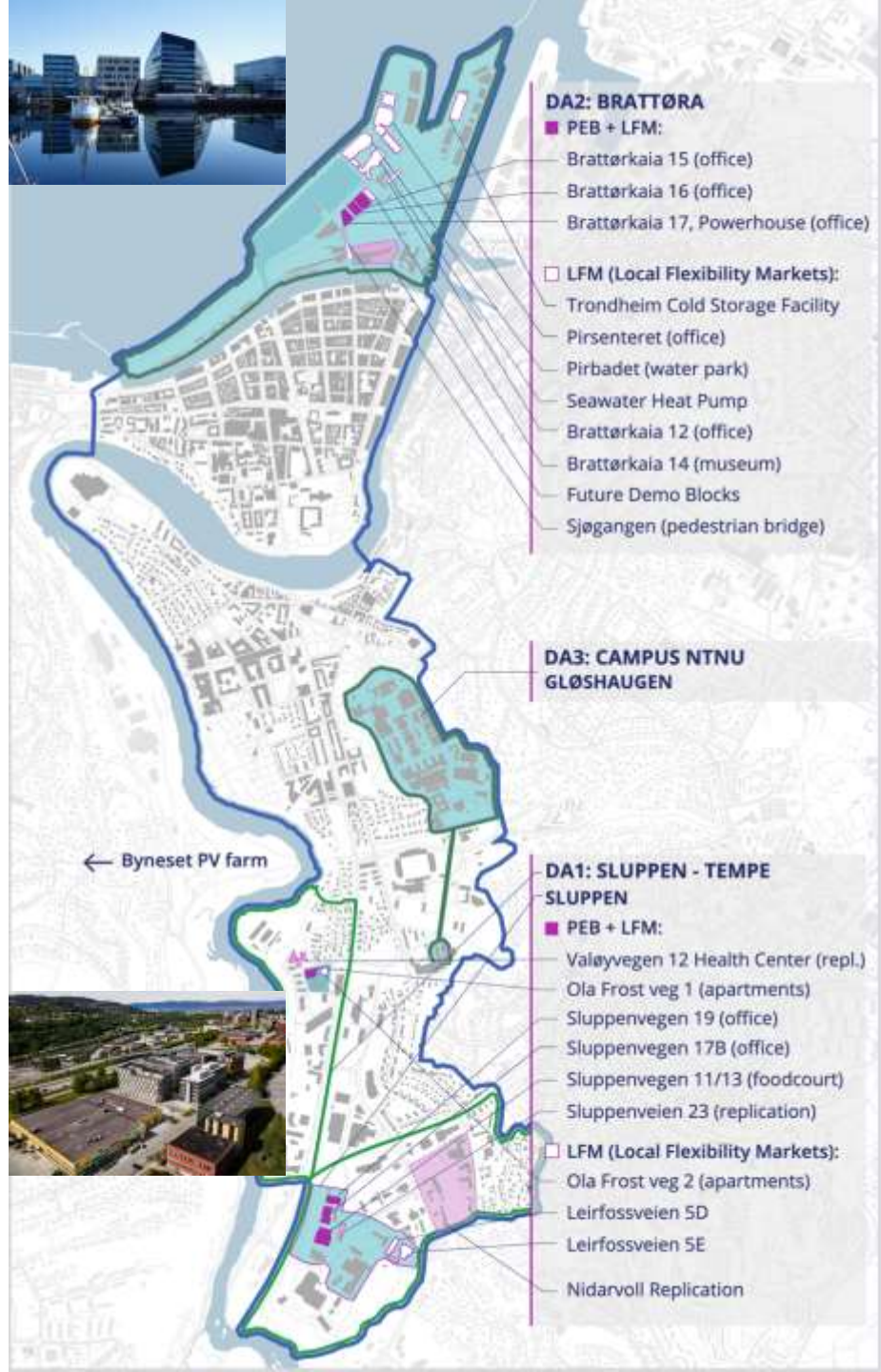
# October 4th 2023 – and we did it

Demonstration District: Knowledge Axis (City Centre area)
Demonstration areas:
Brattøra - physical PEB / Local Energy Market
Campus Gløshaugen - microgrid modelling
Sluppen - virtual PEB / Local Energy Market w/sector coupling

All Citizen Observatories (6) and Innovation Playgrounds (11) are localised within the Demo District system borders

Demo District and Demo Area Sluppen 3D modelled by IESRD and using the IES DST (Decision Support Tool)

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# KPI impact achievements

- 29 of the 33 project KPIs valid for Trondheim
- (+)100% goal achievement obtained for 19 KPIs (66%)

Most difficult KPIs: $CO_2$ emission reduction (28%) and transfer to eMaaS (13%)

Best: DER capacity traded: 743%!

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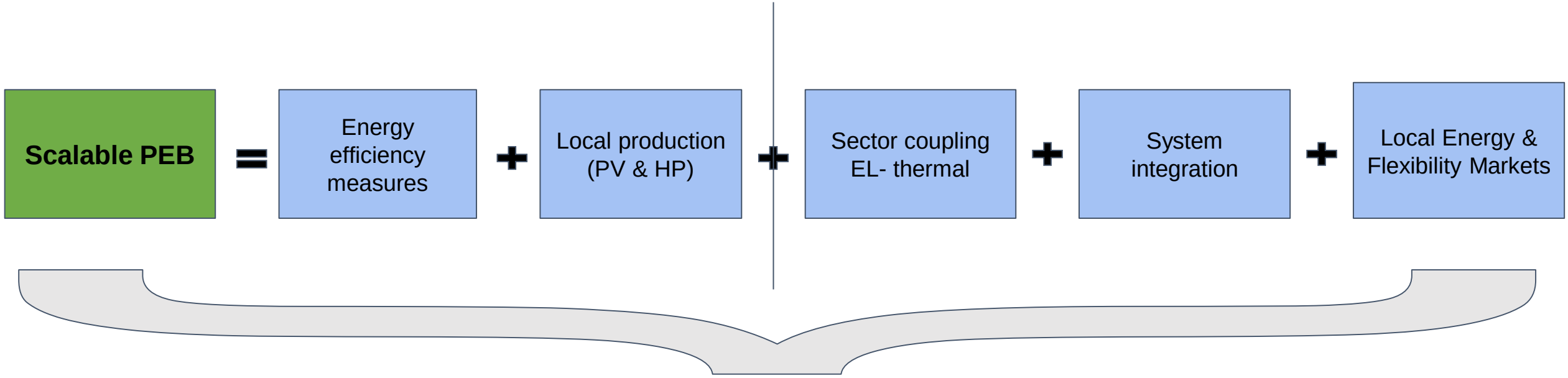
# The Trondheim PED recipe




- Stakeholder engagement and involvement in a quadruple helix approach
- Shift from cost focus to value creation focus

Note: The LHC Trondheim PEDs as implemented comprise commercial/public buildings

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# BCV framework - operational enabler for central city plans

Bold City Vision Framework (Framework for sustainable societal transition):

| | Engage | Design | Activate | Accelerate | Support |
|---|---|---|---|---|---|
| Standardize | Evaluate | Visualize | Simulate | Finance | Share |
| Develop policies | Review | Revise | Plan | Budget | Analyze |
| Establish innovation partnerships | Make appointments | Link together | Collaborate | Prioritize | Manage the portfolio |
| Change the organization | Identify | Lead | Support the intrapreneurs | Make room for self-organisation | Twin |
| Involve the citizens | Acknowledge | Deliberate | Localize | Connect | Amplify |
| Develop projects | Pitch | Create prototypes | Deliver | Capitalize | Tell stories |

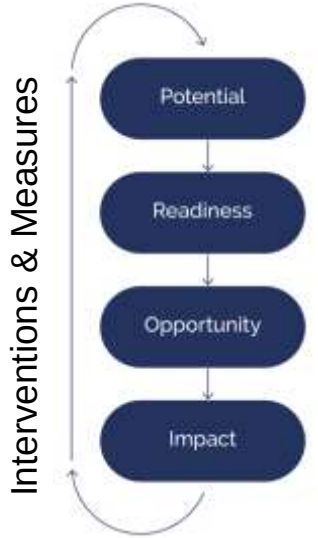
Trondheim Societal Master Plan ‘20-’32

Example on Trondheim plans and strategies

- **Energy / Climate plan**
- **Sustainable Value Creation Action Plan**
- **Regional Value Creation Strategy**
- **….**

**Operationalisation**

Approach for Sustainable Value Creation (also co-creation with private actors):

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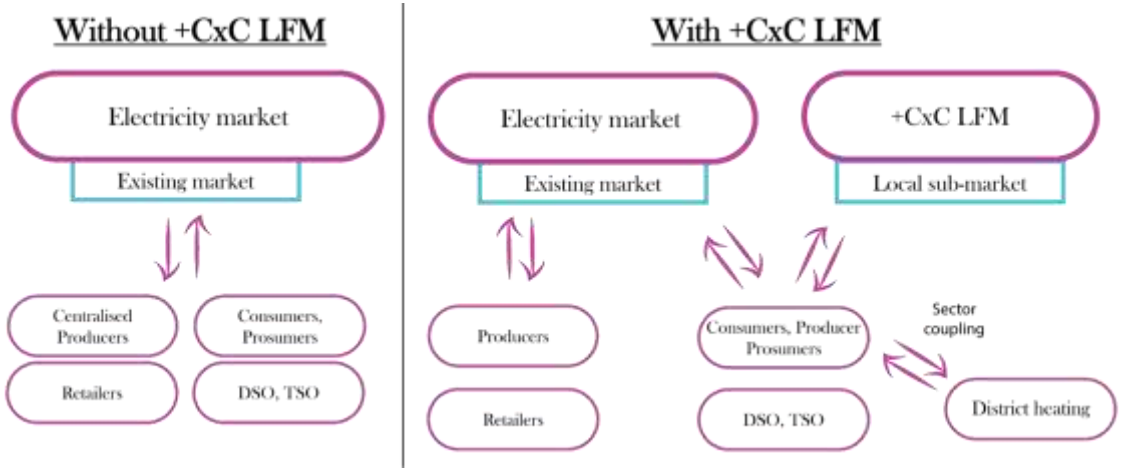
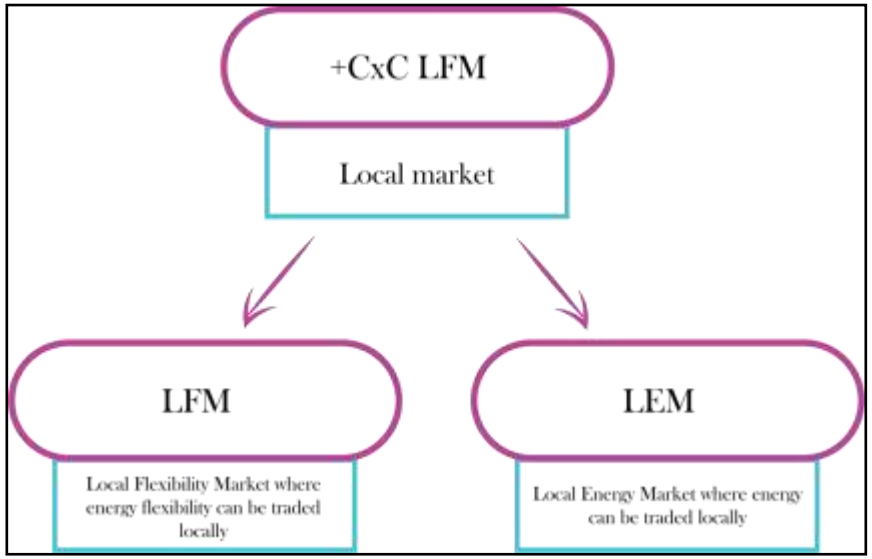
# Aneo Local Energy & Flexibility Market




Participants that trades in the existing (“global”) electricity market can participate in the new +CxC LFM




The +CxC LFM consists of both a flexibility and an energy market module.

