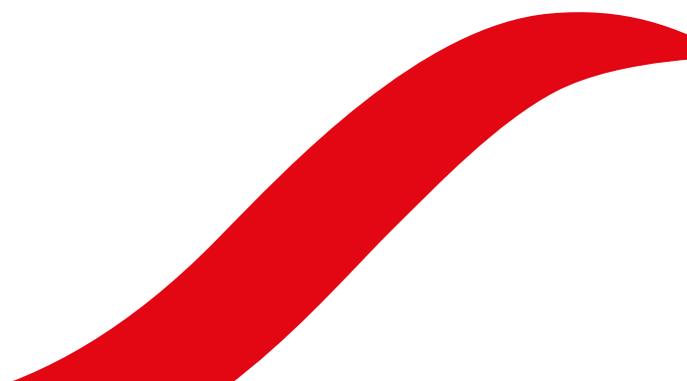




Analysis and proposals for better access to charging infrastructure for home charging regardless of housing type

ER 2022:04



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Preface

Electrification of the transport sector is a crucial element in achieving a fossil-free modern welfare state. The infrastructure for charging electric vehicles, particularly cars and light commercial vehicles, needs to be secured in both urban and rural areas. The ability to charge at home and at work will be particularly crucial in promoting and accelerating the electrification of the transport sector. More and more electric vehicles are being purchased, so people need to be able to charge their vehicles when parked for any length of time, overnight at home (private cars) or at the place of work (company vehicles).

Given the increasing importance of home charging in the future, eliminating current obstacles is essential if we are to accelerate the transition to electric vehicles. This report describes the various obstacles and makes a number of proposals for measures that would be needed to eliminate them and thus improve the situation. This assignment has been conducted in co-operation with the Swedish National Board of Housing, Building and Planning and Lantmäteriet (the Swedish National Land Survey), and the Swedish Association of Local Authorities and Regions has been given the opportunity to submit comments.

A survey of obstacles has also been performed as part of the assignment, and the obstacles have been reconciled at an open hearing held on 4 May 2021. The Swedish Energy Agency is grateful for all the comments received during the assignment. The analysis of obstacles has resulted in a number of suggestions on how to improve charging for various housing types.

Eskilstuna, October 2021

Robert Andrén
Director General

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Glossary

Public space

A street, a road, a park, a square or other area that in accordance with a detailed development plan is intended for a common need.

Electric car

A car that runs solely on electricity and charges its battery from the power grid. This is also known as a Battery Electric Vehicle (BEV).

Electric vehicles

A collective term for vehicles that can be powered by an electric motor in some way, such as plug-in electric vehicles, hybrid vehicles and fuel cell electric vehicles.¹

Joint facility

A facility shared by several real property units and meeting a need that they share.

Home charging

What the report defines as home charging is charging that takes place at the vehicle's permanent address, i.e. where the vehicle is usually parked for extended periods. This could be close to home for private vehicles, for example, or at work for company vehicles.

Private charging

Charging at a charging station that is not accessible to everyone. The charging station may be located at a home or a place of work.

Development district

Land that, in accordance with a detailed development plan, is not to be a public space or a water area.

Charging box

A charging device mounted on a wall or post. Charging boxes come with a fixed charging cable attached, or with a socket where you can plug in your vehicle's own charging cable.

Charging power

The amount of energy per unit of time transferred from the power grid to the vehicle's battery when charging a plug-in electric vehicle. The unit used for charging power is kilowatts, kW.

¹ The term "charging of electric vehicles" appears as a technical performance requirement in the Planning and Building Act. In this case, it refers only to electric vehicles that require special charging equipment and do not produce the electricity in the vehicle.

Plug-in electric vehicle

A term that includes all vehicles that can be charged from the power grid, i.e. both electric cars and plug-in hybrids. These vehicles are also known as PEVs.

Plug-in hybrid

A vehicle that can charge its battery from the power grid but also uses another fuel, such as diesel or petrol. Also known as Plug-in Hybrid Electric Vehicles (PHEVs).

Charging infrastructure

A collective term for technical equipment for charging plug-in electric vehicles.

Recharging point

An electrical socket where a plug-in electric vehicle can be connected for charging, or, more formally², an interface where one vehicle at a time can be charged or where batteries can be replaced in one vehicle at a time.

Ducting infrastructure

Ducting infrastructure refers to preparatory measures to facilitate the future installation of recharging points, such as empty conduits in the ground and buildings. This term is used in building legislation when requirements are defined for such preparatory measures.

Charge point operator

A charge point operator is a service undertaking that offers operation, maintenance and other services. A charge point operator can measure electricity consumption and charge the user.

Charging station

A geographical location with charging facilities. Consists of one or more recharging points where one or more vehicles can be charged.

Charging equipment/charger

A technical device that has one or more recharging points for charging one or more plug-in electric vehicles.

Load management

Load management or load balancing means reducing or balancing the power demand. It is possible to either control the power provided by the charging equipment to the plug-in electric vehicle or control the power for other electricity consumers at the real property unit. Load management can often be selected as a function in the charging equipment.

Normal charging

When a vehicle is charged with a power of not less than 3.7 kW and not more than 22 kW.

² See the definition in Section 4 of the Act on requirements for installations for alternative fuels (2016:915).

Public charging

Charging at a charging station in a location where anyone can charge their cars; along public highways, in multi-storey car parks, at shopping centres, at park-and-ride facilities or at travel centres, for example.

In Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure (known as the AFID Directive), the EU has defined public charging as follows: ‘recharging or refuelling point accessible to the public’ means a recharging or refuelling point to supply an alternative fuel which provides Union-wide non-discriminatory access to users. Non-discriminatory access may include different conditions for authentication, use and payment.

Joint property unit

Land that is jointly owned by two or more real property units.

Joint property association

An association that manages a joint property unit or a joint facility.

Fast charging

Charging with a power of more than 22 kW. A charging station with a 3-phase and 32 A connection is considered a fast charging station according to the EU’s classification.³ Fast chargers are often found along major roads and make it possible to charge while stopping for a meal, for example.

³ DIRECTIVE 2014/94/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014 on the deployment of alternative fuels infrastructure. Annex 2, Section 1.

Summary

The Swedish Energy Agency has been commissioned by the Government to report on obstacles to better access to home charging infrastructure regardless of housing type and, where appropriate, to analyse and propose measures. This assignment has been conducted in co-operation with Lantmäteriet (the Swedish National Land Survey) and the Swedish National Board of Housing, Building and Planning, and the Swedish Association of Local Authorities and Regions (SALAR) has been given the opportunity to submit comments.

One of the most important results from the assignment is the assessment made by Lantmäteriet on joint property units and the information provided by Lantmäteriet on this matter. Lantmäteriet is of the opinion that the problems associated with the legislation, the turnaround time and the cost of the cadastral procedure can be overcome with no changes to the relevant regulations. However, the Government authorities jointly suggest that there is a need to examine whether the cost of the cadastral procedure should be included as an eligible cost in the various subsidies available so as to further reduce costs and simplify matters for joint property associations wishing to establish charging infrastructure.

A second result of the assignment is that the role of the local authority and the conditions for charging infrastructure in public spaces and development districts are highlighted and previous unclear issues relating to the opportunity for the local authority to charge for electricity, for example, are cleared up. The conditions for charging do exist, but they differ for the local authority as an administration and its various companies. With regard to public space, there are also proposals for improvements and clarifications in the regulations.

A third result relates to the opportunity to reduce the risk of refusing access to charging for anyone who does not have right of disposition. The assignment has reviewed legislation in other countries in this regard, often known as Right to Charge or Right to Plug, as a potential basis for further work: this is one of the proposals.

The report also provides a more comprehensive analysis of obstacles to charging for different housing types and also, to a degree, for charging at places of work. A number of additional measures or proposals are also proposed with a view to improving the current situation. These are:

- To co-ordinate government information on charging infrastructure
- To develop knowledge and produce better supporting information
- To simplify preferential taxation of electricity
- To further develop the formulation of aid for charging infrastructure
- To ensure availability at recharging points to a sufficient extent

All in all, many obstacles are described but it is difficult to define their priority levels. It is difficult to assess the severity of the various obstacles as there is no knowledge on how frequently the obstacles pose a genuine problem, and for how many people. Essentially, there are no statistics on what is known as private charging, but no data or statistics on parking facilities for the various housing types linked to the form of ownership for parking are available either.

1 Introduction

1.1 Background

The transport sector's transition to a fossil-free society is an important national goal. In the previous assignment, SOFT⁴, which ran from 2016 to 2019 and was conducted by the Swedish Energy Agency together with the Swedish Transport Agency, the Swedish Transport Administration, Transport Analysis, the Swedish Environmental Protection Agency and the Swedish National Board of Housing, Building and Planning, the Government authorities clearly identified three main areas for the transition to a fossil-free society – a more transport-efficient society, energy-efficient and fossil-free vehicles, and a higher proportion of renewable fuels. The results of this assignment must be viewed in the light of the fact that a transition to a fully electrified transport system is unlikely without a powerful contribution from the “transport-efficient society” field. It is also important for the electrification of the transport system not to help increase passenger and goods transport or make society less transport-efficient by requiring electric car users to drive to work to a great extent in order to charge their cars, for example, instead of cycling or walking.

Given current market-related and technical solutions, there are a few comprehensive obstacles that pose additional challenges to an electrified transport system, if by this we mean all-electric vehicles. Three major obstacles, in no particular order, are the lack of home charging, the ability to provide all electric cars and heavy vehicles with fast charging during peak travel times (holidays and public holidays), and scaling up all elements of the battery value chain in a sustainable manner at a sufficiently fast pace. The challenges in the battery value chain relate mainly to the mining of the necessary metals and minerals and the refining of the same, the production of battery cells and the recycling systems at a sufficiently fast rate required for these vehicles. The first area is covered in greater depth in this report, and the last is an area where the Swedish Energy Agency already has assignments.⁵

An initial assessment, based on the data on housing types presented in Chapter 2, is that at present, as many as 30 to 50 per cent of vehicle users may have no home charging options, despite the fact that many of these people are likely to have their “own” parking spaces. With today's technology, home charging is in most cases considered to be a prerequisite for owning – or using on a daily basis – an electric car, or for plug-in hybrids to run extensively on electricity. It is important to identify obstacles for residents who have no charging options or who have difficulty in accessing charging, in that not being able to charge the car in the location where it is normally parked overnight can be perceived as impractical.

⁴ Appropriation directions for the 2021 financial year concerning the Swedish Environmental Protection Agency, appropriation 1:16 Climate investments (Framework appropriation), appropriation item 8.

⁵ Appropriation directions for the 2021 financial year concerning the Swedish Energy Agency, annex, assignment 40.

A recently published study⁶ by the Norwegian Electric Vehicle Association, which also looks at conditions in Sweden, shows that the second biggest obstacle to buying an electric car in Sweden is the lack of charging facilities at home. The biggest obstacle is still the purchase price, which is considered too expensive. Another new study from the US⁷ indicates that as many as one in five electric car owners choose not to buy a plug-in electric vehicle the next time they buy a new car. A lack of charging facilities at home is one factor in this. These are not the only explanations, but they indicate the importance of charging in a manner convenient for the individual.

If electrification is implemented by means of fuel cell electric vehicles, this presents other challenges as described in another Swedish Energy Agency assignment.⁸

1.2 The assignment

In its description of the assignment,⁹ the Government states the following:

“The Government instructs the Swedish Energy Agency to report on obstacles to charging cars for residents of apartment blocks and other residents whose car parking is arranged jointly with others in joint property units, for example. The obstacles identified in the report entitled *Nya krav på laddinfrastruktur för laddfordon* [New requirements for charging infrastructure for plug-in electric vehicles], Swedish National Board of Housing, Building and Planning report 2019:15, will provide a starting point for the report. Access to charging for on-street residents’ parking must be highlighted in particular. In the assignment, the Swedish Energy Agency must also analyse and report on obstacles to access to private charging at existing non-residential buildings, such as places of work.

If the report shows that there are obstacles to fast, smart and socio-economically efficient electrification, the Swedish Energy Agency must – where deemed appropriate – submit proposals for socio-economically efficient measures to make it easier for people who have plug-in electric vehicles to charge them near their home or place of work.

The Swedish Energy Agency may also submit proposals for constitutional amendments if the purpose of the amendments is deemed impossible to achieve by means of less intrusive instruments. All proposals and measures must be accompanied by an impact assessment. The impact assessment must include environmental impact and other relevant benefits, costs, other socio-economic impacts and distributional effects. Inspiration can be taken from other countries. Any other proposals and alternative actions analysed must also be presented, together with the reasons as to why they have been eliminated from the selection. The economic impact of the proposals must be presented and calculated for central government, local authorities, regions and

⁶ Nordic EV barometer 2021. Norwegian EV Association. <https://www.nordicenergy.org/wordpress/wp-content/uploads/2021/05/Nordic-EV-barometer-2021-ENG-1.pdf>. Downloaded on 12 August 2021.

⁷ Hardman, Scott and Gil Tal (2021). Discontinuance Among California’s Electric Vehicle Buyers: Why are Some Consumers Abandoning Electric Vehicles? Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-21-07

⁸ Assignment for developing proposals for a strategy for hydrogen and electrofuels, Government decision dated 28 January 2021, I2021/00332

⁹ Assignment for analysis and proposal of measures for better access to charging infrastructure for home charging regardless of housing type, Government decision dated 14 January 2021, I2021/00109

undertakings. The impact and the specific considerations leading to the proposals must be explained if the proposals affect municipal self-government: see Chapter 14, Section 3 of the Instrument of Government.

The assignment is to be conducted in co-operation with the Swedish National Board of Housing, Building and Planning and Lantmäteriet. The Swedish Association of Local Authorities and Regions must be given the opportunity to submit comments. When implementing the assignment, there must be discussion with the Government Offices (the Swedish Ministry of Infrastructure) so as to take into account efforts on the Government's electrification strategy and the work of the Commission for Electrification.”

1.3 Links to and comments on other assignments and studies

Other supporting information and assignments taken into account by this assignment are as follows.

1.3.1 Swedish National Board of Housing, Building and Planning report entitled *Nya krav på laddinfrastruktur för laddfordon [New requirements for charging infrastructure for plug-in electric vehicles]*¹⁰

In this report, the Swedish National Board of Housing, Building and Planning has identified three specific situations that may impede the deployment of recharging points, as well as other obstacles; and these form the basis for the formulation of this assignment:

- *Risk of refusing permission to residents wishing to install recharging points.*
- *Car parking is managed by a joint property unit.*
- *Charging for households with off-site parking for residents.*

At the same time, the market can be expected to resolve these problems as plug-in electric vehicles become more common and the need for recharging points arises. The Swedish National Board of Housing, Building and Planning proposes that a follow-up be carried out in a few years' time in order to assess whether there is a market failure that may justify additional instruments.

Other general obstacles to the deployment of recharging points may be of a technical and economic nature, such as business models, the standard of electrical installations in existing buildings or the ability of the utility companies to provide power. These obstacles have not been analysed as part of this assignment.

These situations and obstacles have provided a basis for the assignment and are addressed in the report, and they are included under both obstacles and measures in later chapters.

1.3.2 Parallel Lantmäteriet assignment – Communication on recharge points

Lantmäteriet is working on a parallel assignment in its appropriation directions which is related to this assignment. This is worded as follows.

¹⁰ Swedish National Board of Housing, Building and Planning (2019). *Nya krav på laddinfrastruktur för laddfordon*. Report 2019:15. ISBN print: 978-91-7563-650-4

Communication on recharge points

Since 15 May 2020, charging of electric vehicles is a new technical performance requirement in the Planning and Building Act (2010:900). The Government authority must therefore report on how its internal and external communication has been clarified in respect of how this requirement affects the processing of cadastral procedures under the Joint Facilities Act (1973:1149).

Lantmäteriet has therefore worked in parallel to clarify internal and external communication related to the government assignment on charging for different housing types.

1.3.3 Phase-out committee

The Phase-out committee¹¹ proposes the following general comments in its report in relation to charging infrastructure:

- *Sweden should support the revision of the AFID Directive so that the Directive helps to bring about more comprehensive deployment of charging infrastructure throughout the EU. The Directive should be extended to include charging infrastructure for heavy vehicles as well.*
- *A broad and long-term national plan should be devised for government initiatives for charging infrastructure in the transport sector and for work machines. This plan should be based on a target scenario in line with the rapid pace of electrification that the committee considers necessary if the 2040 phase-out target is to be achieved cost-effectively. New planning and monitoring metrics should be developed as a basis for planning.*
- *The responsibilities of the Swedish Energy Agency and other Government authorities should be clarified, and the Government authorities should be given sufficient resources as the scope of their tasks increases. The division of responsibilities should be based on the other tasks and competencies of each Government authority.*
- *The conditions for home charging for different housing types need to be improved. This should include more stringent requirements or greater aid for the installation of charging infrastructure for new builds and refurbishments, clearer opportunities for charging infrastructure within the scope of joint property units and consideration of “right to plug” provisions for residents of apartment blocks.*
- *Planning for charging infrastructure should be developed to become an integral part of municipal built environment and infrastructure planning, and of efforts to enhance transport efficiency.*

Besides this, the Phase-out committee provides the following input to this committee.

Specific information on “home charging” for cars

The committee briefly provides the following input for the assignment by the Swedish Energy Agency and other Government authorities concerning better access to charging infrastructure for home charging regardless of housing type.

¹¹ *I en värld som ställer om – Sverige utan fossila drivmedel 2040*. Swedish Government Official Report SOU 2021:48. ISBN 978-91-525-0130-6

Requirements, etc. for new construction and reconstruction:

- 1. The requirements for charging infrastructure in planning and building legislation for new construction and major reconstruction are not particularly stringent. There is due cause to consider making the requirements more stringent, while includes allowing the requirements to incorporate unheated buildings and stringent requirements for ducting infrastructure for parking facilities that are designed to be used for longer periods.*
- 2. As a complement to the legislation, relevant industry associations should be encouraged to update their roadmaps within the scope of the Fossil Free Sweden initiative.*
- 3. The Swedish National Board of Housing, Building and Planning should be tasked with formulating the guidance on the new aid for renovation of older residential areas, so that anyone applying for aid for such renovation is also encouraged to invest in measures such as charging infrastructure that reduce dependence on transport that runs on fossil fuels.*
- 4. Planning for charging infrastructure needs to be developed to become an integral part of municipal built environment and infrastructure planning, and of efforts to enhance transport efficiency in society.*

Charging infrastructure in joint property units

- 5. Although the legal concept has not been clarified in full, the application of Lantmäteriet and the Cadastral Authorities suggests that viable options exist for charging infrastructure within the scope of joint facilities. These need to be clarified.*
- 6. The cost of charges for cadastral procedures in respect of charging infrastructure for joint property associations should be reduced.*

Rights of individual residents in housing co-operatives and rented accommodation

- 7. Consideration should be given to whether the rights of individual residents to access charging facilities could be reinforced by means of “right to plug” provisions.*

1.3.4 Handling of input from the Phase-out committee

Regarding point 1 in Section 1.3.3. concerning requirements, etc. for new construction and reconstruction, the issue was addressed recently in the Swedish National Board of Housing, Building and Planning’s report (2020:18) *Konsekvenser av ändrade kravnivåer för laddinfrastruktur* [Impact of amended requirement levels for charging infrastructure] on the basis of the assignment in order to investigate the impact of amending requirement levels for charging infrastructure for electric vehicles in the building regulations. The Swedish Energy Agency’s consultation response to this report is also presented below.

The Swedish Energy Agency is of the opinion that there is great uncertainty with regard to where additional charging infrastructure is needed and what type of charging infrastructure is needed. The starting point of the requirements for charging infrastructure in the Energy Performance of Buildings Directive is to prepare for charging infrastructure

when the real property owner is nevertheless constructing new buildings or adding extra buildings. Preparing for charging infrastructure usually involves very low costs. That said, requiring recharging points to be installed may be costly, or even very costly. Moreover, if installation takes place in a location where no charging infrastructure is needed, this may be a cost without a benefit; and the recharging point may not be maintained, thereby reducing its reliability. The Swedish Energy Agency believes it is difficult for anyone other than the parties concerned to assess whether charging infrastructure is needed at a specific given real property unit and, if so, what type of charging infrastructure this should be. Therefore, the Swedish Energy Agency is of the opinion that it is difficult to formulate requirements for set situations where charging infrastructure must be a requirement. Instead, if it so wishes, the public sector can provide aid to operators wishing to build charging infrastructure.

Therefore, this assignment does not address this matter further.

Regarding point 4 in Section 1.3.3, the Swedish Energy Agency is of the opinion that various interests should be weighed up against one another in land use planning. It is extremely important here to ensure that sufficient weight is given to the powerful electrification that society is facing. Planning for charging infrastructure needs to be developed to also become an integral part of municipal energy planning under the Municipal Energy Planning Act (1977:439), as well as municipal development and infrastructure planning.

The Swedish National Board of Housing, Building and Planning has previously developed its view on some of the input from the Phase-out committee, and has done so in a supporting document that is published here.

The Swedish National Board of Housing, Building and Planning's comments and conclusions on the Phase-out committee's input on the government assignment

The requirements for charging infrastructure in the planning and building legislation for new construction and reconstruction are not particularly stringent, and there is due cause to consider making the requirements more stringent

In 2020, the Swedish National Board of Housing, Building and Planning was commissioned by the Government to investigate the impact of more stringent requirements; which is reproduced relatively extensively in the report from the Phase-out committee. One conclusion in the Swedish National Board of Housing, Building and Planning's report¹² was that it is not possible to justify more stringent requirements for charging infrastructure on environmental grounds as the extent to which more stringent requirements would lead to a reduction in fossil fuel use is unclear, and as general requirements may result in charging infrastructure being installed in locations where there is no need for deployment. This may lead to increased costs for both developers and residents and, in a worst-case scenario, result in negative environmental impact if construction measures that will not be used are implemented. A number of consultation bodies agreed with these conclusions and argued that charging infrastructure should instead be deployed under market conditions and not as a consequence of legislation. Market-led

¹² Swedish National Board of Housing, Building and Planning (2020). *Konsekvenser av ändrade kravnivåer för laddinfrastruktur*, Report 2020:18.

deployment can also promote more effectively the goal of access to home charging regardless of housing type, as this is linked not to the construction of new buildings, but to existing parking spaces where charging is needed.

That said, defining more stringent requirements for the construction of new buildings would have a very limited impact on the great collective of people who currently live in rented apartments and tenant-owner apartments, or who have parking arranged via a joint facility, as the addition of new housing is a very limited part of the overall housing stock.

Despite the above, there may be due cause to review the regulation of charging infrastructure in planning and building legislation, as suggested by the Phase-out committee. This would apply primarily to unheated buildings, which are currently not subject to any requirements as they are not included in the EU Energy Performance of Buildings Directive. One argument for defining requirements for unheated buildings despite is that it is logical and reasonable to have the same requirements for unheated garage buildings specifically intended for parking cars, as for heated buildings with associated parking spaces on the site. Such rules will be easier to interpret and comply with as there will be no need to determine whether a parking space belongs to a heated main building or an unheated garage on the site. The current rules can be interpreted as defining more stringent requirements for open-air parking spaces on the site of a building than if the same parking spaces are constructed under the roof of an unheated building, which is difficult to justify and explain to developers.

If the exemption for unheated buildings is reviewed, this review should concentrate on the requirements for the construction of new construction and in connection with reconstruction (substantial renewal). Imposing retroactive requirements on existing buildings is an intrusive measure against individual building owners, which should be avoided as far as possible unless there are special circumstances on the basis of risks to human health and safety or for compliance with other legislation, for example. Therefore, it is reasonable not to introduce any retroactive requirements for existing unheated buildings.

Please note that the above reasoning on unheated buildings applies with the proviso that the requirements for charging infrastructure are maintained at the current level, i.e. preparation for twenty per cent of parking spaces and only one recharging point. However, if mandatory requirements are introduced at the level identified by the Swedish National Board of Housing, Building and Planning in its impact assessment in 2020, with actual recharging points on twenty per cent of parking spaces, the cost of unheated garages would increase significantly; which is unlikely to be justifiable for garages where parked vehicles are mainly parked for a limited period, for example.

The Swedish National Board of Housing, Building and Planning should be tasked with formulating the guidance on the new aid for renovation of older residential areas, so that anyone applying for aid for such renovation is also encouraged to invest in measures such as charging infrastructure that reduce dependence on transport that runs on fossil fuels.

Insofar as the new aid has a natural link to charging infrastructure in that electrical systems and energy supplies in buildings will be modernised, for example, it may be appropriate to also inform applicants that they should at the same time take into account the additional power needs resulting from installation of charging infrastructure, as well as allowing for future deployment. In this context, it may

also be appropriate to indicate that other forms of government aid exist in the form of aid for the installation of charging points.

Planning for charging infrastructure needs to be developed to become an integral part of municipal built environment and infrastructure planning, and of efforts to enhance transport efficiency in society.

To whom this point is addressed is unclear. Does it refer to the Swedish National Board of Housing, Building and Planning and other central Government authorities with a view to producing guidelines and similar relevant planning material, or is it a request directly to local authorities, and possibly SALAR? There is nothing to stop local authorities working on these issues within the framework of the Planning and Building Act, and in many cases they already do. Rather, taking charging infrastructure into account in planning should be regarded as a natural and obvious element in modern urban planning on the basis of today's transport needs. The concept of transport efficiency in planning often also implies an effort to reduce the need for private cars by working instead with various types of "mobility services", for example. This in itself would point to a reduced need for parking spaces and hence also access to charging infrastructure within residential areas.

Handling of other input from the Phase-out committee

Point 2 of the input from the Phase-out committee is not a matter that is directly addressed further in this assignment, as the issue does not clearly fall within the scope of the assignment. Points 5 to 7 are discussed in greater detail in chapters 2 and 3, and in the annexes to the report.

1.3.5 The Swedish Transport Administration's report *Äga och köra elbil* [Owning and driving an electric car]¹³

This report has a broader focus than charging for different housing types, but nevertheless mentions a number of challenges that are relevant to this committee. The obstacles related to this study are summarised as follows.

Although most electric cars are charged at home or at work, it is important for public charging infrastructure to be perceived as being deployed sufficiently when people want to make longer journeys. There is also a demand for a standardised payment solution and charging model among public charge point operators so as to achieve greater price transparency and avoid using different payment tags and apps when charging.

And also:

The investment cost and lack of profitability where electric car ownership levels are still low are the main perceived obstacles to installation of public charging stations. Moreover, it is difficult to assess the indirect profitability involved in offering charging stations. Lack of profitability in installation of public charging stations presents a dilemma, as the fact that people do not feel secure that there is sufficiently deployed charging infrastructure available is one of the perceived obstacles to investing in an electric car. Making the transition to an electrified fleet of vehicles is very much about changing behavioural patterns. Instead of driving to a filling station to refuel the car,

¹³ Swedish Transport Administration (2020). *Äga och köra elbil. Kartläggning av hinder för att äga och köra elbil samt erbjuda laddning*. TRV 2019/40079.

the car is normally charged at home or at the destination. This is something that must be highlighted as an advantage

Besides this, the report includes interviews from the perspective of real property owners that also relate to the study.

Below is a summary of the perceived obstacles to the deployment of charging infrastructure that emerged from the interviews with Bostadsrätterna (Sjöqvist, 2020) and Fastighetsägarna (Silverfur, 2020). Fastighetsägarna generally finds that co-operative housing associations ask very few questions about the installation of charging stations, compared to the number of questions they receive in other areas. The number of questions is increasing, however, and there are regional differences;

with greater interest in the big cities, particularly in Stockholm (Sjöqvist, 2020). The initiative among co-operative housing associations for setting up charging stations usually comes from a member who has acquired a plug-in electric vehicle and wants to be able to charge the vehicle close to home. Boards at co-operative housing associations tend generally to be in favour of charging stations when the issue is raised by members, while efforts to familiarise themselves with the issue and pursue it can be onerous. If there is financial scope, it may therefore be valuable to hire a project manager who is familiar with construction law issues and who handles everything from procurement to applying for grants from the Swedish Environmental Protection Agency (Silverfur, 2020) (Sjöqvist, 2020). For smaller associations, the fact that they have neither the funds to hire a project manager nor a member who is sufficiently knowledgeable to be able to drive the work on designing the charging stations can present an obstacle. Smaller associations, particularly in smaller towns, may also find it difficult to find local project managers and contractors who can drive the work and carry out the installation (Sjöqvist, 2020). Dimensioning the number of charge points for the co-operative housing association is perceived as a difficult trade-off during the planning phase. How much of a long-term approach should the association take to its investment? Should recharging points be installed only for people who have expressed an interest, or for future owners of plug-in electric vehicles as well? There is a great deal of awareness that demand for recharging points will spread readily throughout the residential area when the first points start to be used, and the economies of scale when installing recharging points are balanced against the risk of being left with unused points that generate no revenue. The fact that there are advantages in having recharging points next to one another and close to the electrical distribution box can lead to tough discussions among members who have had the same parking space for many years and do not want to change (Silverfur, 2020) (Sjöqvist, 2020). The demand for charging facilities from residents in rented accommodation is perceived to be significantly lower than from residents in housing co-operatives. This could be explained by the fact that there are generally fewer plug-in electric vehicle owners among residents in rented accommodation than is the case for housing co-operatives (Silverfur, 2020). Business models and payment solutions for charging station investment and electricity consumption are being addressed by both Bostadsrätterna and Fastighetsägarna. Their members are considering what would constitute a reasonable price for parking spaces with charging facilities, whether the charging station should be owned by them or leased from a provider, whether prices should be fixed or based on actual consumption, the VAT aspect and the cost of operation and maintenance (Silverfur, 2020) (Sjöqvist, 2020).

The Swedish Transport Administration's supporting documentation has been taken into account in this government assignment.

1.4 Working method and collaborations

A working group has been working on the assignment at the Swedish Energy Agency. A working group from Lantmäteriet and a working group from the Swedish National Board of Housing, Building and Planning have worked in collaboration with the Swedish Energy Agency. The Swedish Association of Local Authorities and Regions has also assisted the Swedish Energy Agency during the assignment.

The Swedish Energy Agency, as the lead agency for the assignment, has reviewed all texts, parts of which come from the collaborating agencies, SALAR and from RISE, as a contracted service.

During the course of the work, the committee has held discussions with the relevant industry operators and Government authorities in a hearing held on 4 May 2021 with a view to taking up input, checking and improving the current scenario and describing obstacles and potential measures that have been provisionally produced by the collaborating Government authorities. The outcome of the hearing has been integrated into the report in Chapters 2 and 3.

RISE has worked on behalf of the Swedish Energy Agency and the Swedish National Board of Housing, Building and Planning to compile information on the right of disposition over parking that vehicle users have in different housing types and parking situations, as well as how the legislation is structured and has been implemented in various countries within what is known as *right to plug* or *right to charge*. This is all about using the regulatory framework to reinforce the user's position in respect of the real property owner by ensuring that the real property owner is not allowed to refuse to allow users to install recharging points without reasonable grounds for doing so. RISE has also made an in-depth list of current regulations and problems related to charging in public spaces and development districts.

The proposals developed as part of the assignment have been based on the obstacles identified in the assignment, and also on the obstacles defined in the survey conducted as part of the assignment. The needs assessment is based on the collaborating Government authorities' own initial survey, existing knowledge that has been compiled on identified obstacles, and the outcome of the Swedish Energy Agency's hearing.

Furthermore, no clear-cut legislative proposals have been made by the assignment, but the majority of proposals submitted point to further studies or assignments. In some cases, this is because the obstacle or proposal could not be analysed sufficiently within the scope of the assignment, but it is also largely due to a lack of information to allow quantitative analyses to be made and assess the scope and hence the priority of the various problems. The latter is described in greater detail in the report.

1.5 Reading guide

Chapter 1 of the report deals with the background and a description of the assignment, and includes a link to other assignments and studies that have particularly been taken into account during the assignment.

Chapter 2 includes a description and a compilation of information on obstacles identified in the assignment.

Chapter 3 includes proposals for measures and recommendations on how further work can be done to alleviate many of the obstacles described in Chapter 2.

Some of the work on the assignment is presented in annexes to the report.

- Annexes 1, 2 and 3 include the study conducted by Lantmäteriet on the regulatory framework for joint facilities managed by a joint property association.
- Annex 4 presents the results of the study on the various systems described by the term right to charge in Norway, Spain and France, produced by RISE as part of the assignment.
- Annex 5 addresses challenges for local authorities in providing and regulating charging, including challenges related to parking and charging in public spaces and development districts. This annex has been produced by RISE using supporting documentation from the Swedish National Board of Housing, Building and Planning.

2 Analysis of obstacles

According to the government assignment, the Swedish Energy Agency is instructed to report on obstacles to charging cars for residents of apartment blocks and other residents whose car parking is arranged jointly with others. There are also a number of more or less unusual housing types or parking solutions that are not dealt with in detail for reasons of priority.¹⁴ This is why site leaseholders are treated as real property owners and are not referred to specifically.¹⁵ The obstacles identified have been divided into two main categories in the report: obstacles for parties *with* right of disposition and obstacles for parties *without* right of disposition. The term ‘right of disposition’ here refers to the required right to decide (on land, parking, necessary infrastructure, etc.) in order to install a recharging point regardless of permission or approval from others. In cases where there is no right of disposition, other residents, an association of residents or real property owners have the right to decide whether a resident is allowed to install a recharging point. Beyond the concept of right of disposition, questions are submitted as to whether the facility may require the participation of a party external to the party with right of disposition, such as an electricity supplier, a building committee, etc.¹⁶ and that residents have the opportunity to influence as members of a housing association, for example.

¹⁴ *Housing associations*: Housing associations are an older housing type for 269 associations that were established no later than 1930, according to the Swedish Companies Registration Office. This type should not be compared too closely to co-operative housing associations, as there is considerable freedom to include specific rules in the statutes.

Owner-occupied apartments: Owner-occupied apartments relate to buildings that belong to a three-dimensional real property unit and are designed to provide accommodation for a single family. There were more than 2,000 owner-occupied apartments in Sweden in 2020 (<https://www.scb.se/hitta-statistik/sverige-i-siffror/manniskorna-i-sverige/boende-i-sverige/>). These have essentially settled the issues traditionally dealt with by co-operative housing associations via joint property units.

Other: We have not looked in detail at unusual types as referred to in Chapter 1, Section 5 of the Property Tax Assessment Act (1979:1152) which are broadly comparable to owned property Contractual solutions such as timeshare apartments or rent-to-buy apartments are not addressed in greater detail either. Similarly, we have not studied in detail the situation where parking is accessed via easements. Easements for roads are common, but there it is usually a way of accessing undeveloped land so as to be able to park there. Nor has this been highlighted as a problem area in the work.

¹⁵ Site leasehold is described in more detail in Chapter 13 of the Land Code (1970:994).

¹⁶ The report aims not to examine all the other possible regulatory frameworks that may have an impact in individual cases, but to focus on typical situations. Whether it may be difficult to install recharging points for a building due to its classification as a listed building, or whether the electricity supplier for the site in question has more difficulty than usual in meeting requests are examples of issues that are not addressed.

In practice, this means that parties with right of disposition can have recharging points installed, while parties that do not have right of disposition for installation are dependent on the involvement of others.

- People living in rented accommodation, co-operative rented accommodation or a housing co-operative, for example, do not normally have right of disposition;

in this case, the formal owner of the real property unit usually makes decisions on the installation of recharging points.¹⁷

- The right of disposition normally rests with the owner of the real property unit or, in some cases, anyone who otherwise owns or controls the parking facility, such as through a residential lease.

The report also looks at charging at work because these sites may face similar obstacles, but also because people who are unable to charge at home sometimes have the opportunity to charge at work if the car spends a long time stationary there during working hours anyway.

One issue that may need to be studied in more detail in another context is whether lack of access to charging at home may lead to an increase in traffic to and from places of work that would otherwise not occur, due to the availability of charging there. However, this is not examined further in this assignment.

The issue of public charging is also addressed. It may be available as an alternative for people for whom no parking is available in development districts adjacent to their homes for some reason, although public charging is usually for visitors or as a complement to home charging via private charging. People for whom no parking is available in development districts close to their homes will rely on public charging in public spaces using on-street parking separate from their homes, for example, in multi-storey car parks on other sites or when visiting other locations such as their place of work. However, having only these options may involve higher costs and more planning requirements for residents, thereby reducing the incentive to acquire plug-in electric vehicles. The report also describes a number of challenges and recurring issues for local authorities linked with the establishment of public charging, such as land use issues, how charging and parking can be regulated by means of local road traffic regulations and signage, and whether it is possible to charge for the cost of electricity when charging.

¹⁷ However, there may be special cases even in this regard, such as terraced houses where charging can be arranged via electrical systems in people's homes without causing inconvenience to the real property owner (such as work on façades). Although holders of tenant ownership have been entitled to compensation for the installation of green technology via a tax reduction since 1 January 2021 (for more information, see the Swedish Tax Agency website, <https://www.skatteverket.se/privat/fastigheterochbostad/gronteknik>. Downloaded on 23 September 2021), there are no guarantees that the situation at the home will allow a recharging point to be installed outside the home without the permission of the co-operative housing association. Although the site may be perceived as private, the right of disposition may be restricted. Trade associations recommend that permission to install charge points on a façade, for example, be preceded by a maintenance agreement.

2.1 Who has no right of disposition?

The description of who has and who does not have right of disposition is based on how residents derive their rights to their homes. These can be divided into **ownership rights** (people who live in owner-occupied¹⁸ real properties units, i.e. regular houses or terraced houses) and **usufruct** (rented accommodation, co-operative rented accommodation or housing co-operative – usually in apartment blocks, but can also include, for example, tenant-owner terraced houses).¹⁹ In most cases, this division provides sufficient answers as to whether or not right of disposition exists, owner- occupiers normally having right of disposition people with other housing types normally not having right of disposition.

However, there are a number of cases where a more detailed analysis is needed on how the right to parking in the location where the recharging point is to be installed is derived from the residence. Homes made available with **ownership rights** may not have their own parking facilities, and their parking spaces may be shared by several real property units in a joint facility managed by a joint property association, for example.²⁰ If the home is made available with **usufruct**, this can be divided into two cases. The *first* is where there are parking spaces in development districts and the real property owner has right of disposition over the possibility of charging²¹, while the *second* is where the real property owner does not have right of disposition.²²

As described in Section 2.4, there are challenges even if right of disposition exists. If there is no right of disposition, the problems referred to above can also exist at several levels: for example, individual residents do not have right of disposition in a co-operative housing association. In turn, the co-operative housing association may arrange parking through the real property unit’s participation in a joint real property unit where the co-operative housing association, and thus also individual usufructuaries – i.e. residents – have no control. The resident then formally has less ability to exert an influence.

¹⁸ This excludes complicating factors such as situations in which the home is owned by several people within a family or through an estate, for example, who fail to agree.

¹⁹ Moreover, there are mainly residential leases/buildings on undeveloped land. No information is available on the number of residential leases in the country, but report SOU 2014:32 estimated the number at around 90,000. Depending on the circumstances of the individual case, the opportunities for this group can be quite extensive and are therefore not dealt with in detail. The rights of people with buildings on undeveloped land can also be placed on an equal footing with ownership rights in many ways: see, inter alia, Section 2(2), paragraph 1 of the Joint Facilities Act (1973:1149).

²⁰ See footnote 14 above on the fact that easements, for example, are not dealt with in detail.

²¹ Anyone who has leased a parking space via a lease agreement for a housing co-operative, land lease or lease on premises often has no right of disposition over factors necessary to put charging in place, such as electrical connections, fire safety, etc. However, there are examples of cases where residents have right of disposition over parking spaces even without the landowner’s permission. One example of this is if a parking space is provided adjacent to the home where the resident can install their own equipment, for example on the driveway of a tenant-owner terraced house (part of the lease agreement or a collateral agreement). In particular, Chapter 7, Section 6 of the Tenant-Ownership Act requires that the association may only invoke a deviation in the apartment from its intended purpose if it is of considerable importance, and Chapter 7, Section 7, which states that the board’s permission is required for measures involving the alteration of “existing pipes for sewage, heating, gas or water”, inter alia, without specifying electricity.

