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## **SET-Plan Action 3.2 Smart Cities and Communities Joint Programming Initiative Urban Europe Programme on Positive Energy Districts (PEDs)**

JPI Urban Europe Breakfst Talk on PED Definition  
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## Why Energy Positive Urban Districts/Neighbourhoods?

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- More than 70% of the global energy consumption and 80% of the CO<sub>2</sub> emissions originate in cities.
- Cities have the decision-making power to bring about the transition towards a climate friendly society by creating quality of life through...
  - energy-flexible, CO<sub>2</sub>-neutral (or energy-positive?) urban districts/neighbourhoods, which are synergetically embedded in their local/regional energy systems
  - sustainable urban structures which actively embrace the SDGs
  - urban infrastructures, which are attractive for businesses
  - urban areas made for walking



## Who are the Problem Owners in the Case of PEDs?

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- Problem owners are actors who take political or financial ownership
- When it comes to urban districts & neighbourhoods,
  - **political ownership** lies with the city councils
  - **financial ownership for urban infrastructures** lies with city administrations and urban utilities
  - **financial ownership for the built environment** is reflected in the investment chain of the real estate sector
- Neither the construction industry nor the engineering industry act as problem owners
  - They work by order of cities or investors
  - They do not invest their own money (unless they have subsidiaries which act as investors)



## Dialogue with Problem Owners

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- Problem owners have decision-making power, because they invest
  - Cities
  - Real estate developers
  - Industry, when they build their own facilities
- How to foster innovation in the creation of sustainable structures
  - Through funding instruments, which allow cities to implement their planning and permission processes in a sustainable way („living labs“?)
  - By enabling cities to include industry and research „on eye-level“
- How to empower small or shrinking cities
  - Supporting their competitiveness and attractivity on European level
  - Creating support via national city networks
  - Providing links to national, european, and international initiatives



# Role and Function of PEDs within the Energy System

## IWG 3.2:

- Integration of **energy and mobility**
- **Local energy networks**
- Flexible **energy consumption**
  - Demand-response
  - Sector coupling
- **Storage options**
  - Electricity storage
  - Power to X
  - Thermal storage (heating, cooling)
    - Thermal mass activation
    - Latency of heating/cooling cycles

## Smart Energy Systems

Optimisation

**Towards Plus Energy Districts**  
for sustainable urbanisation

**Smart Cities and Communities (PEDs)**

## IWG 4:

- **Regional focus**
- **Smart integration** of infrastructure & technologies
- Regional **supply of renewable energy**
- Integration of **heating and cooling**
- **Smart services**

## IWG 5:

- Optimised **energy efficiency**
- **On-site generation** of renewable energy

**Energy efficiency in buildings**



## “Energy Sponge”- Function of Urban Areas



## Final Remarks

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Urban infrastructures and the urban built environment needed for the creation of Positive Energy Districts (PEDs) do not follow the typical market logic of technological artefacts

- They are **not scaleable on global level**, like renewable energy technologies
- They **don't have a specific market framework**, like the energy or telecom market
- They rely heavily on **political vision** and on **societal dialogue**
- Business cases for PED/PEN depend on **agreements between all parties involved** in order to be sustainable over time
- A PED implementation programme will therefore have to focus not only on R&I, but also on the **creation of frameworks for local political action** (e.g. via a PED city network)

# Thank you for your attention!

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