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Work Package Lead (3.2) – Sharing Cities



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BUILDING SMART CITIES TOGETHER

# SHARINGCITIES



## IN NUMBERS

€23million Programme

6 European Cities

32 Technical Partners

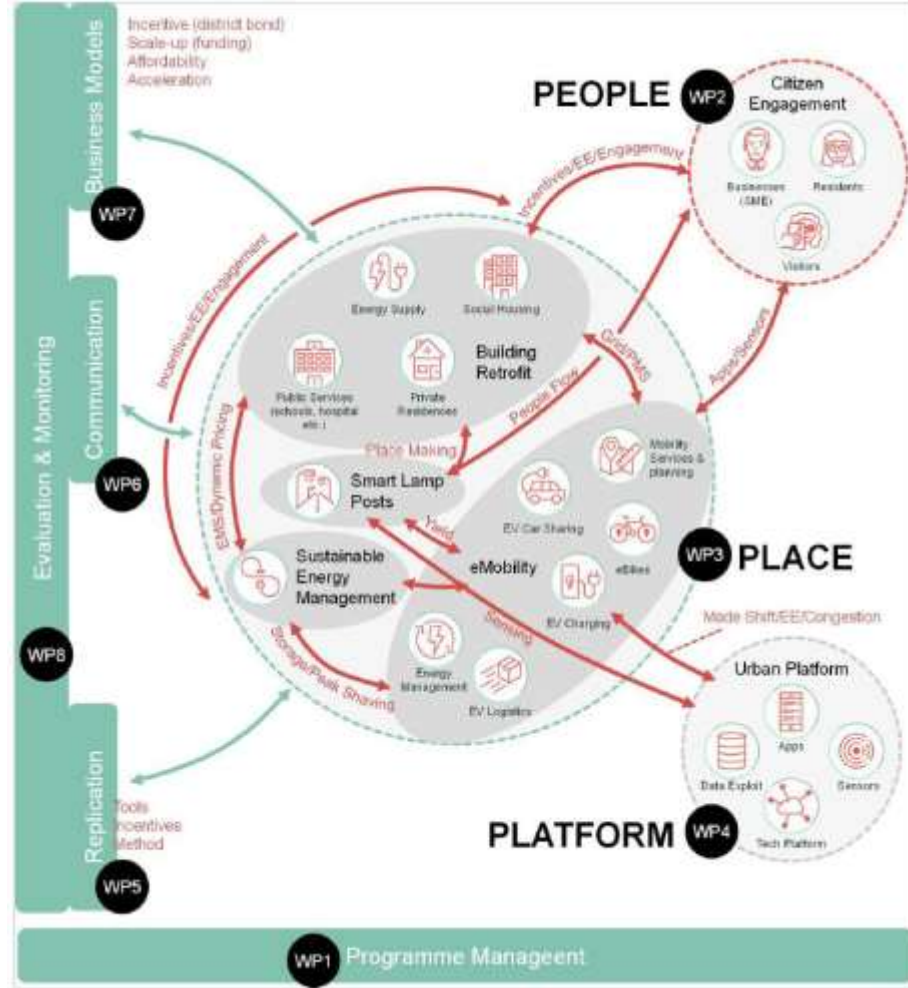
5 year programme

8 Work Packages

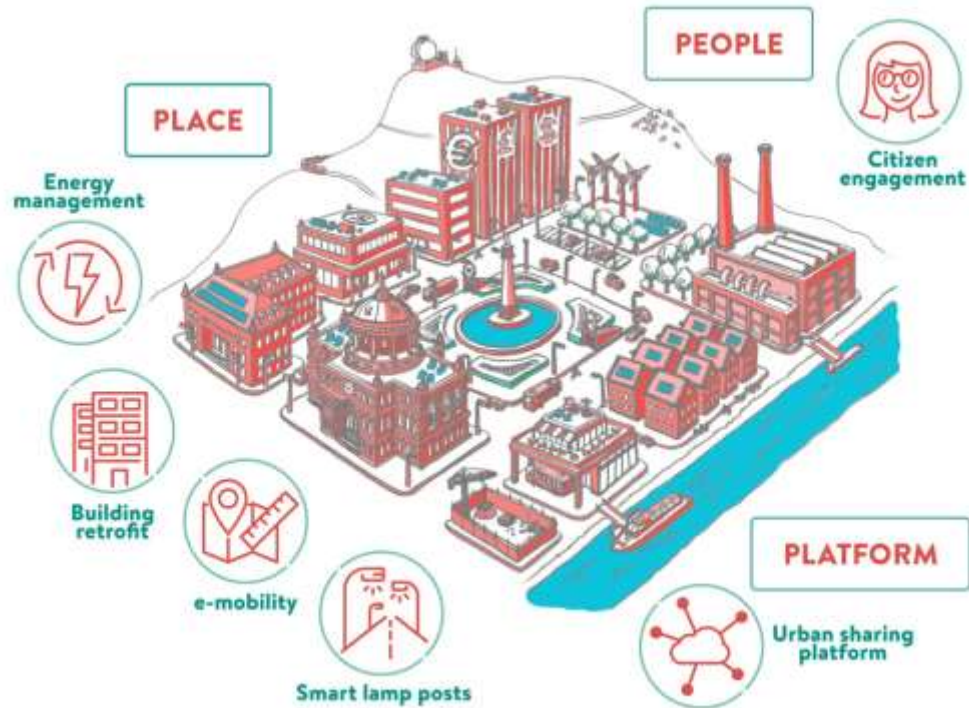
1 'Digital first' approach

11 Solutions to urban challenges

- Core concepts of:
  - People
  - Place
  - Platform
- New approach to urban infrastructure
- Delivering:
  - Energy demand reduction
  - Cost savings
  - New investment