²² Residential leases with security of tenure may be granted such a right in certain cases under Section 2(2) of the Joint Facilities Act (1973:1149).

2.2 Options for parties with no right of disposition

When individuals do not have right of disposition – i.e. the right to decide – so that they can arrange their own access to charging in the location where the vehicle is parked most of the time (usually near the home), this obviously constitutes an obstacle for individuals wishing to have access to charging. The chances of using plug-in electric vehicles in a cost-effective manner is then limited. That said, residents have the option of consulting the party who has the opportunity to decide on whether to install a recharging point. For example, the real property owner can give permission to install a recharging point, under certain conditions. This is also highlighted in the tax reduction for the installation of green technology, which since 1 January 2021 may provide opportunities for aid for residents in housing co-operatives and owner-occupied apartments to install recharging points.²³

A number of countries in Europe have stronger tools aimed at allowing residents of apartment blocks to access charging. The collective name for this legislation is *right to charge* or *right to plug*. In general, this means that any party that has the right to decide on whether to install a recharging point needs to give an acceptable reason for denying residents recharging points. In this report, we use the term right to charge as a common description for the regulatory framework in other countries: see Section 2.3.3.

There is no way for people with no right of disposition to demand access to a recharging point at their parking space at home in Sweden at present. If individuals are unable to charge in the places where they normally park, or if there are no parking spaces at or adjacent to the real property unit where they live, they will have to rely on charging at work or using public charging points, for example. As for residents, commercial or public operators may not have the right of disposition needed to install recharging points. This is frequently because they do not own the real property unit where the business is located, or the parking is provided by a joint real property unit, or there is no parking available at all. This can be present a problem when workers need to charge their cars.

2.3 The situation in various housing types

This section highlights the situation of residents in the three housing types that have specifically been considered in this report. For parking to be available at home at all, there must also be development districts that can be used for parking, in garages or outdoors: this is not a given, particularly in built-up areas.

2.3.1 Recharging points for rented accommodation

Tenants are unable to demand access to either parking spaces or recharging points from their landlords. Despite rapid development and aid in this field, it is likely that all tenants with parking who want to be able to charge their cars at home will find it difficult to do so for a while longer.

One option for demanding action from landlords can be found in Chapter 12, Section 18 a of the Land Code. This relates to a lowest acceptable standard. This provision allows

²³ Chapter 67, Sections 36 to 45 of the Land Code (1999:122). For more information, see the Swedish Tax Agency's website, <https://www.skatteverket.se/privat/fastigheterochbostad/gronteknik>. Downloaded on 23 September 2021.

individual residents to demand that their landlord takes action by applying for an improvement order; but this focuses mainly on the standard of the apartment itself. Outside the apartment, “access both to storage spaces within the real property unit and to a domestic laundry facility within the real property unit or a reasonable distance from it, and the building being free from other than reasonably acceptable defects of mechanical strength, fire safety or sanitary conditions” are required in order for the lowest acceptable standard to be attained.

Even if these provisions were to be extended, they are geared, without more systematic change, towards the lowest acceptable standard; to which everyone should then have access and hence also pay for. The impact of any change could not be analysed in detail as part of the assignment, so we do not propose a change to these provisions.

In the Swedish Energy Agency’s experience, there are plenty of examples of individual residents in both rented accommodation and housing co-operatives who have been refused recharging points. However, it has not been possible to document in detail, as part of the assignment, whether landlords refrain from making necessary investments without reasonable grounds, even though there is a certain amount of financial data in that residents demonstrate their interest. This may, for example, raise queries about the extent to which people who want to charge their vehicles should pay for the equipment in addition to their electricity consumption, or whether this should be paid for by the landlord; and ultimately paid for by all residents through their rent (that both people without cars and people with non-rechargeable vehicles should fund equipment that will benefit owners of plug-in electric vehicles). There is also a risk of costs for equipment that is not used throughout its entire service life.

The option currently available to tenants is to use information, supporting documentation and their own efforts to arouse interest among other residents so as to persuade the landlord of the value of installing recharging points, or in some cases to convince the landlord to allow individual residents to install just one recharging point of their own.

Many local authorities have public housing companies that are owned by the local authority and are thus governed by the wishes of the local authority in its capacity as the owner. The many people who live in homes owned by these housing companies also have the option of contacting elected representatives in the local authority in order to influence how the housing company is governed. One element of this could involve gathering data from other residents to indicate the level of interest and the willingness to pay. Information on how different stakeholders can proceed is currently available on a number of websites focusing on various things, but this could be improved and harmonised.

2.3.2 Recharging points for co-operative housing associations or co-operative tenants' associations

Anyone living in co-operative rented accommodation or a housing co-operative has more freedom than a regular residential tenant to use the apartment as they wish.²⁴

However, they have no option (except in connection with the first lease – it must be fully fit for use at that time) to demand that the association should ensure certain lowest acceptable standards in the same way as for rented accommodation.²⁵ At the same time, there are opportunities for members to influence property management and investments beyond what is possible in regular rented accommodation.

Anyone who wants the association to deploy recharging points at the association's parking spaces can try to influence the board, attempt to be elected to the board themselves or raise the issue at an annual general meeting. The board must convene an extraordinary general meeting of the association if at least one-tenth of all parties entitled to vote, or fewer parties as specified in the statutes, so request.²⁶ There are a number of websites containing information for both the association and its members so as to support the process of installing recharging points.²⁷ These include examples of motions, checklists and stakeholder surveys, but very rarely mention anything other than the most common situations towards a decision for installation of recharging points. At the hearing held by the Swedish Energy Agency on 4 May, requests were made for more extensive and coherent information that is also kept up to date.

Current information is described as being available in many places, but is not always sufficiently up to date, readily accessible or of the quality required.

One example highlighted is the lack of information on the rules applicable to associations where parking spaces are leased with the home. In these cases, a co-operative housing association's right of disposition, for example, is limited as each housing co-operative has its own specific parking area. In these cases, for example, it is very difficult to change

²⁴ In all three cases, the apartment must not be used for any purpose other than that intended. For rented accommodation, the landlord may not invoke deviations that are of no significance to the landlord (Chapter 12, Section 23(1) of the Land Code [1970:994]), whereas for housing co-operatives and co-operative rented accommodation, the deviation needs to be of considerable significance to the association or another member of the association (Chapter 7, Section 6(1) of the Tenant-Ownership Act [1991:614] and Chapter 3, Section 8 of the Co-operative Tenancy Act [2002:93]).

According to Chapter 12, Section 24 a, tenants have the right to carry out painting, wallpapering and comparable measures in the apartment at their own expense (the landlord is entitled to compensation for the damage if the apartment's utility value is reduced as a result). Instead, for co-operative rented accommodation, the association is entitled to compensation for damage caused by the measure not being carried out professionally or otherwise being unsatisfactory (Chapter 3, Section 9 of the Co-operative Tenancy Act [2002:93]). In the case of housing co-operatives, no action may be taken without the permission of the board which involves

1. intervention in a load-bearing structure,
2. alteration of existing pipes for sewage, heating, gas or water, or
3. any other substantial change to the apartment, but the board may not refuse to grant permission unless the measure will cause significant damage or inconvenience to the association (Chapter 7, Section 7 of the Tenant-Ownership Act [1991:614]).

²⁵ For co-operative rented accommodation, this is stated directly by law in Chapter 3, Section 5 of the Co-operative Tenancy Act (2002:93). Communal elements such as sewerage and the façade are dealt with by the association.

²⁶ See Chapter 6, Section 12 of the Economic Associations Act (2018:672).

²⁷ See, for example, <https://energiradgivningen.se/paverka-i-din-brf/>. Downloaded on 1 June 2021. A number of municipal operators co-operate and share information.

the location of parking spaces against the wishes of residents in order to concentrate the installation of recharging points. Another example relates to guidance on whether, for example, decisions can be made by the board of a co-operative housing association, or whether these are to be regarded as decisions that constitute substantial changes to the association's building or land that have to be made at a general meeting of the association.²⁸ Nor is the Phase-out committee commissioned by the Government of the opinion that there is a clear boundary between the decision-making rights of the board and the general meeting of the association.²⁹ For this reason, associations sometimes allow the issue to be approved at the general meeting, to be on the safe side. However, this may involve a delay depending on the time of year when the issue is raised and difficulties when issues that are more detailed in nature are dealt with by an association's general meeting, which may require extensive information initiatives so as to allow an informed decision to be made. Nor is there any detailed information on what rules apply to anyone moving in, i.e. people who have often been approved as members but have not yet taken possession of their apartments. Depending on how the decision on taking possession has been drafted, prospective residents as members of co-operative housing associations can influence such issues before moving in.

2.3.3 Right to charge in a selection of other countries

Besides efforts to analyse obstacles for Sweden, the assignment has also examined how other countries are working to facilitate charging of plug-in electric vehicles for residents in apartment blocks. This could also include residents who have car parking arranged jointly with others (without right of disposition). However, the emphasis in the countries compared is on apartment blocks: see Annex 4 for further detail. The collective name for this legislation is *right to charge* or *right to plug*. This report uses the term *right to charge*. The European Commission has called on Member States to consider implementing the right to charge so as to ensure that tenants or co-owners can install recharging points for electric vehicles without having to obtain consent from the tenant's landlord or other co-owners (which is described as potentially difficult).³⁰

Overview of legislation in other countries

Within the framework of the assignment, the research institute RISE has thus investigated (in Annex 4) what is known as *right to charge* in Norway, Spain and France. Stakeholders interviewed by RISE in these countries confirm the European Commission's view that the right to charge can be an important tool in giving individuals the opportunity to charge, and thus also to promote the purchase of plug-in electric vehicles for residents in apartment blocks. However, it is difficult to determine at this stage how much of the increase in the market share of plug-in electric vehicles (which is most evident in Norway) is due to this tool, or whether it is the result of other factors. Various forms of right to charge legislation or similar systems exist or are in the process of being introduced in other countries and regions such as Germany, Austria and the province of Ontario in Canada. However, these locations have not been investigated in detail as part of the assignment.

²⁸ Chapter 9, Section 15 of the Tenant-Ownership Act (1991:614).

²⁹ *I en värld som ställer om – Sverige utan fossila drivmedel 2040*. SOU 2021:48, p. 449. ISBN 978-91-525-0130-6.

³⁰ Commission Recommendation (EU) 2019/1019 of 7 June 2019 on the modernisation of buildings, Section 3.4.3.3.

Right to charge legislation differs significantly between Norway, Spain and France. However, there are also similarities. All three pieces of legislation have been introduced in order to address increasing conflicts in apartment blocks regarding the installation of recharging points. In Norway and France, the legislation was initiated by civil society in order to reduce these conflicts and create greater clarity. Thus there are a number of interesting aspects and experiences from other countries that are worth taking into account in ongoing efforts to design measures to facilitate home charging for apartment blocks and residents who share car parking facilities with others in Sweden. The following section summarises the main findings of the right to charge survey. See Annex 4 for a more detailed description of the right to charge in Norway, Spain and France.

A right to park is required for a *right to charge*

One common denominator in all three countries surveyed is that the right to charge only applies to residents who already have a parking facility at the real property unit. However, there are important differences that should be highlighted. In Norway, the right to charge applies to residents with a permanent parking space, as well as to residents with access to parking in a communal car park without a permanent parking space: this type of parking is sometimes referred to as “floating parking”. In Spain, the right to charge is more limited. It only covers residents who have a permanent parking space in a garage reserved for residents living in the building. In France, the right to charge applies only to residents with a permanent residents’ parking space, but the parking space does not have to be in an individual garage.

In Norway and Spain, only residents who own their own home (directly or through an association) are affected. In France, tenants are also covered by the right to charge. One possible reason for this is that rented apartments are more common in France than in Norway, for example.

Reasonable grounds for refusing to allow charge points

Legislation in all three countries allows the real property owner or association to refuse to allow recharging points to be installed in certain cases. There are some differences between countries as regards the grounds on which this permission can be refused. Reasonable grounds for refusal have been specified in both Norway and France – by means of guidance from the Ministry in Norway, and in France in the legal texts concerning the right to charge:

- In practice, only an unreasonably high cost for installation provides grounds to refuse installation in Norway, provided that it is technically feasible to install one or more recharging points.
- In France, permission can only be refused in cases where existing recharging points are already installed, or if the association or real property owner has decided to install recharging points. Installation must then be completed within a reasonable time.
- In theory, only technical restrictions can stop installation in Spain once a resident has invoked the right to charge. Essentially, this can be done when the installation requires a connection to a communal electrical distribution box for technical reasons.

Generally invoking fire risks does not constitute reasonable grounds for refusing the right to charge in any of the countries surveyed.

Distribution of costs

How the cost of installing one or more recharging points is to be allocated can be a source of conflict between real property owners or associations and their residents.

In all three countries surveyed, residents who invoke the right to charge are responsible for the cost of the recharging point and ongoing electricity consumption. The exception is Norway in cases where recharging points are installed in garages without permanent parking spaces. In this case, the association can pay for the recharging point, which is then paid off by means of payment for charging.

As regards costs related to the installation of the technical system (cabling, making electrical distribution boxes safe, etc.), Spain and France have decided that the cost must be borne by the residents who invoke the right to charge. Norway has chosen a different path, where the installation and upgrading of existing infrastructure to allow recharging points to be installed is considered to benefit all residents. Therefore, according to the interpretative statement by the Ministry, the cost should normally be borne by the collective.³¹

2.3.4 Further information on the way forward for preparation of access to charging in Sweden

The government assignment relates to obstacles and measures for charging cars for residents of apartment blocks and other residents whose car parking is arranged jointly with others. The assignment is thus broader than the approach taken in the legislation of the countries compared. Potential future preparation of a Swedish system with a stronger opportunity for residents to access charging (similar to the right to charge system in other countries) must strike a balance so as to also safeguard the current processes for influence that already exist for members of associations, such as the democratic decision-making process that is conducted via general meetings of associations.

The European Commission has identified the right to charge as a way of overcoming the often long and complex process of deciding on installation of recharging points. In this section, the term *access to charging* is used when describing a Swedish context, rather than the European Commission's term *right to charge*. The aim of this is partly to make it clear that any introduction of similar systems in Sweden may differ from the systems in other countries, where, for example, strengthening the position of tenants in respect of their landlords does not necessarily mean a right, but there may be other formulations. Going forward, it is also necessary to consider whether efforts can be made to extend charging facilities for residents of apartment blocks and/or residents whose car parking is arranged jointly with others by means other than reinforcing the right of individuals to undertake their own installation measures.

Specific information on access to charging in the owned and rented accommodation

As stated earlier, other countries have tended to start by introducing right to charge rules in owner-occupied accommodation, such as owner-occupied apartments and housing

³¹ *Etablering av ladepunkt – kostnadsfordeling ved leie av ladeinfrastruktur. Tolkningsuttalelse* | Date: 18 February 2021. Government of Norway. <https://www.regjeringen.no/no/dokumenter/etablering-av-ladepunkt-kostnadsfordeling-ved-leie-av-ladeinfrastruktur/id2835317>. Downloaded on 26 October 2021.

co-operatives. Conflicts in associations were one of the original reasons for this. Here, too, it is necessary to analyse what can and should be handled within the framework of the democratic process within the associations; and also when a regulatory framework might be needed so that individuals do not have to wait an unreasonably long time for access to charging.

For rented accommodation, there is a risk that residents will fall behind and have to rely on other fuels or more expensive public charging. This is further reinforced by the fact that residents in rented accommodation typically have less money to spend. Residents in rented accommodation currently have absolutely none of the influence that residents of housing co-operatives and in co-operative rented accommodation have, which is why it is reasonable to assume that they may actually be in greater need of measures than residents of housing co-operatives and in co-operative rented accommodation.

Fundamental starting points for potential regulation of access to charging

Potential future preparation of a Swedish system with a stronger opportunity for residents to access charging (comparable to the right to charge system in other countries) for residents of apartment blocks and residents in general whose car parking is arranged jointly with others needs to analyse the following issues further.

- Are there any solutions other than reinforcing the regulatory framework?
- To what extent can and should certain fixed costs be borne by the collective instead of the people using the recharging points, at least during a period when plug-in electric vehicles are in the minority? A model similar to Norway's could be envisaged where the collective would at least bear the cost of the electrical system and the cabling, as the value of these investments would also accrue to the other residents in that the charging option is prepared. At the same time, there may be reason to consider whether it is appropriate for people who do not have their own cars to pay for other people's private car ownership; which is particularly common in new builds.
- Should it be possible for individuals to claim the right to install their own equipment at all (even if the real property owner does not offer a communal solution)? How does an arrangement where individuals can install equipment that is unable to "talk to" other parts of the system affect the option of load balancing, smart control, etc.? Is there a minimum requirement, and who is responsible for ensuring that this is met, not least in terms of security?
- Should permanent and floating parking spaces be subject to the same requirements, or different requirements? Should rules for access to charging be conditional upon individuals agreeing to give up a permanent parking space in favour of a floating one?

2.4 Obstacles for parties with right of disposition

Parties with right of disposition sometimes refuse to allow other people, such as residents, the opportunity to install one or more recharging points. This may be due to the fact that they face obstacles of a different kind despite their right of disposition. A number of obstacles are described below.

2.4.1 *Parking at a joint facility managed by a joint property association*

Parking is sometimes arranged within the framework of a joint facility managed by a joint property association. Situations may arise where real property owners wish to install recharging points but this is not compatible with the facility order which defines the framework for the purposes, common benefits, that are included in the joint facility and that the association has to manage. Getting recharging points installed may then be perceived as difficult or even impossible. This obstacle becomes more prominent when not all real property owners want to install recharging points, i.e. when there is disagreement.

The main obstacle in this regard is the legal aspect, where the legislation can be interpreted in different ways, while case law providing guidance in this area is limited. Besides the legal questions, the hearing pointed out that there are long turnaround times for property registration and that new cadastral procedures are associated with costs.³²

The report by the Phase-out committee³³ details the challenges faced by joint property associations wishing to install recharging points when it is not clear from the facility order that the purpose of electric vehicle charging is part of the joint facility. Case law shows that the scope for interpreting new purposes in existing orders is extremely limited. Instead, the facility order must be reconsidered so that a new purpose, charging infrastructure, can be included. In a cadastral adjudication procedure, the assessment is made on the basis of a number of conditions in the legislation, including whether it is of substantial importance for the participating real property units to have access to charging infrastructure in the communal car park. If the substantial importance condition is met, there is no requirement for the real property owners involved to agree. Problems with disagreement rarely arise when new joint property units are created in connection with construction of new housing. Then there are also rules for charging infrastructure in the Planning and Building Act (2010:900) and the Planning and Building Ordinance (2011:338) to lean on.

A separate report produced by Lantmäteriet within the framework of this government assignment, Annex 1, provides a more detailed description of the obstacle described above, with emphasis on the legal aspect. This report states that Lantmäteriet is of the opinion that the problems associated with the legislation, the turnaround time and the cost of the cadastral procedure can be overcome with no changes to the relevant regulations.

³² Private co-operation options and contractual solutions, such as the formation of an economic association, have not been investigated within the framework of this government assignment. Instead, the emphasis has been on finding solutions within the framework of the cadastral survey institute and the existing legal framework that can deal with land access, compensation and payment liability in complex situations, even when the parties involved disagree.

³³ *I en värld som ställer om – Sverige utan fossila drivmedel 2040*. SOU 2021:48, p. 440. ISBN 978-91-525-0130-6.

Amending the regulatory framework to allow joint property associations to make their own decisions on the installation of charging infrastructure when there is no support for this in previous facility orders has not been investigated. As stated above, current case law shows that the margin for interpretation of existing facility orders is narrow. Introducing a special solution with an exception for the purpose of charging infrastructure would involve a change in the system of the regulatory framework, which is not recommended as the legislation must work analogously over time, regardless of any new purposes that might require co-operation. Charging infrastructure is a purpose that can be served within the existing regulatory structure. This reasoning is supported by the options in the legislation for dealing with land access, compensation and co-operation in complex situations, even where there is disagreement. However, the development of case law should continue to be monitored with regard to the interpretation of the content and scope of facility orders, for example.

Lantmäteriet writes (Annex 1, p. 2): “Lantmäteriet should be able to use targeted information initiatives to ensure that well-prepared applications are made on time and that conflicts between real property owners do not arise unnecessarily. Combined with improved supporting material to provide guidance to staff dealing with cadastral procedures, it should be possible to keep processing times down, resulting in lower legal costs.” Annexes 2 and 3 includes suggestions for improved supporting material.

Work is in progress at Lantmäteriet on reviewing internal and external communication relating to recharging points and joint property units, in accordance with a separate assignment in Lantmäteriet’s appropriation directions for 2021.³⁴ Besides the communication measures included in the assignment in the appropriation directions, it is proposed that Lantmäteriet should be included in the joint authority assignment as described in Section 3.2.1.

Lantmäteriet’s statement³⁵ on the report by the Phase-out committee indicates that grant funds are preferable to time-limited appropriations so as to reduce the cost of the cadastral procedure. The use of appropriations creates increased administration, which in itself drives costs and requires an amendment to the Ordinance concerning charges for cadastral surveys (1995:1459).

Today, the ordinance for the Ladda Bilen aid³⁶ makes it clear that costs for cadastral procedures cannot constitute an eligible cost in cases where the installation of charging infrastructure requires a new cadastral survey. However, this is unclear in the Klimatklivet ordinance³⁷.

2.4.2 Interpretation of fire safety rules varies among operators

In this case, an obstacle is presented by the existence of different interpretations or recommendations on fire safety. This mainly concerns the issue of the positioning of recharging points indoors, such as in underground garages. There is a difference here between the national regulations, which do not impose specific requirements for indoor

³⁴ Appropriation directions for the 2021 financial year concerning Lantmäteriet. Objectives and feedback requirements. Communication on recharge points.

³⁵ Statement on the report of the Phase-out committee (SOU 2021:48), LM2021/022912, 31 August 2021

³⁶ Ordinance concerning state aid for the installation of recharging points for electric vehicles (2019:525)

³⁷ Ordinance concerning aid for local climate investments (2015:517)

recharging points via the Swedish National Board of Housing, Building and Planning's regulations beyond the rules defined for division into fire compartments in garages, for example, and a number of local fire protection authorities which recommend that charging should not take place indoors or be as close to an entrance as possible. These recommendations may differ between local authorities and may therefore be perceived as an obstacle even if there are normally no such formal obstacles to charging elsewhere inside a garage. There are also different views on fire risks from different insurance companies, who may have a different premium or simply choose not to insure. The challenge is that the practical conditions vary in different places in Sweden, and that the chances of arranging charging are reduced considerably if it is perceived that this cannot take place indoors.

In particular, dealing with fires in plug-in electric vehicles can be problematic for the emergency services, as they need to be cooled with a lot of water in the event of a fire in the batteries and then transported away from the scene and monitored to prevent re-ignition. Toxic gases such as hydrogen fluoride are also produced, posing a health and safety problem for emergency services personnel. How dangerous these gases are for a fully equipped firefighter and the extent to which they are formed in relation to fires in traditional cars is relatively unclear at present and a field for research and development. However, based on the statistics available to date, there is no evidence to suggest that plug-in electric vehicles are involved in more fires than other types of vehicles.³⁸

A number of comments and concerns were raised at the Swedish Energy Agency's hearing on 4 May concerning the fact that fire protection in buildings may be an obstacle to the deployment of recharging points. These concerns are partly based on misunderstandings about the applicable rules and the risk of fires in plug-in electric vehicles, but also on the specific risks associated with fires in plug-in electric vehicles.

To summarise, plug-in electric vehicles pose particular fire risks and challenges for emergency services personnel in the event of a fire, but this is also the case for traditional petrol and diesel cars, gas vehicles and fuel cell electric vehicles.

No requirements beyond ordinary fire safety regulations

In connection with the introduction of the requirements for charging of plug-in electric vehicles in the Planning and Building Act (2010:900) and the Planning and Building Ordinance (2011:338), the Swedish National Board of Housing, Building and Planning has stated that there are particular risks with plug-in electric vehicles, but that this does not mean that any new requirements for fire protection are to be defined beyond existing fire protection requirements in buildings in accordance with the Swedish National Board of Housing, Building and Planning's Building Regulations (2011:6), BBR.³⁹ The same conclusion has been reached in Norway⁴⁰, where there is considerable experience with plug-in electric vehicles.

³⁸ RISE (2019). *Laddning av elbil i parkeringsgarage*. Report 2019:123.

³⁹ Swedish National Board of Housing, Building and Planning (2021). Impact assessment BFS 2021:2. Swedish National Board of Housing, Building and Planning regulations and general recommendations on equipment for charging electric vehicles.

⁴⁰ *Elbil – lading og sikkerhet*. 2020. Norwegian Directorate for Civil Protection Elbil – lading og sikkerhet | Norwegian Directorate for Civil Protection (dsb.no). Downloaded on 30 August 2021.

Current BBR requirements state that garages must be constitute a separate fire compartment, and if the garage is located in a basement, it must have special fire gas ventilation, etc. Existing buildings must comply with the structural requirements that applied when they were built. In this respect, the requirements for garages have been relatively similar over the period in which multi-car garages have been built. However, it may be appropriate to review fire protection when installing recharging points to ensure that fire compartment boundaries, fire doors, etc. are in good condition.

Above all, it is important to review the electrical system to ensure that it is in satisfactory condition and adapted to the power required to charge vehicles. Charging from standard earthed (Schuko) sockets designed for engine heaters, vacuum cleaners and suchlike may also pose an increased fire risk. This is particularly true of timers for engine heaters and similar peripheral equipment, which are not always designed for the loads caused by vehicle charging. When designed and used correctly, however, there is nothing to prevent charging from a regular power socket from a safety point of view.

Information on fire risks and charging in garages can be found in the Planning and Building Act Knowledge Base on the Swedish National Board of Housing, Building and Planning website.⁴¹ Information produced by the Swedish National Board of Housing, Building and Planning in consultation with the Swedish Civil Contingencies Agency (MSB) clearly shows that no additional fire protection requirements are imposed on charging in garages besides the ordinary fire protection regulations. The knowledge base also provides a number of tips on how to reduce fire risks and what to consider in order to reduce the risk of extensive damage to the building on account of fire.

Different messages from different emergency services

Based on the specific risks associated with plug-in electric vehicles, some municipal emergency services have developed different types of memoranda with guidelines or recommendations on how recharging points should be designed in order to reduce damage in the event of fire and facilitate rescue initiatives in their municipality.⁴² Outdoor charging is recommended in the first instance in many cases, and in other cases recharging points as close to an entrance as possible are recommended. From the perspective of the emergency services, this location is obviously preferable to a location underground, deep inside a building. However, there is nothing to prohibit any other location, and the new rules in the Planning and Building Ordinance mean – among other things – that all spaces in a garage of a certain size in an apartment block must be provided with preparations in the form of empty conduits and suchlike for possible future installations of recharging points. This clearly indicates that it is possible to fit all the spaces in a garage with charging equipment. Nor is it possible to regulate where plug-in electric vehicles park in commercial car parks, for example, when they are not charging, which means that the emergency services need to have knowledge and tactics to deal with plug-in electric vehicles in all locations in a garage.

⁴¹ *Regler för laddning av elfordon*. 2021. Swedish National Board of Housing, Building and Planning. www.boverket.se/sv/PBL-kunskapsbanken/regler-om-byggande/laddning-av-elfordon/brandrisker-vid-laddning-av-elfordon/. Downloaded on 30 August 2021.

⁴² Example of a memorandum from the Stockholm Fire Service www.storstockholm.brand.se/global-assets/dokument/vagledningsdokument-och-foreskrifter/2019/vl2019-05-laddplatser-for-el--och-hybridfordon_2019-05-13.pdf. Downloaded on 30 August 2021.

Based on the above, the information and recommendations provided by the various emergency services can be viewed as a guide to reducing fire risks and facilitating firefighting operations. However, they cannot normally be considered to constitute an obstacle to choosing locations other than near a gate, for example. The emergency services could indeed carry out supervision in accordance with the Civil Protection Act (2003:778), and order measures for a particular recharging point based on the requirements for reasonable fire protection in accordance with Chapter 2, Section 2 of the Civil Protection Act. The burden of proof to show that the fire protection is not satisfactory then rests with the supervising authority.

The Civil Protection Act does not include detailed requirements for structural fire protection, but the level of reasonableness is normally assumed to be compliance with at least the building regulations that were in force when the building was constructed or the activity was last modified. As there are no specific requirements in the building regulations for garages where plug-in electric vehicles are to be charged, special circumstances will thus be necessary in individual cases to justify an injunction under the Civil Protection Act.

However, the Civil Protection Act has a broader perspective on fire protection than merely structural issues. Older buildings with what is basically poor fire protection, untidy conditions in the garage with lots of dust and combustible material, an old electrical system and perhaps even past fire incidents such as burnt cables and suchlike could justify potential intervention against any such building under the Civil Protection Act. No such injunctions or appeals against orders could be found while this report was being prepared. Therefore, it is not possible to say with complete certainty whether an emergency service could successfully issue orders on the positioning of recharging points in a garage, for example.

Unclear issues relating to insurance

Given the risks associated with fires in plug-in electric vehicles, some insurance companies have been reluctant to insure garages with equipment for charging plug-in electric vehicles. Alternatively, they have opted to apply a special premium rate.

Whether or not this is justified on the basis of an increased risk profile is debatable. The risks compared to other types of vehicles and garage fires may have been exaggerated in some media coverage and in the emergency service memoranda described previously, although the risks should not be underestimated or ignored either. Knowledge in this field has advanced rapidly, and more research and statistics are available now than was the case a year or so ago. National authorities have also made it clearer over the past year that no additional fire protection measures are required for charging in multi-car garages, which some insurance companies have previously used as a reason to hold off on insurance. However, there are risk factors such as incorrect electrical installations that can increase the risk of fire and the fact that a lot of water is needed to extinguish fires in plug-in electric vehicles, which could cause costly damage to certain types of buildings. On the other hand, as shown in the previous discussion, plug-in electric vehicles can be found in any garage, regardless of whether or not recharging points are available, and the percentage of plug-in electric vehicles is expected to increase rapidly in the next few years.

The terms or premiums that insurance companies choose to apply are up to the individual company. Some of the concerns that have been raised about the increased cost of claims can probably be countered with increased knowledge and information

about the risks of plug-in electric vehicles in relation to other vehicles, but ultimately the decision always rests with the individual insurance company. Therefore, the Government cannot be expected to take any action to influence the insurance industry, other than to provide clear information on the rules that apply, as well as a nuanced view of the risks involved. In many cases, the individual real property owner will also find it difficult to influence the setting of premiums or refusal of insurance, for example, and will instead be faced with the choice of changing insurance company, which in the long term may have an impact on the market.

Conclusions on fire protection

- There are no formal obstacles to installing recharging points in garages. According to the Swedish National Board of Housing, Building and Planning, regular building regulations provide sufficient protection.
- The fact that some emergency services recommend different solutions for the location of recharging points in order to facilitate rescue initiatives does not normally mean that other locations are prohibited.
- Plug-in electric vehicles pose particular risks in the event of fire, but so do other types of vehicles. The risks are therefore not necessarily greater, but different, and more knowledge on and research into fires in different types of vehicles is needed.
- Statistics show that plug-in electric vehicles are not involved in fires more frequently than other types of vehicles.
- When installing charging equipment in existing buildings, it is appropriate to review the existing fire protection and, above all, to ensure that the electrical system in the building is suitable for charging.
- Insurance companies' terms and premiums can only be influenced indirectly through information and knowledge about the risks of charging and fires in plug-in electric vehicles.
- Collated information from the Swedish National Board of Housing, Building and Planning, the Swedish Civil Contingencies Agency and Swedish National Electrical Safety Board is desirable in order to make it easier for co-operative housing associations, for example, to get an overview of the fire problem in respect of plug-in electric vehicles.

2.4.3 Accessibility

A further problem raised at the Swedish Energy Agency's hearing on 4 May is the issue of accessibility to recharging points, with regard to people with impaired mobility or orientation capacity. Today, many recharging points are not designed to be used easily by people with disabilities, as there are clearly no specific requirements at present when building charging infrastructure. Nor is anyone responsible for the supervision of charge points or charging infrastructure from an accessibility perspective.

The requirements that exist today are the requirements defined by the Swedish National Board of Housing, Building and Planning for recharging points according to the new requirements for charging infrastructure for plug-in electric vehicles that were introduced

as a consequence of the changes to Directive 2018/844/EU⁴³ (the EPBD Directive), and of the Energy Efficiency Directive 2012/27/EU, as well as the requirements⁴⁴ imposed by the Swedish Transport Administration as part of its remit⁴⁵ on state aid for the deployment of public charging stations for fast charging of electric vehicles.

The Swedish National Board of Housing, Building and Planning's requirements are set out in the Swedish National Board of Housing, Building and Planning's regulations and general recommendations on equipment for charging electric vehicles (2021:2)⁴⁶ and state the following.

Section 4 *Recharging points must be located and designed so that they are readily accessible and usable. They must be placed so that the connection can be made at a height of not more than 1.2 metres above the surface of the parking space.*

General recommendations

Any collision protection and similar equipment should be designed to allow access to the recharging point from an electric wheelchair for limited outdoor use (small outdoor wheelchair). Obstacles in the form of kerbs and level differences should be avoided. Any signage should be easy to read, have good light contrast, not cause reflections and be placed at an appropriate height so that it can be read by both wheelchair users and people standing."

Furthermore, the Swedish National Board of Housing, Building and Planning's handbook on the Planning and Building Act, "PBL Kunskapsbanken", states that the requirement for accessibility is generally applicable to recharging points in general so that they can be used by as many people as possible and thus does not apply only to parking spaces for the disabled. However, accessibility can be improved further in such locations, for example by placing the socket at a height of around 0.9 metre and ensuring that there is clearance around the parking space to facilitate access to the recharging point from a wheelchair. This is not a requirement, but it may be appropriate in order to make such a parking space more suitable.⁴⁷

However, the Swedish National Board of Housing, Building and Planning's regulations apply only to the requirements resulting from the Energy Performance of Buildings Directive, which are implemented in the Planning and Building Act and Planning and Building Ordinance. These requirements mainly apply only to the construction of new

⁴³ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings.

⁴⁴ Swedish Transport Administration (2021). *Förutsättningar för statligt stöd för utbyggnad av publika laddstationer för snabbaddning av elfordon. Instruktion för ansökan hösten 2021*. Instruktion för ansökan hösten 2021 (trafikverket.se). Downloaded on 13 October 2021.

⁴⁵ Ordinance concerning state aid for the deployment of public charging stations for fast charging of electric vehicles (2020:577).

⁴⁶ Swedish National Board of Housing, Building and Planning regulations and general recommendations on equipment for charging electric vehicles (2021:2). 2021. Swedish National Board of Housing, Building and Planning. Swedish National Board of Housing, Building and Planning regulations and general recommendations on equipment for charging electric vehicles (2021:2) – Swedish National Board of Housing, Building and Planning. Downloaded on 13 October 2021.

⁴⁷ *Krav på utrustning för laddningspunkter*. 2021. Swedish National Board of Housing, Building and Planning. *Krav på utrustning för laddningspunkter – PBL kunskapsbanken* – Swedish National Board of Housing, Building and Planning. Downloaded on 13 October 2021.

construction and reconstruction, and provided that a certain number of parking spaces are available in the building or on its site. The recharging points installed as a result of these requirements represent a very small number of recharging points out of the total number of recharging points installed. The Swedish Transport Administration has also defined similar requirements for accessibility in its call for state aid for the deployment of public charging stations for fast charging of electric vehicles. The instructions for applications, autumn 2021⁴⁸, state the following:

Accessibility – Recharging points must be positioned and designed so that they are readily accessible and usable by all. They must be placed so that connection, payment and other information is at a height of not more than 1.2 metres above the surface of the parking space. The formulation of information at recharging points must take into account users with impaired vision and colour vision. The clearance for parking spaces at each recharging point, as well as any collision protection, must be designed to allow access to the recharging point from a wheelchair. Obstacles in the form of kerbs and level differences should be avoided.

There are also other initiatives in Sweden that have worked on accessibility in respect of recharging points and charge points. Perhaps the project that has worked most clearly and actively on the issue is the *Stolpe in i stad och land* (SISL) Mellersta Norrland project, which is run by Biofuel Region and Energikontoret at Region Jämtland Härjedalen. A network known as the Network for Accessible Charge Points [*Nätverket för tillgängliga laddplatser*] has been established as part of the project in order to work on the issue. The project has also arranged a number of webinars on the topic and devised recommendations. Recently, the project produced a comprehensive guide together with the associations Delaktighet, Handlingskraft, Rörelsefrihet (DHR) and Personskadeförbundet RTP that contains practical advice on how to design an inclusive charge point, but also examples of mandatory requirements that can be used when ordering installation.⁴⁹

Biofuel Region also points out that although there are currently no general accessibility requirements for people with physical disabilities at parking spaces for electric vehicles, at the same time people cannot legally be discriminated against on disability grounds.⁵⁰

2.4.4 Lack of statistics

To assess the obstacles to charging in the different housing types, it is important to know more about the different housing types, the car ownership of residents and parking facilities, including charging facilities.

⁴⁸ Swedish Transport Administration (2021). *Förutsättningar för statligt stöd för utbyggnad av publika laddstationer för snabbaddning av elfordon. Instruktion för ansökan hösten 2021*. Instructions for application, autumn 2021 (trafikverket.se). Downloaded on 13 October 2021.

⁴⁹ DEN TILLGÄNGLIGA LADDPLATSEN; Praktiska råd för hur en inkluderande laddplats bör utformas. Biofuel Region, Region Jämtland Härjedalen. Inkluderande-laddning-Version-1_0.pdf (biofuelregion.se) Downloaded on 8 October 2021.

⁵⁰ Fixa laddplats. 2021. Biofuel Region. BioFuel RegionFixa laddplats – BioFuel Region. Downloaded on 30 August 2021.

According to Statistics Sweden (SCB)⁵¹, the percentage of households by housing type on 31 December 2020 was as shown in Figure 1. However, there is no data clearly linking this information to combinations of car ownership (regardless of whether or not the car is owned), parking availability and type (own parking, real property owner’s parking, joint real property unit or parking in public spaces via residents’ parking) with the type of charging option (or lack of charging options).

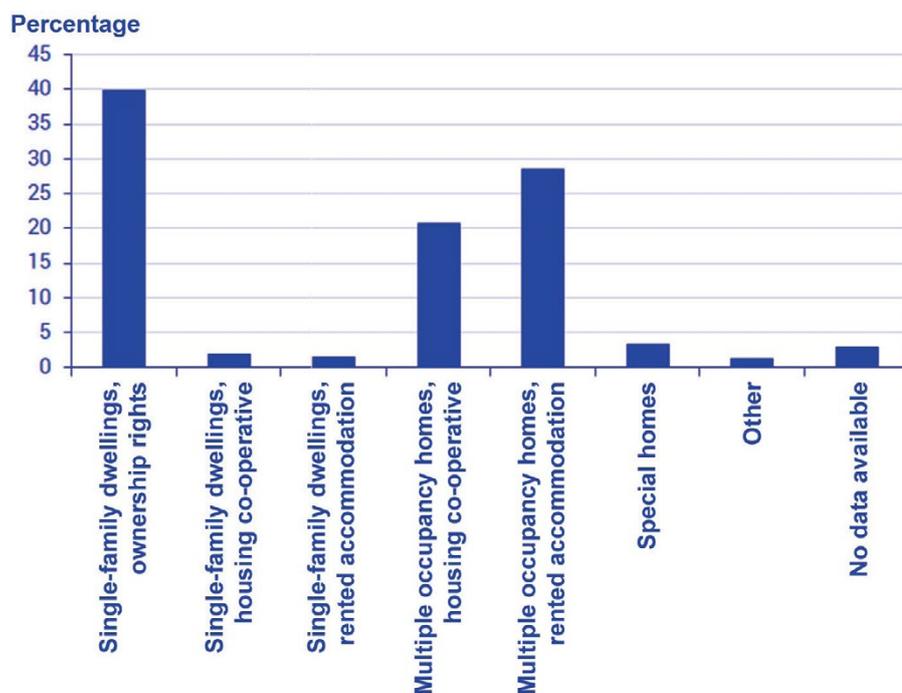


Figure 1. Percentage of households by housing type. Source: Statistics Sweden.

