

Business and Regulatory Impact Assessment

Title of Proposal

The Building (Scotland) Amendment (No.2) Regulations 2022. This legislation introduces two new building standards to ensure a minimum level of electric vehicle infrastructure in new domestic and non-domestic buildings (including buildings undergoing major renovation).

Purpose and Intended Effect

Objective

The objective of the legislation is to ensure that new developments and major renovations, both domestic and non-domestic, are equipped with suitable infrastructure to enable vehicles that derive some or all of their power from a rechargeable battery by means of a charging cable to charge, and that this is done at the time of construction or major renovation in the most cost effective means possible.

Background

The Scottish Government is committed to the decarbonisation of transport and with demand for electric vehicles (EVs) expected to grow rapidly, enabling people to switch to zero emission vehicles will require ready access to convenient and reliable EV charging infrastructure.

At present there is no statutory requirement for the provision of EV charging infrastructure in the car parks of new or refurbished buildings as they are constructed. Future legislation will require that the car parks of domestic buildings, and non-domestic buildings meeting a particular threshold to provide EV charge points to facilitate the introduction of EV charging infrastructure. Some public charge points that have been introduced in recent years and have been financed from public finances and, predominantly, retrofitted to existing car parks, with others provided through private finance investment. To further develop the introduction of EV charging infrastructure, it has been identified as necessary to introduce legislation to require this be installed in key desirable locations. EV charging infrastructure installed at the time of the building construction is more cost effective than that retrofitted at a later date.

Rationale for Government Intervention

The Scottish Government is seeking to remove the requirement for new petrol and diesel cars and vans by 2030, with an increasing uptake of zero emission vehicles in the period up to 2030. In order to support this it will be necessary to expand EV charging infrastructure across the country to allow vehicles to be charged in convenient places at point of origin and point of destination. Infrastructure will be required in residences, places of work and leisure destinations to facilitate this.

Research has been commissioned by Climate XChange (CXC) in association with Transport Scotland to examine the difference in cost of installation of EV charge points at different points in the lifetime of a building, either during initial construction

or major renovation or retrofitted to an existing building¹, and in different locations across Scotland (case studies from the research can be found in **Annex A**). This research has determined that in both domestic and non-domestic buildings there are cost saving benefits to installing EV charge points during the construction of a building or during major renovation as opposed to retrofitting EV charge points to a building. The extent of this differs between building type and location, however all buildings in all locations have been shown to have the potential to derive these savings.

The UK Government, has legislated for the inclusion of EV charge points in new and renovated buildings in England. The application of similar legislation in Scotland will help to create a consistent approach across the UK.

Building regulations are identified as the most appropriate way of delivering these new provisions at the point building work is planned and undertaken. The building standard system offers an established vehicle for the setting of standards applicable to construction work, one which is familiar to all parties involved professionally in the development of the built environment.

Scottish building regulations address the health, safety and welfare of persons in and around buildings and further both the conservation of fuel and power and the achievement of sustainable development. It is the latter purpose which is identified in relation to the provision of electric vehicle charge points. Building regulations set minimum standards for new buildings and where existing buildings are altered, extended or converted. Whilst buildings can be designed and built to higher standards, in the majority of cases, the mandatory minimum standards set through building regulations are adopted. Accordingly, it is important that these minimum standards address topics which both meet the needs of Scotland's people and to support the wider policy objectives such as our transition from internal combustion engine vehicles to electric transport.

The legislation will create a minimum standard for provision across Scotland which will ensure that the required level of provision of EV charge points will be made across the country and that the developers and building owners of new buildings, including residents, can understand the level of EV charge point provision. It is anticipated that this will facilitate the transition towards EVs and provide further opportunities for drivers to charge vehicles.

The Scottish Government's National Transport Strategy 2 and Scottish Planning Policy both link the process of Planning and Transport, requiring that transport considerations be material in the determination of land allocation and planning decisions. The National Transport Strategy 2 states "In identifying sites for development of housing, employment, schools, offices, factories, hospitals, and tourist attractions transport considerations will play a crucial role and will do so as early in the planning process as possible. This will have a positive impact on the choices about the types of journeys we make, when we make them and how we make them." The implementation of this legislation will assist in the delivery of both these documents.

¹ [EV enabled buildings: evidence review of installation costs \(climatexchange.org.uk\)](https://www.climatexchange.org.uk)

Principles of Better Regulation

Consideration has been given to the implementation of voluntary regulation and self-regulation. Despite the objective of the legislation being to minimise the costs of charge point infrastructure, this will inevitably introduce a cost of some form to the developer through the requirements for the charge points themselves, the immediate ducting and cabling around them and the potential requirements for more substantial upstream electrical infrastructure. There is some evidence to suggest that previous requirements for planning authorities to require the installation of EV charge points in new development through Scottish Planning Policy received a low uptake due to the non-statutory nature of the document. It is therefore considered unlikely that all developers would be willing to implement the infrastructure without legislation and enforcement being in place.

Residential developers may be willing to do this, particularly as demand for EVs increases. However this may prove complicated in some residential scenarios of shared parking courts for example, which may dissuade them from implementation of charging infrastructure. In addition, housing developers may offer charge points as an added extra, rather than as standard. In this scenario some house purchasers may not elect to implement a charge point leaving future homeowners to fit one retrospectively which adds to inconvenience and substantially higher costs to do so.

There is no national body or representative organisation to which all suppliers of EV charge points and infrastructure and developers are party to or signed up to. National building organisations do not at present have standards or recommendations for the installation of EV charge points. Should such recommendations exist in the future, these may not necessarily be enacted in all areas and by all developers. In order to achieve the provision of EV charge points at a minimum level and across the whole of Scotland it is necessary to create legislation.

Consultation

Within Government

Consultation has taken place with colleagues in the Building Standards of the Local Government and Communities Directorate in respect to the implementation of the legislation through provision in Building Standards and through enforcement by Local Authorities.

Colleagues in Legal Services are involved in the process throughout ensuring that the correct path towards the implementation of the legislation is taken.

Public Consultation

In total the following numbers were registered for each of the webinar sessions that took place during the public consultation.

| Session | No. of Registrations |
|-------------|----------------------|
| 17 August | 26 |
| 24 August | 42 |
| 31 August | 34 |
| 2 September | 31 |

It should be noted that some attended more than one session.

Public consultation has taken place through an online platform where the proposals were set out and a series of questions were posed. The consultation was available to all members of the public and promoted amongst key interest groups.

