2020 CiViTAS
Cleaner and better transport in cities

ECCENTRIC

D6.2 Implementation Report EV charging infrastructure

WP6 Cluster 2

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Abstract

The report presents a technical description of the demonstration measures M6.6 and M6.7 dealing with the provision of EV charging infrastructure in Stockholm, including a description of the implementation process and the analysis of the main barriers and drivers encountered during the implementation phase. The report gives recommendations for replication.

Cluster Partners

Organisation	Country	Abbreviation
Stockholms Stad	Sweden	STOCKHOLMS STAD / STO

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List of Acronyms

CO_2	Carbon Dioxide
D	Deliverable
EC	European Commission
EU	European Union
EV	Electric Vehicle
e.g.	*exempli gratia* (for example)
GA	Grant Agreement
i.e.	*id est* (that is to say)
ML	Measure Leader
SKL	Swedish Association of Local Authorities and Regions
SM	Site Manager
WP	Work Package
WPL	Work Package Leader

Executive Summary

European cities are taking the lead in facilitating the rollout of charging infrastructure in various ways. While home charging infrastructure is the best way to charge electric vehicles both from a city and an owner perspective, public (on-street) facilities are regarded to extend the daily range of the vehicle, decrease range anxiety and boost opportunity charging. The latter is especially important for business users.

The City of Stockholm has been working with public and household charging infrastructure. Measure implementation has generated a business model for on-street charging infrastructure based on a public-private partnership and a concrete process on how to develop and run an information campaign for home charging.

Existing legal framework can cause bottlenecks as EVs are not foreseen and the role of the City is not clearly prescribed, while at the same time leaving room for interpretation and improvisation. The city can act as an enabler and impartial information source. Questions such as who bears the costs and how advanced technology to promote, have been running through the project. Experiences from Stockholm advocate for simple technology and wide coverage in order to scale up at a later stage.

1 Introduction

In the last decade European cities have made significant steps forward in the delivery of sustainable urban mobility policies, proving that major impacts in terms of congestion and reduced emissions can be achieved through ambitious measures.

The main common challenges are to relieve central areas through clean and efficient urban logistics, as well as to increase the attractiveness and sustainable mobility of suburban districts. To tackle these common challenges, the cities of Madrid, Stockholm, Munich, Turku and Ruse have formed the CIVITAS ECCENTRIC consortium (European Commission, 2016).

The overall objective of the project is to demonstrate and test the potential and replicability of integrated and inclusive urban planning and sustainable mobility measures that increase the quality of life of all citizens in urban areas, with a particular focus on suburban districts and new developments and the clean organisation of urban freight logistics.

Work package 6 (WP6) comprises of seven measures to accelerate and widen the uptake of clean vehicles in Madrid, Munich, Stockholm and Turku. The underlying idea of the work package is that two issues are slowing down the uptake today: first, clean vehicles are not deployed in some specific functions or business areas; and second, clean vehicles are available in other areas but a lack of knowledge and costs are hindering the uptake.

To tackle these barriers, measures:

- Trigger the wide uptake of clean vehicles (electric, liquid biogas) by companies, municipal fleets and households, offering test fleets, new charging infrastructure, incentives and information.
- Increase participation of citizens and local stakeholders.

Measures of this WP focus on electric mobility, testing vehicles (Cluster 1) and establishing charging infrastructure (Cluster 2). (European Commission, 2016)

2 Explanation of the work implemented in EV charging infrastructure

Cluster 2 measures enable an efficient and coherent rollout of supplementing EV charging infrastructure to expand driver categories and usage scenarios. Both measures are implemented in Stockholm and address public and household charging infrastructure – two types catering for different user groups and needs. Information campaigns and material to facilitate installation and access to both types of infrastructure are at the core of this cluster. More specifically, Stockholm has developed a Master Plan for public charging in the inner city, following the mapping of appropriate locations and the interpretation of associated legislation. A campaign through seminars, guidelines and information material has promoted and facilitated the establishment of charging infrastructure at home.

This report gathers and summarises experiences and lessons learned from Task 6.2 – Procurement and implementation (M3-M24). The task covers the launch of the tendering and procurement process associated to the demonstration actions, the actual implementation of the pilot projects and participatory processes accompanying the measure development (European Commission, 2016). Detailed background of the measures as well as results from Task 6.1 – Research and measure planning are presented in D6.1 Preparing for the uptake of clean vehicles (Evliati, 2017).

