

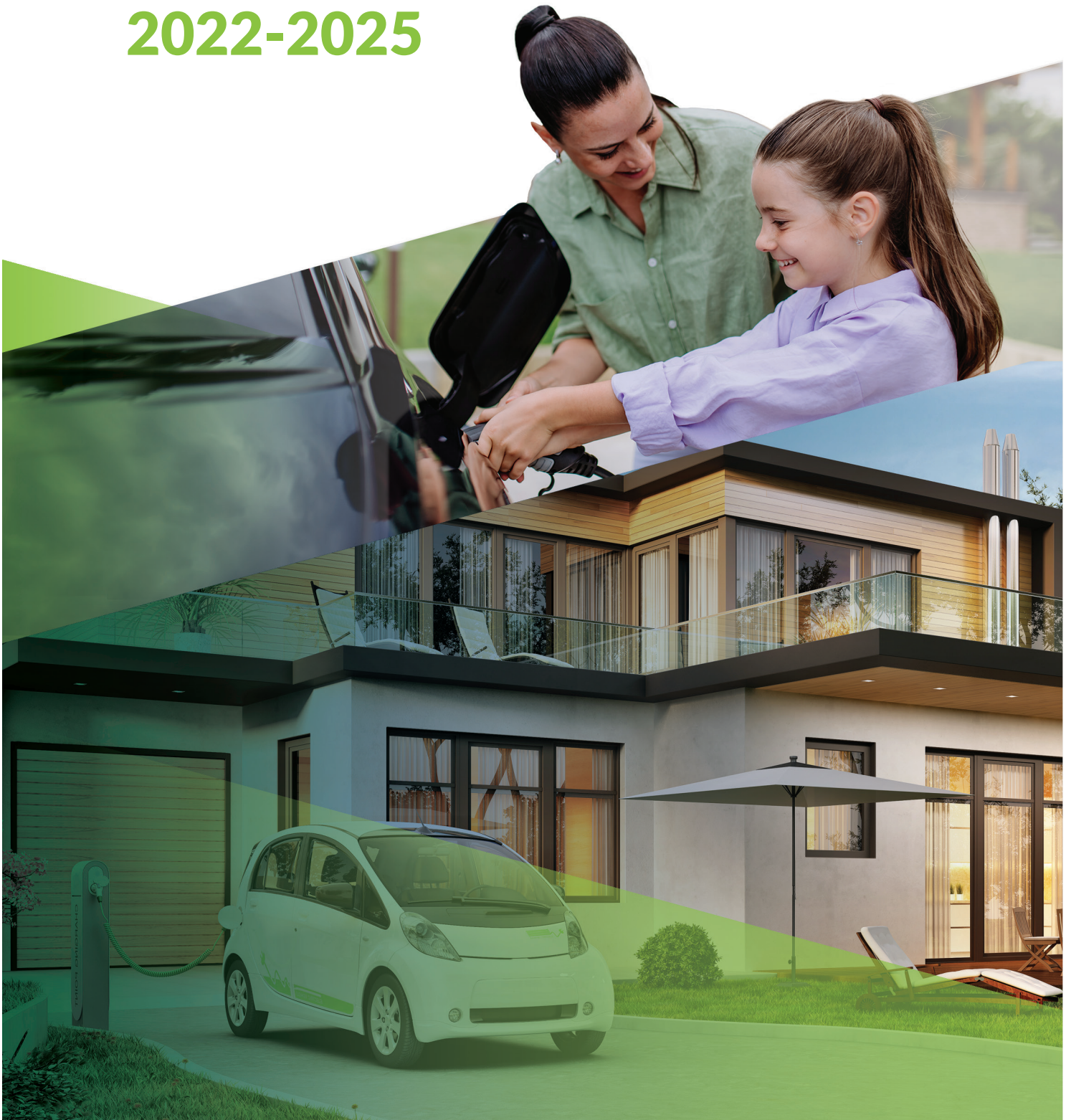


An Roinn Iompair
Department of Transport

zevi

Zero Emission
Vehicles Ireland

Electric Vehicle Charging Infrastructure Strategy: Executive Summary 2022-2025



Executive Summary

Ireland is firmly committed to meeting its climate goals. A key part of this process is the decarbonisation of transport, by means of a large-scale transition to electric vehicles (EVs).

