Breakout A1
ATELIER Final Conference – March 11, 2026

A1- HOW TO START A PED

Navigating the complexity

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AGENDA

- **Welcome & Introduction**
- **The PED Experience Presentation**

  How PEDs offer a framework for energy transition
- **Panel Discussion**

  Reflections from ATELIER and external cities on early PED choices
- **PED resources**
  - MOOC
  - PED cookbook
  - Presentation of PED Planning Guide

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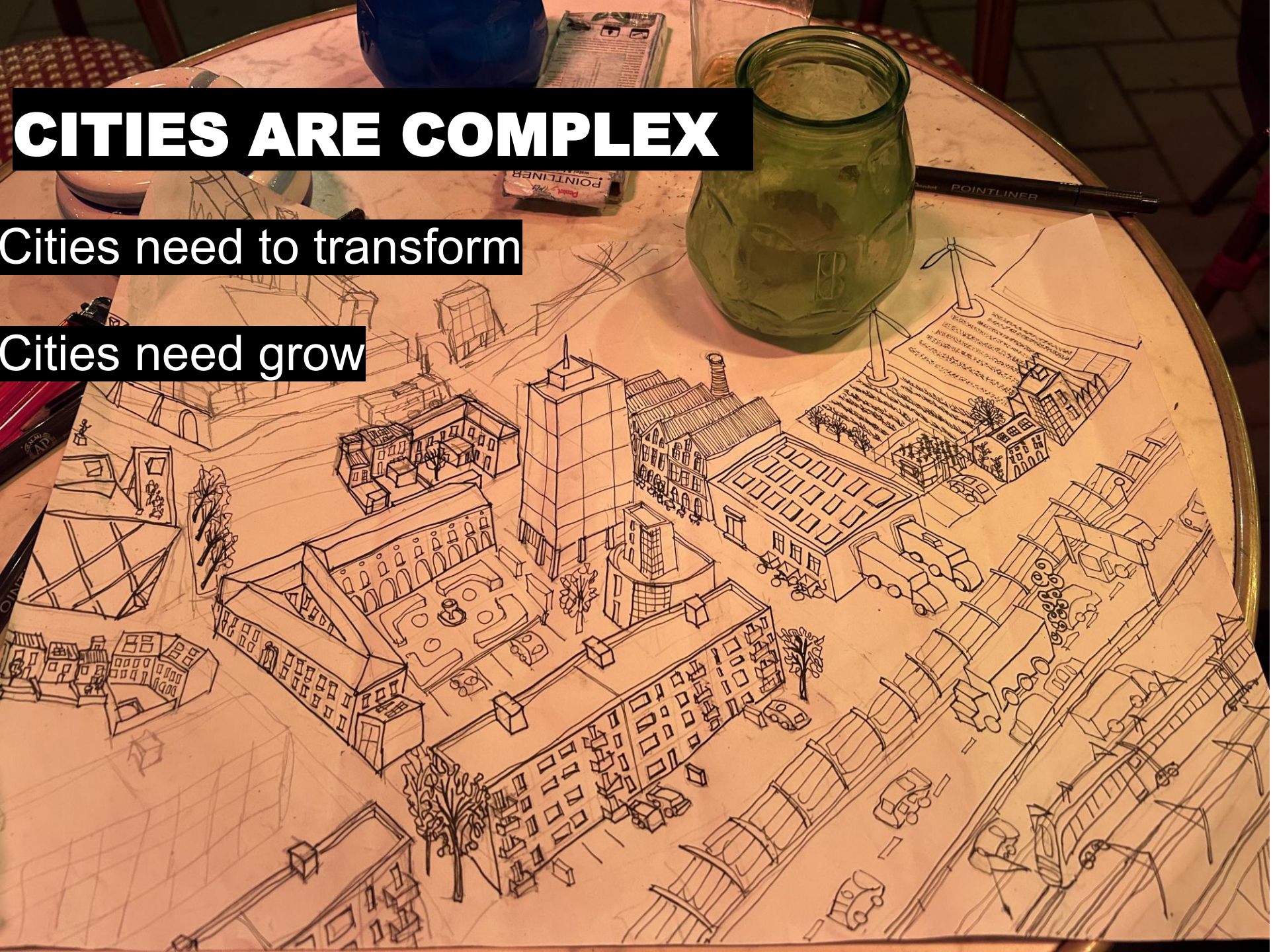
CITIES ARE COMPLEX

Cities need to transform

Cities need grow



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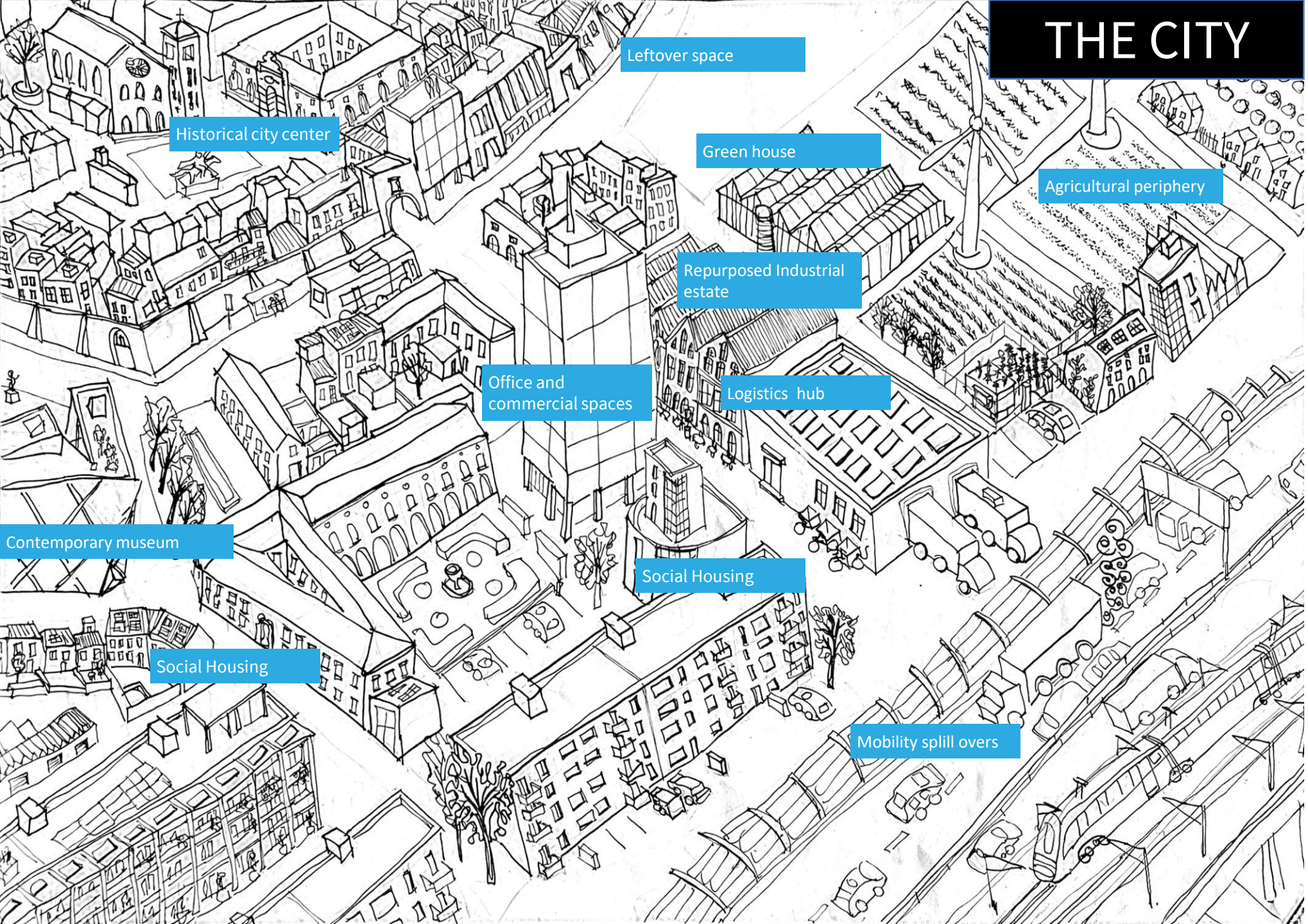
THE CITY