The Consultation Response can be found here². The majority of consultation responses were broadly supportive of the policy proposals and the proposed exemptions. There were varying degrees of support for the minimum requirements set out for EV charge points with some advocating for a higher standard. Three principle themes were raised by respondents being:

- Cost
- Grid capacity and infrastructure
- Transport hierarchy

In terms of cost the main issues were those of the installation of charge points and the ongoing maintenance costs. Differences in cost dependent on location, labour requirements and infrastructure costs were also raised. Cost exemptions are proposed within the legislation. For example, for residential developments where the grid connection exceeds £2000 per dwelling developers need not provide charge points. There would still be a requirement to provide enabling infrastructure.

Respondents highlighted the increasing requirements of all net zero technologies on local electrical grid capacity. It is acknowledged that there may be some grid capacity issues in localised areas, and that these may occur across the country. The creation of cost exemptions within the legislation provides protection to builders against excessive costs to meet the requirements. However, the additional requirements of 7kW EV charge points is unlikely to put undue pressure on the power supply for the majority of new developments. In addition, the advent of the developing technology in the form of SMART charge points will reduce the pressure on the grid infrastructure. The UK Government has recently implemented legislation mandating the SMART functionality of EV charge points.

Concern was also expressed in respect to the Scottish Governments desire to reduce car usage, for example the target to reduce car kilometres by 20%, and that

² [Electric Vehicle Charge Points for New Buildings - Consultation Response | Transport Scotland](#)

the provision of EV charge points may increase demand for and growth of private vehicles. There is a requirement to achieve a balance between the use of EVs and other modes of transport. The Scottish Government is confident that EV charge point proposals will not create an issue for local planners to implement transport policies and plans to promote active travel and public transport as the principle modes of choice. The proposals will only be enacted if local Planners allow the construction of parking spaces with new buildings; there will be no requirement for developments without parking spaces to provide EV charge points. It is anticipated that despite the implementation of public transport and active travel infrastructure, services and policies a need for the use of private cars will remain. The proposals are intended to provide for these situations and to allow zero emission vehicles to be used at a greater scale.

In addition to the main public consultation, the series of webinars that were held had different themes to enable stakeholders to receive a presentation on the proposals and have the opportunity to ask any questions which they may have. The themes and dates of the webinars held were:

- 17 August – Policy Context
- 24 August – Technical Session
- 31 August – Accessibility
- 2 September – Islands

A further Technical Session on 21 September was cancelled due to technical difficulties. A sign language interpreter was in place during the Accessibility session.

These sessions allowed attendees to ask questions and clarify largely technical points on the proposals. These sessions were completed in advance of respondents completing their formal responses to the consultation. Some clarifications existed around the size of car parks that charge points had to start to be installed in and at what ratio. Further comments were raised in respect to who would be responsible for the charge points following their installation, which was confirmed to be the ultimate building owner.

The session in relation to the Islands showed that there were a number of additional considerations that applied to the Island communities and remote parts of the mainland. These centred around the difficulty in obtaining trained staff to install and maintain EV charge points, and higher costs that may arise. There was concern that alternative public charge points are not as well developed on the islands and that the islands may be left behind parts of mainland Scotland.

Other issues raised in the consultation included the provision of charge points to support older EVs of which consultees think there are a very small number left on the road. Questions relating to the charge points having to be accessible and around enforcement of the legislation were also posed and answered.

Business

While consulting on proposals a number of businesses registered to take part in the workshop sessions. These included:

- 9 construction or developer businesses, including 7 housing developers
- 4 architect or planner businesses
- 17 local authorities
- 1 national park

None of the events were aimed specifically at businesses or any particular sector, and business registrations occurred across all the events. Representatives were spread from across Scotland including the central belt, the north of mainland Scotland and the islands.

Options

Option 1 – introduce new Building Standards to ensure a minimum level of EV charging infrastructure.

This legislation originates in the European Union (EU) Energy Performance of Buildings Directive (EU directive 2018/844). The EU Directive states that cabling and trunking must be provided. However, in developing the proposed legislation for Scotland, the decision was made to exceed the EU Directive in requiring the installation of EV charge points. Options brought forward by the UK Government have also been reviewed and a decision was made to require a higher proportion of charge points for new non-domestic buildings than those options. Options have also been considered around the cost cap, before reaching a decision on the proposed levels.

Option 2 – Do nothing

Allow the space for the emerging EV industry and developers to develop a set of voluntary guidelines and regulation for the provision of EV charging infrastructure in new domestic and non-domestic buildings with parking. This would also allow Local Authorities the option to allow for developments with no EV charging infrastructure provision.

Sectors and Groups Affected

The proposed legislation will impact a number of stakeholders including Local Authorities, new home owners, EV users and organisations carrying out building and major renovation work (including third sector organisations).

Option 1 - Cost and Benefits

EV Infrastructure Market

It is not considered that there will be any impact on competition associated with the introduction of the legislation as this will apply equally to all developments and is proportional to the scale of development. Competition for the provision of EV charge points is well established and the legislation is likely to lead to the enhancement of this by requiring the installation of new charge points increasing demand in the

market. The legislation requires the implementation of charge points that are available from a range of manufacturers and may encourage additional manufacturers to enter the Scottish Market.

The market supporting EV charge points following their installation, EV drivers and EV charge point owners is developing within Scotland and services are likely to be provided by charge point manufacturers. The legislation is likely to have a similar impact on this market as for the installation of charge points. It will be the decision of the EV charge point owner whether or not to purchase support services, and some may choose not to depending on the intended use of the EV charge point.

Building Developers

The impact of the legislation on building developers will be to increase the cost of developments, though the opportunity will be there to recover that cost from the consumer through higher prices. There will be parity across all developers in the same geographic context as the legislation will apply uniformly and it will be a business decision and the market that will determine if this is acceptable. Those businesses involved in the delivery of EV charge points and the services associated with these will see a rise in the demand for their products and services. This may lead to new entrants or the emergence of new technology in the market increasing competition.