The report presents a technical description of the demonstration measures dealing with the provision of EV charging infrastructure (Cluster 2), including a description of the implementation process and the analysis of the main barriers and drivers encountered during the implementation phase. The report gives recommendations for replication. Measures dealing with testing of EVs and EFVs (Cluster 1) are presented in D6.3 (Evliati, 2018).

Telephone interviews with each Measure Leader and associated partner in October-November 2018 have provided input for this report.

2.1 STO 6.6 Master Plan for developing EV-charging in Stockholm

2.1.1 Introduction

The City of Stockholm has a long tradition of proactively working with clean vehicles and fossil free fuels. When it comes to provide EV charging infrastructure the role of the city has gradually evolved with a strategic aim to keep streets and sidewalks as free as possible from parked and charging cars. Today, there are about 77.000 on-street parking places in Stockholm (Stockholms stad, 2018a).

Currently there are 17.000 chargeable vehicles in Stockholm, making up for slightly below 5% of the total private vehicle fleet (Figure 1). Private EV owners mainly charge their vehicles overnight, at or near to their homes. Many company cars have charging facilities on site. At the same time, craftsmen, delivery and taxi businesses as well as visitors need access to daytime charging facilities, and there are citizens who cannot charge at home (i.e. not all apartments have access to a parking space or a garage). Stockholm's charging strategy has gradually developed from several working groups and high level round tables to ensure it will effectively meet the needs of all drivers, including business users. It is based on the following pillars:

Charging street a strategically chosen street with a cluster of 4-10 charges in a row, normally with a mix of normal and fast charging.

- Offering charging possibilities in city owned parking facilities off-street (Stockholm Parkering), both for short term use and with individual contracts for private car owners for long term use of a specific parking lot.
- Providing know-how and information about charging technology and installation requirements to private parking companies, shopping mall owners, private companies, housing companies and house owners.

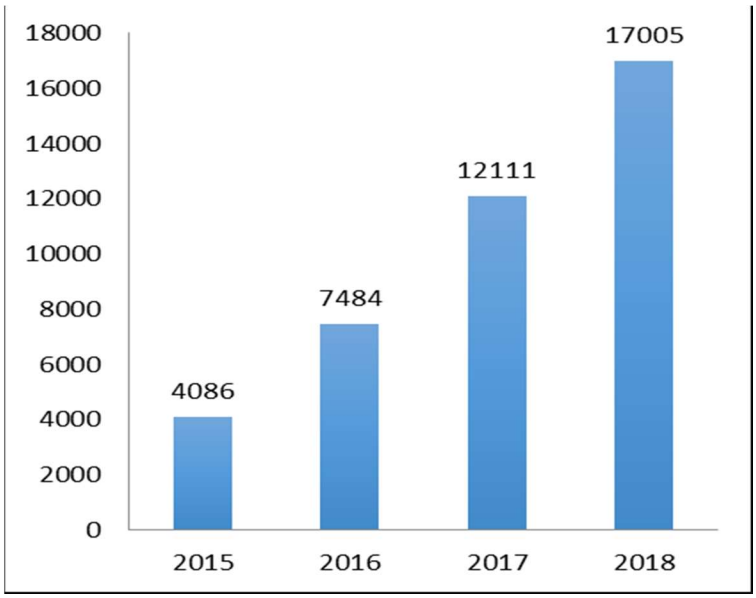

Figure 1 Chargeable vehicles accumulated per year

© Power Circle

- Providing spots for "charging streets" to utility providers willing to finance and operate on-street. Charging streets comprise of normal and fast chargers.

According to the long-term prognosis, chargeable vehicles will exceed 30.000 by 2030 (Figure 2). Private utility companies in Stockholm have shown interest and readiness in setting up the first fast chargers on street. Over 1.100 public charging spots are installed around the city, out of which 900 are in Stockholm Parkering's

garages, over 100 are on-street and 100 at other actors' premises.

Charging units per EV (CPEV) are today 0,06 (Power Circle, 2018). Stockholm has the aim to provide 0,1 CPEV, and the city would need about 1.500 public charging units. 500 of these are aimed to be on-street by 2020. The new local government coalition is now in the process of evaluating and reviewing these targets, as electrification of the road transport is pinpointed in the new budget proposal.

