



BUILDING FOR THE FUTURE: HOW CAN CITIES PREPARE FOR E-MOBILITY?

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For cities, the fast growth of electric vehicles (EVs) is a challenge and an opportunity. In the process of becoming cleaner and smarter, cities face a two-fold challenge: First, they are promoting a shift towards more sustainable modes of transport and electrifying the vehicles that cannot be avoided or shifted. Second, they must also ensure local electricity grids can serve the needs of electrified transport. Meeting these challenges requires thorough planning to decarbonise both the energy and transport systems concurrently while minimising costs and maximising benefits for society overall. To complicate matters, high energy prices have increased the need to manage additional demand well and reduce costs by integrating EVs smartly into local power grids.

With this in mind, cities network Eurocities and energy transition experts Regulatory Assistance Project (RAP) reviewed promising practices from early movers and frontrunners in local planning for rolling out e-mobility and drew lessons that can be tailored to regional circumstances and challenges. Some examples are based on innovative initiatives from partners of the EU-funded research project USER-CHI, a project involving both RAP and Eurocities. Building on three key lessons, we discuss policy opportunities for cities to take up a stronger role in defining the electromobility ecosystem and to receive support in urban e-mobility planning, both on the national and European levels.

THREE KEY LESSONS FOR CITIES WHEN PLANNING FOR E-MOBILITY

LESSON 1: THINK BIG AND SMART!

Planning for electrified transport requires close collaboration between planners involved in the energy, power system, infrastructure, and transportation sectors. Holistic planning for electrified transport requires cities to identify the charging and infrastructure types that will best serve sustainable transport goals. Dublin, Ireland, for instance, analysed the demand for charging electric cars, vans, taxis and two-wheelers, and explored use cases such as residential, en-route and destination charging. The analysis was based on an extensive geospatial mapping process,¹ examining charging needs and use cases by area in the greater Dublin region. The needs were assessed in line with the authorities' overall aim to reduce car use in the city centre. In addition, the city adapted its internal procedures to put plans into practice.

Thinking big and smart also means developing a planning approach based on quantitative and qualitative assessment of future demands. The German city of Berlin's authorities conducted an extensive study 'Elektromobilität Berlin 2025+'² that identified charging infrastructure needs based on projections from inbound and outbound traffic patterns and parking needs for different user groups such as inhabitants, visitors and commuters. The planners were then able to identify the projected charging point needs by 2040 for each scenario, including the different use cases. Working from the existing political and planning regulatory framework, they could also determine the most effective process for rolling out this charging infrastructure. Findings suggest that in almost all use cases, the number of charging points required can be significantly reduced by increasing their individual use rate. Based on this finding, the planners developed a dual approach developing normal and fast charging hubs to serve all uses. Installing fast charging hubs on publicly accessible but privately owned grounds, such as petrol stations and shopping centres, helped to avoid adding more car parks and to reduce the need for infrastructure on public grounds, typically on streets.

LESSON 2: PLAN FOR BOTH EVS AND THE POWER GRID AT THE SAME TIME

With the ambitious goal of fully electrifying transport by 2030, Stockholm, Sweden, has been developing and testing planning tools to optimally integrate EVs into the grid. A public dynamic map for planning public charging points, allows third parties such as service providers and installers to choose their locations of interest, providing planning security for investors and citizens. To help create a market for related EV charging services,³ the city has chosen a tender model: It awards five-year operation contracts to service providers based on pre-defined criteria. To better capture inhabitants' charging needs and plan for them, the city also created residents' councils. These councils, which focus on EV charging for residents of multi-family buildings, facilitated 1,000 applications for charging units. Finally, Stockholm's planners have sought to make EV charging smart. A modelling study of the potential local network confirmed that time-of-use tariffs with cheaper overnight rates, for example, effectively encourage users to charge at times that are cheaper for them and beneficial for the grid.⁴ It also recommends a charging station booking system to foster efficient utilisation and offers data to help avoid overinvestment in infrastructure. An ongoing pilot is exploring how the speed of public charging can be adjusted⁵ to allow users to take advantage of the savings from smart charging.

It is critical that planners in all cities have access to planning tools for building EV charging infrastructure. As part of the USER-CHI project, VMZ is developing an open access planning tool called CLICK for siting new electric vehicle supply equipment. CLICK⁶ is an easy-to-use online tool that uses a question-and-answer format to facilitate top-down location planning of charging infrastructure in cities. The tool matches users' needs, charging preferences and habits with existing charging technologies and types. To generate these insights, the tool takes into account detailed data — including inhabitants, number of cars and existing share of electric vehicles — along with existing grid capacity and the areas and technologies to be

covered. Based on these inputs, it provides planners with recommendations for the number of charging points and proposed locations, charging technologies and connectors, and indicates the required power grid

capacity. This tool will soon be tested in Barcelona, Spain; Berlin, Germany; Budapest, Hungary; Rome, Italy; and Turku, Finland.

LESSON 3: COLLABORATE AND OPTIMISE

Successful planning for e-mobility requires collaboration at all levels. In an effort to work directly with citizens and encourage them to switch to e-mobility, Italy's capital, Rome, invited inhabitants to indicate their preferred location for charging points within predefined zones. To date, more than 1,150 users have already used the platform and over half are considering switching to an EV. From the municipality's perspective, the portal is a key tool for identifying the optimal location for on-street charging points.

Cooperation between the different levels of local governance also accelerates charging infrastructure deployment by allocating responsibilities to different

actors. With the objective of phasing out fossil-fuelled vehicles by 2030, the Netherlands established the National Charging Infrastructure Agenda to overcome the challenge of installing a sufficient number of charging points to meet the country's ambitions. The goal is to ensure that infrastructure is not a barrier to the electrification of transport by engaging with local and regional authorities, network operators, national ministries, and independent technical experts. Public and private stakeholders collaborate to determine goals, actions, and agreements for deploying infrastructure. This leads to improved coordination in building out infrastructure while ensuring broad multi-stakeholder buy-in.

CONCLUSIONS AND RECOMMENDATIONS

Visionary thinking, joint planning and broad collaboration are three key strategies for municipalities to meet the electrification challenge. As the numbers of EVs in cities increase, small and medium-sized cities in particular can learn from best practices across Europe and enhance planning for e-mobility rollout. The lessons learned by many cities confirm that the uptake of electric vehicles will require sufficient charging infrastructure and, equally important, convenient, and equitable access. While successful regulatory incentives such as zero-emission zones encourage the uptake and use of electric vehicles and the phase-out of polluting diesel vehicles, stronger policy support is needed to help cities plan and manage smooth and efficient electrification of transport. On both the European and national level policy opportunities are opening:

On the European level, the new Alternative Fuels Infrastructure Regulation can ensure local authorities are able to fully participate in determining the governance, rollout strategies and specifications of charging infrastructure. Existing guidelines for local authorities,

such as the ones developed by the EU Commission's Sustainable Transport Forum⁷, are an important source of information, but need to be made more easily accessible to local authorities.

National frameworks can be developed with the aim of encouraging cities to better integrate electrification strategies in their Sustainable Urban Mobility Plans, in harmony with other local plans, such as Sustainable Energy and Climate Action Plans. The French Mobility Orientation Law is a good example of empowerment of local authorities in this field, by allowing for the possibility that local powers set up EV charging plans.

Planning zero-emission mobility in cities is a task that many local authorities are increasingly finding part of their remit. It is therefore important to help them develop effective local strategies, new skills, and expertise for their cities. The benefits offered by the transition towards more sustainable urban mobility will guarantee that both policymakers and citizens contribute to making this transition a success.