# Whole System Approach





### Building retrofit

Reduce

5,614,780

kWh/yr



### SEMS

Develop

3

Interoperable systems



### eV Car sharing

Deploy

102

New vehicles



### eBike Sharing

Deploy

374

eBikes



### eV Charging

Install

269

New charging points



### Smart Parking

Upgrade

+1,300

Parking slots



### eLogistics

Deploy

167

New vehicles



### Smart lamppost

Upgrade

+2,400

Lampposts



### Building retrofit

1,610

tonnes CO<sub>2</sub>/yr



### SEMS

10 – 20% Cost Saving  
+ Inductor to  
*additional impacts*



### eV Car sharing

330

tonnes CO<sub>2</sub>



### eBike Sharing

875

tonnes CO<sub>2</sub>



### eV Charging

150

tonnes CO<sub>2</sub>



### Smart Parking

*Inductor to additional  
impacts*



### eLogistics

565

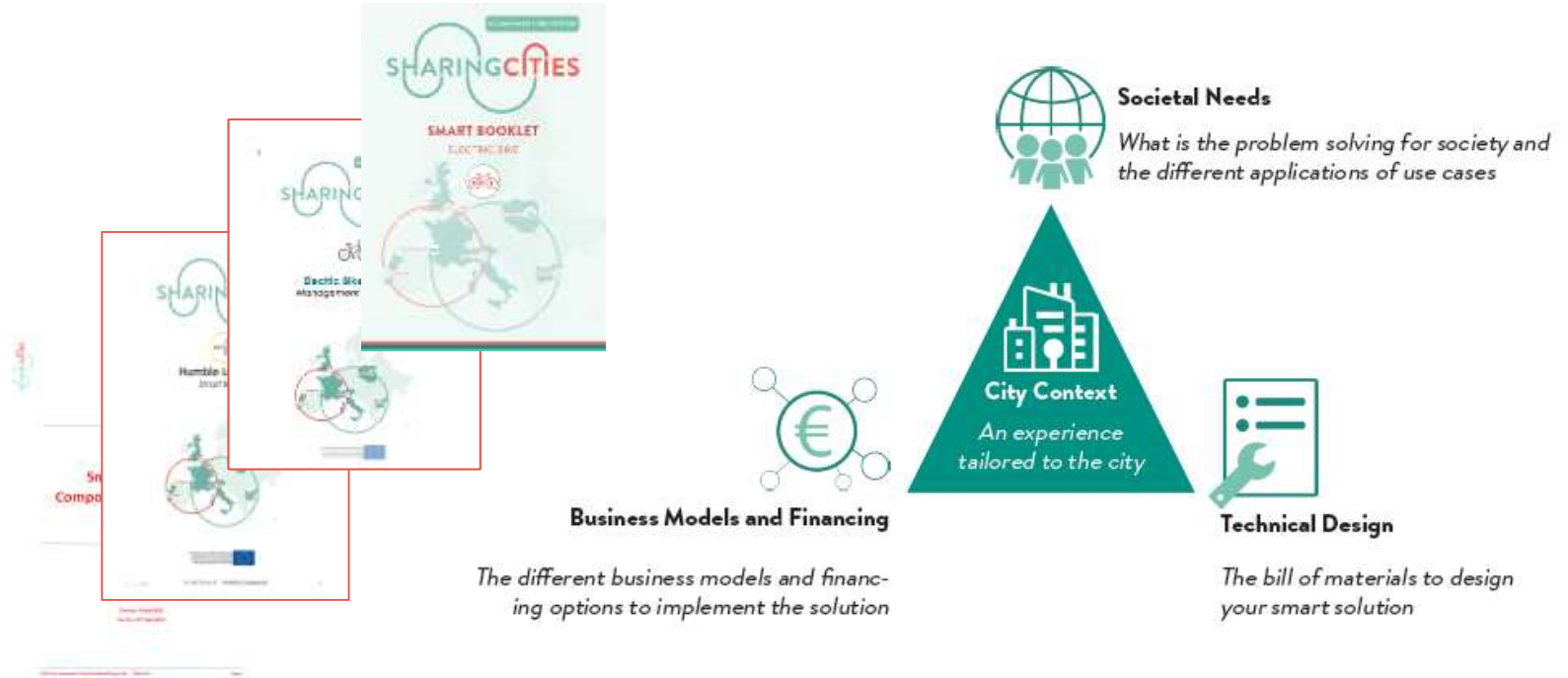
tonnes CO<sub>2</sub>



### Smart lamppost

*Inductor to additional  
impacts*

# INNOVATE & REPLICATE



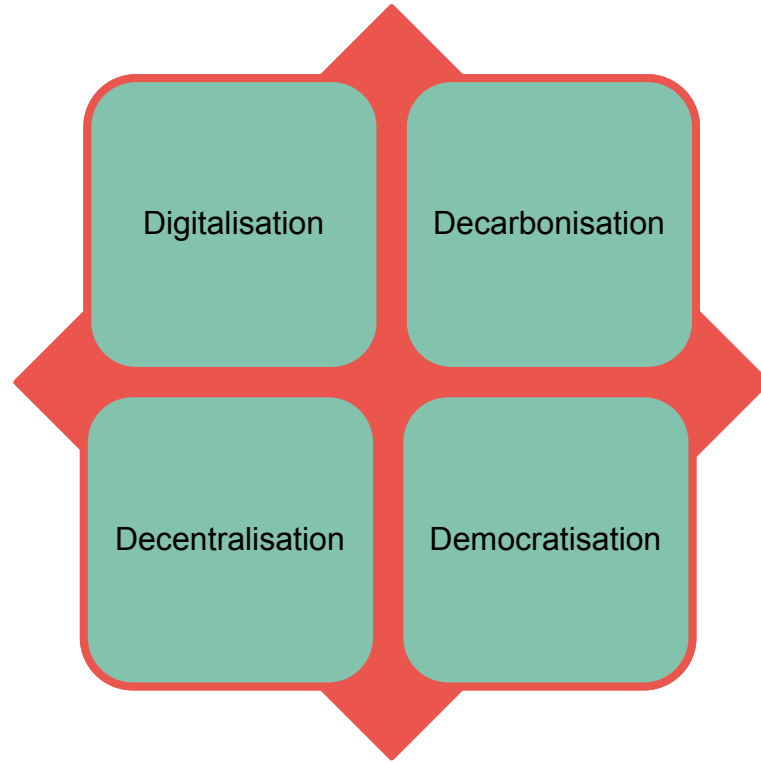