However, for such a change to happen, sufficient EV charging infrastructure needs to be in place. The national delivery of EV charging infrastructure needs to do much more than simply meet existing demand. It must anticipate future requirements and stay ahead of them. It is vital that appropriate EV chargepoints are available to all, in every part of the country. This will reassure car users of the feasibility of switching to EVs, enabling us to meet our national carbon reduction targets.

Central and local governments all over the world have begun to deliver EV charging infrastructure. It requires significant transformation at a Government and stakeholder level, as well as building skills and resources in a number of sectors with the ambition to increase the charging capacity across the country. The establishment of the Zero Emissions Vehicles Ireland office (ZEVI), in 2022 was the first step in delivering that transformation. ZEVI will work with all sectors across the industry to support them in delivering this transformation.

The *Electric Vehicle Charging Infrastructure Strategy 2022-2025* sets out the ambition and strategy for the delivery of a national EV charging network, and the practical steps that will be taken to deliver this network across the country.

Serving EV Users - Personas and User Journeys

In the wider context of transport decarbonisation, other alternatives such as walking, cycling and, public transport should always be considered before taking the option to drive. However, when driving is necessary, all EV charging infrastructure has the end purpose of serving EV users. These users face a wide range of needs and concerns, all of which must be considered when delivering such infrastructure around the country. Some drivers use their cars for work, others for leisure. Some use them to link with public transport, for long commutes, or for short trips around their local town.

The strategy focuses on 7 key user groups, each with its own unique travel and charging requirements. It does so by following an individual's journey from the planning stages to their return home, and giving insight into practical infrastructure adjustments that could make their experience easier.



The personas (and their journeys) presented include:

Caroline, the Car Sharer

When Caroline rents an EV from a car-sharing app at weekends, she wants to make sure the car has a full charge or that there are fast-charging facilities along the way or at her destination.



Tara, the Taxi Driver

When Tara is working as a taxi driver in West Cork, she wants to be sure she always has a full charge. She doesn't want to have to turn down potential fares because her car doesn't have enough range.



Ruairí, the Rural Commuter

When Ruairí commutes to work, he wants to feel confident that he will have enough charge to comfortably drive the long distance there and back. He also wants to be able to bring his daughter to camogie training when he gets home.



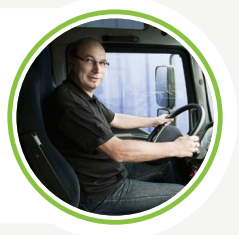
Anna, the Apartment Dweller

When Anna wants to charge her car in her apartment block, she wants to have access to an available charger (or know when they will be readily available). She doesn't want to have to worry about charger hogging or queueing endlessly for an available charger.



Mike, the HGV Driver

When Mike is driving across the country in his HGV, he needs to be able to top up his battery en-route. This needs to be in a safe location so that he can rest while his HGV charges.



Rachel, the Retired Urban Dweller

When Rachel is charging her car on the go, she wants to be able to check in advance that the charger will be accessible to her. Rachel has limited mobility, so she wants to know that her chosen charger will be suitable for her needs.



The Jacksons, a Tourist Family

When the Jackson family travel in Ireland, they want to have a seamless EV experience. They want to be able to rent an EV and have charging facilities available at each of their destinations (including the remote ones). They don't want to worry about being stranded or lost on their holiday in Ireland.



The use of personas will guide the design and development of future schemes and charging network rollout. These are just some persona examples; many other groups and needs will be considered during the implementation phases of the strategy. This will help to ensure widespread ease of access to EV charging infrastructure, as well as ease of use.

Policy Context

The strategy is influenced by a range of national and international policies and actions. These include:

