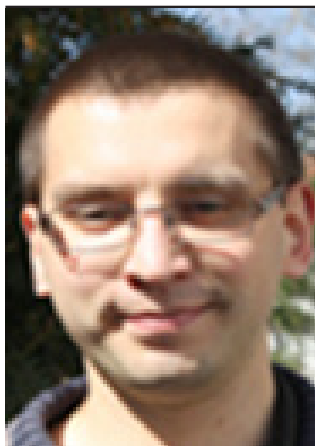


EDITORIAL



Barriers and Drivers for the Integration of Electric Mobility and Renewable Energies in Lithuania

Dr. **Giedrius Kaveckis**

Kaunas University of technology, Institute of Environmental Engineering

giedrius.kaveckis@ktu.lt

Integration of renewable energy and electric vehicles (EV) is one of the ways to contribute to a zero carbon emission society. However, the standalone potential of renewable energy and EV is limited. During the solar production peaks the energy demand is low, while in the evening EV requires a lot of energy which is mostly carbon intensive. Smart storages and intelligent EV charging infrastructure would obsolete this issue, however, their development requires appropriate policies. Often the policies favoring EVs at the local, regional and national level are fragmented and different. Therefore the aim of the EV Energy project is to inventorise, analyse and transfer policy measures from cities, regions and EU member states of Netherlands, Spain, Lithuania and Italy. In Lithuania, the EV Energy project addresses a policy instrument called "Operational Programme for the European Union Fund's Investments in 2014-2020 Republic of Lithuania". It's 4.5 priority addresses low-carbon strategies particularly in urban areas while the specific objective 4.5.1 promotes sustainable mobility and development of environmental friendly transport in order to reduce carbon dioxide emissions. Successful transfer of policy measures would be very limited without identification of its barriers and drivers.

Barriers and drivers have been identified through SWOT and PESTLE analyses. SWOT is a simple managerial decision making tool used to identify general strengths, weaknesses, opportunities and threats.

Meanwhile the PESTE describes macro-environmental and legal factors addressing political, economic, social, technological and environmental aspects.

The main political barriers in Lithuania are lack of political knowledge, absence of common EV policy and strategy at the national level, lack of cross ministry coordination and cooperation, absence of body and board responsible for EV charging's infrastructure development, constantly changing legislation and politics. The political strengths are the political decision to develop EV infrastructure, to establish road lanes dedicated for EV, taxis and public transport. However the unified EV charging rules, various support mechanisms, subsidies and collective municipal actions open new opportunities, but the EV and mobility market can be threaten by fragmented EV growth, slow political decisions, lack of EV charging operators' rules, complex installation requirements and documentation.

Among the economic barriers are the high EV prices, limited resources and staff at the city level, strong market of secondary-hand vehicles and low vehicles' taxation. But the EVs are stimulated by active business actors, their competence in vehicle repair and restoration and financial ministry support. Economic opportunities are the potential to rejuvenate national car pool and reduce the dependence on petroleum products, states' consideration of additional taxation (especially on high pollution vehicles), car share

competitiveness, support mechanisms and emission trading schemes. Possible obstacles can be identified as increase of EV which would lower the state's income through petroleum products, also strong market of used cars, absence of national funding and EV subsidies, high dependence on EU support.

High car ownership, developed EVs car share schemes, growing smartphone use and high activity of local communities were identified as main social drivers of higher EV potential, but they hardly can overcome high EV prices and low purchasing power, prevailing attitude on large and expensive vehicles, and, in general, low public awareness of EVs.

Although the experience of Lithuanian universities' in development of EVs prototypes, Lithuanian EV car sharing schemes, technology development and planned charging infrastructure enhancements along main highways should stimulate EV and renewable energy integration, the low driving ranges for most EVs, limited cooperation between universities and municipalities,

undeveloped charging infrastructure, unclear and expensive vehicle conversion are the technological barriers preventing smooth EV integration.

The main environmental driver of EVs is that they reduce noise and pollution which is one of the governmental objectives. Surprisingly, in 2013 the share of passenger cars powered by alternate fuels in Lithuania was 17% which is environmentally very welcome but might be identified as problem for EVs integration because most of the used alternate fuel is not electricity, but gas. Despite this fact, still about 85% of passenger cars are over 10 years old.

In summary there are much more barriers and obstacles than the drivers and opportunities of successful integration of electric mobility and renewable energies in Lithuania. However, there is a hope that EV Energy project will help to transfer good practices which would help to implement successful policy measures, obsolete existing barriers and would even help to develop new drivers for smoother EVs integration.

For more information: <http://www.interregeurope.eu/evenergy/>

