



# The Joint Programme on Smart Cities

## 欧洲智慧城市联盟

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# What is EERA?

## 什么是欧洲能源研究联盟 EERA?

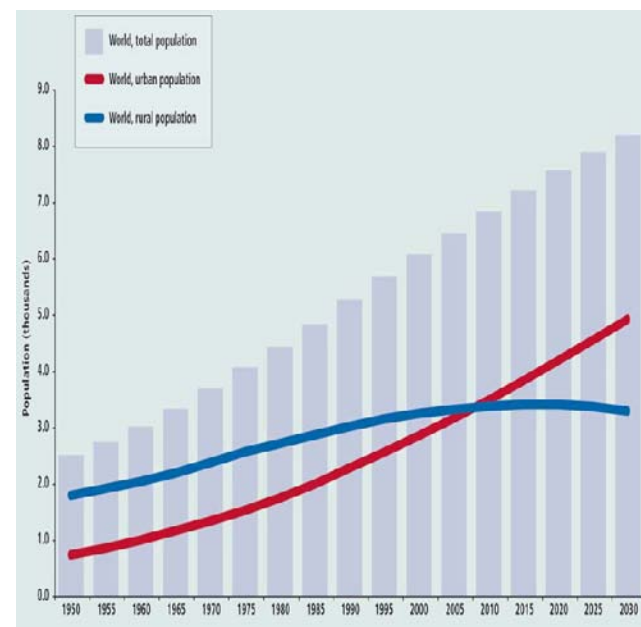
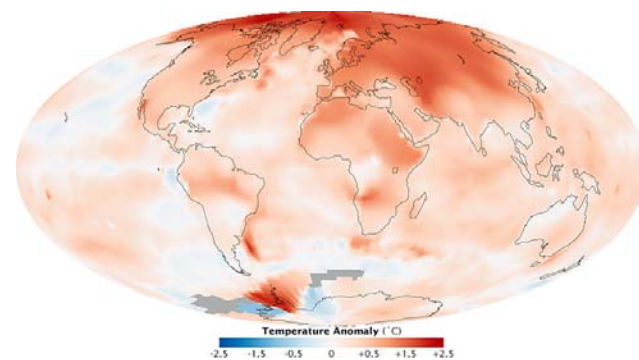
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- European Energy Research Alliance (part of SET Plan)  
欧洲能源研究联盟(欧盟SET计划一部分)
- Development of next generations of low-carbon energy technologies  
开发下一代低碳能源理念和科技
- Strengthen, expand and optimise national research capacities on EU level  
强化、扩大及优化欧盟的研究力量
- Joint Programming (JP) 联盟项目
  - Sharing of research facilities/capacities 共享研究设施及资源
  - Maximising complementarities and synergies 互补及联合
  - Avoid duplication, overcoming fragmentation 避免重复、打破分散



## Background 背景

- Climate change – CO<sub>2</sub> reductions  
气候变化 – 二氧化碳减排
- Dependency on fossil energy sources  
依赖化石能源
- Increasing energy demand  
能源需求增长
- Worldwide trend of urbanisation  
世界范围城镇化
- Challenge and chance 挑战与机遇
  - Urban areas display huge potential for energy efficiency  
城市区域具有巨大节能潜力
  - Cities as centers for innovation  
城市作为创新的中心
  - Cities at forefront of policy, industry and research  
城市作为政策，工业和研究研究的最前沿



# JP Smart Cities - Aims and objectives 目标

- Develop necessary scientific instruments and methods for 为以下领域，研发基础性的科学工具
  - Integrated urban planning and smart infrastructure  
一体化城市规划\智能基础设施
  - Unlocking full potential of cities regarding energy-efficiency 全面释放城市节能减排潜力
  - Massive renewables integration in urban areas  
城市大规模的可再生能源集成及应用
- Enable radical change in urban energy systems 促进城市能源系统进行革命性变革
  - Adopt multi-technology perspective and system approach  
符合技术和系统方法
  - New scientific methods for city-wide integrated energy planning, design and management  
城市能源系统一体化规划、设计和管理 新科学方法
  - Support cities in their transformation towards Smart Cities (Low carbon cities)  
支持向低碳城市转型