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# OV Financing Risk Sharing Model (FRSM) for Trondheim actors

| Energy price [€/kWh] |
|---|
| 0,26 |

| | ANEO (Trønderenergi) | ABB | KJELDSBERG | STATKRAFT VARME | VOLUE (POWEL) | ABG | TK | GRAND TOTALS |
|---|---|---|---|---|---|---|---|---|
| **Investments' value[€]** | 751.400,00 | 314.250,00 | 674.553,00 | 500.000,00 | 65.000,00 | 27.400,00 | 458.500,00 | **2.791.103,00** |
| **Investments [%]** | 27 | 11 | 24 | 18 | 2 | 1 | 16 | **100** |
| **Revenues [€]** | 69.729,60 | 18.527,08 | 185.387,44 | 100.800,00 | 37.054,16 | 2.600,00 | 41.340,00 | **455.438,28** |
| **Revenues [%]** | 15 | 4 | 41 | 22 | 8 | 1 | 9 | **100** |
| **O&M Costs (Opex, Personnel) [€]** | 55.570,00 | 15.000,00 | 116.182,95 | 16.500,00 | 15.000,00 | 1.000,00 | 20.000,00 | **239.252,95** |
| **O&M Costs [%]** | 23 | 6 | 49 | 7 | 6 | 0 | 8 | **100** |
| **Payback Period [yr]** | 11 | 17 | 4 | 5 | 1,8 | 10,5 | 11 | **6** |
| **Operational Profit [€]** | 14.159,60 | 3.527,08 | 69.204,49 | 84.300,00 | 22.054,16 | 1.600,00 | 21.340,00 | **216.185,33** |
| **ROI (Return On Investment) [%]** | 1,88 | 1,12 | 10,26 | 16,86 | 33,93 | 5,84 | 4,65 | **7,75** |
| **Financial Risk (Cash flows)[%]** | **6,55** | **1,63** | **32,01** | **38,99** | **10,20** | **0,74** | **9,87** | **100** |

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# Challenges/Lessons learned

- Anchoring at CEO/adm. leader group level
- Organising
- A variety of different corporate cultures - acceptance
- The devil is in the details, but also in your numbers
- From cost focus to value creation potential
- Energy legislation

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# +Písek

Czech Republic

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# We started with expectations…

- +CxC is about energy trading.
- +CxC helps municipality to improve energy management.
- PEB is only a technical issue.
- Legislations is about to be updated in CZ.
- The situation in Czech republic is different from EU.

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# What we learned

- Change starts with you.
- If you want to change your city, you need to start with your municipality.
- PEB is all about the people who live and work there
- Even a small step is progress.
- There are progressive people around you, just give them time to show up.
- We face the same challenges.
- +CityxChange is always a few years ahead.

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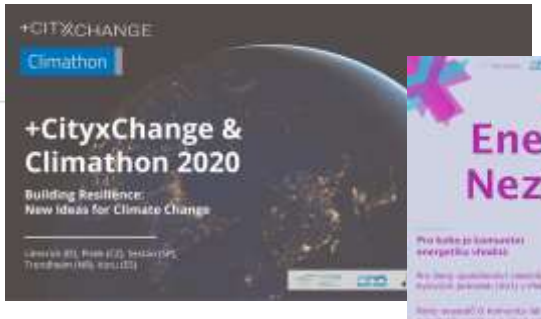
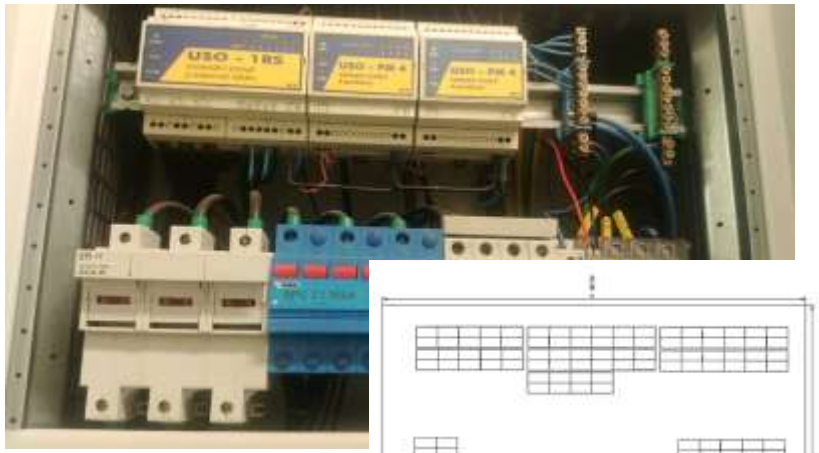
# What have we achieved?

## MUNICIPALITY

## COMMUNITY

## TECHNOLOGY & SICENCE



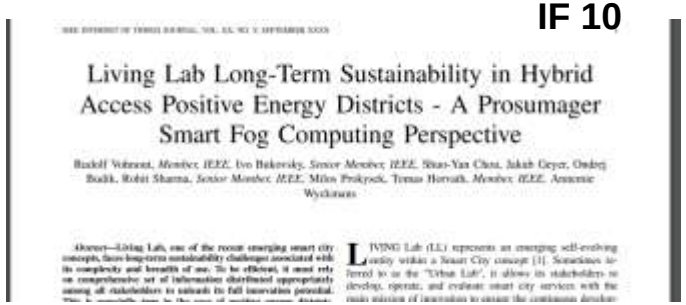


**BCV**

**ISO 50001**

**ESP ltd.**

**IF 10**


Living Lab Long-Term Sustainability in Hybrid Access Positive Energy Districts - A Prosumager Smart Fog Computing Perspective

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# Motto

"A slow sort of country!" said the Queen. "Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!"

[Carroll, Lewis: Through the Looking-Glass and What Alice Found There]

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# +Sestao

Spain

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# …things that happened in Sestao during *& thanks* to +CxC…

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Plan de Acción para el Clima y la Energía
Sostenible (PACES) de Sestao
Participación ciudadana
globalfactor
SOCIOS
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# BCV + SECAP + Covenant of Mayors signatory.

# Goal: Reduce 55% of municipal GHGs by 2030

**Photo: Presentation of commitments to citizens**

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EIP-SCC
European Innovation Partnership on Smart Cities and Communities
Welcome!
European Commission
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European Commission
EIP-SCC
European Innovation Partnership on Smart Cities and Communities

# Got invited to participate in Smart Cities Marketplace event in Brussels (2020). Met with EEEF.

eeef
EUROPEAN ENERGY EFFICIENCY FUND

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# Signed contract with EEEF for receiving a 200.000€ technical assistance…

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# ...that has led to developing the +5M€ SeSmart project (ESCO).

# Expected to fulfill 55% GHG reduction goal by 2026.

# 4 years earlier.

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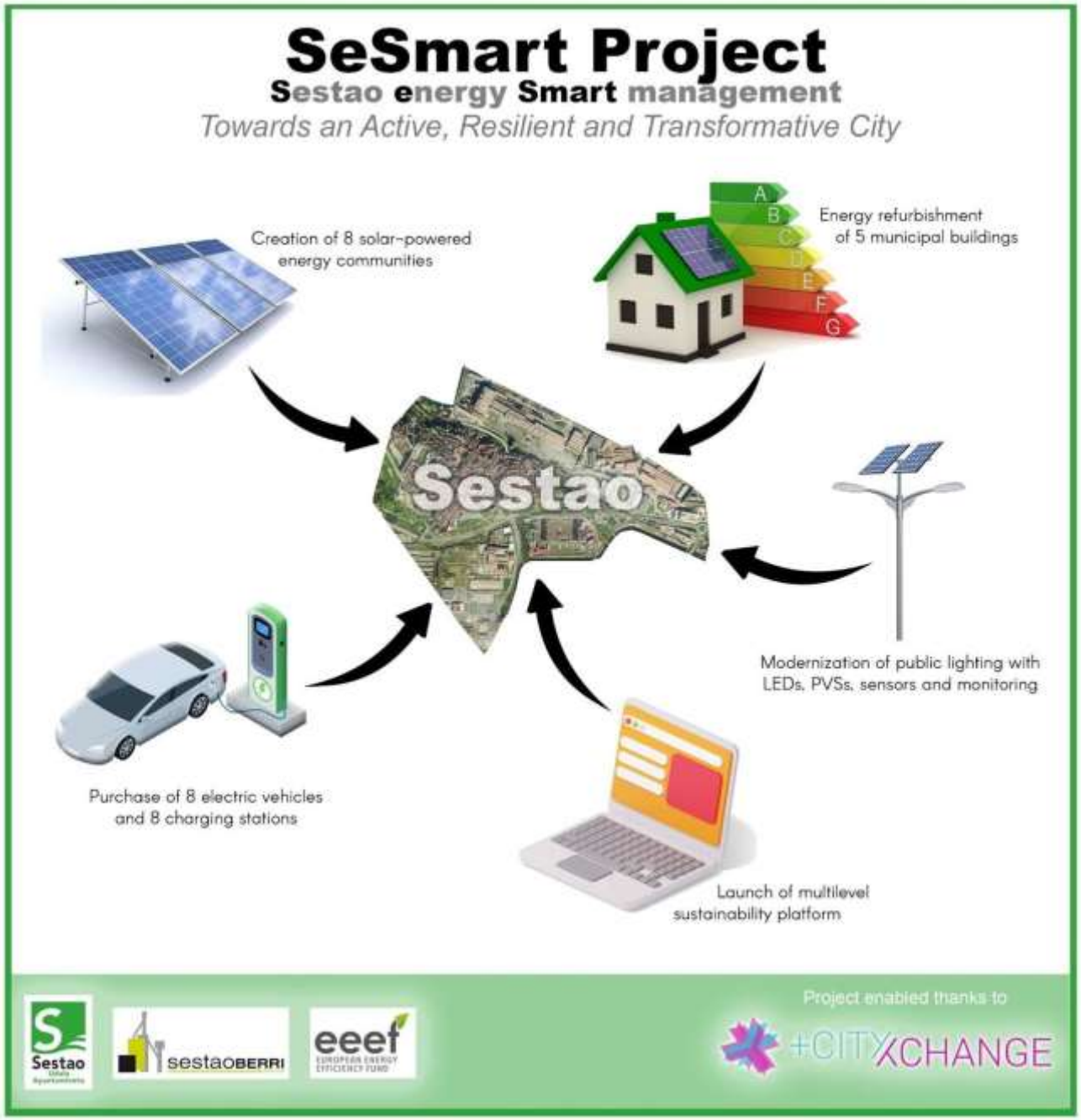

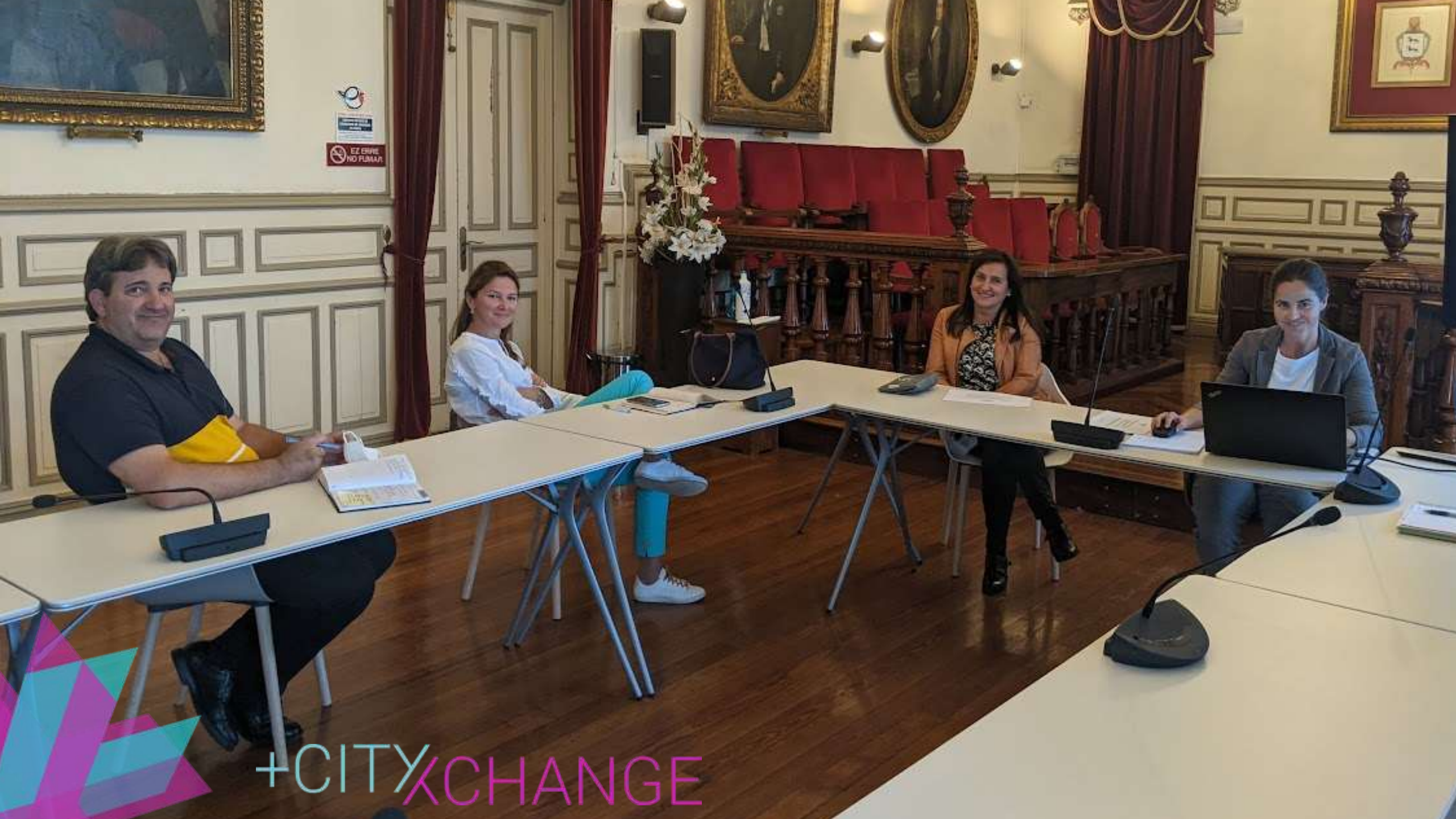


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# Got neighbouring city of Santurtzi to also connect with EEEF