This shows that there are major gaps in what is known about the combination of housing type, car ownership, parking availability and charging options.

This lack of knowledge in the three areas together presents a challenge when it comes to performing impact assessments on the fields that pose the major obstacles to home charging.

RISE illustrated the lack of comprehensive knowledge in its report *Flerfamiljsboenden, samfälligheter och laddinfrastruktur* [Multiple occupancy homes, joint property units and charging infrastructure]⁵². A number of texts from the report are quoted below in order to illustrate data that RISE would have needed for better analysis of the charging infrastructure.

Chapter 2.3 (in the RISE report): *Data broken down by type of vehicle ownership according to housing type does not appear to be available at national level.*

⁵¹ *Hushållens boende 2020. Statistiknyhet från SCB.* 2021. Statistics Sweden SCB. Hushållens boende (scb.se) Downloaded on 28 May 2021.

⁵² RISE (2021) *Flerfamiljsboenden, samfälligheter och laddinfrastruktur.* Report 2021:47. ISBN 978-91-89385-37-5.

and: *A study from the Västra Götaland region indicates that single-family dwellings, which make up 42 per cent of households in the region, account for 68 per cent of vehicles, while multiple occupancy homes make up 51 per cent of households and 30 per cent of vehicles. These results are not necessarily representative at a national level.*

Chapter 2.4 (in the RISE report): *More detailed statistics showing the distribution of different types of parking do not appear to be available at national level. Local statistics from the City of Stockholm, for example, show that of households with vehicles, around 50 per cent park in private garages or on their property, 38 per cent park on the street and 11 per cent park in public garages. The percentage of on-street parking and parking in public garages is higher in more densely populated parts of Stockholm. This provides some support for the belief that the relative importance of on-street parking is high even in densely populated parts elsewhere in the country.*

Work has been ongoing on the issue in order to improve this lack of statistics, the Swedish Energy Agency submitting proposals to Statistics Sweden in May 2021 on new statistical areas that include energy infrastructure, including charging infrastructure.⁵³

The lack of statistics is one of the reasons as to why making quantified impact assessments in the field of charging infrastructure has presented and continues to present a challenge.

2.4.5 Obstacles due to lack of knowledge

In the experience of the Swedish Energy Agency, through dialogue with operators and private individuals, a lack of knowledge about charging infrastructure and various aspects of it still presents a major obstacle. This obstacle largely involves a lack of knowledge and experience among real property owners, private individuals or other relevant operators such as businesses on issues related to the installation of charging infrastructure and the importance of home charging. This view was also confirmed during the Swedish Energy Agency's hearing as part of the assignment, where a lack of knowledge was often referred to as an obstacle in the discussions. Issues related to lack of knowledge are also raised in the interviews in the Swedish Transport Administration's report on obstacles to owning and driving electric vehicles: see Section 1.3.5 above.⁵⁴ Furthermore, some uncertainties are highlighted in Section 2.3 of this report. This lack of knowledge may be due to a number of factors that can be summarised as follows.

- The knowledge does not exist or is not documented
- The knowledge is scattered or difficult to find and/or access (which may take too long for anyone in need of the information)
- The knowledge is readily available and documented, but the individuals concerned do not know that it exists or where to find it
- The knowledge exists, but different sources contradict one another or have partly differing recommendations (see the information on fire issues in Section 2.4.2 above, for example)
- The knowledge exists but is not updated quickly enough

⁵³ *Slutleverans förstudie översyn 1 SO 11 maj 2021*. 2021. Swedish Energy Agency. Reference number 2021-038534.

⁵⁴ Swedish Transport Administration (2020). *Äga och köra elbil. Kartläggning av hinder för att äga och köra elbil samt erbjuda laddning*. TRV 2019/40079.

All in all, these factors can create uncertainty for operators about what roles and responsibilities they should and should not assume, what incentives exist, and how operators and private individuals view investment decisions in respect of charging infrastructure and plug-in electric vehicles. This lack of knowledge is widespread and affects a number of areas, and a number of specific examples are cited below.

What is allowed?

Many operators are unsure of what is allowed at present. A number of issues were raised at the Swedish Energy Agency's hearing on 4 May. The Swedish Energy Agency has also gained an understanding of frequently asked questions in respect of regulatory frameworks on account of the questions it has received. Examples of issues raised include ignorance of the regulatory constraints on designing business models, often linked to ownership and/or operation of charging infrastructure by third parties and sometimes also linked to the opportunity for state aid. One common question is how parties are allowed to operate on a non-concessionary grid (IKN), which is also linked to who is allowed to sell electricity or services related to charging, and how. Uncertainty about electrical safety and fire is another common issue, as discussed earlier in the report: see Section 2.4.2. The rules applicable in joint property associations were also raised as an uncertainty: this has been discussed in Section 2.4.1.

Business models

Operators interested in installing charging are often unsure of what business model to use. This applies to both real property owners and private individuals who want to pursue the issue of charging at the property where the private individual lives. Frequently asked questions relate to how to approach charging for electricity (where the fairness aspect is often important), who should pay for the investment and how it should be paid for. How payments are to be made and the extent to which operators have to self-manage in respect of which services they might consider purchasing and subscribing to are also frequently recurring questions. It may be difficult here for inexperienced operators to evaluate tenders as the field of charging infrastructure is still relatively new.

Rapid development and new standards

Technology in the field of charging infrastructure is developing at a rapid pace. This includes adapting recharging points to new standards, such as those for two-way charging (also known as V2G/H, vehicle to grid, vehicle to home), or adapting them to connect to the new options for simpler and smarter control made possible by the new electricity meters required by the EU to be in place by 2025.⁵⁵ One related issue is which load management and load balancing solutions operators should choose where appropriate. The solution chosen may affect the extent of participation in future flexibility markets, as the electricity market's need for power or local capacity are expected to be addressed by such markets to a greater extent in the future.

Therefore, it does not go without saying that recharging points installed today will work optimally with future solutions and the needs of future vehicles.

The issue is further complicated by the need for the installer to assess current and future demand for charging with regard to the number of recharging points and output,

⁵⁵ *Funktionskrav elmätare*. 2020. Swedish Energy Markets Inspectorate. Funktionskrav elmätare – Swedish Energy Markets Inspectorate (ei.se). Downloaded on 30 August 2021.

for example, in addition to the uncertainty of technology development. As described in the Swedish Transport Administration's report⁵⁶: *Dimensioning the number of charge points for the co-operative housing association is perceived as a difficult trade-off during the planning phase. How much of a long-term approach should the association take to its investment? Should recharging points be installed only for people who have expressed an interest, or for future owners of plug-in electric vehicles as well? There is a great deal of awareness that demand for recharging points will spread readily throughout the residential area when the first points start to be used, and the economies of scale when installing recharging points are balanced against the risk of being left with unused points that generate no revenue.*

Instruments for information

One problem linked to the above obstacles to knowledge is that besides the lack of inter-authority information, there is currently a lack of aid for developing and maintaining information channels and information efforts through other initiatives. As things stand at present, some websites and information efforts have been developed⁵⁷ which include the requested information to a certain extent. Many of these have been financed through national investment aid from the Klimatkivet initiative, or from the Swedish Energy Agency. This aid no longer exists, and the investment aid that did exist did not include long-term management and updating of information.

The lack of obvious up-to-date information, combined with the high demand for knowledge in society and rapid development in the field of electromobility (in respect of both vehicles and charging infrastructure), poses a risk and an obstacle to development.

As stated earlier in the report, the hearing held by the Swedish Energy Agency on 4 May also expressed a desire for more extensive and coherent information that is also kept up to date. If an inter-authority information system is developed, this may include an assessment of the need for additional information efforts or aid for other public or private sector initiatives.

2.4.6 Costs for upgrading electricity to the real property unit or the utility company's adjacent network

This obstacle is related to the fact that it may be costly to extend the real property unit's subscription where needed or to have to reinforce/renew the electricity to the real property unit if the current electricity capacity is too low to accommodate charging for plug-in electric vehicles. In addition, the local utility company may need to charge for any reinforcement of the local power grid. Costs can be significant in some cases, and how to allocate these costs fairly throughout the real property unit presents a challenge.

It may also take a long time to gain access to higher capacity if the local or regional power grid is already heavily loaded and expansion is required.

These issues are not addressed further in this assignment. The power issue and the need for network capacity are issues that are addressed in several other studies and dialogues⁵⁸

⁵⁶ Swedish Transport Administration (2020). *Äga och köra elbil. Kartläggning av hinder för att äga och köra elbil samt erbjuda laddning*. TRV 2019/40079.

⁵⁷ Examples include fixaladdplats.se and emobility.se

⁵⁸ *EFFEKT-dialogen en dialog om energi och effekt*. Swedish Energy Markets Inspectorate EFFEKT-dialogen en dialog om energi och effekt – Swedish Energy Markets Inspectorate (ei.se). Downloaded

on the electricity market and in the context of the development of Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity, amending Directive 2012/27/EU.⁵⁹

2.4.7 Forms of aid

A number of comments on the current forms of aid were received at the Swedish Energy Agency's hearing. It can be noted that there are currently four Government authorities that offer various forms of aid for charging infrastructure that directly or indirectly affect car owners' ability to charge in the place where they live; the Swedish Environmental Protection Agency, the Swedish Tax Agency, the Swedish Transport Administration and the Swedish Energy Agency. The Swedish Transport Administration also has a responsibility for co-ordinating Swedish projects within the framework of EU aid for charging infrastructure through the EU fund CEF (Connecting Europe Facility). The hearing revealed that it is difficult to gain an overview for parties intending to apply for aid. The Swedish Environmental Protection Agency provides aid for public charging infrastructure via the Klimatklivet initiative, but also separate aid for private charging, including for co-operative housing associations. The Swedish Tax Agency administers the Tax Reduction for green technology⁶⁰ which goes to individuals, mainly homeowners, but also in some cases to residents in housing co-operatives, for example. The Swedish Transport Administration subsidises public charging stations along white routes, i.e. sections of road that meet certain criteria and currently have no charging infrastructure. The Swedish Energy Agency offers a grant⁶¹ to support public charging for heavy vehicles (although heavy vehicles still use the same type of charging as cars at the moment). All these forms of aid may therefore be of relevance for home charging, or as alternatives in the absence of home charging.

Comments received include the fact that the boundary between public and private charging is difficult, and in many cases determines which aid can be applied. The current limit is defined by EU Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the development of alternative fuels infrastructure (what is known as the AFID Directive), Article 2(7):

'recharging or refuelling point accessible to the public' means a recharging or refuelling point to supply an alternative fuel which provides Union-wide non-discriminatory access to users. Non-discriminatory access may include different conditions for authentication, use and payment

the word 'public' being used synonymously with 'available to the public' in this report. This is why terms such as 'semi-public charging' have arisen in the industry, as it is often difficult to interpret the term 'non-discriminatory access'. This term is currently very widespread, both in Sweden and the EU, but it has no definition and thus is of no value to the funding authorities as the regulatory framework for granting aid is based on the definitions that exist and are defined in the AFID Directive. The proposal for a new EU

on 30 August 2021.

⁵⁹ Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity, amending Directive 2012/27/EU.

⁶⁰ *Grön teknik*. Swedish Tax Agency. Grön teknik – Privat | Swedish Tax Agency. Downloaded on 14 October 2021.

⁶¹ Appropriation directions for the 2021 financial year concerning the Swedish Energy Agency, appropriation item 1:5 Infrastructure for electrified transport.

ordinance⁶² which is expected to replace the AFID Directive proposes a different definition of public charging infrastructure, which may alter the problem scenario. The obstacle is that it can be difficult for the individual to find the right form of aid, and that several forms of aid may be involved or that two different applications need to be made if both public and private charging is involved. There could also be even more applications, as applications to the Klimatklivet initiative have to be divided according to county.⁶³

There was also a discussion during the hearing on 4 May on the requirements for recharging points in the context of granting aid, but also on what the eligible costs could be: what requirements can be set for recharging points to interact properly so as to enable increased flexibility in the electricity market, for example, and what requirements should be set for what is known as open data are examples of such questions. Standardisation is likely to make it possible to formulate requirements more effectively. Requirements are likely to need to be harmonised in the context of the revision of EU directives under the package known as Fit for 55.⁶⁴ Questions were also raised as to whether costs for electricity infrastructure at the real property unit, for example, could be included in the eligible costs, but also costs for upgrading the local power grid if specifically invoiced to the applicant for aid, as well as cadastral procedure costs in the case of a new cadastral procedure for a joint facility. The obstacle is that the rules are unclear, and that there is a need to update some of the requirements when providing aid for charging infrastructure.

In the summer of 2021, a new Article 36a⁶⁵ was added to Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (what is known as the GBER). This section deals with aid for public charging and is likely to lead to a potential need to revise several of the forms of aid.

Another challenge is that aid under EU state aid rules for private charging for housing co-operatives and apartment blocks are mainly provided in accordance with Commission Regulation (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid. These rules impose a limit on the amount of aid that can be granted to a single organisation, as state aid to a single undertaking based on the ordinance may not exceed EUR 200,000 over a period of three fiscal years.⁶⁶ As larger undertakings generally make more and/or larger

⁶² Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021. URL: [revision_of_the_directive_on_deployment_of_the_alternative_fuels_infrastructure_with_annex_0.pdf](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0550&from=EN) (europa.eu)

⁶³ Section 11 of the Ordinance concerning aid for local climate investments (2015:517)

⁶⁴ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. The “Fit for 55” package: achieving the EU’s 2030 climate neutrality target. Brussels, 14 July 2021. URL: <https://eur-lex.europa.eu/legal-content/SV/TXT/PDF/?uri=CELEX:52021DC0550&from=EN>

⁶⁵ Commission Regulation (EU) 2021/1237 of 23 July 2021 amending Ordinance (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty

⁶⁶ Under EU state aid rules, the word “undertaking” does not merely refer to what are generally known as undertakings: different types of organisations can be considered to be undertakings if certain criteria are met.

investments, this may mean that larger undertakings reach the maximum de minimis aid that they can receive more quickly than smaller undertakings. This may mean that the state cannot fund investments made by larger undertakings to the same percentage as smaller undertakings. The obstacle is the lack of a specific EU-wide framework for funding private charging.

2.5 Obstacles to public charging

Public charging can provide an alternative for people who, for various reasons, cannot charge at the real property unit where they live. Public charging can take place in public spaces such as a street, or in development districts. Residents' parking is a form of parking that generally takes place in public spaces, and the obstacles that may be faced there by users of plug-in electric vehicles are included in the obstacles described in this chapter.

2.5.1 Higher costs for public charging than private charging

Public charging is often more expensive than private charging. Apart from the fact that public charging is more profit-driven than private charging, this is because public charging often costs more to install and the operating costs are higher. The overall result is that individuals are generally charged a higher variable price per kWh for public charging than for private charging. It is not uncommon for public charging to cost as much per kilometre as liquid or gaseous fuels for conventional vehicles. In that case, it may be difficult to motivate people to switch to cars that cost more without providing lower running costs as they do not have access to private charging.

The European Alternative Fuels Observatory (EAFO) has outlined typical costs for public charging in European countries in a report⁶⁷. Typical costs for public charging in Sweden as described in the report are SEK 3 to 8 per kWh for fast charging and SEK 1 to 5 per kWh for normal charging. Anyone charging at their home pays the normal electricity price for a single-family dwelling; about SEK 1.4 to 2.0 per kWh, according to the Swedish Energy Agency.⁶⁸

Another challenge is presented in Sweden by the formulation of the aid. The Klimatklivet⁶⁹ state investment aid is the main source of aid for public charging. The Klimatklivet initiative provides general investment aid for climate measures, not just charging infrastructure. The principle of the Klimatklivet initiative⁷⁰ is to compare all the measures applied for in each call for applications and rank them in terms of climate benefit (greatest permanent reduction in greenhouse gas emissions per Swedish krona invested). Priority is then given to the cheaper measures. As public charging is generally expensive, particularly in urban areas, these applications are rejected on the grounds that they are not cost-effective compared to other measures.

⁶⁷ Avere (2021). *Pricing of electric vehicles recharging in Europe*. <https://www.eafo.eu/sites/default/files/2021-07/EAFO-Report-Pricing-of-Electric-Vehicle-Recharging-in-Europe.pdf>. Downloaded on 8 October 2021.

⁶⁸ Swedish Energy Agency (2020). *Energiläget 2020*. ET 2020:1. ISBN 978-91-89184--53-4.

⁶⁹ *Klimatklivet*. Swedish Environmental Protection Agency. Klimatklivet (naturvardsverket.se). Downloaded on 15 October 2021

⁷⁰ Section 4 of the Ordinance concerning aid for local climate investments (2015:517)

2.5.2 *Uncertainty about access to public charging*

It is generally difficult at present to know whether public recharging points are available when there is a need to charge, as recharging points near people's homes may be busy or otherwise inaccessible. Uncertainty about the availability of charging presents an obstacle. The issue of making real-time data available is addressed in the new proposal for an AFIR Regulation⁷¹. There is currently also an opportunity for operators to make real-time data for recharging points available in the Nobil database⁷², where the Swedish Energy Agency has a designated responsibility for Swedish data. Real-time data for Swedish recharging points is not provided via Nobil at present, but some recharging point operators provide this via their own apps. However, the above deals only with instances where the recharging point is occupied, not instances where the parking space is occupied but the vehicle parked there is not charging.

2.5.3 *Taxation of benefits*

The issue of preferential taxation for charging was raised as an obstacle at the hearing on 4 May, particularly in relation to charging at the place of work in the light of how to calculate the taxable benefit and what rules actually apply. The fact that there is uncertainty surrounding this is reinforced by the Swedish Tax Agency's document entitled *Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring* [Simplified taxation of car benefits and fuel benefits – proposal for an amendment to the law], where the Agency indicates that it has been receiving a lot of questions from employers and workers for some time now about how the taxable benefit should be calculated and the option of paying tax-free mileage allowance to workers who charge their company cars at their place of work.⁷³ The Swedish Tax Agency further describes that their experience of the problem of the taxable benefit relates to how the market value of charging should be calculated, and how the employer should be able to determine which part of charging relates to business trips and which relates to private charging when a private car or company car is charged at the place of work, which largely corresponds with the scenario provided by operators in connection with the Swedish Energy Agency's hearing in the assignment.

It is clear from the Swedish Tax Agency website that charging a company car or a worker's own car at the place of work must be regarded as a benefit and valued at market value including VAT. It also states that: *The valuation of the free fuel benefit in the form of electricity may be based on the estimated consumption of electricity for every ten kilometres and the market value of electricity (e.g. the price per kilowatt-hour). The employer needs to obtain this information for each car.*⁷⁴

⁷¹ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021.

⁷² Appropriation directions for the 2021 financial year concerning the Swedish Energy Agency, annex, assignment 22

⁷³ Swedish Tax Agency document "Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring", 15 March 2021

⁷⁴ *Svar på vanliga frågor*. Swedish Tax Agency. Jag får ladda min elbil med min arbetsgivares laddare vid arbetsplatsen. Ska jag skatta för detta? | Swedish Tax Agency Downloaded on 22 September 2021.

It is now common for workers or traders who have car benefits to charge their cars at home overnight and at work during the day. These people are likely to pay the cost of charging at home themselves, while the employer or trader pays the cost of charging at the place of work. For electric cars, this means that the employer has to calculate the taxable benefit for charging at the place of work per month on the basis of the number of kilometres driven privately, the number of kilometres driven in total, the market value of the electricity per kilowatt-hour and the number of kilowatt-hours. According to the Swedish Tax Agency's administrative practice, the same average price per kilowatt-hour, including VAT, that workers pay when charging at home may be used as the market value when charging at the place of work.⁷⁵

Employers can resolve the issue by providing technical solutions for measuring and billing workers' charging and producing data for taxation on the basis of that information. This usually involves a higher cost so as to include this functionality in the infrastructure or software. According to the Swedish Tax Agency⁷⁶, however, many employers lack the technical functionality that would allow them to record the amount of electricity used by each worker for charging. They may therefore use other manual systems and procedures in order to calculate the taxable benefit. This makes administration more demanding and may also entail additional costs. Moreover, determining what might correspond to a market value for electricity can be problematic. According to the Swedish Tax Agency, employers sometimes fail to report the fuel benefit instead as a consequence of difficulties in determining a correct taxable benefit.

The regulatory framework also differs depending on whether it relates to fuel benefits for workers' own cars or company cars that are to be charged at work. The differences are described clearly in the Swedish Tax Agency's document.⁷⁷

Another obstacle described in the Swedish Tax Agency's document is the fact that as things stand at present, employers are regularly unable to pay a tax-free mileage allowance to workers for charging paid for by workers themselves if workers also charge their cars at their place of work: this is only possible if workers have personally paid for all the fuel for their business trips. It is common for workers to charge both at home and at work, so it is important to address this obstacle. Please see the Swedish Tax Agency's document for a further explanation of why the regulations do not work.

Another obstacle that emerged from the Swedish Energy Agency's hearing on 4 May relates to when workers charge their cars at home but the employer has to pay the cost of their fuel. These may be company vehicles used for business purposes, but which are parked in workers' own parking spaces for various reasons while they are performing their duties. If the vehicle is rechargeable, it may be appropriate, necessary and possible to charge at home. Another case may involve company vehicles where the employer pays for the fuel while staff are performing their official duties. A new situation arises here, too, with the option of charging at home. Both of these cases arise because plug-in electric vehicles can and sometimes need to be charged at workers' homes.

⁷⁵ Swedish Tax Agency document "Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring", 15 March 2021

⁷⁶ Swedish Tax Agency document "Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring", 15 March 2021

⁷⁷ Swedish Tax Agency document "Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring", 15 March 2021

2.5.4 Payment solutions

The challenge with payment solutions lies in the fact that there are many different payment solutions, but also that different operators offer different prices for the same recharging point. In general, the payment of small charges is undergoing a major technical change at the moment. Besides the traditional card and cash payment methods, there are various apps where people can register themselves and their cards. Moreover, the use of solutions such as Swish from Sweden is also on the increase in various countries. For the charging industry, there is also a specific solution via the vehicle. When the vehicle is connected to an EU-approved recharging point, communication takes place between the vehicle and the recharging point in addition to the charging process so as to check electrical safety, for example. The protocol for communication, ISO 15118⁷⁸, between the vehicle and the recharging point also allows for information to be transmitted that enables the charge to be paid. For the user, this means registering the details for the car (who is to pay) once, then payment can be made automatically at different recharging points if the vehicle and charging infrastructure are prepared for this. Thus it is necessary for both the vehicle and the recharging point to be capable of doing this. This solution is normally referred to as ‘plug-and-charge’ and is used by some of the operators in the electric car market; and now more car manufacturers and charge point operators appear to be working in this direction at EU level.

Besides the various payment solutions, there are also various forms of bundling services; that is to say, charging from several different charge point operators is offered as part of the same service. The aim of this is to avoid having multiple apps or other payment solutions. This usually entails additional costs for the vehicle user, who in return receives a simpler and more convenient payment solution.

The issue of payment solutions is the subject of a specific dialogue at ministerial level between ministries and industry.⁷⁹ The issue of payment solutions is also addressed in the new proposal for an AFIR Regulation.⁸⁰ Hence this issue is not addressed further in this assignment.

2.5.5 Charging in public spaces

Public space is intended for public use. Therefore, the land cannot be used to meet the needs of a specific individual or organisation (e.g. real property owners). Moreover, the Planning and Building Act does not prevent the installation of recharging points in public spaces, as long as they have a natural link to the intended land use. Despite

⁷⁸ *Road vehicles – Vehicle to grid communication interface – Part 1: General information and use-case definitions (ISO 15118-1:2013)*. Swedish Institute for Standards. Standards – Road vehicles – Vehicle to grid communication interface – Part 1: General information and use-case definitions (ISO 15118-1:2013) SS-EN ISO 15118-1:2015 – Swedish Institute for Standards, SIS. Downloaded on 8 October 2021.

⁷⁹ *Rundabordssamtal om betalningslösningar för elbilsaddning*. Government of Sweden. 2020. Roundtable discussion on payment solutions for electric car charging – Regeringen.se. Downloaded on 30 August 2021.

⁸⁰ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021.

this, there are a number of challenges relating to public space (some of which are also relevant to development districts), such as the following.

- Recharging points can be installed in public spaces dedicated to streets or parking, for example. However, local authorities make different judgements on the appropriateness of installing recharging points in public spaces, taking into account the fact that such land has to be used for common purposes (e.g. public transport, walking and cycling) and that it needs to be possible to manage these spaces efficiently and flexibly when many different facilities of benefit to the public are to be accommodated, and needs may also change over time. There are also conflicting objectives in that local authorities aim to reduce road traffic in cities while also creating conditions for more people to have plug-in electric vehicles. Each local authority therefore needs to decide whether recharging points are to be installed in public spaces, taking into account several different interests before making that assessment.
- The options for imposing conditions for charge points are unclear in the traffic regulations. If a local authority chooses to require a site to be a charge point through local road traffic regulations, the local authority may need to ensure that the charge point is reasonable accessible. The local authority can impose time limits, charges or other conditions for the right to park in regular parking spaces, but whether the same option exists for charge points is not as clear. However, it can be argued that conditions can be imposed for charge points in the same way as other parking on the basis of the fact that both the definition⁸¹ and the rules on vehicle positioning⁸² and marking⁸³ for charge points indicate that parking is intended. Support for this can also be found in the legal literature⁸⁴, for example, and the Swedish Transport Agency's memorandum⁸⁵ with proposals for the current rules. An alternative would be to provide charging in regular parking spaces without requiring them to be charge points, but this would mean that vehicles other than plug-in electric vehicles could also park there.
- A decision on a local road traffic regulation is required before a road sign can be erected to indicate a charge point (this also applies to development districts). In the absence of such a decision, the situation may arise where the recharging point is not a recharging point in a legal sense, in which case it may be used by vehicles other than plug-in electric vehicles as well. It may also be mentioned that in addition to the charge point sign (additional sign T24), there is also a charging station road sign (direction sign H27), but unlike the term 'charge point', the term 'charging station' is not defined in the Road Traffic Definitions Ordinance to which the Road Signs Ordinance refers. SALAR has therefore highlighted in its 2017 publication that whether signposting (direction sign H27, charging station) is allowed to a facility that is not regulated (and marked)

⁸¹ See Section 2 of the Ordinance on road traffic definitions (2001:651).

⁸² See Chapter 3, Section 54(4) of the Road Traffic Ordinance (1998:1276).

⁸³ See Chapter 2, Section 30 of the Road Signs Ordinance (2007:90).

⁸⁴ Olsson, Römbo, Ståhl and Ceder (2020), *Trafikkommentarer*, JUNO version 10, comment on Chapter 10, Section 9 a of the Road Traffic Ordinance.

⁸⁵ Swedish Transport Agency memorandum dated 5 May 2010 (rev. 20 May 2010), *Redovisning av regeringsuppdrag om parkeringsplatser för elbilar*, TSV 2010-2130.

as a charge point is questionable.⁸⁶ The European Commission's proposal for the AFIR Regulation⁸⁷ proposes a definition of the term 'charging station'. This definition does not, of course, coincide entirely with the definition implied by the formulation of the sign in the Swedish Transport Administration's regulations.

- Some local authorities feel that whether they are allowed to charge for electricity if they provide charging is unclear. However, electricity supply forms part of the municipal competence, and a local authority (in its capacity as an administration, or as a municipal power utility) should therefore be able to charge for electricity if it provides charging on municipal land. However, the ban on mixing power grid operations⁸⁸ and competitive electricity operations needs to be taken into account, along with the fact that there is an applicable exemption⁸⁹ from the obligation to grant a concession, also permitting the transmission of electricity on behalf of others. If the local authority as an administration provides charging, the rules of the Local Government Act on localisation, equality, cost price, etc. apply. The same principles do not apply if the corporate form is used, but in that case pricing must be in line with the market, for example. Charging on municipal land may also be handled by private operators (after the local authority has leased the land or held a procurement procedure for charging services on municipal land).
- There are also a number of challenges of a more practical nature when it comes to charging in public spaces. If charging is provided along the street for residents' parking, for example, more extensive excavation work is generally required than for charging adjacent to a building. The post for the recharging point may also get in the way of emergency vehicles and snow clearance. There are also challenges in that vehicles may need to be parked against the direction of travel so that there is no risk of the cable from the recharging point being left on the street.
- There are restrictions in current traffic regulations with regard to reserving charge points or parking spaces (with charging facilities) for car pool vehicles⁹⁰ and taxis, for example. These are vehicles that are often on the move and therefore need to be charged frequently if they are powered by electricity. A charge point means that the space is reserved for plug-in electric vehicles, but all plug-in electric vehicles have access to the space. It is not possible to reserve it for just plug-in electric vehicles that are part of a car pool. Nor is it possible to reserve regular parking spaces in public spaces for just plug-in electric vehicles or vehicles that are part of a car pool, but new rules are proposed in respect of the

⁸⁶ Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50.

⁸⁷ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021.

⁸⁸ See Chapter 3, Section 1 a of the Electricity Act (1997:857).

⁸⁹ The Ordinance (2007:215) on exemption from the requirement for a grid concession under the Electricity Act (1997:857) contains an exhaustive list of electricity lines and power grids that do not require grid concessions.

⁹⁰ *Motorfordonspooler – på väg mot ökad delning av motorfordon*. SOU 2022:22. ISBN 978-91-38-25045-7, definition Section 7.3.5

latter⁹¹. (The same rules do not apply to development districts, where there are more options for reserving spaces to meet different needs.) Nor is it possible under current rules to combine a charge point with a dedicated space for taxis, for example.

- A licence is required from the Swedish Police Authority under the Public Order Act if a public place is used in a manner that is not in accordance with the purpose for which the place has been provided or that is not generally accepted.⁹² Whether such a licence is required for the installation of recharging points in public places such as streets or squares in public spaces is currently uncertain. There are doubts as to whether the part of the recharging point that is above ground can be considered consistent with the purpose for which the space has been provided. This means that people wishing to install charge points may potentially refrain from doing so. Removing recharging points afterwards is costly, particularly in cases where it turns out that a retrospective licence is required and that such a licence cannot then be obtained.

Annex 5 provides a more detailed description of land use and traffic regulation rules and challenges related to charging in public spaces and development districts, mainly from a municipal perspective. It also presents examples of how some local authorities are working with charging infrastructure, as well as two foreign examples.

2.6 Potential obstacles brought to the attention of the committee but not examined further

A number of potential obstacles raised to the Swedish Energy Agency after the hearing on 4 May are described below. The Agency has not had the opportunity to deal with these further as part of the assignment.

- It proved difficult initially for some producers of single-family dwellings to obtain certification of recharging points as part of the delivery of the building to the customer. The fact that the method required on-site testing with plug-in electric vehicles presented an obstacle. Whether these problems persist is unclear.
- It has been reported to the Swedish Energy Agency via RISE that at least one local authority has wished to include requirements for charging infrastructure in the detailed development plan for a new residential area on private land. This turned out not to be possible.
- It has been brought to the attention of the Swedish Energy Agency that the Swedish Tax Agency does not allow a right of deduction for real property owners for installation of recharging points. These costs are considered to be linked to a permanent residence (rent is exempt from VAT), and therefore there is no right of deduction according to the Swedish Tax Agency.
- It has been argued that it is unclear whether the Green Technology deduction for recharging points at the Swedish Tax Agency can be used for individuals even in a joint property association.

⁹¹ *Motorfordonspooler – på väg mot ökad delning av motorfordon*. SOU 2022:22. ISBN 978-91-38-25045-7

⁹² See Chapter 3, Section 1 of the Public Order Act (1993:1617).

3 Proposals for measures

3.1 Proposals linked to the obstacles that form the starting point for the report in accordance with the assignment

3.1.1 *Examine whether the costs for cadastral surveys should be included in aid for charging infrastructure*

Proposal: To examine whether the costs for cadastral surveys should constitute eligible costs for aid for charging infrastructure.

As part of the assignment, Lantmäteriet has produced a separate report – Annex 1 – in which the conditions for installation of charging infrastructure at joint facilities managed by a joint property association are examined, with emphasis on the legal aspect. This work has clarified the regulatory conditions and the results show that Lantmäteriet is of the opinion that the problems associated with the legislation, the turnaround time and the cost of the cadastral procedure today can be overcome with no changes to the relevant regulations. Targeted information initiatives for joint property units, in combination with better supporting material for administrators, should reduce processing times and thus costs. Improved supporting material has already been produced as part of the government assignment, while work is already in progress on reviewing internal and external communications in respect of recharging points and joint property units in accordance with the separate assignment in Lantmäteriet's appropriation directions for 2021 referred to previously in the report.⁹³ Besides the communication measures included in the assignment in the appropriation directions, it is also proposed that Lantmäteriet should be included in the joint authority assignment as described in Section 3.2.1.

Although Lantmäteriet's efforts – through the current appropriation directions and within this government assignment's investigation of the regulatory framework and the supporting material produced – will help to reduce the costs for a new cadastral survey, an adjudication procedure for the joint facility will nevertheless involve an additional cost for a joint property association. This cost may be more or less significant depending on the size of the joint property association and how the cost of the adjudication procedure is allocated.

Section 2.4.1 makes it clear that in its statement on the report by the Phase-out committee, Lantmäteriet is of the opinion that grant funds are preferable to time-limited appropriations for administrative reasons, and that time-limited appropriations require an amendment to the Ordinance on charges for cadastral surveys (1995:1459).

In order to further reduce costs and thus obstacles for joint property associations wishing to install charging infrastructure, it is therefore proposed that an investigation is performed, in addition to the work carried out within this assignment, in respect of whether costs associated with the reconsideration of cadastral surveys due to the inclusion of charging infrastructure in the facility order should be included as an eligible cost in the aid that joint property associations may conceivably find it relevant to apply for. As aid levels are currently adapted mainly to cover costs related to installation and

⁹³ Appropriation directions for the 2021 financial year concerning Lantmäteriet. Objectives and feedback requirements. Communication on recharge points.

hardware, the aid level may also need to be increased, or alternatively the aid for the cost of the cadastral procedure is kept separate from the aid for installation and hardware.

3.1.2 *Eliminate uncertainties related to public space and development districts*

Proposal: That steps are taken to eliminate the ambiguities described in respect of the regulatory framework as they constitute an obstacle to the effective regulation and use of charge points in public spaces and development districts. Steps need to be taken to:

1. clarify the regulatory framework so as to make it less ambiguous, allowing local authorities or county administrative boards to impose time limits, charges or other conditions for the right to park at charge points.
2. amend the regulatory framework for taxis and car pool vehicles so that it is possible to combine a reservation for these types of vehicles with a reservation for a charge point.
3. examine the extent to which interpretation of the Public Order Act presents a problem at present regarding the possibility of establishing a recharging point and taking further action if necessary.
4. introduce a common definition of the term ‘charging station’ at a national level.

The options for imposing conditions for charge points are unclear in the traffic regulations. The local authority can impose time limits, charges or other conditions for the right to park in regular parking spaces, but whether the same option exists for charge points is not as clear. However, it can be argued that conditions can be imposed for charge points in the same way as other parking, but this could be made clearer.

There are restrictions in current traffic regulations with regard to reserving charge points or parking spaces (with charging facilities) for car pool vehicles and taxis, for example. The different rules cannot be combined. Allowing this could make it easier to introduce electric taxis and car pool vehicles.

A licence is required from the Swedish Police Authority under the Public Order Act if a public place is used in a manner that is not in accordance with the purpose for which the place has been provided or that is not generally accepted.⁹⁴ Whether such a licence is required for the installation of recharging points in public places such as streets or squares in public spaces is currently uncertain in some cases. This potentially complicates the establishment of recharging points. The extent to which this complicates the issue is not known.

The term ‘charging station’ is used in the Road Signs Ordinance, but there is no link between this concept and the term ‘charge point’. The EU proposes a definition of the

⁹⁴ See Chapter 3, Section 1 of the Public Order Act (1993:1617).

term ‘charging station’ in the new proposal for the AFIR Regulation.⁹⁵ The term proposed in that is not, of course, the same as the one indicated in the Road Signs Ordinance. The term may therefore need to be defined clearly at a national level, taking into account the EU’s common regulatory framework.

3.1.3 *Continued analysis of “Access to charging”*

Proposal: The issue of access to charging needs to be investigated further so as to develop a specific proposal on whether Right to Charge provisions can be implemented in Sweden in different housing types; and if so, how. An investigation needs to examine whether there are options other than reinforcing the regulatory framework, which housing types should be included in any Swedish legislation, and how this is to be achieved. The other issues raised in this report also need to be included in the investigation.

The European Commission has identified the right to charge as a potential way of overcoming the often long and complex process of deciding on installation of recharging points. As part of this assignment, the formulation and background of Right to Charge provisions in Norway, Spain and France have been analysed by the research institute RISE, with emphasis on apartment blocks where people’s right to decide is often limited. However, the conditions for influence differ depending on whether or not residents own their own homes, as well as the situation regarding parking. Even if the real property unit includes parking spaces and the resident has some form of usufruct for these, there are challenges for both tenants and owners in housing co-operatives as regards the right of disposition for installing recharging points, the challenge being greatest for people who live in rented accommodation and have no power at all in the decision-making process in respect of the real property unit.

It is difficult to determine and distinguish how much of a difference Right to Charge provisions have made in Norway, for example, versus other instruments. As the Swedish Energy Agency is not aware of any such analysis, and for the reasons referred to in Section 2.4.4, it is currently difficult to make a quantitative analysis of the extent of the problem and thus also the potential for possible Right to Charge legislation in Sweden. Based on the figures from the Statistics Sweden in Section 2.4.4, it can be assumed that more than 49 per cent of all households could be affected by the problem whereby a resident cannot make their own decision to install charging for their parking, but it is difficult to draw further conclusions about the benefit of such legislation without knowing more about the availability of parking for people living in apartment blocks and single-family dwellings, together with the ownership of these.

The RISE study shows that the countries analysed that have introduced Right to Charge to some extent have done so in order to address increasing conflicts in apartment blocks regarding the installation of recharging points. It also appears that similar legislation is underway or has been introduced in a number of places (Germany, Austria, Ontario).

⁹⁵ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021.

There is no documented data relating to similar conflicts in Sweden today and how many people want to install charging infrastructure but are unable to do so because they do not have right of disposition. Hence it is not possible at this stage to estimate how the problem might evolve over time as demand for electric cars increases. In theory, the problem could therefore affect more than 49 per cent of all households to varying degrees in the future (apartment blocks and some single-family dwellings where parking is shared), or a much smaller percentage, depending on the ambitions and decisions made by landlords and boards of co-operative housing associations, for example.

Cost-to-benefit analyses prior to the introduction of legislation in countries that have introduced Right to Charge provisions were not found in the study either.

Working on the basis of the survey of solutions in other countries, future legislation or Right to Charge regulations in Sweden need to take into account the following.

- **Which housing types should be covered?**

This differs depending on the countries surveyed. For a number of reasons, the greatest emphasis seems to have been on housing types where residents own their homes in some form, which includes the argument that these people are considered to have greater purchasing power and thus have the opportunity to acquire electric cars sooner. At the same time, the housing types where residents do not own their homes are where right of disposition is most limited. One argument for limiting the scope initially could be that the development of a regulatory framework could be accelerated and experience gained before expanding the scope. What would constitute the most effective approach will have to be decided in a possible future investigation.

- **What types of parking should be covered?**

Here, too, Member States have done things differently. Floating parking spaces are included in Norway, while in Spain and France there are links to permanent spaces. The regulatory framework may become more complex if floating parking is included, but at the same time using charging infrastructure for more vehicles is more flexible and requires less infrastructure.

- **Should particular account be taken of the current context, with the opportunity for associative democratic influence?**

Here, in simple terms, it can be stated that for co-operative housing associations and co-operative rental associations there is an opportunity for influence and access to charging if – in rather simplified terms – a majority of residents think that this is a good priority. At the same time, there is a risk that this will hinder the first residents who wish to switch to plug-in electric vehicles, as access to charging may not be available until there is sufficient interest. However, any formulation of Right to Charge provisions needs to take into account the processes already in place and not interfere with these more than absolutely necessary. Better knowledge and understanding of different business models, where a large part of the cost of the new infrastructure can often be passed on to the residents who use it, is one thing that could help from a current perspective. The fundamental starting points referred to in Section 2.3.4 also need to be taken into account in any further investigation.

