

# Annex 6

## Key project 2

### How to build a Smart City: the case of Málaga

#### 1. Project background / societal challenge

There is no standard to grant the label of being smart to any city as yet, but there are five (or seven if we use the comparative) keywords which illustrate the concept, given by the acronym SMART.

S	M	A	R	T
Specific	Measurable	Attainable	Relevant	Time-bound

All five descriptions applied in the case of Málaga, Spain, whose municipality (local council) is committed to make the region smarter.

So-called Smartcity Málaga (<http://www.smartcitymalaga.es/>) is a technological development project located in Málaga, a city of 568,000 inhabitants in southern Spain on the Mediterranean Sea. The advantages of choosing Málaga consist of its high growth potential, dynamic business environment around the city's technological park where big ICT players and a technical university are located, and a well-structured energy infrastructure. Capitalising on this fertile environment, the municipality has vigorously committed resources with the support of both the national and regional governments of Spain and Andalusia, respectively.

#### 2. Project goal

Smartcity Málaga is a 'living lab' with the aim of developing an energy management business model for cities and a target of making energy savings of 20%, an annual reduction of 6,000 tons of CO<sub>2</sub> emissions, and an increase of the consumption of renewable energies. By concentrating the objectives on a single city district (Playa de la Misericordia), it will benefit to 11, 000 residents, 900 service providers and 300 industrial clients. Customer-oriented and energy-efficient services are the main drivers of this local project.

#### 3. Project description

Smartcity Málaga is a technological development and demonstration project devoted to designing and planning the engineering, deployment, construction and commissioning of innovative technologies whose goal is to make the infrastructures of the city smarter and more efficient, in particular those focused on energy, telecommunications and transport. Energy savings and CO<sub>2</sub> emission reductions are targeted, which implies a key role for renewable energies.

By focusing all the resources in one single district as 'living lab', the renewable energy sources will be optimally integrated into the grid, including local power generation (and consumption) from PV cells installed on the area's public buildings, the use of micro-generation in facilities such as hotels, and wind mini-farms in the chosen district. The idea is to test battery-based energy storage systems as an element of the distributed

generation micro-network connected to the grid. Electricity will be consumed in the heating and cooling systems in buildings, street lighting and electro-mobility systems. Electric vehicles and their associated infrastructure (e.g. charging systems, roaming, etc.) will be promoted in the form of fleets and dedicated local supplies, including the design and installation of a MV substation supporting up to 200 EVs. The deployment of smart meters and the construction of a monitoring and control centre will enable consumers to optimise their decisions in terms of energy usage.

The project started in 2009 with a planned duration of four years. The initial budget was of € 31 million, with significant subsidies from Spain's Ministry of Economy and Competitiveness, and including funds from the European Fund for Regional Development allocated to Andalusia.

#### 4. Role of the electrical engineering industry

The electrical and electronic engineering industry is the backbone of this project providing the enabling technologies of the Smartcity in the fields of energy, transport and communications, under the coordination and guidelines of local utility providers. The municipality of Málaga validates the performance and quality of service of the technological solutions and services being developed in the framework of this project.

A new generation of tele-management and tele-control systems will be designed in order to make infrastructures smarter with real-time features and improved service quality. Other deliverables of the engineering industry will be in the fields of:

- Automation of MV and LV networks.
- Mini- and micro-generation of electricity and energy storage.
- EV infrastructure, fleet management and V2G tests.

#### 5. Project's partners

The utility Endesa, owned by Italy's Enel, manages this pilot project with financial sponsorship from the Mayor of Málaga, whose municipality also coordinates the implementation of innovative technologies in different areas beyond energy, i.e. telecommunications and transport.

The electrical and electronic engineering industry is represented by Ingeteam, Ormazabal, Telvent (owned by Schneider Electric), IBM, Sadiel, Neo Metrics, Isotrol and GreenPowerTech.

Acciona, as a utility that specialises in renewable energies, also is member of the consortium. From the academic side, 14 research centres and universities are contributing to the technological development of the project.