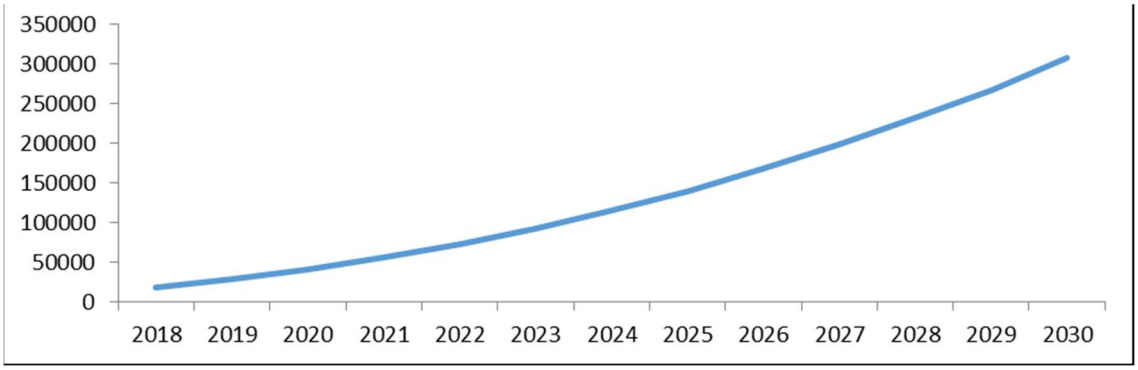

Figure 2 Long-term prognosis for chargeable vehicles in Stockholm. © Power Circle

2.1.2 Implementation

Implementation of the Master Plan started with mapping of appropriate spots for "charging streets" in the inner city. Utility providers were not as interested in areas outside the city centre, e.g. in Liljeholmen-Årsta, because it is normally easier to find appropriate spots there without facilitation from the City.

An online map shows 2.000 appropriate locations where providers can apply to the city for setting up charging. Mapping was based on a number of criteria, including the street and pavement size to allow for sweeping and snow ploughing, a mixed urban use and distance to trees and roots (Figure 3).

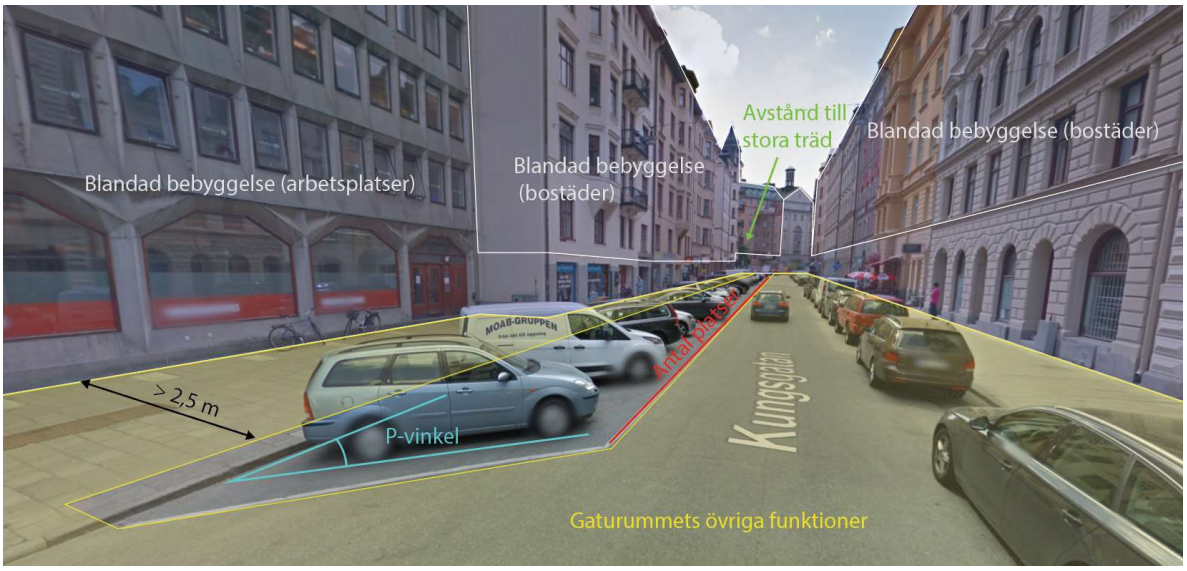

Figure 3 Criteria for mapping appropriate spots in the inner city © City of Stockholm

In parallel, the Traffic Office has carried out an extensive work to interpret the legal framework and associated contracting. Providers must ensure the equipment is in operation at least 90% of the time or else they can lose their permit. Providers also agree to comply with international standards on fast charging and the City's standards, such as colour coding for the equipment to blend in the urban environment. Providers must further be able to offer at least two alternative payment methods.