3.2 Additional proposals for measures on the basis of the obstacles identified

3.2.1 *To co-ordinate government information on charging infrastructure*

Proposal: That the Government commissions the relevant Government authority to propose, in collaboration with the relevant Government authorities and operators, how a comprehensive platform for information on charging infrastructure can be established, communicated and funded.

Many Government authorities and other operators have data and information on charging and responsibilities that affect charging infrastructure in various ways. Many operators at the Swedish Energy Agency's hearing also expressed a wish to make it possible to simplify matters for vehicle users and relevant operators by gathering relevant information related to the establishment of charging infrastructure in a location. The Government authorities that have co-operated within the framework of the government assignment believe that this should be possible.

Most of the obstacles described in Chapter 2 can be alleviated by ensuring that information on the deployment of charging infrastructure reaches the right target group. A large number of operators will need to understand their role in relation to charging infrastructure and invest in charging, or need to expand the extent of their existing charging infrastructure within the next 10 to 15 years. Real property owners, co-operative housing associations, joint property associations and individuals, for example, need a place where they can find up-to-date information from relevant Government authorities so that they can get on with establishing charging infrastructure. An inter-authority platform can also be used to share good examples of how to address different issues. Furthermore, it was pointed out by a number of participants at the hearing that there are knowledge gaps and misunderstandings among operators who also want to install charging infrastructure in areas beyond the direct responsibilities of the Government authorities.

The Government authorities that currently have different roles concerning parties wishing to install a recharging point, or that may have different roles in connection with the charging of plug-in electric vehicles at a real property unit or in a street environment/garage, are mainly: the Swedish National Board of Housing, Building and Planning, the Swedish National Electrical Safety Board, the Swedish Energy Agency, the Swedish Civil Contingencies Agency, the Swedish Civil Contingencies Agency, Lantmäteriet, the Swedish Tax Agency, the Swedish Transport Agency, the Swedish Transport Administration, the Swedish Environmental Protection Agency, the National Agency for Public Procurement, the Swedish Energy Markets Inspectorate and Svenska Kraftnät, as well as regional and municipal authorities such as the local emergency services and the municipal building committees.

The Swedish Environmental Protection Agency, the Swedish Tax Agency, the Swedish Transport Administration and the Swedish Energy Agency are also responsible for government aid for the installation of charging infrastructure.

The Swedish Energy Agency also has a part to play in co-ordinating charging infrastructure. The assignment is described in the Swedish Environmental Protection Agency's appropriation directions as: "The appropriation item may be used for expenditure on the co-ordination of aid for charging infrastructure". This also includes being responsible for Swedish information on public charging in the Nobil database.

3.2.2 To develop knowledge and produce better supporting information

Proposal: That the Government commissions relevant Government authorities to produce statistics on charging infrastructure at different types of parking and access to parking for different housing types. These statistics are not available in Sweden. It is currently particularly difficult to assess the extent for private charging, but there is also a need for statistics for public charging.

Improved evidence is needed to be able to propose appropriate instruments and measures to promote the electrification of the transport sector through the deployment of charging infrastructure as part of the transport sector's transition to a fossil-free society. Some areas mentioned in Chapter 2 are described below.

- There is a lack of basic facts and knowledge so as to better describe and develop the field of charging for housing types where residents are without right of disposition to establish charging infrastructure. Statistics Sweden⁹⁶ states that 43 per cent of all households live in single-family dwellings and 49 per cent live apartments in blocks. However, not everyone who lives in single-family dwellings has right of disposition. Among other things, there is a lack of information on how many vehicles are used and parked at home by residents who do not have right of disposition, the availability of parking, how the parking is owned or organised, and whether the parking is located outdoors or indoors. There is also a lack of information on how many recharging points are already available in such locations, outdoors and indoors. There is also a lack of information about how many people currently charge mainly at public recharging points as they do not have charging available at home. Overall, this lack of information makes it difficult to determine the effectiveness of any proposals and measures.
- There is a complete lack of statistics for charging infrastructure in Sweden today, which is needed for reporting to the EU. In the current proposal for a new AFIR Regulation⁹⁷, Member States are required to report statistics on private charging in addition to public charging: this was not previously the case. There is currently some data in the Nobil database for public charging, for example, but this does not constitute statistics. No data is available for private charging. Statistics are needed to be able to monitor the evolution of charging for all housing types.

⁹⁶ *Boende i Sverige*. Statistics Sweden SCB. Boende i Sverige (scb.se). Downloaded on 22 April 2021.

⁹⁷ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, Brussels, 14 July 2021.

3.2.3 To simplify preferential taxation of electricity

Proposal: That the Swedish Tax Agency’s proposal to investigate flat-rate calculation of the benefit of charging should be implemented so as to make things easier for employers as well as workers. Consideration should also be given to extending the proposal to also cover electricity used for charging “at home” by workers where compensation from the employer is reasonable but assessing the market value of the charge is difficult.

The Swedish Tax Agency’s proposal, that anyone who uses electricity at their place of work to charge a company car or their own car should have the same right of deduction as anyone who pays for all the fuel for their business trips, should also be implemented.

On 15 March 2021, the Swedish Tax Agency submitted a document⁹⁸ concerning preferential taxation of electricity for charging at places of work, proposing to further investigate the issue of flat-rate calculation of the benefit. They write: *The issue of whether a flat-rate value should be introduced when workers charge their electric cars at the place of work should be examined separately.* The Swedish Energy Agency believes – according to participants at the hearing and following discussions with the Swedish Tax Agency – that the issue may also be of relevance for the valuation of charging carried out at the vehicle user’s home, but when this is done on behalf of the employer and where compensation from the employer is reasonable.

The Swedish Tax Agency has also noted that: *Workers who charge their company cars at their place of work are at a disadvantage in terms of tax, both in relation to workers who have private electric cars that they charge at their place of work and in relation to workers who have company cars powered by fuels other than electricity.*⁹⁹ *The Swedish Tax Agency therefore proposes that: Anyone who uses electricity at their place of work to charge a company car or their own car should have the same right of deduction as anyone who pays for all the fuel for their business trips. This means that employers can pay tax-free mileage allowance even if the worker has charged their car at the place of work.*

⁹⁸ Swedish Tax Agency (2021). *Simplified taxation of car and fuel benefits*. Memorandum. The Swedish Tax Agency’s document dated 15 March 2021, Förenklad beskattning av bilförmån och drivmedelsförmån – förslag om lagändring | Swedish Tax Agency

⁹⁹ Chapter 5.5.3 of the Swedish Tax Agency’s document.

3.2.4 To further develop the formulation of aid for charging infrastructure

Proposal: That a review of the formulation of the assignments and regulations for the various forms of aid available for charging infrastructure be carried out.

This is because there is partial overlap among the forms of currently available, and one and the same project may require several applications. In addition, eligible costs and technical performance requirements need to be reviewed in order to increase clarity and remain in line with technical developments, but also to remain in line with the EU directives and ordinances that are being revised under the EU's Fit for 55 package. There are also challenges associated with provision of funding for private charging and charging in urban environments at present.

Where to turn for aid or what aid to apply for is also considered unclear in many cases. This information could be improved, possibly via the inter-authority platform proposed in Section 3.2.1.

Today, four different Government authorities distribute aid for the deployment of charging infrastructure: the Swedish Environmental Protection Agency, the Swedish Transport Administration, the Swedish Tax Agency and the Swedish Energy Agency. This leads to uncertainty about where people should turn for aid. This is particularly difficult when the boundary between private and public charging is unclear. The different types of aid are described in more detail in Section 2.4.7.

The formulation of the aid should be reviewed and, if necessary, developed and modified. For example:

- Technical performance requirements in aid need to be updated as technology evolves. One example involves making it possible for recharging points to interact effectively so as to enable increased flexibility in the electricity market.
- What is considered to constitute eligible costs for the aid is currently perceived as unclear according to attendees at the Swedish Energy Agency's hearing. With the addition of Article 36a of the GBER (see Section 2.4.7 above), investigation of this is even more urgent.
- The Klimatklivet initiative is the main source of aid for public charging. The principle of the Klimatklivet initiative is to compare all measures in each round of applications and rank them in terms of climate benefit. Priority is then given to the cheaper measures. As public charging is generally expensive, particularly in urban areas, these applications are rejected on the grounds that they are not cost-effective compared to other measures. This form of aid probably needs to be changed if the government wants to provide funding for public charging in urban areas.
- The formulation of aid for private charging also needs to be developed. The aid is currently granted mainly under the Commission's ordinance on de minimis aid (see Section 2.4.7 above). This risks leading to larger companies (e.g. larger property companies) only being able to receive aid for a smaller percentage of their recharging points.

3.2.5 To ensure availability at recharging points to a sufficient extent

Proposal: Examine how to ensure sufficient availability of charging infrastructure throughout the country.

Recharging points are rarely adapted for people with disabilities (e.g. wheelchair users) at present.¹⁰⁰ This presents a specific obstacle to owning and driving plug-in electric vehicles for some people. Some accessibility requirements for the recharging points concerned were also introduced with the introduction of the requirement for new recharging points in the Energy Performance of Buildings Directive¹⁰¹, but very few of the recharging points being built today are being built on the basis of the requirements of this directive. The Swedish Transport Administration has also introduced requirements for the stations being built via Swedish Transport Administration aid in respect of fast charging along white routes.

General recommendations and information on current accessibility do exist to an extent at present, but there are no general requirements for recharging points with regard to accessibility in Sweden today, and thus no supervision. Nor is there any designated responsibility for a strategic holistic approach or for ensuring sufficient access to charging.

¹⁰⁰ *DEN TILLGÄNGLIGA LADDPLATSEN; Praktiska råd för hur en inkluderande laddplats bör utformas*. Biofuel Region, Region Jämtland Härjedalen. Inkluderande-laddning-Version-1_0.pdf (biofuelregion.se) Downloaded on 28 September 2021.

¹⁰¹ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings Annex 1 – Obstacles to the establishment of charging infrastructure within joint facilities – with emphasis on legislation in respect of cadastral procedures 14 June 2021 Ref. no.: LM 2021/001459

Annex 1 – Obstacles to the establishment of charging infrastructure within joint facilities

– with emphasis on legislation in respect of cadastral procedures

14 June 2021

Ref. no.: LM 2021/001459

Summary

The Swedish National Board of Housing, Building and Planning's report entitled *Nya krav på laddinfrastruktur för laddfordon* [New requirements for charging infrastructure for electric vehicles], 2019:15, identifies a number of obstacles that may occur when deploying the infrastructure for charging electric vehicles. This includes the legal obstacles that may exist in relation to the installation of charging stations in existing car parks jointly owned by the real property units participating in the installation. In the case of existing joint facilities, the joint property associations are bound to operate within the purpose defined in the facility order when the joint property unit was created. Depending on how the purpose is formulated, situations may arise where the owners of the participating real property units wish to take an action but this is not possible as it is not compatible with the facility order.

In this report, Lantmäteriet analyses this obstacle in greater detail and reports on whether the regulatory framework actually hinders the desired deployment of recharging points; and if so, whether amendments to the regulatory framework are required, or whether the problems of establishing recharging points in jointly owned car parks can be resolved without amending the legislation. A key question for the assessment is whether the use of electric vehicles is sufficiently common for charging stations to be considered to serve purposes of enduring importance to the real property units, rather than the personal interests of one or more real property owners. In light of statements in case law, how the market for plug-in electric vehicles has developed and is expected to evolve in the future and, to an extent, the requirements that are now imposed on structures, Lantmäteriet is of the view that charging infrastructure shared by several real property units can be established as a joint facility under the Joint Facilities Act.

When managing a joint facility, the joint property association may only implement measures that are compatible with the purpose stated in the facility order. The deployment of charging infrastructure should therefore only take place if the purpose clearly allows scope for this. Otherwise, the facility order needs to be amended by means of a cadastral adjudication procedure. Lantmäteriet is of the opinion that the desired installation of charging equipment which is intended to meet societal progress, technical progress and the new demands made of the facility by its co-owners but which could not

be foreseen when the joint facility was established constitute acceptable reasons for such a cadastral procedure. An amendment to the facility order requires conditions to be met for the protection of individual interests, among other things, but it is not necessary for the real property owners to agree. Just as a real property unit can be connected – against the owner’s will – to a joint facility that includes parking, even though the owner has no car, or to a playground, even though there are no children in the household, it should be possible to connect the real property unit to a joint facility that includes charging stations, even though the owner does not have a plug-in electric vehicle. However, the specific need will have a major impact on the design of the system in terms of the number of recharging points, for example.

Resistance on the part of real property owners due to a fear of incurring costs for a facility that they believe to be of no use to them should be possible to overcome in many cases by providing more information on the grounds for allocation of the costs for construction and operation of the facility and appropriate application of the relevant provisions. The assessment process can be facilitated during the cadastral procedure if the cadastral authority makes the charging infrastructure a separate section and decides that only those real property units whose owners have requested it are to bear the costs for the construction and operation of the facility in the section in question. The rules on a cadastral adjudication procedure and the modification of participatory shares by agreement allow for subsequent adjustments to be made if more of the participating real property units gradually develop a specific need to use the recharging points for the section.

The feared long processing times and high costs for the cadastral procedure also make joint property associations less willing to apply for a cadastral adjudication procedure. Lantmäteriet should be able to use targeted information initiatives to ensure that well-prepared applications are made on time and that conflicts between property owners do not arise unnecessarily. Combined with improved supporting material to provide guidance to staff dealing with cadastral procedures, it should be possible to keep processing times down, resulting in lower legal costs.

In conclusion, Lantmäteriet is of the opinion that the problems associated with the legislation, the turnaround time and the costs for the cadastral procedure can be overcome with no changes to the relevant regulations.

B1.1 Introduction

The Swedish National Board of Housing, Building and Planning’s report entitled *Nya krav på laddinfrastruktur för laddfordon* [New requirements for charging infrastructure for electric vehicles], 2019:15, identifies a number of obstacles that may occur when deploying the infrastructure for charging electric vehicles (charging infrastructure). This includes the legal obstacles that may exist in relation to the installation of charging stations in existing car parks jointly owned by the real property units participating in the installation, i.e. joint facilities managed by a joint property association (see Sections 5.2.1 and 8.2.2 of the report). In this report, a charging station refers to a location with one or more recharging points.

To summarise, this obstacle involves the fact that situations may arise where the owners of the participating real property units wish to modernise the facility by installing charging stations, but this is not possible because it is not compatible with the purpose

of the facility as defined in the facility order. Measures that are not compatible with the facility order may not be undertaken by the joint property association. This obstacle becomes even more evident when not all owners of the participating real property units want to install charging stations.

In this report, Lantmäteriet analyses this obstacle in greater detail and reports on whether the regulatory framework actually hinders the desired deployment of recharging points; and if so, whether amendments to the regulatory framework are required, or whether the problems of establishing recharging points in jointly owned car parks can be resolved without amending the legislation (cf. Section 8.3 of the Swedish National Board of Housing, Building and Planning's report). The Lantmäteriet report is a contribution to the Swedish Energy Agency's government assignment on home charging of electric vehicles (electric cars or plug-in hybrids), which must be submitted by 30 August 2021.¹⁰²

This report has been prepared by lawyer Axel Berg, cadastral surveyor Anders George, surveyor Lennart Gustafsson and business developer Iia Kolk under the direction of business strategist Linda Sabel.

B1.2 Relevant statutory requirements

According to the Joint Facilities Act (1973:1149), joint facilities may be established which are shared by several real property units and serve purposes of enduring importance to them. Examples of such purposes include parking areas, connecting roads, courtyards, playgrounds, water supply or sewerage systems, heating systems and recreational facilities such as jetties, marinas, open-air swimming pools and tennis courts. Individual roads which have been given a special section in the Act containing special rules are another important example.

Such facilities constitute a joint property unit. A joint facility is created by means of an order by the cadastral authority¹⁰³ in the event of a cadastral procedure.

The joint property unit can be managed by the co-owners themselves, or by a joint property association established for this purpose; usually for roads, but also for other facilities. The Joint Property Units (Management) Act (1973:1150) applies to the management. A real property unit can be forced to join a joint facility even if the real property owner opposes it, i.e. the regulatory framework contains significant elements of coercion.

The basis for allocation of costs for the construction and operation of the facility is determined in accordance with Section 15 of the Joint Facilities Act at the time of the cadastral procedure. Each real property unit is allocated participatory shares following a legitimacy assessment. The participatory shares in respect of implementation are determined according to what is reasonable, taking into account in particular the benefits

¹⁰² Assignment for analysis and proposal of measures for better access to charging infrastructure for home charging regardless of housing type, Government decision dated 14 January 2021, Ministry of Infrastructure, ref. no. I2021/00109.

¹⁰³ The state cadastral authority, Lantmäteriet, is the cadastral authority responsible for local authorities where there are no municipal cadastral authorities. There are currently 39 municipal cadastral authorities. A list of these can be found here: <https://www.lantmateriet.se/sv/Om-Lantmateriet/Samverkan-med-andra/kommunala-lantmaterimyndigheter/>

derived from the facility by the real property unit. The participatory shares relating to the operation of the facility are determined primarily on the basis of the extent to which the facility is expected to be used by the real property unit. The fact that real property units may have different participatory shares means that the obligation to contribute to the costs for the facility may differ from one co-owner to another.

The fact that the facility serves purposes of enduring importance to the real property units is a basic prerequisite for the establishment of a joint facility. This is specified in Section 1 of the Joint Facilities Act.

Furthermore, there are two types of material conditions that must be examined. Conditions are in place to protect individual interests as real property units can be compulsorily connected to a joint facility. There are also conditions in place to protect public interests. These material conditions are essentially collated in Sections 5 to 11 of the Joint Facilities Act. The provisions include a substantial importance condition (Section 5) and a betterment condition (Section 6). These are not to be applied if a detailed development plan has made provision for a joint facility and a facility order is made during the implementation period of the detailed development plan (Section 6 a). Furthermore, the provisions contain a majority condition (Section 7), a general rule on location and construction (Section 8), rules on taking plans and regulations into account and on planning assessments outside the detailed development plan (Sections 9 to 10) and general protection of public interests (Section 11). In the case of compulsory utilisation of land or other space, an assessment of proportionality independent of the Joint Facilities Act must also be made in accordance with the rules on the protection of property in Chapter 2, Section 15(1) of the Instrument of Government.¹⁰⁴

What the provisions entail is outlined below, as Lantmäteriet goes into more detail on whether the regulatory framework permits the desired deployment of recharging points and, if so, what conditions need to be met. Firstly, the following issues need to be addressed; whether charging stations are an acceptable facility type within the meaning of the law, and the significance of the content of the facility order for the ability of joint property associations to decide on the installation of such equipment. The provisions of Section 6 a and Sections 9 to 11 of the Joint Facilities Act are not considered to be of particular relevance to the assessments and are not discussed further in this report.

B1.3 Are charging stations an acceptable facility type at all?

It has not been considered appropriate to list all acceptable facility types in the Joint Facilities Act. The preparatory works state that such a list could easily be interpreted as a requirement for the contested installation to be attributable to or comparable with one of the listed types. However, the decisive requirement – that the facility must serve purposes of enduring importance to real property units – was clearly formulated in the text of the law.

Lantmäteriet has taken a cautious approach to date to the matter of whether charging stations for electric vehicles are a facility to which the Joint Facilities Act applies.

¹⁰⁴ See NJA 2018 p. 753 and Lantmäteriet, Egendomsskyddet vid lantmäteri-förrättningar, 2020, ref. no. LM2019/015530.

A key question for the assessment is whether the use of plug-in electric vehicles is still sufficiently common for charging stations to be considered to serve purposes of enduring importance to the real property units, rather than the personal interests of one or more real property owners. Whether the majority, or even all, of the members of a joint property association wish to install an electric vehicle charging facility does not in itself mean that a joint facility can be established for this purpose; the need must be attributable to a typical user of the real property units to be connected to the joint facility, both at the time of the order and in the longer term.

At the same time, Lantmäteriet has not ruled out the applicability of the law. Although there is still a lack of companion case law in this area, it is interesting to note that where the cadastral authorities have actually decided that charging infrastructure is to be included in a joint facility, no court has so far rejected the order in this respect. The reasoning of the courts in other related matters (see also Section B1.4) clearly points in the direction that charging infrastructure can be included in a facility order and that charging stations are an acceptable type of facility within the meaning of the Joint Facilities Act.

The assessment of whether charging stations can serve purposes of enduring importance for real property units needs to be made against this background, taking into account how the market for plug-in electric vehicles has developed and is expected to evolve in the future (see Chapter 3 of the Swedish National Board of Housing, Building and Planning's report), the need for recharging points at homes and places of work¹⁰⁵, and that since 15 May 2020 charging of electric vehicles is what is known as a technical performance requirement under the Planning and Building Act (2010:900). Chapter 8, Section 4(1), paragraph 11 of the Planning and Building Act states that structures must have the technical characteristics that are essential for the charging of electric vehicles. The minimum requirements for structures to be considered compliant with this provision are set out in Chapter 3, Sections 20 b and 20 c¹⁰⁶ of the Planning and Building Ordinance (2011:338) as regards ducting infrastructure and recharging points. The requirements vary depending on the type of structure and its use. However, the requirements are general in the sense that they do not depend on who owns the land or structures from time to time.

In view of the above, Lantmäteriet makes the overall assessment that charging infrastructure shared by several real property units can be considered to serve purposes of enduring importance to the real property units and consequently be established as a joint facility under the Joint Facilities Act.

¹⁰⁵ In Sweden, around 90 per cent of charging of electric vehicles takes place in such places, see Government Bill 2019/20:81 p. 14.

¹⁰⁶ This provision comes into force on 1 January 2025.

B1.4 Importance of the meaning of the facility order

The opportunities for joint property associations to decide on the installation of such equipment need to be analysed now that it has been established that charging stations are an acceptable type of facility under the Joint Facilities Act.

At general meetings, joint property associations may decide to add equipment to a facility that did not exist before, such as recharging points. The question is whether such equipment is covered by the existing facility order, or whether the decision of the general meeting of the association conflicts with the facility order.

As stated in the introduction, in the case of the management of a joint facility, measures which are not compatible with the facility order may not be undertaken. Under Section 18 of the Joint Property Units (Management) Act, the purpose of a joint property association is to manage the joint property unit (i.e. the facility) for which the association has been established and the association may not conduct activities that are alien to the purpose that the joint property unit is supposed to serve. When assessing what is compatible with the facility order, it is important to ensure that the scope of the association's activities does not exceed what was intended when it was established. A majority must not be able to force the other members to participate in an activity that does not constitute a natural part of the management.¹⁰⁷

It will therefore be necessary for the joint property association to interpret the content of the facility order in order to find out what purpose or purposes the joint facility must serve. The purpose must be stated in the facility order in accordance with Section 24(2) of the Joint Facilities Act. The order need not be more detailed than to leave a certain amount of scope for the co-owners to make their own decision on the detailed design of the facility, but in view of the provision in Section 18 of the Joint Property Units (Management) Act, among other things, it is important for the purpose to be stated as clearly as possible. If the stated purpose is a garage, for example, the joint property association must ask itself whether the additions and alterations it wishes to make can be accommodated within this purpose. Are recharging points now such a natural part of every garage that it does not need to be stated specifically that such equipment must be provided? In this case, the facility could be modernised by adding recharging points without being in contravention of its purpose. In this case, modernisation will be a completely normal administrative measure. That said, if recharging points for charging electric vehicles are considered to serve a purpose other than the one for which the facility was created (i.e. if the garage is considered to meet a parking need but not a charging need), the installation of charging equipment would mean that the joint property association is conducting an activity that is alien to the purpose that the joint property unit is supposed to serve.

There are a handful of landmark cases in which the courts have taken a position on these issues.

In *NJA 1989 p. 291*, the question was whether a facility for cable TV was compatible with the purpose to be served by the joint property association. The joint facility had been established in 1975 and included a central antenna together with technical devices and wiring. The Supreme Court declared that technical devices that are part of a joint facility must be renewed sooner or later. It is up to the decision-making body of the joint property association, taking into account the financial circumstances

¹⁰⁷ See Government Bill 1973:160 p. 347 f. and 386.

of the association, to decide when this should be done, and at what rate. It is natural that the association should thus also take into account new demands that may be made in respect of the performance of the facility, so that the association does not become bogged down in outdated technology. The conversion of a central antenna for the reception of terrestrial transmissions into a facility for the reception of cable transmissions cannot – at least at present – be regarded as resulting in a facility that is fundamentally different in nature. On the basis of the above, the Supreme Court was of the opinion that the decisions made by the general meeting of the association concerning cable TV could not be considered to contravene the purpose of the association or be alien to the purpose that the association was supposed to serve.

Svea Court of Appeal, 24 January 2003, T 591-02. A joint property association managed a joint facility established in 1973, which included an antenna facility. A new facility was commissioned in 1991 which allowed terrestrial cable TV to be received. In 2001, the general meeting decided to extend the previous agreement with Telia with the addition of junction boxes that allowed members to connect to the Internet. The association's order was deemed not to involve any major intervention in the existing facility. The change would mainly involve a change of technology to provide more options for individual households, including high-speed Internet. Utilisation of these options would involve a cost for each individual household. These options meant that the facility could be used for the transmission of audio, video and text to computers, which in itself had to be viewed as a difference compared with the previous transmission to just radio and television. The reasoning underlying the order of the Supreme Court in NJA 1989 p. 291 (where the Supreme Court emphasised, among other things, that it is natural for an association to take into account technical developments and new demands that may be made of the performance of the facility) was considered to support the conclusion that the contested order did not contravene Section 18 of the Joint Property Units (Management) Act. The order merely meant that the association had taken into account the new demands that could be made of the performance of the facility, and that the facility would not be regarded as being fundamentally different in nature.

Svea Court of Appeal, 26 May 2008, T 5576-07. A joint facility for a central antenna system was established in 1984. The facility was modernised in the late 1980s to include a connection to cable TV via a coaxial cable. The original central antenna system had not been used since then. In 2006, a majority of members of the association voted to install a fibre-optic network for better TV reception, IP telephone services and broadband by adapting to new technology. The Court of Appeal had to decide whether the order made by the general meeting was in contravention of the facility order. The facility order stated "Central antenna facility with wiring up to and including antenna sockets in each building (including mast, foundation, junction box, etc.)". The order made no mention of the technology that could be used to fulfil the purpose of the central facility. Even if this were the case, it was considered unrealistic to demand a new cadastral procedure for the slightest shift in purpose or other cadastral procedure regulation (Government Bill 1973:160 p. 388), also taking into account ongoing economic and technical developments and the time at which the facility order was communicated. The increased costs, as well as other inconvenience that could affect the members, were also considered to fall within the scope of technical and economic developments and not to "obviously deviate" from what a member of a joint property association might necessarily expect. The decision of the general meeting was therefore not considered to be in contravention of the purpose of the association or alien to purposes that the association was supposed to serve.

The outcome in *NJA 2015 p. 939* was the opposite. An already completed facility, including jetties, parking spaces and moorings, had been established as a joint facility by a facility order made in 1991. There was no electrical or lighting equipment included in the existing facility, and no such equipment was included in the order.

At the 2011 annual general meeting of the association, the board was tasked with providing the facility with electricity and lighting. The order was considered to mean that the association was conducting an activity that was alien to its purpose, and so the order was rescinded.

The Supreme Court explained that when a joint property association manages a facility, its task is to implement and operate the facility. This may involve renewing technical equipment forming part of the facility, as long as this does not result in a facility that is fundamentally different in nature (*NJA 1989 p. 291*). However, an improvement in standard, such as new technical equipment that has no equivalent in the existing facility, typically falls outside the scope of activities that can be conducted by the association under Section 18 of the Joint Property Units (Management) Act. In the first instance, therefore, it must involve management in the true sense, rather than further development of the activity.

However, the Supreme Court did not exclude any form of adaptation to the ongoing development and explained that a certain degree of “elasticity” was assumed at the time when the Act was created (*Government Bill 1973:160 p. 388*). However, the scope for activities deviating from the purpose is clearly limited. It is mainly a matter of the association being able to make a minor adaptation that marginally affects the purpose of the joint property unit or the nature of the facility. The Supreme Court subsequently made two statements which deserve to be reproduced in full:

“13. There is thus a strong link to a (current) purpose for the joint property unit. A more general adaptation to developments, or to more stringent demands from the association’s members, can thus in principle not be met by the association’s management. Such changes must be made by means of a new cadastral procedure instead. Admittedly, such an arrangement may be perceived as cumbersome and impractical. At the same time, a new cadastral procedure will involve examination of the conditions for a facility with a completely or partially different orientation, and a new cadastral order will then set out clear conditions for the continued operation.

14. A further matter, raised by the association in the Supreme Court, is whether any particular significance should be attached to the fact that the improvement of a facility may be in line with the aspirations of society, in this case to increase safety and thus accessibility at the facility. It is clear per se that a joint property association has to comply with the constitutional provisions that may be applicable to its activities. However, even in other cases there may be a public interest in various kinds of improvements. Typically, this is something that should be able to be taken into account in the case of a cadastral order, and not in the case of continuing management (cf. *Government Bill p. 355*). Exceptionally, however, there may be situations in which strong public interests may influence the assessment of whether the purpose of the joint property unit has become irrelevant, and whether the association should therefore be able to make a more general assessment of the

appropriateness of the measure. However, this requires the situation to have clearly and substantially changed in comparison with the conditions when the purpose of the joint property unit was determined.”¹⁰⁸

The presentation of the legal cases aims to clarify the problems and risks facing joint property associations when seeking to deploy the charging infrastructure, when the joint property association has to interpret the content of the facility order in order to infer what is within the scope of the purpose that the joint facility is intended to serve.¹⁰⁹ Existing or new members of the association may challenge the correctness of a decision made by the general meeting, and the issue may therefore be challenged and rescinded in court. There are at least two decisions in recent times where the outcome has been just that.

Land and Environmental Court at Vänersborg District Court, 5 February 2020, F 3951-19. A joint property association manages a joint facility that was created in a cadastral procedure in 1981 and consists of streets, garages, parking decks, car parks, electricity and telecommunications facilities, among other things. At the general meeting of the association in 2019, a decision was made to modernise the power grid in the garages and install charging stations in each of the 95 garages. The decision was rescinded after being challenged by several members.

The court essentially reasoned as follows. In case law, the renewal of technical devices that are part of a facility has been considered to fall within the purpose of a joint property unit, provided that the result cannot be considered to involve the facility becoming fundamentally different in nature (cf. NJA 1989 p. 291 and NJA 2015 p. 939) The compulsory nature of participation in a joint facility means that there is very restricted scope for deviating from the purpose of the joint property unit that was defined when it was established. The provision in Section 18 of the Joint Property Units (Management) Act must also be viewed in the light of the conditions imposed by the Joint Facilities Act for the establishment of a joint facility (see Sections 5 to 11 of the Joint Facilities Act).

The court then examined whether the installation of charging stations could – as argued by the joint property association – be considered to fall within the scope of the purposes in respect of the electricity and telecommunications facilities or the garage. The court held that such an installation could not be regarded as a renewal of any specified technical equipment which served the same purpose as that for which the facility was established. Nor could the installation otherwise be attributed to the construction and operation of the existing facility in terms of either electrical and telecommunications facilities or the garage. The installation of charging stations was therefore not considered to form part of the purpose of the joint property unit.

¹⁰⁸ The Supreme Court was of the opinion that the purpose was still relevant, which is why no such assessment became relevant: see paragraph 15 of the judgement.

¹⁰⁹ According to Chapter 14, Section 1 b of the Real Property Formation Act (1970:988), a joint property association may apply for a property definition in order to have the scope of the joint facility examined in accordance with Chapter 14, Section 1(4) of the Real Property Formation Act. However, the cadastral authority cannot change the content of the facility order through the property definition if the result of the investigation is that the charging of electric vehicles is not within the scope of the purpose of the joint facility. It is more appropriate in most cases to request reconsideration of the facility order rather than spending money on a cadastral procedure measure with a very uncertain outcome. See Section B1.5.

Land and Environmental Court at Vänersborg District Court, 8 April 2021, F 4320-20. A joint property association was formed in connection with a cadastral procedure in 1975. The facility order states that the joint facility was established in order to serve the area's buildings in a manner assumed in the urban plan for the area. According to the order, the facility consists of garage buildings, parking spaces, power lines with distribution boxes, and lighting and electricity in the garages. The board's proposal to create an opportunity to charge electric vehicles at the garage sites by installing charging modules at the eleven electrical distribution boxes located at each row of garages was approved at the general meeting of the association in 2020. The order was challenged on the grounds that it is not necessary to add charging modules to the facility in order to fulfil the original purpose of the joint facility. The court therefore considered the matter of the compatibility of the order with the purpose of the joint property unit.

The court began by pointing out that a joint property association should be competent to take all actions that fall within the scope of the purpose of the joint property unit. Such measures must always be considered compatible with the management task, whereas measures which are alien to the purpose of the joint property unit – as it has developed and changed over time, of course – fall outside the powers of the association. The court then proceeded to explain the reasoning of the Supreme Court in NJA 2015 p. 939 (among other things, that a more general adaptation to societal progress, or to more stringent demands from the association's members, cannot be met by the association's management but must take place via a new cadastral procedure). The court then turned to the matter of the meaning of the facility order, stating the following.

“The proposal for the resolution at the annual general meeting states that the association intends to install a charging module. Installing equipment for charging modules must be regarded to be more than renewal of existing equipment. A new function is created that cannot be considered to follow from the described purpose for the association. The extension of the electrical distribution box – which may be considered as deployment of existing equipment – is not included in the facility order. Given the restrictiveness to be established when interpreting the purpose of a joint property association, as provided for in case law, the order is to be regarded as alien to the purpose which the association is intended to serve.

Even if there is a trend in society towards more people having hybrid or electric cars, this cannot be a decisive factor in this case, given that the purpose of the facility order may still be regarded as relevant, even though it dates back to 1975. As described above, only in exceptional cases can strong public interests influence the assessment.”

The decision of the general meeting of the association was rescinded. The ruling has been appealed to the Land and Environmental Court of Appeal, which has not yet decided whether to hear the case.¹¹⁰

To summarise, the strong link to the purpose of the joint facility means that if the purpose – as expressed in the facility order – does not clearly allow for deployment of the infrastructure for charging electric vehicles, the facility order needs to be amended for such deployment to be permitted under Section 18 of the Joint Property Units (Management) Act. This is done in a new cadastral procedure, known as a cadastral adjudication procedure, in accordance with Section 35 the Joint Facilities Act.

¹¹⁰ Leave to appeal is required in order for the Land and Environmental Court of Appeal to adjudicate the order of the Land and Environmental Court: see Section 39 of the Court Matters Act (1996:242).

B1.5 Cadastral adjudication procedure

The main principle is that an order granted in a cadastral procedure is valid for the future, unless the cadastral procedure has set a time limit for the validity of the order or the order lapses for any other reason. However, under Section 35(1), paragraphs 1 to 3 of the Joint Facilities Act, a matter that has been dealt with and finally decided in a cadastral procedure may be adjudicated in a new cadastral procedure if the circumstances have changed in a way that has a significant impact on the matter,¹¹¹ if the previous decision has established that the matter may be reconsidered after a certain period of time and that period has expired, or if a clear need for an adjudication procedure has otherwise emerged.¹¹²

Lantmäteriet is of the opinion that installation of charging equipment aimed at responding to societal progress, technical progress and the new demands placed on the facility by the co-owners, but which could not be foreseen when the joint facility was created and which therefore does not fall within the scope of the management measures that the joint property association may undertake, constitutes grounds for a cadastral adjudication procedure. The new cadastral procedure may be justified by both a change in circumstances and a clear need for an adjudication procedure. The legal cases described above support this perception.¹¹³

The same material rules apply to the cadastral adjudication procedure as to the establishment of a completely new facility.¹¹⁴ Therefore, besides the conditions for an adjudication procedure under Section 35 of the Joint Facilities Act, it is necessary to examine whether the facility serves purposes of enduring importance for the real property units under Section 1 of the Joint Facilities Act and whether the conditions in Sections 5 to 11 of the Joint Facilities Act are fulfilled. In this case, the purpose of the new cadastral procedure is to ensure that the joint facility serves an additional purpose (charging of electric vehicles) besides the existing one (parking of vehicles) for the real property units participating in the joint facility. This report deals only with the cadastral authority's adjudication of the new purpose, although the adjudication procedure may relate to all the issues that were examined in the previous cadastral procedure.¹¹⁵

B1.5.1 Applicability of the Joint Facilities Act

Under Section 1 of the Joint Facilities Act, the key requirement for establishing a facility as a joint facility is that the facility is common to several real property units and serves a purpose of enduring importance to them. This means that a joint facility must serve a specific purpose that is linked to the participating real property units as such, and that the need for this purpose must appear to be enduring. This excludes from the application of the law those facilities which solely meet the needs of a temporary owner or tenants and others using the real property unit and which cannot be attributed to the real property unit as such, but rather serve personal interests. The need must therefore be linked to the real property unit.¹¹⁶

¹¹¹ In principle, this requires new or changed conditions that are purely actual in nature and not merely a different assessment of the existing facts.

¹¹² For example, where a clear need has emerged to modify the conditions for the facility in the light of experience gained.

¹¹³ The same assessment was also made by the Land and Environmental Court at Växjö District Court in case no. F 3571-20, 12 February 2021 (described in Section B1.5.5).

¹¹⁴ See Government Bill 1973:160 p. 255 f.

¹¹⁵ The report's reasoning is also based on the assumption that no new real property units will be added to the joint facility or that any of the participating real property units will withdraw.

¹¹⁶ See Government Bill 1973:160 p. 178 ff.

Lantmäteriet's assessment, that charging infrastructure common to several real property units can be considered to serve a purpose of enduring importance to them and consequently be established as a joint facility, has been set out in Section B1.3.

B1.5.2 Substantial importance condition

Under Section 5 of the Joint Facilities Act, a joint facility may not be established for any real property unit other than that for which it is of substantial importance to have a share in the facility. For the substantial importance requirement to be met, there must be a demonstrable need for the property to have access to a facility of the type in question. Linking without the aid of an agreement should not normally be considered if the real property unit is already equipped with a separate facility which fulfils the same function as the contested joint facility.¹¹⁷ This provision is discretionary, i.e. under Section 16(1), paragraph 1 of the Joint Facilities Act, the cadastral authority may deviate from the provision if the owners of the real property units to be included in the facility so agree.

Where the intention is for an existing joint facility to serve an additional purpose, the purpose needs to be adjudicated against the substantial importance condition for all the real property units participating in the facility if their owners oppose the measure. There are no legal obstacles to having a single joint facility cover several different purposes, rather than creating a joint facility for each purpose; on the contrary, this is very common. For example, a joint facility can be established in order to meet the need for a recreation room, garage, parking spaces, drainage pipes, substation, conduits for district heating and hot water, external electrical system, access roads, flower beds and a playground, as well as cable TV equipment. A given starting point when examining whether to establish one joint facility instead of several is to look at whether it appears to be a single unit, in functional terms.¹¹⁸

However, the substantial importance condition prevents the addition of a further purpose unless it is of substantial importance for every real property unit participating in the joint facility. In other words, a real property unit for which the new purpose is not of substantial importance cannot be compelled to have it, any more than compulsory connection of the real property unit would be possible if it were instead a matter of establishing a separate joint facility for the purpose. The adjudication of the respective purpose must therefore not be made less strict simply because the joint facility has several purposes.¹¹⁹

That said, it appears from several legal cases that even if a certain purpose per se is already served for a real property unit (it may then be questioned whether there is any demonstrable need for the real property unit to have access to the joint facility, cf. above), it may nevertheless be of substantial importance for it to have a share in the

¹¹⁷ See Government Bill 1973/160 p. 151.

¹¹⁸ Cf. Government Bill 1973/160 p. 144.