Leftover space
Historical city center
Green house
Agricultural periphery
Repurposed Industrial estate
Office and commercial spaces
Logistics hub
Contemporary museum
Social Housing
Social Housing
Mobility splill overs

What is the role of PEDs in Energy transition?

PEDs offers a framework to guide cities towards

- Decarbonization
- Energy Resilience
- Addressing grid congestion
- Renewable integration
- Heat transition
- Energy Poverty
- Energy Justice
- And much more

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Different scales, different benefits

Positivity can be realized in different scales

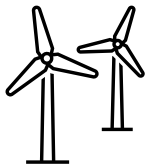
PEB

Positive Energy Building

PED

Positive Energy District

City Scale



Virtual PED

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Yet reality is more complex than what we expected….

An effective PED requires the collaboration with Multiple actors and domains.

PEDs function best as adaptive context-sensitive transition tools

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AMSTERDAM

Energy Grid
Flexibility
Smart EV Charging
Battery
Thermal Storage
Production
Heat Pumps
Solar
Efficiency
Energy management systems

BILBAO

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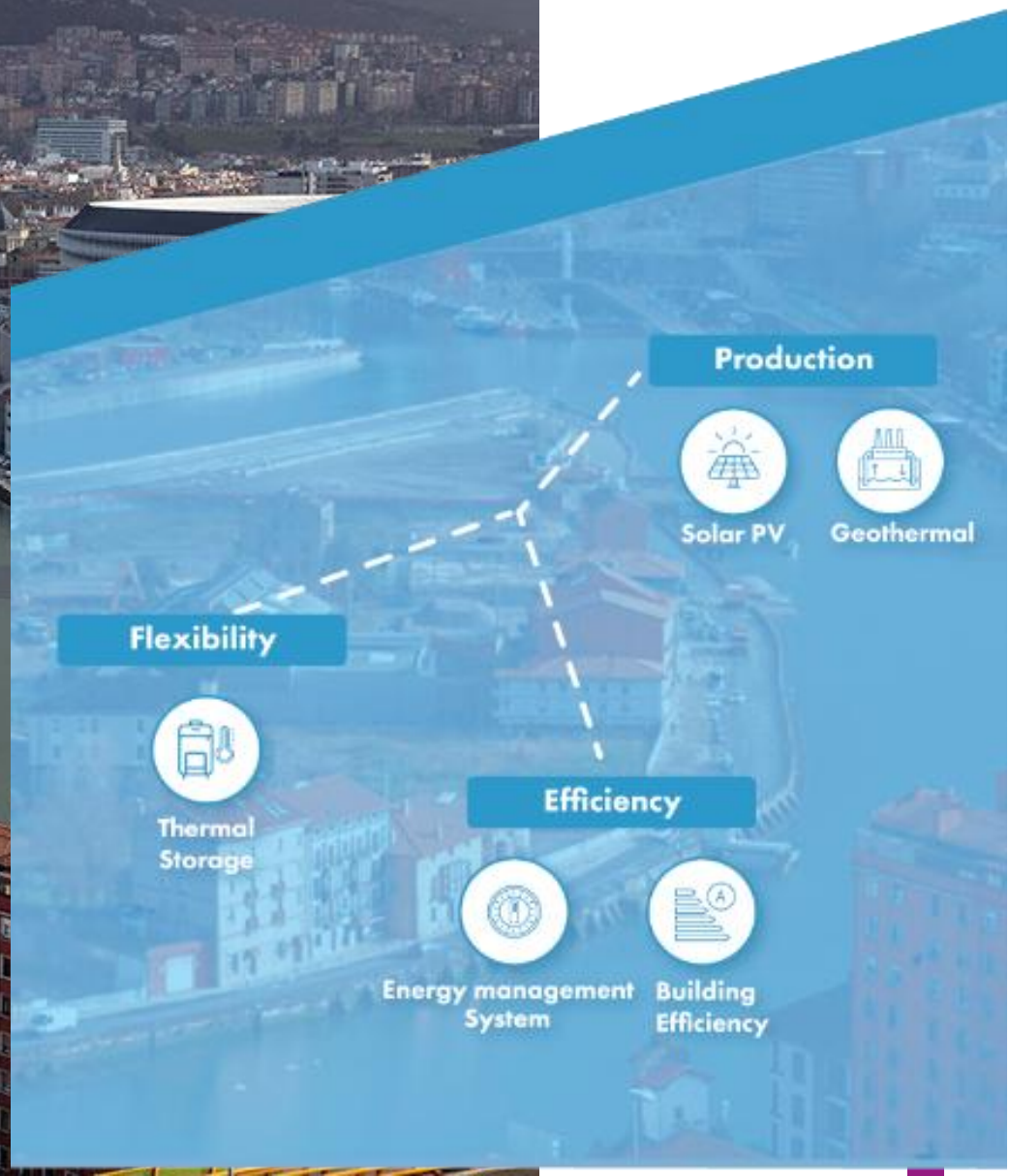

STAKEHOLDERS AND COLLABORATION

City departments
- Innovation
- Energy
- Mobility
- Planning

Companies
- Service providers
  - Heat
  - Electricity
- Developers and landowners

Knowledge Institutes
- Technological
- Legal
- Electricity & heat,
- Business models

Civil Society
- Existing active communities and organizations
- Building/Neighbourhood organizations and representatives

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STAKEHOLDERS AND COLLABORATION