# SUSTAINABLE ENERGY MANAGEMENT SYSTEM (SEMS)

## MISSION STATEMENT










*‘to provide an advanced energy management service that integrates energy vectors, optimises system performance, increases and improves energy efficiency adoption and allows for the active participation of citizens in the energy system.’*

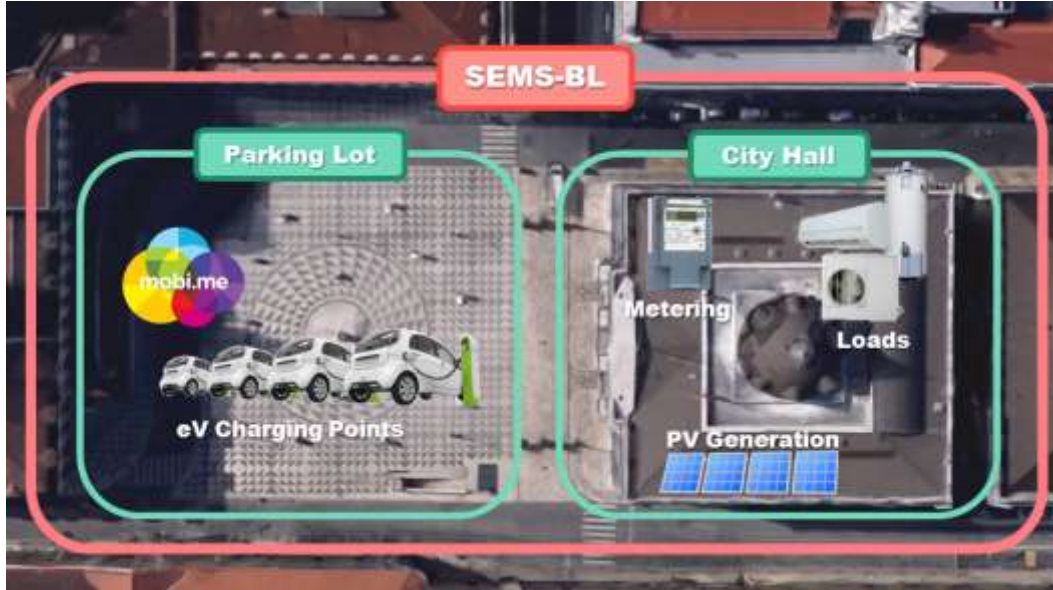


# THE CHALLENGE: ENERGY IN 4D



## CITY USE CASES

Use Cases	Objective	Lisbon	London	Milan
Heat Network Optimization	Minimise end user heat costs			
Building Mounted PV	Maximize building-level utilisation of renewable self-generation			
Building Energy Management	Minimize building electricity costs by load management			
EV/ PV Optimisation	Maximise the use of renewable electricity generation & minimize consumer electricity costs			
EV/PV Forecasting	Encourage effective integration of renewables and utilisation of EVs			
Demand side response (DSR)	Residential electricity consumers benefit from demand flexibility			