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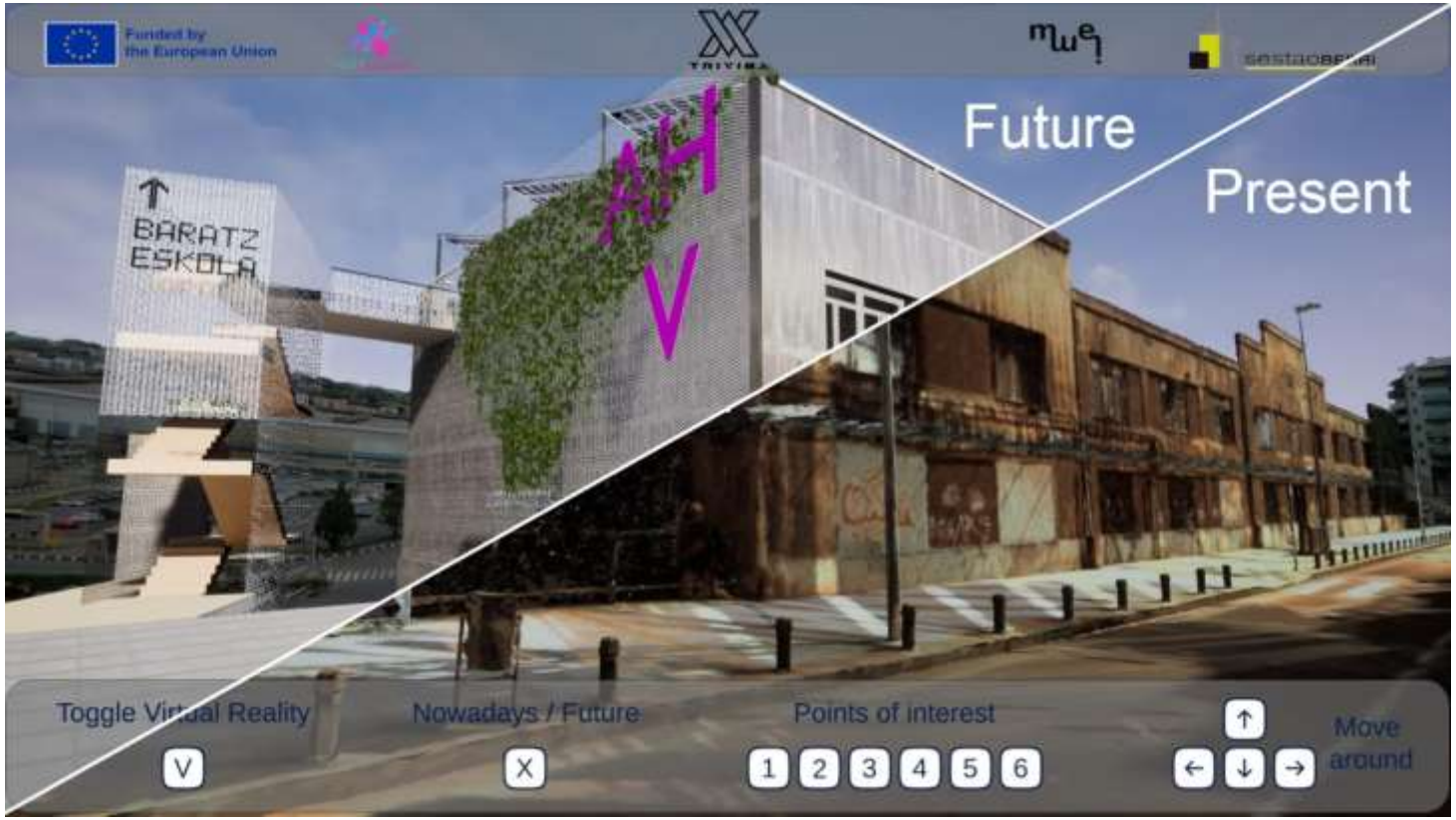

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# Secured 3M€ for retrofitting Escuela de Aprendices

## (and got present/future VR visualization)

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# Secured +400.000€ for retrofitting Cuarto de Socorro

## (now, first tourism office in Sestao)

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# Held Climathon and got two neighbouring cities (Santurtzi/Portugalete) to join in.

# 2nd placed project inspired SeSmart project.

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# What sustainable solutions exist that are applicable to a hairdresser?

Ergonomic tools

Hypoallergenic uniforms with organic cotton

Compostable products / biodegradable/non-toxic

Green cleaning products

Ecological/hypoallergenic shampoos, conditioners, dyes, etc.

Ergonomic footwear

Appliances with high energy efficiency

Water saving products

ETC.

# Secured +60.000€ for Sustainable Wikipedia project.

# Part of +CxC Innovation Playground.

# (20.000€ for presenting it as a new EU project)

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# RETOS HACIA LA TRANSICIÓN ENERGÉTICA LOCAL

## JUEVES 19 DE OCTUBRE DE 2023

Salón de Actos Escuela de Música
C/ Gran Vía 13, Sestao

JORNADA DE TRABAJO

**09:00 – 09:15 Apertura Institucional**

- **Ainhoa Basabe**- *Alcaldesa-Presidento del Ayuntamiento de Sestao*. **Confirmada.**
- **Iñigo Ansola** (Director General EVE). **Pendiente de Confirmar.**
- **Joan Grizard** *(Director General IDAE o un representante del IDEA)*. **Pendiente de confirmar.**

**09:15-10:00 Planificación estratégica pública para una transición energética local. Los Planes de Acción por el Clima y la Energía derivados del Pacto de Alcaldes y Alcaldesas. Covenant of mayors**

- **Joan Grizard** *(Director General IDAE o un representante del IDAE)*. **Pendiente de confirmar.**
- **Iñaki Garcia.** Ente Vasco de Energía EVE. **Pendiente de confirmar.**
- **Patricia Astorgano - Agencia de Energía de Dublin. Confirmada.**

**10:00 a 11:00 Despliegue de los Planes de Acción por el Clima y la Energía.**

- **Lada Strelnikova – Directora de Inversiones Sostenibles Fondo Europeo de Eficiencia Energética. Pendiente de confirmar.**
- **Ines Simón – Directora de la Consultora especialista en eficiencia energética SAWATCO. Pendiente de confirmar.**
- **Patricia Garcia – Directora General de Innovación y Promoción de Gijón en el Ayuntamiento de Gijón. Pendiente de confirmar.**
- **Luiskar Delgado – Coordinador del Proyecto SESMART para el Ayto. de Sestao.Comfirmado.**

**11:00 a 11:30 COFFEE BREAK**

**11:30 -12:15 Planes de descarbonización que afecten a lo local.**

- **David Hernández- Vicinay SESTAO. Pendiente de confirmar.**
- **Iker Basterretxea – Arcelor Mittal SESTAO. Pendiente de confirmar.**
- **Janire Bijueska – Consorcio de Aguas EDAR GALINDO. Pendiente de confirmar.**

**12:15 a 13:15 Empoderamiento ciudadano hacia la transición energética. Las Comunidades energéticas. Modelos de gestión.**

- **Juan Diego. EDINOR. Pendiente de confirmar.**
- **Chris Merveille. GOIENER, Pendiente de confirmar.**
- **Mikel Pedrosa. IBERDROLA. Pendiente de confirmar.**
- **Carlos Beracierto . LKS KREAN . Pendiente de confirmar.**

**13:15 – 14:00 EXPERIENCIAS LOCALES - Comunidades energéticas industriales , residenciales,...**

**TEK Barakaldo – Ayuntamiento de Barakaldo. Pendiente de confirmar.**

**David Vinage GReenkw - Comunidades energéticas industriales. Pendiente de confirmar.**

**Ejemplo de Ekiola- Bizkaia. Pendiente de confirmar.**

**14:00 -14:30 CONCLUSIONES Y CIERRE DE JORNADA**

**TALLER CIUDADANO – ASOCIACIONES DE COMUNIDADES ENERGÉTICAS**

**18:00 A 20:30 DINAMIZACION DE TALLER DE COMUNIDADES ENERGÉTICAS**

**DINAMIZACIÓN : Tech Friendly /Alfredo Bezos**

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# Oct. 19th will celebrate Energy Community event with professional sector + citizens/associations

# Discuss how city´s commitment towards carbon neutrality by 2050 can be accelerated

**Key outcomes**:

- Expect to have DA1 become a working PEB by March 2026
- Accelerate municipal 55% GHG reduction goal from 2030 to 2026
- Start sustainable wikipedia project with potential to create large scale positive impact at international level

**Challenges**:

- Funding full retrofit (10M€) for Escuela de Aprendices building
- Bureaucracy
- Lack of sense of climatic urgency

**Lessons learned**:

- Aim for the stars if you want to, at least, land on the moon
- Luck/serendipity always plays a major role. But, “the harder one works, the more chances for luck that one gets”, tends to hold true

# +Alba Iulia

Romania

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# Alba Iulia towards Net Zero City

***Alba Iulia Municipality as a Follower City in the +CityxChange project benefited from all the learnings and knowledge transfer within project activities. Many developments have occurred during CxC project in the area of energy efficiency, mobility and smart city tools, enabling the city to develop new forms of visioning, governance, and innovation.***

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# Alba Iulia towards Net Zero City

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# Alba Iulia towards Net Zero City

**Secured funding for improving energy efficiency at the Olympic swimming pool and the Home for the elderly**

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# Alba Iulia towards Net Zero City

**Pilot project:** ***Improving energy efficiency and consumer behavior in social housing in Alba Iulia***

**Informative materials regarding energy consumption, invoices and associated costs.**

**Smart home system in order to offer real time data and automation.**

**Comparison with historical data for quantifying possible energy reductions after applying such measures.**

**Propose improvements in regional financing guides and programs, in order to include such activities and measures in current calls for energy efficiency.**

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# Alba Iulia towards Net Zero City

**Secured funding for 1 MW PV park and 5 other municipal buildings - development in 2023**

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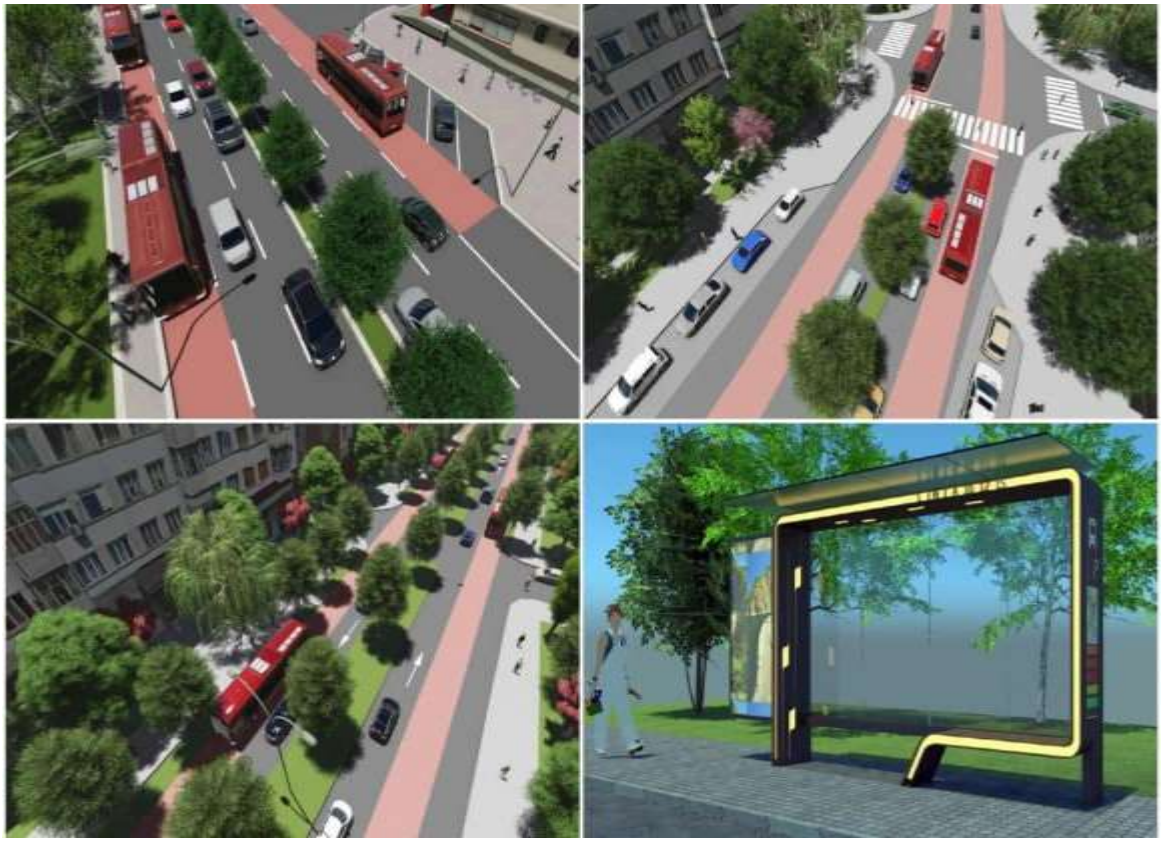
# Alba Iulia towards Net Zero City