## Partners on board 联盟合作成员

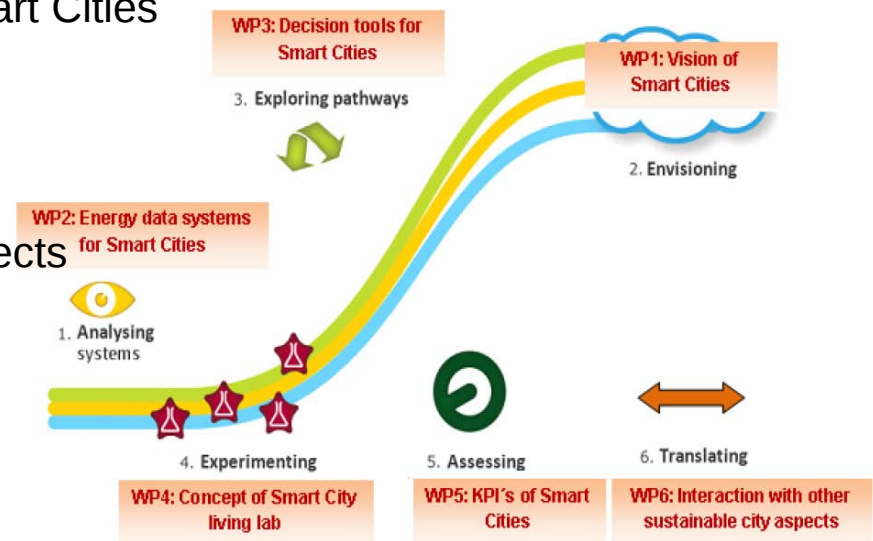
- 64 research institutions from 16 European countries  
16个欧盟国家的64个研究机构
- 4 industry partners (ENEL, Ericsson, Telecom, Luccioni, all Italy)  
4个工业界合作伙伴
- Total contributed human resources: **212.05 py/y**  
人员投入: 212.05人次 全年/每年
  - 子项目1 SP 1: 39.85 py/y
  - 子项目2 SP 2: 65.10 py/y
  - 子项目3 SP 3: 76.35 py/y
  - 子项目4 SP 4: 30.75 py/y



# SP 1 – Energy in Cities

## 子项目 1 – 城市能源

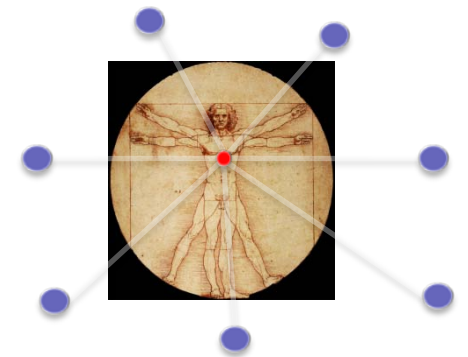
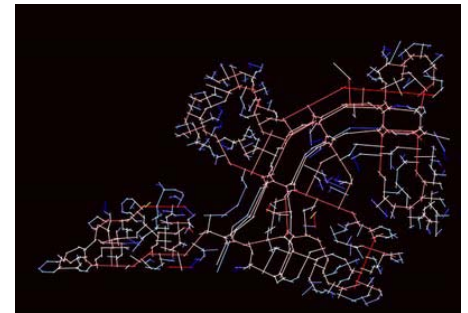
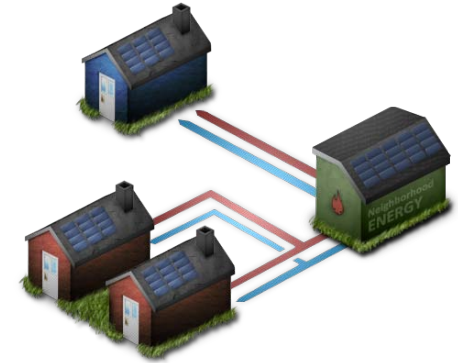
- Smart Cities visions and transition processes  
智能城市愿景及变迁步骤
- Development of energy data systems for cities  
建立城市能源数据系统
- Decision support tools for energy roadmaps and action plans on urban scale  
能源路线图及行动方案决策支持工具
- “Living lab” concepts in the context of Smart Cities  
智能城市领域的“实验室”
- KPI’s and progress monitoring  
关键绩效和成果的监控
- Interaction with other sustainable city aspects  
(water, waste, mobility,...)  
与城市其它可持续发展领域的对接



## SP 2 – Urban Energy Networks

### 子项目2 - 城市能源网络

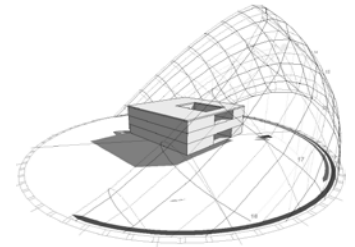
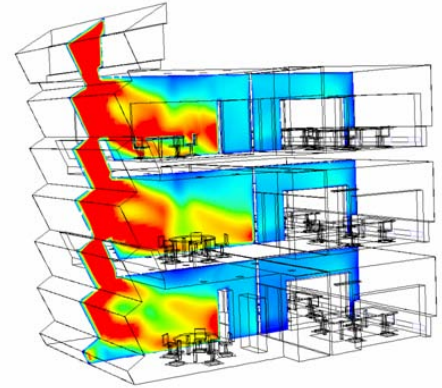
- Smart Energy Districts 智能能源区域
  - District heating & cooling management 区域供暖及制冷管理
  - Multi-sources energy management/balancing (thermal + electric)  
多渠道能源管理/平衡（热能+电力）
  - Connection of building cluster to smart grid  
将建筑和智能电网连接一起
- Urban network integration 城市网络整合
  - Urban sensor networks, data-energy transmission networks  
感应器网络及数据传输网络
  - ICT architectures of smart streets/districts  
智能区域信息技术架构
  - Energy-mobility network integration  
能源-交通网络整合
- Human factors: the city-citizen interaction  
人性因素：城市-市民互动
  - Interaction between citizen and urban networks in public space  
公共领域市民和城市网络交互
  - End-user grid interface 终端用户与能源网络的交互



