

Embracing the flexible energy revolution in urban cities

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Over the last few years we are witnessing the transition to decentralized networks and systems in almost all aspects of our society. Prominent examples are both the energy and data networks: our rapidly growing cities need more energy, more data and more services. As such, traditional ownership models and one-way, monolithic mode of operations are broken down: you do not need to own a car or a flat; you can generate your own (renewable) energy and become an energy prosumer dealing within the emerging smart energy market; you can have access to services directly to your house, and so on and so forth.

This revolution on the demand and supply side brings its own challenges, with the biggest one being lowering our dependence on fossil fuels. A radical change is imperative. Such a change can be enabled by both maximizing the use of renewable energy sources and increasing the flexibility of our grid and energy demand. This is what Flexible Energy is about: a decentralized and sustainably powered energy grid.

The [FLEXCON conference](#) held on the 20th and 21st of November at Pakhuis de Zwijger, Amsterdam, brought together professionals from all related sectors to discuss how indeed flexible energy can become reality.

Naturally, [Green IT Amsterdam](#) and the [Province of Flevoland](#) attended the conference on behalf of the [EV ENERGY project](#), since it represents a great opportunity to learn more about the emerging business models, how to engage citizens and the whole spectrum of stakeholders and last but certainly not least what constitutes as good policies for an active and concrete implementation.

A sustainable energy transition is indeed possible and within EV ENERGY we are looking at drivers and factors that will actually further promote its realization. The project tackles this from the perspective of Electric Vehicles (EVs) coupled to a smarter grid that benefits from renewable energy sources only. As such, the mobility and energy sector have not worked smarter together especially in terms of a viable charging infrastructure. The EV ENERGY project aspires to build the bridge to bring these sectors together with smart ICT playing the role of the enabler.

The Electric Mobility market is one of the rising and booming markets, not only European-wide but also globally. Innovative game changers, companies and car manufacturers are pushing forward the development of new models, allowing this technology to answer challenges we are currently facing. EVs, charged with RES, are the most efficient and environmentally friendly way of mobility, compared to other fuel types. According to Bloomberg, up to 2 million EVs are driven worldwide and by 2040 this number is expected to grow up to 280 million. In the scope of the EV ENERGY project, we consider EVs as flexible units for renewable energy source as well as a powerful and flexible way to turn grid risks into solutions and opportunities.

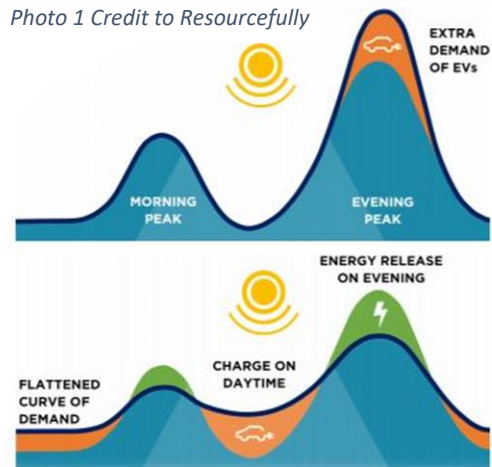
This growing trend is motivating by both EV market offerings and financial incentives. In Europe, leading markets are Norway and the Netherlands, followed by France. Not surprisingly then Europe finds itself quite ahead on this market as new EV registrations are still rising.

Taking the example of the Netherlands, at a national level, fiscal incentives, fuel prices and tax exemption are particularly driving the demand and on a regional level, local subsidies and non-financial incentives are means for the flexibilization of energy. On local level, something that does work is

experimentation in itself. The EV market is still on its innovative side and cities need to carry out sample projects by themselves. [PowerParking](#) (ERDF project) and [EV ENERGY](#) (INTERREG project) are among 2 concrete examples of how cities should carry out European project and be a test-bed for real-life innovation.

As cities and regions are more active in the field of flexible energy systems, an active political lobby in The Hague (national level) and Brussels (European level) can act as the catalyst for adapting national and European regulations and set concrete targets and action plans. When it comes to citizens, they also have a huge role to play in the energy transition. These active consumers community are called prosumers. In Amsterdam, one of this community is located at the Borneo island. The citizens have solar panels over their roofs and thanks to smart devices, they can measure on real time the consumption and production of energy. Such a test-bed community illustrates the challenges involved. For example, the renewable energy source does not necessarily follow the demand curve, so the question is how to reliably supply your household or community with energy while keeping in mind the demand peak in the morning and evening? Another example is the fact that EVs create additional load at peak times so the question is how to balance the amount of energy taken out at the same time. In addition, one of the barriers regarding PV installation on roofs, is that house corporations and architects are lacking the necessary knowledge and data concerning the practice. This represents a large potential for renewable energy production.

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Bearing in mind the above, the EV ENERGY project which started this year, is ideally situated at the junction of these developments and therefore is in the perfect position to offer insights to city policy and decision makers. The project gathers and analyses the mobility policies of various cities: from the Metropolitan Region Amsterdam in the Netherlands and Stockholm in Sweden, to Barcelona in Spain, Rome in Italy and Kaunas in Lithuania. The analysis will result in a corpus of best practices and lessons learned ready to be transferred to and adapted by other locations.