Citizen Engagement

Lack of interest and structures

Knowledge Institute Presence

Research is often impractical

Developer/Tender Process

Complex procurement procedures

Civil Servant Alignment

Departments lack coordination

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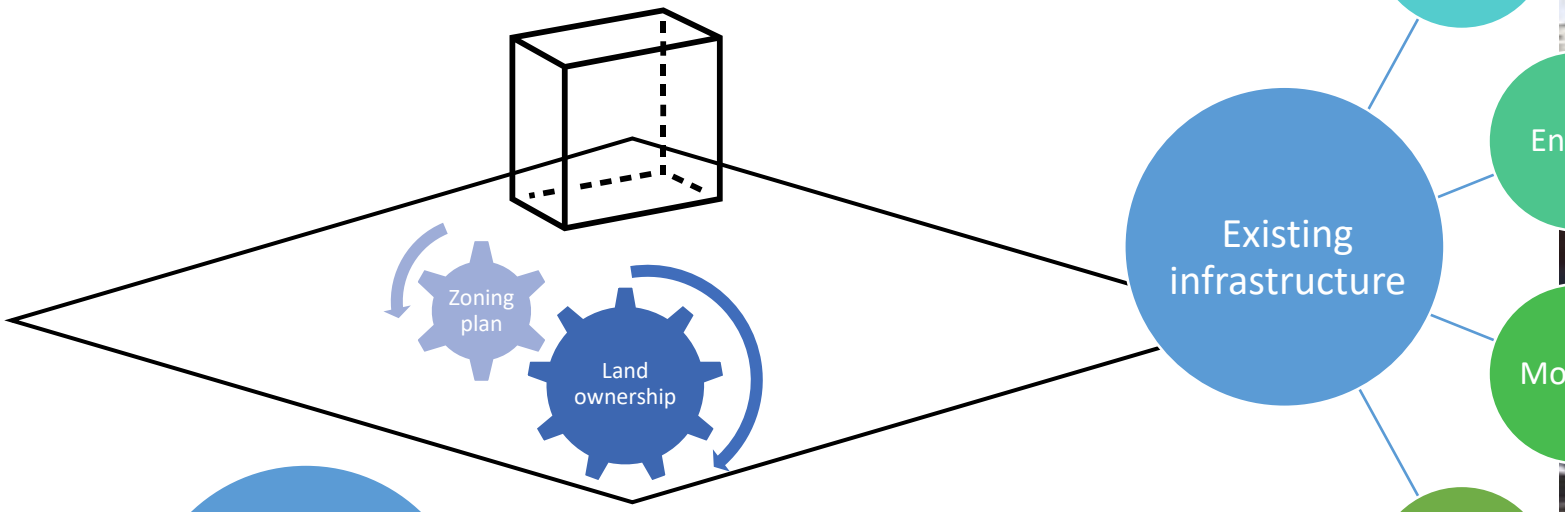
SITE SELECTION /SELECTED SITE



Existing infrastructure

- Heat
  - Conventional and unconventional waste heat sources
  - Existing or planned heat networks
- Energy
  - Grid status
  - Grid Capacity
- Mobility
  - Public transport
  - Electric charging
- Water

Socio economics contexts

- Existing communities and initiatives
  - Heat
  - Energy
  - Building administrations

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TECHNOLOGY SELECTION

There needs to be space to test new technologies

Sometimes it does not go as planned.

Performance benchmarks.

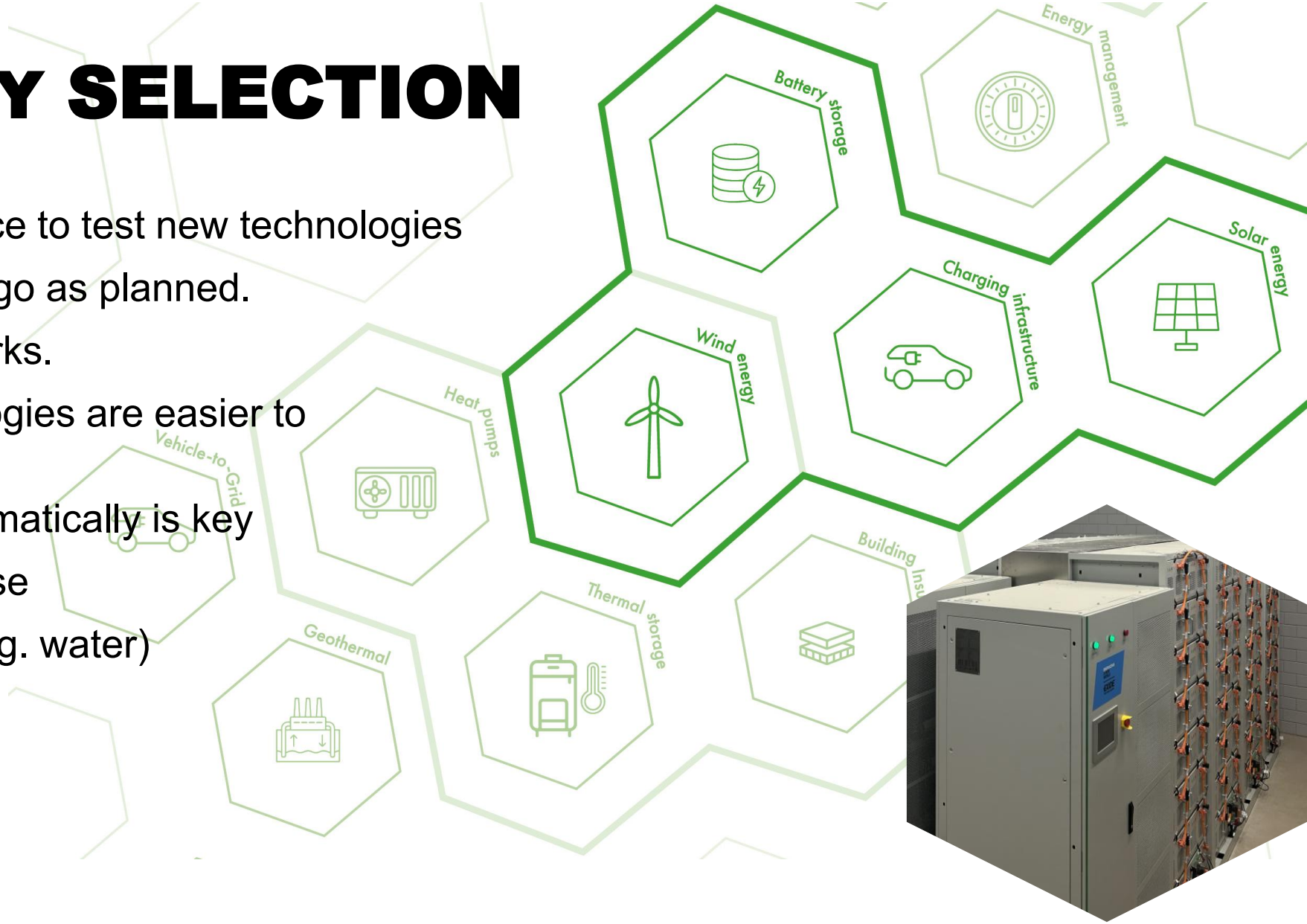
Already tested technologies are easier to implement

Integrating these systematically is key

Relates to business case

Context possibilities (e.g. water)

