

# Smart Cities Marketplace



## The role of Positive Energy Districts in the ongoing energy transition in urban areas



A joint session of MAKING-CITY and the Smart Cities Marketplace

25 October 2023 | 13:30

# AGENDA



- Session introduction by moderator Georg Houben
- Intro of MAKING CITY by Cecilia Sanz Montalvillo
- Intro of lighthouse demo in Oulu by Samuli Rinne
- Intro of Smart Cities Marketplace by Luigi Lo Piparo
- Panel discussion
- Q&A

# YOUR MODERATOR



## **GEORG HOUBEN | Policy Officer**

European Commission DG ENER, Unit B1 – Consumers, Local Initiatives & Just Transition, Local Initiatives Team

# YOUR SPEAKERS



## **CECILIA SANZ MONTALVILLO**

Chemical Engineer and MEng in Process & System Engineering  
at CARTIF



## **SAMULI RINNE**

Project leader at City of Oulu, Finland



## **LUIGI LO PIPARO**

Matchmaking Coordinator of the Smart Cities Marketplace  
and Partner at Technopolis Group

# MAKING-CITY project

## The role of PEDs in the ongoing energy transition in urban areas

CARTIF. Cecilia SANZ-MONTALVILLO

Brussels, 25<sup>th</sup> October 2023



This project has received funding from the Horizon 2020 programme under grant agreement n°824418. The content of this presentation reflects only the author's view. The European Commission and INEA are not responsible for any use that may be made of the information it contains.

# Energy efficient pathway for city transformation, enabling a positive future

**2 LIGHTHOUSE CITIES**  
 Groningen (Netherlands)  
 Oulu (Finland)

**6 FOLLOWER CITIES**  
 Bassano del Grappa (Italy)  
 Kadiköy (Turkey)  
 León (Spain)  
 Lublin (Poland)  
 Trenčín (Slovakia)  
 Vidin (Bulgaria)



## TOWARDS A CITY VISION 2050

Currently, city energy plans for energy transition are designed within a 2030 horizon, which can be considered as a mid-term strategy (part of the 2030 Climate & Energy Framework in Europe). In MAKING-CITY, **the City Vision 2050** is used as a longer timescale to address the urban energy system transformation towards low-carbon cities.

## MATURE & INNOVATIVE TECHNOLOGIES



## WHAT IS A POSITIVE ENERGY DISTRICT?

A PED is “a delimited area of buildings and public spaces where **the total annual energy balance is positive**. Therefore the area will deliver, in average, an energy surplus to be shared with other urban or peri-urban zones.”



# Demo PED in MAKING-CITY



OULU

KAUKOVAINIO district

**Oulu PED**

- A** Solar panels
- B** Heat accumulators/ storage
- I** Int. I: Retrofitting of a rental house (B1, 2,900 m<sup>2</sup>)
- II** Int. II: New rental houses (B2, 5,300 m<sup>2</sup>)
- III** Int. III: 2 new private houses (B3&4, 2x 2,500 = 5,000 m<sup>2</sup>)
- IV** Int. IV: New Arina shopping mall (B5, 2,000 m<sup>2</sup>)
- V** Int. V: Local heating plant



GRONINGEN

Groningen NORTH

Groningen SOUTHEAST

**Groningen PEDs**

- A** Sustainable Heating source (geothermal)
- B** Solarpark Rooderhaan (11 MW)
- C** Solarpark Woldjerspoor (14 MW)
- I** Int. I: Two Nijestee High-rise buildings (7,400 m<sup>2</sup>)
- II** Int. II: Three terraced private houses (360 m<sup>2</sup>)
- III** Int. III: Energy Academy Europe (9,636 m<sup>2</sup>)
- IV** Int. IV: Mediacentrale (14,400 m<sup>2</sup>)
- V** Int. V: Sports complex Europahal (5,315 m<sup>2</sup>)
- VI** Int. VI: Powerhouse (7,800 m<sup>2</sup>)