¹¹⁹ Lantmäteriet does not agree with the assessment of the issue made by the Land and Environmental Court at Växjö District Court in case no. F 3571-20, 12 February 2021 (reported in Section B1.5.5), i.e. that whether and how the charging function with the associated power grid should be provided for the parking facilities should be adjudicated only against the provision on the construction of the facility in Section 8 of the Joint Facilities Act, and not against the substantial importance condition in Section 5 of the Joint Facilities Act. As long as charging is not always associated with parking and the facility order needs to be amended through an adjudication procedure, the new purpose must also be adjudicated against the substantial importance condition.

joint facility, namely if the real property unit has some other benefit from participating in the facility.

Court of Appeal for Western Sweden, 12 February 1996, Ö 108/95. Additional street lighting was considered to be of substantial importance for a residential real property unit even though the part of the area where the real property unit was situated already had lighting. The area was considered by the Court of Appeal to form a unit that was functionally linked. It was important for the whole area to have satisfactory street lighting. Because of this, and because the costs for the previous street lighting had been charged to all the real property units in the area, it was considered fair that the costs for the new lighting should also be shared between all the real property units participating in the joint facility.

Court of Appeal for Western Sweden, 30 April 2004, Ö3227-03. Adjudication of an order establishing a joint facility led to replacement of the previous order with a new one. The order specified the roads with accessories, footpaths and public space that were included in the joint facility formed. Some real property owners argued that their real property units should not participate in the facility as the real property units already had access to the public road and that it was therefore not of substantial importance for the real property units to have a share in the association's roads. They therefore asked to leave the association.

The Court of Appeal explained that some real property units, by virtue of their location adjacent to the public road, did not have per se the same direct need for road access as real property units located further into the road system. However, the fact that footpaths, park areas and street lighting would be repaired and maintained by the association was considered to be an asset for all real property units in the joint real property unit. From an overall perspective, the real property units adjacent to the public road were considered to derive some benefit from participating in the road association and contributing to the costs for maintenance of communal areas. It was therefore considered of substantial importance for them to have a participatory share in the facility, albeit with a reduced participatory share.

The outcome was the opposite in *Court of Appeal for Western Sweden, 13 September 2004, Ö 4673-03*. A joint facility was responsible for the construction and operation of certain specified roads in the community, according to the adjudicated facility order. Some real property owners had appealed the order, claiming that their real property units should not be linked to the facility because they had direct access to the public road. The association's tasks did not include responsibility for maintenance of footpaths and cycle paths, parkland, lighting or other utilities, for example. The Court of Appeal found that the real property units did not have the same need to participate in the joint facility as real property units that used the facility's road system for access, and that in principle they should not be forced to participate in a joint facility that included only roads and not other public space. The appeal was therefore upheld.

In many cases, a real property owner's resistance to the new purpose of charging infrastructure should not be due to the fact that the real property owner has already met the need independently. When parking is managed by a joint real property unit, the owner of an individual participating real property unit cannot decide unilaterally, against the will of the other real property owners, to install a recharging point for their electric vehicle (cf. Section 8.2.1 of the Swedish National Board of Housing, Building and Planning's report). Instead, the resistance can be expected to be due to the fact that

the real property owner does not own an electric vehicle and therefore has no need for charging equipment. Such resistance may be motivated by a fear of incurring costs for charging equipment that is considered to be of no use.

If the utility cannot be provided to the real property owner by a separate facility with the same benefit, establishing that there is a substantial need to participate in the facility should be sufficient.¹²⁰ Just as a real property unit can be connected – against the owner’s will – to a joint facility that includes parking, even though the owner has no car, or to a playground, even though there are no children in the household, it should be possible to connect the real property unit to a joint facility that includes charging stations, even though the owner does not have an electric vehicle. The same may be considered to apply if the real property owner has its own charging station, but the real property unit as a whole benefits from participating in the joint facility in other respects, cf. the legal cases described above. In these situations, the limited utility and use of the facility may instead be taken into account when determining its design (dimensioning) and determining responsibility for the costs for the construction and operation of the facility (see Sections B1.5.5 and B1.6).

B1.5.3 Betterment condition

Under Section 6 the Joint Facilities Act, a joint facility may be established only if the economic or other benefits of the facility outweigh the cost and inconvenience which the facility entails. This means that a real property unit can never be connected to a joint facility that is not economically justifiable, even if the facility would be of substantial importance to the real property unit. This provision is non-discretionary. Therefore, this condition cannot be disregarded even if all the real property owners agree that the joint facility should be established.

In general, property values increase as a result of improvements as referred to. However, the improvement does not have to be reflected in the property value.¹²¹ The benefits to the participating real property unit which do not directly affect its value must also be taken into account when applying the betterment condition. The question of which factors to take into account in the calculation and the importance to be attached to them must be assessed in the light of the values prevailing at any particular time and taking into account local conditions.¹²²

When calculating the facility’s profitability, only items which are charged to the real property owners are to be included on the expenditure side. Thus if a joint property association receives a government grant or other investment aid to invest in charging stations, deductions must be made for the costs covered by the grant.¹²³

The betterment condition is also of some relevance to the assessment of the dimensioning of a facility. Overdimensioning a joint facility – by installing more recharging points than needed, for example – may increase the financial burden on participating real property units, which in turn may lead to failure to fulfil the condition. This issue is related more to the construction of the joint facility and is therefore dealt with in Section B1.5.5 as well.

¹²⁰ See Government Bill 1996/97:92 p. 56.

¹²¹ See Government Bill 1996/97:92 p. 55.

¹²² See Government Bill 1973/160 p. 150.

¹²³ See Government Bill 1973:160 p. 149 f.

B1.5.4 Opinion condition

The opinion condition in Section 7 of the Joint Facilities Act means that a joint facility may not be established if a particular real property owner's opinion objects to it. For the opinions expressed to prevent the establishment of the joint facility, the stakeholders with a substantial interest in the matter are required to widely object to the measure and have notable reasons for doing so. In this adjudication, consideration shall mainly be given to the opinion of those deriving greatest benefit from the facility, i.e. the people who will bear the greatest costs. However, where the need for a facility is exceptionally urgent, the joint facility may be established in principle without regard to the opinion of the property owners.¹²⁴

The opinion survey must not take place as a formal vote, but the cadastral authority will make an assessment of the attitude of the property owners. If it is established that the property owners generally object to the measure, whether they have any notable reasons for this must then be examined. In case law, the satisfactory functioning of the facility and its management in the existing solution and the existence of specific proposals for the implementation of potential needs for improvement in the existing management have been considered to be notable reasons.

The opinion condition does not prevent a decision being made to include charging equipment in the joint facility when only one or a few real property owners object to the measure. In the case of a more general objection, usually a clear majority, the reasons given are decisive for the order taken.

If the situation is such that only a single real property owner wants the facility order to allow charging equipment while all other stakeholders object to the measure, this in itself does not constitute an obstacle to accommodating the wishes of the single property owner. Such a real property owner has the right to request a cadastral adjudication procedure himself, i.e. this is not an action reserved for the joint property association: see Section 18(1), paragraph 1 and (2) of the Joint Facilities Act. However, depending on the reasons given (the matter of their notability may be left to the application of the law to decide), such a real property owner may find himself in a situation similar to that described in Section 8.2.1 of the Swedish National Board of Housing, Building and Planning's report: people living in multiple occupancy homes (usually apartments made available as rented accommodation or a housing co-operative) are dependent on the real property owner's approval for the installation of a recharging point, as the real property owner has right of disposition over the parking spaces.

B1.5.5 Location and construction of a joint facility

Section 8 of the Joint Facilities Act provides a general rule for the location and construction of a joint facility to protect both individual and public interests. The general rule is that a joint facility must be located and constructed in such a way that the purpose of the facility is achieved with a minimum of encroachment and inconvenience without unreasonable expense. This provision is applicable only if the purpose of the facility can be achieved by different designs or different alternative sites.¹²⁵ The matter of the standard to which a facility should be built or refurbished must also be viewed as a choice between

¹²⁴ See Government Bill 1973:160 p. 190 ff.

¹²⁵ See Government Bill 1973:160 p. 194 f.

different options. Construction must take place in such a way that the purpose of the facility is achieved without unreasonable expense. This assessment should also take into account the possibility of obtaining, in certain cases, government grants or other funding for the construction and operation of the facility.

Exemptions from the general rule may be granted for any measure intended to facilitate future extension work or increased use of the facility, provided that the measure entails only a slight augmentation of the expense. This provision is intended to cover situations where it is likely that new real property units will be connected to the facility and measures can be taken at the time of construction to facilitate such subsequent expansion.

Under Section 16(1), paragraph 2 of the Joint Facilities Act, deviation from this provision, insofar as this implies protection of a private interest, may be made if the real property owners and other stakeholders whose rights are affected consent thereto.

The fact that the matter of the standard to which a facility should be built or refurbished must be viewed as a choice between different options has implications for the deployment of charging stations, in that overdimensioning the number of recharging points with associated power grids, etc., may be considered contrary to the provision.

A larger number of recharging points than needed not only means that the betterment condition may be difficult to meet (see Section B1.5.3), but also that the expense for fulfilling the purpose is at risk of being considered unreasonable. The fact that the joint facility has to meet the need of the participating real property units for access to charging stations does not mean that the facility must necessarily offer all real property units the opportunity to charge electric vehicles simultaneously, or even that there needs to be enough charging stations for all real property units. The dimensioning of the facility is determined by an assessment of how large the facility needs to be in order to meet a reasonable need. It is natural for the cadastral authority in this case to work on the basis of the interest reported during the cadastral procedure.¹²⁶

Land and Environmental Court at Växjö District Court, 12 February 2021, F 3571-20. In 1981, the Real Estate Formation Authority in the Municipality of Lund established a joint facility for parking spaces, etc. This facility was managed by a joint property association. Following a decision by the association's general meeting, the joint property association applied for reconsideration of the facility order with a view to including recharging points for electric cars in garages with the associated power grids.¹²⁷ The application was based on the consent of 62 of the 63 co-owners. The cadastral authority was of the opinion that the level of use of plug-in electric vehicles in Sweden was not sufficient to meet the substantial importance condition in Section 5 of the Joint Facilities Act and that the consent of the 63rd co-owner was also required. The cadastral procedure was cancelled.

The decision was appealed. The Land and Environmental Court held that the adjudication should be based on the functions and design needed for the existing parking spaces, such as the design of garages, carports, asphalt paving, engine heaters, charging posts, associated power grids, etc., and that adjudication should take place in accordance with

¹²⁶ Cf. NJA 2004 p. 266, reported in Section B1.6.

¹²⁷ The joint property association had taken the view that the applicable facility order could not be interpreted as meaning that charging devices could be regarded as a technical update of the existing electrical sockets in the garages. Cf. Section B1.4.

Section 8 of the Joint Facilities Act and not Section 5 of the Joint Facilities Act. Having found that there was no obstacle in respect of the conditions laid down in Section 5 of the Joint Facilities Act¹²⁸, the court declared the following.

“It follows from Section 8 of the Joint Facilities Act that the facility as such must be dimensioned so that the purpose is achieved with a minimum of encroachment and inconvenience without unreasonable expense. This means that the design must be adapted to the extent to which the real property units participating in the joint facility can be expected to use the facility.

The design of the parking spaces in question is subject to an adjudication procedure in accordance with the application to the cadastral authority. What the cadastral authority has to examine in this case going forward is whether the requested adjudication procedure, i.e. the amendment to the design of the parking spaces with the associated infrastructure for electricity, is appropriate according to the extent that the real property units included in the joint facility are expected to use the facility.”

The benefit of the facility to the real property units concerned and the extent to which they are expected to use the facility will be relevant to a statement in the facility order about a minimum number of recharging points at the facility. No maximum number of recharging points should be specified so as to prevent the facility order from becoming outdated and having to be amended by an adjudication procedure in the near future. This allows the joint property association to decide on additional recharging points by means of a regular management decision.¹²⁹ The utility and the estimated use of the facility are also of immediate relevance in determining the basis for allocation of the costs for constructing and operating the facility (see Section B1.6).

B1.6 Allocation of costs

Section B1.5.2 made the assumption that co-owners in a joint property association who object to the deployment of charging infrastructure do so for fear of incurring costs for a facility that they believe will be of no use to them. Such opposition constitutes a genuine obstacle to the desired deployment as it involves a delay and additional costs compared to a situation where everyone is in agreement. Depending on the reasons given, and by how many parties (see Section B1.5.4), it may also mean that the deployment may not take place at all.

In many cases it should be possible to overcome this obstacle by providing more information on the grounds for allocation of the costs for construction and operation of the facility and appropriate application of the relevant provisions.

Section 15(1) of the Joint Facilities Act states that the grounds for allocation of the costs for construction of a joint facility must be determined during the cadastral procedure. A participatory share is specified for each real property unit is determined according to what is reasonable, taking into account in particular the benefits derived

¹²⁸ The court did not adjudicate the new purpose against Section 5 of the Joint Facilities Act at all, as it would have done – judging from the findings – if the matter had involved a separate joint facility for recharging points. The fact that Lantmäteriet disagrees with the assessment of how the adjudication should take place is shown in Section B1.5.2: see in particular footnote 119.

¹²⁹ This meaning was clarified by the Court of Appeal for Western Sweden in case no. Ö3227-03, 30 April 2004 (reported in Section B1.5.2).

from the facility by the real property unit. According to the second paragraph of the same provision, the participatory share of the costs for the operation of the facility must also be fixed. Such a participatory share is determined in accordance with what is reasonable, primarily taking into account the extent to which the facility is expected to be used by the real property unit. Where appropriate, provision may be made for the costs to be allocated primarily by means of charges for the use of the facility.

One example of when it may be difficult to determine the benefit is when some real property units in built-up areas are located next to a public road and have access to it. This issue is common in the context of adjudication procedures by road associations. As a first step, it is necessary to examine whether participation of such a real property unit in the joint facility is of substantial importance. As indicated above (see Section B1.5.2), the assessment may be guided by whether the facility merely consists of roads, or whether it also includes other features such as green space. Where only roads are included and there are no communal utilities, the real property units adjacent to the public road normally have a limited benefit from the facility. It may be so limited that participation cannot be considered to be of substantial importance to the real property unit. However, if other features are also included in the joint facility, the benefits also increase for real property units adjacent to a public road. It may then be reasonable for these real property units to participate in the facility and receive a participatory share with a certain reduction.

The cadastral authority also has the opportunity to decide on what is known as sectioning.¹³⁰ This means that the Government authority determines specific participatory shares for different parts of a facility. There is no “physical” division of the facility. The different sections form a single facility, and sectioning relates only to the responsibility for contributing to various costs. Such a facility order creates a right for all participating real property units in the joint facility to use all parts of the facility. Sectioning does not mean that real property units receiving a zero participatory share in a particular section are not entitled to use that part of the facility even if there is no actual need to do so (if there were, the real property units would have been allocated a participatory share greater than zero).

This possibility is described in the legal case below and, in the opinion of Lantmäteriet, it may be reasonable or sometimes even necessary to use it when deploying charging infrastructure in connection with a cadastral adjudication procedure.

In *NJA 2004 p. 266*, the issue related to the dimensioning of a facility and the allocation of participatory shares in a certain section of the facility. A road jointly owned by three real property units ran across one of the real property units and down to a stone jetty, located in the middle of a nearby island. There was a small car park adjacent to the stone jetty. Besides the real property units that jointly owned the road, a number of other real property units had been granted the right to use the road and the stone jetty through easements. The road and the jetty had also been used by various real property owners on the island.

Following an application by two people who owned real property units on the island, the cadastral authority decided that a joint facility should be established in order to meet the

¹³⁰ Government Bill 1973:160 p. 218 states that sectioning must generally be avoided, not least in view of the complications that may arise in respect of the management of the facility. However, it also follows that such division is permitted if there are sufficiently good reasons.

need for a road, car park and jetty for the real property owners concerned. Sixteen real property units, some of which were on the island, participated in the facility.

The facility was divided into three sections for the purpose of allocating the costs for construction and operation of the facility. Section 1 covered the road, Section 2 the parking including a lay-up area for boats, and Section 3 the footpath and temporary route from the car park to the jetty and the jetty itself. All of the 16 participating real property units were allocated participatory shares in Section 1, while only 11 real property units were also allocated participatory shares in Sections 2 and 3.¹³¹

One of the real property owners appealed the decision. The application for withdrawal of the cadastral procedure was based on the fact that there were not enough moorings at the jetty to satisfy the mooring rights of all the real property units participating in the joint facility: this is why, contrary to Sections 1 and 8 of the Joint Facilities Act, the facility was not constructed in such a way as to serve the purpose of the facility. The Supreme Court made the following statement.

“As elaborated by Lantmäteriet in its statement to the Supreme Court, the Joint Facilities Act does not prevent the division of a joint facility into sections for the purpose of sharing the costs for the construction and operation of the facility. The deciding factor for the allocation of participatory shares within each section in such cases is primarily the benefit that each participating real property unit derives from the section and the extent to which the real property unit can be expected to use it. Thus there is nothing to prevent a participatory share in a section not being allocated to one or more of the real property units participating in the joint facility. The fact that this is the case does not preclude the possibility that the facility as a whole may nevertheless be considered to serve purposes of enduring importance to the participating real property units, in accordance with Section 1 of the Joint Facilities Act.

Under Section 14 of the Joint Facilities Act, a joint facility is shared by the real property units participating in the facility. Thus the fact that a particular real property unit has not been allocated a participatory share in a particular section does not in itself mean that the real property unit would not be entitled to use the section. However, it may be assumed from Section 8 of the Joint Facilities Act that not only the facility as such but also the sections included in the facility must be dimensioned in such a way that the purpose is achieved with a minimum of encroachment and inconvenience without unreasonable expense. This means that the dimensioning of a section must be adapted to the extent to which the real property units participating in the joint facility can be expected to use the section.”

The Supreme Court found that both the distribution of participatory shares in the section in which the jetty was included and the dimensioning of the jetty were adapted to the wishes expressed by the participating real property units. In view of this, plus the fact that there were certain options to organise additional moorings, the jetty could not be considered to be in contravention of the provisions of the Joint Facilities Act.

It is clear from the findings that Lantmäteriet had issued a statement. In this statement, Lantmäteriet made the important point that a facility order creates a right for all

¹³¹ An additional real property unit was added when the case was heard in the property court, and this received a share in all sections.

participating real property units in a joint facility to use all parts of the joint facility, but that the participatory shares reflect which real property units actually need such use and must therefore contribute to the costs for the construction and operation of the facility. There is therefore nothing to prevent real property units connected to a joint facility divided into sections from receiving participatory shares in some sections while not receiving participatory shares in other sections. On the other hand, in the opinion of Lantmäteriet, a real property unit cannot be connected to a joint facility in its entirety with a participatory share of zero in terms of both construction and operation.

In other words, a joint facility may be considered to serve purposes of enduring importance and to be of enduring importance to all participating real property units even if one of them, in a particular respect, derives so little benefit from it and is expected to use it to such a small extent that it is not reasonable for that real property unit to contribute to the costs for the construction and operation of the facility in that respect.

Applied to an adjudication procedure aimed at creating an opportunity for a joint property association to deploy the infrastructure for charging electric vehicles, this means that the cadastral authority – provided that other conditions are met – may allow the charging infrastructure to constitute a separate section and decide that only those real property units whose owners have expressed a wish to do so, and who have thus expressed a need for it, are to be allocated participatory shares in the construction and operation of the joint facility in the section in question.¹³² The result of the assessment of the need based on the wishes of the real property owners can thus be said to be a measure of the collective need for charging equipment in the collective circle of participants throughout the joint facility.

The rules on adjudication procedures in Section 35 of the Joint Facilities Act and on the amendment of participatory shares by agreement in Section 43 of the Joint Facilities Act provide allow for modification of the facility order and the participatory shares if circumstances change, such as if more of the real property units participating in the joint facility gradually develop a specific need to use the recharging points for the section.¹³³

B1.7 The importance of charging electric vehicles as a technical performance requirement

The provisions of Chapter 8, Section 4(1), paragraph 11 of the Planning and Building Act and Chapter 3, Section 20 b of the Planning and Building Ordinance have already been discussed (see Section B1.4). These provisions state that the charging of electric vehicles is what is known as a technical performance requirement for structures. This regulates the requirements for *new construction and reconstruction* regarding the installation of ducting infrastructure and recharging points.¹³⁴ Lantmäteriet agrees with the Swedish National Board of Housing, Building and Planning's assessment that the risk of situa-

¹³² By doing this, the cadastral authority does not determine which of the participating real property units may use certain specific parking spaces. This is a matter for the joint property association instead.

¹³³ The Lantmäteriet website provides detailed information on how the participatory shares are modified when the owner of the real property unit concerned and the joint property association agree: see *Överenskommelse om andelstal i gemensamhetsanläggning enligt 43 § anläggningslagen* | Lantmäteriet (lantmateriet.se).

¹³⁴ The retroactive requirements in Chapter 3, Section 20 c of the Planning and Building Ordinance are disregarded here, as this provision is of no relevance to home charging.

tions arising in which there are legal obstacles to compliance with the requirements for charging infrastructure at joint facilities may be deemed to be low (see Section 5.2.1 of the Swedish National Board of Housing, Building and Planning's report).

A joint property association has to comply with the constitutional provisions applicable to its activities. Insofar as a structure (a building or other facility) managed by a joint property association is subject to the requirements for the charging of electric vehicles in the Planning and Building Ordinance, the joint property association is responsible for taking the measures needed to comply with the requirements without necessarily relating this to the purpose of the joint facility in accordance with the facility order: see NJA 2015 p. 939 (reported in Section B1.4).¹³⁵ Thus there is no need for specific content in the facility order for the joint property association to meet the requirements in accordance with the statute applicable to the association.

The technical performance requirements in respect of charging of electric vehicles therefore have no particular impact on the assessment of whether the conditions of Sections 5 to 11 of the Joint Facilities Act are met, regardless of whether a new joint facility or a cadastral adjudication procedure is intended. They do, however, take on a certain significance in the overall assessment by Lantmäteriet that charging infrastructure for home charging of electric vehicles that is shared by several real property units can be considered to serve purposes of enduring importance to the real property units and thus be established as a joint facility under the Joint Facilities Act (see Section B1.3).

B1.8 Processing time and costs for the cadastral procedure

At the Swedish Energy Agency's hearing on 4 May 2021, the processing time and costs for a cadastral adjudication procedure were highlighted as particular problems for a joint property association wishing to establish recharging points at a joint facility that it manages.

The time needed to process the cadastral procedure is dependent on the provisions for the cadastral procedure, and also on the resources available at the cadastral authority. The procedural rules in Sections 17 to 31 of the Joint Facilities Act also apply to cadastral adjudication procedures. Thus the same rules relating to notices to attend, notification and meetings apply when reconsidering a facility as when creating a new joint facility. In this case, the cadastral authority must investigate the conditions for the facility and arrange for the technical work and valuations needed in order to establish the facility. For reasons of legal certainty, the cadastral adjudication procedure must be conducted in a specific sequence and, in principle, there is no simplified procedure or other shortcut that can be used depending on the purpose of the cadastral adjudication procedure.

However, Lantmäteriet is of the opinion that there are certain opportunities for a joint property association to have a positive influence on the processing time. A carefully prepared application clearly indicating the measure to be implemented and accompanied by drawings, calculations and other design documents facilitates the work of the Government authority and helps to ensure efficient processing. Targeted information

¹³⁵ However, if the joint property association wishes to install charging infrastructure on a larger scale than stated in the minimum requirements, the purpose 'charging of electric vehicles' should be required in the facility order.

efforts may need to be made in order to achieve this, and clear guidance may need to be provided on the Government authority's website, for example. The importance of making the application well in advance of the proposed deployment should be emphasised in this respect.

A better understanding of the grounds for allocation of the costs for construction and operation of the facility and the appropriate application of the relevant provisions should potentially lead to more efficient processing. Greater awareness can help to prevent resistance and conflicts between co-owners (see Section B1.6). If Lantmäteriet improves the internal supporting material for guidance for executive officials, it is conceivable that more cadastral surveyors will be able to process cadastral adjudication procedures. As mentioned in the introduction to this section, the availability of staff with the necessary skills is a factor that has a major impact on processing times.¹³⁶

Under Section 4 of the Ordinance on charges for Cadastral Surveys (1995:1459), the charge for a cadastral adjudication procedure is calculated on the basis of the time required to process the cadastral procedure and enter the result in the property register. The charge is levied at a fixed amount for certain parts of the cadastral procedure. This fixed amount is also determined according to an average processing time. Efficient processing is therefore cost-effective as well. This can be of great importance to a joint property association. The costs for the cadastral procedure do have to be added to the joint property association's other costs for investments in the charging infrastructure, which means that they may contribute to such investments not taking place.¹³⁷

B1.9 Concluding remarks

B1.9.1 Summary analysis

Section B1.1 introduces one of the legal obstacles identified in the Swedish National Board of Housing, Building and Planning's report that may arise in the event of deployment of infrastructure for the charging of electric vehicles (charging infrastructure) in existing car parks jointly owned by the real property units participating in a joint facility. In the case of such facilities, the joint property associations are bound to operate within the purpose defined in the facility order when the joint property unit was created. Depending on how the purpose is formulated, situations may arise where the owners of the participating real property units wish to take an action but this is not possible as it is not compatible with the facility order. The key provisions for assessing whether a joint facility may be established are briefly set out in *Section B1.2*.

Lantmäteriet's analysis of the obstacle begins with a reasoning in *Section B1.3* as to whether charging stations for electric vehicles are in fact a facility to which the Joint Facilities Act applies. A key question for the assessment is whether the use of plug-in electric vehicles is sufficiently common for charging stations to be considered to serve purposes of enduring importance to the real property units, rather than the personal interests of one or more property owners. Case law also needs to be considered, as well as the expected future development of the market for plug-in electric vehicles and, to

¹³⁶ In this context, processing time refers to all the time that elapses during the cadastral procedure, i.e. the entire procedure starting with the referral of the case (an application) and ending with a decision on it, and thus including the waiting time before the case is allocated to an administrator.

¹³⁷ Cf. SOU 2018:76, p. 320.

an extent, the requirements now imposed on structures. Lantmäteriet makes assessment that charging infrastructure shared by several real property units can be considered to serve purposes of enduring importance to the real property units and therefore be established as a joint facility under the Joint Facilities Act.

Section B1.4 discusses the significance of the meaning of the facility order. In managing a joint facility, the joint property association may only take measures that are compatible with the purpose stated in the facility order. The problems and risks faced by the joint property association when deciding whether a desired deployment of the charging infrastructure can be accommodated within the purpose are highlighted by a review of case law in this area, among other things. Lantmäteriet concludes that if the purpose does not clearly allow for such deployment, the facility order needs to be amended through a cadastral adjudication procedure in order for the deployment to be permitted.

In *Section B1.5*, Lantmäteriet explains that the desired installation of charging equipment aimed at responding to societal progress, technical progress and the new demands placed on the facility by the co-owners, but which could not be foreseen when the joint facility was created and which therefore does not fall within the scope of the management measures that the joint property association may undertake, constitutes grounds for a cadastral adjudication procedure. It also analyses what is required for the conditions for the protection of individual interests to be considered fulfilled. A number of the provisions are discretionary, but it is not assumed that the real property owners are in agreement for an amendment to the facility order to be made. Lantmäteriet concludes, among other things, that just as a real property unit can be connected – against the owner’s will – to a joint facility that includes parking, even though the owner has no car, or to a playground, even though there are no children in the household, it should be possible to connect the real property unit to a joint facility that includes charging stations, even though the owner does not have a plug-in electric vehicle. However, the specific need will have a major impact on the design of the system in terms of the number of recharging points, for example.

The benefit of the facility to the real property units concerned and the extent to which they are expected to use the facility are also of immediate relevance when establishing the basis for allocating the costs for the construction and operation of the facility. This is discussed in *Section B1.6*. Lantmäteriet points out that resistance on the part of real property owners due to a fear of incurring costs for a facility that they believe to be of no use to them should be possible to overcome in many cases by providing more information on the grounds for allocation of the costs for construction and operation of the facility and appropriate application of the relevant provisions. The assessment process can be facilitated during the cadastral procedure if the cadastral authority makes the charging infrastructure a separate section and decides that only those real property units whose owners have requested it are to be assigned participatory shares in respect of the construction and operation of the section in question of the joint facility. The rules on a cadastral adjudication procedure and agreement on the modification of participatory shares allow for the facility order and the participatory shares to be amended if more of the participating real property units gradually develop a specific need to use the recharging points for the section.

Section B1.7 presents Lantmäteriet’s assessment that the technical performance requirements for the charging of electric vehicles have no particular impact on the assessment of whether the conditions for the protection of individual interests are met.

They do, however, have some bearing on the overall assessment that a facility for charging electric vehicles at home is an acceptable type of facility within the meaning of the Act.

Processing times and costs for cadastral procedures are dealt with in *Section B1.8*. Long processing times appear to make joint property associations less willing to apply for a cadastral adjudication procedure, as do the feared high costs for the cadastral procedure. Lantmäteriet should be able to use targeted information initiatives to ensure that well-prepared applications are made on time and that conflicts between real property owners do not arise unnecessarily. Combined with improved supporting material to provide guidance to staff dealing with cadastral procedures, it should be possible to keep processing times down, resulting in lower legal costs.

In summary, Lantmäteriet is of the opinion that the problems associated with the legislation, the turnaround time and the costs for the cadastral procedure can be overcome with no changes to the relevant regulations.

B1.9.2 An example of a cadastral procedure

The legal reasoning in the report and the analysis summarised in the previous section have been translated into a practical example of a cadastral procedure (*Annex 2*). The idea is for this to be used both for information purposes and as supporting material when processing cadastral procedures.

Annex 2 – Example of a cadastral procedure

14 June 2021

Ref. no.: LM 2021/001459

Adjudication procedure for Batteriet GA:1

The legal reasoning and analysis in Lantmäteriet's report *Hinder för anläggnings-samfälligheter som försvårar för hemmaladdning av elfordon – med fokus på förrättningslagstiftningen* [Obstacles to the home charging of electric vehicles for joint property units – with emphasis on legislation in respect of cadastral procedures] have been translated into this practical example of a cadastral procedure (file appendix PR1). The idea is for this to be used both for information purposes and as supporting material when processing cadastral procedures. The example of the cadastral procedure is based on the following assumptions.

B2.1 Batteriet GA:1

The adjudication procedure concerns a joint facility in a residential area in a suburb of Gothenburg, where commuters have their own plug-in electric vehicles as well as plug-in electric company cars and where the need for charging at home is increasing. The homes in the area originally consisted of housing co-operatives in terraced houses, but these were later subdivided into separate real property units and the joint facility has been established for parking spaces and a carport. The facility order is relatively recent, but plug-in electric vehicles were still rare at the time of the order and the need for home charging was not identified at the time. The parking spaces and the carport are situated on land not owned by the joint property association.

There is disagreement about the need for recharging points. Some people do not have cars at all, while others believe that technology is evolving more quickly and will probably not stop at electric vehicles (electric cars or plug-in hybrids). People who do not advocate recharging points do not want to contribute to the costs for these, either.

The joint property association has taken note of case law in this area and is of the opinion that it cannot simply decide on deployment of the infrastructure for charging electric vehicles, but must apply for a cadastral adjudication procedure. The application is sent to the cadastral authority after a decision has been made on this at the association's general meeting. The application relates to an adjudication procedure for the facility order so as to allow recharging points to be installed for some of the outdoor parking spaces, and a few in the carport.¹³⁸ An application for funding will be sent to the Swedish Environmental Protection Agency once the costs for construction of the facility are known.

¹³⁸ Home charging can be arranged in various ways. Around 200 joint property associations have received grants from the Swedish Environmental Protection Agency to install charging infrastructure, and only a fraction of these have applied for a cadastral adjudication procedure. Therefore, it can be concluded that there are other solutions as well. These are not discussed in the example.

The example of a cadastral procedure does not include all the decisions that may be made as part of a cadastral procedure. Lantmäteriet focuses on the decisions that directly affect the adjudication procedure for the new purpose (recharging points). Other decisions are not reported so as not to complicate the example unnecessarily.

B2.2 Sectioning

The joint property association does not request the creation of a new section. However, the cadastral procedure concludes that only a certain proportion of the real property units will benefit from and are expected to use the charging infrastructure, and therefore sectioning will provide an opportunity to allocate the costs for the new purpose to these real property units.

B2.3 Boundaries between sections

A boundary must be drawn between the different sections when defining sections. All technical devices attributable to the charging infrastructure are added to the newly formed section so as not to complicate the example with a technical discussion on what should appropriately belong to the original section and what should be included in the newly formed section (charging section).

B2.4 Grants

The association assumes that they will receive a grant from the Swedish Environmental Protection Agency. Grants can be obtained for costs for recharging points, installation costs and material costs. The joint property association would have to distribute the grant between the sections in its management if parts of the eligible technology were to be placed in the original section instead.

B2.5 Number of recharging points

The cadastral procedure does not specify how many recharging points should be included in the charging section. How the recharging points are distributed among people who have shares in the section may be decided during the management. The number of recharging points may be increased, and it would be appropriate in the cadastral procedure to specify a minimum number or only that recharging points are to be installed.

If an increase in the participatory shares in the charging section becomes necessary, this can be resolved by reaching an agreement in accordance with Section 43 of the Joint Facilities Act. If no agreement can be reached, there is still a need for a cadastral adjudication procedure for Batteriet GA:1 in order to amend the participatory shares.

B2.6 Allocation of costs for the cadastral procedure

The costs for the cadastral procedure must be allocated according to what is reasonable. In the example of a cadastral procedure, it is decided that all costs – including the costs for the cadastral procedure – are to be borne by the real property units receiving shares in the charging section, which corresponds to the reasoning on the benefit of the facility to the real property units concerned and the extent to which they are expected to use it.

The cadastral adjudication procedure is simplified by allocating all costs to the real property units included in the charging section, as disagreements can be avoided in this way.

It could also be considered reasonable to share the costs for the cadastral procedure among all the real property units participating in the joint facility instead, since everyone can be considered to benefit from the facility's ability to provide home charging, particularly if guest parking spaces are also equipped with recharging points.

Annex 3 – Example of minutes

Minutes

XX/XX/202X

Case number

XX00000

Effie Effect

Case	Adjudication procedure for joint facility Göteborg Batteriet GA:1 Local authority: Gothenburg County: Västra Götaland
Summary	These minutes describe decisions on: <ul style="list-style-type: none"> • Amendment of a facility order to include the purpose of charging infrastructure including recharging points for charging electric vehicles. • Creation of a section for the charging of electric vehicles. • Other decisions
Requests	An application has been received concerning the extension of Batteriet GA:1 to include charging facilities for electric vehicles.
Facility order Section 35	Grounds: When the facility was established, it was not predicted that it would be possible in future to run vehicles on electricity to the extent that is currently observed. Therefore, the facility order is formulated in such a way that the ducting infrastructure and recharging points (referred to jointly as ‘charging infrastructure’) cannot be interpreted as being included. Societal progress has driven political decisions that have influenced legislation and environmental targets, requiring more people to choose plug-in electric vehicles. More than 30 per cent of newly registered cars were rechargeable in 2020, and the vast majority of these are in and around our major cities. As a result, a new need has arisen in the Batteriet joint property association, which has made a decision in a general meeting to request an adjudication procedure for the facility order, see File ABC123. There have been changes in circumstances that have a significant impact on the matter. Therefore, adjudication may take place by means of a new cadastral procedure.
Section 1	The fact that parking is a purpose of enduring importance for a real property unit is undisputed. When new parking spaces and garages are built for housing, they are designed so that recharging points can be installed, and this is also included as a technical performance requirement for new construction under the Planning and Building Act. These new rules in the Planning and Building Act and the Planning and Building Ordinance thus define home charging facilities as a property-related need.
Section 5	There is no doubt that access to parking is a purpose of substantial importance to a real property unit, regardless of whether the owner of the real property unit owns a car. Cars powered entirely or partly by electricity are becoming more common. In April 2021, plug-in electric vehicles accounted for 4 per cent of passenger cars on the roads in Sweden. In Gothenburg, plug-in electric cars on the roads accounted for 9 per cent of the total passenger car fleet. Taking into account how the market has evolved and is expected to evolve in the future, the joint facility needs to offer the option of charging electric vehicles. It is therefore of substantial importance for all the real property units concerned to ensure that the joint facility is established so as to provide a home charging facility for electric vehicles. (The dimensioning of charging infrastructure is examined under Section 8.)

Case	Adjudication procedure for joint facility Göteborg Batteriet GA:1 Local authority: Gothenburg County: Västra Götaland
Section 6	<p>Lantmäteriet has not found local price data or a valuation model to support the notion that access to home charging is a value-enhancing factor for the real property units. However, according to representatives of the association, charging facilities are something that buyers ask for, and this is also mentioned in advertisements when apartments are sold. Given the trend towards more and more plug-in electric vehicles, access to home charging is considered to be an improvement of the real property units in this area, and thus a value-enhancing factor.</p> <p>Grants for the measures have been provided through Ladda bilen (Swedish Environmental Protection Agency) and amount to SEK XXX,000 (XX per cent) of the total estimated cost, which is made up of SEK XXX,000 for upgrading electrical systems and constructing the charging infrastructure and SEK XX,000 for each recharging point.</p> <p>(The cadastral authority may also take other reasons into account, such as compliance with environmental targets.)</p> <p>The benefits of the joint facility outweigh the costs and inconvenience which it entails (Section 6 of the Joint Facilities Act).</p>
Section 7	<p>The owners of the real property units Göteborg Billösa 1:23 and Billösa 1:60 object to the cadastral adjudication procedure. The reason given is that they themselves do not have cars, and that society should aim to use public transport instead of subsidising new types of resource-intensive vehicles. The owners of Göteborg Uppfinnaren 2:52 also object to upgrading the facility. They request that the association's surplus be invested in further development of solar cells instead. Furthermore, the real property owners argue that even if the association currently has a surplus and receives a grant from the Swedish Environmental Protection Agency, they will not be able to pay for the upgrade of the facility or the cost of the cadastral procedure.</p> <p>The alternative of replacing the need for cars as a means of transport with public transport as proposed by the owners of Billösa 1:23 and Billösa 1:60 is beyond the remit of the cadastral authority and is not dealt with in a cadastral survey.</p> <p>No request has been made to include a solar cell facility or equivalent. The request in the application merely relates to an adjudication procedure for the joint facility in order to include charging of electric vehicles.</p> <p>The arguments put forward do not imply that there is no need to upgrade the facility, or that the need for home charging could be met in any way other than by incorporating the possibility in Batteriet GA:1.</p> <p>Although the opinion survey is not a formal vote, people who object to the measure are in a clear minority. In the adjudication, consideration shall also mainly be given to the opinion of those deriving greatest benefit from the facility, i.e. the people who will bear the greatest costs (cf. Chapter 5, Section 5(2) of the Real Property Formation Act). There is therefore no further general opposition to the measure or notable reasons preventing the establishment of the facility (Section 7 of the Joint Facilities Act).</p> <p>See "Decision on participatory shares" and "Decision on the allocation of costs" with regard to the allocation of costs.</p>

Case	Adjudication procedure for joint facility Göteborg Batteriet GA:1 Local authority: Gothenburg County: Västra Götaland
Section 8	<p>No additional land will be required for the construction work. The owners of the real property units where the parking and carport are located do not object to establishment in accordance with the request. Recharging points must be installed according to the needs of the real property units. The infrastructure, i.e. electrical systems and wiring, must be adapted to meet the technical needs of the facility and dimensioned to allow for future expansion of the number of recharging points. The joint facility will thus be positioned and executed in such a way that the purpose of the facility is achieved with a minimum of encroachment and inconvenience without unreasonable expense (Section 8 of the Joint Facilities Act).</p>
Sections 9, 11, 12	<p>The joint facility will not be established in contravention of existing plans (Section 9 of the Joint Facilities Act).</p> <p>There is no inconvenience of any importance to a public interest (Section 11 of the Joint Facilities Act).</p> <p>The facility will be located within the space already made available to Batteriet GA:1. There is no alternative location as recharging points need to be located next to the relevant parking spaces. The additional purpose and equipment are not considered to result in increased encroachment for the granting real property unit. No additional compensation is to be paid. The occupation of the space does not cause any particular disadvantage to any of the real property units (Section 12(1) of the Joint Facilities Act).</p>
Section 15	<p>Only a certain proportion of the real property units included in Batteriet GA:1 are considered to derive benefit from and be able to use the new purpose, charging electric vehicles. It is therefore appropriate to allocate the costs to the proportion of the real property units benefiting from the facility by creating a specific section for this purpose. This section must consist of ducting infrastructure and recharging points with vehicle charging capability as described below.</p> <p>Decision:</p> <p>Facility order file ABC123, concerning Batteriet GA:1, must be amended as described below (or in accordance with file appendix BE X)</p> <p>A new section for charging electric vehicles will be added to Batteriet GA:1.</p> <p><i>Section 1</i> contains what was decided in the previous cadastral procedure, file ABC123.</p> <p><i>Section 2</i> consists of an electrical distribution box, conduits and wiring, load balancing, recharging points with electricity meters and other arrangements needed to upgrade the facility to allow charging of electric vehicles in parking spaces and the carport to the extent required.</p> <p>Section 2 must have a separate participatory share list. Participating real property units must have a participatory share of 1. The participatory shares for operation must primarily be allocated on the basis of consumption as per the decision below.</p>

Case	Adjudication procedure for joint facility Göteborg Batteriet GA:1 Local authority: Gothenburg County: Västra Götaland
Decision on allocation of costs	<p>Grounds:</p> <p>Costs for the construction of the facility must be shared among participating real property units according to what is reasonable in relation to the benefit derived by the real property unit from the facility. The operating costs must be allocated in accordance with what is reasonable, primarily taking into account the extent to which the facility is expected to be <i>used</i> by the real property unit (Section 15(2) of the Joint Facilities Act).</p> <p>Decision:</p> <p>Cost allocation for the original section of Batteriet GA:1 must remain as at the time of formation (see file ABC123)</p> <p>Costs for the construction of Section 2 must be allocated according to the participatory shares in the section.</p> <p>Costs for the operation of Section 2 must be charged on the basis of actual consumption in the first instance, and on the basis of the participatory shares in the second instance.</p> <p>The cost of electricity consumption must be attributed to each user by means of separate metering.</p>
Decision on allocation of costs for the cadastral procedure	<p>Grounds:</p> <p>The costs for the cadastral procedure are allocated on the basis of participatory shares in the new section. This allocation corresponds to what is reasonable (Section 29 of the Joint Facilities Act)</p> <p>Decision:</p> <p>The costs for the cadastral procedure are distributed among the owners of the real property units included in Section 2 according to participatory shares.</p> <p>Minutes compiled on XX/XX/202X.</p> <p>Minutes taken by Effie Effect Cadastral Surveyor</p>

Annex 4 – Right to charge

Introduction

This annex presents the results of a study on different systems in Norway, Spain and France described by the term right to charge, carried out by the RISE research institute. Right to charge generally aims to facilitate car charging for residents in apartment blocks and/or for residents who have car parking arranged jointly with others (without right of disposition). The emphasis is on apartment blocks in the countries compared. The generic term for these legislations is therefore right to charge, sometimes also referred to as right to plug.¹³⁹ Right to charge is used in this annex. The European Commission has described the right to charge scheme, introduced in various forms in some Member States, as a requirement so as to ensure that tenants or co-owners can install recharging points for electric vehicles. This is often possible without having to obtain consent from the landlord or other co-owners in the association that owns the real property unit (which is described as potentially difficult).¹⁴⁰ The European Commission has identified this as a way of overcoming the often long and complex process of deciding on installation of recharging points.