The final step in implementation has been an effort to coordinate digging works in order to avoid disturbance in the city and minimize costs. To this end, the Traffic Office has made a map to coordinate actors that are already digging for other purposes at the same spots.

Throughout implementation, the city of Stockholm has inspected established charging streets to identify parking errors and improve signage. Some signs were wrongly placed (e.g. in front of residential windows) or very difficult to understand as they contained a large amount of information. Following inspection, signs have been improved. Information about the vehicles that can park there is today clearer and easier to understand (Figure 5).

Implementation of this measure is a joint effort by the City of Stockholm, the network operator Ellevio, utility companies (Fortum, Eon, Vattenfall) and a mapping consultant.

The Master Plan for EV-charging is part of the vision of Stockholm to become fossil fuel free by 2040. On-street charging is expected to serve among others the test-fleet of craftsmen and delivery businesses who are the typical users of opportunity charging during daytime (Measure STO 6.1).

Figure 4 Parking sign on charging street

The measure is further complementary to home charging, normally taking place at the vehicle's standard parking – at or close to home. In Sweden, national funding supports this type of investments and Stockholm actively works to help housing associations apply for funding and set up charging infrastructure (Measure STO 6.7). Mapping of available spots and interpreting legislation in order to find the appropriate form on agreement, as well as parking and signage issues, have taken one year approximately.

2.1.3 Business model and contractual partnerships

The term "charging streets" is coined by the Stockholm city council. The city owns the land as well as the solution (Figure 5). The utility provider owns the infrastructure and is responsible for operation, maintenance and service. The provider is also responsible to collect data on usage and to make them available to the city in order to evaluate this measure's output.

The City of Stockholm and the respective provider are bound by access rights agreements. The access right agreement is valid for five years and is automatically extended with another five-year contract if none of the parties protests. If a party wishes to end the contract, there is a one-year term of notice. To set up charging, the provider can apply for up to ten spots or a

station, which the City may assign on a first come first served basis. Only when all spots are up and in operation, the provider can make a new application for more.

Utility providers bear all costs for setting up, operating and maintaining the charging installations. The City undertakes the total cost for signage and the maintenance of those. The Eccentric budget covers the evaluation and data collection and analysis as well as the communication work around the Master Plan.

Figure 5 Charging streets in Stockholm © City of Stockholm

2.1.4 Critical challenges and success factors

Land and parking regulations have been the key challenges in measure implementation. Soon after the start of this project, it was made clear that existing regulatory framework did not prescribe how a business model could be set up.

Swedish Association of Local Authorities and Regions (SKL) issued a handbook on “Charging for the future” to guide and inform Swedish municipalities working with charging infrastructure. The handbook discusses the role of Cities in the rollout of charging infrastructure, regulation and technical aspects regarding the placement and form of the charging stations. As regards the regulatory framework, the handbook describes different legal ways to choose from: land concession (calling for police permission) and access rights agreements (applicable for underground construction works, where the city has full competence). Stockholm has chosen access rights agreements because the city has full competence on this type of agreements. In case of an eventual future conflict, this type of agreement was judged to be defendable. Stockholm has contributed to the handbook by providing facts and experiences along the way.

Regulating parking has been the second major challenge. According to the parking ordinance, EVs can park at charging spots even if they are not charging. The parking fee is the same as for any other vehicle and varies between different locations in the city. The parking fee is paid to the City.

According to the survey responses, over 40 % of the users do not feel 30 minutes is enough to charge the vehicle. This is also reflected in the quantitative analysis, where over 30 % of all sessions break the 30-minute rule during the working day (Trivector, 2018). Longer charging times have however a negative impact on other users looking for an available charging point.

PRICING AND PAYMENT METHODS

Fast charging

Parking free for 30 minutes

Electricity 3 – 3,40 SEK/minute

Payment method mobile app, RFID-badge, sms, special card, credit card (depending on the provider)

Normal charging

Parking regular parking fee according to the City's parking index. The user may stay parked for 3 hours during the day (07-19) and all night.

Electricity 3 SEK/kWh

Payment method App to pay for both parking (to the City) and electricity (to the provider)

The same survey has indicated the wish for an interoperable payment system, as many EV owners think that different payment methods are not user friendly.