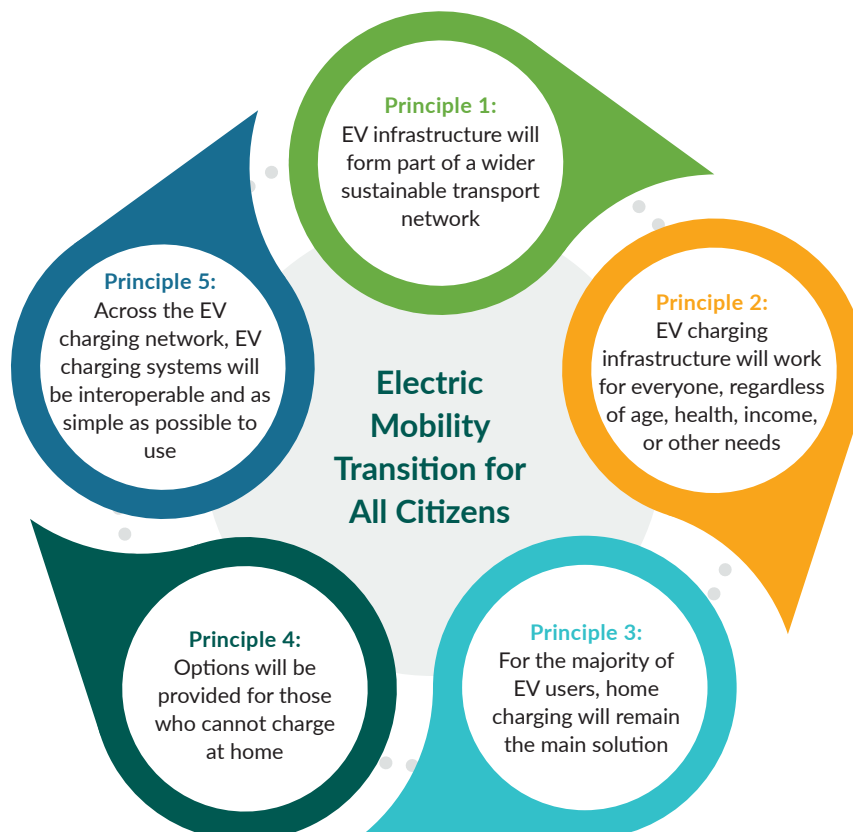
- **Climate Action Plan:** Maps out the actions the country will take to achieve a 51% reduction in overall greenhouse gas emissions by 2030
- **EU 'Fit for 55':** Aims to reduce net EU greenhouse gas emissions by at least 55% by 2030
- **Alternative Fuels Infrastructure Regulation (AFIR):** Lays down common criteria for the scale of charge point rollout as well as technical specifications and requirements (at an EU level) that will ensure a user-

friendly charging experience

- **Renewable Energy Directive:** Provides the legal framework for the development of renewable energy across all sectors of the EU economy
- **National Development Plan:** Includes the target of nearly one million electric vehicles on the road by 2030, with additional charging infrastructure to cater for growth
- **National Sustainable Mobility Policy:** Sets out a strategic framework to 2030 for active travel and public transport (supporting the carbon emissions reduction targets laid out in the Climate Action Plan)
- **Public Sector Leadership:** Aims to lead by example in meeting electric vehicle targets
- **Shared Island Initiative:** Develops plans for alignment of charging infrastructure on both sides of the border

Fundamental Principles

This strategy is underpinned by a set of key principles that will deliver an accessible and user-friendly charging network, aligned with wider government policies and goals.



Electricity Network Demand

A surge in the use of electric vehicles will naturally have repercussions for the country's electricity network. It is critical that EV charging is done in a smart way in order to manage the demand on the electricity network.

Given the high number of homes in Ireland with private parking facilities, as well as the increasing travel range of new EV models, it is envisaged that home charging will continue to be the most common method of charging in Ireland. It is currently supported by a grant scheme.

To keep up with the level of EV growth expected in Ireland, the number of public charge points (currently approx. 1,700) and the charging power available for EV charging will grow significantly by 2025. For example, it is estimated that the number of high-powered charge points will increase up to threefold by that year.

A range of studies, plans, and programmes has been initiated by ESB Networks to help address the extra load on the local (low and medium voltage) electricity grid. Smart technology will have a key role to play in meeting energy requirements.

Collaboration between the Department of Transport, the Zero Emissions Vehicles Ireland office (ZEVI), ESB Networks (ESBN), EirGrid, the Commission for Regulation of Utilities (CRU), National Transport Authority (NTA), Sustainable Energy Authority of Ireland (SEAI), Transport Infrastructure Ireland (TII), energy suppliers, and charge-point and forecourt operators will be crucial to supporting this energy demand.

Existing and Future Technologies

Careful consideration and planning need to go into the types and locations of charge points across the country.