Research was undertaken into the cost of implementing charge points at different points in the lifecycle of a building and this has also taken into account numerous other factors including geographic location. The research³ is published on the Climate X-Change website. The cost of implementation of the legislation will vary depending on building type and location, along with stage that the building is at in its lifetime. An indication of the overall range of costs of installation without taking account of whether EV charge points are being implemented in new buildings or retrofitted is given in the table below:

| Geography | Residential | Non-Residential |
|------------------|--------------------|------------------------|
| Urban | £579 - £1,035 | £2,044 - £11,569 |
| Rural | £570 - £1,030 | £1,273 - £7,255 |
| Remote island | £777 - £1,307 | £1,653 - £26,584 |

The research has found that it is most likely that the installation of EV charge points in new buildings will be lower than retrofitting to existing buildings. As the technology and the market is still emerging the researchers found it difficult to quantify this difference. Costs are given per charge point. The research has also presented a series of case studies and established the costs of those case studies. An extract from these case studies is presented below illustrating the costs of implementing the charge points:

³ [EV enabled buildings: evidence review of installation costs \(climatexchange.org.uk\)](https://www.climatexchange.org.uk/evidence-review-of-installation-costs/)

| Case Study | Example Costs (Bottom Up Methodology) ⁴ | Example Costs (Top Down Methodology) ⁵ |
|--|--|---|
| New Residential Building | £1,605 | £579 - £1,035 |
| Residential Building Undergoing Major Renovation | £6,138 | £579 - £1,035 |
| New Non-Residential Building | £3,638 | £2,044 - £11,569 |
| Non-Residential Building Undergoing Major Renovation | £6,138 | £2,044 - £11,569 |
| Existing Non-Residential Building | £6,138 | £2,044 - £11,569 |
| New Residential Building (Shetland) | £1,605 | £777- £1,307 |

Consumers

Consumers are also likely to benefit from the introduction of additional charge points facilitating the ownership of EVs across Scotland. They will likely be able to benefit from the selection of a range of charge point provision, potentially helping to keep the charging process competitive, particularly in the larger urban areas, mirroring the effect present in the petrol and diesel markets at present. Consumers may see increased prices for housing if developers seek to recoup the cost of charge point installation.

Public Sector

Initial costs to the Scottish Government for the implementation of the legislation are estimated to be approximately £325,000 excluding permanent staff time. This includes the cost of preparing the legislation, consulting on it and the preparation of Technical Guidance to allow developers, building owners and Local Authorities to comply.

The proposed legislation will impact Local Authorities and other organisation accredited to undertake the enforcement of Building Standards regulations. They will be responsible, through Building Standards services for the enforcement of the legislation. This will lead to an additional burden on resources in all Local Authorities, however this is assumed to be minor as the buildings involved will be either under construction or refurbishment in any case. The additional checks required for the implementation of the legislation is likely to be relatively minor.

Other services within Local Authorities will also be involved in the process, and may also be affected. Planning Services and Road Development Management Services will be involved in the assessment of planning applications and it is likely that the locations and volume of EV charge points will have to be brought forward at the time

⁴ The bottom up approach was developed using market data for individual components of EV charge point installation

⁵ The top down approach was developed using total cost of installation data from the Energy Savings Trust

of an initial planning application. It is again considered that the additional burden will be relatively small and that there will not be a requirement to consider any building or development that would not otherwise have been considered by these services.

Similarly the impact of the EV charge points on listed buildings and protected landscapes may require that the Landscape and Heritage Services may be involved, and this may involve additional burden for these groups. However this is likely to affect very few buildings in these categories.

Local Authorities may be affected when seeking to bring forward their own new buildings with qualifying buildings. The legislation will require that Local Authorities implement new EV charge points in new buildings, adding to the cost of constructing these buildings to the public purse.

Therefore, overall, we have assessed that there will be a small, undetermined, cost for Local Authorities to oversee the implementation of the legislation on an ongoing basis. This will be undertaken by their Building Standards teams and will represent a small additional task to be completed by these teams as they undertake already mandated Building Standards checks. It is therefore considered that the cost to Local Authorities of these additional checks will be minimal.

Other Organisations

Organisations in the third sector will only be impacted if and when they are introducing new buildings with car parks that qualify for the provision of charge points, including in their own premises which may lead to higher rental charges. This will increase the cost to the third sector of those buildings along with the ongoing payment for EV charge point support services.

Some organisations will be exempted from the requirement to install EV charge points due to the cost cap or for other reasons such as having enclosed car parks. This may lead to some disparity in provision, though building owners and developers would have the choice to implement charge points if the cost cap is exceeded.

Option 2 - Costs and Benefits

The emerging EV industry and networks of charge points is complex and involves a large number of operators carrying out a range of different activities. There is at present no regulating or standard setting industry body covering all aspects of EV charging. Therefore, it is unlikely that bodies would come together voluntarily, and with ease, to quickly develop a set of guidelines by which all parties would adhere. The implementation of guidelines would cross a large number of developers across a large number of development industries, at all scales, to be involved creating a complex environment for the implementation of voluntary regulation.

In addition, this would also lead to a cost advantage to developers not adhering to the voluntary regulation, and higher costs for those wishing to install charge points at a later date post-construction.

Without legislation and enforcement of the legislation there is a strong chance that some developers in some areas may not adhere to voluntary regulation leading to a shortage of charge points in some locations or in some building types – this would

make the Scottish Government's goal of a just transition to net-zero emissions transport more difficult to achieve. Meeting Scotland's climate goals are critical (as outlined in our rationale for intervening) and by not doing anything, we would hamper Scotland's chances of removing the requirement for petrol and diesel cars by 2030 and hitting our net-zero emissions target by 2045.

Finally, given Scottish Ministers have stated that it is in Scotland's national interests to align with the EU's approach to legislation and policy, and the UK Government's recent legislation in this area, it was not deemed appropriate to do nothing in this policy area.

Scottish Firms Impact Assessment

Will it have an impact on the competitiveness of Scottish companies within the UK, or elsewhere in Europe or the rest of the world?

The impacts of the proposals will not affect the competitiveness of Scottish businesses compared to others from the rest of the UK, Europe or the world. Any business carrying out construction activities in Scotland will have to comply with the legislation irrespective of where they are based. Similar legislation is being introduced by the UK Government requiring the provision of charge points and EU countries are obliged to adhere to EU Directive 2018/244.

How many businesses and what sectors is it likely to impact on?

The principal impact will be in the construction sector, including property development companies. All businesses involved in the construction of new or renovation of old buildings are potentially going to be affected. In practice, the smallest businesses do not carry out construction work to the scale that the legislation is implemented and these businesses will be unaffected. Scottish Enterprise estimates there are approximately 21,000 construction businesses in Scotland.

