INSMART

Integrative Smart City Planning

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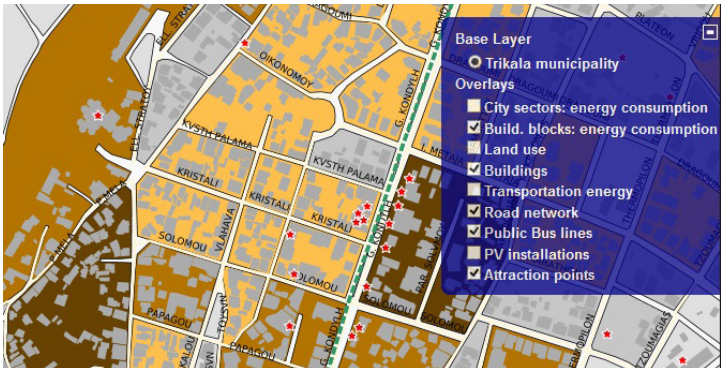
Edition Two

On this second project Newsletter for INSMART we cover the following

- **Geographic Information System – How INSMART will enhance local platforms**
- **Smart Cities – What part does INSMART play**
- **Project Workshops – INSMART wants to work with stakeholders of each of the four cities to help shape cities' energy futures**

Geographic Information System (GIS)

A geographic information system is designed to capture, store, manipulate, analyse, manage and present all types of spatial or geographical data. GIS data is usually stored in a spatial database, from which information is disseminated as 'layers' of information which can then be used and displayed in variety of ways.



A GIS is beneficial to municipalities to aid in improved decision making, service delivery and citizen engagement. This can be through basic map production, or more complex analysis such as catchment analysis, routing, hotspots or 3D modelling. GIS data can also be used in online browser-based mapping tools.

This can save money in many ways; from providing a more efficient and cost-effective service to citizens, to evidencing decisions in service delivery, whether this be strategic planning (e.g. locating facilities) or improving day-to-day operations (e.g. waste collection routing).

All four cities have an existing GIS system and this project will be adding layers of building typologies and energy related data, especially around residential and also transport energy consumption. It will enable users to visualise various scenarios for new energy efficiency measures and renewables in a city and the impact this will have on the city's energy consumption in terms of both the financial and carbon cost.

Providing easy web based access and spatial visualisation of the INSMART datasets will enable a wider audience to view and make sense of the data and lead to greater understanding of what energy saving measures can and should be implemented within a city. This GIS functionality will give valuable information when forming a business case for new energy initiatives.

INSMART is adding the following data sets to the four cities' GIS platforms

- Energy consumption of residential sector
- Fuel consumption from transport
- Energy consumption of water pumping stations
- Energy used in waste collections and treatment
- Street lighting
- District heating networks
- Energy data from non-domestic buildings

Merging TIMES model with GIS will bring a new and powerful tool to the cities.

The TIMES based City Energy System Model will provide snapshots of the future energy consumption in the different city sectors and by different uses (transport, buildings etc). These will be presented for milestone years in the future on the GIS platform, visualising the development of energy consumption patterns until 2030.

Smart Cities

The EU defines a Smart City as…

A smart city is a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses.

The smart city concept goes beyond the use of ICT for better resource use and less emissions. It means smarter urban transport networks, upgraded water supply and waste disposal facilities, and more efficient ways to light and heat buildings.

Carbon emissions are currently causing serious problems to societies worldwide and Europe is starting to feel its consequences. At the same time, the European community is facing economic problems. One of the main producers of greenhouse gases is non-sustainable energy production and use. Therefore, there is an urgent need to reduce energy consumption and look at developing renewables in the most cost-effective way possible.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 314164

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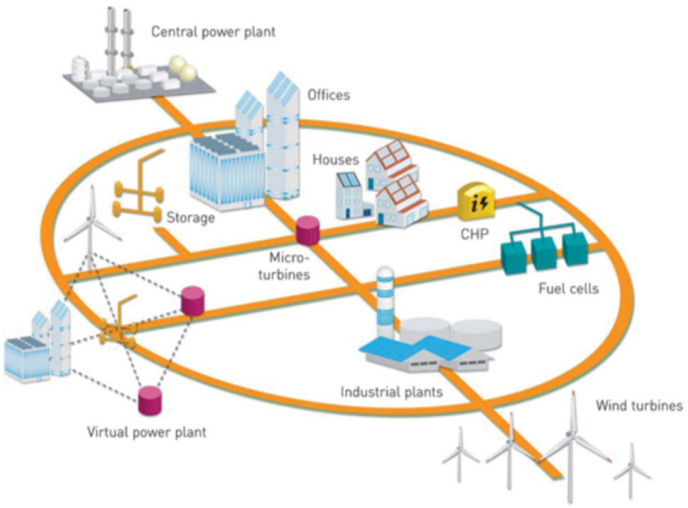
Europe is at the forefront of addressing this global issue and in creating smart cities. European Smart City projects are tasked with making urbanisation manageable and, most importantly, sustainable for the future.

The InSMART concept brings together cities and scientific and industrial organisations in order to establish and implement a comprehensive methodology for enhancing sustainable planning to address current and future urban energy needs through an integrative and multidisciplinary planning approach. The INSMART project will enable better energy consumption and carbon emissions forecasting when looking at options for city development supporting cities to plan for their sustainable energy futures.

Smart Grids = Smart Cities

An innovation that INSMART has a focus on is Smart Grids. Project partner EDP is heavily involved in this technology and states... “smart grids have the potential to contribute to Smart Cities by increasing energy efficiency; reducing CO2 emissions; reducing costs and increasing operational efficiency; integrating a large share of dispersed generation as well as electric vehicles; supporting the development of new energy services; and empowering customers to a more responsible and efficient energy use.”



Workshops

Workshops will be run in early 2016 so that project partners can meet with stakeholders in each city to better inform scenario modelling. Now that the academic partners have developed a position statement for each city regarding its sustainability planning the next step for the project is to gather feedback from the local municipalities. This feedback will be used to define mid-term implementation plans for a sustainable energy system for each partner city; these will inform the development of policies and interventions in the long term for 2020 – 2030. All four cities have carbon reduction targets to meet and these scenarios will inform the cities’ stakeholders as to how these targets can be met.

Feedback will be a gathered on local ambitions for

- Significant new building developments
- Energy efficiency measures
- Transport plans

This feedback will inform the mid-term implementation plans.

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