atelier
Positive Energy Districts

PARTNERS

CARTIF

Partner
www.cartif.es

PROJECT

EU Programme:
Horizon 2020 Innovation Action

Coordination:
City of Amsterdam

Partners:
29 partners, 10 countries

European grant:
19.6 M€

Get in touch:
info@smartcity-atelier.eu
www.smartcity-atelier.eu
AtelierH2020
@AtelierH2020
AtelierH2020

PROJECT RESULT

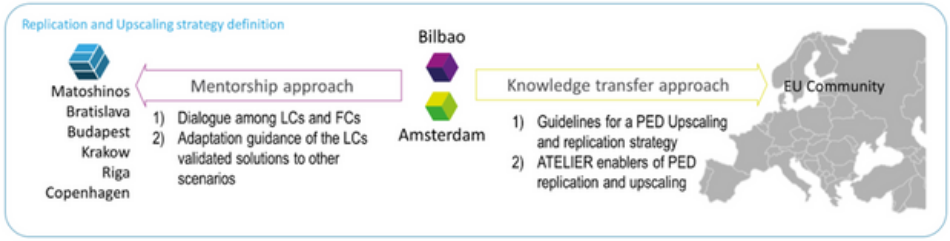
PED Design Procedure

Result in a nutshell

- The selection of PED areas involves not only technical considerations but also governmental decisions.
- The PED concept is technically feasible and can accelerate cities' transitions, but achieving it requires both energy efficiency (EE) and renewable energy sources (RES). It is costly, so financial instruments and incentives are necessary.
- Space availability is a significant challenge, but the virtual PED concept offers flexibility, allowing for broader application.
- The risks are high due to the concept's novelty and lack of standardization. Public and private funding, or strong business models can help manage these risks; investment platforms and energy communities have been explored.
- Regulatory restrictions are recognized as obstacles, but cities are hopeful that national policies will improve in the future to better support PED implementation.

Dive deeper:

The ATELIER project's replication and upscaling approach ensures the growth of the PED concept by leveraging the experiences of the **Lighthouse cities** (LH) ***Amsterdam*** and ***Bilbao***. Upscaling involves expanding the initial PED by adding new buildings and energy facilities, while replication adapts the PED concept - including technologies, business models, and governance - to other cities or districts, considering local differences in geography, politics, and ownership structure. Lighthouse cities, have been instrumental in defining the replication strategy, which aims to extend PED solutions to the **Fellow cities** (FC) ***Bratislava, Budapest, Copenhagen, Krakow, Matosinhos,*** and ***Riga***; and to surrounding metropolitan areas.



As shown in the figure, knowledge transfer is facilitated through guidelines for PED upscaling and replication, supported by tools and methods used in Bilbao and Amsterdam. A mentorship program promotes ongoing dialogue between Lighthouse and Fellow cities, ensuring the adaptation of these solutions to local contexts.

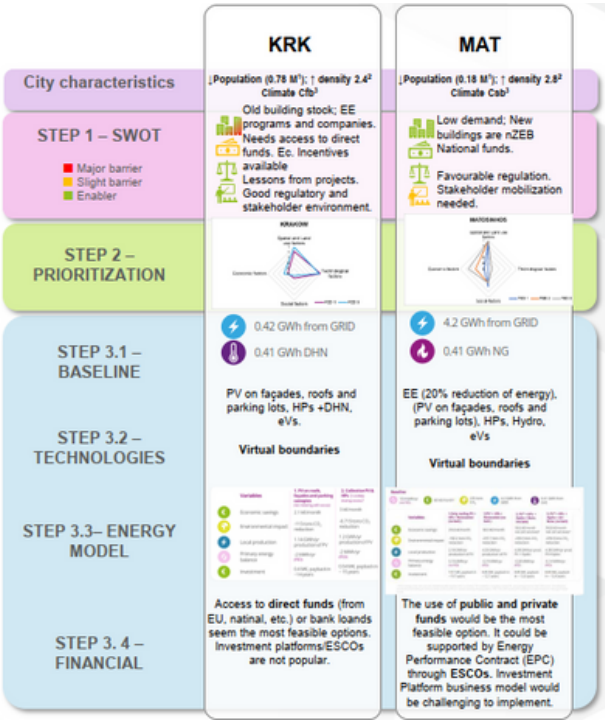
Detail on result

Technical aspects / Methodology:

ATELIER cities have defined their climate-neutral city visions using either the Cities4ZERO methodology (***Bilbao***, ***Bratislava, Budapest, Krakow, Matosinhos, Riga***) or their own approaches (***Amsterdam***, ***Copenhagen***), where decarbonizing the energy system plays a critical role in achieving climate neutrality, but this remains a complex challenge requiring different strategies tailored to each city's context.

The methodology for the development, deployment, and upscaling of PEDs in cities follows a three-step approach:

- **Step 1** involves conducting a SWOT analysis to gain a holistic understanding of the city's context for PED implementation. This step identifies key barriers and enablers within the city's environment, including its energy and spatial planning framework, to define an effective strategy.
- **Step 2** focuses on selecting and prioritizing a suitable area for PED implementation. This involves aligning the city's challenges and goals with the potential impacts of PEDs, using a composite indicator to identify the most promising location.
- **Step 3** entails the detailed design of the PED. This includes modelling the baseline, identifying potential technical solutions based on stakeholder needs, and using energy models to assess techno-economic KPIs. The final step is to select the optimal energy system configuration and identify appropriate business models and financial instruments to support implementation.



Advantages:

- Aligned with local goals and needs, city decarbonisation goals
- It creates an standard procedure for evaluating and desining PEDs

Challenges:

- Data availability: depends city by city. The more detail is given, the more insights can be obtained.
- New areas cannot follow the same steps, as co-creation or hackatons could be used to engage citizens and stakeholders in the process of desining the new area.
- Scenario comparison, barriers and co-benefits is not straightfoward as the data details different per city and PED.

Further development

Potential for further development:

- PED design guidelines match local needs triggering further replicability on diffrent locations. There are tools and capacity buidling materials to help stakeholders during the design process (i.e. PED tool and Catalogue of smart urban solutions).

Potential areas of applicability:

- Anywhere in Europe. The procedure is simplified and applied to all fellow cities for the replication plans development, where areas of the city are evaluated to know which ones have the greates potential to become PED.

atelier Positive Energy Districts

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