**Expansion of projects worth over 60 million Euros in the areas of the PEB regarding mobility (building dedicated buses and bike lanes, acquiring electric busses, installing car and bus chargers), public lighting, and energy efficiency of buildings (geothermal energy for elderly centre, solar energy for Olympic swimming pool);**



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# Alba Iulia towards Net Zero City

**Hosting of the first Climathon edition at a city level with a number of different outreach activities and innovative forms of communication, to highlight the importance of climate neutrality to different stakeholder groups in the city;**

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# Alba Iulia towards Net Zero City

**During +CityxChange, Alba Iulia became a signatory of the Green Cities Accord and was awarded the Sustainable Communities Award by the Swiss Embassy in Romania**

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# +Smolyan

Bulgaria

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# Creating Positive Smolyan

Through the project, with the NTNU support, **secured funding** for the **development** of a **PEB** consisting of the City Swimming Pool and the Sports hall.

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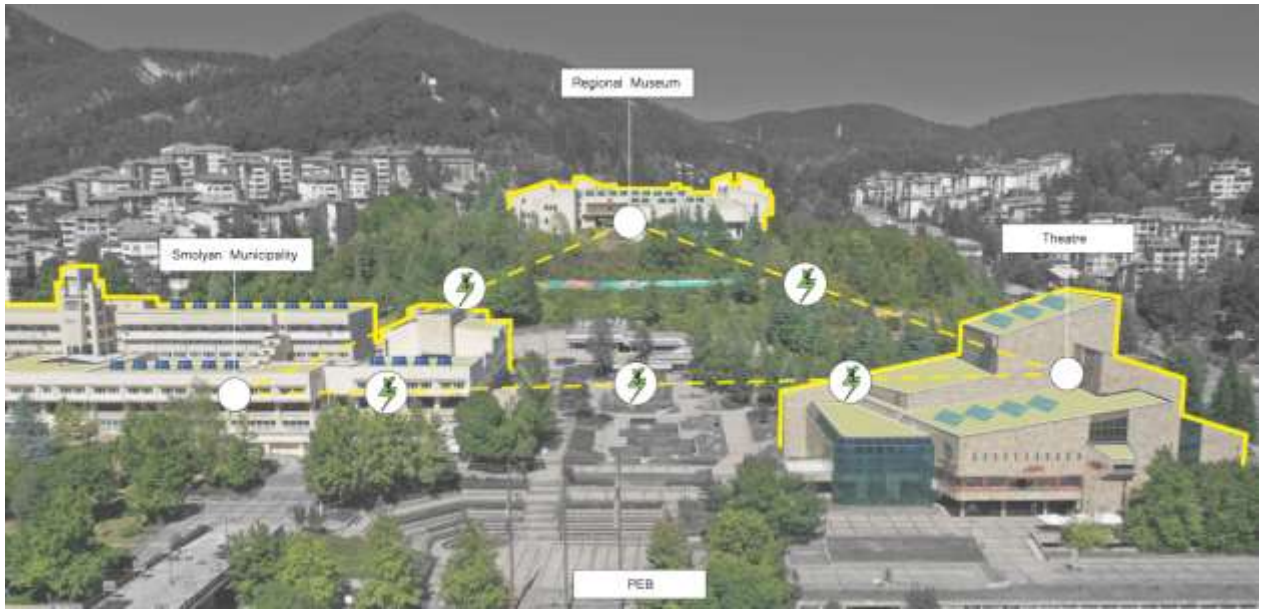
# Creating Positive Smolyan

Embracing the concept of PEB and **creating PED** in city centre with the support from the **EUCF**

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# Creating Positive Smolyan

**Promoting PEB** through citizen engagement and training energy champions from the local community

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# Creating Positive Smolyan

Transition to Low-carbon Economy

Development of Sustainable City Mobility

Bold City Vision Smolyan 2050

Development of Sustainable Tourism

Development of Sustainable Urban Environment

Citizen Engagement

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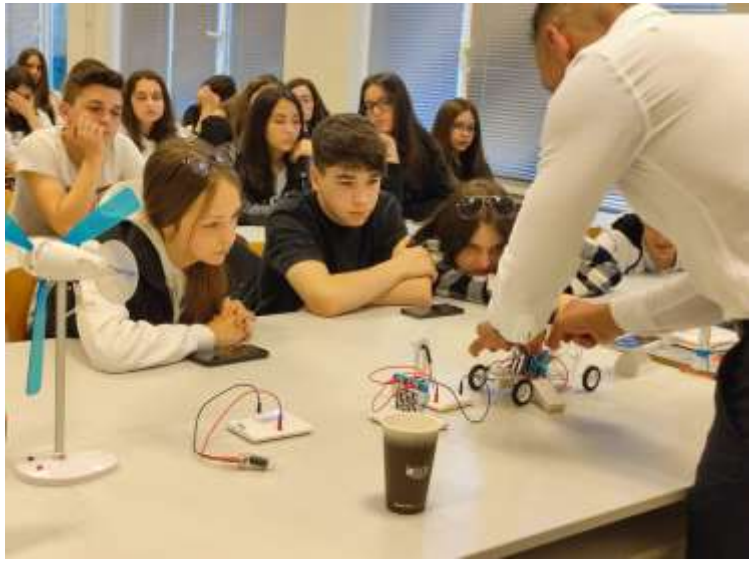
Developing a vision for **green**, **innovative** and **hospitable Smolyan 2050**

# Creating Positive Smolyan

## Next Generation Smart Citizen



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# Creating Positive Smolyan

**Key outcomes**:

Opening up for new partnerships and bolder approach when applying to new programs;
Change in the mindset towards more green and sustainable future
Investing more time and effort in the involvement of the young people of the city

**Challenges**:

Retrofitting the buildings to achieve PEB
Finding the right people
Funding large scale projects

**Lessons learned**:

Citizens as partners in the building of the city's future
The importance of the long term vision and the tools you need to achieve it

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# +Võru

Estonia

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MARGUS MUTS
FOTOGRAAF

# +CityxChange footprints in Võru

**Reconstructed** actual buildings and **increased** organisational capacity (people, software, and processes)

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# +CityxChange footprints in Võru

Longer **foresight up to 2050** and a principal vision how to move forward

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# +CityxChange footprints in Võru

**Courage and knowledge** to tackle complex issues and build **new valuable partnerships** (Taltech, BUILDEST)

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# +CityxChange footprints in Võru

Local partnerships and exchange and international partnerships and exchange leading to a regional SECAP

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## Challenges

Internal communication of projects' and activities' goals

Finding the right people

## Lessons learned

Long-term visioning, energy efficiency and sustainability -it is a mindset

**Split THE CHALLENGE into smaller bits and go for it!**

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# Q & A

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# Let’s Co-Create the Future!

## And let’s have fun doing it :-)

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**Mail:** info@cityxchange.eu

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# Parallel PED sessions

**Discussions, Questions, Challenges**

- **Creating connected communities** (*Helena*, UL; *Borislava*, Smolyan)
  - Learning from experiences and results of community engagement
- **Strategy, Policy** (*Bjørn Ove*, Trondheim; *Kieran*, Limerick; *Siim*, Võru)
  - Bold City Vision & city transformation strategies
- **Energy Markets** (*Bernhard, Ella-Lovise,* Aneo; *Klaus*, Trondheim kommune)
  - Energy flexibility markets & Technical details & Regulatory issues
  - Barriers and bumps along the way, Successes & Main learning
- **Business Models, Scaling** (*Sander*, R2M; *Filippo*, OV; *Andy*, Sestao)
  - Finance & partnership models, PED income streams, scaling
- **Radical collaboration** (*Annemie, Elisa*, NTNU)
  - Transdisciplinary, participatory & co-creative – across sectors, disciplines, interests and geographies (New European Bauhaus)
- **Mobility** (*Tor Rune*, FourC; *Tom*, Trondheim kommune)
  - eMaaS, V2X, shared mobility
- **Designing & Deploying integrated PEDs** (*Dirk, Kelly*, NTNU)
  - Integrated development approach, connecting systems, data, people
- **Local generation, building measures, feasibility studies** (*Milos*, Písek; *Tudor*, Alba Iulia)
  - Individual building & neighbourhood measures and preparation

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# Coffee Break

## Topic sessions at 11:40

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# 12:30 - 14:00 Lunch!

Check out the exhibitions!

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# 14:00 Buses leave for site visit

14:15 - 15:15 Site visit Brattøra PED

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# Grab a coffee and a snack!

Program starts again: 15:45

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# Passing on the torch of knowledge

## Mission and Lighthouse Cities

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# Impact through small-scale actions inspired by Lighthouse Cities and the Scalable Cities Action Grant

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# Let’s Co-Create the Future!

## And let’s have fun doing it :-)

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# October 5th

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Limerick · Trondheim · Alba Iulia · Písek · Sestao · Smolyan · Võru

# Welcome!

+CityxChange Final Conference
“The Future of Positive Energy Districts”
Trondheim, October 2023

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 824260.

# Our Location Today

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# kjeldsberg

Levende samfunn

For og av mennesker

[Sluppen, view of Lager 11. Photo by Trondheim kommune]

# Agenda for today

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# Agenda - Thursday October 5th

**9:15 - 9:45** **Coffee & mingling**

**9:45 - 10:00** **Welcome and intro to Sluppen PED, recap from previous day**
(Dirk Ahlers, Annemie Wyckmans, NTNU; R.Kjeldsberg)

**10:00 - 11:30** **Beyond +CityxChange & SCC1 – Collaborations towards climate-neutrality – Roundtables**

- Contributions from visiting projects
- Challenges from the visiting cities of the SCALE travel grant
- Cross cutting projects
- Upcoming calls/events/projects
- Brainstorm on possible collaborations
- Summary of roundtables

**11:30 - 13:00** **Lunch at Lager 11**
(Optional visit to the Bryte flow battery in the basement at 12:00, limited to 3*15 people with technical interest. Details at the event.)

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# Agenda - Thursday October 5th

**13:30 - 14:15 Site visit: The Sluppen PED**

Tour of PED: Overall area, Lager 11, Lysgården, SV 23, battery, car chargers & fleet. Multiple tour guides with different focus topics

**14:15 - 14:30 Coffee break**

**14:30 - 16:00 "Get involved" session: Replication of solutions & processes**

We want to share stories of how our cities replicated/implemented specific solutions, focussing on the process rather than only the end result.

+CityxChange Stories:

- Bold City Vision, Smolyan. *Eftima Petkova (City of Smolyan)*
- Local Energy Market, Trondheim. *Mette Rostad (Aneo)*
- eMobility, Trondheim. *Tom Jensen (Trondheim kommune)*
- Citizen Innovation Lab, Limerick. *Helena Fitzgerald (UL)*
- Modelling, Limerick. *Ruth Kerrigan (IES)*
- Finance, Sestao. *Andy Bäcker (Sestao)*
- Citizen engagement, Písek. *Milos Prokysek (Písek municipality)*
- Towards a PED, Võru. *Siim Meeliste (Võru municipality)*

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# Agenda - Thursday October 5

**16:00 - 16.15 Closing session**

**16:15 Transport back to city centre via bus,** or you can make your own way back

**Optional:** Free time / staying for a drink at Lager 11 or Austmann Brewery (map)

**17:30 Optional City Walking Tour** – leaving at Scandic Nidelven, ending at dinner
Signup during the day, places limited. Depending on the weather on the day.

**16:30 - 17:45** **BoC Meeting** (for SCC1 project coordinators and interested cities/projects)
(location Bøker&Bylab) (Separate agenda is sent for BoC members.)