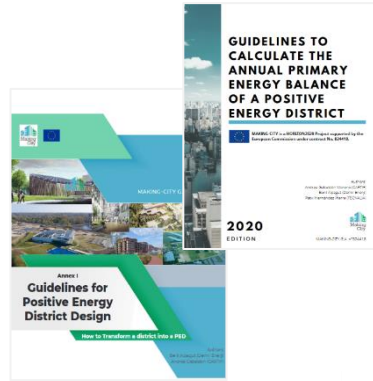
3 PEDs ready in our LHCs



Guidelines & papers

Tools for replication

6 PEDs designed in our FWCs



**Article**  
A GIS-Based Multicriteria Assessment for Identification of Positive Energy Districts Boundary in Cities

Beril Alpagut<sup>1,\*</sup>, Arantza Lopez Romo<sup>2</sup>, Patsi Hernández<sup>2</sup>, Oya Tabanoğlu<sup>1</sup> and Nekane Hermoso Martinez<sup>2</sup>

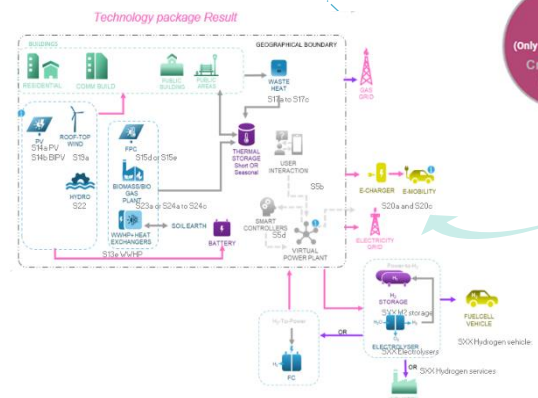
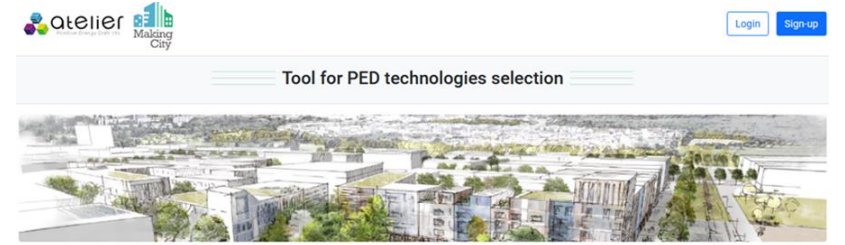
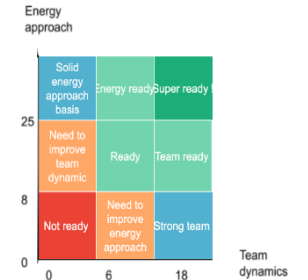
<sup>1</sup> Demir Energy, Smart and Sustainable Cities Department, Istanbul 34718, Turkey; otabanoglu@demirenergy.com  
<sup>2</sup> Tecnalia, Basque Research and Technology Alliance (BRTA), 48160 Derio, Spain; arantza.lopez@tecnalia.com (A.L.R.); patsi.hernandez@tecnalia.com (P.H.); nekane.hermoso@tecnalia.com (N.H.M.)  
 \* Correspondence: balpagut@demirenergy.com; Tel.: +90-533-237-6200



**Welcome to PEDTool!**  
Three levels to assess your Positive Energy District readiness:

Level 1	Level 2	Level 3
Pre-evaluation	Self-evaluation	Workshops

Level 1: Data for more than 6,000 cities are embedded in the database.  
 Level 2: Answer only 10 questions to know whether your city is PEDs ready.  
 Level 3: Tailored workshops to raise awareness on the main key success factors.



