

# **SUSTAINABLE URBAN MOBILITY PLAN – A STRATEGY FOR ELECTRO-MOBILITY IN THE CITY MUNICIPALITY OF LJUBLJANA**

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At the end of March 2013 the European Commission adopted the Green Paper "A 2030 framework for climate and energy policies". This is the first step towards a new framework of EU-policies on climate change and energy through to year 2030. It has to consider the consequences of the economic crisis, yet on the other hand it must be ambitious enough in order to achieve the necessary goals of lowering emissions by 80 to 95 % by the year 2050. The European Commissioner for climate action, Connie Hedegaard said: "Europe is more and more dependent on foreign fossil fuels and thus we pay more expensive bills, which the people of Europe cannot afford. Therefore we have decided that we in Europe wish to achieve a low-carbon society by 2050. The goals for 2020 are already there, yet it is time to set the objectives for 2030 as well. The faster we achieve our goals the more assurance we will be able to give to our companies and investors. The more ambitious are our goals, the better it is for our climate."

In August 2011 the Office of the government of Slovenia for climate change informed the Slovenian government on the state of electrically driven vehicles and suggested appropriate measures for supporting electro-mobility. The paper's main points are:

- electrical vehicles have a big potential for solving great challenges of the European commission as are: climate change, dependence on fossil fuels, air quality on a local level and energy storage from renewable sources via a smart grid;
- clean electrical vehicles will be most suitable for urban use;
- current state on the vehicles' market stipulates also for Slovenia to ensure conditions for an effective introduction of more energy-efficient electrical vehicles.

Beside environmental issues the document also states the impact of introducing electro-mobility to the Slovenian economy as Slovenia has many producers of parts for electrical vehicles and an excellently developed Automotive Cluster of Slovenia (ACS). The measure for supporting electrical mobility and assured charging infrastructure will undoubtedly influence competitiveness and the results of these companies. When preparing this paper already cooperation between ACS and some of the most active companies in the field of components for electrical vehicles was set up together with the assistance of representatives of car manufacturers. On the basis of this information the government of the RS adopted a programme for supporting the purchase of battery-electrical vehicles in the period from 2011 to 2013. In October and December 2011 two tenders for subsidising the purchase of EVs were published.

Therefore the City Municipality of Ljubljana is also aware that in Slovenia more and more electrical vehicles (further EV) will be present. The rate of their growth in Slovenia will mostly depend on the following factors: subsidies buy the State for the purchase of EVs, development of a »smart« charging infrastructure, benefits when using EVs in cities, a widely developed and efficient network of charging stations, general promotion of electro-mobility and a transfer of good-practices into our environment. EVs are ideal for use in an urban environment, where speed is low and we stop often when driving. The most important effects

of electro-mobility are the elimination of road noise and the reduction of particulate matter and other air-borne pollutants, which impair our health.

The document represents a starting point which will enable us to develop this field in an appropriate manner, i.e. to prepare measures within the introduction of electro-mobility taken by the City municipality of Ljubljana. The document is intended for the city administration, for companies and institutions which were founded by the city municipality. Also it aims at citizens, who will be actively involved within the Strategy for electro-mobility in the City municipality of Ljubljana (further referred as SEM MOL) and will guide the development of new mobility forms with their suggestions.

In Ljubljana we have actively reacted to the challenges of an increased motorised traffic by preparing and adopting key documents, which define strategic and operational goals for sustainable traffic management in the city:

- within the Environment protection programme for the period between 2007 and 2013 we defined strategic goals for setting up a system of sustainable mobility in 2007
- after 25 years we have prepared a Municipal spatial plan – implementation part (IP) and strategic part (SP) for the period between 2011-2027, which is a key document for the future development of the city
- in 2010 we have prepared, in cooperation with the Regional development agency of the Ljubljana Urban region (RDA LUR), a scientific basis for the management of public passenger transport in the Ljubljana urban region
- in 2012 the City council adopted a new Transport policy, which places emphasis on encouraging sustainable mobility forms and restricting individual motorised traffic. We have set the goal to improve the modal split, thus by the year 2020 one third of all traffic is carried out by public means, one third by non-motorised means and one third with cars.

The stated documents are intended for a general approach towards mobility management. The Electromobility strategy of the City municipality of Ljubljana covers the part of selection of sustainable motorised transport means. We are intensively renovating our bus fleet of the public transport where we have 214 vehicles and among them 5 hybrid and 34 vehicles which comply with EURO 5 standards and 20 vehicles, which drive on methane (CNG) and are reaching the EEV-standard (here PM concentration is lower by 33%). In the year 2014 and 2015 we intend to purchase an additional 29 methane-buses. When buying new office cars we will give preference exclusively to environmentally friendly vehicles. The stated measures are flanked by infrastructure development and therefore last year we opened here in Ljubljana the first fuel station for vehicles running on compressed natural gas in Slovenia. In the last five years we have gradually closed down the city centre to traffic by increasing pedestrian zones in the city centre by 550% and with this we decreased the number of parking spaces in public areas, but we have also built an underground car park.

The time frame of the implementation for the first period till the end of 2015 foresees the implementation of pilot projects aimed at promoting and encouraging the use of electric cars. In parallel will be the construction of the charging infrastructure that will actively involve the City municipality. By the year 2020 - at which time Europe has set a goal to have 10% renewables in transport - additional measures in the area of EV development are planned in order to make them more accessible to the citizens. While further limiting the exhaustion of

CO2 an increase of the share of EVs in traffic is foreseen for the period till 2050, which will replace most of the combustion engine vehicles.