✓ Controllable Loads

- 7 water heaters
- 15 Smart plugs

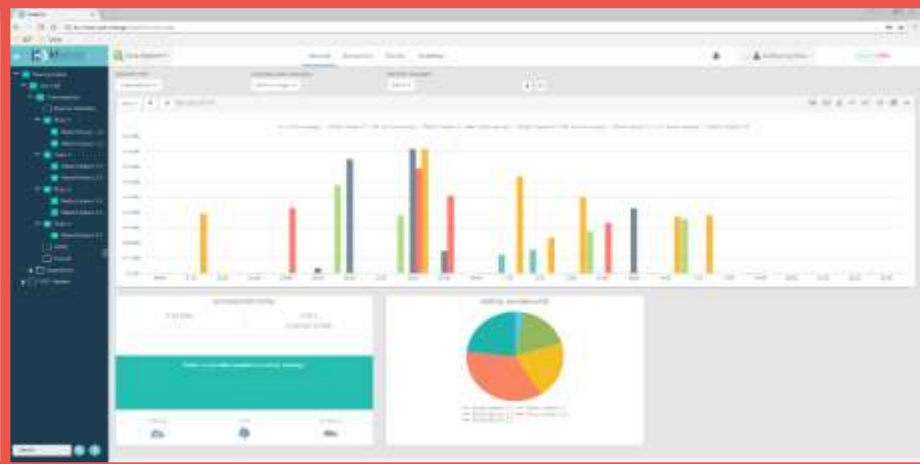
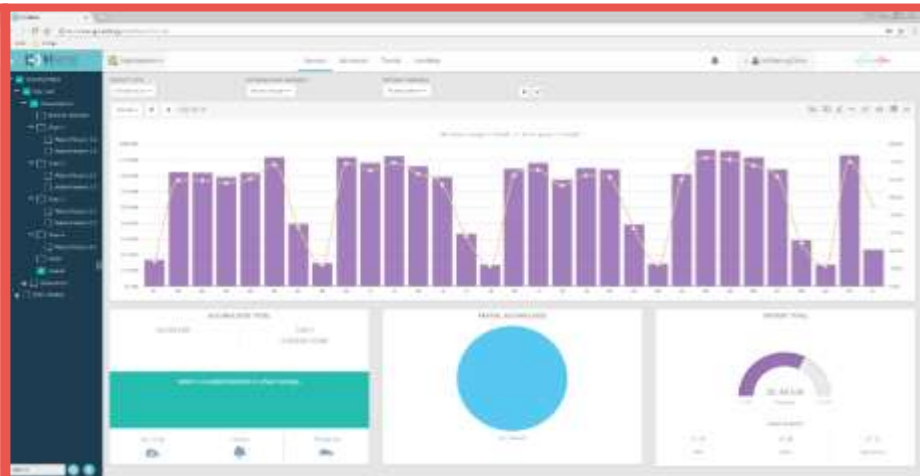
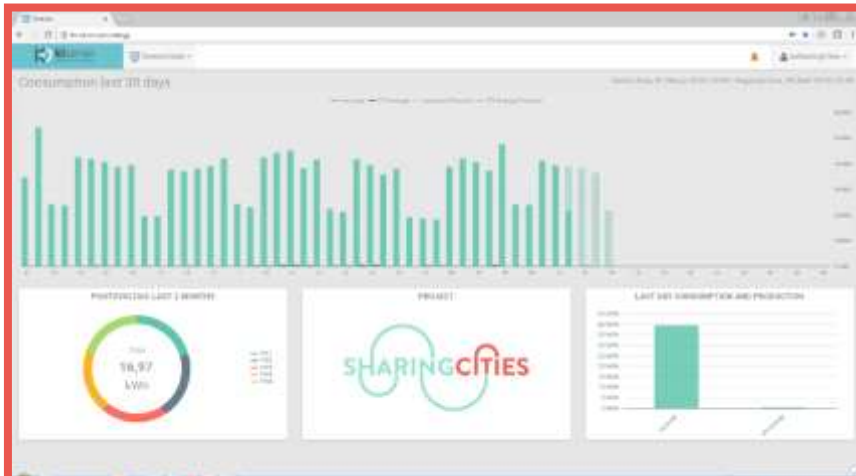


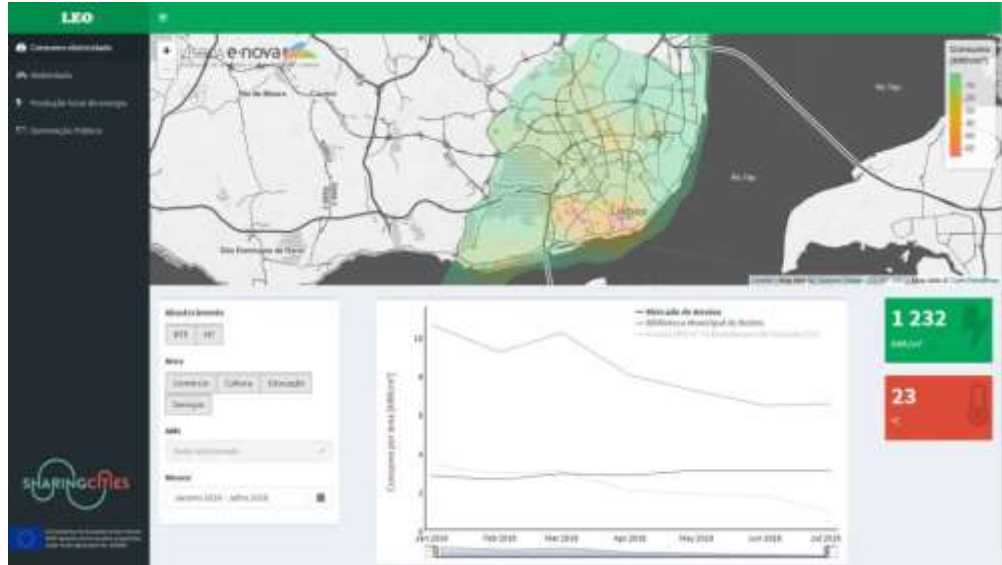
- 15 eV charging points  
(14x7kW+50kW)

