



Ele.C.Tra - IEE/12/041/SI2.644730
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Ele.C.Tra: An Innovation in Transport

Innovation is defined as 'a new idea, more effective device or process.' Within the context of transport and daily commutation, innovation can be regarded as the key to better solutions which reduce the carbon emissions while meeting the European Commission's requirements while meeting emerging market requirements.

This Ele.C.Tra project aims to promote innovation through the transport model which has been developed by the partners in order to promote and cultivate effective new solutions, services and ideas that are readily available to governments and society. In this way innovation can be applied as a consequence, new, that "breaks into" the market or society.

The ELE.C.TRA project aims at bringing innovation while helping cities across Europe to implement transport strategies which can effectively address transport and environmental priorities.

The Malta Intelligent Energy Management Agency (MIEMA) makes part of the Ele.C.Tra partnership. MIEMA is an Energy Agency with the aim of supporting Malta in the transition towards a sustainable energy while meeting the 2020 goals as mandated by the European Commission.

MIEMA's participation in the Ele.C.Tra project serves to widen the Maltese cooperation with other European cities which are more experienced in scooter based commuting. In this manner the partners of the Ele.C.Tra project compiled their experiences from different European Cities into a repository of technological resources and financial knowledge about electric scooters.

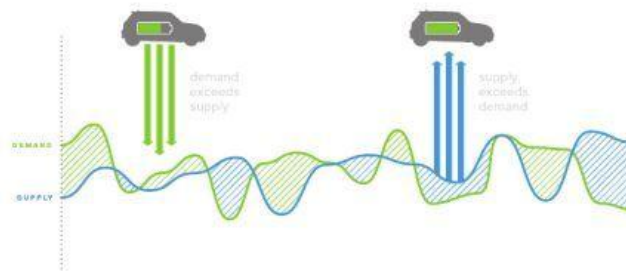
Subsequently the Ele.C.Tra transport model can formulate and device scooters transport model with the purpose of reducing congestion and air pollution. Moreover, this model aims at improving the quality of life by highlight the environmental and economic benefits of sustainable mobility.



Electricity: Supply and Demand

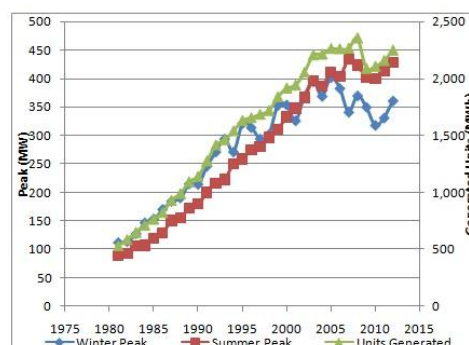
The Ele.C.Tra project delved into understanding the energy supply and demand within the European Context. This analysis is the key for proposing effective policies for Electric-Vehicle to Grid integration.

The Maltese energy demand and supply profile is inclined towards industry featuring the heavy industry and the catering industry. The Ele.C.Tra partners propose to Renewable Energy Technology (RET) with the deployment of Vehicle-to-Grid whereby electric vehicles can communicate with the electric so as to coordinate appropriately the transfer of energy to and from the electric vehicles. In this way the owners of the electric vehicles can trade electricity in financial advantageous way by charging the batteries during low grid demand and supply electricity to the grid during the peak load. In this way the vehicles can response efficiently to fluctuations in power demand.



The Concept of V2G (NRG ENERGY AND THE UNIVERSITY OF DELAWARE)

The Maltese Grid has experienced an upward trend in the demand for electricity during the last 10 years as visible in the chart below. It is also interesting to observe a short term decrease in consumption coincided with a period of economic difficulties experienced between 2008 and 2010. The V2G concept can mitigate the fluctuating power curves which are expected to be accompanied by an increase in demand as visible in the figure below.



Generation Demand in the Maltese Islands

Electrification as Key to Modernization

The European Member States have committed themselves to aspiring aims for economic and environmental sustainability. These goals can only be scored through modernisation and political frameworks which supports Renewable Energy Technologies and RET capacity. Consequently, the European regions experiencing new industrial development may expect its electricity demand to grow quickly.

In this light it would be a wise decision to offer incentives to those companies which are still growing to invest in electric vehicles. In this manner the companies may mitigate the increase in power demand via the electrical energy stored in their electrical vehicles. In this way companies which are still growing can invest in those technologies which contribute to the sustainability of their growing business.

Such policies would help at the modernisation of the European electric system. This will also involve more integration of solar, wind and energy storage systems. Moreover, the availability of adequate software applications can enable the owners and user of the electric vehicles to become prosumers. This will require the creation of applications and smart metering systems which can help them manage the utilisation, generation and storage of energy. In turn this will make it easier and more efficient for the Energy Operators and DSO's to predict, distribute and generate energy.

The modernisation of the European grid will provide various benefits such as the facilitation for customers to manage the use of electricity and reduce the cost of electricity. In this way the grid becomes more reliable and resilient in the light of fluctuation of power demand while boosting innovative investments. Subsequently, the new RES technologies can enable a more competitive electricity market while addressing environmental priorities.

Consumer Software Applications

At the time of writing, the domestic energy sector is going through a dramatic transformation.

Consumers are opting for vehicles and appliances which utilise energy in a wise way while providing mobile applications with which they can interact with them. Within this context, the consumers can benefit from the improvements made in the electric vehicles. In this way the competition amongst the key players of this industry is creating better and cheaper low-cost alternatives for commuting.

Part of this change has been induced by the fluctuations in the prices of crude oil and raw materials. It has resulted that energy technology innovators are taking advantage of developments in various areas such as software and consumer electronics to greatly improve the consumer experience while reducing energy consumption.

Open Innovation for the Electric Vehicles

Chesbrough (2003) describes open innovation as the application of purposive inflows and outflows of knowledge to cultivate internal innovation while creating market positions.

Within the same context, automotive giants Ford and Tesla have offered their patents for licensing with the aim of enhancing the adoption of electric vehicle adoption. On the other hand Japanese car manufacturer Toyota is investing on fuel cell technologies.

At the time of writing, the competition between automotive innovators is being dominated by “connected cars” since users are willing to pay for software related innovations rather than for physical car features.

Moreover, technology companies like Tesla are competing in this market with their own electric vehicles. *This is triggering more competition in access to the skilled people required to drive innovation to open up technology investments.*

In this manner, Ford aims to share its inventions with the hope that their technologies are adopted more rapidly while simultaneously acquiring the talent required to be an innovative leader in the automotive industry.