**19:00 Closing Dinner**
Doors open at 18:30 & mingling
**Archbishop's Palace** (Erkebispegarden), Kongsgårdsgata 1, 7013 Trondheim (map)

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# Beyond +CityxChange & SCC1 – Collaborations towards climate-neutrality

## Challenges & Results
## Roundtables

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# Sister projects SCC1 and beyond

- Replicate
- Making-City
- SPARCS
- STARDUST
- ATELIER
- RESPONSE
- Ascend

+CITYXCHANGE

REPLICATE

# Renaissance of Places with Innovative Citizenship and Technology

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ESSEN | NILÜFER | LAUSANNE

GUANZHOU | BOGOTA

**Learn more**

YouTube SUBSCRIBE TO OUR CHANNEL

SPARCS

# Replication Framework in SPARCS

## Fellow cities

### City Lab

**Smart City Strategy Development**

- Adaptation of m:ci methodology (indicators & action fields)
- Data collection and analysis Elaboration of City Profiles: Opportunities and challenges
- Co-creation of project ideas with local experts
- Selection of two projects per city Innovation workshop for validating and further development

**City Implementation Plans in all Fellow Cities**

### Project Development

**Guided step by step process to implementation**

8-sp process has betiond and is used to support the cities:

- Definition and assessment of the solution and functionalities.
- Feasibility analysis, implementation planning and securing of funding.
- Call for tender, planning monitoring, evaluation, and reporting of impacts.

**At least two projects implemented in each Fellow City on Energy and Mobility**

### Market Consultation

**Improve procurement by engaging with the market**

Digital tool enabling cities to:

- Reach out to European network of innovative suppliers and to sort it by the solutions they offer
- Create an Invitation for Market Consultation
- Publish invitation, invite relevant companies

**Better procurement of innovative solutions with early-stage engagement with suppliers**

## Lighthouse cities

### Upscaling

**Guided process to upscale demos in Lighthouse Cities**

- Adaptation of the Project Development task to the LHCs to upscale one of their interventions.
- Selection of one use case implemented during SPARCS to be a lighthouse project and continue with the legacy of SPARCS.
- Support cities in all the process of upscaling (scoping, engagement, feasibility, financing).

**At least one project per LHC is upscaled during SPARCS**

## Knowledge Exchange and Training

City Forums, Webinars, Workshops, LHC demo site visits, Smart City Training

Horizon 2020 European Union funding for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 864242
Topic: LC-SC3-SCC-1-2018-2019-2020: Smart Cities and Communities
The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

STARDUST
Enlightening
european cities

# AmsTErdam BiLbao cltizen 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.

# Positive Energy District in the Student Village

Local RES production, recovering waste heat, reducing consumption through smart management and energy efficient retrofitting

Complimentary measures on eMobility, air quality modelling and ICT solutions

© Anders Portman / Martin Sommerschield, Kuvatoimisto Kuvio Oy, 2023

ASCEND

HOME ABOUT CITIES WHAT'S NEW SOLUTION PACKAGES CONTACT US

# Accelerate poSitive Clean ENergy Districts

We at ASCEND strive to create and accelerate Positive Clean Energy Districts in cities across Europe.

READ MORE

**Our aim is to make PCEDs a routine occurrence to mitigate the effects of climate change and enable citizens to live in inclusive, resilient, and smart communities.**

# Scalable Cities: Visitor Cities Grant

**Challenges and questions from:**

- Botosani
- Cesena
- Kladno
- Milan
- Pula
- Rzeszów
- Udine

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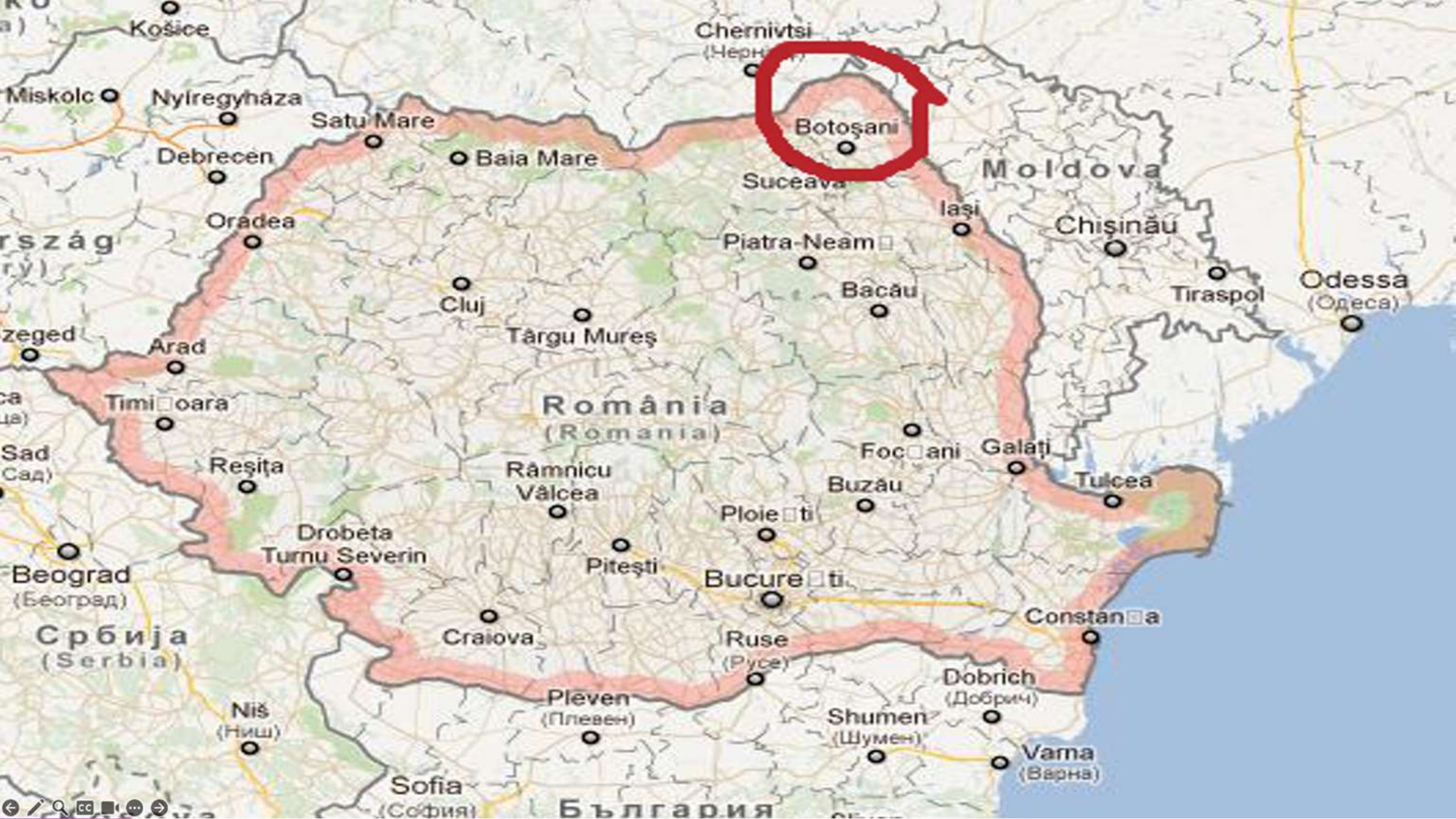
# BOTOȘANI

## The Smart City to be


Košice
Chernivtsi
Miskolc
Nyíregyháza
Satu Mare
Botoşani
Debrecen
Baia Mare
Suceava
Moldova
Iaşi
Oradea
Chişinău
Piatra-Neam
Cluj
Bacău
Tiraspol
Odessa
(Одеса)
Târgu Mureş
Arad
Timişoara
România
(Romania)
Focşani
Galaţi
Reşiţa
Râmnicu
Vâlcea
Buzău
Tulcea
Ploieşti
Drobeta
Turnu Severin
Piteşti
Bucureşti
Beograd
(Београд)
Constanţa
Craiova
Ruse
(Русе)
Dobrich
(Добрич)
Pleven
(Плевен)
Shumen
(Шумен)
Niš
(Ниш)
Varna
(Варна)
Sofia
(София)
Србија
(Serbia)
България

- **SHORT PRESENTATION OF THE CITY**: Botoșani is the capital city of Botosani County, situated in the Northeast of Romania. It was first mentioned in The Chronicles of Moldavia, covering the history of the region from 1359 to 1594. Being placed at the junction of several commercial roads the city was initially a market town; in the 16$^{th}$ century, it already had "the biggest and the oldest fair of Moldavia". Large communities of Jewish and Armenian traders were present in this city starting with the 17$^{th}$ century.
- **POPULATION:** According to the 2011 census, Botoșani has a population of 106,847 inhabitants.

# Cesena (IT) | Challenges towards PEDs and climate-neutrality

Comune di Cesena

## CONTEXT

Located within **Emilia-Romagna region**

Hosts around **97.000 inhabitants**

Leader of **Savio Valley Municipalities**

## INITIATIVES

EURO CITIES
from 2010

Covenant of Mayors for Climate & Energy EUROPE
from 2016

Green City Accord
from 2020

ICLEI Local Governments for Sustainability
from 2022

SCALABLE CITIES
from 2023

## PED-RELATED PROJECTS

**COST Action**
PED EU NET
from 2023

**HEU project**
**WeGenerate**
Co-creating people-centric sustainable neighbourhoods through urban regeneration
kick-off in Nov. 2023

**DUT project**
**POSEIDON**
POSitive Energy Initiatives in Districts fOr Neutral Mediterranean cities
kick-off in Jan. 2024

## MAIN CHALLENGES

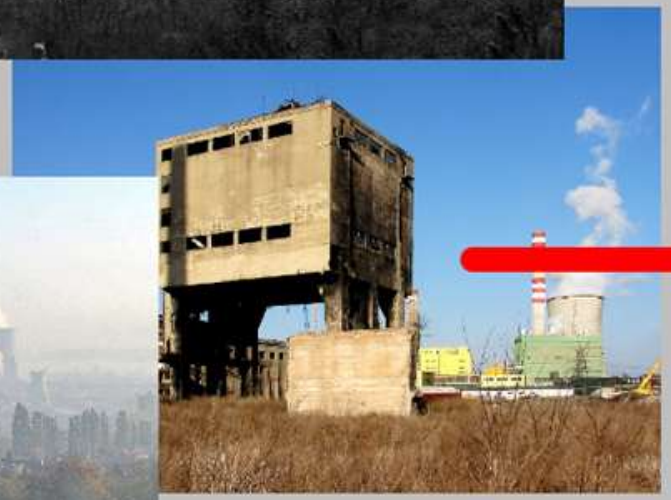
**Regeneration of the built environment**
buildings renovation, energy efficiency, flexibility and production;

**Energy Community as a possible step toward PED model**
community engagement, technical-economic affordability;

**Intermodal mobility system**
shift of mobility habits, mainly fostering walkability and cyclability;

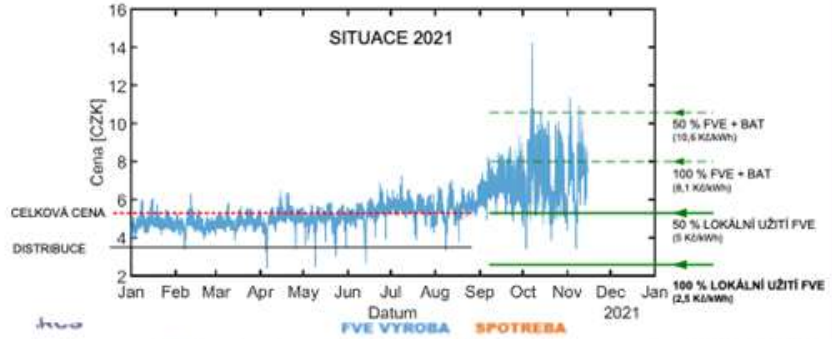
**Climate-adaptive, accessible and liveable open public spaces**
Urban Heat Island mitigation and heavy rainfall events management.