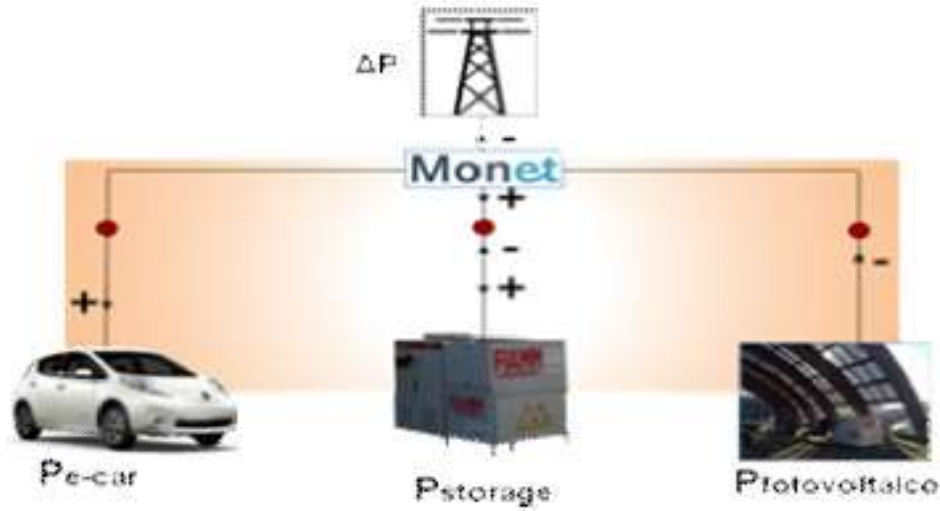


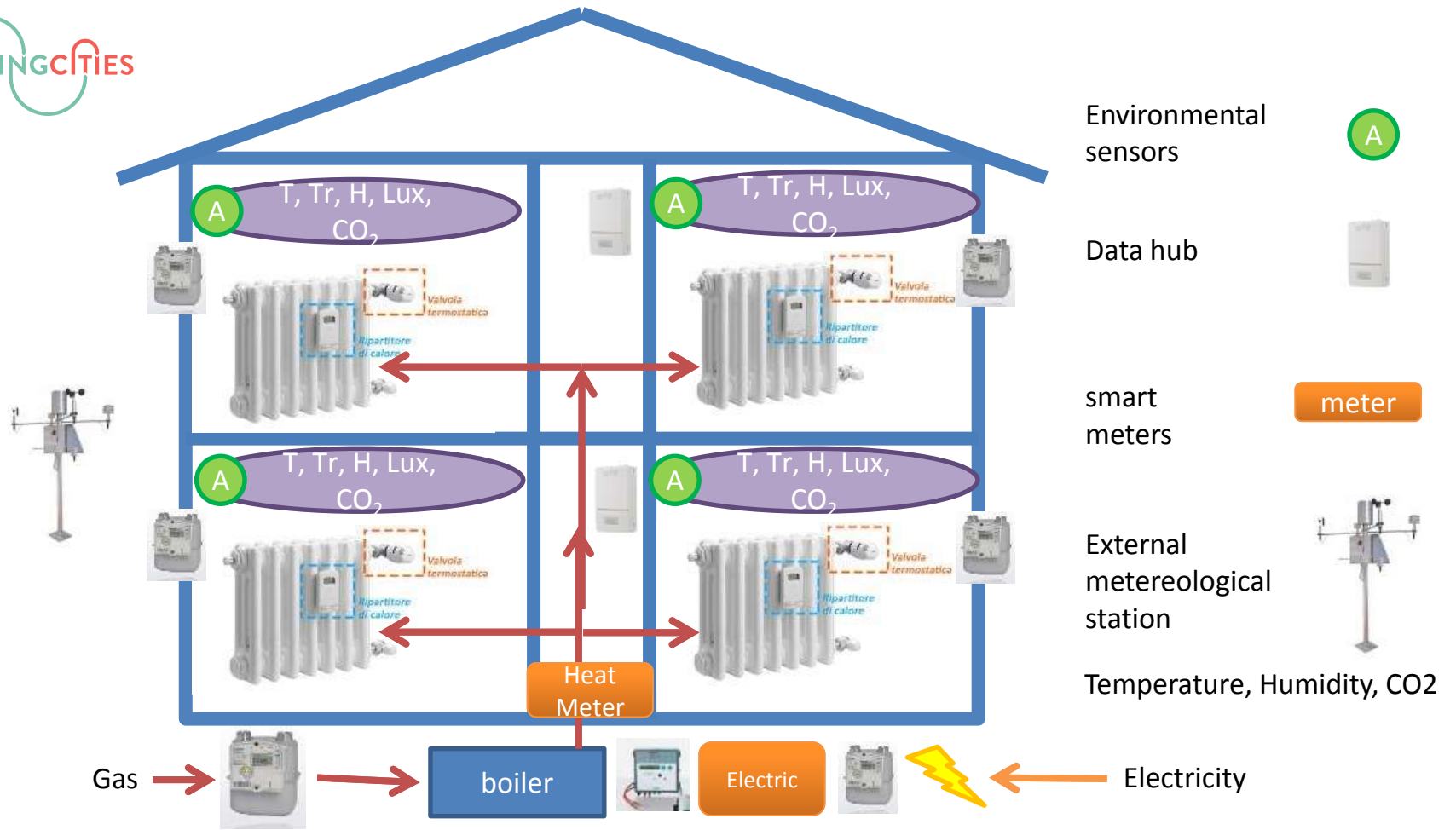
✓ Photovoltaic Panels:  
~15 kW capacity