## SP 3 – Energy-efficient Interactive Buildings

### 子项目3 – 能效互动性建筑

- Building design 建筑设计
  - Design concepts for various types of boundary conditions  
各式边界环境下设计理念
  - Modelling and simulation (BIM)建模和模拟
- Innovative building envelope solutions 创新型建筑外墙方案
  - Systems, advanced materials, components, RES integration  
系统、先进材料、部件以及可再生能源整合
- Energy management and grids interaction 能源管理和电网互动
  - Building services, smart building management, B2G  
屋宇设备、智能建筑管理及B2G
- User interaction 用户交互
  - End/professional users and indoor environment requirements
- Support strategies 支持策略
  - Policy and market instruments, case studies, dissemination



## SP 4 - Urban City-related Supply Technologies

### 子项目4 – 城市区域供应技术

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- Preliminary focus on solar energy, distributed heat-pumps and thermal energy storage  
关注太阳热能、热泵及热能储存
- Large-scale urban system integration 大规模城市中的集成
- Development of modelling & simulation framework 建模和模拟平台建立
- Large-scale test infrastructure, standards and procedures, guidelines  
大规模测试基础设施、标准以及步骤
- City-industry interaction (use of waste heat, RES integration, etc.)  
城市产业间交互（利用余热、可再生能源整合 等）
- Assessment of new technologies and their integration into infrastructure  
评估新型技术能否应用到基础设施系统中



## International collaborations 国际合作

- **JP Smart Cities is seeking collaborations with partners from emerging markets**

“智能城市”联盟项目 正寻求与新型经济体合作伙伴

- Initiate innovation cycle between Europe and partner countries  
启动欧洲与其它国家的联合创新
- Create win-win situations 共赢
- Enable economic boost in energy sector for both partners  
促进合作双方国家/地区的能源领域经济发展

- **JP Smart Cities as a „one-stop-shop“ for international collaboration**

“智能城市”联盟项目是欧盟与国际合作的“一站式”平台

- Strategic partner for EC in official dialogue with partner countries  
作为欧盟相关领域对外正式合作的战略合作伙伴
- Speaking with one voice representing European research on Smart Cities  
代表欧盟“智能城市”科研学术界 发出同一种声音

- **Types of potential collaborations: 可合作的类型**

- Research projects with partners from research, academia and industry  
与科研、学术及工业界开展联合课题研究
- Collaborations with city authorities on concrete innovative demonstration projects  
与城市管理部门建立联合创新型示范项目
- Sharing of best-practise experiences and lessons learned 分享最佳实践案例经验及教训
- Joint PhD schools etc. 联合博士培养学校等



# EU-China collaboration – the way forward

## 所需的合作框架 – 下一步探讨

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- Development of an EU-China joint Roadmap for Smart Cities (topics, objectives, milestones, etc.)  
制定中欧“智能城市”联合发展路线图
- Set up of co-operative framework dedicated to „smart urban infrastructure development“  
建立中欧技术联合研究框架 – 致力城市基础设施开发
  - Strategic alignment and opening of funding programmes on both sides (e.g. Horizon 2020)  
开启战略协同的双方联合资金支持项目（如，欧洲2020 Horizon计划）
  - Launch of joint calls 联合课题/实施项目研究启动
  - Flexible and transparent mechanisms 灵活、透明的合作机制
  - Involvement of city authorities/municipalities, industries and research 城市管理、工业、研究领域共同参与
- Implementation of EU-China „flagship“ projects 中欧示范”旗舰项目“启动
  - Highly innovative pilot cities and demonstration zones at large scale 高度创新城市和示范区启动
  - Creation of real „Living labs“ in the Smart Cities context 建立智慧城市”实验基地“
  - Bring EU-China cooperation to the ground 把中欧合作落到实处
- Collaborations between EERA JP Smart Cities and city authorities/municipalities in China  
„欧盟能源研究联盟EERA”与中国城市政府及管理部门建立合作
  - Providing EU scientific support for integrated urban planning, implementation and monitoring  
为城镇一体化规划提供科研、技术支撑
- Sharing of best-practise experiences and lessons learned 共享最佳案例经验与教训
  - Linking EU and Chinese cities 中国与欧盟的城市相互交流



Thank you! 谢谢

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