

DAME PROJECT

Generates scenario platform for electric vehicles and sustainable energy



Pioneers in international business

The EU project Electromobility+ (EM+) is a contribution of eleven European countries and regions to the European Green Cars Initiative. The countries and regions involved are France, Germany, the Netherlands, Austria, Finland, Norway, Sweden, Denmark, Poland, Flanders (Belgium), and Piedmont (Italy). The initiative aims to create the long-term conditions required to roll out electric mobility in Europe by 2025. EM+ pools some twenty million euros contributed by the participating countries and regions and the EC's 7th Framework Programme. Nearly twenty research projects have been granted funding; one of them is DAME. Bram Vonk of Enexis is the project's coordinator.



Electromobility+

DAME is a collaboration of the Dutch network operator Enexis, the Eindhoven University of Technology (TU/e) and Germany's RWTH Aachen University. The project's goal is the development, validation and application of an agent based modelling approach for optimal integration of electromobility in electricity distribution grids. The DAME project focuses on strategic research on technical aspects of charging and distribution systems, and more specifically on the management of the power grid. Therefore, it takes a distribution network operator's perspective to identify and examine the specific challenges of the integration of electromobility.

Research question "The general idea for the project was, first and foremost, to model electric vehicle charging demand for use in managing the electrical grid," Vonk begins. "That process made use of local features such as demographic statistics, traffic density, and so on. We then started developing optimal charging strategies based on the requirements posed by local charging demand on the distribution grid. It's a way to reduce the need for future investments into the electrical grid despite the growth in electric vehicles and sustainable, decentralized energy sources."

Scenario platform The project started mid 2012. According to Vonk, it has already proven its real-world usefulness. "The research puts widely studied theories into practice. For example, the project quantifies the likelihood and effect on the grid of someone throwing a party at home and a lot of people driving there in an electric car. After all, network operators have to be prepared for worst-case scenarios."

And that, says Vonk, is DAME's chief benefit: it automatically generates local scenarios. "Soon, network schedulers will be able to use the scenario platform tool we're developing to analyze their own networks. In the near future, they'll be able to see what impact a given scenario has across the entire region served by Enexis in the Netherlands, from Groningen in the north to Maastricht in the south. They can also evaluate the effects of smart charging. Where on one hand DAME is a research project that does a lot of modeling, it leads on the other hand to a tool that simulates various EV charging strategies using, say, solar panels. Those strategies may vary from user to user. After all, not everyone will be charging their electric cars with the same goal in mind. One wants to charge as cheaply as possible, another fast, and a third only when the sun shines and it's sustainable."

Interlinking data Vonk says the final year of the DAME project is all about interlinking the enormous quantity of data. "Therein lays the project's greatest challenge: not drowning in the details. In DAME, we've discovered all over again how complex the electrical grid is. There is an unprecedented amount of data that we could all use so much more effectively together. That's a major eye opener. There's still a lot to be gained in terms of sharing data and using open data. Electric vehicles and solar panel models need to be linked together. In the second part of the project's duration we'll be spending integrating sub models, including smart charging, so that we can deliver the scenario platform in the course of 2014".

Source: E-Mobility Magazine, The Netherlands