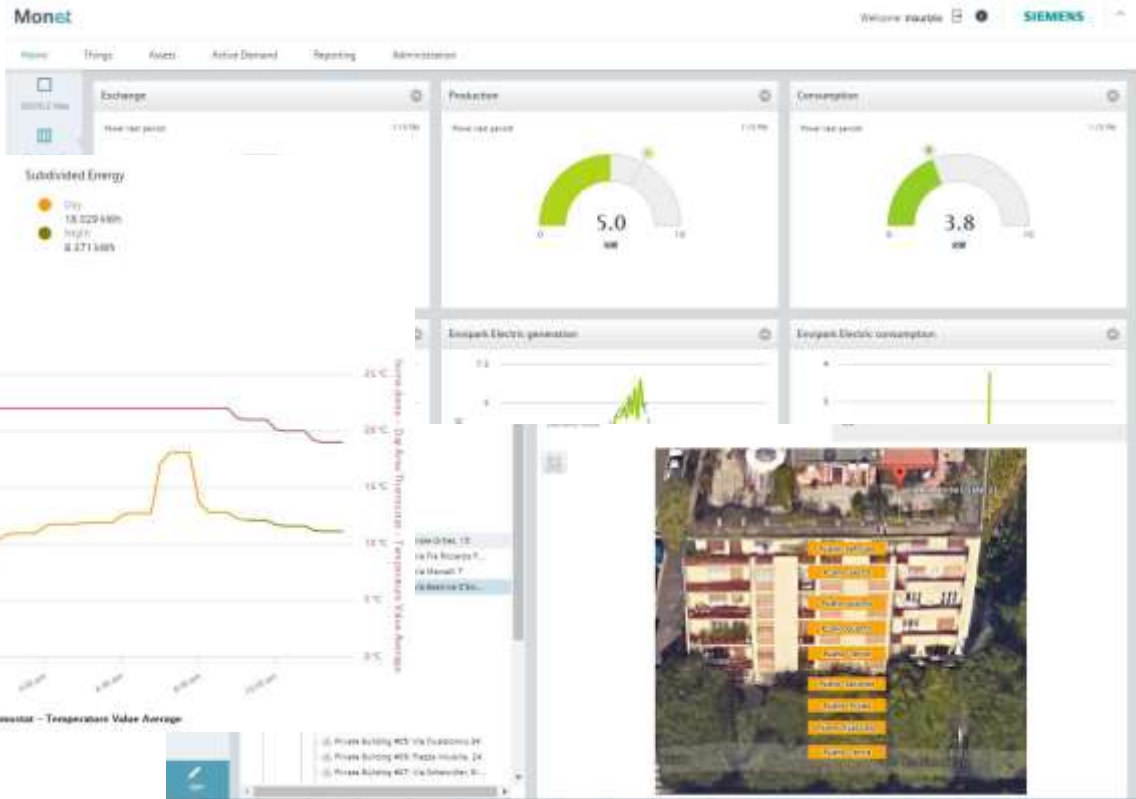






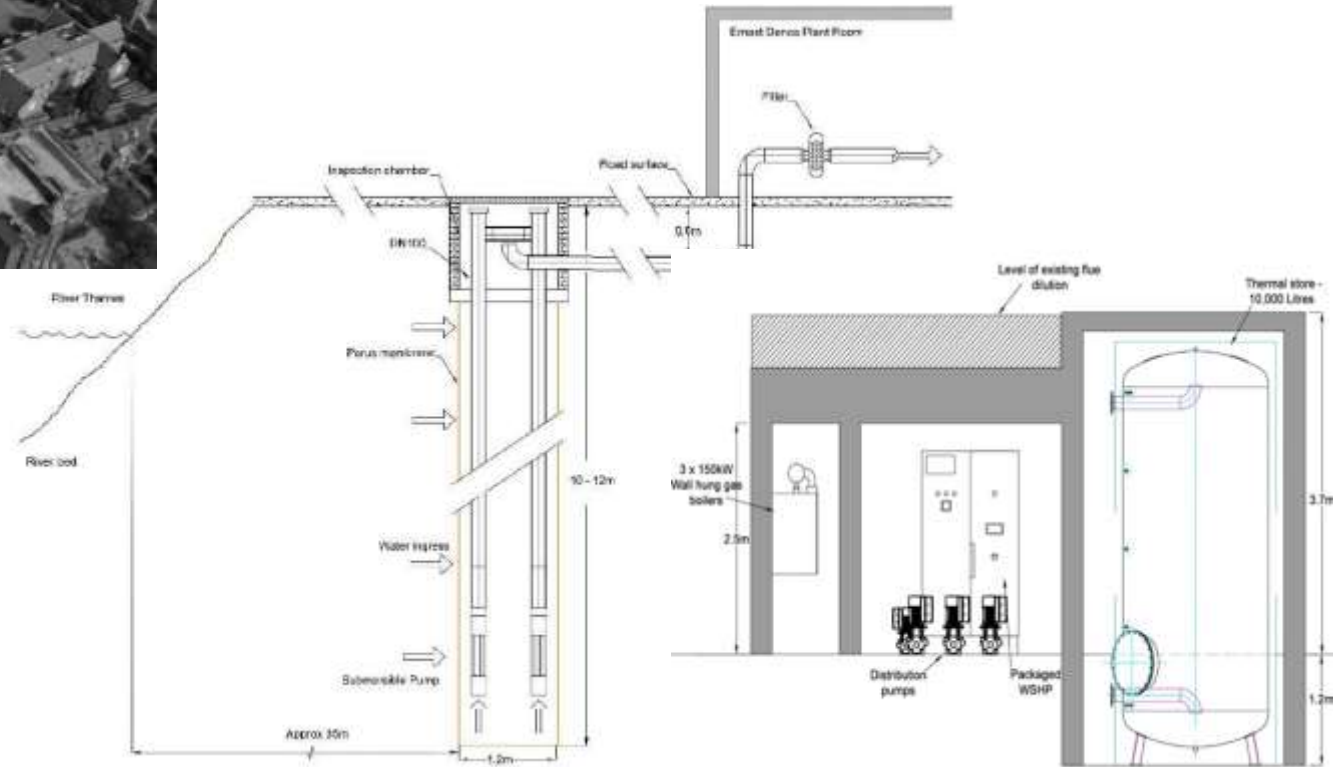


# Milan

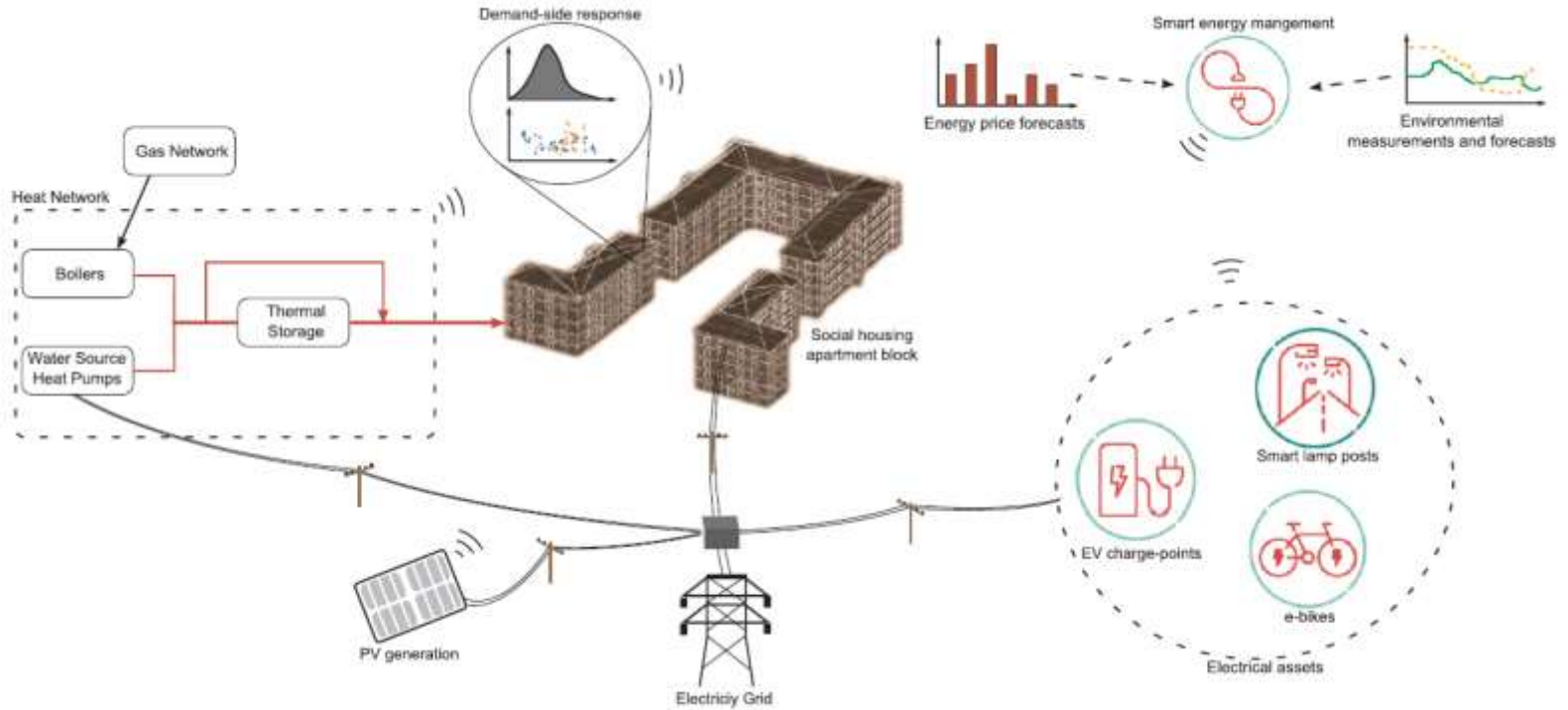




# London



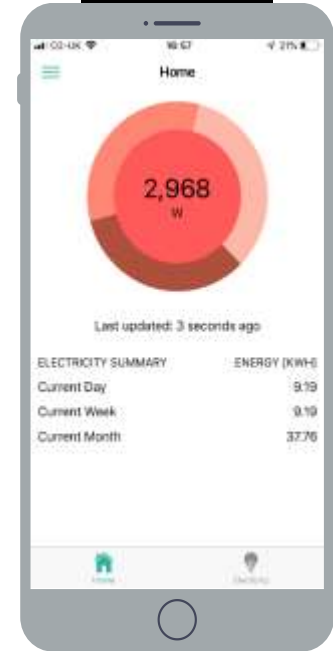
# London



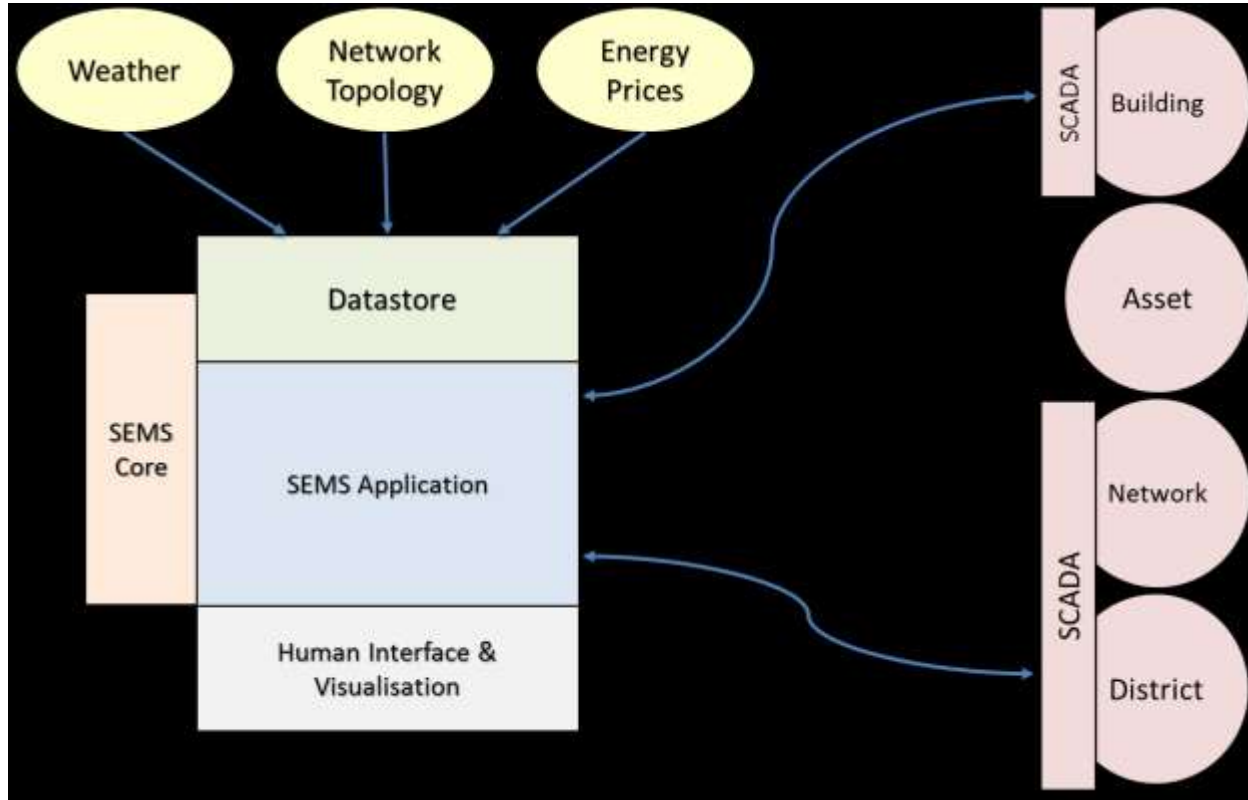
# London



- Aims to **incentivise and reward residents** to uptake more sustainable behaviours with a **focus on energy consumption**
- Comprises an **App** and a **kit of smart sensors** are installed in the dwelling
- Provides **tips and feedbacks on the energy consumption** of the household
- Enable DSR [demand side response] prompts
- By converting points, it provides **personal rewards** and enables **charitable donations**
- A leader board also boost **competition among participants**.



# COMMON ARCHITECTURE



# LESSONS LEARNT

- **Suitable Monitoring & Evaluation framework**
- **Prepare for lots of data**
- **Scalability is key to long-term success**
- **Get the right people and give them time**
- **Use virtual simulation**
- **Build & maintain strong relationships with project stakeholders**

# RECOMMENDATIONS

1. Consider the specific energy challenges faced in the city
2. Identify the intended benefits and main beneficiaries
3. Define and document specific solutions to your challenges in the format of Use Cases
4. Establish a register of devices, assets and information requirements
5. Designing the system architecture with core principles of openness and ease of integration
6. Set your evaluation criteria at the start of your project and do not deviate from this.

**Get involved**

**Reach out to us**

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**WEBSITE**

[www.sharingcities.eu](http://www.sharingcities.eu)

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# THANK YOU

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