There may be an impact on the provision of petrol filling stations. As the provision of EV charge points increases, this may lead to an uptake of EVs with a consequential reduction in demand for petrol and diesel. It is anticipated that the majority, and potentially all, of the petrol filling stations in the country could be affected. Those in areas of the country seeing the most extensive building rates are likely to be affected most and first.

What is the likely cost or benefit to business?

Businesses will incur the cost of providing and installing the charge points. In all cases it is expected that this cost can be passed to the customer, meaning that there will be no cost to the business itself. Demonstrating compliance with regulations is considered to be a negligible additional cost as businesses have to demonstrate compliance with Building Standards at present and the additional requirements are minor. During consultation businesses did not raise any concerns in respect to the additional costs incurred.

Businesses are likely to derive benefits from the provision of a charge point which is likely to make a building, particularly a home, more marketable and may be able to sell more competitively or for a higher price.

The legislation may also lead to an increase in business in the supply chain for EV charge points and their subsequent support following installation as the market may grow to accommodate the additional demand. This could include electricians, electricity network companies, EV charge point manufacturers, EV installers, IT companies and others.

Petrol filling stations are likely to see a loss of business and may also experience a reduction in corresponding convenience retail from a reduction in demand for petrol and diesel. However, with increased EV ownership happening already, this is a growing concern currently for those business owners and would continue even without this legislation.

Competition Assessment

From the stakeholder engagement it is considered that these proposals will not present a significant impact on small businesses in the construction sector as these businesses largely do not operate in construction activity to the scale that the legislation will be applied. No significant issues of competition, restriction or imbalance have been identified.

All businesses involved in the construction of new buildings or major renovation of existing buildings will be equally affected through the requirement to provide a vehicle charge point. There are additional costs associated with the implementation of the legislation however these can be passed onto the final customer.

Consumer Assessment

The provision of an EV charge point in car parks of buildings, particularly domestic buildings, will greatly increase the availability of EV charging. The provision of charge points in a home increase the convenience of charging a vehicle, as well as making charging more affordable for those with a charger at home (given charging at home is generally cheaper). The combination of these factors is anticipated to increase the likelihood that consumers will purchase an EV affecting the market for such vehicles. The legislation is also designed to help the market transition from its early stage to a more competitive environment, this being one from which consumers should benefit from more choice and better value.

The additional cost in EV charge point installation is relatively small in comparison to the overall cost of construction of a house and, with the presence of the cost cap, it is unlikely that there will be any impact on Scottish government housing targets or on the affordability of social housing.

There will be an increase in demand for electricity as a result of this, potentially increasing domestic electricity bills, but with the consequential impact of removing petrol or diesel bills. As a result this may lead to a decrease in the number of petrol filling stations in the country with a consequential impact on access to convenience retail for consumers, though it is possible that some petrol filling stations will convert to providing EV charging provision or retain the convenience store element. The increased demand for electricity, particularly the electrification of residential homes (increased installation of heat pumps, EV chargers etc), may require electrical infrastructure to be installed and/or upgraded than would otherwise have been

required. This will be accommodated by the developer at the time of preparing the development, and the necessary infrastructure will be provided to safeguard supply.

There will be an increased demand for EV charge points as a result of the proposal, which may have an impact on supply, price and availability. However this is an expanding industry and is likely to be able to accommodate the additional demand. From the consultation exercise the increased demand may exacerbate a shortage of trained technicians able to install the charge points, particularly in remote mainland and island communities. The additional work to install the charge points may impact other electrical work technicians carry out.

The additional accessibility and convenience of charge points may lead to an increase in demand for EVs, which may result in shortages in supply of vehicles. It is likely however that while the proposals will increase demand for EVs, uptake will occur over a period of time.

As EV uptake continues there is likely to be increased demand and expectations on home owners and occupants of buildings to have access to a charge point, thus creating a competitive market in the property development sector.

Test Run of Business Forms

At this point no new forms have been prepared.

Digital Impact Test

The EV charging market is emerging, growing and developing at present. It is likely that increasing uptake of EVs will lead to further advancement in technology and widespread use of that technology. In the near future this is likely to include the use of SMART meters. The proposals as set out would not preclude the use of charge points that benefit from new or emerging technology in the future, and would be accommodating to the use of SMART charge points. UK Government has recently enacted legislation that requires all EV charge points to be SMART charge points. Neither legislation impacts the deliverability of the other.

As the proposals are centred around the charging of vehicles there is not considered to be an online usability issue associated with this. Publicly accessible charge points often incur a financial charge for their use, and increasingly this transaction is enacted through use of mobile phone apps and contactless card payment. The proposals would not remove the ability of this to continue and embrace further advances in the future.

Legal Aid Impact Test

There are not considered to be any legal implications, or increased use of the Legal Aid budget resulting from this proposal.

Enforcement, Sanctions and Monitoring

The proposals will require the introduction of new legislation and the modification and addition to standards and supporting guidance given within the Technical Handbooks issued by the Building Standards Division of the Scottish Government that support the regulations. The Technical Handbooks list the mandatory functional

standards and give guidance on ways of complying with the mandatory functional standards.

All matters relating to enforcement, sanctions and monitoring will be carried out under the existing processes which form the building standards system in Scotland, as set out under the Building (Scotland) Act 2003. Parties responsible for the operation of this system are currently the 32 Scottish local authorities, appointed as verifiers under the Act, and the Building Standards Division, on behalf of Scottish Ministers. In addition any other organisation accredited to undertake the enforcement of Building Standards regulations will be affected.

Work subject to the Building (Scotland) Regulations 2004 generally require that a building warrant must be obtained before work commences and to have a completion certificate accepted once works are finished. Whether or not such work requires a building warrant is set out under Regulation 5 of the Regulations, the person responsible for the building or works, the 'relevant person' as defined in Section 17 of the Building (Scotland) Act 2003, is required to ensure compliance with building regulations.

Where a building warrant is required, proposals are subject to the scrutiny of verifiers prior to approval of the building warrant or acceptance of a Completion Certificate. Local Authorities have enforcement powers under the Act to ensure compliance with approvals and the Regulations. Cases on non-compliance can be referred to the Procurator Fiscal and person found guilty of offences in terms of the Act are liable on summary conviction to a fine not exceeding level 5 on the standard scale.