EMS



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PANEL MEMBERS

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Sovantania Kauv
DUT

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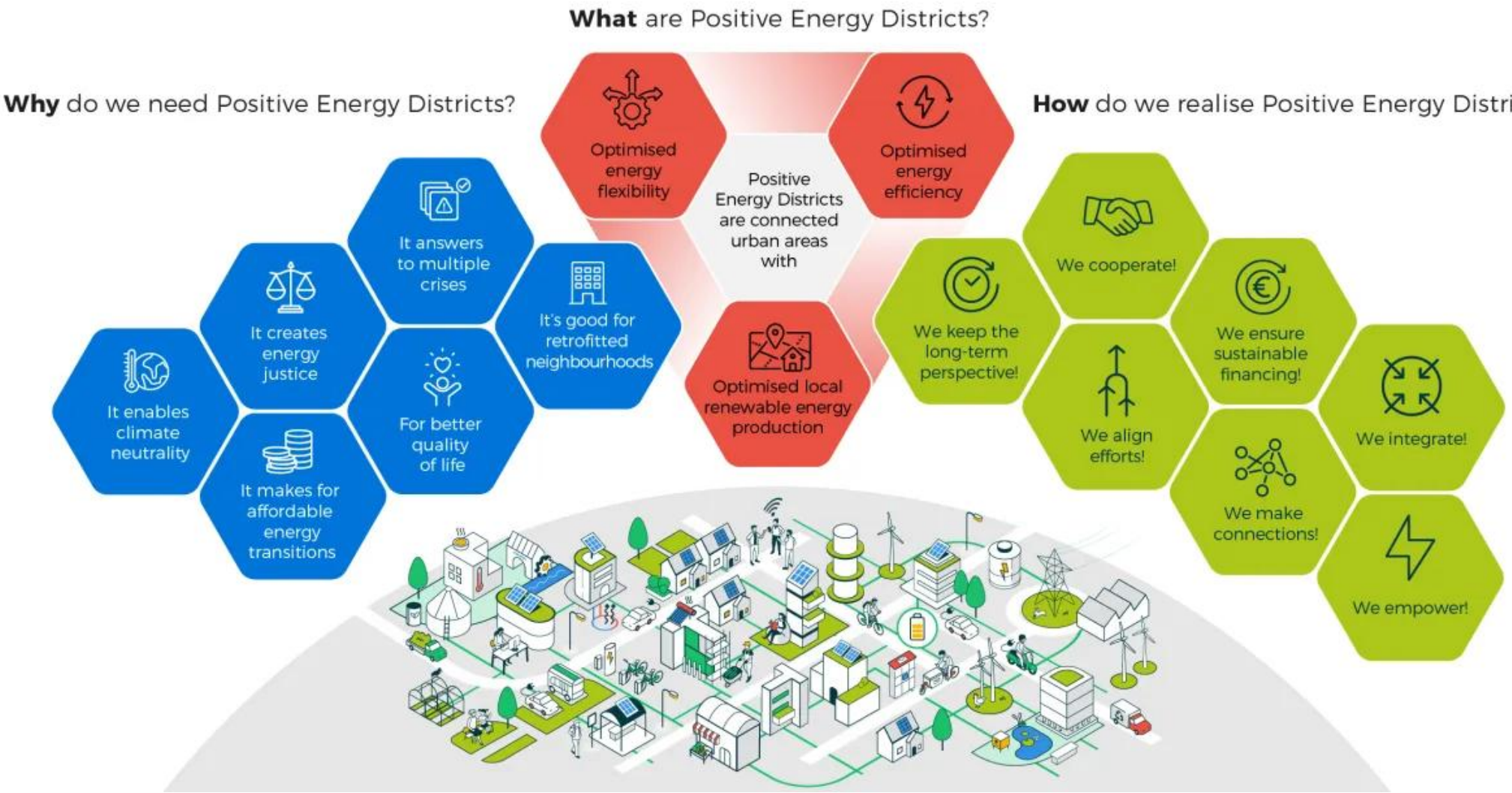
Framework 3.0 (DUT)



PED SUPPORT RESOURCES

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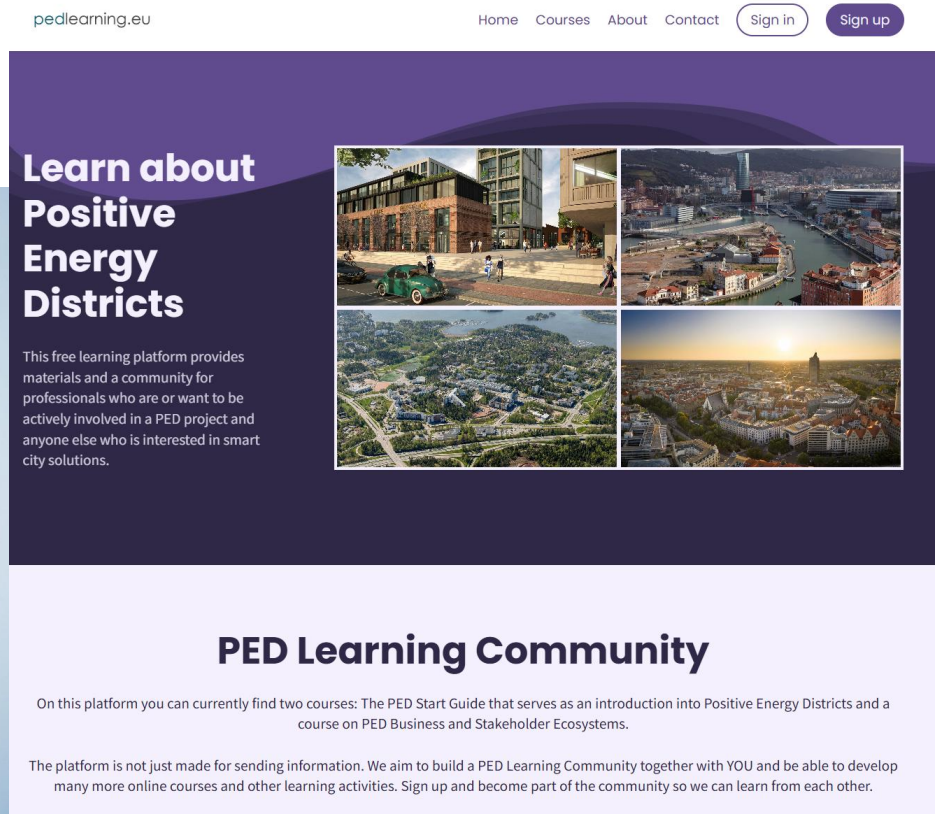
Why a MOOC in ATELIER?

- Massive Open Online Course (MOOC) = online, open, flexible learning
- Scales to many learners worldwide
- Key tool to disseminate ATELIER knowledge on PEDs