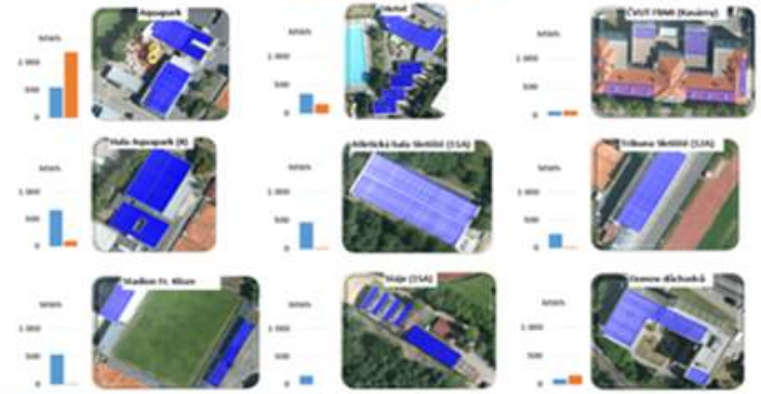
KLADNO
Future of Energy



SPARCS

# Positive Energy District



Grant Agreement N
of the European Co

# Challenges and solutions …

## Challenges - PED

- Complexity.
- Partnership (incl. city leaders' motivation)
- Positivity – how to approach it
- Volatile environment – legal perspective (market, prices, EU policy) and development plans of the city (new constructions)
- Business models and funding

## Challenges – Energy Communities

- Legislation / Energy sharing and pricing
- Motivation and collaboration
- Grid capacity and openness
- Procedural and administration issues
- Funding and business models

## Solutions – PED …

- …
- …
- …

## SOLUTIONS – Energy Communities

- …
- …
- …

Horizon 2020
European Union funding
for Research & Innovation

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# Milan Air and Climate Plan 2030: our vision

01. **Healthy and Inclusive Milan**: a healthier, safer and more equitable City

02. **Connected and highly accessible Milan:** a well connected and flexible City, with smooth and sustainable mobility

03. **Positive Energy Milan**: a City that consumes less and consumes energy better

04. **Cool Milan:** a greener city, cooler and liveable, which adapts to climate change

05. **Aware Citizens**: a City which adopts an aware and sustainable lifestyle

AGENZIA MOBILITÀ AMBIENTE TERRITORIO

***A City that consumes less and consumes energy better***

**Vision 2050:**
Creation of a Carbon Neutral City

**Goal 2030**:

- Reduction of 50 % $CO_2$ emissions by 2030 related to public buildings
- Definition of a strategy for the efficiency of electrical uses in the tertiary sector
- Carbon Neutral Urban Regeneration projects

- Identification of a strategy for a new thermal energy production and to accelerate the deep energy renovation of private buildings
- Develop an efficient district heating grid
- Advance use of renewable sources through agreements for the development of energy communities

# Why are we here

**Our challenges**

- Net zero carbon
- Ensure enough local REN for increasing demand
- Reduce heating/ cooling demand through retrofitting
- Promote a district approach  and work with partners
- Rules for local energy systems vs (expanding) district heating

**What we would like to learn**

- How to activate finance
- Procedural receipes
- Regulatory mechanisms
- Setting up energy trading platforms

AGENZIA MOBILITÀ AMBIENTE TERRITORIO
manuela.ojan@amat-mi.it

# CITY OF PULA

## MAIN CHALLENGES:

- State law
- Tourism oriented investors
- Citizen engagement

rzeszów
capital of innovation

# Net Zero Mission City

R Z E S Z Ó W

## Patto dei Sindaci per il Clima e l'Energia.

Dal 2009 il comune di Udine aderisce al Patto dei Sindaci per il Clima e l'Energia dell'UE, impegnandosi ad adottare misure e implementare azioni che mitigano le emissioni antropiche dei gas a effetto serra in atmosfera e adattano il territorio agli impatti del cambiamento climatico.

# 11:30 - 13:00 Lunch at Lager 11

(Visit to Bryte battery, sign-up at registration desk, places limited)

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# Site visit: The Sluppen PED

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# 14:15 - 14:30 Coffee break

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# “Get involved” session: Replication of solutions & processes

+CITYXCHANGE

# ‘Get Involved’ Session

**Replication of solutions & processes**

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# What to expect in this session?

| | |
|---|---|
| Part 1: Introduction | Scalable Cities: two expert presentations<br>Replication beyond +CityxChange, the Italian case |
| Part 2: Storytelling | 7 inspirational stories from cities |

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# Part 1: Introduction

**Scalable Cities:** Identify and promote energy solutions and business models that can be scaled up and replicated across Europe and lead to measurable outcomes.

The **Task Groups** bring together practitioners to work on issues related to smart cities.

- Task Group Replication, led by Sara Rueda Raya
- Task Group Business Models & Finance, led by Philippe Fournand

The **Experts Group** offers technical advice to support the work of Scalable Cities.

Scalable Cities

# Innovative Smart City Business Models and Financing Schemes- Assessment

**TG BM “Get Involved”**

05th October 2023

Damian Wagner-Herold | Andrea Geyer Scholz

*Funded by the* European Commission

# Expert Team BM

## Damian Wagner-Herold

- Urban Innovation Advisor | Manager | Lecturer | Matchmaker | Entrepreneur
- Expertise: Smart City Expert 10 yrs +, Energy & Mobility, Digital Solution, former SCC1 Coordinator
- Scope: Innovation Eco-Systems & Implementation Management, Matchmaking
- Role: Lead Expert & Coordination, Assessment of cases/solutions;


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# Expert Team BM

## Andrea Geyer Scholz

- MD Smart Cities Consulting GmbH
- Background: Economics, Business Administration, Business Informatics
- Scope: Innovation development and management
- Role: Oversee and conduct survey; map results with relevant EU mission concepts and related programs; oversee digital outputs
- Expertise: Digitalization (processes, digital economy); H2020 evaluation expert; climate services; business model design


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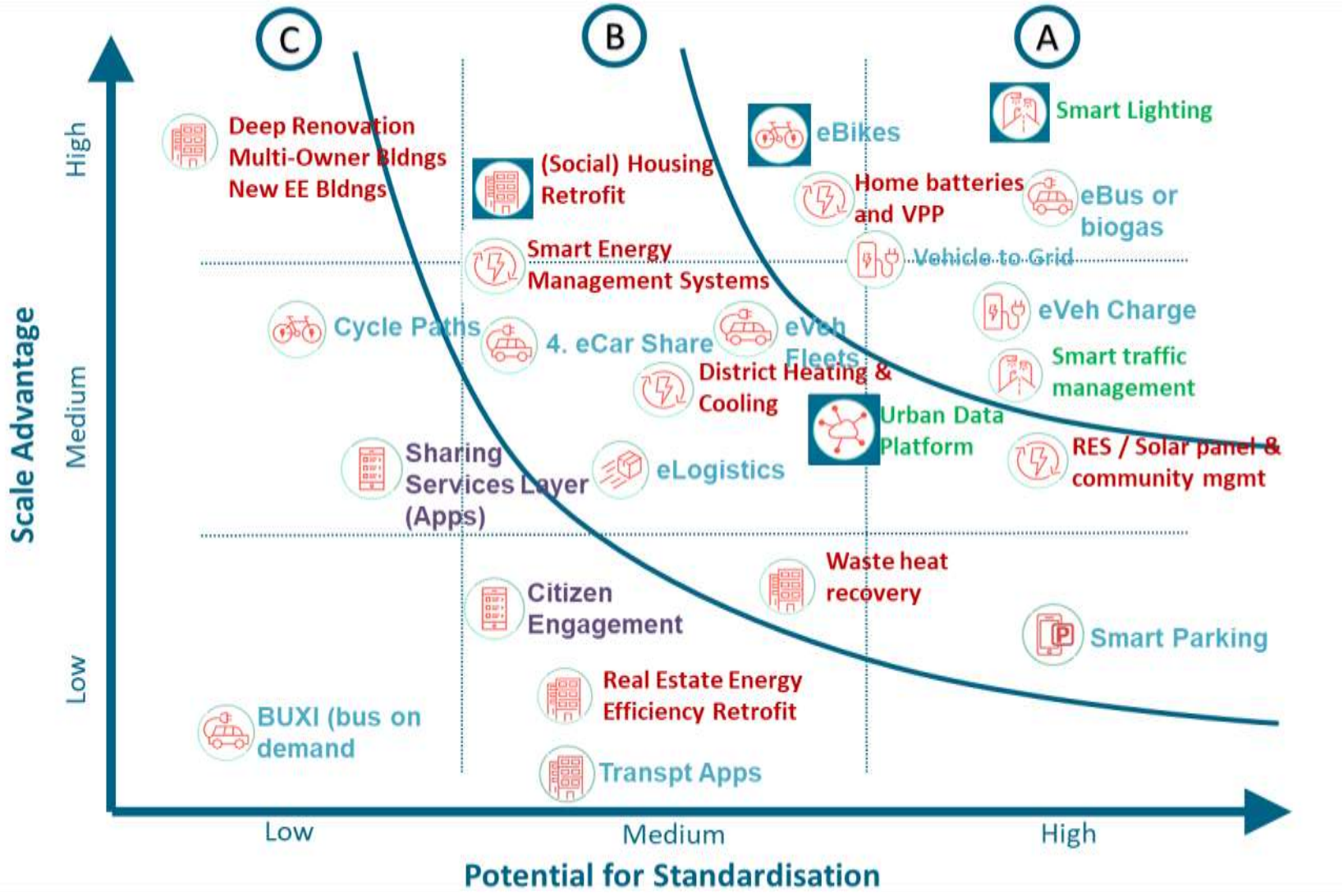
# Scaling up: Elephant in the room since 2014



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# Learnings & first conclusions…
## BMs are the elephant in the room….are they?

❌ Very limited and no feedback
❌ Little financial data/info available
❌ Cities have little understanding &
focus on BMs they need to „operate“ (& finance)

🦙 Some „cases/solutions“ may be described as **operating models**
(city perspective) rather than business models (private sector/profits)

👉 Follow-up „shortcut“ with BM-Owners (face-to-face Trondheim)
👉 In case of no/little information **focus on operating approaches** as
minimum level of replicable information
👉 Dataset will be produced and shared


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Photo: Damian Wagner-Herold

Scalable Cities

# Task Group Replication
# 'Smart City Replication Strategies'
## +CityxChange Final Conference

**Scalable Cities Secretariat**

4 – 5 October 2023

**Trondheim NO**

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## General Information

| | | | |
|---|---|---|---|
| **Chair** | Sara Rueda Raya | *s.e.rueda.raya@hva.nl* | Atelier |
| **Co-Chair** | Willem van Winden | *w.van.winden@hva.nl* | Atelier |
| **Vice-Chair:** | Sander Smit | *sander.smit@r2msolution.com* | +CityxChange |

**Members and assets:** LHCs (replication managers of lighthouse projects)

**Type of Task Group[1]:** Support Task group

**Format:** 5 meetings per year (2h duration) + 4 co-organised with CCG (2h duration) – meetings will take place online and if possible, in person during joint live events.

**Scope of activities:** Dissemination and knowledge exchange

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# What is the goal of the study?

- Develop a common **replication evaluation framework**, capture the effectiveness of the **SCC upscaling strategies**, and empower the Task Group to **further replication** with its stakeholders.

# How will this be done?

- Identifying **the core dimensions** driving and hindering replication of innovative solutions in cities and analysing **how replication has unfolded for the 18 SCC projects**.

# How is the target group?

- **Replication** managers – **LHCs** and **FCs**

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# Expert Team leading the study

## Nikita Shetty

- **Senior Strategy Consultant** in Smart Cities and Regions at BABLE & UK and Ireland lead with over 8 years of experience in multi-stakeholder, cross-sectoral project management;
- Holds a joint master's degree in [illegible] of [illegible] references.

## Alexander Schmidt

- **Founder and CEO** of BABLE with over 7 years of experience leading research in Smart Cities
- Holds two bachelor's degrees in environmental engineering and business administration, as well as a Master's in transport engineering;
- [illegible]

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# Research Approach

**Surveying and desk research to characterize the 18 SCC projects replication strategies**

- Analysis of the 18 SCC01 replication strategies
- Exploration of replication drivers and barriers, trends and correlations
- Identifying trends in replication and upscaling conditions
- Characterise the role of the follower/fellow cities

**1-to-1 interviews with SCC01 project LHCs and FCs**

- Validation of surveying insights
- Collection of best practices and lessons learned

YOUR SUPPORT IS NEEDED! Kindly answer the survey provided

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# Important Dates and Milestones

