

Madrid City Council taps into EV data for sustainability right-sizing

The Challenge:

European research project, [CIVITAS ECCENTRIC](#), was created to test innovative measures to improve sustainable mobility in urban freight transportation logistics. The project aims to provide a number of urban planning approaches and innovative policies for emerging technologies in its five laboratory areas, located in the cities of Stockholm, Munich, Ruse, Turku and Madrid.

The ECCENTRIC project was developed within the framework of CIVITAS, an initiative of the European Union, funded by the [Horizon 2020 research framework program](#), which promotes better and cleaner transport in cities. CIVITAS was launched by the European Commission in 2002 and since then it has tested and implemented more than 800 measures to improve urban transport in more than 80 European cities.

The city of Madrid leads the consortium formed by the cities of Stockholm, Madrid, Munich, Ruse and Turku. The project aims to develop innovative ideas in terms of sustainable mobility, providing new solutions in the laboratory areas defined by each participating city.

“Working with Geotab has allowed us to realize that you cannot manage an electric fleet without telematics technology. The real and remote data are key to be able to analyze the state of each vehicle and improve in terms of efficiency and sustainability.”

— Enrique García, Technician of the Department of Climate Change of the Madrid City Council



Madrid City Council

www.madrid.es

Industry:

Government

Based in:

Madrid, Spain

Types of vehicles:

Light-duty vehicles

Fleet size:

19 Renault ZOEs

Fleet focus:

Optimization, Sustainability

The General Sub-Directorate for Energy and Climate Change has implemented incentives, campaigns and tests outlined in Measure 6.2, to deploy electric vehicles in the geographical area of the city of Madrid, which aims to promote the adoption of electric vehicles in both public and private fleets in the city and develop a charging infrastructure to support the transition.

In parallel, communication and awareness actions and strategies have been designed to promote greater acceptance of clean vehicles in the professional sectors and the general public. Finally, in an effort to promote the benefits of electrification through leadership, the city of Madrid has incorporated electric vehicles into its municipal fleet.

As part of Madrid City Council's new electric fleet, designed within the framework of Measure 6.2 of the Civitas Eccentric Project, the fleet of 19 electric vehicles assigned to the Collection Inspection Services has been monitored to:



- + Evaluate the environmental performance of electric vehicles



- + Analyze the parameters related to the recharging process and the state of charge of the battery to optimize the logistics deployment of the fleet on a daily basis



- + Create the analysis framework to compare the consumption and emissions of electric vehicles with that of combustion vehicles

The Solution:

Geotab was chosen to provide telematics data for the project, equipping Madrid City Council's 19 Renault ZOE's with Geotab GO devices. The team in Madrid wanted to gather data to better understand fleet operations, including:

 + Distance traveled

 + Daily range of their EVs

 + Daily electrical energy consumed

 + Average energy consumption of each vehicle

 + Vehicle load value monitoring

With the largest EV dataset and support for the most EV makes and models available, Geotab was the obvious choice for Madrid City Council. Once Geotab GO Devices were installed, data began to flow through to the MyGeotab management platform. The team at Madrid City Council can now access data through any web browser to monitor and manage their fleet. They now have the ability to analyze key telematics metrics for their fleet EVs to help them make informed decisions to better manage and even optimize their fleet operations.

Installation was simple, with the devices simply plugging into the vehicle's OBD-II port along with an anti-theft harness which keeps the device hidden from the driver's view while providing a T-connection for quick release to make the OBD-II port accessible for routine diagnostic tasks.



The results:

By detecting under- or over-used vehicles the team in Madrid is now able to balance the use of their EVs appropriately and make decisions to better size the fleet. They are also able to detect previously unknown issues that could lead to possible vehicle breakdowns. With the ability to now monitor specific zones, they can manage logistical issues that arise on a day-to-day basis. The Madrid City Council can now see the average energy consumption of each vehicle and check how climate conditions and air conditioning consumption affect this variable.

The data has also offered a better understanding of how charging sessions can be adjusted to eliminate charging during peak hours. The team is analyzing possibilities for improvement, including the ability to increase the number of electric vehicles in its fleet in the short and medium term. By measuring the current driving safety levels, the team in Madrid is also in the early stages of developing a driver safety plan, to reduce the risk of collisions and improve energy efficiency.

Finally, the team in Madrid is also armed with the data to prove that the transition to electric was the right decision from an environmental perspective. Thanks to the use of a 100% fully electric fleet, the Madrid City Council has reduced their CO2 emissions by 60%, equal to almost 1 tonne per month for their fleet of 19 vehicles.

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