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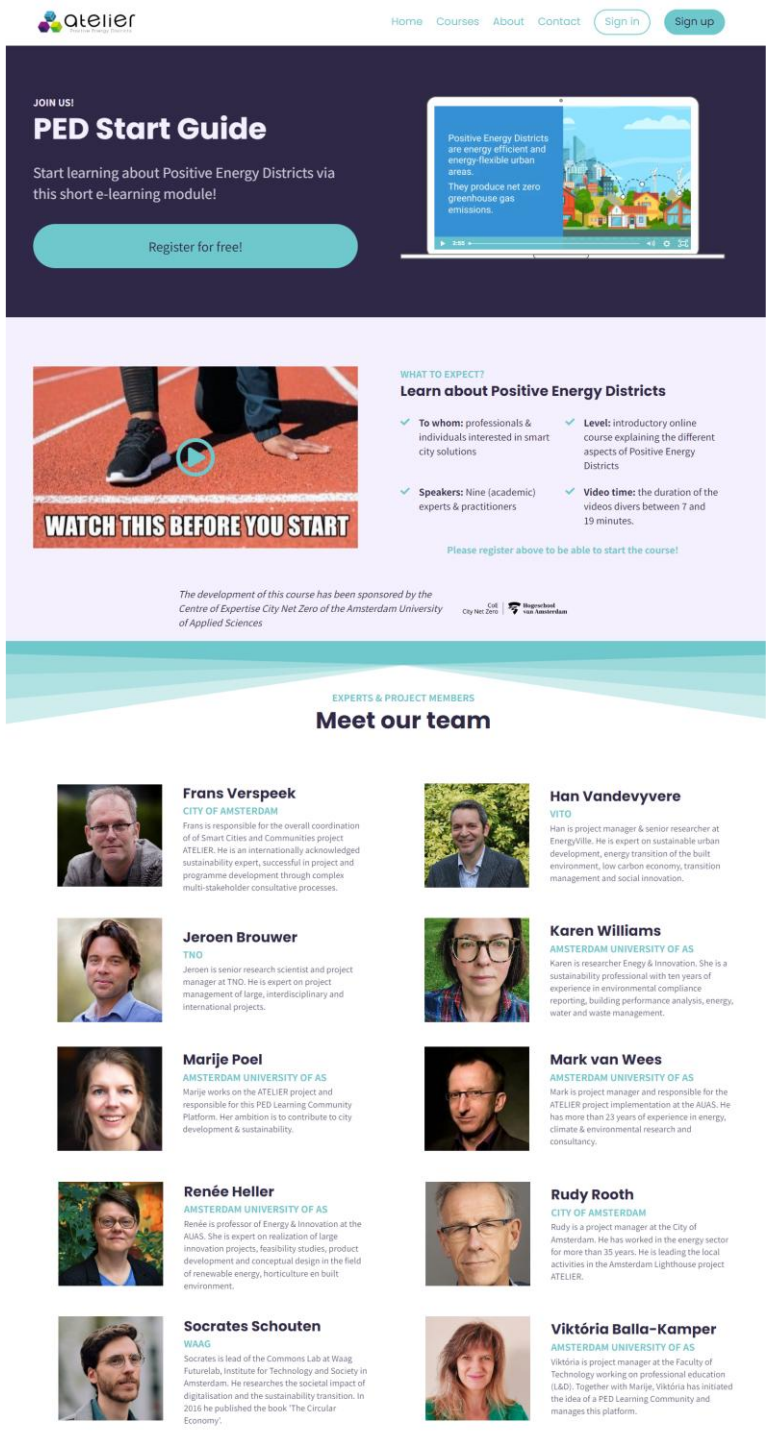
The “PED Start Guide” course

- Introductory course on PEDs
- 5 key themes
- From concept to practice



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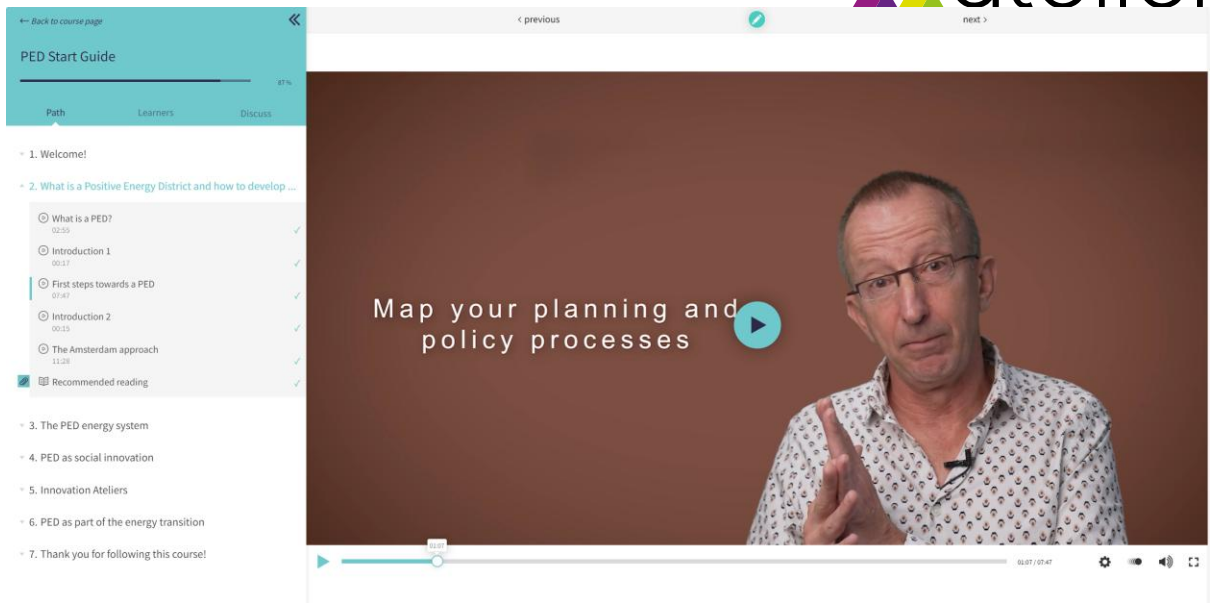
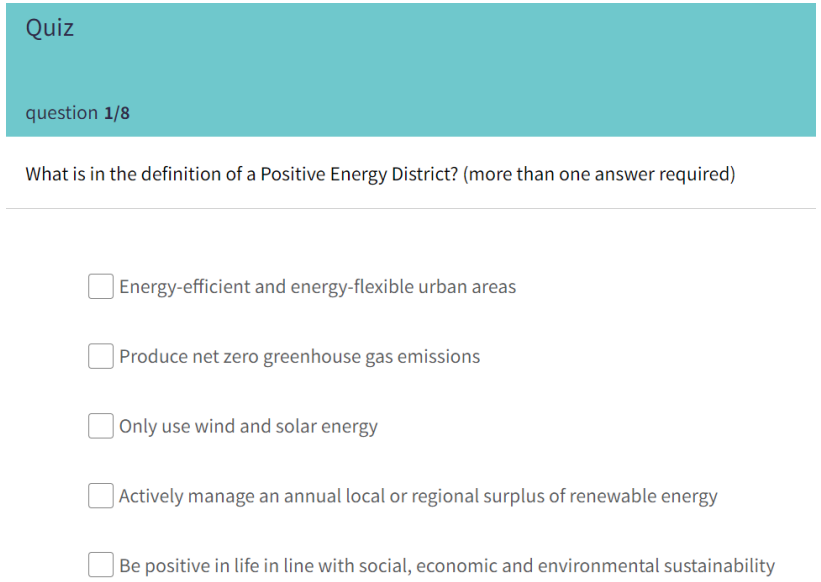
How the MOOC works

- Open platform: pedlearning.eu
- Self-paced, modular
- Videos, quizzes, discussion





