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# Towards “Positive Energy Neighbourhoods” (PEN) – What are the challenges?

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EUKN Conference “Energy transition in the built environment”

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# The European Strategic Energy Technology (SET) Plan & the PEN Programme

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## The SET Plan

- aims to accelerate the development and deployment of low-carbon technologies. It seeks to improve new technologies and bring down costs by coordinating national research efforts and helping to finance projects.
- promotes research and innovation efforts across Europe by supporting the most impactful technologies in the EU's transformation to a low-carbon energy system. It promotes cooperation amongst EU countries, companies, research institutions, and the EU itself.

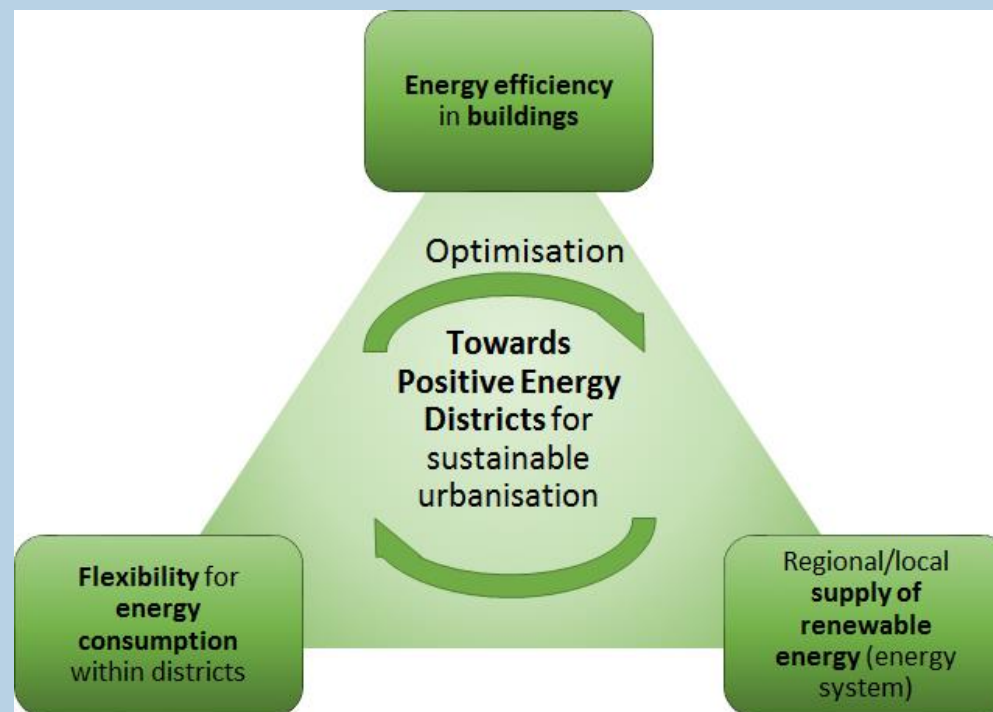
## SET Plan Action 3.2 on “Smart cities and communities”

IP: [https://setis.ec.europa.eu/system/files/setplan\\_smartcities\\_implementationplan.pdf](https://setis.ec.europa.eu/system/files/setplan_smartcities_implementationplan.pdf)

- Programme Management of SET Plan Action 3.2: **“Positive Energy Neighbourhoods for sustainable urban development”** (“PEN programme”) embedded in **JPI Urban Europe**
- **Transnational, intergovernmental initiative for planning, deployment and replication of PENs: R&I support and European boost of PENs**

## What is a PEN?

PENs will be developed in an open innovation framework, driven by cities in cooperation between industry and investors, research and citizen organisations. **In this context, a PEN is seen as a neighbourhood with annual net zero energy import and net zero CO<sub>2</sub> emissions, working towards an annual local surplus production of renewable energy.**



# Why PENs? Ambition & goals

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## PENs

- **raise the quality of life in European cities,**
- **contribute to achieve the COP21 targets and**
- **enhance European capacities and knowledge to become a global role model and market leader**
  - in technology integration for and deployment of **Positive Energy Neighbourhoods (PEN)** taking into account aspects of inclusiveness
  - with the aim **by 2025** to have at least **100 successful Positive Energy Neighbourhoods** synergistically connected to the energy system in Europe and
  - with a strong export of related technologies