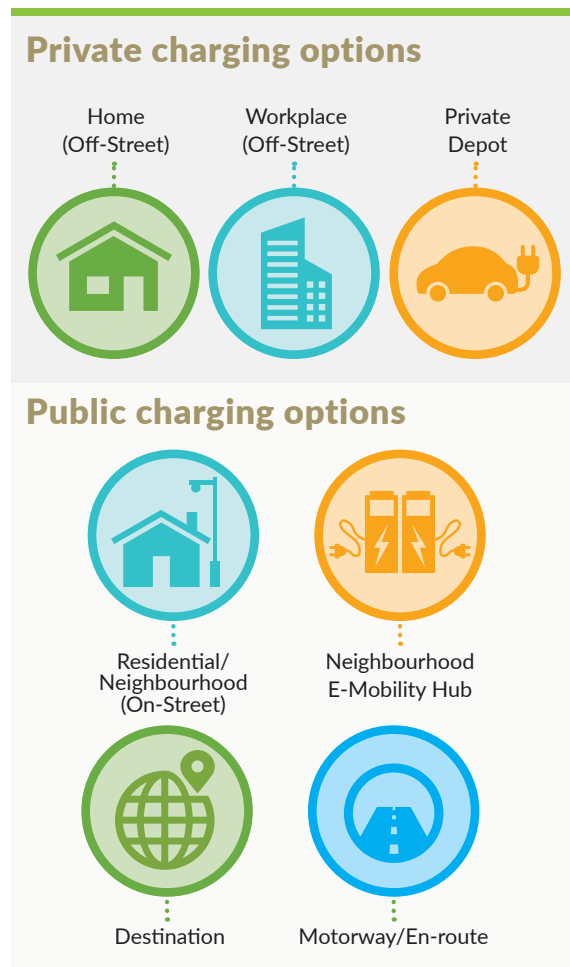
The strategy includes a range of case studies from around Europe. Each one explores how innovative technology has helped address citizens' charging needs in an appropriate and localised manner. Keeping abreast of developing technologies and how they apply in an Irish

context will be an ongoing task. The rollout and delivery of the strategy will be informed by the piloting of different technologies and charging options in Ireland.

Delivering Infrastructure

Currently, the majority of EV charging (c.80%) is done at home, and access to and installation of home-charging infrastructure is relatively well established in Ireland. A more significant gap exists in relation to the provision of publicly-accessible charging infrastructure. The demand for this will grow as EV uptake increases in Ireland.

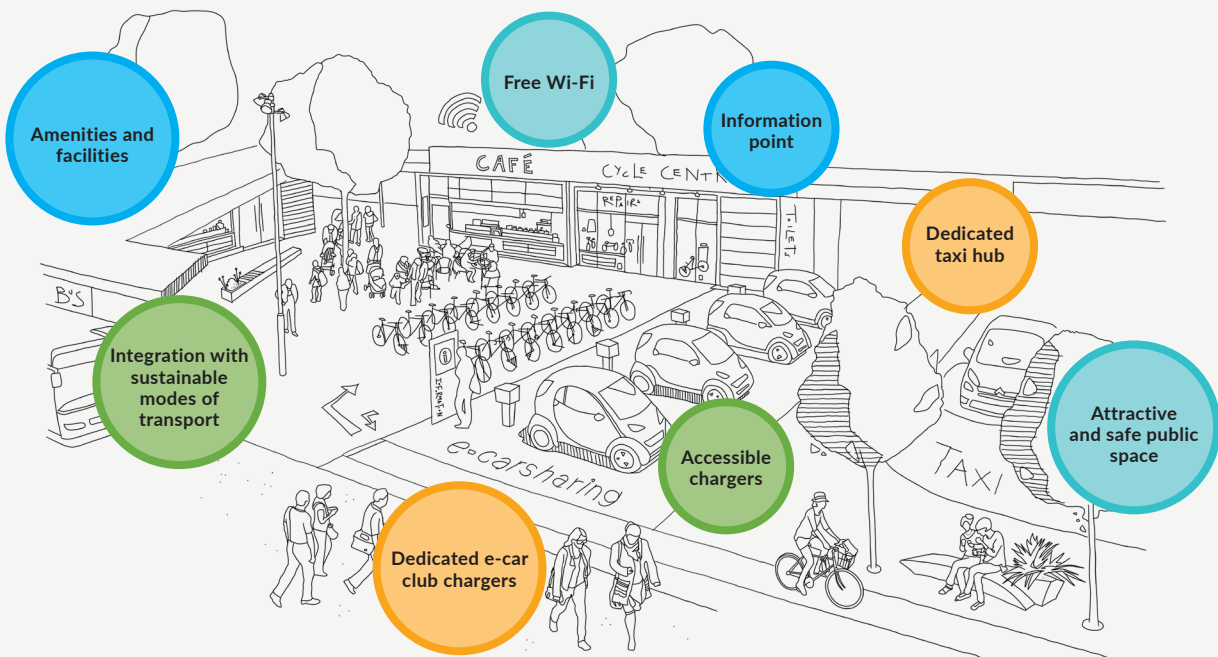
The strategy focuses on the provision of publicly-accessible charging infrastructure for electric cars and light-duty vehicles. It also addresses the needs of heavy-duty vehicles as required by EU regulations. Each serves a different user need and depends on where and when people need to charge their EVs.



