Impact assessment of the Preliminary plan for electric vehicle charging in the City of Turku

Background

The City of Turku strives to be carbon neutral by 2029. To realise this vision, the City of Turku actively supports the expansion of the electric vehicle charging network, and the city has taken a significant step towards a more sustainable future by drawing up a comprehensive Preliminary plan for electric vehicle charging for 2024–2030. This plan is part of the wider USER-CHI project funded by the EU's Horizon 2020 programme. The preliminary plan has been drafted in close cooperation with several key stakeholders, such as charging service providers, employers, professional users, housing companies and residents.

Impact assessment

The assessment of the Preliminary plan for electric vehicle charging examines the impacts of its implementation from an economic, ecological and socio-cultural perspective. It serves as an appendix to the Preliminary plan and supports related decision-making. It also helps to understand how the plan can affect the everyday life and companies, and what impact the plan will have on reducing transport emissions when it is implemented. The assessment has mainly been carried out as a qualitative expert evaluation desk research. In addition, the estimated emissions impacts of the electric vehicle charging plan were calculated based on the share of electric vehicles that will replace the current traffic distribution by 2030 in line with the target. This included both direct and life-cycle emissions. As part of the study, an informal interview with entrepreneurs from the city centre and selected areas was also conducted to provide an additional understanding of the impacts of the plan on companies.

Impacts on stakeholders

The development of the electric vehicle charging infrastructure in accordance with the preliminary plan of the City of Turku has a direct impact on the consumer behaviour of urban residents and the acceptance rate of electric vehicles. With more charging stations and easier access, residents are more willing to consider buying and using electric vehicles. In addition, the expansion of infrastructure may affect mobility habits and promote more sustainable alternatives to urban transport. The development of the charging network and vehicles alone does not promote the transition to electric mobility and the purchase of a rechargeable vehicle. Key findings from the data of the electricity survey commissioned by the City of Turku, from the perspective of impact assessment, were the need for information and guidance for both city residents and housing companies, as well as the impact of the purchase price of rechargeable vehicles on the transition rate. The main reasons for not purchasing an electric car are related to the purchase price and charging possibilities of the car.

With the evolving charging network, companies can achieve many benefits. The City of Turku offers help in organising charging stations for workplaces and encourages large employers to install them. In both housing companies and business properties, it is possible to reduce the amount of investment in charging stations by opening them for public use outside the active use period of residents or employees. Economy, comfort and environmental friendliness play a role in the procurement of rechargeable vehicles by companies, and the development of the public charging network will contribute to the transition. The unanimous view is that the possibility of charging close to the shops is positive and may have positive economic impacts if the adequacy of parking spaces is ensured in the planning of charging stations.

Impact on emissions

The objective of the impact assessment was to assess how the Preliminary plan for electric vehicle charging affects road and street traffic emissions. The assessment focused only on transport emissions, and the emissions caused by the construction of charging stations were excluded. The restriction allows for a more straightforward connection between charging and emission reductions, but it also emphasises the need for further studies covering life-cycle emissions. The assessment did not consider any changes in emissions from professional transport or changes in emissions from light-duty vehicles.

The calculations were based on the electric vehicle charging plan scenario, in which the use of electric vehicles increases by 33 per cent. As the majority of the automobile stock is currently petrol- or diesel-powered passenger vehicles (currently only 9 per cent of other power sources), emissions are generally reduced in proportion to the scenario. If petrol and diesel vehicles are replaced with fully electric vehicles, emissions will be reduced by 34 per cent in the selected scenario by 2030 (total emissions in 2030 approx. 83.8 kt CO2eq). If petrol and diesel vehicles are replaced with rechargeable hybrids, emissions will be reduced by 2030 (total emissions in 2030 approx. 101.2 kt CO2eq).

The starting point of the preliminary plan is the strong electrification of the automobile stock so that in 2030 there would be about 700,000 rechargeable vehicles in Finland. The assumption is that the pace of electrification in Turku is similar to that in other parts of Finland. A significant slowdown in the renewal of the automobile stock may jeopardise this objective. The pace of renewal of the automobile stock has slowed down significantly in recent years.

Conclusions of the assessment

Achieving the sustainable transport objectives of the City of Turku requires extensive cooperation and a comprehensive approach. Both citizens and businesses need to be involved and the city needs to create incentives for sustainable mobility. Continuous monitoring and assessment of the impact of the measures and a flexible response to changing circumstances and needs are also needed.

The Preliminary plan for electric vehicle charging in the City of Turku is well in line with the AFIR decree and the national distribution infrastructure programme. The plan considers the increasing need for high-performance charging and the overall development of the automobile stock. The general principle of phased, open competitive tendering enables us to react well to future changes. The plan and its appendices also provide a good basis for more detailed planning and phasing for the regional location of charging stations. Consultations to support the plan will help to consider the views of different actors.

On the one hand, the greatest risks related to the implementation of the plan are related to the latest forecasts of a slowdown in the renewal of the automobile stock, and on the other hand, to the preparation of competitive tendering so that the objectives of the City of Turku and market-based vehicle charging suppliers are met simultaneously. Phased tendering makes it possible to prepare for these risks.

The impact assessment report is available in its entirety (in Finnish) + link