

Málaga Smart City: a wide range of solutions for local energy sustainability, public sector transparency and open government

Submitted by [Gabriel López](#) on January 12, 2016

The Málaga Smart City project, which started in 2009, has extended its original five-year program. It's an ambitious plan, which like other similar Smart City projects aspires to energy efficiency and sustainability in areas covered by local public administrations. In the case of Málaga, the City Council is the main promoter of this initiative.

Initially the project was created to develop smart grids as a new way to distribute electricity. Smart grids can help to save energy and incorporate renewable energy sources, and can be applied to both individual and business consumers.

Now the project has expanded its goals and is trying to create solutions and applications in more varied aspects of urban life. There is more emphasis on transparency, citizen participation, e-government and open data projects, along with the original smart grids plan, which focused on cleaner, cheaper, and renewable energy. The new goals even include the creation of startup businesses using public facilities, under conditions set out by the Málaga Smart City consortium.

Policy context

The original smart grids plan, which is managed by Spanish power suppliers Endesa and Enel, operates across various districts of Málaga. It follows the [Europe 2020 plan](#) "A strategy for smart, sustainable and inclusive growth", which states the need for "more jobs and better lives". This combined goal of employment and sustainability is also found in [Directive 2012/27/EU](#), which covers energy efficiency. The Directive's "20/20/20" strategy aims to reduce greenhouse gas emissions by 20%, increase energy efficiency by 20%, and ensure that 20% of all Europe's energy comes from renewable sources.

Málaga City Council has set up the project's open government applications according to various different European, national and regional acts and laws. The European legislation includes the [EU Charter of Fundamental Rights](#) and European Directive 2003/98/EC, November 17, also known as the "PSI Directive" and modified by Directive 2013/37/EU, June 26. [The PSI Directive](#) urges administrations to re-use information they have gathered, in order to promote transparency and fair competition. Other European Acts involved are Directive 2011/85/EU, November 8, on budget matters, and [Regulation \(EC\) No 1049/2001](#), May 30 on public access to European Parliament, Council and Commission documents. With its extensive mix of applications, the Málaga Smart City initiative also takes into account many Spanish national laws covering transparency, sustainability, energy efficiency, budget and debt control, access to public sector contracts, information reuse, and e-government targets. All these Acts can be tracked on the [Málaga Open Government website](#), which also shows the regional legislation under which the Transparency portal was created: the Andalusian Act 1/2014, June 24.

Users' access to transparency information is granted by Spanish Act 19/2013, December 9, which covers transparency, public information access and good government. According to Article 105.b) of the Spanish constitution, anyone can request this information free of charge.

Description of target users and groups

The energy efficiency part of the project includes applications in residential, service and industrial locations. The emphasis is on the residential side, so many aspects of the smart grids programme are meant to save energy at home (such as smart meters) and outdoors in residential areas (such as LED street lights and air quality measures). Other parts of the Málaga Smart City project are oriented more towards helping entrepreneurs who have created startups. Finally, the various open government tools (portals for Transparency, Open Data, and Participation) are meant to improve communications between the city council and the citizens of Málaga.

Like other similar projects – such as OpenDataBCN in Barcelona – some of these tools can be used by private companies to create better products and services, and of course they can also be used by other public institutions. Among the many online initiatives are a website to show [updated budget information](#) and a dedicated website for [active citizen involvement](#), where registered users can post proposals and complaints.

The [Transparency portal](#) has a request form for users who want access to specific public information.

Description of the way to implement the initiative

Phase I, 2009–2014

The first phase of the project combined energy efficiency and budgetary matters with the first elements of a real electronic administration. Some of the applications are:

- Air quality and water management control through sensors and smart meters, which are also used to improve measurements of electricity consumption. Cogeneration plants fuelled by biogas were also developed.
- LED lamps for street lighting reduced energy consumption by up to 65% in some areas of the city. Half of the 18 new street lights installed along the Misericordia promenade are powered by solar energy and the other half by wind.
- Deployment of almost 200 electric vehicles supplied under the Zem2All (<http://www.zem2all.com/en/>) initiative, and the start of research on “vehicle to grid” (V2G) technology, which uses vehicle batteries to balance fluctuations in renewable power generation. The project has funded an electric vehicle rental program for companies located in Málaga. This program is being developed in cooperation with NEDO, an agency of the Japanese government.
- Creation of the portal Malaga24h, a single electronic window for public management issues. Smartphone apps have been created to find public parking spots, notify the authorities about incidents, and show the nearest bus stops and waiting times.
- Startups have been encouraged to take advantage of the Málaga Smart City infrastructure to create solutions for citizens and reward public contribution. These have been released under the label of [MalagaValley](#), a technology hub within the city. One of the finished projects is Momo Pocket, a pay-by-phone system.