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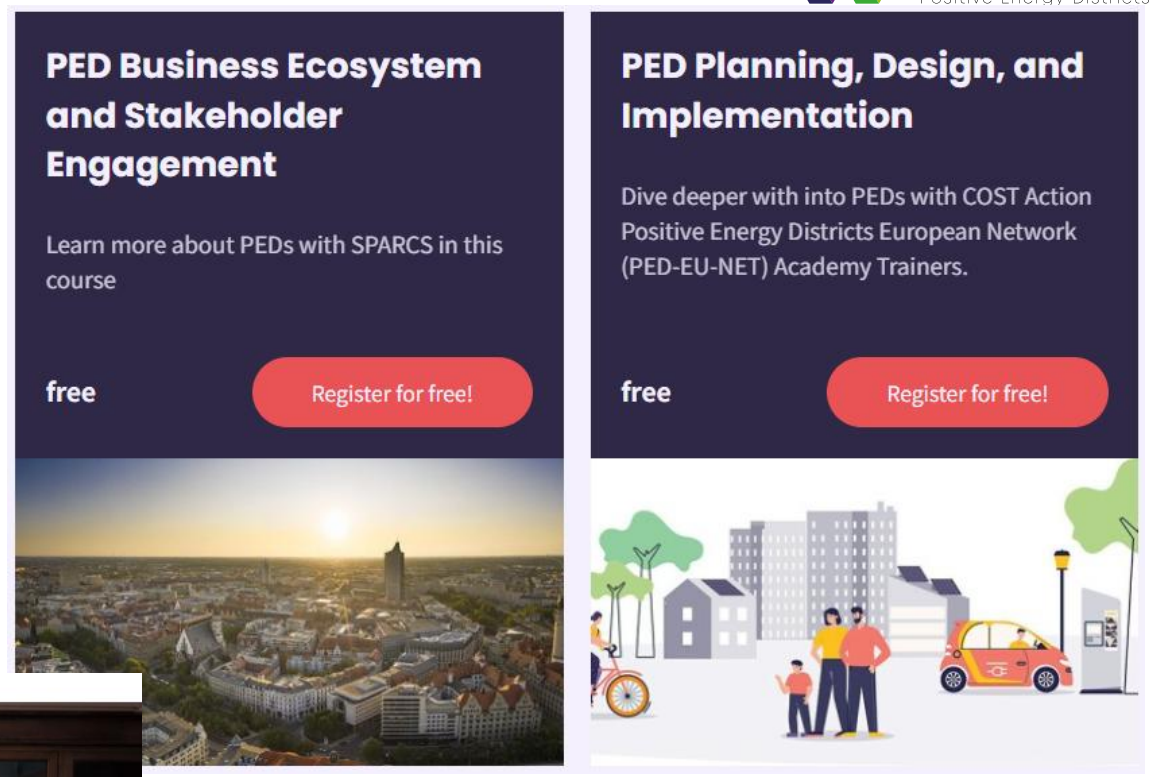
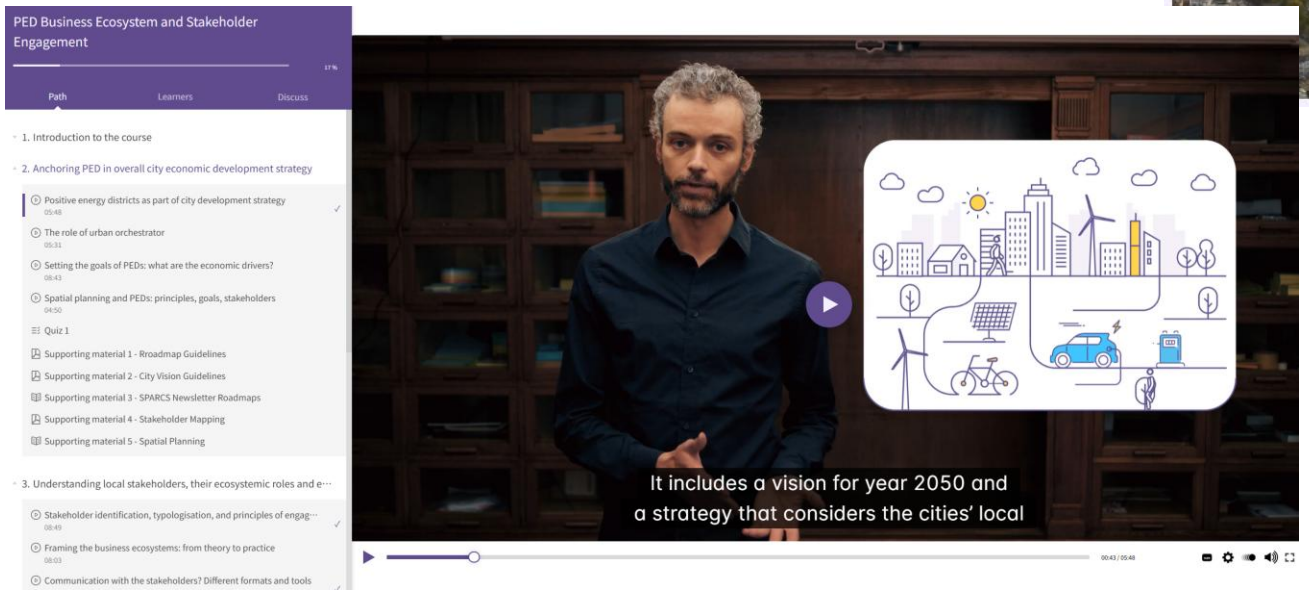
Outlook: what's next?

More content & languages

Long-term learning hub

Potential merge with other platform(s)





PED EU NET

SPARCS

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+CityxChange: 7 Pathways to PEDs

- “A PED is a process, not a product”
- PEDs driving local strategies
- Collaboration & mindset shift
- 2 fully operational integrated PEDs
- PEDs as stepping stones towards Climate-Neutrality