## Development of integrative approach including

- **technology, spatial, regulatory, legal, financial, environmental, social and economic perspectives, to**
- **support the planning, deployment and replication of PENs for sustainable urbanisation.**

## Who's in?

- 17 countries: AT (Chair), BE, CY, CZ, DE, ES, FI, FR, IT, LV, NL, NO, PT, SE, SK, TR, UK
- Programme lead: JPI Urban Europe
- Stakeholders:

DHC+TP

District Heating and Cooling Technology Platform

ECTP / Co-Chair

European Construction Technology Platform

EERA JP on Smart Cities

European Energy Research Alliance

EIP SCC

European Innovation Platform Smart Cities and Communities  
Initiative on Positive Energy Blocks, Initiative on Scaling up &  
Replication of Smart City Plans

EPRA

European Public Real Estate Association

ERRIN / Co-Chair

European Regions Research and Innovation Network

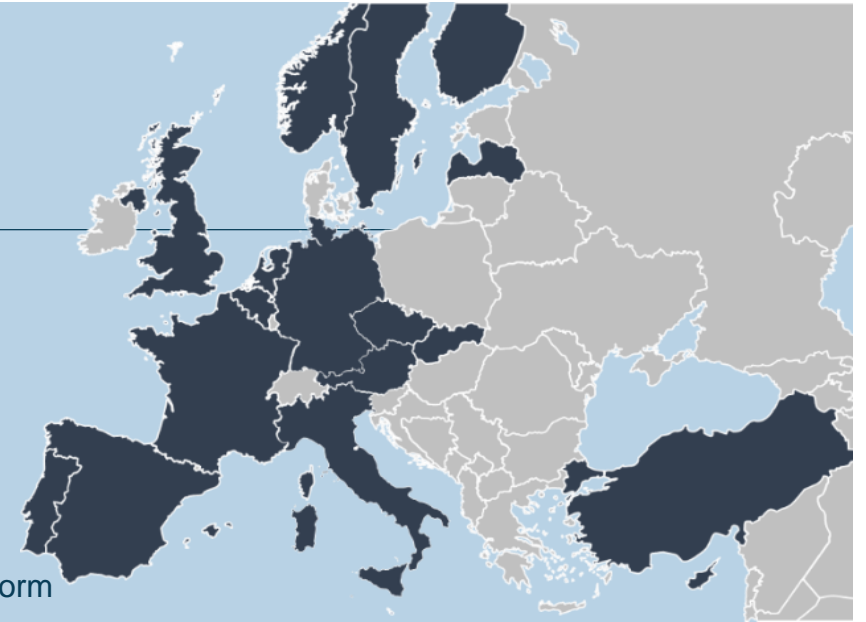
EUA-EPUE

EUA Energy and Environment Platform

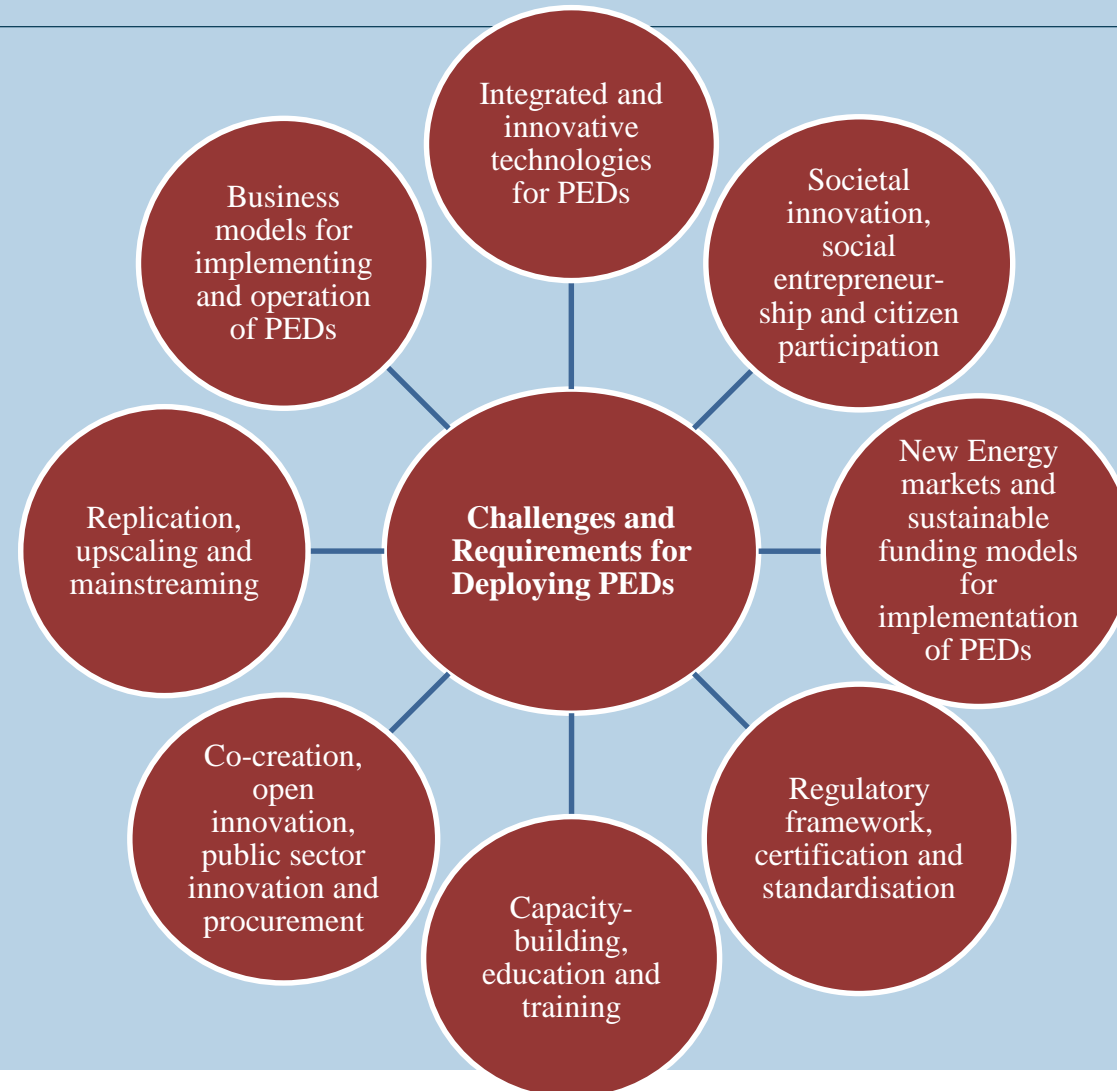
RHC-ETIP

European Technology and Innovation Platform on Renewable  
Heating and Cooling

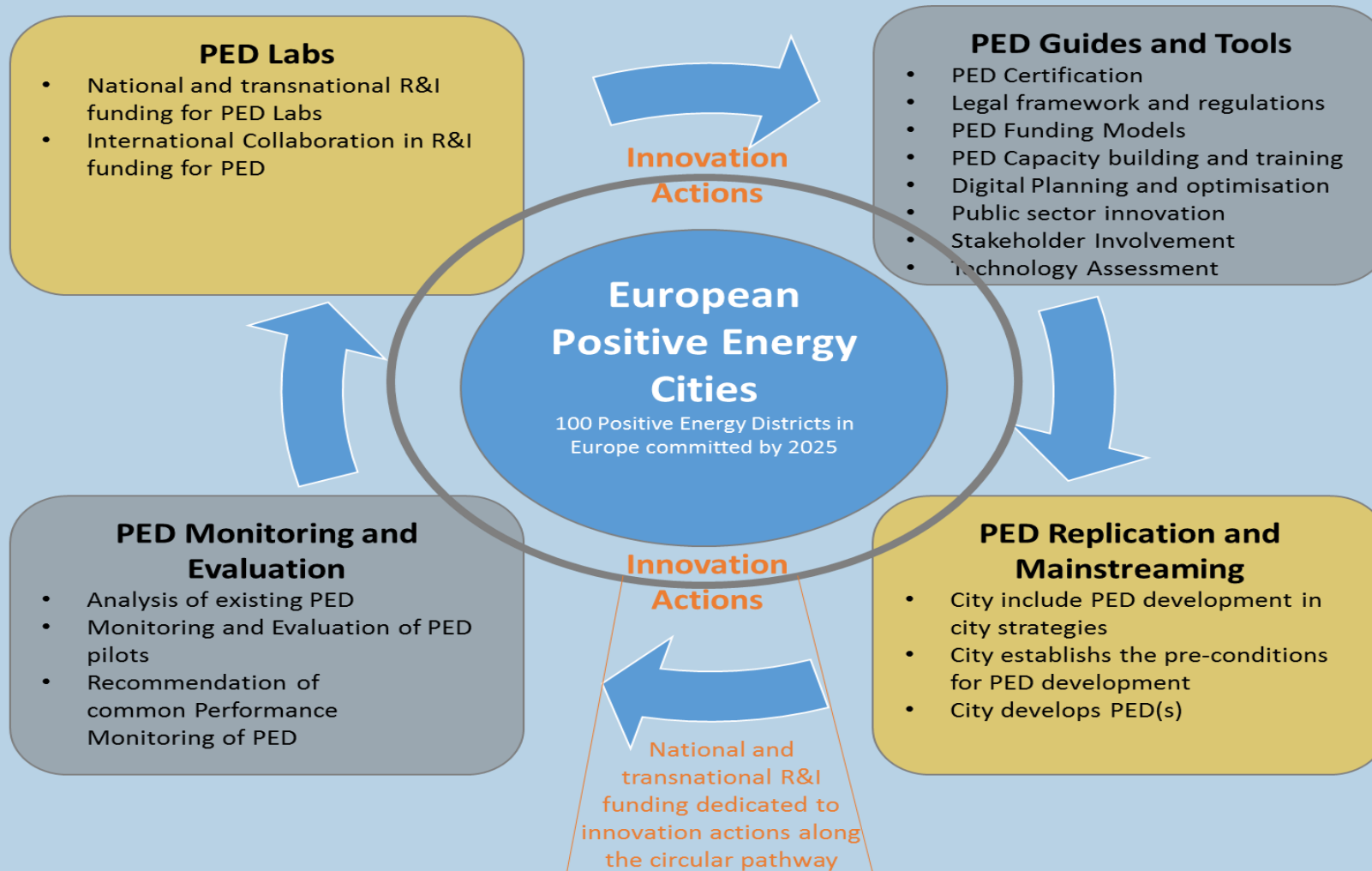
and other networks



# Challenges and requirements for PEN deployment



# Pathways towards PEN implementation



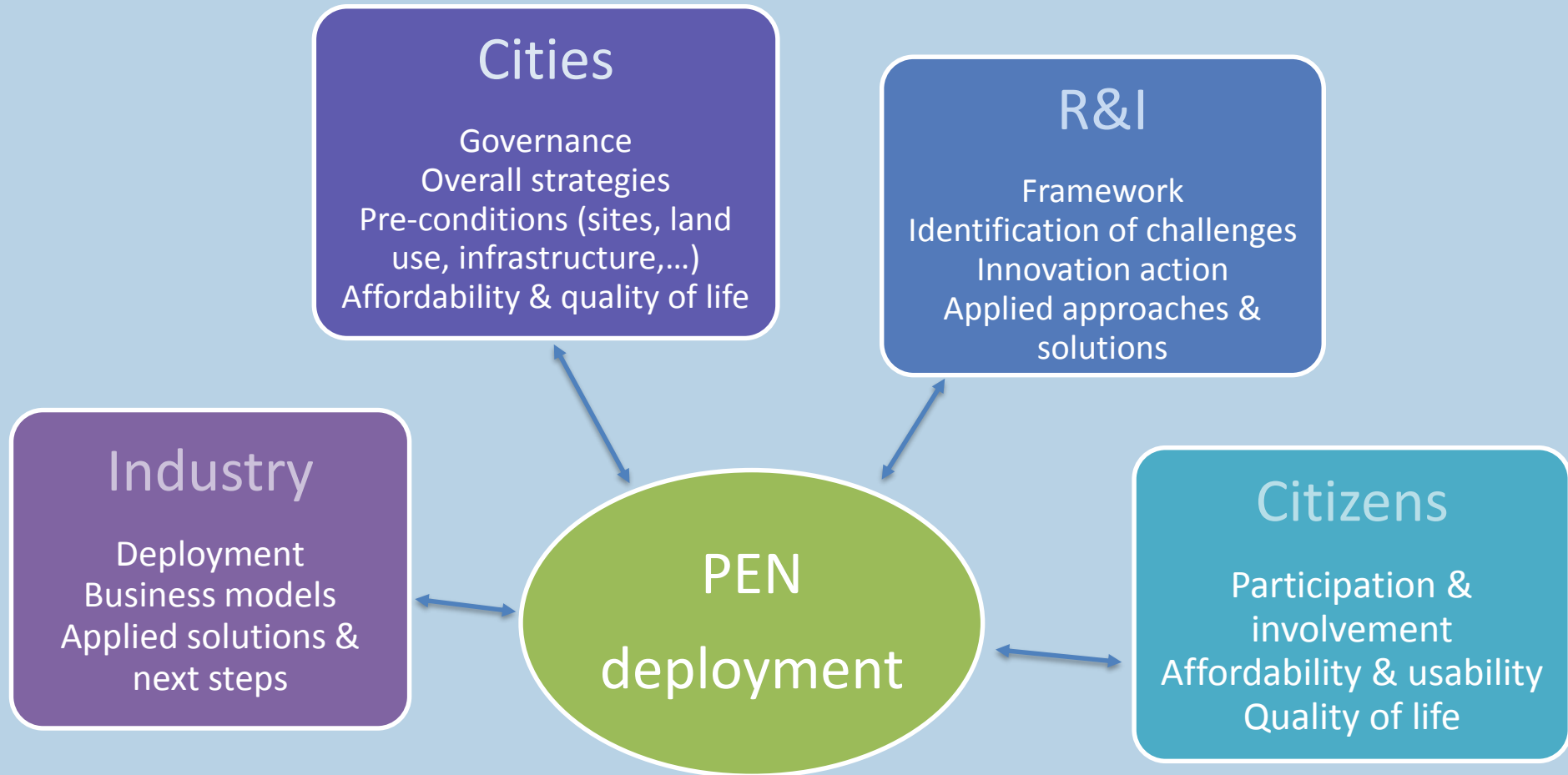
# PEN Programme approaches

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- **State of play – state of technology – state of society**
  - Mapping of existing approaches, identification of technological and societal barriers
  - Development of comprehensive approaches: technology, spatial, regulatory, legal, financial, environmental, social and economic perspectives
  - Consideration of regional differences within Europe
- **Development of PEN framework (scope)**
  - PEN not only as a technological solution
  - Practicable framework allowing different approaches
  - minimum set of PEN attributes
  - Step-by-step-approaches
- **Preparation of Joint Actions/Calls**
  - National and transnational funding of Innovation Actions
  - Responding to actual needs and state of play
  - Open innovation & experiments: PEN Labs
- **Process management**
  - Involvement of and cooperation between stakeholders
  - Pathways towards implementation



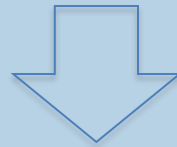
## PEN Programme partners



## Cities as driving forces

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- Urban population
- Energy consumption
- Carbon footprint