The objective of this exercise is to further the achievement of sustainable development by embedding in the Building Standards system the requirement that new buildings and those undergoing major renovation provide EV charge points. Building regulations are applied within a legislative framework.

The policy would be reviewed within 5 years.

Implementation and Delivery Plan

The proposed changes will be taken forward by means of a new standard and supporting guidance within the Technical Handbooks which support compliance with the Building (Scotland) Regulations 2004. The standard and the supporting guidance will be introduced as The Building (Scotland) Amendment (No.2) Regulations 2022 on 24 November 2022 using existing processes which form the building standard system in Scotland as set out by the Building (Scotland) Act 2003.

The Technical Handbooks are the primary reference source for compliance with building standards and, as such, are used by designers and others involved in the building process to ensure compliance with the Scottish Building Regulations. A new Section 7 of the Technical Handbooks will be published in advance of the implementation date to enable those affected to assess the impact of the changes.

The guidance to the standards will illustrate the most common way of meeting the requirements of the Building Standards and therefore complying with the Building (Scotland) Regulations 2004 (as amended). When carrying out work that is subject

to the building standards, it is the duty of the relevant person (normally the owner of the building) to comply with the requirements of the Regulations.

Publication in this form is the established method of introducing changes to the building standards system and ensures that information on changes reaches those involved in works that are subject to Building Standards. This information is made available free of charge as an electronic download from the Building Standards Division website.

The proposed changes to the guidance within the Technical Handbooks are relevant to any party responsible for a building who intends to carry out building work that is subject to building regulations. Proposed changes will be published online. The new standard and supporting guidance will come into effect on 3 April 2023 and be applicable to all building warrant applications made on or after that date. Further, it is intended that a programme of dissemination events for stakeholders will be held around the period of introduction.

Post Implementation Review

As part of the delivery plan a formal post-implementation review will take place within 5 years of these regulations coming into force.

Summary and Recommendation

There is new legislation requiring the inclusion of EV charge points in new buildings and those undergoing major renovation, with certain exemptions around cost of installation allowed for. All businesses involved in the construction of new buildings or major renovation of existing buildings will be equally affected through the requirement to provide EV charging infrastructure. However, in most cases it is expected that this cost will be passed to the customer, meaning that there will be no cost to the business itself, and homes in particular will be more marketable for developers to sell more competitively or at a higher price.

The legislation will impact developers and those involved in the property and real estate development markets, potentially increasing their costs slightly but with cost caps in place. The legislation will also encourage an uptake in EVs throughout Scotland growing the market for EV provision, EV infrastructure provision and associated support services, which will provide opportunities for those sector businesses and for new businesses to emerge to service those needs. There may be a detriment to those involved in the sale of petrol and diesel as demand is anticipated to reduce.

Crucially, it is clear that, and the ClimateXChange research demonstrated this, the cost of installing EV infrastructure, whether that be ducting or charge points, is more cost effective at the point of construction than retrofitting buildings at a later date. In particular, it is more cost effective for building owners, installers and, ultimately, the consumers to do so at the point of construction.

It will also ensure that we are providing an environment conducive towards the Scottish Government's aim to remove the requirement for petrol and diesel cars by 2030 and help provide the charging environment to help us achieve our aim of net-zero emissions target of 2045.

It is recommended that a new standard and supporting guidance is introduced under the Building (Scotland) Regulations 2004 (as amended) and the Technical Handbooks for domestic and non-domestic buildings. These will be prepared for publication to this effect.

Declaration and Publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed by the accountable Minister Jenny Gilruth

Jenny Gilruth, Minister for Transport

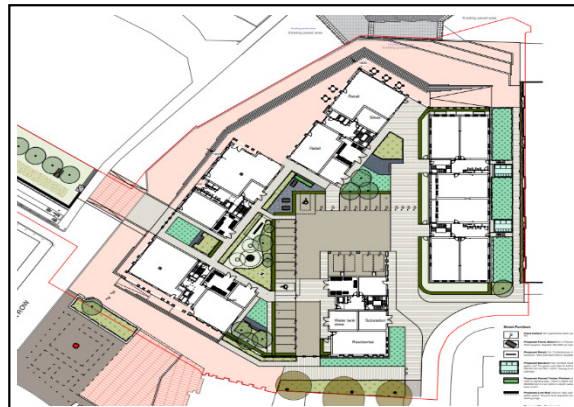
Date: 22 November 2022

CASE STUDIES

These case studies have been published in ClimateXChange's research paper, [Electric vehicle enabled buildings: evidence review of installation costs](#).

Hypothetical Case Study 1: New Residential Building

Real World Planned Development: Water Row, Govan, Glasgow



Development Details

Glasgow City Council have received a planning application for the erection of a mixed residential and commercial development (Class 1, 2, 3, 4, 7, 8, 10 and 11) with associated access, parking, open space, and public realm works.

If EV infrastructure was considered as part of the site a number of 7kw totem chargers would be installed.

| | | | | | | | |
|-----------------|----|--------------------------|----|------------------|---------|--------|-------------------|
| No of dwellings | 92 | No of Car parking spaces | 25 | Development Cost | £26.5m* | Status | At Planning Stage |
|-----------------|----|--------------------------|----|------------------|---------|--------|-------------------|

* The overall plan, approved in January 2019 was for £57m which includes 200 homes and 3500sqm of commercial space. For the purpose of this case study the Govan development is assumed to comprise half of the total development cost.

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

All dwellings with a parking space to have at least one EV charge point socket with minimum 7kW output power rating.

Exemption to requirement to install EV charge point if additional cost of electricity grid connection exceeds £2000.

If exemption applies ducting infrastructure to be installed in each car parking space.

Estimated EV Infrastructure Installation Costs

By Charger installed (7kw totem)

| Category | Average Cost |
|--------------|--------------|
| Materials | £1,330 |
| Installation | £275 |
| DNO | £0 |
| Total | £1,605 |

By Development (13-chargers)*

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £17,290 |
| Installation | £3,575 |
| DNO | £0 |
| Total | £20,865 |

By Development – Ducting only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £6,500 |
| Installation | £19,500 |
| DNO | £0 |
| Total | £26,000 |

*This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates based on the example development and are potential costs derived from the bottom-up approach of market analysis. We assume 13x 7kw totem chargers with 2 sockets each (at least 1 per parking space). Figures exclude planning, traffic management and maintenance of infrastructure. DNO costs are excluded as we assume there would be network capacity as part of the new development. Average ducting costs have been estimated but may vary based on the development size. It is assumed that all parking is residential. The total cost of the development where 13 chargers are installed would be a combination of 'By Development (13 chargers)' and 'By Development – Ducting Only'.