The committee has examined the details of right to charge legislation in Norway, Spain and France and has gathered information on experiences of right to charge. However, it has not been possible within the scope of the investigation to gain a more in-depth understanding of the general laws and regulations of each country that indirectly affect the right to charge. These laws and regulations may have an impact on the right to charge, so there may be a need to examine this in a future investigation. Further reservations include the fact that there may be minor errors in the translations from Norwegian, Spanish, French and English into Swedish. Interviews have been conducted with stakeholders in each country, in part to try to ensure that the committee has correctly understood legal texts and other written material.

The annex is structured as follows. Presentation of legislation in Norway, Spain and France and experiences with their respective right to charge systems. At the end of the document, a general table presents differences and various aspects of right to charge for the three countries studied, as well as for Austria, Ontario (a Canadian province) and Germany.

¹³⁹ Directly translated into Swedish as *rätt att ladda* or *rätt att ansluta*. There is no established Swedish term – and the directly translated term has been questioned from various quarters as a designation for a potential Swedish system. A Google search conducted on 4 June 2021 returned the following numbers of hits: “*rätt till laddning*” (10 hits), “*rätten till laddning*” (6 hits), “*rätt till anslutning*” (7,460 hits, almost all of which were about things other than electric car charging) and “*rätten till anslutning*” (2,420 hits, almost all of which were about things other than electric car charging”). As noted in the main report, there are objections to terms that indicate a right to plug in charging equipment. There may be reason to consider a different scheme in Sweden to the one associated with the right to charge in other countries; including people’s right to install their own equipment without the real property owner’s consent, which is common in other countries. Even in other countries, the right to charge is not a right that trumps other important interests, but rather a political signal of a presumption of charging unless there are compelling reasons against it.

¹⁴⁰ Commission Recommendation (EU) 2019/1019 of 7 June 2019 on the modernisation of buildings, Section 3.4.3.3.

Norway

Context

Norway has seen the world's fastest rate of electrification of passenger cars over the past decade. As things stand at present, Norway has the world's highest percentage of plug-in electric cars (around 15 per cent).¹⁴¹ Experience from Norway may thus be of relevance in Sweden, which has not yet reached such a high percentage of plug-in electric vehicles. There are many common denominators between Norway and Sweden, but also significant differences. In Norway, fewer households live in apartments; around 40 per cent in Norway,¹⁴² compared to over 50 per cent in Sweden.¹⁴³ Norway's mature electric car market has also led to steps being taken as early as 2017 to simplify the process of installing recharging points in apartment blocks.

Background to right to charge in Norway

The first electric car owners in Norway tended to be owners of single-family dwellings, a housing type where access to charging does not often constitute a major problem, just as in Sweden. The household normally has right of disposition over the installation of recharging points and their continuing use. Several of Norway's instruments for promoting plug-in electric vehicles (mainly electric cars) have been directly targeted at cities, such as driving in bus lanes and exemptions from road charges. This has also increased the demand for plug-in electric cars for residents of apartment blocks, which are more common in cities. In the mid-2010s, a number of local branches of the Norwegian Electric Vehicle Association (Norsk Elbilsforening) in Oslo started to report on discussions and conflicts among the residents and boards of apartment blocks regarding the installation of recharging points. These conflicts related to issues such as whether these points are dangerous and who should pay for them.¹⁴⁴ An initial Government Bill on the right to charge was put forward by a local member, inspired by legislation in California.

In a Government Bill sent to the Storting (Norwegian Parliament), it was proposed that a number of amendments be made to "Eierseksjonsloven" (the Act Relating to Owner-Tenant Sections, a form of housing similar to Swedish owner-occupied apartments) that did not deal with charging. The Storting voted through a new "Eierseksjonsloven" – Act Relating to Owner-Tenant Sections – in the spring of 2017. An amendment was made during the parliamentary debate to introduce the right to charge. The new legislation gave a homeowner with the right to park at the real property unit the right to install a recharging point for an electric car or plug-in hybrid car. This law came into force on 1 January 2018.

In May 2019, the Norwegian government announced via a press release¹⁴⁵ that they intended to extend this right to "Borettslagen" (the equivalent to co-operative housing

¹⁴¹ <https://www.eafo.eu/vehicles-and-fleet/m1#>

¹⁴² <https://www.ssb.no/bygg-bolig-og-eiendom/statistikker/boforhold>

¹⁴³ <https://scb.se/hitta-statistik/statistik-efter-amne/hushallens-ekonomi/inkomster-och-inkomstfordelning/hushallens-boende/pong/statistiknyhet/hushallens-boende-2020/>

¹⁴⁴ Interview with Unni Berge of the Norwegian Electric Vehicle Association

¹⁴⁵ <https://www.regjeringen.no/no/aktuelt/regjeringen-foreslar-a-gi-beboere-i-borettslag-rett-til-a-lade-hjemme/id2643812/>

associations in Sweden) and to provide clarifications on how the law would work in practice. Public consultations were held between May and September 2019,¹⁴⁶ which resulted in draft adjustments. Following this, the Ministry of Local Government and Modernisation submitted “Government Bill 144 L (2019–2020), September 2020”¹⁴⁷ to the Storting. This Government Bill was introduced together with a summary and comments from the Standing Committee on Local Government and Public Administration in November of the same year. The Government Bill was debated in the Storting and later voted through for introduction into law as of 1 January 2021.

OBOS, Norway’s largest housing developer, commented on the updated law as follows, translated into English.¹⁴⁸

“The original regulation on owner-occupied apartments came about during the debate in the Storting; it was not well thought out, and there was no preparatory work to facilitate interpretation. Since then, we have received a lot questions on how to interpret it. The new regulation is a much more detailed product that contains relatively thorough and balanced considerations that make it easier to apply the rules.”

Right to charge (“laderett”)

In Norway, what is known as “laderetten” (the right to charge) is expressed in two laws: the Act Relating to Owner-Tenant Sections (Eierseksjonsloven) and the Housing Co-operatives Act (Borettslagsloven). The Act Relating to Owner-Tenant Sections regulates the equivalent to owner-occupied apartments in Sweden. This form of ownership is much more common in Norway than in Sweden. Around one-third of all apartments in Norway are of this type, while in 2020 there were just over 2,000 owner-occupied apartments in Sweden.¹⁴⁹ The Housing Co-operatives Act regulates associations equivalent to co-operative housing associations in Sweden. The wordings of the two laws are almost identical; the texts below are freely translated into English:

*Section 25 a of the Act Relating to Owner-Tenant Sections*¹⁵⁰

The right to establish recharging points for electric cars and plug-in hybrid cars.

Any section owner who has their own parking space at a residential real property unit of the joint property association has the right, with the consent of the board, to install a recharging point for an electric car and a plug-in hybrid car adjacent to the parking space. Consent can only be refused if there are justifiable reasons for doing so. Any section owner who has the right to park at a residential real property unit of the joint property association but does not have their own space at their disposal may demand the installation of a charging point for an electric car and a plug-in hybrid car. The board must comply with the requirement unless there are justifiable reasons to refuse. The board shall decide where the recharging point is to be installed.

¹⁴⁶ <https://www.regjeringen.no/no/dokumenter/horing-av-forslag-til-endringer-i-plan--og-bygningsloven-eierseksjonsloven-og-borettslagslova/id2642313/?expand=horingssvar>

¹⁴⁷ <https://www.regjeringen.no/no/dokumenter/prop.-144-l-20192020/id2765793/>

¹⁴⁸ <https://nye.obos.no/styre/tips-og-rad/nye-regler-om-el-billading-i-borettslag-og-sameier>

¹⁴⁹ <https://www.scb.se/hitta-statistik/sverige-i-siffror/manniskorna-i-sverige/boende-i-sverige/>

¹⁵⁰ <https://lovdata.no/dokument/NL/lov/2017-06-16-65>

*Sections 5 to 11 a of the Housing Co-operatives Act*¹⁵¹

The right to establish recharging points for electric cars and plug-in hybrid cars.

Any unit owner who has their own parking space at the association's real property unit has the right, with the consent of the board, to install a recharging point for an electric car and a plug-in hybrid car adjacent to the parking space. Consent can only be refused if there are valid reasons for doing so. Any unit owner who has the right to park at the association's property but does not have their own space at their disposal may demand the installation of a charging point for an electric car and a plug-in hybrid car. The board must comply with the requirement unless there is a valid reason to refuse. The board shall decide where the recharging point is to be installed.

Housing types regulated by law

The two laws regulate rights to install charging points for owner-occupied apartments (selveierbolig) and housing co-operatives (andelsleilighet). Rented accommodation and other forms of tenancy thus have no right to the installation of recharging points. This may potentially become an increasing problem in the future, particularly as more and more plug-in electric cars enter the used car market. People living in Norwegian rented accommodation tend to buy used cars more frequently.¹⁵² Besides rented accommodation, right to charge parking spaces that fall under the Co-Ownership Act (sameigelova) are not regulated,¹⁵³ which seems to be the Norwegian equivalent to traditional joint property units in Sweden. The Norwegian Electric Vehicle Association is not sure how many people in Norway have parking arranged through a traditional joint property association and thus cannot invoke the right to charge.¹⁵⁴

Costs for installing charging points

The Norwegian Electric Vehicle Association has been a driving force in the implementation of the right to charge in Norway. On their website, they review what the laws mean and provide specific tips for residents.¹⁵⁵ One important aspect looks at how the various costs for installing charging points are to be shared between individuals and the association/collective. The cost of installing charging points should generally follow the same principles as those set out in the Act Relating to Owner-Tenant Sections and the Housing Co-operatives Act. The basic principle is that common costs have to be shared in accordance with ownership shares, and that private costs should be paid by the individual. According to the established interpretation, individuals with their own parking spaces should pay for their own recharging points. If recharging points are located in communal areas, the cost can be allocated to the association, to then be paid off by payment for charging. Moreover, individuals should always pay for the electricity used to charge their cars. This applies regardless of whether the charging point is located in a private parking space, or in a communal space that all members can use.

¹⁵¹ <https://lovdata.no/dokument/NL/lov/2003-06-06-39>

¹⁵² Interview with Unni Berge of the Norwegian Electric Vehicle Association

¹⁵³ Interview with Unni Berge of the Norwegian Electric Vehicle Association

¹⁵⁴ Interview with Unni Berge of the Norwegian Electric Vehicle Association

¹⁵⁵ <https://elbil.no/om-lading-i-borettslag-og-sameier/>

Potential costs for upgrading the power grid should therefore be shared among the co-operative, because this upgrade can be considered useful for everyone, regardless of whether or not they have vehicles. However, in many instances this investment can be avoided if smart charging with load balancing is installed.

For other costs excluding the recharging point (e.g. cabling), the general rule is that the costs are to be allocated to the association. At the time of installation, only current users of plug-in electric cars can use the recharging points and thus benefit from them. However, as the installation will benefit future owners of plug-in electric cars, the general rule should be to share these costs within the association.

Challenges in respect of implementation

There were a number of uncertain aspects surrounding the practical implementation of the right to charge prior to the clarifications provided by Government Bill 144 L (2019–2020). Government Bill 144 L (2019–2020) clarified the fact that the right to charge applies only to:

- People who have a right to park – it is not possible to demand a right to charge if the occupier does not have a right to park.
- Areas set aside for parking purposes – no one can demand the relocation of parking in green spaces, for example, in order to install chargers.

Another aspect considered by Government Bill 144 L (2019–2020) involved a price cap on what can be considered justifiable reasons for declining requests to install chargers. The price cap can be applied to costs for upgrading the local power grid and other infrastructure (cables, etc.) up to the recharging point itself. The Ministry proposed that the price cap for private occupiers should be equivalent to half of the Norwegian price base amount (amounting to around NOK 50,000) as a basis for refusal to install a recharging point. However, this was altered following consultation. Thus the price cap is not enshrined in law, but remains as a recommendation.¹⁵⁶

One operator that has commented on the recommended price cap is law firm Dalan,¹⁵⁷ translated into English:

“The Board must make a specific assessment, weighing up the costs for the measure against other relevant factors. Relevant factors may include the finances of the housing co-operative/housing association, whether the measure will increase the added value of the real property unit so that it benefits all members, and whether members will derive other positive effects from the measure, such as an increase in power grid capacity. The assessment may mean that the costs may be both lower and higher than half of the base amount.”

One aspect that has emerged since the introduction of the right to charge rules relates to how the rental of charge points is to be interpreted. The allocation of the various costs for installing recharging points is not as transparent in this case compared with purchasing. This issue has arisen as a market has emerged in which providers offer a

¹⁵⁶ <https://www.huseierne.no/alt-om-bolig/sameier-og-borettslag/eierseksjoner/lading-av-el-bil-i-sameier/>

¹⁵⁷ <https://www.regjeringen.no/no/dokumenter/etablering-av-ladepunkt-kostnadsfordeling-ved-leie-av-ladeinfrastruktur/id2835317/>

new form of charging solution where users pay a rental charge. These rental solutions are marketed as being free of charge to associations. Instead, the costs are shared with residents who wish to install and use charging points by means of a monthly rental charge. This rental charge covers elements such as investment costs for infrastructure, recharging points and electricity. The size of the rental charge is thus dependent on how costly it is to establish recharging points at the specific car parks. The provider owns the infrastructure and recharging points. However, it can be agreed that the housing association has the right to buy the facility after a certain period of time. This usually involves a long-term exclusive agreement between the provider and the housing association. The National Federation of House Owners in Norway (Huseierne) has asked the Government authorities to investigate whether such a rental solution for recharging points would conflict with the right to charge as described in the legislation (the Act Relating to Owner-Tenant Sections and the Housing Co-operatives Act).

The Ministry of Local Government and Modernisation issued an interpretative statement in February 2021.¹⁵⁸ The interpretation can be summarised as follows.

As a general rule, costs for installing infrastructure that will ultimately be taken over by the housing association must be regarded as common costs and distributed to all residents. The board or housing association cannot amend the conditions for providing consent for establishment of a recharging point if the costs are to be allocated only to people who have established recharging points. The Government Bill specifies that the cost allocation principle cannot be circumvented by either the housing association or the owners' association by charging more for electricity use than actual use, for example. Thus the association cannot circumvent the general cost allocation principles of the Act Relating to Owner-Tenant Sections and the Housing Co-operatives Act by entering into a rental agreement with a third party. Payment for the parts of the charging infrastructure that will ultimately be taken over by all residents must be paid by the collective.

One possible weakness of the right to charge in Norway is that the law does not specify who can initiate and drive the process of installing charging points. An inactive board may result in individual households installing a charging system with limited upscaling possibilities. This in turn may lead to higher costs when more residents invoke the right to charge in the future.

Justifiable reasons for refusing to install a recharging point

There is no definition of the term “*saklig grunn*” (or “justifiable grounds”) in the Act. Instead, what should or should not be considered justifiable grounds for refusal can be interpreted from legal guidance from the Ministry of Local Government and Modernisation. The commentary is not law, but it may have an impact on how the law is to be interpreted in the event of legal disputes. The document from the Ministry has been summarised by housing developer OBOS:¹⁵⁹ the Ministry of Local Government and Modernisation points out that the following factors can be regarded as justifiable reasons (depending on the circumstances):

¹⁵⁸ <https://www.regjeringen.no/no/dokumenter/etablering-av-ladepunkt-kostnadsfordeling-ved-leie-av-ladeinfrastruktur/id2835317/>

¹⁵⁹ <https://nye.obos.no/styre/tips-og-rad/nye-regler-om-el-billading-i-borettslag-og-sameier>

- Costs for the action: the Ministry proposes a broad overall assessment of the total costs for the measure, set in the context of the financial situation of the housing association or housing co-operative and the benefits of the measure.
- If the recharging point does not comply with applicable safety standards. However, the Ministry stresses that according to the assessments by the Norwegian Directorate for Civil Protection (the Norwegian equivalent of the Swedish Civil Protection Agency), there is no increased fire risk associated with charging electric cars as long as this is done in accordance with the Directorate's regulations. Fire safety should therefore not normally be a reason for refusal to install a recharging point.
- Whether the current charging options in the housing association or housing co-operative can be considered satisfactory. Usually in cases where communal recharging points with sufficient capacity have already been established. In these cases, the occupier or section owner cannot demand establishment of their own recharging point.
- If it is not physically possible to establish a recharging point. Usually because the housing association or housing co-operative does not have enough communal space, or if another area needs to be converted in order to create space. The occupier or section owner cannot then demand that green space, for example, be removed in order to create a recharging point.
- There may be other legitimate reasons as to why the housing association or housing co-operative may refuse a request to install one or more recharging points. However, this must be considered following a specific assessment.

The Norwegian Electric Vehicle Association has not yet seen a case where disputes between occupiers and the board regarding right to charge have ended up in court. However, disputes still seem to arise in associations regarding the interpretation of justifiable reasons. A number of members of the Norwegian Electric Vehicle Association have contacted the organisation's lawyers for advice in disputes where the board has refused to install recharge points for occupiers.¹⁶⁰

Spain

Context

The market for plug-in electric cars is still small in Spain compared to Northern European countries. However, the Spanish electric car market is growing rapidly. In 2020, the percentage of new plug-in electric cars in Spain stood at around 4.8 per cent. This is a sharp increase compared to 1.4 per cent in the previous year.¹⁶¹ Compared to the percentage of new cars in other EU/EEA countries, Spain is in the middle of the list.

Spain is in the process of implementing similar types of purchase subsidies as countries with higher percentages of new plug-in electric cars (e.g. Norway, Sweden and France). On 9 April 2021, the Ministry of Energy announced that the Spanish Government had approved a plan to spend up to EUR 800 million (about SEK 8 billion) by 2023 to encourage the sale of plug-in electric cars.¹⁶² According to the plan, both private individuals

¹⁶⁰ Interview with Unni Berge of the Norwegian Electric Vehicle Association.

¹⁶¹ <https://insideevs.com/news/489169/european-countries-plugin-market-share-q1q4-2020/>

¹⁶² <https://www.reuters.com/technology/spain-subsidise-electric-car-sales-with-800-million-euros-2023-2021-04-09/>

and undertakings would receive up to EUR 7,000 to 9,000 in subsidies per plug-in electric car purchased.

Spain has the second largest car manufacturing industry in Europe, smaller than Germany but larger than France. The automotive industry accounts for about ten per cent of the Spanish economy. There seems to be an awareness that the domestic automotive industry has a lot to lose if Spain fails to make the transition to plug-in electric cars. Therefore, Spain is working hard to attract new battery and electric vehicle facilities to the country, partly through the EU recovery fund.¹⁶³

65 per cent of the Spanish population lives in apartments, which is among the highest in the EU.¹⁶⁴ This figure is even higher in cities, where the majority of plug-in electric cars are purchased. Data also suggests that around 70 per cent of Spanish car owners do not have dedicated parking spaces for their cars.

Background to right to charge in Spain

Spain was the first country in the world to introduce a legal right to charge. This law was introduced back in 2009, despite a small domestic market for plug-in electric cars. The right to charge was included in *Ley de Propiedad Horizontal* (the Commonhold Property Act). This Act regulates the rights, obligations and governance procedures of real property owners in a property association (to which the majority of apartment residents belong).

Additional technical and procedural requirements were introduced in 2014 following the 2009 change to commonhold ownership. These were stipulated in the Technical Instruction – ITC – BT 52.

Right to charge

The law stipulates that a recharging point for electric vehicles for private use can be installed in the building's car park. There are several different technical options, but the installation must always have been communicated to the association. Approval from the association is also required if the installation requires changes to the existing communal electrical installations, such as the installation of new electricity meters or cables from the electricity distribution box. The grounds on which the association may or may not approve such a request is not entirely clear. However, the law stipulates that these applications can be approved by a simple majority.¹⁶⁵

Ley de Propiedad Horizontal (Article 17)¹⁶⁶ (translated):

The installation of an electric vehicle recharge point for private use in the building's car park, provided that it is located in an individual garage space, will only require prior communication to the community. The cost of this installation and the corresponding electricity consumption shall be borne entirely by the person or persons interested in it.

¹⁶³ <https://www.autoblog.com/2021/05/09/spanish-ev-production/>

¹⁶⁴ <https://www.thinkspain.com/news-spain/27566/spain-is-the-eu-country-where-most-people-live-in-apartments>

¹⁶⁵ <https://www.domingomonforte.com/propiedad-horizontal-punto-recarga-vehiculos-electricos/>

¹⁶⁶ <https://www.boe.es/buscar/act.php?id=BOE-A-1960-10906>

Housing types regulated by law

The Spanish right to charge applies in apartment blocks where the occupier owns their own home and where the parking is located in an individual garage. It is unclear what percentage of residents' parking garages in Spain can be considered to be individual garages and thus meet the criteria for invoking the right to charge. In an interview with AEDIVE, it was estimated that around 30 per cent of Spanish car owners have access to dedicated parking spaces at their homes.¹⁶⁷ However, these do not necessarily have to be located in an individual garage: other options include outdoor parking spaces, shared garages, etc. In this respect, the Norwegian right to charge is broader. In Norway, not only individual garage spaces are affected, but also situations where an occupier does not have their own space, but still has the right to park on the association's property.

Three main installation options

The Spanish standard for the installation of recharging points for electric vehicles (ITC BT 52) describes a number of different technical systems that can be used for installation. Three installation options seem to be most common:^{168,169}

- Individual installation with a shared electricity meter for the individual home and the recharging point.
- New power grid connection.
- Shared installation with one main electricity meter for the entire installation.

Of these three systems, the individual installation and the new electricity connection do not require the approval of the association, only that the board is informed in advance. However, the option of implementing a new power grid connection can be costly for individuals. A shared installation requires the approval of the association, as it requires changes to the building's central electrical system, which is owned by the co-operative.

¹⁶⁷ Interview with Arturo Perez de Lucia at AEDIVE.

¹⁶⁸ <https://www.administradoresfincasasturias.es/mayorias-necesarias-y-requisitos-para-instalar-un-punto-de-recarga-en-garaje-comunitario-752.html#>

¹⁶⁹ <https://www.lugenergy.com/informacion-sobre-instalaciones-de-puntos-de-recarga-para-administradores-de-fincas/>

Individual installation

In the case of an individual installation, the recharging point is connected to the resident's individual electricity meter. The resident who owns the plug-in electric vehicle and the garage space does not need approval from the association in this case.¹⁷⁰ The location of individual electricity meters may vary from building to building. An individual installation may be impractical in cases where the electricity meter is located far from the garage or far from the individual's parking space due to high costs and voltage drops in the case of longer cable runs, for example.

Individual, con contador principal común con la vivienda.

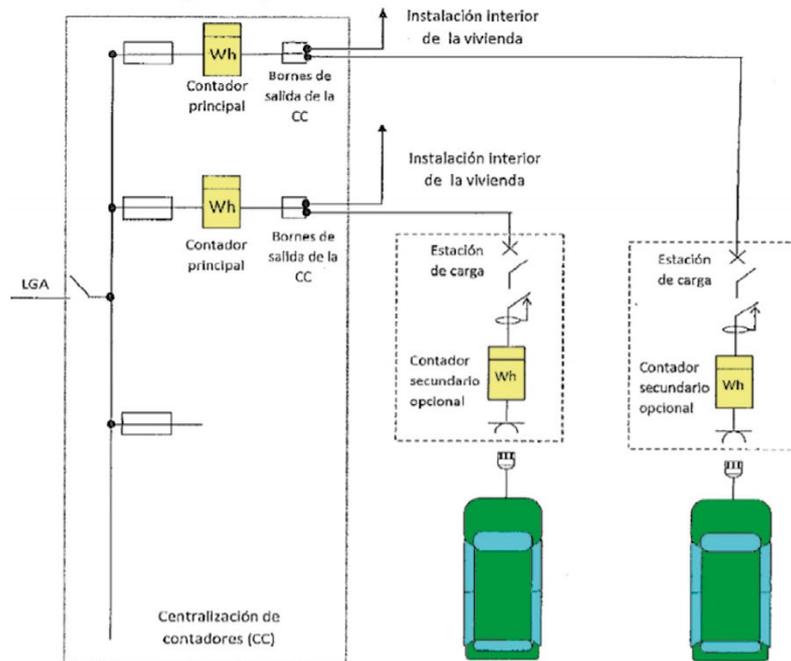


Figure B4-1. Individual installation of a recharging point (Spanish illustration).¹⁷¹

There seems to be a lack of detailed information on the proportion and hence the number of parking spaces for residents in Spain that can actually make use of this installation option. However, there are obvious risks. The electrical installations quickly become difficult to manage if several individuals in a residential garage install their own recharging points at different times and/or using different installers.

¹⁷⁰ <https://www.myrecarga.es/administrador-fincas-normativa-recarga-coches-electricos/>

¹⁷¹ <https://www.lugenergy.com/imagenes//2020/05/Comunidad-de-propietarios-puntos-de-recarga-coches-electricos.pdf>

New power grid connection

In the case of a new power grid connection, the occupier asks an electricity distributor/utility company to create a new power grid connection to the building/garage. This may be an option if an individual installation is impractical and if the occupier cannot get approval from the association for a shared installation. Making a new power grid connection is likely to be a costly solution for the occupier. Additional costs include a connection charge and regular power grid charges. However, several occupiers in the same building can join forces and share the cost of a new power grid connection.

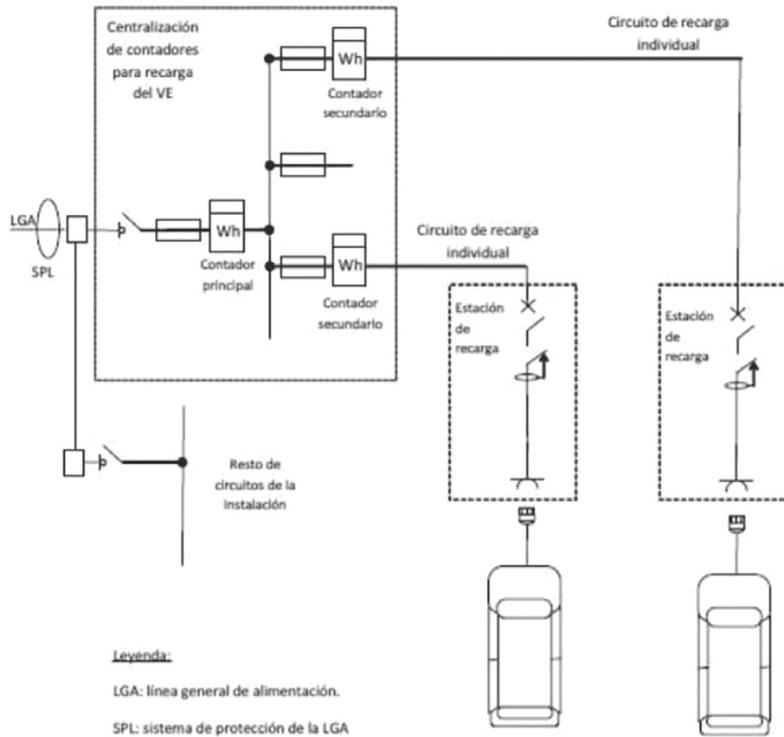


Figure B4-2. New power grid connection (Spanish illustration).¹⁷²

¹⁷² <https://www.lugenergy.com/imagenes//2020/05/Comunidad-de-propietarios-puntos-de-recarga-coches-electricos.pdf>

Shared installation

In the case of a shared installation of recharging points, the installation starts from the central electricity meter for the building or garage, and additional electricity meters are then installed at each of the recharging points. This option requires the approval of the association. For additional control, the association can install a new electricity meter in the garage which is only used to measure electricity consumption from the recharging points.

A shared installation creates better conditions for smart charging (load balancing, etc.). However, it does require a certain level of commitment from the association: to agree to take on part of the cost of installing the recharging points. The advantage is that the system can be flexible for connecting more plug-in electric vehicles in the future. A shared installation may be the only practical option for occupiers if their individual electricity meters are not located near their parking spaces.

Troncal, con un contador principal en el origen de la instalación y contadores secundarios en cada una de las estaciones de carga.

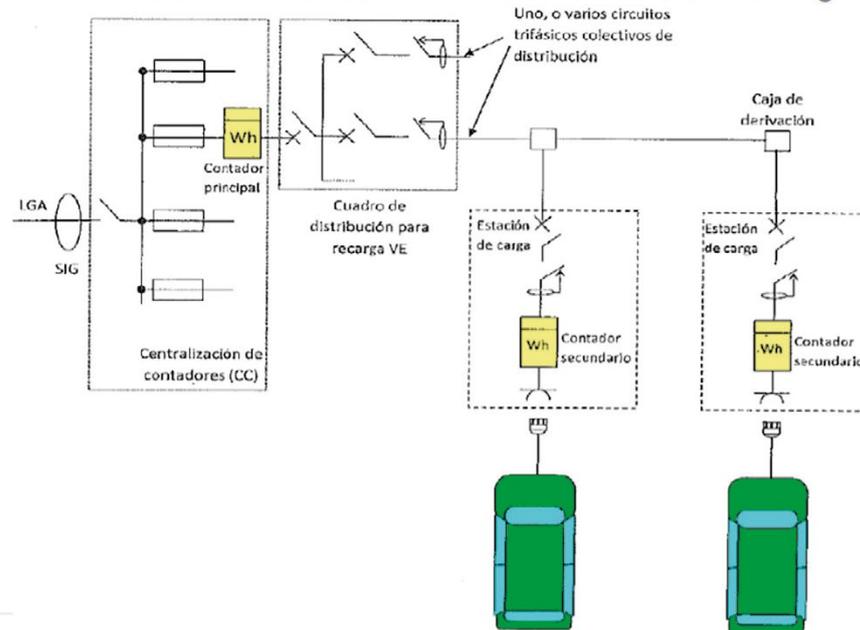


Figure B4-3. Shared installation of recharging points (Spanish illustration).¹⁷³

¹⁷³ <https://www.lugenergy.com/imagenes//2020/05/Comunidad-de-propietarios-puntos-de-recarga-coches-electricos.pdf>

Complementary measures

The Spanish standard for the installation of recharging points (ITC BT 52^{174,175}) was introduced in 2014 and provides a more detailed explanation of the right compared to the wording of Article 17 of the Commonhold Property Act. These explanations include:

- A technical project description of the installation must be presented to the association prior to installation. The description must include a report and a budget.
- The project description must be sent to the association's board or chairman at least 30 days before installation takes place.
- Once the installation is completed, an Electrical Installation Certificate (CIE, *Certificado de Instalación Eléctrica*) must be sent to the board. This certificate is provided to the parking occupier by the installer.
- The association may propose instead, within a 30-day period, to carry out an installation of a shared charging infrastructure so as to accommodate more or all parking occupiers in the immediate future or the longer term. The association also has the opportunity to propose other reasonable options for charging infrastructure that may meet the joint interests of the association.

Costs for installing charging stations

The law stipulates that the cost of the installation and the corresponding electricity consumption shall be borne entirely by the person or persons interested in it (the occupiers who wish to have recharging points installed). The association cannot refuse to allow installation of recharging points for electric vehicles as long as the requirements of the law are met. Unlike the situation in Norway where the distribution of shared infrastructure costs is charged to the association, the Spanish right to charge does not require the joint property unit to bear any of the costs, unless the association itself decides to implement proactive measures such as a “pre-installation” or decides on a centralised charging system that can be extended to future users.

Who is responsible for procuring the installation?

Unlike the Norwegian right to charge, the Spanish right to charge seems to place primary responsibility for organising the purchase of services for the installation of recharging points (e.g. cables and charging boxes) on the parking occupier who invokes the right to charge.

Pre-installations

Pre-installation is a preparatory action that involves measures such as laying cables, chasing cables into walls and adapting gullies so as to facilitate the future installation of recharging points in a garage.

¹⁷⁴ <https://charging-box.com/normativa-itc-bt-52-recarga-de-coches-electricos/>

¹⁷⁵ http://www.f2i2.net/documentos/IsiF2I2/rbt/guias/guia_bt_52_nov17R1.pdf

France

Context

New sales of plug-in electric cars have been low in France until recently. Like its neighbouring country Germany, sales of plug-in electric cars have increased dramatically in France in recent years. Market shares for plug-in electric cars quadrupled between 2019 and 2020, from 2.8 per cent of new car sales to 11.3 per cent.¹⁷⁶ This dramatic growth in France is likely to be a consequence of the launch of a number of new plug-in electric car models by the French automotive industry, combined with policy aid in the form of subsidies introduced in 2020.

France has a unique context in terms of housing and parking compared to Spain and Norway. French housing can be divided between single homes (19 million, of which almost 15 million have private parking spaces) and apartment blocks (15 million, of which almost 8 million have no parking space). The percentage of the population living in apartment blocks is thus halfway between Norway and Spain, Spain having the highest share of apartment blocks in the EU. However, France has a much higher proportion of households renting their homes – around 40 per cent¹⁷⁷ – compared to both Spain¹⁷⁸ and Norway.¹⁷⁹

Background to right to charge in France

France started discussing right to charge in the context of a package of environmental laws, Grenelle II, in 2010. Besides the right to charge, the Grenelle II laws also introduced requirements for new developments to prepare for the installation of recharging points in at least 10 per cent of parking spaces.¹⁸⁰ The right to charge came into force on 1 January 2015, while the requirements for preparing charging infrastructure for new builds were introduced several years previously. This meant that buildings constructed after July 2012 generally have at least 10 per cent of their parking spaces prepared for later installation of recharging points. The requirements have become more ambitious over time. For buildings constructed after 2017, the requirement has been increased to 50 to 75 per cent of parking spaces having to be prepared for recharging points. One possible consequence of this is that residents in newer apartment blocks are not as dependent on right to charge. The main purpose of the French right to charge law was to simplify the situation for apartment blocks built or approved before July 2012.

Right to charge (le droit à la prise)

The right to charge in French legislation is laid down in Articles L. 111-3-8 and L. 111-3-9 of *Code de la construction et de l'habitation*¹⁸¹ (the Building and Housing acts). This is a different approach compared to both Norway and Spain. Instead, right to charge laws in Norway and Spain have been implemented in legislation that specifically regulates the rights, obligations and governance procedures for occupiers in apartment blocks.

¹⁷⁶ <https://insideevs.com/news/489169/european-countries-plugin-market-share-q1q4-2020/>

¹⁷⁷ <https://www.brookings.edu/essay/france-rental-housing-markets>

¹⁷⁸ <https://www.brookings.edu/essay/spain-rental-housing-markets>

¹⁷⁹ <https://norwaytoday.info/finance/4-2-million-norwegians-dwelling>

¹⁸⁰ <https://www.arc-lr.fr/bornes-de-recharge-electrique-et-droit-la-prise>

¹⁸¹ <https://www.legifrance.gouv.fr/codes/id/LEGITEXT000006074096/>

The relevant provisions of the right to charge under French law state the following (translated):

Article L. 111-3-8¹⁸²

The owner of a building with a parking accessible only for private use or, in the case of co-ownership, the association with co-owners represented by the manager cannot object, without serious and legitimate reason, to the installation of dedicated equipment in parking spaces for charging electric vehicles and plug-in electric hybrid vehicles, as well as allowing individual electricity charging, by a tenant or occupying the parking spaces in good faith and at the expense of the resident.

The existence of such installations or decisions made by the owner or, in the case of co-ownership, the association of co-owners, to create such installations in order to provide the necessary equipment in the first subparagraph constitutes a serious and legitimate reason within the meaning of the first subparagraph, a reasonable time. The owner or, in the case of co-ownership, the manager provides access to the technical equipment in the building concerned in order to enable the individual to conduct a survey and an estimate for the work referred to in the same first subparagraph. The service provider is selected by the tenant or the bona fide occupier. Joint owners, co-owners and members of construction undertakings may utilise this article and article L. 111-3-9.

The French Government decides on the methods of application for this article.

Article L. 111-3-9¹⁸³

Before the work referred to in article L. 111-3-8 is carried out in an apartment block, a contract is signed between the owner or, in the case of co-ownership, the association of co-owners represented by the manager and the service provider selected by the bona fide occupier in order to carry out the work. This agreement sets out the conditions for access and intervention by the service provider to shared parts and equipment for the installation, operation and maintenance of equipment enabling the charging of electric vehicles and plug-in hybrid vehicles serving one or more residents. A decree of the Council of State shall lay down the conditions for the application of this article, in particular the time limit for the conclusion of the agreement.

Additional ordinances were introduced by Decree No 2020-1740 on 24 December 2020, with implementation on 1 January 2021. These ordinances, which were introduced by decree, specify the various phases of the process of invoking the right to charge, as well as the responsibilities of the respective parties. Some of the phases include informing the owner or association about the intention to carry out the work, the conditions under which the association can refuse the installation and the conditions under which residents carry out the work in accordance with the right to charge. It also specifies how information is to be exchanged between residents and the association and the maximum time periods available to the parties for performance of their obligations. The decree also extends the right to charge to outdoor parking spaces.