Despite difficulties, implementation of the Master Plan has run smoothly and its business model has attracted interest from all over Europe. Utility providers are technology ready and have been interested in investing in on-street charging. The business model with its cost and responsibility distribution between providers and the City of Stockholm as well as the process for spot distribution has worked well and nearly 150 spots are now in operation.

2.1.5 Lessons learned

The number of charging sessions in Stockholm has more than doubled between 2016 and 2017 (Trivector, 2018). Expansion of charging points on-street and the increased number of chargeable vehicles in Stockholm explain this increase.

For Swedish municipalities interested in designing a Master Plan there is a model ready to replicate: there is a clear process to identify appropriate locations and interpretation of regulations have shown possible alternatives to choose from. This information is publicly available on the City's website (Stockholm Stad, 2018b).

For cities in Europe and abroad, where the regulatory framework might look different, Stockholm has provided with a business model, based on the city offering access to land and the utility provider investing in infrastructure and being responsible for operation and maintenance.

2.1.6 Recommendations

- Start with the legal framework as it is likely to take time.
- If there are uncertainties, choose the type of agreement (with the utility providers) that can be defendable at a later stage in the case of an appeal.
- Start with the locations that are interesting for providers.
- Start small scale but plan so that it is possible to expand.
- Think through signage so that it is understandable and blends in the urban landscape.
- Think through colour identity so that the infrastructure blends in the urban landscape.
- Consider the residence parking permit and the need for residents to park longer than 3 hours.
- Leave enough room to clean the sidewalks.
- Consider proximity of the charging streets to coffee and other services.
- Consider an inter-operable paying system across all providers.
- Evaluate continuously to refine and improve (e.g. signage, colour coding, etc).

2.2 STO 6.7 Promote installation of EV-charging facilities in multifamily houses

2.2.1 Introduction

Charging facilities are essential for anyone considering buying an electric vehicle and overnight charging at or close to home has proven to be the number one choice for most EV drivers. Nearly 80% of the users of public charging in Stockholm have reported they have access to charging at home (Trivector, 2018). To boost the share of EVs among private users, it is important to ensure overnight charging at the vehicle's ordinary parking slot.

The aim of this measure is to inspire and help interested citizens as well as owners of parking facilities with facts and practical advice on how to install EV charging facilities in multifamily houses. The intention is to spark installation of charging points in privately owned garages and parking spaces in residential areas (Figure 6).

Most citizens in Stockholm live in multifamily houses and often rent an adjacent parking lot. The City of Stockholm has developed checklists and short informative and inspiring films to support housing associations to apply for national grants. Success stories from housing associations having already installed charging have been promoted and seminars were organised to bring together infrastructure providers and housing associations willing to set up charging at their premises. Interested housing associations and landlords can conversely use the information material to get their members and tenants interested in EVs by offering charging.

Figure 6 Normal charging in residential garage © Bert Ola Gustavsson/ Mosebackemedia

2.2.2 Implementation

The first step in implementation was to organise the work in groups and assign each of them specific responsibilities for the development of the information material. Four groups with their respective coordinator were organised with the following assignments: checklists, film, seminar and communication.

Furthermore, a reference group was formed in order to control check and give feedback to the material developed. Members of the reference group are the Stockholm Parking company (Stockholms Parkering), a property manager (Riksbyggen) and member organisations of property and apartment owners (Fastighetsägarna, Bostädsrätterna).