- (Only registered users) Create a PED scenario
- (Only registered users) Modify a PED scenario
- PED Technologies explorer





# Thank you

## Get in touch for more information!



Cecilia Sanz Montalvillo, [cecsan@cartif.es](mailto:cecsan@cartif.es)  
MAKING-CITY Project Coordinator



Follow us on Twitter & LinkedIn!  
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Project information available on the  
MAKING CITY website: [www.makingcity.eu](http://www.makingcity.eu)  
Contact us: [contact@makingcity.eu](mailto:contact@makingcity.eu)

# Designing a clean, affordable and reliable energy system:

## The Making-City-project

Project Manager

Samuli Rinne

City of Oulu, Finland

[samuli.rinne@ouka.fi](mailto:samuli.rinne@ouka.fi)



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# The solutions

- ▶ 1. Low consumption during peaks for new buildings or for those that are in every case renovated
  
- ▶ 2. Clean production
  - Wind, solar, bio, hydro, (nuclear?) for electricity
  - Heating by combining excess power and waste heat flows, considering their
    - timing
    - temperature
    - placement

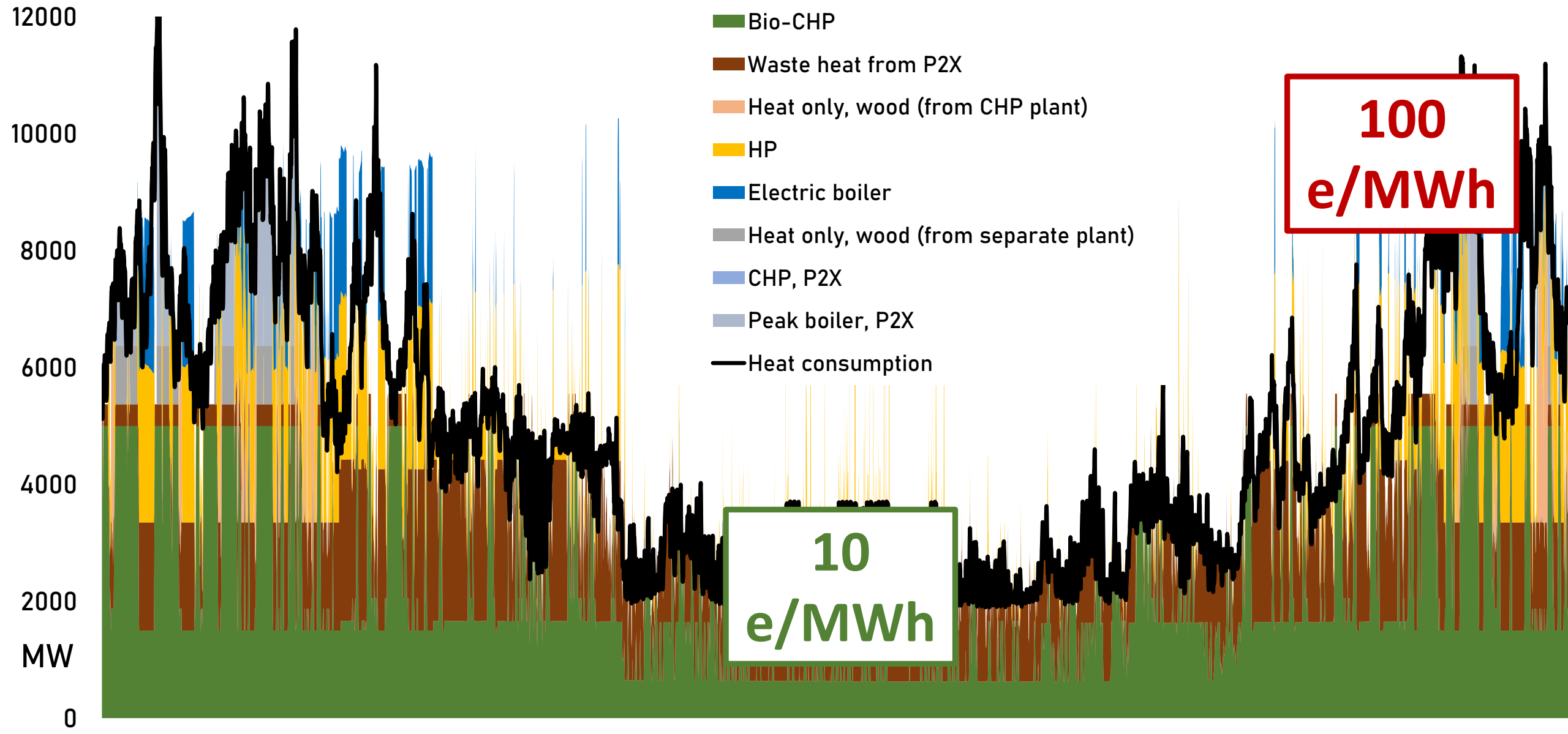
# Low consumption:

