

## EERA Joint Programme Smart Cities

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<b>Number participants and associates:</b>	23 full participants (thereof 2 umbrella organisations), 55 associated participants (including 5 industry partners) from 17 countries contributing around 277 person years per year

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### Why a Joint Programme on Smart Cities?

As urbanisation is progressing worldwide and due to the fact that almost two thirds of our energy is consumed in urban environments, intelligent cities will play a significant role for the complete and successful implementation of the EU SET (Strategic Energy Technology) Plan. In this context, the integration of renewable energy sources into urban energy networks and the increase in energy efficiency in cities are some of the core topics to be addressed in the near future for achieving the ambitious targets with respect to CO<sub>2</sub> reductions.

### JP Smart Cities – objectives

The key objective of the Joint Programme is to develop new scientific methods and tools to support European cities in their transformation into smart cities. This will be achieved by the extensive use of low carbon technologies and smart energy management based on innovative design and operation of the entire urban energy system – from generation to distribution and consumption. The results obtained will provide the basis for unlocking the full potential of energy efficiency and large-scale integration of renewable energies in urban areas. This will lead to significant reductions in energy demand and greenhouse gas emissions while at the same time creating a liveable environment for residents.

Visit the webpage:

[www.eera-sc.eu](http://www.eera-sc.eu)[www.eera-set.eu](http://www.eera-set.eu)

## Joint Programme on Smart Cities Sub-programmes

### **Sub-programme 1: Energy in Cities** *coordinated by Hans-Martin Neumann, AIT (AT)*

Main objective of the sub-programme is the development of scientific tools that support the transition process towards a CO<sub>2</sub> neutral energy system of an entire urban area. Relevant support tools and methods will be developed enabling integrated urban energy planning: envisioning exercises, energy data systems, decision support, Key performance Indicators (KPIs), “Living lab” concepts and the interaction with other sustainable city aspects (mobility, waste, water, etc.).

### **Sub-programme 2: Urban Energy Networks** *coordinated by Mauro Annunziato, ENEA (IT)*

Main objective of the sub-programme is to develop approaches, methodologies and technologies in order to optimize energy metabolism of cities (i.e. production, distribution and consumption). In particular, the solutions and initiatives that will be pursued will aim at integrating both electrical and thermal energy networks by means of an appropriate operation & management system, fed by data networks spread at urban level.

### **Sub-programme 3: Energy-efficient Interactive Buildings** *jointly coordinated by Annemie Wyckmans, NTNU (NO) and Mads Mysen, SINTEF (NO)*

Main objective of the sub-programme is to develop and validate innovative, competitive holistic concepts, tools and demonstration cases for Energy-efficient Interactive Buildings in the urban context, contributing to their large-scale penetration of the European market. Research of this SP focuses on distinctive fields such as building design, innovative building envelope solutions, energy management, “building-to-grid” and the interaction with the user.

### **Sub-programme 4: Urban City-related Supply Technologies** *coordinated by Pablo Dolado, GitSE/University of Zaragoza (ES)*

The objective of the sub-programme is to develop and use tools enabling the design and the evaluation of urban city-related (renewable) energy supply technologies integrated on district or city level. An appropriate modelling and simulation framework including numerical component oriented models and libraries shall be at the core of research. In addition the city-industry interaction shall be investigated in order to optimize available synergies (e.g. use of waste heat).

### **Taskforce on “Simulation Platform Development”** *under the lead of Sub-Programme 1 (embedded within all 4 SPs)*

Aim of the taskforce is to share information and analyse tools for modelling and simulation of urban energy systems at various levels (buildings, grids, components, etc.), as well as to identify gaps and user requirements for the development of new tools. This work shall ultimately result in the establishment of an integrated modelling and simulation platform.