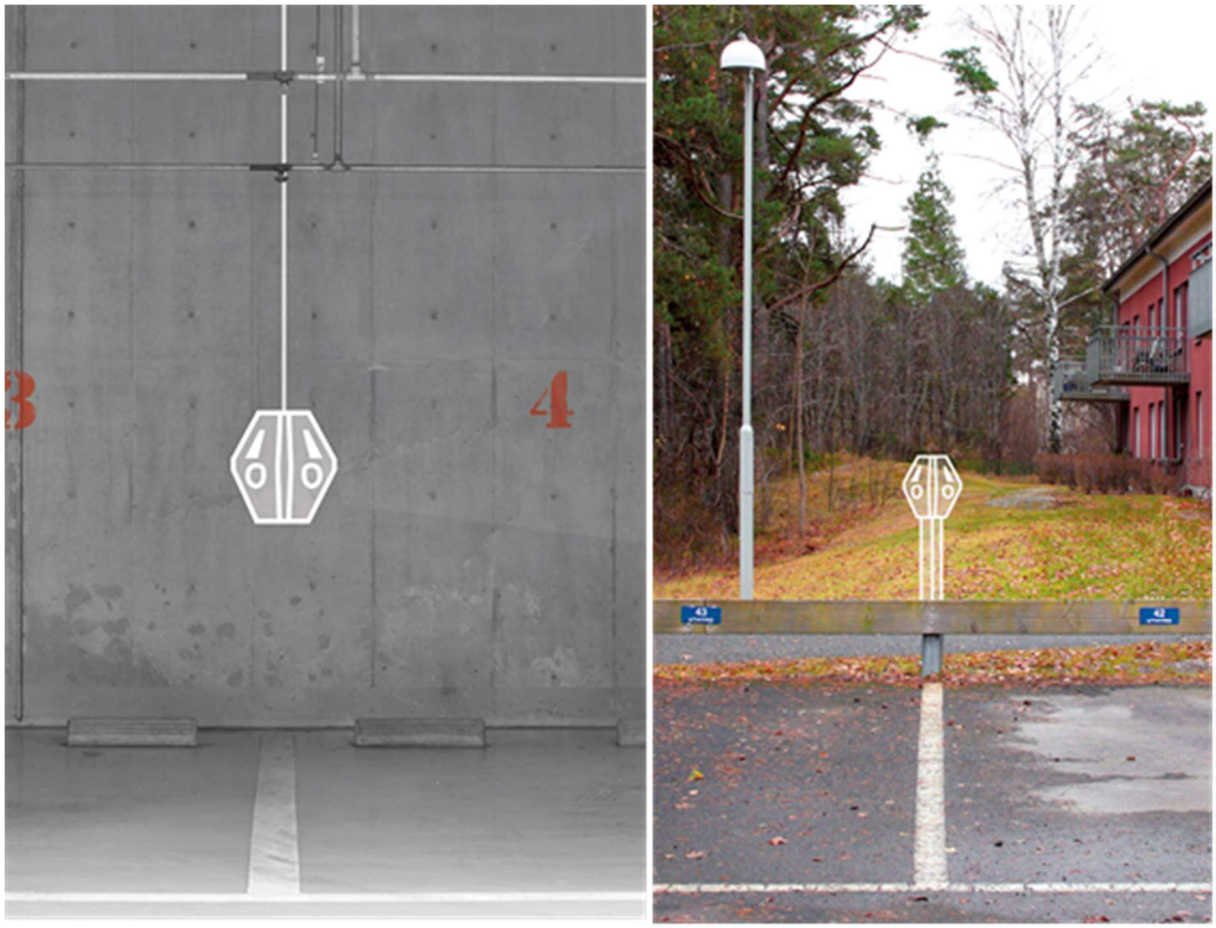

Figure 7 Illustration of charging infrastructure indoors and outdoors (c) Fixa laddplats

Before the first seminar, the team carried out a rehearsal allowing communicators to give feedback. After the seminar, which took place in Sundbyberg, a neighbouring municipality, the team fine-tuned the programme, including a Q&A session and providing the exhibitors with concrete instructions. The City of Stockholm has held seminars throughout 2017, for which the information material has been updated continuously. More seminars continue until the end of 2018.

Follow-up is based on evaluation surveys. Participants and exhibitors have given feedback about the benefit of the campaign and whether they have set up charging infrastructure after attending the seminars. The project team held a meeting to discuss the evaluation results after

each stage. According to the follow-up after the first 6 seminars (spring 2017), 200 respondents claimed to have started the process of installing over 1.000 charging units.

Adjustments in the content and format of the seminars were made throughout the implementation period. The City's presentations, among others, were speeded up and housing associations took the floor to speak about their experiences and best practice examples (2 presentations on scene). This brought a peer perspective in the seminar, besides the City giving advice and instructions.

Seminars are free for both participants and exhibitors. Providers are selected on a first come-first served basis due to space limitations. A fee for no-show has been added along the way to prevent no-shows, which had previously resulted in conflict. Clearer rules were also defined along the way to make sure all voices can be heard.

INFORMATION SEMINAR LAYOUT

17:00 Exhibition opens, refreshments and snacks

17:30-18:15 Seminar for single family houses

18:30-20:00 Seminar for multi-family houses

The seminars are free of charge

The last set of seminars in 2018 are divided into two parts; the first part addresses single family housing owners and the second addresses multi-family housing associations. Information for multi-family housing associations has been updated and new material for single family housing has been produced.