Dirk Ahlers & +CityxChange Team

NTNU – Norwegian University of Science and Technology, Trondheim

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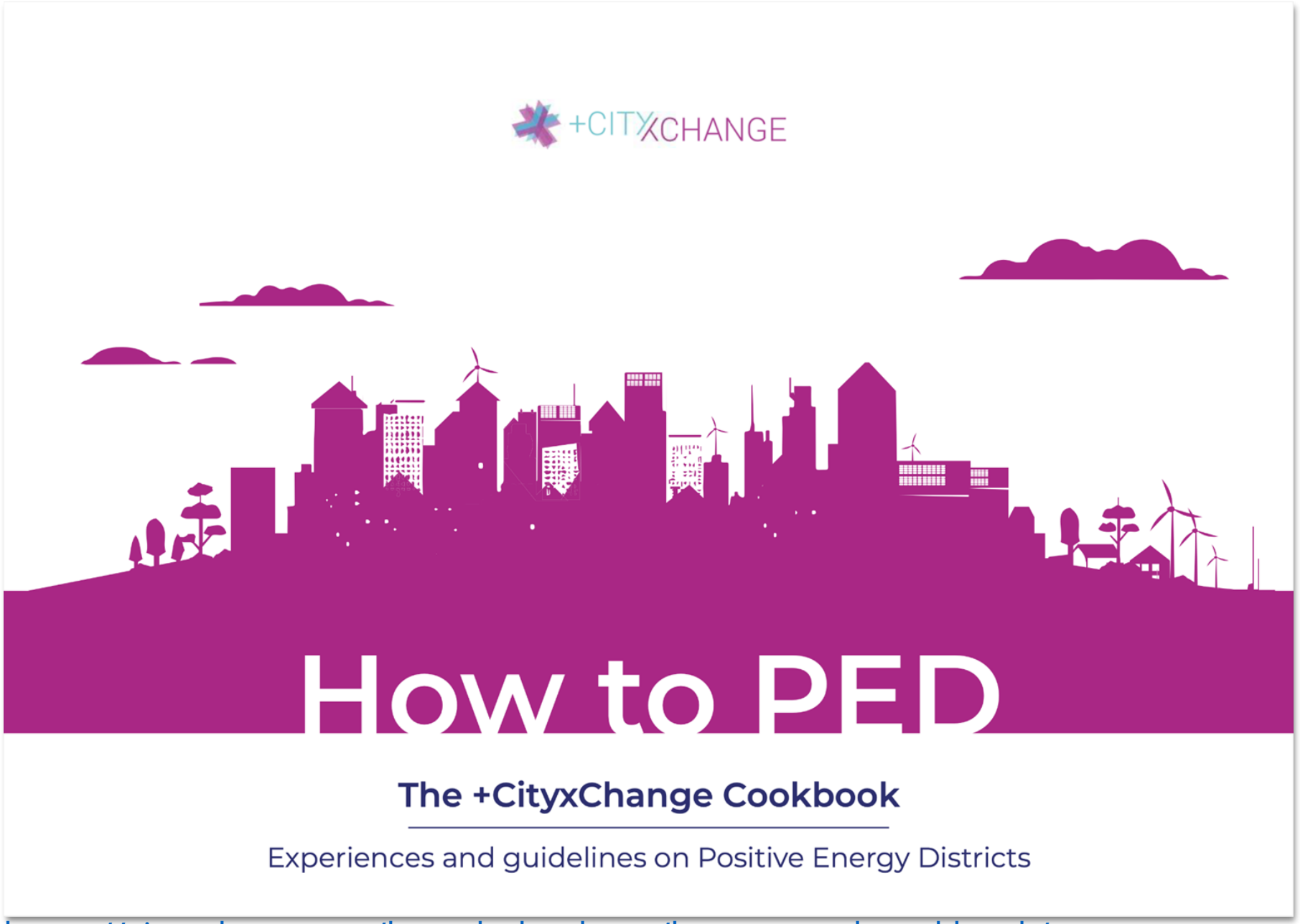

https://cityxchange.eu/knowledge-base/how-to-ped-cookbook/

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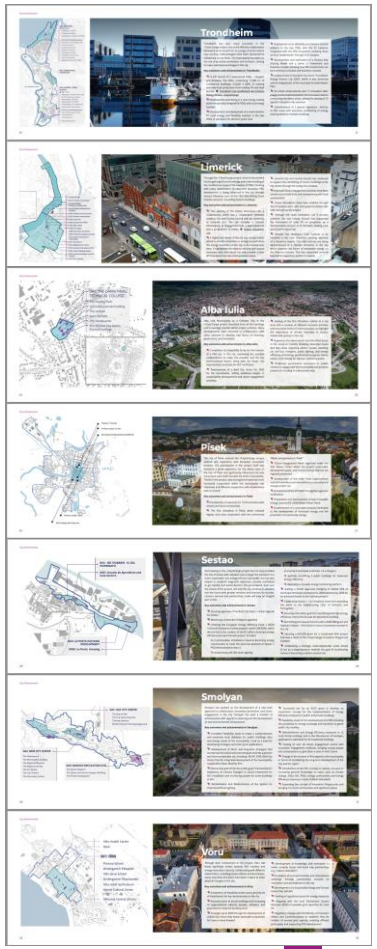
+CITYXCHANGE



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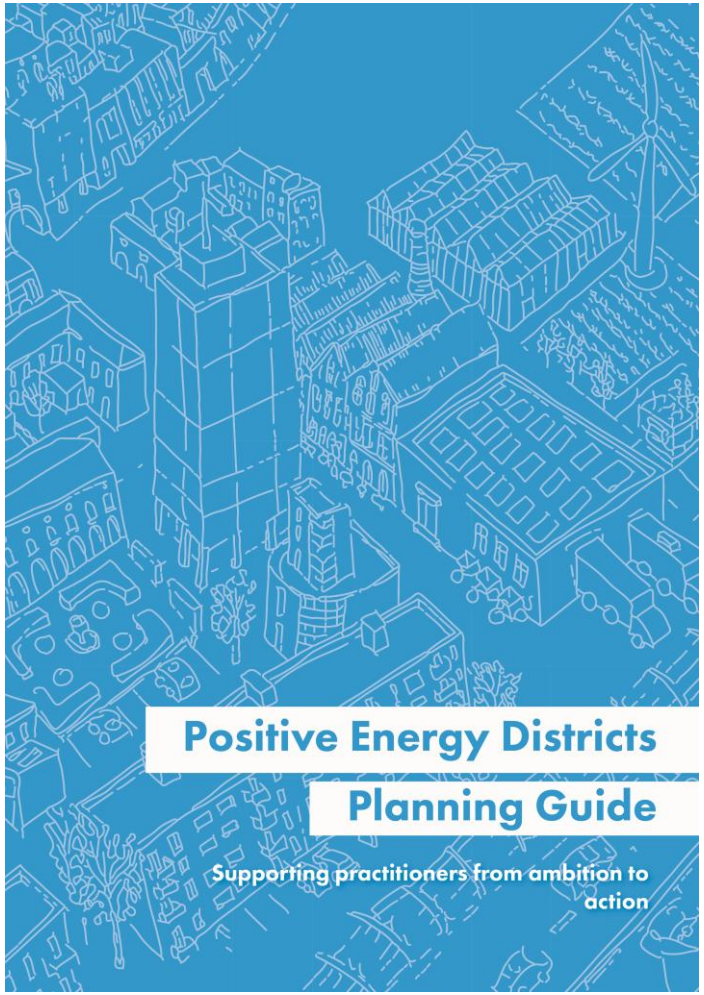
Why this guide was developed

From extensive project documentation to a practitioner friendly visual guide



https://smartcity-atelier.eu/app/uploads/PED-planning-Guide20226.pdf

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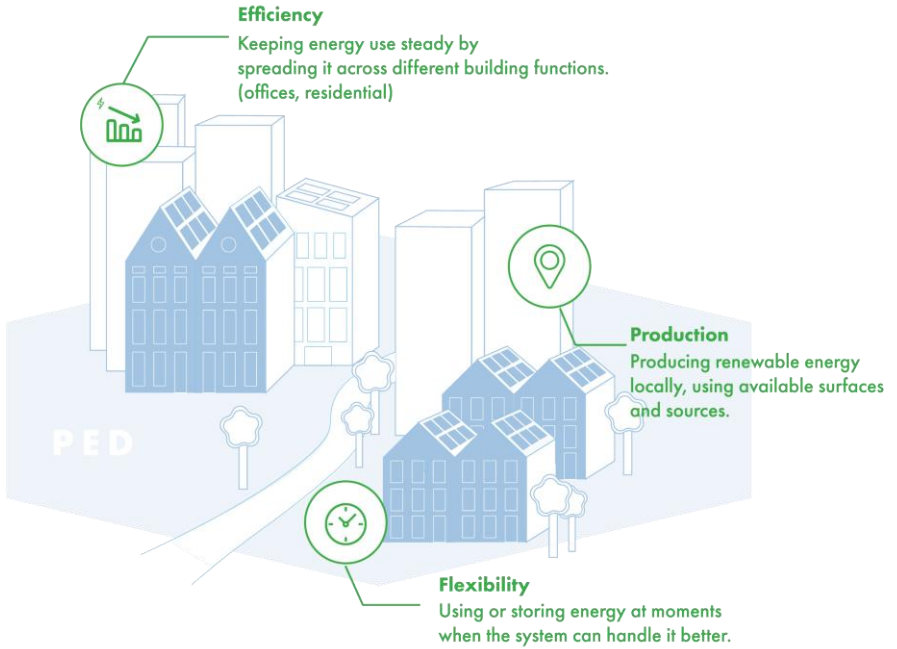
The logic of a PED