Would Exemption Apply: No, as there are no expected additional DNO costs to connect to the grid.

Regional Variations based on Geography if this development was built in different locations

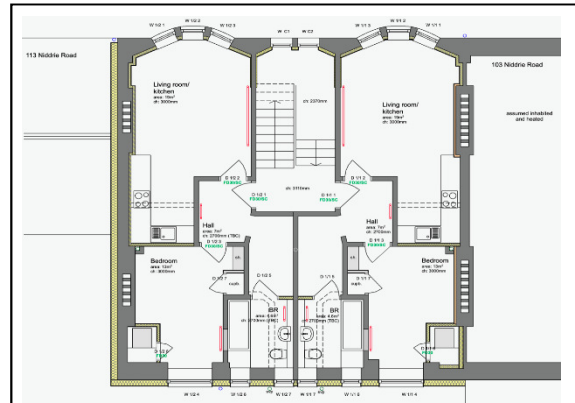
Note that this development would be classed as an urban development.

| Geography | Urban | Rural | Remote Island |
|---|---|---|---|
| Total Installation Costs by charger | £579 - £1,035 | £570 - £1,030 | £777 - £1,307 |
| Total Installation Costs by development (13-chargers) | £7,527 - £13,455 | £7,420 - £13,390 | £10,101 - £16,991 |
| Exemption? | No - no expected additional DNO costs to connect to the grid. | No - no expected additional DNO costs to connect to the grid. | No - no expected additional DNO costs to connect to the grid. |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST). Although the EST data was available for existing residential buildings, for comparison purpose, it was caveated to use for new residential buildings. EST data does not include 'Ducting only' as an option. EST data ranges are different from the data used in the 'bottom-up' approach and as such the estimated cost will not always fall within the EST data range.

Hypothetical Case Study 2: Residential Buildings Undergoing Major Renovation

Real World Planned Development: 107 Niddrie Road, Glasgow



Development Details

The Niddrie Road project received funding from the Scottish Government as part of its Climate Emergency Collaboration Challenge to renovate a tenement building. The four storey 8 flat building, owned by Southside Housing Association, was empty and in a poor state of repair. A 'hypothetical car park' with 4 parking spaces is assumed to be included within the development as part of the refurbishment.

| | | | | | | | |
|-----------------|----------|--------------------------|----------|------------------|--------------|--------|------------------|
| No of dwellings | 8 | No of Car parking spaces | 4 | Development Cost | £704k | Status | Completed |
|-----------------|----------|--------------------------|----------|------------------|--------------|--------|------------------|

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

For buildings with more than 10 car parking spaces, ducting to be installed in each residential car parking space to support the future installation of an EV charge point.

EV charge points sockets to be installed, with minimum 7kW output power rating, in as many residential car parking spaces as the electrical capacity of the building post-renovation allows. Exemption applies if the cost of installing recharging and ducting infrastructure exceed 7% of total major renovation cost.

Estimated EV Infrastructure Installation Costs

By Charger (7kw totem charger)

| Category | Average Cost |
|--------------|--------------|
| Materials | £2,888 |
| Installation | £750 |
| DNO | £2,500 |
| Total | £6,138 |

By Development – 2 Chargers*

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £5,776 |
| Installation | £1,500 |
| DNO | £5,000 |
| Total | £12,276 |

By Development – Ducting only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £1,000 |
| Installation | £3,000 |
| DNO | £1,650 |
| Total | £5,650 |

*This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates based on the example development and are potential costs derived from the bottom-up approach of market analysis. We assume 2 7kw on-street chargers (total of 4 sockets) are required based on 1 socket per parking space. Figures exclude planning, traffic management and maintenance of infrastructure. DNO costs are based on interviews with charging infrastructure companies and available public information. The figure above is the average figure and quotes from the DNO will differ to this. For ducting only a hypothetical DNO cost has been included to cover negotiations relating to where to connect the ducting to. The total cost of the development where 2 chargers are installed would be a combination of 'By Development (2 chargers)' and 'By Development – Ducting Only'.

Would Exemption Apply: No, as the cost to install recharging and ducting would not exceed 7% of the development cost

Regional Variations based on Geography if this development was built in different locations

Note that this development would be classed as an urban development.

| Geography | Urban | Rural | Remote Island |
|--|---|-----------------|-----------------|
| Total Installation Costs by charger | £579 - £1,035 | £570 - £1,030 | £777 - £1,307 |
| Total Installation Costs by development (2 chargers) | £1,158 - £2,070 | £1,140 - £2,060 | £1,554 - £2,614 |
| Exemption? | No, as the cost to install recharging and ducting would not exceed 7% of the development cost | | |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST). EST data does not include 'Ducting only' as an option.

Hypothetical Case Study 3: New Non-Residential Buildings

Real World Planned Development: Plot 3 and 4, Lammermoor Avenue, Abbotsford Business Park, Falkirk



Development Details

The proposed development is for the creation of 16 commercial units on plot 3 and 4 of the Abbotsford Business Park in Falkirk. The planned development already includes provision for 4 7kw charging totems, each with 2 sockets, cabling ducts and connections to the DNO. For the purpose of this case study, it was assumed that no EV chargers are available at the moment.

| | | | | | | | |
|------------------------|-----------|--------------------------|-----------|------------------|---------------|--------|--------------------------|
| No of commercial units | 16 | No of Car parking spaces | 63 | Development Cost | £5.2m* | Status | At Planning Stage |
|------------------------|-----------|--------------------------|-----------|------------------|---------------|--------|--------------------------|

* Based on development figures for the original business park, built in 2016 which was for 4 units (£1.3m. £325k per unit). This base figure has been adapted based on the number of planned units.

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

For buildings with more than 10 non-residential car parking spaces, 1 in every 2 non-residential parking spaces to have ducting installed and 1 in every 10 non-residential parking spaces to provide an EV charge point socket with minimum 7kW output power rating.