One of our demo houses

Heat consumption about  $\frac{1}{4}$  of the once common level

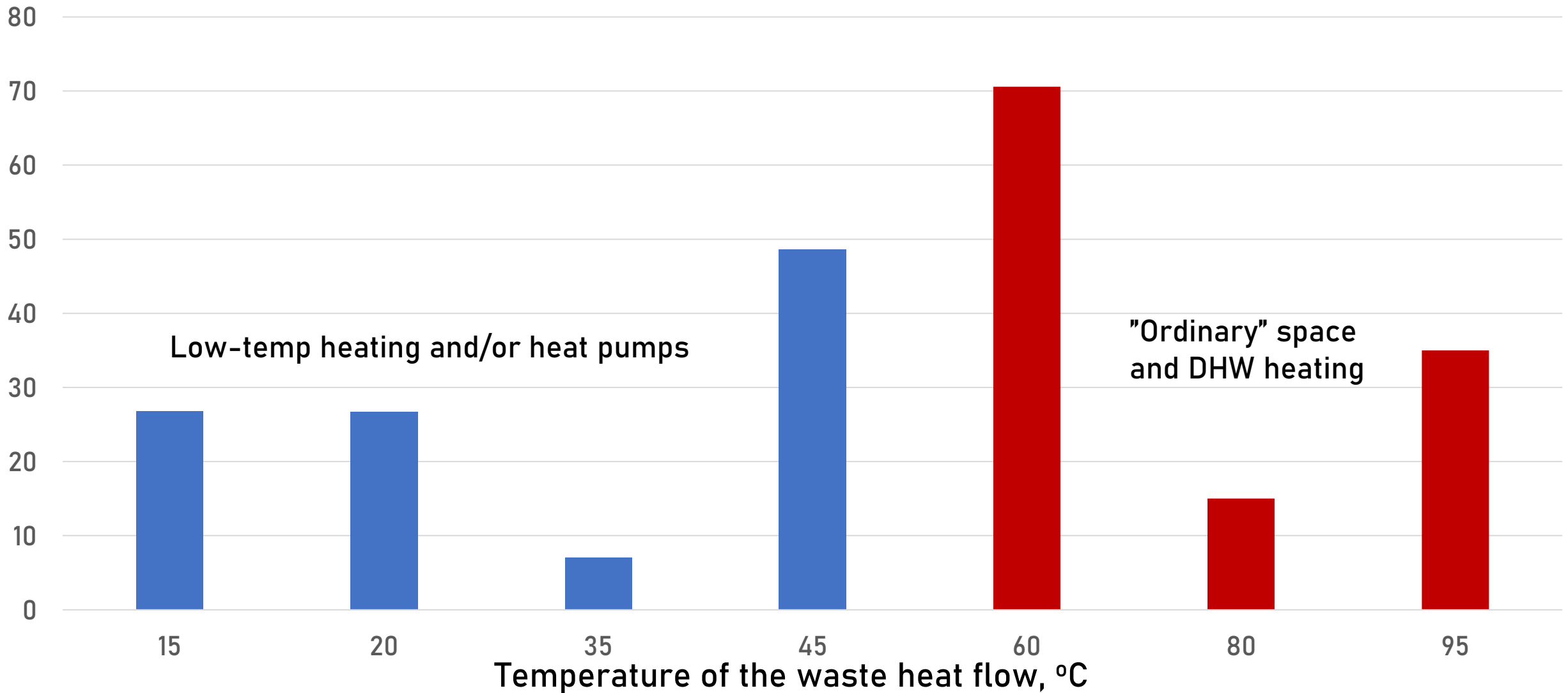


# Timing: An example of the simulated district heating production in Finland in the possible future scenario, during one year