**D1. Interim Report**

*OCTOBER 2023*

**D2. TG Representative Workshop**

*NOVEMBER 2023*

**D3. Final Report & Presentation**

*22nd NOVEMBER 2023*

**In Barcelona SCWC**

Date & time TBD

YOUR PARTICIPATION IS NEEDED! Join us in BCN

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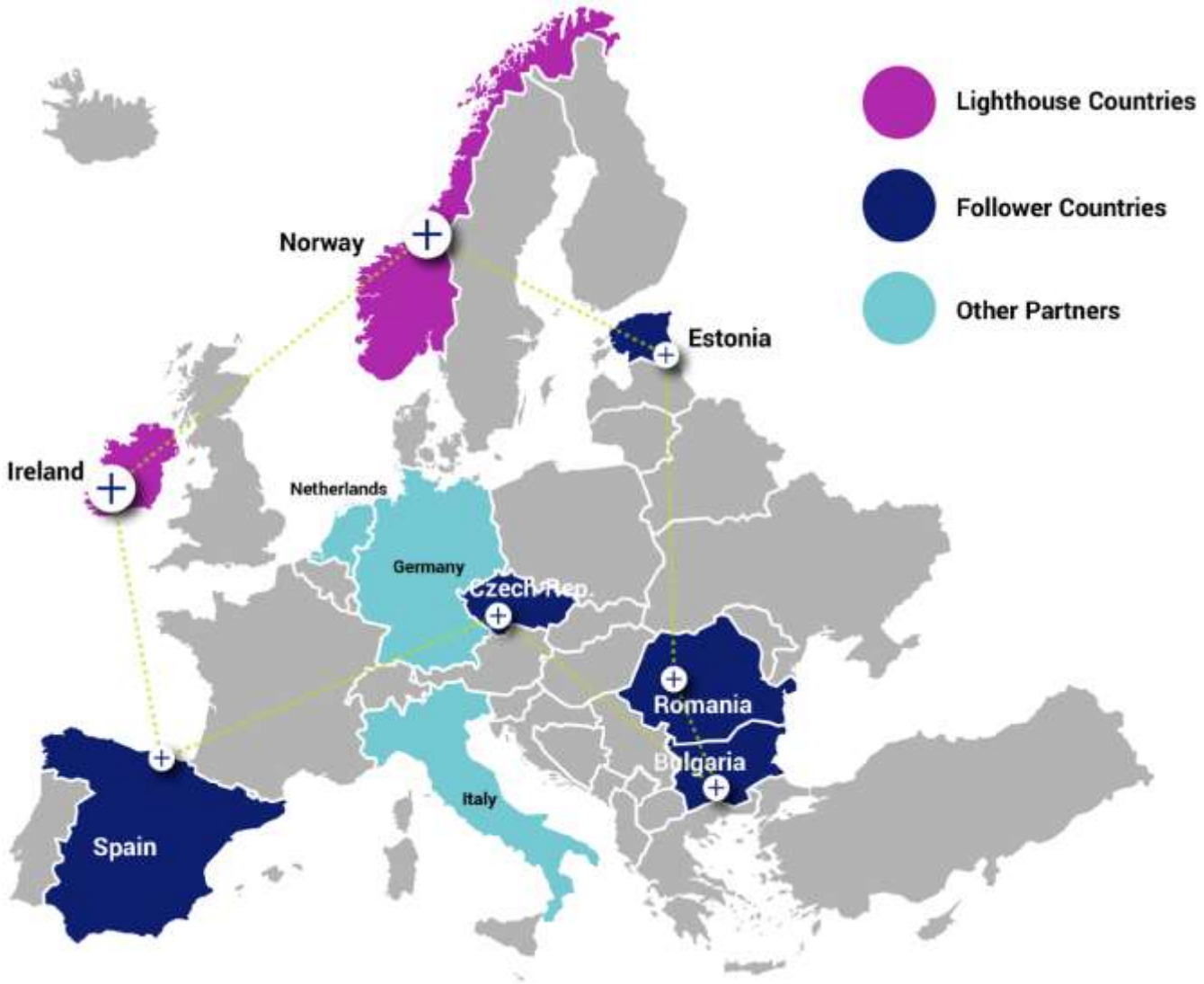
# Replication within +CityxChange

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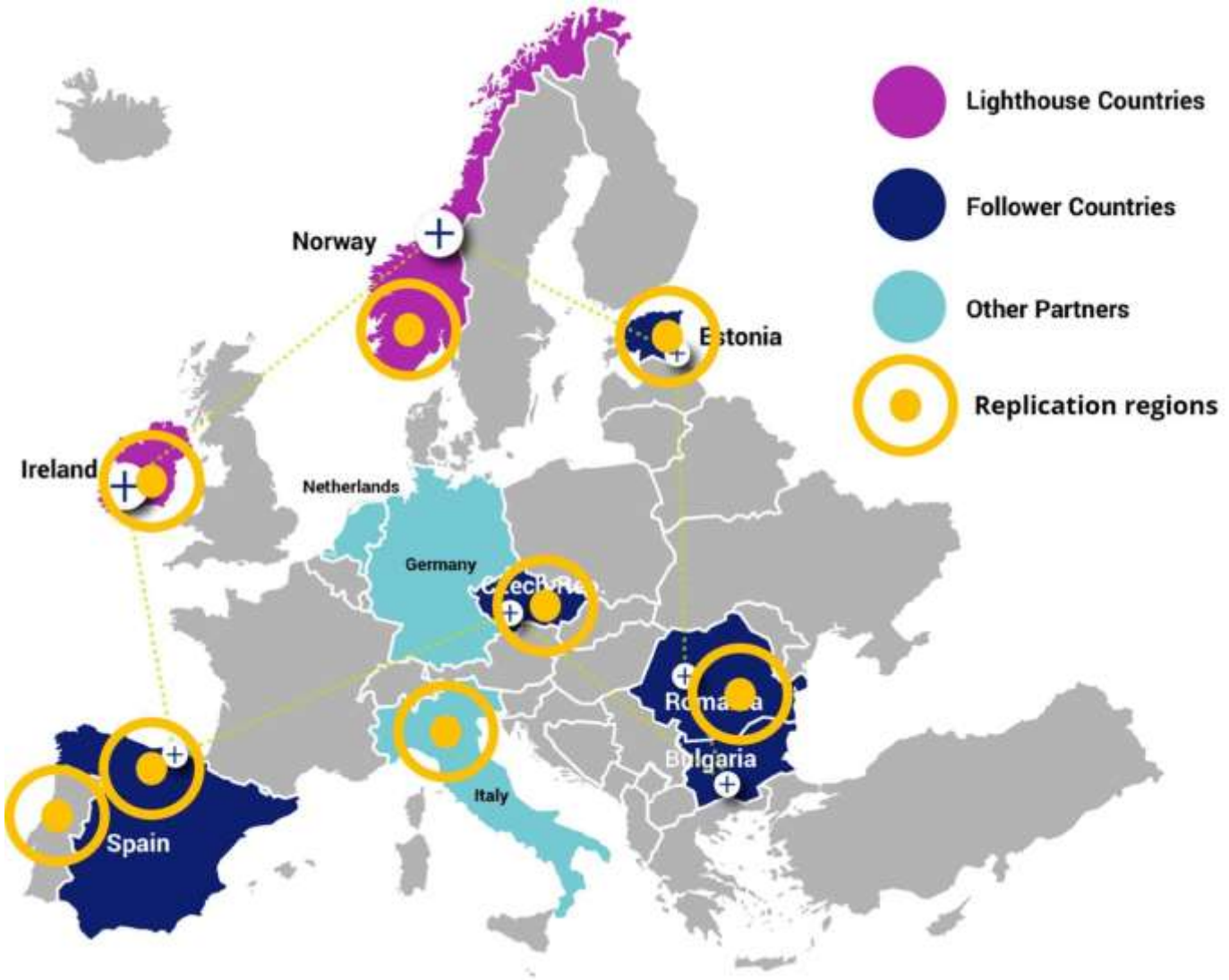
# Replication beyond +CityxChange

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# Replication on Italian Cities

- Starting from EU 100 Cities Mission who need tools (Milano, Roma, Bologna, Padova already involved, others in discussion)
- Building on top of other EU projects (e.g. Bologna and H2020 project GRETA - GReen Energy Transition Actions)
- Not only technical work but also local University involvement (University of Bologna, University of Roma 3…) including capacity building
- Leveraging Scalable cities Action Grant programme (+PADOVAxCHANGE selezionata to start soon)
- Working at different city scale (including also small towns like Crispiano and the sustainable cities network)

SCALABLE CITIES

RETE dei COMUNI SOSTENIBILI

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DD/MM/2YYY

# Italian Cities Overview of work on PEB

## Bologna

**Area:** 140,86 km²
**Inhabitants:** 388 171

**Buildings:** 1080
**Area:** 7 750 218 m²
**Inhabitants:** ~ 23 000

- geoJSON file containing:
  - Number of floors
  - Year of construction
  - Building Type
  - Installed PV Capacity

## Milano

**Area:** 181,67 km²
**Inhabitants:** 1 361 908

**Buildings:** 31
**Area:** 50 132 m²
**Inhabitants:** 97 841

iCD model with this information:
- Building Type
- Year of construction
- Envelope description & $U_{value}$
- HVAC & DHW system

## Roma

**Area:** 1 287,36 km²
**Inhabitants:** 2 746 639

**Buildings:** 155
**Area:** ~ 660 696 m²
**Inhabitants:** ~7610

- GIS file containing:
  - Building Type
  - Number of floors
  - Roof Type
  - Potential roof area for PV

## Udine

**Area:** 57,17 km²
**Inhabitants:** 97 841

**Buildings:** 10 (2 Schools, 1 Shopping mall, 7 Apartment blocks)
**Area:** 134 400 m²
**Inhabitants:** ~1000 (405 Apartments)

- Building's plans and sections
- Technical reports of the interventions
- Buildings' Energy Performance Certificates

## Crispiano

**Area:** ~ 111 km²
**Inhabitants**: 13 770

**Buildings:** 7 (1 municipal building, 1 library, 2 schools, 2 offices, 1 sport center)
**Area:** ~ 16 000 m²
**Occupancy:** ~750 people/day

Building plans, survey reports, and energy requalification projects holding:
- Boulding geometry
- Envelope description
- Building type, Construction year

# Bologna

Pilastro-Roveri is the area studied in the Greta EU project, Green Energy Transition Actions. The intent was to make Pilastro - Roveri area an area pioneering the process of climate neutrality that cities and citizens are called to undertake by 2030.

**Bologna:** 140, 86 km²

Inhabitants: 388 171

**Specific area of interest:** 1080 Buildings (7 750 218,48 m²)

Inhabitants: around 23 000

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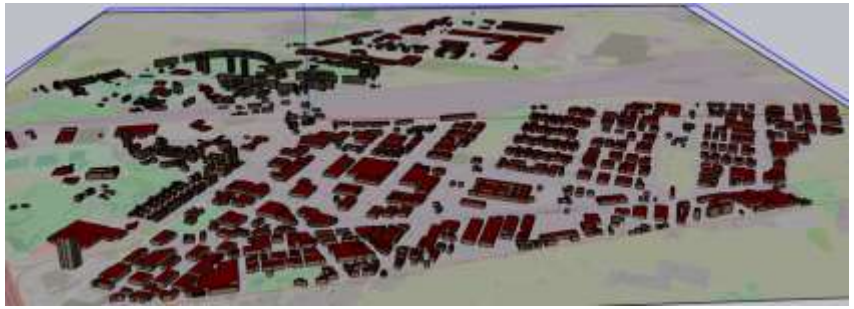
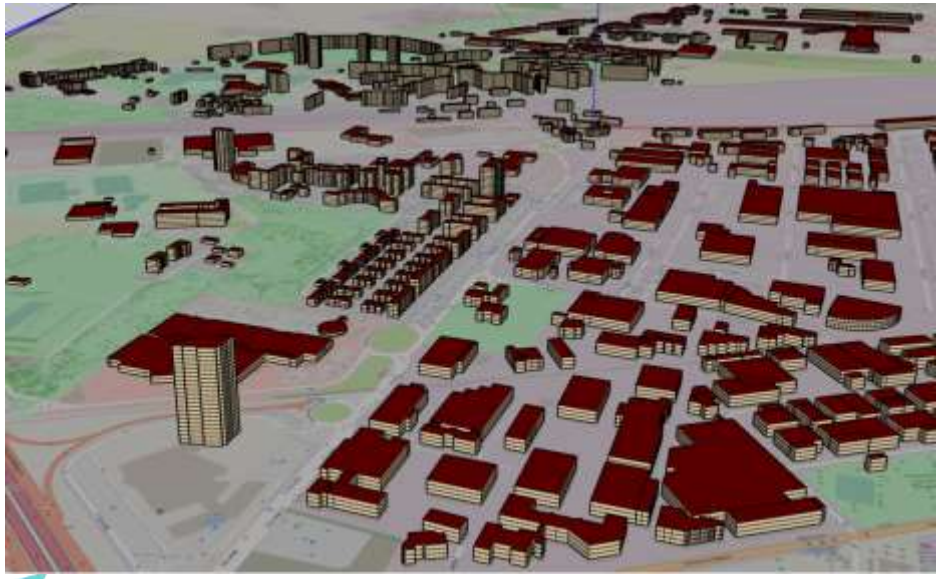
# **Bologna –** Neighborhood Pilastro Roveri

**Model set up from iCD plugin in Sketchup:**





**Visualization from iCIM webpage**

https://icim.iesve.com/trial/#/metrics-viewer/68127d7f-1323-4cab-8a9b-a727f97d6721

Building Type *(view from iCIM)*

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# **Bologna –** Neighborhood Pilastro Roveri

Sim total energy (kWh/m$^2$ per year) *(view from iCIM)*

Installed PV Capacity *(view from iCIM)*

# Milano

Milan, Crescenzago area subject to redevelopment and the Reinventing Cities competition