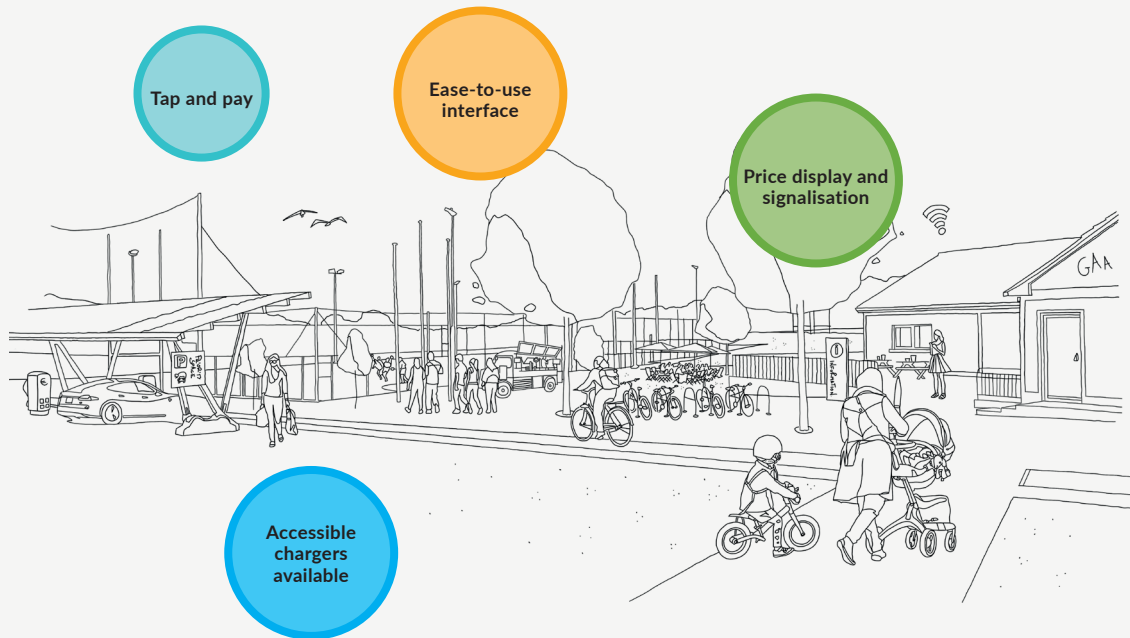
Home/apartment charging - AC charging, off-peak charging to be encouraged



Residential neighbourhood charging - AC charging, replicating off-peak charging options for people without access to a home charge point



Destination charging - AC or DC, depending on the type of destination



Motorway/en-route charging - DC high-powered charging at highest charge-power capacities



The Strategy's Ambition

The ambition of this strategy is to deliver the infrastructure to meet and be ahead of Ireland's charging needs. Included in this ambition is to ensure alignment with the EU's Alternative Fuels Infrastructure Regulation (AFIR). The EU's AFIR will set binding criteria regarding the minimum level of charging power available in each member state.

Assuming Ireland will meet its CAP target of 195,000 light-duty EVs by 2025,

approximately 169,000 kW of charging power will be required across the country by the end of 2025.