¹⁸² <https://www.legifrance.gouv.fr/codes/id/LEGITEXT000006074096/>

¹⁸³ <https://www.legifrance.gouv.fr/codes/id/LEGITEXT000006074096/>

Housing types regulated by law

Like the Spanish right to charge, the French right only applies to residents with individually allocated parking spaces. This means that residents who have the right to park in a shared garage but who do not have allocated parking spaces cannot invoke the right to charge in France. According to discussions with AVEM (*Association pour l'Avenir du Véhicule Electro-mobile*, the Association for the Future of the Electro-mobile Vehicle), shared garage parking is quite common in French housing stock.¹⁸⁴ In this respect, the French right to charge is narrower than the Norwegian right to charge, which also covers shared parking spaces.

However, the French right to charge also includes tenants, which is not the case in either Spanish or Norwegian law. The process for tenants to invoke the right to charge is similar to that for apartment owners. One difference is that tenants must take responsibility for compliance with the regulations: apartment owners are only responsible for forwarding the completed request from the tenant to the association.¹⁸⁵

Another important feature of the French right to charge is that it includes clear time limits. For both apartment owners and tenants, the regulations set maximum time limits for the parties (tenants, apartment owners, association) to fulfil their obligations. The period between the communicated proposal and the signed contract with the selected provider should not be more than 5.5 months for an apartment owner and 6.5 months for a tenant.¹⁸⁶ If the matter is not resolved within the time allowed, the apartment owner or tenant may refer the matter to the court for resolution in accordance with the regulations.

Three main installation options

Unlike the Spanish system, neither the rules nor the technical standards specify how installation systems are to be designed in order to invoke the right to charge in France. In practice, however, Spain and France appear to be similar in terms of the technical formulation for the installation of recharging points. The installation manual from AVEM describes the same three installation types as in the Spanish case study:¹⁸⁷

- Shared installation with one main electricity meter for the entire installation.
- Individual installation with a shared electricity meter for the individual home and the recharging point.
- New power grid connection.

However, it is unclear whether the French right to charge allows apartment owners or tenants to use a shared installation without the approval of the association; which is required in Spain. Discussions with AVEM – as well as statistics from the government incentive programme – suggest that most installations to date have been via individual installation.¹⁸⁸ This may create similar challenges in future scalability.

¹⁸⁴ Interview with Sandrine Henry at AVEM.

¹⁸⁵ http://www.ave-re-france.org/Uploads/Documents/161848754620450870f6cef474d2fa0a5065e75f36-AVERE_GUIDE_INTERACTIF_15042021.pdf

¹⁸⁶ http://www.ave-re-france.org/Uploads/Documents/161848754620450870f6cef474d2fa0a5065e75f36-AVERE_GUIDE_INTERACTIF_15042021.pdf

¹⁸⁷ Interview with Sandrine Henry at AVEM.

¹⁸⁸ <https://advenir.mobi/statistiques/>

Serious and legitimate reasons

Similar to the Norwegian formulation of the right to charge, the French law gives the housing association the opportunity to refuse applications if there are “serious and legitimate reasons” for doing so. The legislation provides only two examples of what may constitute such reasons. These are:

- Existing recharging points are available at the car park, or
- A decision has been made to install recharging points; which will happen within a reasonable time.

The concept of “serious and legitimate reasons” has not yet been tested in court or extended by other judicial institutions to include more examples.

Responsibility for costs

The French right to charge, like the Spanish one, imposes the cost of installation and use of recharging points on individual residents who have invoked the right to charge. There appears to be no legal basis for imposing costs on associations in France, as is the case in Norway. Providers offering rental solutions for the installation and use of charging infrastructure, as discussed in the case study in Norway, are also active in France.

Judicial review

One difference in the French right to charge compared to Norway and Spain is that it requires the association to request a court order in order to refuse a resident’s request to install a recharging point. If the association decides to refuse the request, the Norwegian and Spanish legislation instead places this responsibility on the resident wishing to invoke the right to charge.

However, it is unclear how this works in practice as the regulations also state that if the application procedures are not resolved within the time allowed by the association, the apartment owner or tenant can refer the matter to the court for resolution.

Discussions with AVEM indicate that to date, there have been no court cases due to right to charge that they are aware of.

Comparison of Right to Charge in different countries

	Norway	Spain	France	Austria	Ontario (Canada)	Germany
Came into force in (year):	2018	2009	2015	2019	2018	2021 <i>Not yet in force</i>
Legal background	Legislation	Legislation	Legislation	Case law	Ordinance	Legislation
Addendum to the law:	2021 – the law was extended to homes in equivalent housing co-operatives			2020 – Government proposal to integrate and extend the right to charge in legislation.		
Supporting ordinances and legal instruments:	Publicly published legal guidance from the responsible ministry.	Technical standards for charging	Ordinances			Forthcoming ordinances not yet made public
The right includes:						
• Apartment owner (owner-occupied apartment, housing co-operative or equivalent)	✓	✓	✓	✓	✓	✓
• Tenants	✗	✗	✓	✗	✗	✓
• The right applies only if the right to park already exists	✓	✓	✓	✓	✓	✓
• Access to parking without a permanent space	✓	✗	✗	Unknown	Unknown	Forthcoming regulations not yet made public
• Equivalents to joint property units	✗	Unclear whether equivalent terms/housing types exist				
Cost allocation:	✓	✗	✗	Unknown	✓	✗
✓ Part of the cost must be paid by the collective						
✗ the parking space occupier must pay all costs						

	Norway	Spain	France	Austria	Ontario (Canada)	Germany
Came into force in (year):	2018	2009	2015	2019	2018	2021 <i>Not yet in force</i>
Exemptions from the right to charge:	<p>‘Justifiable grounds’</p> <ul style="list-style-type: none"> • Recharging points are already in place • If it is not physically possible to establish a recharging point. Due to space constraints, for example • The cost of the installation in relation to the association’s finances • If the recharging point does not meet current safety standards • Other challenges, determined by means of a specific assessment. 	None specified	<p>‘Serious and legitimate reasons’</p> <ul style="list-style-type: none"> • Recharging points are already in place • The real property unit will install a recharging point within a specified timeframe 	The right does not apply to recharging points with an output above 3.7 kW. The court order is based on equivalence between a 3.7 kW recharging point and a regular wall socket.	<p>If the installation:</p> <ul style="list-style-type: none"> • Will conflict with other legislation, e.g. electrical safety standards • Will adversely affect the structural integrity of the real property unit • Will pose a serious danger to personal health and the property. 	Forthcoming regulations not yet made public
Technical consequences/restrictions:		The right to charge without seeking the approval of the association applies only in cases where no changes to the shared electricity supply are required.				
Responsibility for the procurement and implementation of the installation:	Not specified	Resident invoking the right to charge	Resident invoking the right to charge	Unknown	Unknown	Forthcoming ordinances not yet made public
Does the court specify how roles (association/real property owner and resident) are to be allocated during the process?	✘	✓	✓	✘	✓	Forthcoming ordinances not yet made public

	Norway	Spain	France	Austria	Ontario (Canada)	Germany
Came into force in (year):	2018	2009	2015	2019	2018	2021 <i>Not yet in force</i>
Is a timeframe specified for mandatory actions?	✗	✗	✓ The association has a maximum of ~ 6 months in which to fulfil its obligations	✗	✓ The association has 60 days in which to respond to the first written application	Forthcoming ordinances not yet made public
Is a procedure for judicial review specified?	✗	✗	✓	✗	✓	Forthcoming ordinances not yet made public
Is there previous case law on the right to charge?	✗	✗	✗	✓ The right comes from an outcome in court	Unknown	The law has not yet entered into force
Other consequences of the right to charge:					Allows owners' associations to carry out installations of recharging points without a vote if the cost is less than 10 per cent of the operating budget for the year	
Legislation for pre-installation of charging infrastructure in new residential buildings:	✗ Under consideration since 2018, not yet implemented	✗ Ongoing process, consultation completed in 2020	✓ Introduced into law in 2012	✗	✓ Introduced into law in 2018	✓ Introduced into law in 2021
Available subsidies for charging infrastructure	✓	✓	✓	✓	✓	✓

Annex 5 – Challenges for local authorities in providing and regulating charging

Introduction

This annex has been written by RISE, with the help of information from the Swedish National Board of Housing, Building and Planning regarding the application of the Planning and Building Act and the Public Order Act. Essentially, it presents the results of a survey of the challenges faced by local authorities in providing and regulating charging in public spaces and development districts. Challenges include land use issues, how charging can be regulated through local road traffic regulations, parking conditions and marking (signage), for example. Local authorities have different approaches and strategies with regard to the issue of how municipal land can be used and made available for charging and how the charging regulations are to be interpreted.

The local authority's role is most evident in the establishment of recharge points for municipal company vehicles, in municipal staff car parks and in parking spaces belonging to homes that are part of municipal housing companies. The local authority may also have a part to play in the construction of public charging, i.e. charging infrastructure available to the public. This is a controversial issue as other charging is often considered to take place at home or at work.¹⁸⁹ However, there is demand from both residents and visitors for charging infrastructure on non-private land, which is why many local authorities feel there is pressure to establish it. Different regulatory frameworks may need to be applied depending on the type of land that needs to be used for charging infrastructure.

This annex describes the rules that apply, the challenges that may exist and the role of the local authority in the matter. There is also a section describing how some Swedish local authorities deal with charging, as well as examples from European cities.

Most vehicles are charged when parked

Plug-in electric vehicles are mainly charged while they are parked. Parking means the positioning of a vehicle with or without a driver for any reason other than that caused by traffic conditions, for the purpose of avoiding danger, for boarding or alighting or for loading or unloading goods: see Section 2 of the Road Traffic Definitions Ordinance (2001:651).¹⁹⁰

However, there have also been rules on charge points since 2011, with specific rules on vehicle positioning in such places (see below).

¹⁸⁹ According to the Swedish National Board of Housing, Building and Planning's report *Nya krav på laddinfrastruktur för laddfordon* [New requirements for charging infrastructure for electric vehicles] (p. 65), most charging of plug-in electric vehicles in Sweden – around 80 to 90 per cent – takes place at private charge points, i.e. at home and at work.

¹⁹⁰ By way of comparison, *stopping* is defined as stopping with a vehicle other than to avoid danger, due to traffic conditions, or constituting parking: see Section 2 of the Road Traffic Definitions Ordinance.

Rules for charge points

Rules for charge points were introduced in 2011

The following new rules for charge points were introduced in 2011:

- The Road Traffic Definitions Ordinance (2001:651) was supplemented with a definition of what is meant by “charge point” (Section 2 of the ordinance).
- The Road Traffic Ordinance (1998:1276) was supplemented with the opportunity (authorisation) to issue local road traffic regulations for charge points (Chapter 10, Section 1(2), paragraph 7), with conditions for orders on charge points (Chapter 10, Section 9 a), and with a provision on rules on vehicle positioning at charge points (Chapter 3, Section 54(4)).
- The Road Signs Ordinance (2007:90) was supplemented with a new additional sign T24 for charge points (see Chapter 2, Section 30).

Definition of a charge point

A charge point is defined as a place that is to be a charge point in accordance with a local road traffic regulation and that is marked with a parking sign and a supplementary charge point sign: see Section 2 of the Road Traffic Definitions Ordinance (2001:651). It therefore follows from the definition that a charge point cannot be provided without a local road traffic regulation, and that it must also be marked (signposted) as a charge point.

Local road traffic regulation stating that a certain place is to be a charge point

General road traffic rules for all road traffic are set out in the Road Traffic Ordinance. Chapter 10 of the Road Traffic Ordinance also provides for the introduction of local road traffic regulations so as to adapt the provisions that apply in general to local conditions. Chapter 10, Section 1 of the Road Traffic Ordinance contains a list of situations that may be covered by a local road traffic regulation. These include regulations on speed, parking, green zones, traffic bans and parking conditions, for example. This provision indicates that a local road traffic regulation may apply to a particular road or section of road, or to all roads in a given area, or to an area or an off-road route; and, in the case of regulations on stopping or parking, also to all roads within a given area which are not private. The authorisation to issue a local road traffic regulation stating that a certain place is to be a charge point can be found in Chapter 10, Section 1(2), paragraph 7 of the Road Traffic Ordinance, and means that local road traffic regulations may stipulate that a certain place is to be a charge point.

Chapter 10, Section 9 a of the Road Traffic Ordinance also states that a place may only be declared a charge point if there are facilities for external charging with electrical energy for vehicle propulsion. Thus specific conditions are imposed on such facilities for a decision to be made on a charge point. This means that it is not possible to introduce a charge point without charging facilities also being available.

The authority to issue local road traffic regulations of various kinds is mainly divided between the local authority and the County Administrative Board (Chapter 10, Section 3 of the Road Traffic Ordinance). The local authority determines the local road traffic

regulations for roads in built-up areas¹⁹¹ other than public roads for which the State is responsible for maintenance of roads; and the County Administrative Board in the case of public roads for which the State is the highway authority. The local authority also determines the local road traffic regulations for all roads in within built-up areas if the regulations concern stopping and parking, for roads outside built-up areas for which the local authority is responsible for maintenance of roads, and for off-road areas.

Positioning of vehicles at charge points

Only vehicles that can be charged externally with electrical energy for vehicle propulsion may be parked or stopped at charge points. Other vehicles may not be parked or stopped other than for the purpose of boarding or alighting (Chapter 3, Section 54(4) of the Road Traffic Ordinance). Therefore, only plug-in electric vehicles are allowed to stop at charge points. However, the provision does not state that charging must be in progress in order to stop or park; hence there is no such requirement.

When the Swedish Transport Agency proposed this regulation, a requirement for ongoing charging was considered to be associated with such disadvantages that it should not be proposed. The disadvantages highlighted included difficulties for the driver to know how long charging would take and difficulties associated with monitoring.¹⁹²

Marking of a charge point

Chapter 2, Section 30 of the Road Signs Ordinance (2007:90) states that additional sign T24 applies to charge points. This sign indicates a location for external charging of electricity for vehicle propulsion. The sign is used under sign E19, parking,¹⁹³ and indicates that only vehicles with the option of external charging of electricity for vehicle propulsion are allowed to park.

¹⁹¹ The local authority decides by means of local road traffic regulations which areas are to be defined as built-up: see Chapter 10, Section 1(2), paragraph 3 and Chapter 10, Section 3(1 a) of the Road Traffic Ordinance. As a condition for decisions on built-up areas, according to Chapter 10, Section 9 of the Road Traffic Ordinance, an area may be declared a built-up area if it is of the nature of a town or village or otherwise has a comparable road network and buildings.

¹⁹² Swedish Transport Agency memorandum dated 5 May 2010 (rev. 20 May 2010), *Redovisning av regeringsuppdrag om parkeringsplatser för elbilar*, TSV 2010-2130, pp. 7 and 8.

¹⁹³ The E19 sign, which is a parking instruction sign, indicates that parking is permitted in a parking space or on a section of road on the side of the road where the sign is placed. The details of what the sign means are set out in Chapter 2, Section 12 of the Road Signs Ordinance. Instruction signs inform road users of the conditions that apply to a particular place or a particular road or section of road: see Chapter 2, Section 11 of the Road Signs Ordinance.

Rules for parking

General and local rules on parking

As stated previously, electric vehicles are mainly charged when the vehicle is parked. What parking means has been indicated above.

The Road Traffic Ordinance contains general provisions on stopping and parking. Bans on stopping or parking in accordance with these rules are not normally indicated by means of road signs, but drivers are expected to be aware of them. Local road traffic regulations may also define provisions on stopping and parking adapted to local conditions, as well as provisions on time limits, charges or other conditions for parking. Local road traffic regulations are normally indicated by means of road signs (see the section below).

Different rules for parking in public spaces and development districts

In areas covered by a detailed development plan, different rules apply to how parking can be provided depending on whether the land is planned as public space or a development district.

The rules that apply to the establishment of charge points are thus dependent on whether the parking is established in public spaces or in a development district. The terms ‘public space’ and ‘development district’ are described in more detail below (in the section entitled *Land use issues in respect of charging*, which is a sub-section of *Challenges in the provision and regulation of charging in public spaces and development districts*). Essentially, it can be stated that public space consists mainly of streets, pavements, parks and surrounding areas, while development districts are all other land.

Parking in public spaces, such as in streets and squares, is sometimes known as on-street parking. Parking in development districts is sometimes referred to as off-street parking. Parking in development districts mainly refers to parking on such land, or in multi-storey car parks. In development districts, the landowner – which may be a local authority or a private individual or undertaking – usually decides which parking rules are to apply in addition to the general provisions of the Road Traffic Ordinance. Development districts are owned by private individuals, co-operative housing associations and private, municipal and state-owned undertakings, for example.

The local authority decides in the detailed development plan on land use in public spaces and development districts, regardless of whether a local authority or private individual/undertaking is primarily responsible for it (see Chapter 4, Sections 5 and 8 of the Planning and Building Act). A local authority may stipulate in a detailed development plan that there must be space for parking, where this is to be located and what form it is to take, or that certain land or certain buildings may not be used for parking (Chapter 4, Section 13 of the Planning and Building Act). However, a detailed development plan may not be more detailed than is necessary for the purpose of the plan (Chapter 4, Section 32 of the Planning and Building Act). The Swedish Association of Local Authorities and Regions (SALAR) has indicated that the detailed development plan should only specify general land use, e.g. areas for parking, but that more detailed regulations such as charge points should instead be resolved by means of local road traffic regulations.¹⁹⁴

¹⁹⁴ Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50.

Parking in public spaces

Time limits

If no other time is specified, vehicles may be parked in public spaces in built-up areas where the local authority is responsible for the maintenance of public spaces or in the road area for a public road for a maximum of 24 consecutive hours on weekdays, except weekdays before Sundays or public holidays (see Chapter 3, Section 49 a(1) of the Road Traffic Ordinance). This time rule cannot be signposted.

A local authority may use local road traffic regulations to prescribe time limits, compulsory charges or other conditions for the right to park in accordance with Chapter 10, Section 1(2), paragraph 17 of the Road Traffic Ordinance. For example, a local authority can introduce local road traffic regulations on parking in order to facilitate road maintenance and on-street services (service days/service nights, alternate-side parking, temporary parking bans, etc.).

General provisions if local road traffic regulations have been introduced

The general provisions that apply if special conditions for parking have been introduced by means of local road traffic regulations are set out in Chapter 3, Section 49 a(2) of the Road Traffic Ordinance. This states, among other things, that parking charges are to be paid in the manner indicated on the site and according to a specified tariff. If a parking ticket or equivalent is used, it must be placed inside or on the vehicle, at the front. The same applies to parking discs, season tickets or insurance discs used to show prepaid parking charges, such as a pay-as-you-go parking permit or a resident's parking permit. Time indications or other information stating that the parking conditions have been met must be clearly visible and legible from outside the vehicle.

Parking charges

Parking charges can be used as a tool to increase the turnover of parked cars and to direct parking to appropriate locations.¹⁹⁵ The basis for the local authorities' right to levy parking charges can be found in Section 2 of the Act on the right of local authorities to levy charges for certain provision of public places, etc. (1957:259). According to this provision, a local authority may, to the extent necessary for the organisation of traffic, levy a charge for the right to park in public places under the management of the local authority and which the local authority has made available for parking.

For the local authority to be able to levy parking charges, it is therefore necessary for the parking space to be a public place under the management of the local authority. According to Chapter 1, Section 2 of the Public Order Act (1993:1617), a public place includes streets, roads, squares, parks and other places that are designated as public spaces in a detailed development plan and that have been made available for their purpose. A street is made available for its intended purpose when it has been prepared and made available to traffic. Parks and squares are considered to be made available when the area has been prepared in accordance with the provisions of the plan (Government Bill 1992/93:210 p. 51).

¹⁹⁵ Swedish Association of Local Authorities and Regions (2017), *Parkeringshandbok – Lagstiftning, reglering och tillståndsgivning*, p. 23.

The basis for calculating the charge is decided by the Municipal Council. The following rules therefore apply. Parties to whom the decision applies may be subject to charges on specific grounds so as to facilitate parking for traders and others with a special need to park for their work, or for people who live in a certain area to park within the area (residents' parking). In such cases, the charge may be set at a one-off amount for a specific period. People with reduced mobility may be exempted from paying charges.

Differentiation of or exemption from charges is not possible in cases other than those specified in the legal text (cf. HFD 2014, ref. 57¹⁹⁶).

A few words about residents' parking

A common form of parking for residents, particularly people living in apartment blocks in built-up areas, is what is known as residents' parking, which generally means that residents can park in public spaces (on-street parking) within the area on more favourable terms than others; or alternatively parking spaces can be reserved for residents so that others are excluded from parking in these spaces. As a rule, residents' parking offers the opportunity to park for lower parking charges than for visitors (often through a one-off payment for a certain period). To access this facility, residents usually need to apply to the local authority for a residents' parking permit. Residents' parking was introduced in the 1980s with the primary aim of ensuring that people living in an area are not forced to use their cars simply because parking regulations make it impossible for them to park near their homes for long periods.¹⁹⁷

Parking in development districts

The provisions of the Road Traffic Ordinance and the Road Signs Ordinance also apply to development districts. The same rules apply to development districts owned by private or public real property owners.

Landowners have the right to decide what parking rules are to apply on their land or in their car park. In development districts, therefore, landowners can ban parking or define conditions for parking. In other words, landowners can introduce paid parking on their land. Local authorities also have this option in their capacity as the owners of development districts. A landowner may be a private individual or undertaking, but also a state or municipal undertaking. If the parking rules are not followed, a control fee can be levied under the Act on control fees for illegal parking (1984:318): see below.

The local authority has the opportunity – but not the obligation – to make decisions on local road traffic regulations in order to regulate parking in development districts. However, this requires consultation with the landowner, and in some cases the landowner's consent as well. Besides other challenges in developing local road traffic regulations for charge points in development districts, there is also the challenge that the local authority will then take over responsibility for parking surveillance.

¹⁹⁶ In the legal case HFD 2014, ref. 57, the Supreme Administrative Court (HFD) dealt with the matter of what opportunities a local authority has to give special treatment to eco-friendly cars with regard to parking charges. In the case, the Supreme Administrative Court concluded that the local authority had not had legal support for its decision to exempt eco-friendly cars from parking charges, as the legal text did not allow for differentiation of or exemption from charges in cases other than those specified in Section 2 of the Act on the right of local authorities to levy charges for certain provision of public places, etc.

¹⁹⁷ See Government Bill 1984/85:14, p. 9.

Parking surveillance

Parking surveillance in public spaces

The Act on Municipal Parking Surveillance (1987:24) and the Parking Fines Act (1976:206) include rules on parking surveillance in public spaces.

Parking surveillance in public spaces is a form of exercise of authority and primarily a police remit, but if parking surveillance in a local authority requires parking attendants, the local authority may decide to take over responsibility for the surveillance itself: see Section 2 of the Act on Municipal Parking Surveillance, etc. The local authority must consult the Police Authority on the general orientation and scope of parking surveillance (Section 4 of the same Act).

Incorrect positioning of a vehicle may result in a parking fine under the Parking Fines Act. Under Section 2 of the Parking Fines Act, a parking fine must be imposed on any person who violates the regulations on stopping and parking included in the Parking Fines Ordinance (1976:1128), i.e. the parking regulations on stopping and parking included in the Road Traffic Ordinance and local road traffic regulations, unless the violation is subject to a penalty. The owner of the vehicle is responsible for paying the parking fine. However, the owner is not liable if the circumstances make it likely that they were deprived of the vehicle due to a crime (Section 4 of the Parking Fines Act).

The local authority decides on the amount of the parking fine. The minimum amount is SEK 75 at present, and the maximum is SEK 1,300 (Section 2 a of the Parking Fines Ordinance).

Under Section 5 of the Parking Fines Act, a parking ticket with an order to pay a parking fine may be issued by a police officer or a parking attendant as referred to in the Act on Municipal Parking Surveillance, etc.

Parking surveillance in development districts

The landowner can charge a control fee if someone parks in violation of the rules defined by the landowner. This option is regulated in the Act on control fees for illegal parking (1984:318). The landowner decides on the amount of the control fee, but this must be no higher than the parking fine levied by the local authority for the same or a similar offence in the area.

Landowners often hire a parking company or security company, for example, to monitor compliance with the conditions. A road sign at the entrance shows the rules, and an additional sign indicates who monitors the parking rules and the telephone number of this company.¹⁹⁸ If parking surveillance is carried out in development districts, this must therefore be indicated at the entrance to the car park.

¹⁹⁸ Chapter 1, Section 9 of the Road Signs Ordinance (2007:90) states that certain road signs, including mandatory, prohibition and instruction signs, may be used to announce the parking prohibitions or conditions for parking imposed by landowners in accordance with Section 3 of the Act on control fees for illegal parking (1984:318); and, in accordance with Section 10 in the same chapter, that if a landowner uses road signs under that Act, their name and telephone number (or the name and telephone number of an agent) must be indicated on an additional sign. Instruction signs inform road users of the conditions that apply to a particular place or a particular road or section of road (Chapter 2, Section 11 of the same ordinance).

Provisions on the marking of local road traffic regulations concerning charge points or parking

According to Chapter 10, Section 13 of the Road Traffic Ordinance (1998:1276), certain regulations that apply on the road must be marked in accordance with the provisions of the Road Signs Ordinance (2007:90) or regulations issued pursuant to that ordinance. This applies to special traffic regulations issued by local road traffic regulations under Section 1. Section 13 a provides for certain exemptions from the marking obligation in Section 13, but none of these exemptions relate to parking. However, the second paragraph authorises the Swedish Transport Agency to issue regulations on the marking obligation and, in individual cases, to permit further exemptions from the marking obligation with regard to roads with low traffic volumes or if there are other special reasons for doing so and if this can be done without endangering road safety, but not in the case of regulations on speed limits. Special traffic rules must be included in a local newspaper if they do not have to or need to be marked. Pursuant to this provision, the Swedish Transport Agency has prescribed certain exemptions from the marking obligation as regards parking regulations: see Chapter 9 of the Swedish Transport Agency's regulations and general recommendations on local road traffic regulations, etc. (TSFS 2015:60).

Challenges in providing and regulating charging in public spaces and development districts

Introduction

In 2017, the Swedish Association of Local Authorities and Regions (SALAR) published a document entitled *Ladda för framtiden – Laddinfrastruktur för elfordon* [Charge for the future – charging infrastructure for electric vehicles], with the overall aim of providing local authorities with assistance on how to develop charging infrastructure, clarifying the distribution of roles and responsibilities and highlighting how legislation deals with the charging of electric vehicles. In this document, SALAR highlights a number of challenges for local authorities in providing and regulating charging. Recent contact between RISE and SALAR indicates that it is relatively common for smaller local authorities in particular to contact SALAR with questions relating to the interpretation of the regulations on charge points, e.g. questions about whether conditions involving time limits and/or charges can be stipulated for charge points. Local authorities have also asked SALAR to update the content of the 2017 document, but SALAR is of the opinion that the legal situation has not been clarified since the document was written.¹⁹⁹

Some of the challenges that SALAR has raised or that have emerged in this investigation when contacting individual local authorities are outlined below.

¹⁹⁹ Information obtained by RISE during discussions with SALAR on 28 May 2021.

The issue of land use in relation to charging

General information in public spaces and development districts

Different regulatory frameworks may need to be applied depending on the type of land that needs to be used for charging infrastructure. Different rules apply to public space and development districts in areas covered by a detailed development plan. What constitutes public space or a development district is regulated in the Planning and Building Act (2010:900). A public space is a street, a road, a park, a square or other area that in accordance with a detailed development plan is intended for a common need (Chapter 1, Section 4 of the Planning and Building Act). This is land that is to be used for common purposes that include public utilities, or is to be used by the public (Government Bill 2009/10:170 p. 142). Public spaces consist mainly of streets, pavements, parks and surrounding areas. The term ‘public space’ must not be confused with the term ‘public place’, which is a broader concept in the Public Order Act (Chapter 1, Section 2 of the Public Order Act [1993:1617]). The local authority is normally responsible for public space (Chapter 4, Section 7 of the Planning and Building Act).²⁰⁰ Development districts are all land that, in accordance with a detailed development plan, is not to be a public space or a water area (Chapter 1, Section 4 of the Planning and Building Act). Development districts can be owned by private individuals, co-operative housing associations and private, municipal and state-owned undertakings, for example. The local authority decides in the detailed development plan on land use in public spaces and development districts, regardless of whether a local authority or private individual/undertaking is primarily responsible for it: see Chapter 4, Sections 5 and 8 of the Planning and Building Act.

Challenges for local authorities in using public space for charging infrastructure

As stated above, public space must be used for common purposes. Such land must therefore be able to accommodate many different facilities of benefit to the public, such as public transport, pedestrians and bicycles. It must therefore be possible to manage these spaces efficiently and flexibly as well. However, investment in charging infrastructure means that the space will be used for charging cars for a long time. This is why some local authorities are trying to direct charging to development districts in the first instance (garages, large car parks and suchlike). Some local authorities are also aiming to reduce road traffic on the streets by creating car-free city centres, for example. At the same time, electric car sales are steadily increasing and access to charging in public spaces may in some cases be a prerequisite allowing more people to have electric cars. For example, some people live in apartment blocks and are rely on parking on such land (residents’ parking). This means that local authorities need to consider several different interests when considering establishment of charging in public spaces.

Different conditions than in public spaces apply in development districts. In development districts, the landowner (which may, for example, be the local authority or a private operator) decides which parking rules are to apply (in addition to the general provisions of the Road Traffic Ordinance) and can thus regulate parking according to the activity

²⁰⁰ The local authority is normally responsible for public spaces. If there are special reasons for doing so, the local authority may, however, determine in the detailed development plan that the principal will instead be private for one or more public spaces: see Chapter 4, Section 7 of the Planning and Building Act.

taking place at the real property unit. For example, they can lease spaces to residents, or to a company's employees or customers.

The issue of how public space should be used has had a major impact on the strategy applied by various local authorities in respect of charging infrastructure. A few examples of how different local authorities are working with charging infrastructure, including in relation to the issue of land use, are presented at the end of this annex.

Charging in public spaces and development districts according to guidance by the Swedish National Board of Housing, Building and Planning

As referred to in the previous section, public space is intended for the general public and such land cannot therefore be used to meet the needs of a particular individual or organisation, for example. Moreover, the Planning and Building Act does not prevent the installation of recharging points in public spaces, as long as they have a natural link to the intended land use. Recharging points can be installed in public spaces dedicated to streets or parking, for example. This has also been described in the Swedish National Board of Housing, Building and Planning's handbook on the Planning and Building Act, "PBL Kunskapsbanken" [The Planning and Building Act Knowledge Base].

For the Parking in a public space usage in a detailed development plan, for example, the Swedish National Board of Housing, Building and Planning states the following in the Planning and Building Act Knowledge Base:

"The Parking usage is applied where parking of vehicles is an independent usage within a public space. This may be a commuter car park or a car park adjacent to a park area, for example. In general, parking of vehicles may be arranged in a Street public space with what is known as on-street parking, and also in a Square public space. [--]

The [Parking] usage includes complementary parking facilities such as parking ticket machines, charging posts, lighting fixtures, etc., but also flowerbeds and grassed areas. The usage also includes facilities and buildings needed for the maintenance and use of the car park. This is included in the usage regardless of whether it is listed among performance provisions. The location may be regulated by performance provisions for the design of the public space if it is important for the purpose of the plan that the features are located within a certain part of the car park.²⁰¹ "

The quotation above describes the fact that charging posts (recharging points) can be included as a complement to parking when this constitutes an independent usage in a public space. However, it also describes the fact that parking of vehicles may generally be arranged within public spaces designated as Streets and Squares. The Planning and Building Act Knowledge Base states for the Street public space usage that this is intended for vehicles, pedestrians and bicycles. The usage also includes on-street parking and charging posts as a complement needed for the road to function.²⁰² For

²⁰¹ Swedish National Board of Housing, Building and Planning (2021). Parkering. <https://www.boverket.se/sv/PBL-kunskapsbanken/planering/detaljplan/planbestammelser/anvandning-av-allman-plats/Parkering/>. Downloaded on 13 August 2021.

²⁰² Swedish National Board of Housing, Building and Planning (2021). Gata. <https://www.boverket.se/sv/PBL-kunskapsbanken/planering/detaljplan/planbestammelser/anvandning-av-allman-plats/gata/>. Downloaded on 13 August 2021.

the Square public space usage, it is stated that the usage includes associated activities such as market stalls, public transport or cafés. The usage also includes complementary facilities needed for the square to function, which may – for example – include parking spaces. That said, it is not explicitly stated that charging posts are part of the usage as a complement to the functioning of the square. However, it is stated that unless stated otherwise, regular vehicular traffic is also included in the Square usage, corresponding to that included in the Street usage.²⁰³ It can therefore be concluded that unless stated otherwise in the plan, charging posts are also included in the Square usage as a complement to the parking spaces that may be provided there and that are needed for the square to function.

In development districts, parking as a separate usage can be regulated for areas where parking of various vehicle types constitutes an independent usage. The Planning and Building Act Knowledge Base states the following about parking in a development district when it constitutes a separate usage:

“Parking is used for areas where the parking of various vehicle types constitutes an independent usage within a development district. This may include underground parking, multi-storey car parks, large cycle parks, garages or basement garages, for example. The usage also includes the spaces needed for the maintenance and use of the facility and also activities related to the usage. This may, for example, include charge points, car washing facilities or similar.”²⁰⁴

If parking needs to be provided as a complement to the main usage in accordance with the detailed development plan, it can also be included in other uses such as Homes or Retail. In this case, parking does not need to be regulated as a separate usage in the detailed development plan, but is instead included in the usage that is already regulated. Various complements needed for parking, such as charge points (recharging points), are then also included in the usage without this needing to be regulated specifically.

The Fuel usage applied for areas for the handling and sale of all types of fuels can also be regulated in development districts. The Planning and Building Act Knowledge Bank describes the fact that this can include charging stations and service stations, but also fuel storage and transshipment facilities.²⁰⁵ It is therefore possible to construct charging stations for what is known as fast charging of plug-in electric vehicles, for example, within the Fuel usage in development districts.

Land use agreements and licences under the Public Order Act, etc.

The local authority is responsible for the planning of land use within the municipality and can make land available for various purposes. The local authority owns and manages public space such as parks, squares and streets, but often buildings and facilities such as

²⁰³ Swedish National Board of Housing, Building and Planning (2021). Torg. <https://www.boverket.se/sv/PBL-kunskapsbanken/planering/detaljplan/planbestammelser/anvandning-av-allman-plats/> Torg/. Downloaded on 1 October 2021.

²⁰⁴ Swedish National Board of Housing, Building and Planning (2020). Parking. <https://www.boverket.se/sv/PBL-kunskapsbanken/planering/detaljplan/planbestammelser/anvandning-av-kvarter-smark/Parkering/>. Downloaded on 13 August 2021.

²⁰⁵ Swedish National Board of Housing, Building and Planning (2020). Drivmedel. <https://www.boverket.se/sv/PBL-kunskapsbanken/planering/detaljplan/planbestammelser/anvandning-av-kvarter-smark/drivmedel/>. Downloaded on 13 August 2021.

schools, libraries and sports grounds as well. On municipal land, local authorities can choose to provide and operate charging themselves or assign this to market operators by designating a suitable site for this where operators have the opportunity to establish and operate charging. The licences and agreements that may be required for the use of the land are described below.

A public place in a zoning plan area may not be used without a licence from the Police Authority in a way that is not in accordance with the purpose for which the place was made available or that is not generally accepted (see Chapter 3, Section 1 of the Public Order Act). Before a licence is granted, the local authority must have the opportunity to give an opinion and also has right of veto and can define conditions for the licence (see Chapter 3, Section 2 of the Public Order Act). There is also some scope for the local authority to enter into supplementary agreements with the user (see the legal case RÅ 1992, ref. 87). The local authority may also make a charge for the use of the land under the Act on the right of local authorities to levy charges for certain provision of public places, etc. (1957:259). The use of space beneath the public place (for cable laying, for example) is not subject to the requirement for a police licence: this can take place with a usufruct agreement.²⁰⁶ In cases where the provisions of the Public Order Act concerning police licences are not applicable, the local authority may make the land available by means of a usufruct agreement in accordance with the Land Code (1970:994), and the parties may then agree on all the conditions and compensation for the grant of the land.

There is some uncertainty as to whether a licence is required under the Public Order Act in order to establish recharging points in public places under Chapter 3, Section 1 of the Public Order Act (1993:1617).

What may be perceived as uncertain is whether recharging points can be regarded as consistent with the purpose for which the place is made available and thus not require a licence under the Public Order Act. This may involve setting up recharging points in a public place, such as streets that are designated as a public space according to the detailed development plan and have been made available for this purpose.²⁰⁷ The doubt then concerns the parts of the recharging point that are above ground. The parts of the recharging point that are beneath the public place, i.e. cables, etc. needed so that the point can supply electricity, do not require a licence under the Public Order Act.

In this respect, there is no uncertainty on the basis of the interpretation of the licence requirement under the Public Order Act.

In many cases, it is likely that the recharging points established in a public place in the form of a street or car park are consistent with the purpose for which the place has been made available and therefore do not require a licence under the Public Order Act. This is because recharging points can be considered part of such land use in the application of the Planning and Building Act according to the Swedish National Board of Housing, Building and Planning's guidance, the Planning and Building Act Knowledge Base quoted in the previous section. However, there are different opinions on when licences are required, and there are also different interpretations among local authorities.

²⁰⁶ See Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50, and *Ladda för framtiden – Laddinfrastruktur för elfordon*, p. 33.

²⁰⁷ Cf. Chapter 1, Section 2 of the Public Order Act (1993:1617).

As there are different opinions on whether or not a licence is required under the Public Order Act, this may make people wishing to install recharging points in public places hesitant to do so in some cases, because removing a recharging point in retrospect is a costly measure. This could be the case if the point were to be constructed without a licence and it subsequently turned out that a licence was required which could not be obtained retrospectively. This could present an obstacle for people wishing to establish recharging points in public places.

However, based on the interpretation that no licence is required under the Public Order Act in order to establish recharging points on streets that constitute public places, for example, a civil licence is required from the party that owns and manages the public place. This is applicable in cases where the party installing the recharging point is not the same as the party that owns and manages the place. As regards public places in the form of streets, the local authority usually owns and manages the land. Anyone wishing to establish a recharging point on land owned and managed by the local authority needs to have a civil licence in the form of a usufruct agreement with the local authority.

However, no separate civil usufruct agreement with the local authority is required in cases where a licence is required from the Police Authority under the Public Order Act. This is because as stated previously, the local authority must be consulted by the Police Authority with regard to the licence and also has right of veto in the matter. As stated above, the local authority also has the right to levy a charge for the use if a licence has been granted under the Public Order Act in respect of a public place managed by the local authority.

The issue of interpretation of the rules for charge points

When local authorities are considering establishing charging options along streets, for example, there are a number of challenges linked with how the regulations relating to charge points are to be interpreted.

New rules for charge points were introduced in 2011, making it possible to declare a location as a charge point through local road traffic regulations. Authorisation rules and conditions for decisions on charge points were introduced in Chapter 10, Section 1(2), paragraph 7 and Section 9 a of the Road Traffic Ordinance (1998:1276). A definition of a charge point was introduced in Section 2 of the Road Traffic Definitions Ordinance (2001:651) at the same time. The regulation on road signs was supplemented with a new additional charge point sign in Chapter 2, Section 30 of the Road Signs Ordinance (2007:90). Rules on vehicle positioning at charge points were also introduced in Chapter 3, Section 54 of the Road Traffic Ordinance, according to which only plug-in electric vehicles are allowed to park or stop at a charge point. However, there is no requirement for charging to be ongoing. These rules are described in more detail above in the section entitled *Rules for charge points*.