**Milano:** 181,67 km²

Inhabitants: 1 361 908

**Specific area of interest:** Area 1: 21300 m² (14 buildings); Area 2: 10950 m² (4 buildings)

Inhabitants: 97 841

DD/MM/2YYY

# Milano

**Model set up from iCD plugin in Sketchup:**

**Visualization from iCIM webpage**

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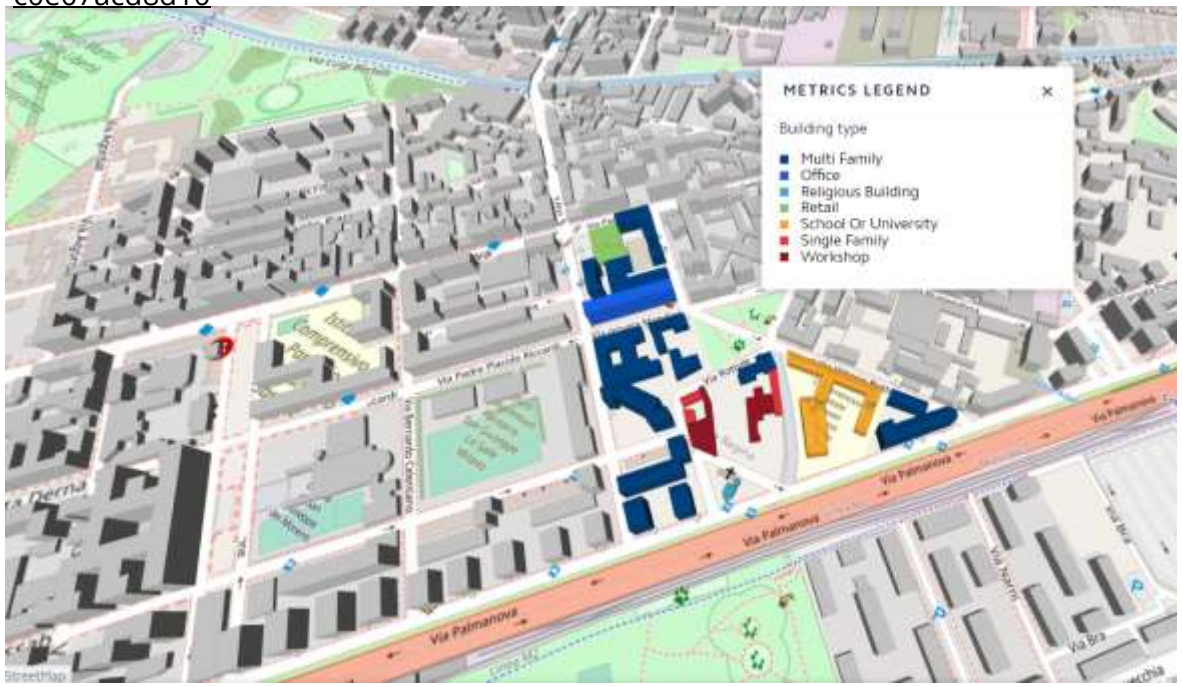


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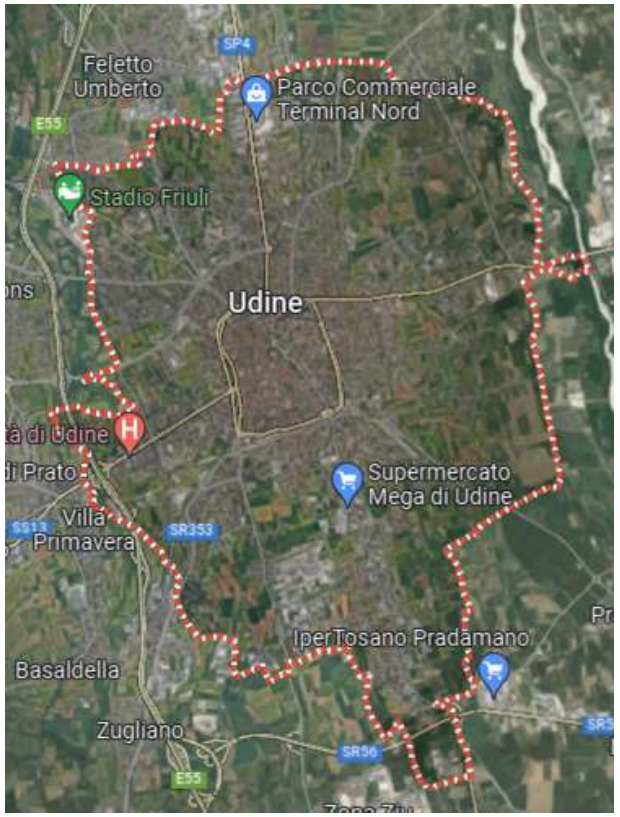
# Udine

The municipality of Udine refurbished thanks to the SuperEcoBonus 110 incentive a residential area composed of condominiums of the ATER (Azienda Territoriale per l'edilizia residenziale di Udine) and some nearby facilities.

**Udine:** 57,17 km²

Inhabitants: 97 841




**Specific area of interest:** 134 400 m² (2 Schools, 1 Shopping mall, 7 Apartment blocks)

Inhabitants: around 1000 (405 Apartments)

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# Udine

**Model set up from iCD plugin in Sketchup:**

**Visualization from iCIM webpage**

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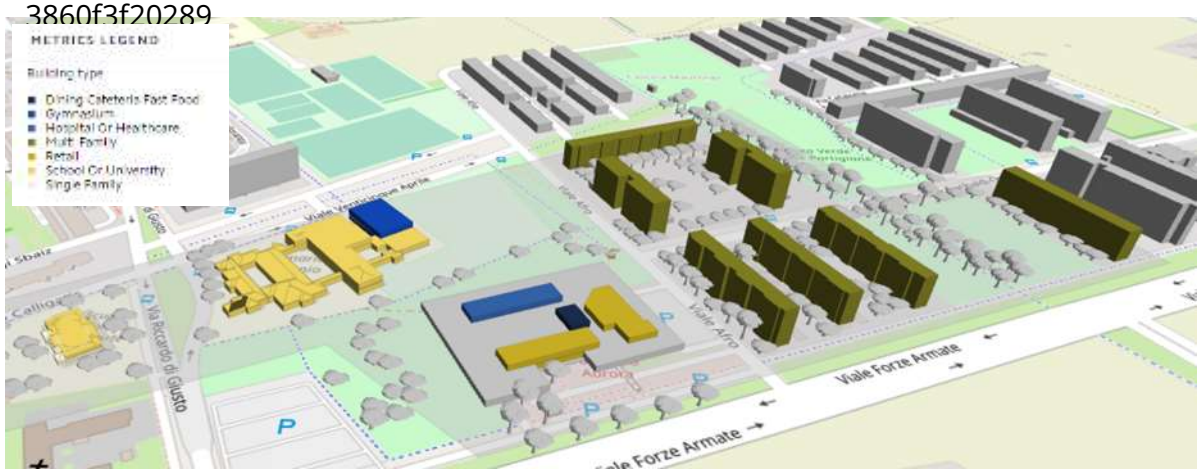

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# Part 2: Storytelling

# The storytelling session

- 7 stories, 7 storytellers
- Real-life stories showing barriers, solutions and impact
- Brought to you by the people who made it happen
- Stories to inspire you
- Stories that you can bring home
- Stories to inspire the people around you

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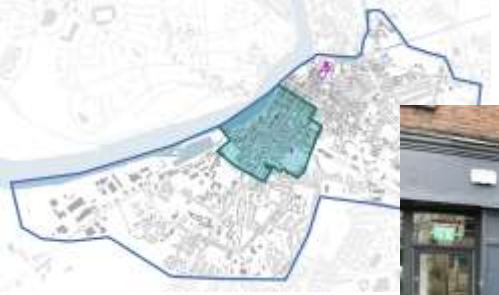
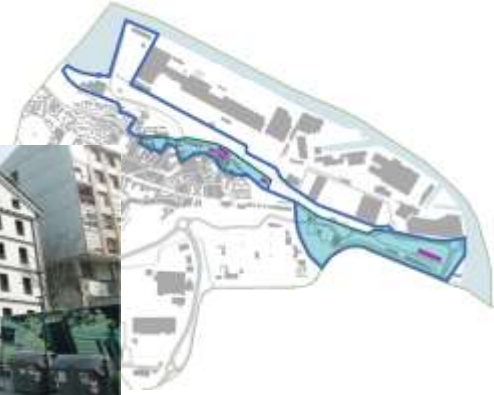
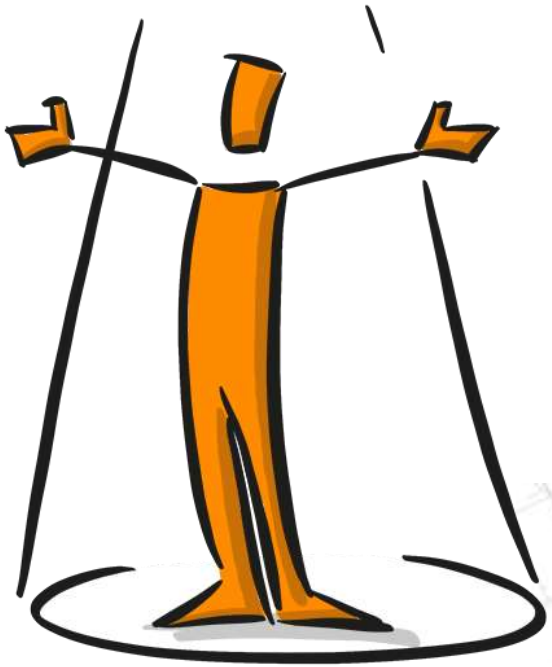
# Our stories

| | | |
|---|---|---|
| 1 | Bold City Vision, Smolyan. | Borislava Spasova (City of Smolyan) |
| 2 | Local Energy Market, Trondheim. | Mette Rostad (Aneo) |
| 3 | eMobility, Trondheim. | Tom Jensen (Trondheim kommune) |
| 4 | Citizen Innovation Lab, Limerick. | Helena Fitzgerald (UL) |
| 5 | Modelling, Limerick. | Ruth Kerrigan (IES) |
| 6 | Spillover effects, Alba Iulia. | Tudor Drambarean (Alba Iulia municipality) |
| 7 | Towards a PED, Võru. | Siim Meeliste (Võru municipality) |







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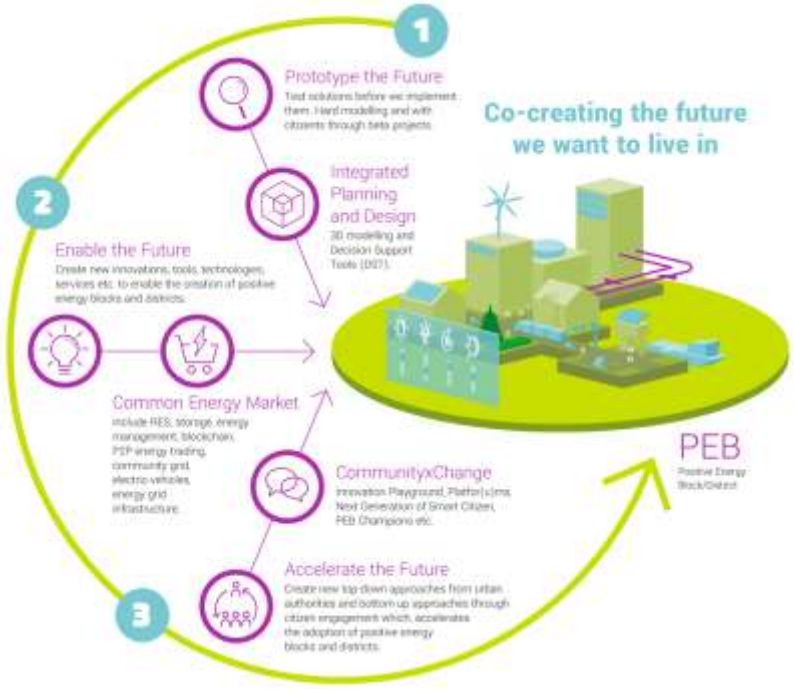


# Thank you

Sander Smit, R2M Solution

https://cityxchange.eu/
https://cityxchange.eu/knowledge-base/

# Closing Session

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16:15 Bus back to city centre
Optional: Free time / staying for a drink at Lager 11 or Austmann Brewery

17:30 Optional City Walking Tour – leaving at Scandic Nidelven, ending at dinner.

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16:30 - 17:45 BoC Meeting (for SCC1 project coordinators and interested cities/projects)
Including NEB / NEB Alliance / new projects & collaborations. How to continue to collaborate and share experiences after projects end?

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# Thanks for joining and sharing!

## Let’s keep Co-Creating our cities :-)

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