To achieve this and more will be the ambition set by the strategy. The types and numbers of charge points used to deliver this power will be based on user needs. The number of charge points could increase from approximately 1,700 in September 2022 to somewhere between 2,540 and 4,850 by 2025. The following table shows a range of scenarios for how this demand may be met:

	Residential/ Neighbourhood 0-22 kW	Destination/ En-Route 23 kW-350 kW	Total Number of Publicly- Accessible Chargers Nationwide	Total Charging Power Nationwide
Existing	1,349	374	1,723	67,237 kW
Scenario 1	1,460	1,080	2,540	169,000 kW
Scenario 2	1,650	1,300	2,950	169,000 kW
Scenario 3	1,990	1,320	3,310	169,000 kW
Scenario 4	2,660	1,180	3,840	169,000 kW
Scenario 5	4,070	780	4,850	169,000 kW



To encourage widespread use of EVs and charging infrastructure, charge points must be easily accessible to all. Ease of use will also be key, with features such as tap and pay becoming standard in the near future. In addition, the interoperability of charging equipment will provide a seamless approach to EV charging across the island.

Strategy Delivery and Implementation

Since the draft version of the *Electric Vehicle Charging Infrastructure Strategy 2022-2025* was published, many initial actions have been delivered. To ensure momentum continues, an implementation plan has been developed to accompany the strategy and provide detail about the delivery pathway. Specific objectives and timelines are named, as well as key responsible owners for each task. Although the strategy sets out long-term structures and frameworks to meet the needs of citizens up to 2030, the initial implementation plan focuses on finer details in the years up to 2025. The plan will be reviewed annually.

Implementation Plan Actions 2023-2025

Implementation Plan actions to drive delivery and to stimulate EV infrastructure availability will fall under four broad areas:

- 1. National EV Charging Network Plan:** Aimed at producing a national EV charging infrastructure demand plan and related demand-supply assessment according to the electricity grid's readiness to meet the projected demand between 2023 and 2025.
- 2. Schemes:** Provides details on future milestones related to the progress of schemes planned to provide increased EV charging infrastructure.
- 3. Policy & Strategy:** Includes deliverables and related milestones for delivering

the necessary policies in support of the expansion of EV charging infrastructure. It also deals with policies related to electric vehicles and EV transition.

- 4. Reporting and Communications:** Includes deliverables and actions that support the reporting and communications that need to be made to the public, as well as to the European Union under AFIR regulations.

It is important to note that the main delivery focus will be on the provision of public charging infrastructure for electric cars and light-duty vehicles. Charging infrastructure for heavy-duty vehicles will be delivered as the technology for this sector matures and in alignment with EU requirements.

Partnerships and Collaboration

Partnerships and collaboration between public and private stakeholders, academics, and energy suppliers and regulators will be key to the implementation of the strategy.

To this end, a selection of key structures and groups has been established. These will bring together appropriate representatives to focus on specific challenges and tasks.

The Government recently established the Zero Emission Vehicles Ireland office (ZEVl) to support the development and rollout of publicly-accessible charging infrastructure. As part of their work, ZEVl will co-ordinate and convene the other collaborations.

Challenges and Risks to Strategy Implementation

Given the high level of ambition, the implementation of the strategy will be challenging. Expertise and resources will need to be provided at both national and local levels of Government to ensure the strategy's successful delivery and rollout.

Alongside these challenges, the strategy faces a range of potential risks to its implementation. Those currently identified include:

- Lack of available grid capacity
- Lack of available sites suitable for charge points
- Lack of available resources in ZEV and stakeholders
- Lack of adequate public and private funding

However, every effort is being made to mitigate these risks and to prepare for any problems that may arise. The National EV Charging Network Plan, stakeholder working groups, funding, and investment in grid capacity are all being explored as ways of ensuring that the strategy's aims are delivered as smoothly as possible.

Aiming For The Future

Successful delivery of the strategy will ultimately give individuals the confidence to make the switch to an electric vehicle. It will provide them with the infrastructure they need to make EVs a natural part of their lives, wherever they live in the country. This infrastructure will be easily-accessible and easy to use, taking into account the wide variety of user needs.

Of course, challenges and risks are inherent in an ambitious process such as this and we must be prepared for that reality. Nonetheless, each individual milestone will bring us one step closer to Ireland's EV targets and ideals. In turn, this will help us to keep moving steadily towards our climate goals, one of the most pressing concerns of today's society.



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