Removing the last hurdle to EV's integration: policies and regulations overdue make-over

By V. Georgiadou, Green IT Amsterdam

The last years have seen both EU's renewable energy share and its Electrical Vehicles (EVs) fleet growing at a fast pace. Such developments, although welcomed, bring about new challenges especially in terms of energy grid readiness and cost. One such a challenge that would also open new opportunities, if tackled effectively, is the revision of relevant policies to meet the needs of the ever changing landscape.

This became once again evident during the second international conference on Vehicle-2-Grid (V2G) held last May in Amsterdam (http://amsterdamv2gconference.eu/). The conference covered various thematic areas spanning from batteries and storage to distributed renewable energy sources, smart tech and grid applications. Nevertheless, the underlying principal identified in discussions among an audience of both industry and academia representatives, was that for the revolution to truly take place, policies must be updated accordingly.

Indeed, the industry world, both on energy side and electrical vehicles, is moving faster than predicted as business models and technological innovations are continuously developed and adapted.

In particular, we are moving from centralized energy nets to distributed ones; from one-way systems to multi-directional energy clouds. As such new business models emerge involving many stakeholders along the entire chain: generation, storage, distribution and so on. Besides, new grid products are constantly developed with applications on different levels of the network, and although not all are available in the market yet, they do present opportunities and possibilities to stakeholders from the entire spectrum of the industry.

In any case, regulations must be changed to remove blocking points and accommodate for emerging business models and new ways of interaction with the grid. Such an example of regulations blocking the road to V2G related products and services can be found in Germany, as mentioned by Marcus Fendt from The Mobility House, a company offering aggregator services. An EV user wishing to offer grid services is considered by the German system a power plant and therefore obliged to follow the same rules and archaic application process as such plants!

On the other hand, the automobile industry is also revolutionizing its concepts regarding cars and their users' profiles. According to Robbert Montauban, from Nissan Europe, cars could now be perceived as "Batteries on Wheels". From a purely technological point of view, battery degradation due to V2G participation seems to no longer be an issue. This unblocks the road for EV users to offer flexibility services to the grid and thus becoming energy players in the market. Additionally, such practices can reduce the Total Cost of Ownership of the car and generate revenue. Indeed, in this light EVs have the potential to become one of the cheapest solutions for balancing the grid, especially since they are well combined with solar panels and other storage solutions.

Naturally, collaboration is essential to bridge the two industries so as partners from both sides can fully exploit the opportunities presented and efficiently deal with the challenges. Public-private partnerships within the whole ecosystem will undoubtedly support technological progress and business innovation, easing the learning curve. Although, for every country and city the specifics will

inevitably vary, the overarching approach remains the same and starts with pilot development before commercial roll out. Carrying through simple, focused, small-scale experiments will boost novel solutions and highlight problematic areas to be restored and concerns to be taken into account. Subsequently, successful pilots should be replicated and scaled up. Examples of such projects can be found indeed everywhere: from Denmark (the Parker project) and France (the GridMotion project), UK (the ITSES & ITHECA projects) and The Netherlands (Arena in Amsterdam & Lombotex in Utrecht).

In this buzzing environment, cities and their policy makers can contribute by leveraging their resources to prepare the way for more suitable regulations while at the same time being willing to take calculated risks especially in terms of charging infrastructure and roaming system. The challenge here is to strike the right balance between financial and other incentives and charging infrastructure since no system is 100% waterproof. Questions where city planners and regional regulators can help the most are for example:

1. Are there enough smart meters and charging stations?
2. Should EV batteries be allowed in the energy market? And if yes, under which conditions and rules?
3. How should the tax policy be updated to allow higher levels of EV penetration?

In any case, no real change can move forward without being embraced by society at large. Engaging end users and enabling them to participate on a voluntary base, at least at first stage, can go a long way to ensuring adoption. Once again, local policies and regulations should be updated to reward and empower end users, who are actually at the heart of everything.

Perhaps one of the most inspiring lesson learned, came from Ger Baron, the CTO of the City of Amsterdam and drawn actually from the 1st industrial revolution in the Netherlands: the example of windmills with its lobby being responsible for the country actually missing that train. Although lobbies are always pushing their own interests and one cannot completely disregard them, disruptive technology can be a good thing when it involves the creative destruction process. This can be seen in play when one compares the level of adoption of EVs in cities between the Netherlands and Germany. The strong automobile industry in Germany controls related development, while experimentation in the Netherlands is faster and more agile resulting in a boom of pilots and new businesses.

It seems indeed that at least the Netherlands learned its lesson. As Marten Hamelink, policy advisor for the Ministry of Economic Affairs, has highlighted it is fortunate that the whole system is represented within the country. The policy agenda towards 2020 includes the Green Deal on Electric Driving 2016-2020 and charging infrastructure. Paramount within this agenda is removing barriers in regulation as a key pillar of green growth and supporting cities in upgrading their own policies since they represent an important driver for EV integration.

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.