The Swedish Association of Local Authorities and Regions (SALAR) states on its website that the Government's decision allowing local authorities to now introduce charge points is a step in the right direction, but that there are uncertainties with regard to how the regulations should be interpreted. One ambiguity highlighted by SALAR in the current regulations is whether conditions can be imposed on the use of charge points, i.e. whether it is possible to regulate charge points with conditions on time limits, charges or other conditions for the right to "park" plug-in electric

vehicles at charge points. SALAR highlighted this in a number of publications back in 2017.²⁰⁸ It is relatively common for smaller local authorities in particular to contact SALAR with questions relating to the interpretation of the regulations on charge points, e.g. questions about whether conditions involving time limits and/or charges can be stipulated for charge points, but the legal situation has not been clarified since SALAR's documents were published in 2017.²⁰⁹

If a local authority chooses to establish a charge point through local road traffic regulations, the local authority may need to ensure that the charge point is reasonable accessible. For parking spaces, the local authority may use local road traffic regulations to prescribe time limits, compulsory charges or other conditions for the right to park in accordance with Chapter 10, Section 1(2), paragraph 7 of the Road Traffic Ordinance. However, the authorisation for charge point regulations set out in the Road Traffic Ordinance does not address the matter of conditions. Chapter 10, Section 1(2), paragraph 7 of the Road Traffic Ordinance merely states that specific road traffic rules stipulating that a certain place must be a charge point may be issued by local road traffic regulations. However, as SALAR has stated, it can be argued that parking at a charge point can nevertheless be regulated in the same way as other parking, as the rules on vehicle positioning in Chapter 3, Section 54 of the Road Traffic Ordinance state that plug-in electric vehicles are permitted to park at charge points. The definition of a charge point in the Road Traffic Definitions Ordinance and the rules on charge point marking in the Road Signs Ordinance also make it clear that parking is involved (with the option of charging a vehicle). This suggests that charge points can also be regulated with conditions for parking involving time limits and charges, for example, by means of local road traffic regulations. Support for this opinion can also be found in the legal literature, where it is stated that vehicle positioning at a charge point can be time-limited.²¹⁰ Moreover, the Swedish Transport Agency's memorandum proposing the current rules indicates that the Agency intended to make it possible to set time limits for vehicle positioning so that more people could use the charging option.²¹¹ Parking charges can be used as a tool to increase the turnover of parked cars and direct parking to appropriate locations. However, this has to be necessary for organising traffic if charges are to be levied.²¹²

Thus the regulatory framework is not entirely clear as regards the options available for imposing conditions in respect of time limits and parking charges for charge points, but as stated above there is some support for interpreting the provisions to mean that there is a possibility of regulating the right to park at a charge point by means of conditions such as time limits. However, as far as has been shown, this has not been examined in court or by the Swedish Transport Agency when adjudicating appeal cases, which means that it is up to the individual local authorities to interpret the provisions.

²⁰⁸ Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50, and *Ladda för framtiden – Laddinfrastruktur för elfordon*, p. 30.

²⁰⁹ This information was obtained by RISE during discussions with SALAR on 28 May 2021.

²¹⁰ Olsson, Römbo, Ståhl and Ceder (2020), *Trafikkommentarer*, JUNO version 10, comment on Chapter 10, Section 9 a of the Road Traffic Ordinance.

²¹¹ Swedish Transport Agency memorandum dated 5 May 2010 (rev. 20 May 2010), *Redovisning av regeringsuppdrag om parkeringsplatser för elbilar*, TSV 2010-2130, p. 8.

²¹² This follows from the basis for the local authorities' right to levy parking charges under Section 2 of the Act on the right of local authorities to levy charges for certain provision of public places, etc. (1957:259).

An alternative model could involve providing charging in regular parking spaces, i.e. without requiring the spaces to be charge points. This means that the spaces cannot be reserved for plug-in electric vehicles: vehicles that are not rechargeable can also park in these spaces. There is a risk of the charging post becoming an inefficient investment if this results in insufficient access to the space for plug-in electric vehicles. On the other hand, there is a risk that the space will remain unused if only plug-in electric vehicles are allowed to park there and they have no sufficient need for it. The City of Gothenburg has positive experiences of providing charging facilities in regular parking spaces both in public spaces and development districts, even though the spaces are not reserved for plug-in electric vehicles.²¹³

Traffic regulations must be published electronically on the Svensk trafikföreskrifts-samling (STFS) website, www.stfs.se, which is administered by the Swedish Transport Agency. Searching on regulations relating to charge points on the STFS website reveals that many local authorities have regulated charge points with time limits, and it is also relatively common to charge for parking at charge points. However, there are also regulations relating to charge points that are not regulated by either time limits or charges. This could be due to the fact that these local authorities have concluded that there is no support in the regulatory framework that would allow them to introduce such conditions for charge points, but it could also be due to the fact that no need to impose conditions for charge points has been identified.

The question of whether it is possible to charge for electricity when charging vehicles

One question that sometimes arises is whether a local authority can charge for electricity when charging vehicles. This question needs to be answered on the basis of both the competence rules set out in the Local Government Act and the electricity legislation.

The rules in the Local Government Act (2017:725) define the framework for what a local authority is allowed to do. According to Chapter 2, Section 1 of the Local Government Act, local authorities (and regions) may themselves deal with matters of general interest relating to their area or members. This provision expresses the principles of what is known as general municipal competence (what activities may be conducted) and the localisation principle (where the activities may be conducted, or for whose benefit). The Local Government Act also includes provisions stating that municipal activities must not be conducted for profit and that the cost price principle applies when levying charges: see Chapter 2, Sections 5 to 7 of the Local Government Act. The ban on profit is intended to cover the legality of the activity per se, while the cost price principle constitutes an obstacle preventing an intrinsically competent activity returning a profit.²¹⁴ In other words, a local authority is allowed to conduct business activities if they are conducted on a non-profit basis and involve providing public facilities or services to its members, what are known as normal municipal business activities. According to Chapter 10, Section 1 of the Local Government Act, the Municipal Council may decide to hand over the management of municipal affairs to other forms of legal entities (such as foundations, limited liability companies or partnerships).

²¹³ Information obtained by RISE during discussions with the City of Gothenburg.

²¹⁴ See the report by the municipal competence committee entitled *Kommunal kompetens i utveckling* (SOU 2007:72) p. 85.

Supplying electricity has been considered part of municipal competence for a long time.²¹⁵ Moreover, at the time of the 1996 electricity market reform, municipal power utilities²¹⁶ were given broadened competence to act on a commercial basis outside their own local authority: see Chapter 7, Sections 1 and 2 of the Electricity Act (1997:857). The Electricity Act is thus an example of special legislation that extends municipal competence.

Given the rules on municipal competence, there should therefore be nothing to prevent local authorities (in administrative or corporate form) providing electricity and related services such as car charging, and also levying charges for these. The cost price principle defines a cap for the charges that can be levied if the local authority does this in an administrative form, but pricing in line with the market must be applied instead if a municipal power utility does this.

It may even be the case that local authorities must levy charges if they provide charging (the local authority in its capacity as an administration). That is to say, if a local authority chooses to give away or subsidise electricity, it may be deemed to be favouring certain local residents (people with plug-in electric cars) over other local residents (people whose cars run on traditional fuels), thereby presenting a risk of coming into conflict with the principle of equality.²¹⁷ This is a principle of municipal law, developed in case law and later enshrined in the Local Government Act, to the effect that local authorities and regions must treat their members (inhabitants) equally unless there are reasonable grounds for not doing so. This principle is now included in Chapter 2, Section 3 of the Local Government Act.

The Swedish electricity market has been based on a division between power grid operations on the one hand and the generation and sale of electricity on the other since the electricity market reform in the 1990s. Electricity generation and trading must take place in competition, while grid operations constitute what is known as a natural monopoly. To avoid confusion between the two, the legislation requires a distinction to be made between grid operations and competitive activities. Any legal entity that generates and trades electricity is not allowed to conduct grid operations. Grid operations may not be conducted together with generation of or trading in electricity in the same legal entity (except under certain specified conditions): see Chapter 3, Section 1 a of the Electricity Act. This means that local authorities cannot conduct both grid operations and other electricity operations in an administrative form, as this would mean mixing the functions in one and the same legal entity; but there is no conflict with the ban if at least one of the operations is transferred to another legal entity, such as a municipal power utility. Very few local authorities conduct power grid operations in an administrative form. However, municipal corporate groups which include municipal power utilities divided into grid operations and competitive electricity operations are relatively common.

²¹⁵ See the report by the municipal competence committee entitled *Kommunal kompetens i utveckling* (SOU 2007:72) p. 90 and, for example, the legal case RÅ 1976 Ab 236).

²¹⁶ The Electricity Act does not include a definition of municipal power utilities, but instead Chapter 7, Section 1 of the Electricity Act refers to a legal entity as referred to in Chapter 10, Sections 2 to 6 of the Local Government Act.

²¹⁷ Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50, and *Ladda för framtiden – Laddinfrastruktur för elfordon*, p. 10.

The Electricity Act is also written in such a way that it only applies to grids requiring concessions. The Electricity Act is not directly applicable to power grids that are exempt from the concession obligation (and so the ban in Chapter 3, Section 1 a of the Electricity Act does not apply either). The Government has provided for certain exemptions from the concession obligation by means of an authorisation in the Electricity Act. These exemptions are listed in the Ordinance (2007:215) on exemption from the requirement for a grid concession under the Electricity Act (1997:857). The rules mean that the construction and use of internal power grids, what are known as non-concessionary grids (IKN), is permitted in some cases.

The IKN Ordinance includes a number of exemptions that may be applicable to charging infrastructure. There is now an exemption for “internal low-voltage grids designed mainly to meet the electricity needs of vehicles” (Section 22 b), and “transmitting electricity on behalf of another party” on an IKN of this kind is also permitted (Section 31). This exemption was introduced to make it possible to install and use internal grids for charging posts without having to connect each charging post to the concessionary power grid separately (resulting in higher investment and subscription costs).²¹⁸ Other exemptions in the IKN Ordinance that may be of relevance in respect of charging infrastructure include an IKN “on or within a building” (Section 5), “on which electricity is transmitted to facilities and buildings that are not intended as residential buildings and located in the immediate vicinity of a residential building” (Section 6), “within a fenced area” (Section 7), “within the site of an industrial plant” (Section 8), “within the area of a public or private institution” (such as a school or hospital) (Section 9) and “within an area for leisure activities” (such as a sports ground or campsite) (Section 16).

Depending on where the charging infrastructure is to be established, it will be necessary to examine whether any exemption is applicable and whether transferring electricity on behalf of others on an IKN of this kind is permissible, or whether only use of the electricity on one’s own behalf is permissible there. If there is an applicable exemption, this is directly applicable. In other words, it is not necessary to apply for an exemption for a line of this kind to be exempted from the concession obligation. If there is any uncertainty, the grid authority (the Swedish Energy Markets Inspectorate) can be contacted in order to obtain binding notification on whether or not a power line is covered by an exemption. The Government’s ordinance reason (Fm 2007:1)²¹⁹ for the IKN Ordinance provides guidance on how the ordinance should be interpreted.

The Swedish Energy Markets Inspectorate also collates guidance and practice on the issue on its website.²²⁰ If there is no applicable exemption in the IKN Ordinance, a grid concession is required according to the general rule in Chapter 2, Section 1 of the Electricity Act.

²¹⁸ See Government Bill 2010/11:153 p. 14 and budget proposal 2012/13:1 exp. area 21 p. 22. See also the Swedish Energy Markets Inspectorate’s report *Uppladdning för framtidens fordon – Undantag från koncession för laddinfrastruktur* (EI R2010:20), <https://ei.se/om-oss/publikationer/publikationer/rapporter-och-pm/2010/uppladdning-for-framtidens-fordon---undantag-fran-koncession-for-laddinfrastruktur---ei-r201020>

²¹⁹ The Government, www.regeringen.se/49bbc1/contentassets/e61dc06d78b948b8b7aed509beb710f2/icke-koncessionspliktiga-elnat-fm-20071

²²⁰ Swedish Energy Markets Inspectorate, www.ei.se/bransch/koncessioner/undantag-fran-kravet-pa-nat-koncession---ikn#h-Vagledningochsamladpraxisomundantagen

To summarise, electricity supply forms part of the municipal competence, and a local authority (in its capacity as an administration, or as a municipal electricity trading company) should therefore be able to charge for electricity if it provides charging on municipal land. However, the ban on mixing grid operations and competitive electricity operations needs to be taken into account, along with the fact that there is an applicable exemption from the obligation to grant a concession, also permitting the transmission of electricity on behalf of others. If the local authority provides charging in an administrative form, the rules of the Local Government Act on localisation, equality, cost price, etc. apply. The same principles do not apply if the corporate form is used, but in that case pricing must be in line with the market, for example. Municipal companies levying charges for charging are present in several local authorities, but charging on municipal land may also be handled by private operators (after the local authority has leased the land or held a procurement procedure for charging services on municipal land).

Challenges with regard to the marking (signposting) of charging

Another challenge with the regulatory framework highlighted by SALAR concerns the rules for marking charge points. SALAR states on its website²²¹ and in its 2017 documents²²² that a decision on local road traffic regulations is also required in development districts so that charge points can be marked (signposted). According to the definition, a charge point is a place declared as such in accordance with a local road traffic regulation and marked (signposted) as such. It therefore follows from the definition that a charge point cannot be provided without a local road traffic regulation, and that it must also be marked (signposted) as a charge point.

In other words, a decision on a local road traffic regulation is required before a road sign can be erected to indicate a charge point. This is also applicable to development districts. A local authority has the opportunity – but not the obligation – to make decisions on local road traffic regulations in order to regulate parking or charge points in development districts, for example; but in such cases the landowner must be given the opportunity to give an opinion during the preparation of the case, and in some cases the landowner's consent is required as well.²²³ At the same time, a landowner can only use the marking for a charge point as prescribed in the Road Signs Ordinance (additional sign T24²²⁴, charge point, under instruction sign E19, parking) if the local authority has regulated the site as a charge point through a local road traffic regulation.

SALAR has also highlighted in its 2017 publication that whether signposting (direction sign H27, charging station) is allowed to a facility that is not regulated (and marked) as a charge point is questionable.²²⁵ Sign H27²²⁶, charging station, indicates a facility

²²¹ The SALAR website, <https://skr.se/skr/samhallsplaneringinfrastruktur/trafikinfrastruktur/trafikreglering/fragorochsvartrafikreglering/lokaltrafikforeskrifteromladdplats.51946.html>

²²² Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50.

²²³ See Chapter 10, Section 6 of the Road Traffic Ordinance.

²²⁴ The sign can be viewed here: <https://www.transportstyrelsen.se/sv/vagtrafik/Vagmarken/Tillaggstavlor/laddplats/>

²²⁵ Swedish Association of Local Authorities and Regions (2017), *Utmärkta föreskrifter – En handbok om lokala trafikföreskrifter*, p. 50.

²²⁶ The sign can be viewed here: <https://www.transportstyrelsen.se/sv/vagtrafik/Vagmarken/Lokaliseringsmarken-for-upplysning-om-serviceanlaggningar-med-mera/Laddstation/>

for external charging with electrical energy for vehicle propulsion. This is a location sign for information on service facilities, etc. and can be inserted in location signs for providing directions: see Chapter 2, Sections 23 to 24 of the Road Signs Ordinance. Unlike the term ‘charge point’ – which is defined in the Road Traffic Definitions Ordinance (see above for information on how to define a charge point) – to which the Road Signs Ordinance refers (Chapter 1, Section 2 of the Road Signs Ordinance), the term ‘charging station’ is not defined in greater detail in the Road Traffic Definitions Ordinance. Hence there is no definition of a charging station that is linked to the local road traffic regulation on charge points.

Practical challenges when providing charging along streets

Besides challenges related to the regulatory framework or potential conflicting goals in respect of how the land should be used – which are described in other sections – there are also a number of practical challenges related to establishing charging infrastructure along streets, for example. A few examples of challenges that are more practical in nature are presented below.

Installing charging along streets is often very expensive. More extensive excavation work is generally required than if this work takes place adjacent to a building. Local authorities usually choose not to invest in charging posts in the street environment themselves, but they can make land available to other private operators so that they can use the land for this purpose. Some local authorities provide land free of charge and the private operator pays for the excavation work and other installation costs. This is a generous arrangement, but it is usually so expensive that private operators refrain from taking it on.²²⁷

Charging posts can also get in the way of emergency vehicles or snow clearance, for example.

There are also challenges in that vehicles may need to be parked against the direction of travel so that there is no risk of the cable from the recharging point being left on the street.

Limited opportunities to reserve space for charging of car pool cars or taxis, for example

Restrictions on being able to reserve spaces with charging facilities for car pool cars and taxis, for example, present a further challenge. These are cars that are often on the move and therefore need to be charged frequently if they are powered by electricity.

The space is reserved for plug-in electric vehicles by stipulating in local road traffic regulations that a certain space is to be a charge point, but in that case all plug-in electric vehicles have access to the charge point. It is not possible to reserve a charge point for just plug-in electric vehicles that are part of a car pool. Nor is it possible to reserve a regular parking space (with charging facilities) in public spaces for just plug-in electric vehicles, or for vehicles that are part of a car pool. The options for reserving parking

²²⁷ Swedish National Board of Housing, Building and Planning (2019), *Nya krav på laddinfrastruktur för laddfordon*, report 2019:15, p. 101.

spaces are limited in public spaces in view of the principle of equality²²⁸, and the options that do exist are set out in Chapter 10, Section 2 of the Road Traffic Ordinance. This provision allows the local authority to reserve parking spaces (but not charge points) for a specific vehicle type (e.g. cars or lorries), a specific group of road users, residents in a specific area or diplomatic cars, for instance. Neither electric cars nor car pool cars are a separate vehicle type, which is why the current rules do not allow parking spaces to be reserved for them in public spaces. However, parking spaces may be reserved for a specific person, a specific vehicle or in another appropriate manner in development districts. The same rules do not apply there.

However, the Car Pool Committee has submitted a proposal for an amendment to the Road Traffic Ordinance with a view to making it possible to reserve parking spaces for car pool vehicles in public spaces.²²⁹ The committee's proposal has been referred, but there have been no amendments to the legislation as yet. It may also be mentioned that the Swedish Association of Local Authorities and Regions (SALAR) states on its website that it has a standing demand that the government should open up the possibility of reserving parking spaces in public spaces for green cars and cars that are part of a car pool, arguing that this offers great potential for reducing the number of vehicles on the roads.²³⁰

A dedicated space²³¹ is a space reserved for a specific purpose. Loading and unloading or boarding and alighting and spaces for taxi ranks, mobile libraries, school buses or ambulances are all examples of purposes. However, under the current rules it is not possible to combine a charge point and a dedicated space, for example, by introducing both a charge point and a taxi rank at a given location. This is stipulated in the rules on vehicle positioning in Chapter 3, Section 54 of the Road Traffic Ordinance. This states that vehicles in a dedicated space must not be parked or stopped other than for the prescribed purpose. It also states that only vehicles that can be charged externally with electrical energy for vehicle propulsion may be parked or stopped at a charge point. Other vehicles may not be parked or stopped other than for the purpose of boarding or alighting.

This means that local authorities cannot stipulate that a particular space must be both a charge point and a dedicated space for taxis, for example. If a charge point is introduced, all plug-in electric vehicles can use it, not just plug-in electric taxis; and if a taxi rank (with charging facilities) is introduced, all taxis can use it, not just plug-in electric taxis. However, a local authority can, for example, provide charge points in strategic locations where taxi drivers often stop to take breaks.

²²⁸ The principle of equality is a principle of municipal law, developed in case law and later enshrined in the Local Government Act: see Chapter 2, Section 3 of the Local Government Act (2017:725). This principle means that local authorities and regions must treat their members (inhabitants) equally unless there are reasonable grounds for not doing so.

²²⁹ Car Pool Committee report *Motorfordonspooler – på väg mot ökad delning av motorfordon* (SOU 2020:22).

²³⁰ SALAR, <https://skr.se/skr/samhallsplaneringinfrastruktur/trafikinfrastruktur/trafikreglering/fragorochsvartrafikreglering/lokaltrafikforeskrifteromladdplats.51946.html>

²³¹ A dedicated space is a space that, according to local road traffic regulations, must be a dedicated space and be marked with a road sign indicating a dedicated space (prohibition sign C40): see Section 2 of the Road Traffic Definitions Ordinance (2001:651), Chapter 2, Section 8 of the Road Signs Ordinance (2007:90) and Section 37 of the Swedish Transport Agency's regulations and general recommendations on road signs and other facilities (TSFS 2019:74).

Examples of how various local authorities are working with charging infrastructure

There are differences in the ways in which local authorities are working with charging infrastructure. A few examples of this are given below.

Stockholm

The City of Stockholm is working actively to increase public charging facilities in the city. The city aims to establish 4,000 public recharge points by 2022. There were 1,600 public recharge points in the city's streets and car parks in May 2020, which means one recharge point for every 25 plug-in electric vehicles (based on 40,000 registered plug-in electric vehicles in the municipality). These are mainly located in visitor car parks and multi-storey car parks operated by Stockholm Parkering, the city's own parking company. For some years now, recharge points have also been built in public spaces which the city calls 'charging streets'. Of the 1,600 public recharge points, most of them – around 1,400 – are in development districts, and 220 are in public spaces (in 30 to 35 unique locations). The charging streets are managed by private operators, mainly power utilities, which sign usufruct agreements with the city and pay for and install the chargers themselves. A charging street must be open to allow everyone to charge their vehicles. It often has a fast charger and four to six normal chargers. Parking conditions are applicable on charging streets. Cars may be left at a regular recharging point for no more than 3 hours during the day, and all night. This allows nearby residents to park all night without having to move their cars. Regular parking charges are applicable to the area. Cars may be left for no more than 30 minutes in a space next to a fast charger. However, as a result of requests received, this time will now be extended to one hour in two locations. Anyone charging their car on a charging street must also pay for the actual charging (the cost of the electricity). The charge point operator itself sets the price. The payment system varies slightly from location to location. Grouping a number of recharge points in one place reduces the amount of intervention in the street and allows the city to identify locations that they feel are particularly suitable. The locations have been reviewed by the city's administrations with regard to factors such as maintenance, accessibility and sustainability.²³²

The City of Stockholm has mapped and identified additional locations where new chargers could be established. The designated locations in the city centre are controlled so that they do not impede street maintenance or accessibility or interfere with future street development plans. Outside the city centre, there is greater scope for people to propose suitable locations themselves, as long as they meet certain criteria. Private operators interested in installing chargers on city streets can register their interest and enter into a usufruct agreement with the Traffic Administration Office. This means that the operator will be responsible for the installation, operation and maintenance of

²³² See <https://start.stockholm/om-stockholms-stad/organisation/fackforvaltningar/miljoforvaltningen/miljobilar-i-stockholm/2020-11-26-laddning-at--stockholmarna/>, <https://start.stockholm/om-stockholms-stad/organisation/fackforvaltningar/miljoforvaltningen/miljobilar-i-stockholm/ladda-elbil/> and <https://youtu.be/Sj5YqSmIkE> (video on charging roads in Stockholm). See also Swedish National Board of Housing, Building and Planning (2019), *Nya krav på laddinfrastruktur för laddfordon*, report 2019:15, p. 101 f. Additional information has also been obtained by RISE during discussions with the Stockholm Environmental Administration on 25 May 2021.

the chargers, while the city will be responsible for and fund signage, sweeping, snow clearance and parking surveillance. One requirement is that the charging must be open to all, i.e. public charging.²³³

Gothenburg

The City of Gothenburg has decided to be very restrictive with charging in public spaces as there are many interests that have to be accommodated and share the space. There are a few fast chargers on such land, but otherwise reference is made to charging in development districts, e.g. in public car parks. Hundreds of new charge points have been installed in development districts in recent years. There were a total of around 950 public recharge points in the city in December 2020.²³⁴ In the autumn and winter of 2020/2021, the City of Gothenburg's energy company and parking company (Göteborg Energi AB and Göteborgs Stads Parkering AB) conducted a joint initiative to establish 500 new public recharge points (250 normal chargers with two charging sockets each) in car parks around Gothenburg. There are around 1,500 recharge points in development districts in the city at present (May 2021), of which more than 1,000 are in public car parks and the rest are in permit car parks (car parks made available to residents or to employees of a company).²³⁵

In addition, 50 to 100 spaces with charging facilities have recently been established in public spaces as a pilot project (not all of the spaces have been deployed as yet). These spaces are regulated like normal parking spaces. Thus local road traffic regulations have not stipulated that the spaces must be charge points, which means that cars that are not rechargeable are also allowed to park there. There is a charge for parking (to use the car park itself), and anyone wishing to charge their car also pays for the electricity used. Charging is viewed as additional to parking. Nor has the City of Gothenburg stipulated charge points in development districts. No need for this has emerged to date. The city's parking company does not reserve parking spaces for plug-in electric vehicles either: things have worked well to date anyway. However, five charge points have been prescribed in a commuter car park in the municipality, and two charge points offering fast charging (with a time limit but no charge for their use) have been prescribed in the city centre.²³⁶

²³³ See <https://tillstand.stockholm/tillstand-regler-och-tillsyn/parkering/ansok-om-att-etablera-nya-laddplatser-for-elbil/> and <https://tillstand.stockholm/tillstand-regler-och-tillsyn/parkering/ansok-om-att-etablera-nya-laddplatser-for-elbil/annal-intresse-for-att-satta-upp-nya-laddare/>

²³⁴ See <https://goteborg.se/wps/portal/start/parkeringstillstand-och-parkeringsplatser/ladda-elbil-i-goteborg?uri=gbglnk%3A2016327213851950>, www2.trafikkontoret.goteborg.se/resourcelibrary/Elmob%20AP6%20Incitament%20-%20slutrapport%202016-05-31.pdf and <https://omev.se/2021/05/07/hur-kan-stader-hantera-laddning-pa-gatemark/>. Additional information has also been obtained by RISE during discussions with the City of Gothenburg's Traffic and Public Transport Authority and Göteborgs Stads Parkering AB on 26 May 2021.

²³⁵ See www.parkeringgoteborg.se/nyheter/nu-bygger-vi-500-nya-laddplatser-i-goteborg/

²³⁶ This information was obtained by RISE during discussions with the Gothenburg Traffic and Public Transport Authority and Göteborgs stads parkering on 26 May 2021. The regulations on charge points can be found at www.stfs.se The Municipality of Gothenburg's local road traffic regulations on charge points at Linnéplatsen, 21 June 2016, designation 1480 2016:01279, and the Municipality of Gothenburg's local road traffic regulations on charge points on Axel Adlers Gata, 5 November 2020, designation 1480 2020:01638.

The strategy of primarily directing charging to development districts is viewed as successful for the city. This has, for example, made it possible to avoid the need for large investments of municipal funds (in comparison with Oslo, for example), while allowing public space – which is funded by taxpayers – to be used for common purposes. The conditions for this arrangement have been good as there is effective co-operation between the city, the municipal parking company and the municipal energy company. However, being restrictive is not the same as completely banning charging in public spaces. There may be reasons to establish charging on such land in some cases; in streets resembling development districts, for example, and to enable charging for residents' parking (see below).²³⁷

April 2020 saw the launch of a pilot project for residents' parking customers, who are able to trial using their permits as payment for parking²³⁸ and charging their cars in selected car parks. The aim of the project is to investigate the interest in and need for car charging in the selected car parks for customers who currently have residents' parking via the Traffic and Public Transport Authority. People who currently have residents' parking and need to charge every night otherwise need to look for somewhere to park in garages or in development districts where charging is available, or use fast chargers and other chargers located along the most important arterial roads and near apartment blocks.²³⁹ The Traffic and Public Transport Authority is currently evaluating the project and the results are tentatively positive. The Traffic and Public Transport Authority is therefore looking into the possibility of finding a permanent solution for residents' parking customers in the municipality.²⁴⁰

Malmö

In the City of Malmö, the City Council has adopted a policy for public charging infrastructure that clarifies the starting points for the city's responsibilities in relation to the market's development of charging infrastructure. The policy states – among other things – that charging posts should mainly be located in parking garages and development districts, not in public spaces. The reasons given are that public space must be used for common needs, along with the fact that there are thought to be legal and traffic regulation uncertainties and complications with regard to charging in public spaces. However, charging posts can be located in the local authority's development districts, but essentially the market's operators establish, own and manage the posts in

²³⁷ The information was obtained by RISE during discussions with the City of Gothenburg's Traffic and Public Transport Authority and Göteborgs Stads Parkering AB on 26 May 2021.

²³⁸ The residents' parking permit is used to pay for parking during the same hours applicable for residents at night. The regular parking rate applies at other times. The actual cost of charging is extra (an account with Göteborg Energi is required).

²³⁹ See <https://goteborg.se/wps/portal/start/parkeringstillstand-och-parkeringsplatser/ladda-elbil-i-goteborg?uri=gbglnk%3A2016327213851950>, <https://goteborg.se/wps/portal/start/parkeringstillstand-och-parkeringsplatser/parkeringstillstand/boendeparkeringstillstand/boendeparkering-och-elladdning?uri=gbglnk%3A202032592758966> and <https://www.parkeringgoteborg.se/elladdning/ladda-bilen-boendeparkering/>

²⁴⁰ This information was obtained during a discussion with the City of Gothenburg's Traffic and Public Transport Authority on 26 May 2021.

these places too. This policy will remain in force until 31 December 2022 and will then be subject to review.²⁴¹

The above policy is still applicable, but RISE has held discussions with the Environmental Administration and it has emerged that efforts are underway to review the strategy that should be adopted by the local authority going forward with regard to charging infrastructure. Plans are afoot to gather information on how other local authorities have dealt with this issue; that is, to learn from the examples of others and apply this information to conditions in the City of Malmö. According to the policy that was adopted in 2017, it can be seen that public charging is currently not available to the extent needed, and the problem is growing for people who live in apartment blocks and are reliant on parking in public spaces (residents' parking), for example. Charging infrastructure needs to be expanded in the city so as to meet the need for charging, and also for environmental reasons. At the same time, the city's goal of reducing car use in favour of more pedestrians, bicycles and public transport also needs to be taken into account in work on the new strategy.²⁴²

Uppsala

The Municipality of Uppsala has already provided for charge points (as dedicated spaces) in a few locations in the municipality. Parking charges are levied at these locations. However, *Enheten för trafikreglering och upplåtelse* (the Traffic Regulation and Provision Unit) is currently examining the actual legal conditions for the provision of public charging infrastructure in public spaces. To date, the unit working on these issues has noted that the regulatory framework in this regard is unclear, and that different local authorities interpret the rules in different ways. For example, there are legal challenges with regard to how conditions can be imposed for charge points, how to mark them with signs, etc. The plan is that the unit will now, as a first step, examine the legal situation and present the results of this to the Board, and in a next step, the unit will go back to the Board with proposals on the issue (planned for autumn 2021). What may be proposed to the Board is still uncertain as work is still ongoing on the legal issues. One thing that will need to be taken into account when it comes to charging infrastructure in public spaces is that the local authority has a long-standing policy of trying to steer cars away from the streets in order to make room for public transport, for example, and other public interests that also have to be accommodated in the street space. At the same time, there are environmental goals that the local authority needs to meet. The fact that lots of tourists usually visit the municipality also needs to be taken into account, as some of them may need access to public charging while visiting the municipality.²⁴³

²⁴¹ See <https://malmo.se/press#/pressreleases/marknaden-foereslaas-driva-utveckling-av-laddstolpar-foer-bilar-i-malmo-2863699> (City of Malmö news archive), <https://motenmedborgarportal.malmo.se/committees/kommunfullmaktige/mote-2019-09-05/protocol/protokoll-skapad-2019-09-18-153024-pdf?downloadMode=open> (minutes of the City Executive Board meeting) and <https://motenmedborgarportal.malmo.se/committees/kommunstyrelsen/mote-2019-08-14> (the matter in the City Executive Board and decision documents). See also omEV, <https://omev.se/2021/05/07/hur-kan-stader-hantera-laddning-pa-gatumark/>

²⁴² This information was obtained by RISE during discussions with the Malmö Environmental Administration on 2 June 2021.

²⁴³ This information was obtained by RISE during discussions with *Enheten för trafikreglering och upplåtelse*, part of *stadsbyggnadsförvaltningen* (the Urban Development Administration), in the

Examples from other European cities

Amsterdam

Amsterdam has an ambitious plan to electrify its car fleet. The city is introducing gradually expanded zones where only zero emission vehicles are allowed, with the aim of making the whole city a zero emission zone by 2030. Many people living in the central parts of the city rely on on-street parking, which is why the city has been early to roll out its charging infrastructure. There are currently several thousand public charge points along city streets. There are two types of recharge points; one that offers the same output 24 hours a day, and one where the output varies depending on the time of day so as to reduce the load on the power grid (higher output from 21.00 to 06.30; normal output from 06.30 to 18.00 except in sunny weather, when higher output is offered; and lower output from 18.00 to 21.00). Anyone parking at a charge point must connect the vehicle to the charger. A municipal parking permit is required so as to prioritise parking spaces for residents. Owners of plug-in electric vehicles are given priority in the queue for parking permits. A charging permit is also required that allows the city to distribute its chargers to the intended user groups. In a 2021 study, charging data from street chargers in Amsterdam was used to simulate how access to charge points and behaviour interact when it comes to increasing number of plug-in electric vehicles. According to this study, a well designed and dense network of charge points close to users can have a major impact on the tendency to choose plug-in electric cars.²⁴⁴

Oslo

Of all the Nordic countries, Norway has the highest percentage of plug-in electric vehicles in its fleet. The legislation requires charging facilities to be available in a sufficient number of parking spaces accessible to the public (i.e. public charging). 'A sufficient number' means that there must generally be a free space with charging facilities at any given time. However, charging facilities are not required to be available at more than 6 per cent of the total number of parking spaces. The Norwegian Public Roads Administration may decide to waive this requirement if the investment costs or operating costs are unreasonably high.²⁴⁵

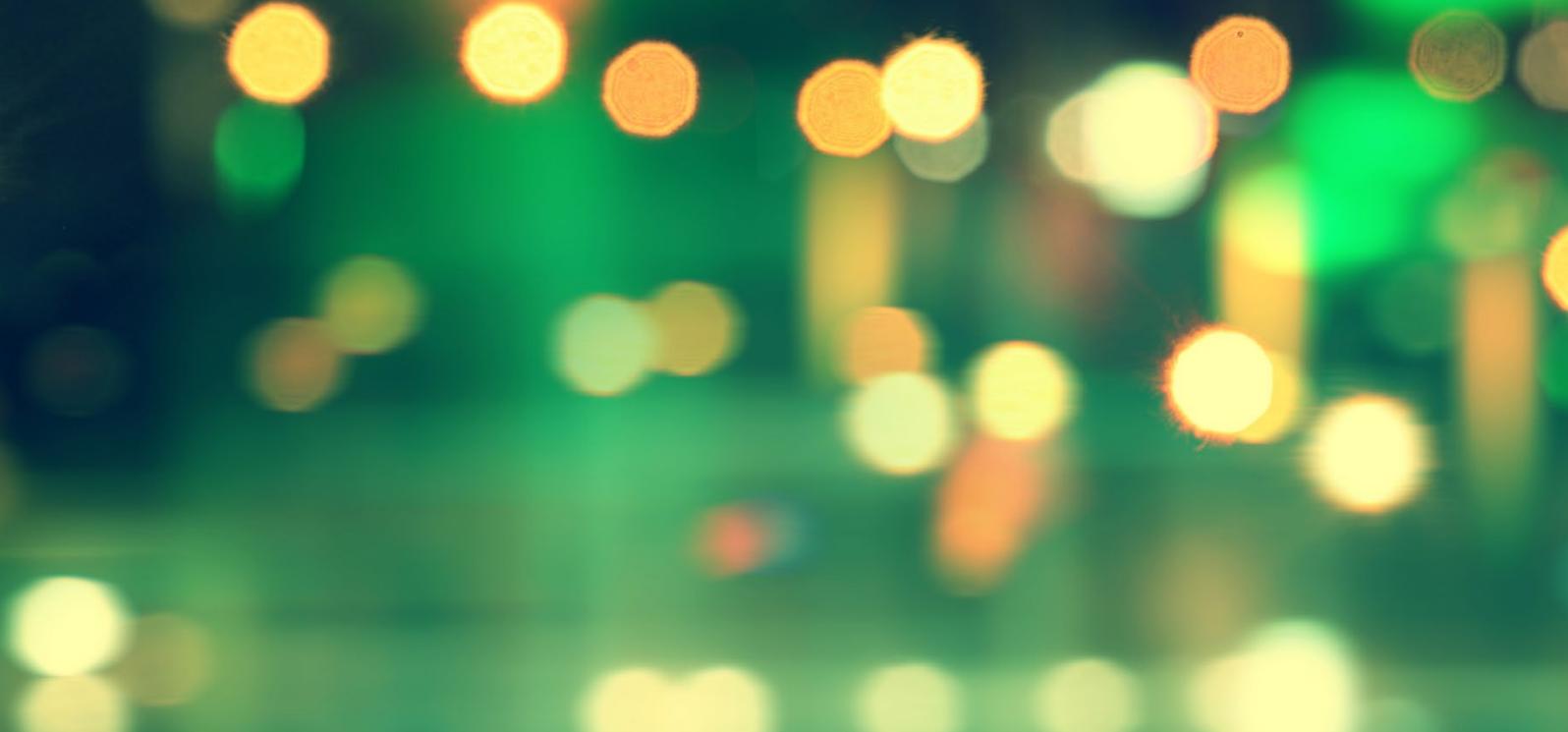
Municipality of Uppsala on 1 June 2021.

²⁴⁴ See <https://omev.se/2021/05/07/hur-kan-stader-hantera-laddning-pa-gatumark/>, www.amsterdam.nl/en/parking/electric-charging/ and www.iamexpat.nl/expat-info/dutch-expat-news/millions-invested-dutch-charging-network-electric-cars

²⁴⁵ See Section 35 of the Regulation of 18 March 2016 no. 260 on conditional parking for the general public and enforcement of private parking regulations (the Parking Regulation), <https://lovdata.no/dokument/SF/forskrift/2016-03-18-260> and www.vegvesen.no/fag/trafikk/parkering/krav-om-lademuligheter. See also National Board of Housing and Planning (2019), *Nya krav på laddinfrastruktur för laddfordon*, report 2019:15, p. 61.

25 per cent of passenger cars in Oslo are plug-in electric cars. To date, the city has around 2,000 charge points along municipal roads that are operated by the local authority and offer normal charging. Plans are afoot to build 200 new charge points annually by 2025. Some of the charge points are subject to charges, and there is also a “charging obligation” there. There are 22,000 parking spaces in residential areas of the city, which is why there is reason to believe that the establishment of charge points can continue, but it is becoming increasingly difficult to find street space that can be used for charging. However, the city perceives problems with expanding charging too extensively along streets as the land is needed for other purposes as well. Other types of areas and charging solutions may need to be considered going forward so as to meet the charging needs of residents. This is why the city wishes to steer deployment as far as possible to undeveloped land, garages, shopping centres and so forth. One way to do this is to provide subsidies to private real property owners and other operators for charging boxes. The city has subsidised 50,000 charging boxes in recent years. The city provides a grant of 50 per cent of the cost up to a maximum of NOK 10,000 per box and NOK 1 million per operator, which is comparable to costs of up to NOK 100,000 per post in order to establish municipal chargers on city streets. Oslo perceives fast charging to be an important complement and is making street space available for procured fast charging services. The city provides the infrastructure up to the charger and the charge point operator has to invest in charging and manage the charging business with its users. The local authority defines requirements for open protocols and free data sharing. Transparency makes it easier for new operators to take over operations in the event of new procurement procedures, and data sharing helps the city to obtain information on charging needs.²⁴⁶

²⁴⁶ See <https://omev.se/2021/05/07/hur-kan-stader-hantera-laddning-pa-gatumark/>, www.oslo.kommune.no/gate-transport-og-parkering/parkering/lade-elbil-og-hybridbil/#toc-1 and www.oslo.kommune.no/getfile.php/13354701-1576848117/Tjenester%20og%20tilbud/Gate%2C%20transport%20og%20parkering/Parkering/Kartlegging%20av%20ladebehov%20i%20Oslo%20kommune.pdf. Information on the cost of establishing municipal chargers on streets in Oslo was obtained by RISE during an interview with Sture Portvik at the Municipality of Oslo on 3 June 2021.



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