The timeframe of implementation from preparation to seminar has been approximately half a year. Stakeholders involved in the implementation of this measure are property managers (Stockholm Parking, Fastighetsägarna, Riksbyggen, HSB), member organisations of property owners, multi-family housing associations and single family housing associations (Bostädsrätterna, Villaägarnas Riksförbund) as well as utility providers. The City of Stockholm has led the work and in particular the departments of Energy and Climate Consulting, and Clean Vehicles. The measure requires no particular infrastructure.

The city of Stockholm is also working with provision of opportunity charging on-street (Measure STO 6.6), as mentioned in the previous chapter. This is expected to complement charging at parking places at or close to home, which are the primary parking spaces for EV owners.

2.2.3 Business model and contractual partnerships

The City of Stockholm owns the solution. As a competence centre in energy questions and a neutral information carrier, the City decided to run the campaign from start to finish. Only graphic design was outsourced to consultants.

The information campaign is financed by City budget and Eccentric budget. Neighbouring municipalities in Stockholm region have also contributed with resources, in form of e.g. catering, working hours and meeting rooms.

For housing associations that decide to put up charging spots, there are three business models to finance the infrastructure investment and the electricity costs respectively (Fixa laddplats, 2018).

2.2.4 Critical challenges and success factors

The key challenge throughout implementation has been the human factor. Many of the people involved in this campaign are energy experts but not used to speak in front of large audiences. To dare to be on stage and stand for their work has been a challenging task.

The campaign should be seen in the light of three success factors, without which implementation might not have been possible. First, national funding is available (Klimatklivet) and covers up to 50 % of the investment costs, making Fixa laddplats campaign very timely. Klimatklivet has also pressed prices downwards. Second, 50% of the Stockholm population lives in a housing association. These associations were therefore an easy target group to find, while at the same time totally new for the City to work with. Third, the campaign had a clear focus on the rollout of simple infrastructure at many places instead of advanced at a few.

CHARGING AT MULTI-FAMILY HOUSES WHO PAYS WHAT?

Business model for investment costs

- The association covers the total cost of the charging station and installation. The cost is reflected in higher parking fees.
- Users pay for the total cost of the charging station and installation.
- The association buys or rents a complete charging station including service. Users sign a subscription directly with the provider.

Business model for electricity costs

- The association may charge for the actual electricity use in kWh or a standard amount for the electricity additional to the parking fee. According to the EU the charging costs should be reasonable.
- The EV owner signs an electricity subscription and pays directly to the electricity provider. A charging
- The association buys or rents a complete charging solution and users get an invoice through a subscription.

Source: Fixa Laddplats Steg för steg-guide, 2018

2.2.5 Lessons learned

The information campaign to multi-family houses has already proven to be a successful way to empower landlords and housing associations. The City as a neutral and impartial source of information provides inspiration and easily accessible know-how to organize, procure and install EV charging in garages and parking areas near home.

At the same time, the campaign has strengthened the infrastructure needed to make EVs a realistic car choice for people living in multifamily houses. Providers have also found the seminars useful.

As mentioned in the previous section, the success of the campaign builds on three factors. These are available national funding, the organisation of apartment owners in housing associations, and the focus on simple technologies. Although these factors are Stockholm specific, other cities in Europe and abroad can replicate this model, by taking the role of a neutral information carrier to facilitate access to funding, empower local actors and boost charging facilities at the vehicle's ordinary parking.

Recommendations

- At the design stage of the campaign, think where private EV owners park overnight. Who has responsibility, mandate and/or owns home parking? It might not be a housing association in other countries, but another property owner of the parking facilities. These stakeholders are often not well informed.
- Involve the providers. It is important that providers are present at the seminars to show the different charging units available in the market and to answer questions.
- Set up clear rules. Providers might be many and it is impossible to accommodate everyone. Selection might be done on a first come first served basis and a no-show fee can ensure commitment. Last but not least, make sure that all different voices are heard and not only a few people dominate the discussion.
- Keep it simple. Providers are technology ready and might have high ambitions to promote advanced solutions. The City's role is however to ensure the spread of easy to understand and easy to use technologies that can be rolled out at as many places as possible.

3 Lessons learned from implementing EV charging infrastructure

This section presents the aggregated results and reflections on the Procurement and implementation phase for Cluster 2. This phase covers M3-M24 of the project. The two measures were implemented in Stockholm and complement each other in the rollout of charging infrastructure.