Setting the basis for the guide

Efficiency – Spreading energy over multiple functions

Flexibility – Using or storing energy when the system can handle it better

Production – Producing energy locally



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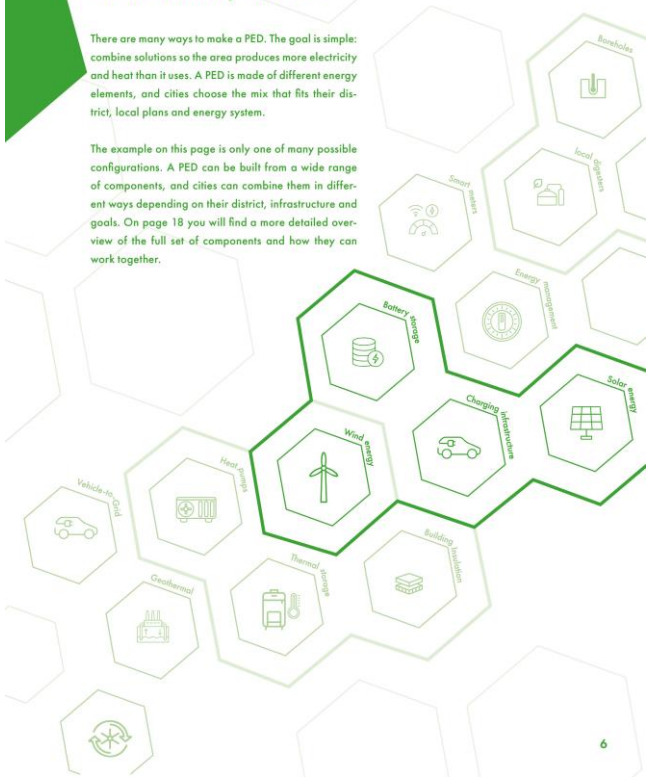
What is needed for creating a PED?

The Components

The modularity of a PED

There are many ways to make a PED. The goal is simple: combine solutions so the area produces more electricity and heat than it uses. A PED is made of different energy elements, and cities choose the mix that fits their district, local plans and energy system.

The example on this page is only one of many possible configurations. A PED can be built from a wide range of components, and cities can combine them in different ways depending on their district, infrastructure and goals. On page 18 you will find a more detailed overview of the full set of components and how they can work together.



The Stakeholders

Who should be involved?

A PED involves a few key groups. Each looks at the area from a different angle and helps shape the final setup, within existing spatial, technical and governance contexts. Land owners focus on what can realistically change on the site. Energy experts look at energy demand, grid capacity and heat options, as well as technical, regulatory and system-related constraints, including existing energy networks and supply strategies. Area planners connect these insights to zoning, public space, timelines, renovation cycles and city objectives. Local users explain their needs, as they live or work in the area and influence how energy is used in daily life.

The Area

What you need to check

Every area has different characteristics. Before choosing where to start a PED, it helps to look at a few basic aspects: how the area is structured, which networks and buildings are already there, and who owns, uses or manages them. These checks help you understand whether a PED is realistic in this area, and what kind of PED could emerge given the local spatial, technical and institutional conditions.

The place

what the area looks like and how it works
This helps you see how space, density and functions shape what is possible for a PED in this area.

Existing infrastructure

What already powers and connects this area
This map shows a hypothetical situation with energy, water and transport lines that are there. This helps you understand how existing networks may support or limit a PED.

People and ownership

Who is here, who owns what, and who is active
This helps you understand who you need to talk to, and how ownership and use may influence what is feasible. This map shows a community, a developer on the brownfield and a stadium close to the area.

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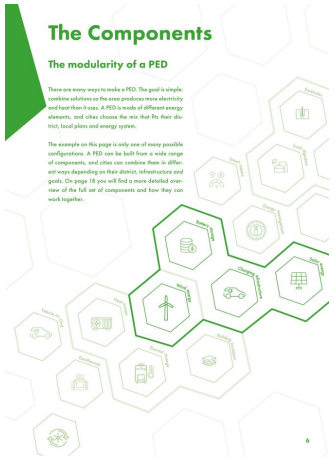

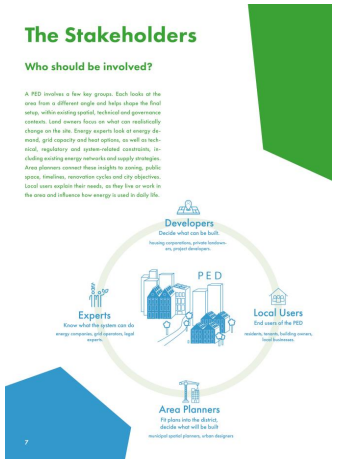

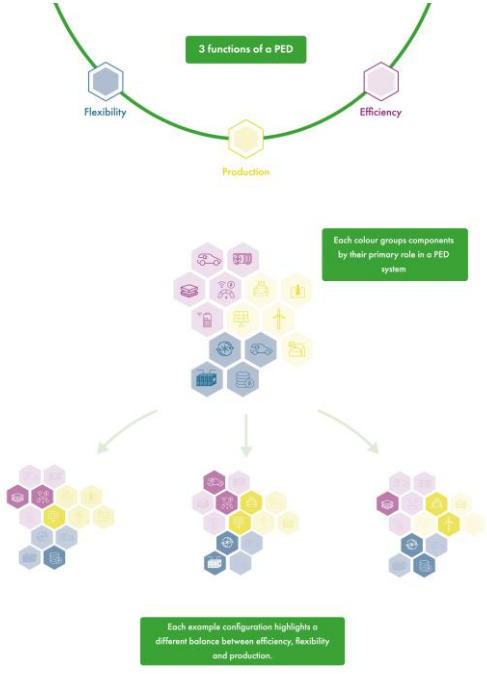

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Deepening: Area, modularity, collaboration

Context fit

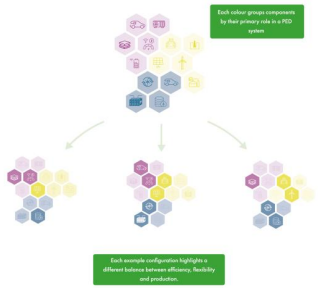
Understand what is already there: infrastructure, ownership, spatial constraints.

Modularity

There is no blueprint.

Collaboration

Build your core team



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Grounded in Practice

Based on lessons from Amsterdam & Bilbao

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Thank you!

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