Phase II, 2014–

- Further develop public administration websites like the Open Data, Participation and Transparency portals.
- Launch the Málaga Urban Lab, with 22 companies and startups involved. The participants have access to the FIWARE development platform, which provides OpenStack-based cloud capabilities and a pack of tools and libraries with public

and open-source specifications and interfaces, among other infrastructure. The budget is €500,000. This project aims to encourage new developments in energy efficiency, urban services, tourism and communications.

- Create an Innovation Centre as a showroom of solutions for smart cities, an example being the Smart Patrimonio project that allows the administration of structural and environmental sensors deployed to protect monuments and iconic buildings. Delegations from smart cities all over the world are welcome to visit the Innovation Centre and learn from Málaga's experience.
- Extend the Zem2All programme to include car-sharing for electric vehicles.

Technology solution

The Open Data portal has been developed using the free, open source platform [CKAN](#). This data management platform is used in many other open data initiatives – local, regional and national. The city council of Santander, the national CNMC (Markets and Competition Commission) and the region of Aragón are some examples of CKAN use in Spain. The city of Berlin, the national government of Uruguay, and the CivicData platform in the United States also use CKAN to manage open data.

In September 2013 a [GitHub repository](#) was started to store in-house developments based on CKAN extensions. The datasets are also available on the [FIWARE Lab website](#); information can be downloaded in formats such as CSV, GeoJSON, SHP and KML, although at the time of writing the latest updates were some months old.

The Transparency portal Málaga Contesta (for participation and opinion gathering) and both the corporate and public virtual offices of Málaga Smart City use OpenCms 9, with online procedure systems running J2EE technology. The online inventory of public facilities has been developed with Geomedia and Oracle Microstation ([geoportal.malaga.eu](#)), and the same solution is used for street maps.

The electric vehicles from the Zem2All initiative use quick charging spots based on [CHAdemo](#) technology. Users unlock the charging devices with RFID cards.

Main results, benefits and impacts

According to the [Málaga Smart City white paper](#) published by Endesa in 2014, the first phase of the project has achieved energy savings of 25%, and a 20% reduction in CO2 emissions.

As an incentive to use more electric vehicles in the streets of Málaga, like the ones deployed by Zem2All, since 1 January 2016 public parking spots, also known as SARE, have been free for these vehicles.

Track record of sharing

The Málaga City Council Open Data portal has been reviewed by the ES Open Data City Census, which compared progress in Málaga against other cities with similar open data policies. This open platform is run by the [Open Knowledge Foundation](#) and the compiled datasets can be accessed easily through the [ES Open Data City Census](#).

As of December 2015 Málaga's open data ranked seventh in a list of 19 Spanish cities. This overall score is calculated from 15 indicators such as real-time transit, annual budget, transport timetables, procurement contracts, crime statistics, air quality, business listings and so forth.

The Open Data portal has a specific section dedicated to apps based on information available from the portal. There are already some [apps available for download](#), allowing citizens to locate recycling bins, check the boundaries of the various city neighbourhoods, find the closest public bike rental spots, and plan transport routes.

The Open Government website also displays independent transparency indicators such as the Dynamic Transparency Index ([Dyntra](#)) and the index developed by the Universitat Autònoma de Barcelona, [Mapa Infoparticip@](#).

Lessons learnt

To ensure full compatibility and data exchange with other public repositories, the Open Data website has already developed the ability to integrate its contents with the national [datos.gob.es](#) initiative, which compiles open data from all over Spain in its own [data catalog](#).

The social network links page can only be accessed via a small link from the Open Government page, but is quite extensive.

The Transparency Index reached 95/100 in January 2015. The Open Data portal shares data about the salaries of city councillors and town hall staff, their CVs and even their diaries.

These websites already allow citizens to carry out many procedures online, and much has been accomplished in terms of transparency and eco-efficiency. As the city keeps growing, however, it seems clear that the whole concept of the Smart City will have to be extended and enlarged.

Case Info

City/Region:

Málaga

Start date:

2011

End date:

2016

Operational date:

12 January 2016

Information

Target Users or Group:

eGovernment, eInclusion

highlight:

Open Government

Case status:

Operation

Case type:

Open source case study

Funding source:

Public funding local

Geographic coverage:

Europe, Spain

Implementation cost:

€500-999,000

Keywords:

city council, eGovernment, eInclusion, eLocal, energy efficiency, eParticipation, local budget, open data, open source

Themes:

eGovernment, eInclusion, Electricity/Gas, eServices for Business, eServices for Citizens, User centric services, Energy, Environment, Transport

Type of service:

Inclusive services of general interest

Scope:

Local (city or municipality)

Yearly cost:

Not applicable / Not available

Return on investment:

Not applicable / Not available

Technology choice:

Open source software

Overall implementation approach:

Partnerships between administration and/or private sector and/or non-profit sector

Type of initiative:

Strategic initiative