The consequence of the introduction of electro-mobility will offer itself as a solution to many of the challenges on various levels of modern society. The introduction of electromobility in the City municipality of Ljubljana will influence economic and environmental factors, which will directly affect the quality of life. Here we need to emphasize that by a shift from combustion engines to alternative electric drive we can substantially lower:

- exhausts of airborne pollutants and with it we can additionally contribute to the measures for decreasing the pollution of ambient air, which are already being implemented by the City municipality
- noise pollution, as EVs are much quieter in comparison to combustion engine cars.

With regard to the most vivid aspects of electromobility, such as the driving experience, EVs offer exceptional driving experience. With a fast and elegant acceleration, silent operation and a substantial decrease in pollution they offer each driver a socially responsible pleasure. EVs are at their best in a city drive, where stop-and-go actions are typical. The advantage of EVs in comparison to combustion engine vehicles lies foremost in the reuse of the kinetic energy which releases itself while braking (so called regenerative braking), which in ordinary cars produces heating and energy loss. EVs are able to store this energy in a battery and reuse it later. Also acceleration makes the difference as EVs do not require a gear box and they have the complete torque available throughout their operation.

Today the basic means of transport in Ljubljana are cars. According to unofficial data, commuters daily account for more than 120.000 cars whereas the daily routes towards the big shopping centres are strongly contributing to traffic increase. In 2012 the City municipality adopted a Traffic policy where we want, via an integrated approach and with the inclusion of the citizens and interested stakeholders, to ensure sustainable development of traffic in our city. The goal of the transport policy is the introduction of principles of a sustainable mobility development, which will contribute to achieving a balance between social equality, environmental quality and economic development.

The transport policy of our municipality introduces principles of sustainable mobility in the city, where we are substituting the existing transport system with more energy-efficient, less environmentally harmful and less spatially wasteful transport means in the city and region.

The upcoming EV technologies definitely have a potential to radically change and improve transport with personal vehicles and can integrate it into a holistic image of sustainable transport. The introduction of electro-mobility is surpassing the opposition between sustainable mobility and free mobility as due to their clean characteristics and silence, EVs can co-exist with other forms of sustainable transport (walking and cycling).

The City municipality uses two electrical vehicles »Kavalir«, which are intended for driving within the pedestrian zone. The public waste treatment company Snaga d.o.o. has in their fleet five electric trucks and one road sweeper. The public company Žale (management of a cemetery) has seven electric vehicles (among them four scooters), the city administration uses six hybrid cars and the public transport company owns already 20 vehicles driving on CNG.

The suggested measures within the Electro-mobility strategy for the period between 2013-2020 are:

**MEASURE NO.1:** Preparation of a development plan for charging infrastructure

By preparing a development plan for charging infrastructure the City municipality will set the basic starting points for a network of charging stations which includes the identification and planning of priority areas till the middle of the year 2014 and the preparation of a final plan by the end of 2014.

**MEASURE NO. 2:** Construction of charging stations on new car parks of the municipality  
In phase 1 in each car park there has to be at least 1% of parking spaces equipped with charging stations. Additionally at least 5% of parking spaces will have to be equipped with such an electricity infrastructure that it is possible to easily install additional charging stations. The first car park to be equipped with electrical infrastructure is the extension of the P+R facility »Dolgi most«;

**MEASURE NO. 3:** Construction of charging stations at existing municipal car parks  
Gradually MOL(CML) will equip existing car parks with charging infrastructures although the dynamics of the fitting out will depend on the development of the EV market and occupancy of the existing charging stations;

**MEASURE NO. 4:** Construction of buildings (with accompanying parking spaces) on the area of the City municipality of Ljubljana

The decree on the municipal spatial plan of Ljubljana – implementation part requires that each car park with more than 100 parking spaces also needs to have one space equipped with a charging facility for electric cars. According to the foreseen development of electro-mobility the city municipality will change the decree and define that on each 100 parking spaces at least one parking space with the possibility to charge EVs needs to be provided;

**MEASURE NO. 5:** Taxi services

According to their numbers taxi services are an important part of city traffic and it would be especially favourable to encourage them for using EVs on their services. In the inner city centre we will have at least two environmentally friendly vehicles (maximum 4) which will be selected via a public tender by the end of 2013;

**MEASURE NO. 6:** Introducing EVs in the car fleet of MOL (CML)

The city municipality will increasingly introduce EVs into its car fleet, firstly more at specialised vehicles (as already implemented in waste management and on the cemetery), vehicles for official business where most of the drives are short-distance (city wardens, couriers, maintenance services of the water and electricity service companies) and for service cars of the municipality. Also, the public transport company is currently selecting two cars and an electrical bus for the inner city centre.

**MEASURE NO. 7:** Gaining information on interests of the citizens

For a successful planning and implementation of the measures we need to get information from the broader public about their support for electro-mobility, for the foreseen measures of the municipality in this respect and we need to acquire information on the interests, wishes and need of the broader public in connection to electro-mobility. For this the City municipality of Ljubljana will check public opinion and will inform the public on the more important measures via the already established communication channels.

**MEASURE NO. 8:** Promotion of electro-mobility and informing the public

Promotional activities are of key importance for the development of electro-mobility and for a successful implementation of the measures, whereas a public support is pivotal. Only a well informed and enlightened public can change its travelling habits and so contribute to an improvement of their quality of life. Clearly shown projects encompass events where electrical vehicles and their advantages will be on display, e.g. within the project »Mobility week«

MEASURES NO. 9: Use of the »yellow« traffic lane

The »yellow« lane is reserved for buses of the public bus traffic and for taxis, and with this measure we would allow drive on the »yellow« lane also for EVs, for which special permits could be issued.

MEASURE NO. 10: Subsidies for the use of charging stations in car parks

Subsidies for using EVs are referring to measures, which do not include investment into infrastructure, but they offer free charging of the EVs on stations in the car parks of the City municipality. Via a possible agreement with owners of car parks on the area of the municipality this measure could be extended.