3.1 The city as an enabler

Both measures exemplify the role a city can take to facilitate the rollout of ordinary/home and opportunity charging infrastructure. Business models do not build on the municipality doing the major investment. On the contrary, utility companies bear the costs for public charging investment, maintenance and operation. Housing associations bear the investment and electricity costs for home charging, assisted by national funding, and there are three ways to distribute these costs among tenants and EV users.

In the first case, the City enables development by exploring and interpreting the current legislation framework and by providing land access to utility providers in return to operation, maintenance and data collection. Stockholm's public charging infrastructure illustrates an example of a well-functioning public private partnership with a rather low investment risk for the City.

In the second case, the City enables development by reaching out to a large and targeted audience, creating awareness and facilitating the diffusion of funding provided by the national government. The information campaign to single- and multifamily housing associations illustrates a pathway for municipalities to boost and complement the initiatives and work done at a national level.

3.2 Electric vehicles are not foreseen in the local legal framework

The case of Stockholm pinpoints that EVs are not foreseen in the existing legal framework. This creates many grey zones as to how to act as a local authority and leads to frustration. Uncertainty on what a city can and cannot do in order to support a wider EV rollout can block innovation potential. This might be the case in other cities in Europe and the world.

Being aware of this reality while designing charging infrastructure projects can help allocate sufficient time and resources for this work in the short run. Grey zones can also offer flexibility and an opportunity to bend boundaries. The case of Stockholm is such an example. In the long run, it is necessary that legislation is revised, and future policy making in Europe takes into account electric vehicles.

3.3 Start simple, scale up later

Utility companies and infrastructure providers are technology ready. While present at seminars, they can demonstrate solutions for property managers, answer questions and help understand how EV charging works in reality.

However, along with technological readiness comes a tendency to advocate for advanced and expensive solutions. The City's standing line has been to start with simple technologies in order to achieve a good spread, and then scale up at a later stage. This concerns both the public and private infrastructure, as shown at the exhibition alongside the seminars.

This strategy has come with compromises, which at the stage of development were seen as necessary for the continuation of the project. Payment systems for on-street charging are not optimal, for example, as providers offer different methods. User surveys have indicated a clear wish for interoperability.

3.4 Think holistic

When planning for public charging, it is important to think as holistic and strategic as possible. Charging streets are at the intersection of urban and traffic planning, which comes with numerous voices and wills from the associated departments in the city apparatus. How do "charging streets" interact with urban planning and use of public space? Can these streets later on be converted to public space or cycling lanes?

Furthermore, it is important to think how infrastructure blends in seamlessly in the urban fabric, both in terms of placement and form. Choosing spaces where it is possible to expand later and synchronise digging works with other construction works can minimize costs as well as disturbance in the urban environment.

3.5 Choose the key target group that is easy to find

The best charging place is the vehicle's ordinary parking: charging at home is easy and convenient for the EV owner and many cities in Europe are working all the more towards car-free streets and city centres. Setting up the prerequisites for charging at home is necessary both for the shift from fossil vehicles to EVs and for removing parking spaces on-street.

The case of housing associations illustrates actors that have a key role to play in this direction. In Sweden, these actors are easy to find and work with. While designing information campaigns it is therefore important to choose the target group that has a key role to play but which is also easy to find and work with.

3.6 Allocating costs among EV and non-EV owners

Division of investment and electricity costs between EV and non EV owners is a typical question occurring in any type of shared property where many users are involved. These issues are often a strong motivating factor that can block innovation and this can be avoided if local authorities provide with guidelines on possible financing schemes.

4 Conclusions and Next Steps

Cities in Europe and around the world are in search of viable business models for electric urban mobility. Implementation of charging infrastructure in Stockholm has generated valuable lessons learnt for urban mobility practitioners and policy makers. The two measures presented in this report illustrate examples of the City taking the role of enabler – by easing spatial and financial access, collaborating with the private sector and complementing policy instruments from the national level.

Along with barriers connected to existing regulatory framework that does not take into account electric vehicles, Cities have a first-hand opportunity to lead the way, act and create precedent for other cities to follow. Cities can use grey zones in a way that becomes enabling for their own vision. Interpreting local legislation and identifying suitable business models can facilitate utility providers and property managers in establishing charging infrastructure.

The work on public charging in Stockholm is ongoing. Continued evaluation of “charging streets” usage will inform policy making and a review of the vision for 500 on-street charging spots within the coming mandate period. Political priorities of the new national and local government, that have been under negotiation since the elections in September 2018, will also define the next financing period of Klimatklivet, upon which the continuation of the information campaign is dependent.

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