Estimated EV Infrastructure Installation Costs

By Charger installed

| Category | Average Cost |
|--------------|--------------|
| Materials | £2,888 |
| Installation | £750 |
| DNO | £0 |
| Total | £3,638 |

By Development - 4 chargers*

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £11,552 |
| Installation | £3,000 |
| DNO | £0 |
| Total | £14,552 |

By Development – Ducting only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £2,000 |
| Installation | £6,000 |
| DNO | £0 |
| Total | £8,000 |

*This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates based on the example development and are potential costs derived from the bottom-up approach of market analysis. Based on the Scottish Government's preferred option we assume 4 7kw charging totems, each with two sockets. The planned development already meets this requirement though additional ducting would be required based on the site diagrams to align with the preferred option. A combination of 'By development – 4 chargers' and 'By Development – Ducting only' would be required to ascertain the full cost. Figures exclude planning, traffic management and maintenance of infrastructure. DNO costs are excluded as we assume there would be network capacity as part of the new development. Average ducting costs have been estimated but may vary based on the development size. The total cost of the development where 4 chargers are installed would be a combination of 'By Development (4 chargers)' and 'By Development – Ducting Only'.

Would Exemption Apply: No, there is no criteria relating to exemption

Regional Variations based on Geography if this development was built in different locations

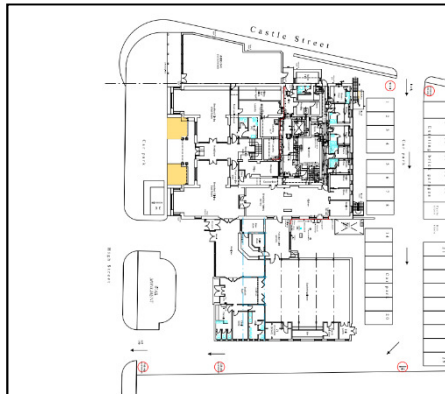
Note that this development would be classed as an urban development.

| Geography | Urban | Rural | Remote Island |
|--|--|------------------|-------------------|
| Total Installation Costs by charger | £2,044 - £11,569 | £1,273 - £7,255 | £1,653 - £26,584 |
| Total Installation Costs by development (4 chargers) | £8,176 - £46,276 | £5,092 - £29,020 | £6,612 - £106,336 |
| Exemption? | No, there is no criteria relating to exemption | | |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST). Although the EST data was available for existing non-residential buildings, for comparison purpose, it has been adapted to use for new non-residential buildings. EST data does not include 'Ducting only' as an option.

Hypothetical Case Study 4: Non-Residential Buildings Undergoing Major Renovation

Real World Development: Residential Care Home, Dingwall



Development Details

Change of use from Hotel to Residential Institution (Residential Care) with some internal renovations including the installation of a lift

| | | | | | | | |
|------------------------|---|--------------------------|-----|------------------|---------|--------|----------|
| No of commercial units | 1 | No of Car parking spaces | 45* | Development Cost | £400k** | Status | Complete |
|------------------------|---|--------------------------|-----|------------------|---------|--------|----------|

* Estimated based on available information

** Based on a high-level estimation of the development

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

For buildings with more than 10 non-residential car parking spaces, 1 in every 2 non-residential parking spaces to have ducting installed and 1 in every 10 non-residential parking spaces to provide an EV charge point socket with minimum 7kW output power rating.

Exemption applies if the cost of installing recharging and ducting infrastructure exceeds 7% of total major renovation cost.

Estimated EV Infrastructure Installation Costs

By Charger installed (7kw totem)

| Category | Average Cost |
|--------------|--------------|
| Materials | £2,888 |
| Installation | £750 |
| DNO | £2,500 |
| Total | £6,138 |

By Development - 5 Chargers*

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £14,440 |
| Installation | £3,750 |
| DNO | £12,500 |
| Total | £30,690 |

By Development – Ducting Only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £2,500 |
| Installation | £7,500 |
| DNO | £1,650 |
| Total | £11,650 |

* This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates based on the example development and are derived from the bottom-up approach of market analysis. Based on the Scottish Government's preferred option we assume 5 7kw charging totems, each with two sockets. Figures exclude planning, traffic management and maintenance of infrastructure. Average ducting costs have been estimated but may vary based on the development size. DNO costs are based on interviews with charging infrastructure companies and available public information. The figure above is the average figure and quotes from the DNO will differ to this. For ducting only, a hypothetical DNO cost has been included to cover negotiations relating to where to connect the ducting to. The total cost of the development where 5 chargers are installed would be a combination of 'By Development (5 chargers)' and 'By Development – Ducting Only'.

To align with the Scottish Government's preferred options, it is likely that the total cost would be a blend of 'By Development – 5 Chargers' and 'By Development – Ducting Only'.

Would Exemption Apply: No, as the cost of installing recharging and ducting infrastructure does not exceed 7% of the budget.

Regional Variations based on Geography if this development was built in different locations

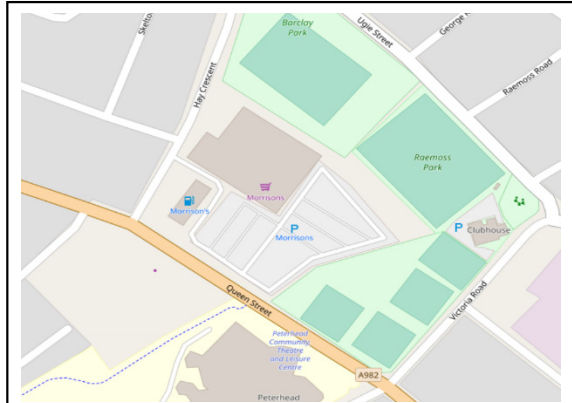
Note that this development would be classed as a urban development.

| Geography | Urban | Rural | Remote Island |
|--|--|------------------|-------------------|
| Total Installation Costs by charger | £2,044 - £11,569 | £1,273 - £7,255 | £1,653 - £26,584 |
| Total Installation Costs by development (5 chargers) | £10,220 - £57,845 | £6,365 - £36,275 | £8,265 - £132,920 |
| Exemption? | No, as the cost of installing recharging and ducting infrastructure does not exceed 7% of the budget | | |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST). EST data does not include 'Ducting only' as an option.

Hypothetical Case Study 5: Existing Non-Residential Buildings

Real World Development: Morrisons, Peterhead



Development Details

Supermarket site with no current EV charging infrastructure.

| | | | | | | | |
|------------------------|---|--------------------------|-----|------------------|-----|--------|-------------|
| No of commercial units | 1 | No of Car parking spaces | 380 | Development Cost | N/A | Status | Active site |
|------------------------|---|--------------------------|-----|------------------|-----|--------|-------------|

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

By 1 January 2025, for buildings with more than 20 non-residential car parking spaces, 1 in every 2 non-residential parking space to have ducting installed and 1 in every 10 non-residential parking space to provide an EV charge point socket with minimum 7kW output power rating.