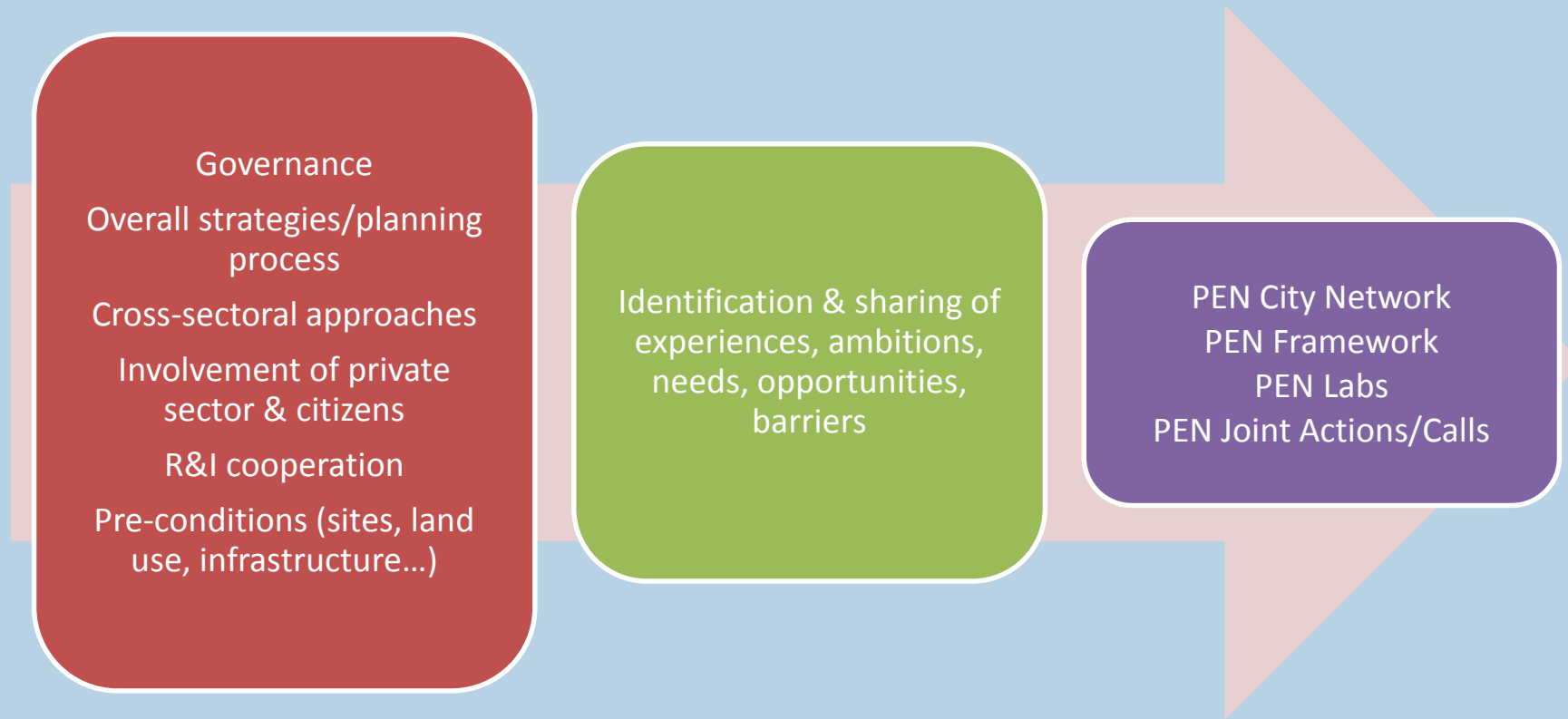


- Local actions with global impact
- Key actors in energy transition and PEN deployment (setting of pre-conditions, normative framework,...)
- Understanding needs and differences
- Quality of life and and social issues
- Cooperation with R&I

Current H2020 Lighthouse projects: [www.cityxchange.eu](http://www.cityxchange.eu) (NTNU), Making-City (CARTIF)

## Cities as driving forces – what do they need?

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## Questions for discussion

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- Why Positive Energy Neighbourhoods? How to raise awareness?
- PEN framework/definition/approaches – needs, opportunities, challenges, obstacles? What do cities need?
- PEN experiences/approaches in The Netherlands/Dutch cities? Good/bad practice?
- PEN Programme and Dutch policy regarding energy transition – relation/collaboration?

## Further Information & contact

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<https://setis.ec.europa.eu/>

**URBAN EUROPE** [www.jpi-urbaneurope.eu](http://www.jpi-urbaneurope.eu)

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