# Temperature: Excess heat temperatures and availability in MW. Possible scenario for city like Oulu in the future.



Heat pump  
to cool  
down DH  
return  
water





# Thank you!

[samuli.rinne@ouka.fi](mailto:samuli.rinne@ouka.fi)

[makingcity.eu](http://makingcity.eu)



# Smart Cities Marketplace



## Presentation of the Smart Cities Marketplace

*Luigi Lo Piparo, Matchmaking Coordinator*





A **repository** of  
EU climate-  
neutral and Smart  
City projects



A **hub** for those  
who look to bring  
climate-neutral  
and smart city  
solutions/projects  
to the market



A **forum** for  
knowledge  
exchange in  
dedicated Focus  
& Discussion  
groups



A **matchmaking**  
process to enable  
investment in  
smart,  
sustainable and  
inclusive projects



# WHAT type of support is provided?

- **Accelerate** the **implementation of projects** aiming at making your city climate neutral
- **Benefit** from **free-of-charge (financial, technical and governance) assistance**
- **Receive personalised project support** according to your interests and availability
- **Gain facilitated access to funding and financing opportunities**
- **Join networking sessions** with cities, technical providers, and other key players with interest in co-developing projects in the areas of clean energy, sustainable mobility and ICTs
- **Meet** with **investors** to pitch and improve a project, get feedback, and build relationships for future investments

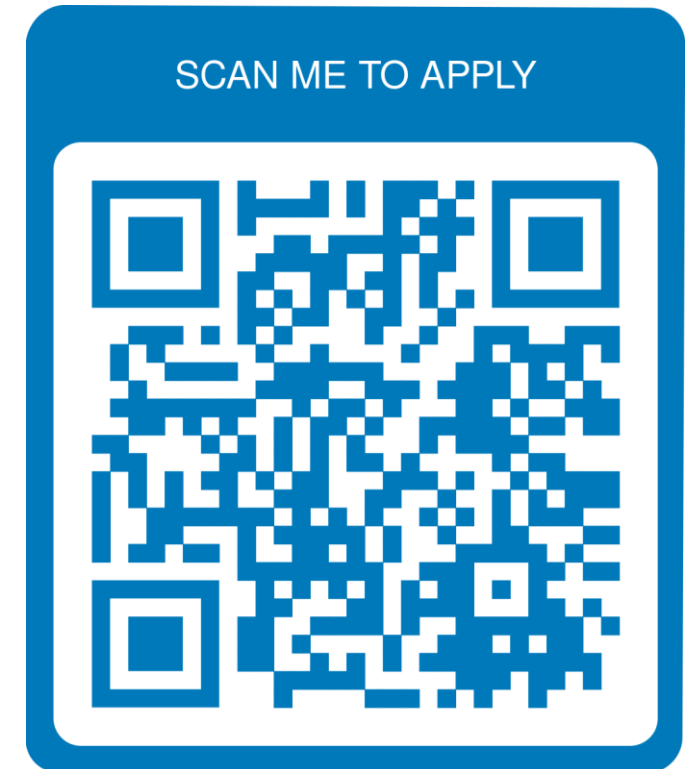


# WHO

# HOW



- **Cities and city consortia from EU Member States**
- **Businesses, SMEs, and project developers** encouraged to contact the relevant city administration(s) to see if a consortium can be formed
- **Investors**



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Q&A



**WE ARE LOOKING FORWARD  
TO YOUR QUESTIONS**