Estimated EV Infrastructure Installation Costs

By Charger installed

| Category | Average Cost |
|--------------|--------------|
| Materials | £2,888 |
| Installation | £750 |
| DNO | £2,500 |
| Total | £6,138 |

By Development - 38 Chargers*

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £109,744 |
| Installation | £28,500 |
| DNO | £95,000 |
| Total | £233,244 |

By Development – Ducting Only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £19,000 |
| Installation | £57,000 |
| DNO | £1,650 |
| Total | £77,650 |

* This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates and are potential costs derived from the bottom-up approach of market analysis. Based on the Scottish Government's preferred option we assume 38 7kw charging totems, each with one socket. Figures exclude planning, traffic management and maintenance of infrastructure. DNO costs by development are based on guidance from SP Energy Networks. Developments with connections greater than 1 MVA can cost over £100k but we have simplified the cost based on a per charger cost. This development would require a maximum power capacity of 2.66 MVA so it is likely the quoted DNO cost will be higher. DNO costs are based on interviews with charging infrastructure companies and available public information, DNO costs for this stay the same as this is to cover determining where the ducting connects to. To align with the Scottish Government's preferred options it is likely that the total cost would be a combination of 'By Development – 38 Chargers' and 'By Development – Ducting Only'.

Would Exemption Apply: No, as no exemptions have been stated for this building type.

Regional Variations based on Geography if this development was built in different locations

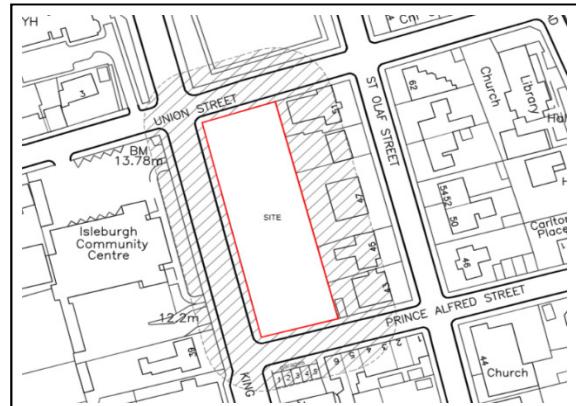
Note that this development would be classed as an urban development.

| Geography | Urban | Rural | Remote Island |
|---|---|--------------------|----------------------|
| Total Installation Costs by charger | £2,044 - £11,569 | £1,273 - £7,255 | £1,653 - £26,584 |
| Total Installation Costs by development (38 chargers) | £77,672 - £439,622 | £48,374 - £275,690 | £62,814 - £1,010,192 |
| Exemption? | NO, as no exemptions have been stated for this building type. | | |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST).

Hypothetical Case Study 6: New Residential Building

Real World Development: King Harald Street, Lerwick



Development Details

Existing buildings demolished and replaced with three new two-three storey buildings containing in 27 one-bedroom flats. Note that the original plans did not include car parking so this hypothetical case study assumes each flat would have an associated car park and that this would be included in the development cost below.

| | | | | | | | |
|-----------------|----|--------------------------|----|------------------|--------|--------|----------------|
| No of dwellings | 27 | No of Car parking spaces | 27 | Development Cost | £5.6m* | Status | Completed site |
|-----------------|----|--------------------------|----|------------------|--------|--------|----------------|

According to Hjatland Housing Association the total investment for this development and another development of 24 dwellings in Tingwall was £10.4million. An average per dwelling cost was developed across both developments and then multiplied by the number of dwellings at this site (£204k x 27).

Where possible, we have spoken to the local authority regarding this case study, though these are purely hypothetical and should not be used as actual proposed plans.

Scottish Government preferred options

All dwellings with a parking space to have at least one EV charge point socket with minimum 7kW output power rating.

Exemption to requirement to install EV charge point if additional cost of electricity grid connection exceeds £2000.

If exemption applies ducting infrastructure to be installed in each car parking space.

Estimated EV Infrastructure Installation Costs

By Charger installed (7kw totem)

| Category | Average Cost |
|--------------|--------------|
| Materials | £1,330 |
| Installation | £275 |
| DNO | £0 |
| Total | £1,605 |

By Development (14 chargers)

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £18,620 |
| Installation | £3,850 |
| DNO | £0 |
| Total | £22,470 |

By Development – Ducting only

| Category | Estimated Cost |
|--------------|----------------|
| Materials | £7,000 |
| Installation | £21,000 |
| DNO | N/A |
| Total | £28,000 |

* This is to install the chargers in situ only and does not include ducting.

All Figures above are estimates based on the example development and are potential costs derived from the bottom-up approach of market analysis. We assume 14x 7kw totem chargers with 2 sockets each (at least 1 per parking space). Figures exclude planning, traffic management and maintenance of infrastructure. DNO costs are excluded as we assume there would be network capacity as part of the new development. Average ducting costs have been estimated but may vary based on the development size. Ducting only costs can be higher than installing the charge points if the location of the charge points is unknown and it is necessary to future proof the site. The actual cost will be a blend of 'by development (14 chargers)' and 'by development – ducting only'.

Would Exemption Apply: No. While there might be a £2,000 cost exemption, it is not triggered in this case.

Regional Variations based on Geography if this development was built in different locations

Note that this development would be classed as a remote island development.

| Geography | Urban | Rural | Remote Island |
|---|---|---|---|
| Total Installation Costs by charger | £579 - £1,035 | £570 - £1,030 | £777 - £1,307 |
| Total Installation Costs by development (14 - chargers) | £8,106 – £14,490 | £7,980 - £14,420 | £10,878 - £18,298 |
| Exemption? | No - no expected additional DNO costs to connect to the grid. | No - no expected additional DNO costs to connect to the grid. | No - no expected additional DNO costs to connect to the grid. |

The regional variation figures above are derived from a top-down approach of data processing provided by the Energy Savings Trust (EST). Although the EST data was available for existing residential buildings, for comparison purpose, it was caveated to use for new residential buildings. EST data does not include 'Ducting only' as an option. EST data ranges are different from the data used in the 'bottom-up' approach and as such the estimated cost will not always fall within the EST data range.

